(2)

CONTRACT NO.: DAMD17-88-Z-8023

TITLE: EFFECT OF FOOD, DIET AND NUTRITION ON MILITARY READINESS AND PREPAREDNESS OF ARMY PERSONNEL AND DEPENDENTS IN A PEACETIME ENVIRONMENT

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REPORT DATE: August 15, 1991

TYPE OF REPORT: Annual Report

PREPARED FOR: U.S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND
FORT DETRICK
FREDERICK, MARYLAND 21702-5012

Attachment 3

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION: Unclassified	1b RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION / AVAILABILITY OF REPORT: Approved for public release; distribution unlimited
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION: Pennington Biomedical Research Center; 6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS (City, State, and ZIP Code): 6400 Perkins Road, Baton Rouge, LA 70808-4124	7b. ADDRESS (City, State, and ZIP Code)
8a. NAME OF FUNDING / SPONSORING ORGANIZATION: U.S. Army Medical Research & Development Command; 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER: DAMD17-88-2-8023
8c. ADDRESS (City, State, and ZIP Code)	10 SOURCE OF FUNDING NUMBERS

PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO
63002A	3M2-63002D819	AI	150

11. TITLE (Include Security Classification)
Effect of Food, Diet and nutrition on Military Readiness and Preparedness of Army Personnel and Dependents in a Peacetime Environment

12. PERSONAL AUTHOR(S)
Donna H. Ryan, M.D.

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Annual	FROM 7/28/90 TO 7/28/91	August 15, 1991	

16. SUPPLEMENTARY NOTATION

17 COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	RA 3, Nutrition, Health Promotion, Military Readiness, Nutritional status
06	01		
06	05		

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

Five projects underway at the Pennington Biomedical Research Center (PBRC) are reported herein. A clinical research laboratory is operational and supports U.S. Army Research Institute of Environmental Medicine (USARIEM) field research in sites ranging from Alaska to Bolivia. A stable isotope laboratory supports USARIEM research by determining energy expenditure in the field. The Fort Polk Heart Smart Project has completed an assessment of nutritional and exercise habits of military wives, a project that evaluates screening for cardiovascular risk factors and a project that assesses a health promotion model in military families. The Diet, Neurotransmitters and Behavior research team is conducting basic research in the effect of diet on behavior through biochemical, physiologic, and behavioral assessment studies. New studies assessing sleep deprivation and approaches to modifying this stress through dietary manipulation are being initiated. The Menu Modification Project has analyzed and altered two sets of Army menus.

20 DISTRIBUTION / AVAILABILITY OF ABSTRACT	21 ABSTRACT SECURITY CLASSIFICATION
☐ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT ☐ DTIC USERS	unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL: Mary Frances Bostian	22b TELEPHONE (Include Area Code): 302-663-7325; 22c OFFICE SYMBOL: SGRD-RMi-S

DD Form 1473, JUN 86 Previous editions are obsolete SECURITY CLASSIFICATION OF THIS PAGE

Attachment 4

FOREWORD

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For the protection of human subjects, the investigator(s) have adhered to policies of applicable Federal Law 45CFR46.

In conducting research utilizing recombinant DNA technology, the investigator(s) adhered to current guidelines promulgated by the National Institutes of Health.

PI Signature: _____ Date: 8/14/92

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ANNUAL REPORT
US ARMY GRANT
July 27, 1990 - July 28, 1991

Introduction

In July, 1988, Grant #DAMD17-88-G-8023 was awarded to Pennington Biomedical Research Center (PBRC) for $3,500,000 for a three-year period to fulfill the following research objectives:

1) "Establish a Nutritional Health Promotion Research Development Test and Evaluation (RDTE) Center for military personnel and dependents in a peacetime environment to accomplish the following:

   a. Assess the nutritional adequacy of the diet of military personnel to promote health and military readiness;

   b. evaluate and develop military dietary programs for dining facilities, commissaries and other food service facilities operated by the military;

   c. monitor the nutritional status of military personnel and their family members; and

   d. develop and evaluate military nutrition, education, and health promotion programs.

2) Provide nutrition laboratory research support to the army's military nutrition research program at USARIEM to accomplish the following:

   a. provide biochemical assessment of nutrition status;

   b. perform food biochemistry analysis; and

   c. establish and perform stable isotope methodologies for nutritional assesssment."

Five projects whose scientific design has been approved by the United States Army are listed below.

1) Clinical Research Laboratory, Richard Tulley, Ph.D., Laboratory Manager,

2) Stable Isotope Laboratory, James DeLany, Ph.D., Laboratory Manager,

3) Diet, Neurotransmitters and Behavior, Chandan Prasad, Ph.D., Principal Investigator,

4) Cardiovascular Health Promotion for Military Personnel and their Dependents-the Fort Polk Heart Smart Project-Principal Investigators, Gerald S. Berenson, M.D., and David Harsha, Ph.D.,

5) US Army Menu Modification Project, Nena Cross, Ph.D., Principal Investigator.

Discussions of individual projects funded under this grant follow.

I. Clinical Research Laboratory

Introduction

The Clinical Research Laboratory's purpose is to provide laboratory support for the military research program at USARIEM for biochemical and nutritional assessment and food analysis. We have met these objectives and are constantly developing new methods to continue to provide this service. This past year we have performed analyses for several projects at USARIEM and have developed a several tests to that end.

General Progress

1. Progress on Equipment

a. Catecholamine Analyzer

A Bio Rad catecholamine analyzer with an electrochemical detector was received and installed this year. Initial evaluation of the system has been ongoing.

b. Microwave Digester

A CEM microwave digestion system was received and will be installed soon. This system will be used for the digestion of samples for ICP and graphite furnace atomic absorption analysis.

c. Acid Digestion System

A large scale acid digestion system from Labconco was received, installed, and used during this past year for the digestion of feces and food for nitrogen and mineral studies.

d. A lab rotator for use in immunoassays was received this year.

e. Bid for HPLC System

A bid for a second general HPLC system with diode array detector, autosampler, fluorescence detector, and evaluation software was awarded to Hewlett Packard. Delivery should be in four to six weeks.

2. Progress on the Development of Methods

a. Minerals

Methods which were developed this past year include sodium, potassium, calcium, magnesium, and phosphorus in urine, feces, food, water, and sweat. These were developed on the Perkin Elmer P1000 Inductively Coupled Plasma Emission Spectrometer.

A mixture of sulfuric acid, hydrogen peroxide, and cupric sulfate is used to digest samples for the analysis of nitrogen. We tried to use this mixture also for mineral analysis in order to reduce the number of digestions. It was found that the digestion matrix interfered with the method, resulting in low recoveries. To correct for this, standards were also made in this matrix. Results for linearity, recovery, and reproducibility were determined. Recovery and precision are given in Table 1. Linearity of the methods are shown in the appendix.

Table 1. Recovery and Precision for ICP Minerals

Mineral	% Recovery	CV (%)
Sodium	101.6%	4.5% @ 15.2 ug/ml
Potassium	104.6%	3.3% @ 9.2 ug/ml
Magnesium	111.4%	6.9% @ 4.3 ug/ml
Calcium	105.1%	4.4% @ 12.2 ug/ml
Phosphorus	95.9%	4.8% @ 15.4 ug/ml

Minerals in food samples were compared using digestion with nitric acid/hydrogen peroxide versus sulfuric acid/hydrogen peroxide/cupric acid. Results were comparable between the two methods indicating that the use of sulfuric acid/hydrogen peroxide/cupric sulfate is acceptable as long as the standards are prepared in the same matrix.

b. HDL

HDL methods were also evaluated. As a result of correspondence from Major Friedl (see appendix), we are

working on a dextran sulfate (MW 50,000) method. Correlations between the isoelectric point phosphotungstic acid method of DMA, the phosphotungstic acid method of Beckman, and the 50,000 molecular weight dextran sulfate method were performed. These data are shown in the appendix.

c. Vitamin C

We have automated a method for vitamin C based on the method of Liu, et al (1). This method is based on the reduction of iron/TPTZ [2,4,6-tris(2-pyridyl)-s-triazine] by ascorbic acid. The resulting product is measured at 593 nm (600 nm in our procedure). The method is made specific for ascorbic acid by blanking each sample after oxidizing the ascorbic acid with ascorbate oxidase. This blanking eliminates interference by other reducing materials in the sample. The method correlates very well with the dinitrophenyl hydrazine method. Our adaptation for the Beckman CX5 uses a total of 400 ul of sample, 200 ul for the total reducing materials and 200 ul for the blank. The two are run in separate tubes and the vitamin C concentration is obtained by subtracting the blank run from the total. The method is linear to 100 mg/L (see appendix). The major problem we have had to deal with is the fact that when reacting pure standards of ascorbic acid with ascorbate oxidase we obtain measurable ascorbic acid (6-8 mg/L for a 100 mg/L standard). This should be zero. It has been concluded that the problem is related to either:

1) incomplete conversion of ascorbic acid by the ascorbate oxidase, or
2) the presence of a non ascorbic acid component in the standard which also reduces the reagent.

Results which discourage the theory that the problem has to do with the enzyme include the following: the blank is not reduced by either 1) longer incubation times with the enzyme, or 2) using ten times the concentration of ascorbate oxidase.

We believe the problem may be related to the second hypothesis (non-pure standard), however, the manufacturer (Sigma) claims the ascorbic acid has at least 99% purity. Perhaps in agreement with this is the fact that we also used ascorbic acid from Bio Rad with the same results. We have ordered new ascorbic acid and ascorbate oxidase from different companies. These will be tested when received.

d. Vitamin A

We have begun developing a method of analysis for

vitamin A by reverse phase HPLC. The conditions thus far have consisted of 100% methanol through a C18 column. We have successfully separated retinol and retinyl acetate as of this time. Other metabolites have not been checked. When this occurs we will fine tune the procedure.

e. Amino Acids

Work on the amino acid separation by HPLC was continued this year. A very good separation was achieved, however, co-elution of GABA and arginine has caused problems. Several separations have been achieved. However, failure to reproduce the separation between runs has caused problems. An example of a chromatogram is shown in the appendix.

f. Glycerol and Free Fatty Acids

Correlation studies for the methods we developed for glycerol and free fatty acids were performed (see appendix). Good correlation with manual methods was achieved.

g. Nitrogen Analysis

The nitrogen analyzer was put into routine use this year. Linearity and accuracy as measured by recovery studies were evaluated (see appendix). Excellent results were achieved. The precision as measured by the coefficient of variation is 4.84% at 421 mmol/L and 8.04% at 876 mmol/L.

h. PABA

An automated method was developed for the analysis of para amino benzoic acid on the Beckman CX5 for the evaluation of food intake. Analytical recovery averaged 104% with a precision of 4% CV. Linearity was excellent.

i. Other Methods

Other methods developed include alcohol on the CX5, caffeine by HPLC, and platinum by graphite furnace atomic absorption. Also correlated were automated differentials and manual differentials. Radioimmunoassays developed include cortisol, prolactin, and growth hormone.

3. Progress on Quality Control

Procedure manuals for chemistry, urinalysis, quality control, and policies have been written and these policies and protocols put into practice. These are available for review at the Pennington center. Quality control practices include routine monitoring of refrigerator and freezer temperatures, water quality, and reagent receipt and

acceptability. Biannual checks of the linearity of each method, precision and accuracy of pipets, centrifuge speed and temperatures have been instituted.

Routine quality control has been ongoing in the chemistry, hematology, immunoassay, and urinalysis sections. The chemistry and hematology internal QC results are compared monthly with other users of the same lot numbers across the country. We have generally rated very well on these reports. Examples of monthly reports for chemistry, clinical microscopy, and hematology are included in the appendix.

We have been subscribing the College of American Pathologist (CAP) external lab survey, as well as the Endo Survey of the American Association of Clinical Chemists since January, 1991. We have not reported results as yet for the Endo survey because we did not have the particular methods in service at the times of the survey. CAP survey results have been very favorable. Copies of these are included in the appendix.

3. Progress on Army Research Projects

a. Sodium Depletion Study

The sodium depletion study was completed this year. Nitrogen, sodium, potassium, calcium, magnesium, and phosphorus were measured in urine, sweat, water, feces, and food. Due to the discovery of a matrix interference, the analyses were repeated a second time for the minerals on the food and feces. These were done using standards containing the digestion matrix (sulfuric acid/hydrogen peroxide/cupric sulfate). Captain Moore indicated to us that the results for the MRE samples was too low for sodium. He asked that we investigate the problem. Half of the original MRE samples were repeated using a different digestion mixture (nitric acid/hydrogen peroxide). In the meantime, it was discovered that a mathematical error had been made in some of the food samples. Some foods had been homogenized with an equal weight of water; this water had not be taken into account in the final calculations. Doing so doubled all of the mineral weights per gram of food and total concentration of each mineral. All of the MRE samples and some of the other foods were processed this way. An amended report was prepared. The second set of digested MRE's matched the corrected concentrations of mineral from the first digestion very well. In addition, a second set of MRE foods were received from Natick in order for us to check our methods. We digested these in the same

manner as the first set (sulfuric acid/hydrogen peroxide/cupric sulfate). The results for MRE foods which were the same as the first shipment agreed very favorably with the first batch (appendix).

b. Alaska 91

Serum samples from the Alaska 91 study were received and processed. The report is shown in the appendix.

c. Pikes Peak

Urine samples from the Pikes Peak study of 1988 were received this year and processed for urinary nitrogen and creatinine. The report is shown in the appendix.

d. Survival Study

Serum samples from the Survival Study were received and analyzed for a chemistry panel, glycerol, lactic acid, and HDL cholesterol. The report has not yet been compiled. Most samples were repeated at least once due to the very abnormal results found. These results were confirmed in most cases.

e. Ranger Study

The first shipment from the Ranger study was received in July. These samples have been frozen and are awaiting analyses. Included will be a chemistry panel and HDL cholesterol, beta hydroxybutyrate, glycerol, lactate, free fatty acids, ferritin, iron, TIBC, serum folate, RBC folate, vitamins A, C, and D, red cell AST, Transketolase, and glutathione reductase. Almost 1700 samples were received for this study (including duplicate or triplicate samples). Three more shipments are expected within the next few months. It is planned to have all results finished by November of this year.

Conclusions

In conclusion, the Clinical Research Laboratory at Pennington Biomedical Research Center has had a very fruitful and productive year. General laboratory protocols and procedures have been instituted, many new methods have been developed, and several projects have been performed for USARIEM.

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II. Stable Isotope Laboratory

INTRODUCTION

Establishment of a Stable Isotope Laboratory to support the Army's military nutrition research program at USARIEM was a research objective of US Army grant DAMD 17-88-G-8023. The Stable Isotope Laboratory at Pennington Biomedical Research Center was established in September, 1989 with the employment of James P. DeLany, Ph.D., as manager of the laboratory. A Finnigan Delta S Isotope Ratio Mass Spectrometer, a water-CO_2 equilibrator, a Breath Carousel for CO_2 Analysis, a Gas Chromatograph/Combustion Interface and a Multiport automatic tube cracker were purchased using USDA funds. The instrument was installed and calibrated, and the first Army samples analyzed by April, 1990. A Research Associate, Stable Isotope position was filled by Teodora Aranas, who began May 14, 1990. The second half of the time period covered by the 1990 Annual Report (Since Dr. DeLany was hired) was spent starting up the Stable Isotope Laboratory. The time period covered under the 1991 Annual Report has been spent carrying out energy expenditure studies of soldiers undergoing field training exercises.

The research conducted by the Stable Isotope Laboratory has been in the area of energy requirements of soldiers under harsh environmental conditions. The conditions studied have been in an arctic climate (2 studies) and at altitude. The method used to determine energy requirements was to determine expenditure using the doubly labeled water technique.

The use of doubly labeled water for measurement of energy expenditure was developed as a field technique for use in small animals (1). The method is based on the premise that after a loading dose of $^2H_2{}^{18}O$, ^{18}O is eliminated as CO_2 and water, while deuterium is eliminated from the body as water. The rate of CO_2 production, and, hence, energy expenditure, can be calculated from the difference of the two elimination rates. Doubly labeled water, using the two-point method, is an ideal method for use in free-living subjects because it is noninvasive and nonrestrictive. The only requirement of subjects is to give urine and saliva specimens before and after drinking an initial dose of $^2H_2{}^{18}O$, and then return in one to two weeks to give a final urine specimen. An interim specimen is often collected in addition to initial and final specimens. During the period between the two urine and saliva samplings, subjects are free to carry out their normal activities and are not required to

maintain extensive diaries. Although these characteristics have been taken advantage of by zoologists for 20 years, doubly labeled water has only recently been applied for determination of energy expenditure in free-living human subjects (2-4)

The doubly labeled water method has been extensively validated in humans under controlled settings (5), but there are confounding factors that need to be considered in field studies, particularly in Army Field Studies. Among these are change in location or food and water supply immediately preceding, or during an energy expenditure study. These changes may cause a change in baseline isotope abundance and, therefore, interfere with the accuracy of the energy expenditure measurement. This has occurred in a previous field training exercise involving the study of the MRE and RLW rations (2). Therefore, a group not receiving labeled water must be followed to make any corrections in baseline isotope shifts.

Doubly Labeled Water Method

Total body water is calculated using ^{18}O isotopic enrichments measured predose, and 3 and 4 hours after the dose as follows:

$$TBW = (A/MW_d)(APE_d/100)18.02[1/R_{std}(E_s-E_p)](1/1.01)$$

where A is the dose given in grams, MW_d is the molecular weight of the dose water, APE_d is the atom percent excess enrichment of the dose water, R_{std} is the ratio of heavy to light isotope of SMOW, i.e., 2.005×10^{-3}, E_s and E_p are the enrichments of the final and predose samples. The final step in the equation, division by 1.01, is necessary since the ^{18}O dilution space is larger than TBW (6).

The mean daily CO_2 production (rCO_2, mole/day) was calculated according to Schoeller et al. (5):

$$rCO_2 = (N/2.078)\ (1.01k_O - 1.04k_H) - 0.0246rH_2O_f$$

where N is the average of the beginning and end of period total body water and rH_2O_f is the rate of water loss via fractionating gaseous routes, and is estimated to be $1.05N(1.01k_O - 1.04k_H)$. The ^2H and ^{18}O isotope elimination rates (k_H and k_O) were calculated using the initial and final time points (two-point method). In the Alaska90 Cold Weather Study and Bolivia90 high altitude study, linear regression using the isotopic enrichment relative to predose of the first two days and last three days of the metabolic study were also used to determine elimination rates. There has been some controversy regarding the accuracy and precision of the two-point and regression methods. The advantage of the two-point method is that we obtain the true elimination rate even during changing physiologic conditions (which often occurs in Army Field Studies). The advantage of the multipoint

regression methods is improved precision from averaging out analytical error.

Energy expenditure is calculated by multiplying rCO_2 by the energy equivalent of CO_2 calculated from the macronutrient content of each diet, and body stores of protein and fat used for energy (7).

Isotopic analyses. The ^{18}O isotope abundances were measured on a Finnigan Delta C gas-inlet Isotope Ratio Mass Spectrometer with a CO_2-Water equilibration device. Briefly, urine and saliva samples were equilibrated with CO_2 at 18 °C in a shaking water bath for at least 10 h. The CO_2 is then cryogenically purified under vacuum before introduction into the mass spectrometer. The hydrogen isotope abundances were measured on a Finnigan Delta S gas-inlet Isotope Ratio Mass Spectrometer, as previously described (2). Briefly, urine and saliva samples were distilled under vacuum into tubes containing zinc reagent (Friends of Biogeochemistry, Bloomington, Indiana). The reduction tube were sealed with a flame and placed in a 500 °C oven for 30 minutes to reduce the water to hydrogen gas which is then introduced into the mass spectrometer.

BODY

Major Scientific Achievements

The major scientific achievements for the Stable Isotope Laboratory have been the measurement of energy in two Arctic Field Training Exercises and one high altitude training exercise using the doubly labeled water procedure. The Alaska90 study was begun last year and completed this year, while the Bolivia90 and Alaska91 studies were carried out entirely, during this year. A summary of the three projects is given in the table below. Detailed descriptions of the studies are presented in the following sections.

Study	Total Daily Energy Expenditure (kcal/day)
Alaska90	5170 ± 630
Bolivia90	3550 ± 610
Alaska91	4250 ± 480

Alaska90 Cold Weather Study

The deuterium and ^{18}O enrichment of 6 urine samples between February 4, and February 14 were analyzed in the six unlabeled subjects. There were no significant shifts in baseline isotope abundance in the unlabeled group. The deuterium and ^{18}O enrichment of 6 urine samples and 6 saliva samples were analyzed for the 14 labeled subjects. The elimination rates were calculated by the two point method, using the initial and final

enrichments, as well as a regression method (5 time points). The analyses for one subject (#104) were repeated to determine the analytical precision. For ^{18}O the coefficient of variation for the elimination rate by the 2-pt method was 0.4% while for regression it was 0.8%. The CV for the dilution space was 0.4% and 0.1% for the initial and final time points. The elimination rates calculated by the 2 point method and the regression method were similar in some instances but considerably different in others. For deuterium, the coefficient of variation for the elimination rate by the 2-pt method was 1.2% while for regression it was 1.6% for the repeat analysis. As for ^{18}O the elimination rates calculated by the 2 point method and the regression method were similar in some instances but considerably different in others.

An average RQ and energy equivalent of CO_2 were estimated by calculating an FQ from the protein, carbohydrate and fat intake of each soldier (See 9th Quarterly Report). Energy expenditure was then calculated from the deuterium elimination rates and the ^{18}O elimination rates and dilution spaces which were determined last quarter. The average daily energy expenditure of the 14 labeled soldiers was 5143±595 kcal by the 2-point method and 4847±498 by the regression method. The reason for the difference between the two methods is that the regression method is sensitive to systematic changes in energy expenditure. In this study the soldiers were stood down on one day and underwent strenuous physical activity the next, and both of these time points were used in the regression analyses. When using the regression method, this causes the elimination rate obtained from the slope of the line to be skewed as well as the 0-time intercept used to calculate dilution spaces. These errors then cause an error in energy expenditure. The two-point method, however, is not affected and provides the true elimination rates. The dilution spaces are obtained by the plateau enrichment 4-hours after the dose.

Lean body mass (LBM), calculated by isotope dilution (TBW/.73) decreased from 64.9±5.3 at the beginning of the period to 64.3±5.2 by the end of the metabolic period. Body fat calculated from the difference between body weight and LBM only decreased by 1.8 kg during the study. This decrease is lower than the true fat loss, due to the timing of the final weighing. Initial weights were taken in the morning between 0600-0800 hours, while the final body weights were taken in the afternoon between 1500-1700 hours. Therefore, the final body weights would be higher than they would have if taken first thing in the morning. Since fat weight is obtained by subtracting LBM from total weight, if the total weight appears higher than it truly is, then the fat weight will be overestimated. This fact is clearly demonstrated by the considerably lower energy expenditure calculated by the Intake/Balance (I/B) method. For this method the energy intake plus changes in energy content of the body (fat

and protein) are combined to obtain energy expenditure. The average energy intake was 3059±784 kcal, the change in fat and protein energy content were 684±2781 and 82±327 kcal, giving an energy expenditure of only 4316±1087 kcal/d, which is over 800 kcal/d lower than that obtained by doubly labeled water.

Bolivia High Altitude Study

The deuterium and ^{18}O enrichments of urine samples (6 and 5 time points respectively) of 6 subjects in the placebo group of the Bolivia high altitude study have were analyzed. Unlike the Alaska90 study, there was a significant decrease in enrichment over time. There was a shift in ^{18}O of -2.33 o/oo and in deuterium of -23.8 o/oo. The average decrease was used to correct the enrichment of the labeled subjects when calculating elimination rates. This correction is needed to obtain the correct energy expenditure during changing isotopic enrichment of the water supply. The deuterium elimination rate (Kd) is the average of two separate analyses for each subject. The deuterium analyses were repeated for two reasons: 1) because this was the first full project for the technician, and 2) to determine the accuracy of the determination of Kd, because deuterium is the most difficult analytical aspect of the method.

The calculations using the 2pt and regression method yielded almost identical means and standard deviations, 3549±608 vs 3565±674. The energy expenditures calculated from the repeat deuterium analyses also yielded nearly identical energy expenditures using either the 2pt or regression methods, with a coefficient of variation of about 2% (See 11th Quarterly Report). There were some problems with samples from subject #59, both in energy expenditure and total body water, and hence, was excluded from the mean calculations. The energy expenditure results have been published in USARIEM Technical Report No. T10-91 (8).

Alaska91 Cold Weather Study

The deuterium and ^{18}O enrichments of urine samples of 5 subjects in the placebo group were analyzed. As in the Alaska90 study, there was no significant change in enrichment over time. Since the data from the Bolivia study demonstrated that the energy expenditure obtained using the 2pt and regression methods yield the same results, only the 2pt method was used in this study. The mean energy expenditure of the 10 labeled soldiers was 4250 ± 480 kcal/d. There was a problem with the first measurement of total body water for 4 of the subjects, it appears that there were problems with the measurement of the ^{18}O dose the soldiers received and in 2 cases problems with collection of saliva samples. Therefore, the RQ was assumed to be 0.823 and the estimate for the energy equivalent of CO_2 was 5.8 kcal/L.

Ongoing Projects

The Stable Isotope Lab is presently involved in 2 Army research projects. One is a water turnover study, part of the Fairchild Air Force Base Survival Study. For this study, urine and saliva samples are being analyzed for deuterium to determine total body water at the beginning and end of the study, and for water turnover throughout the study. Analyses of these samples has begun, and should be finished shortly.

The other project currently underway is the Rangers Training Study, in which energy expenditure will be measured using doubly labeled water. There are four parts of this study, the Fort Benning phase (7/26/91 - 8/10/91), the Mountain phase (8/11/91 - 8/28/91), the Swamp phase in Florida (8/29/91 - 9/13/91), and a final Desert phase (9/14/91 - 9/26/91). The samples for this study will be analyzed as each phase of the study is completed.

CONCLUSIONS

The doubly labeled water method has proven to be an ideal method for the measurement of energy expenditure of soldiers during field training exercises. The two-point method, in which elimination rates are measured from isotope enrichments of urine samples from the first and last days of the study has proven to be valid in these studies. The only requirements of the soldiers is give urine and saliva samples and drink the heavy water. The energy expenditure of soldiers during the Arctic Field Training exercises was higher than anticipated, particularly in the Alaska90 study. The energy expenditures during the Alaska90 study were considerably higher than during the Alaska91 study (5170±630 vs 4250±480 kcal/d). This is not surprising in light of the facts that it was considerably colder during the Alaska90 study, the soldiers were more active and needed to wear snowshoes more during the Alaska90 study, and the soldiers did not move their artillery as much as had been anticipated during the Alaska91 study. The energy expenditure at altitude during the Bolivia study was essentially the same as was anticipated.

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III. Diet, Neurotransmitters and Behavior

Introduction. The current staff of the Neuroscience Laboratory includes Chandan Prasad, Ph.D., Jeffery W. Brock, Ph.D., Shakeel Farooqui, Ph.D., Anwar Hamdi, M.D.,Ph.D., and Masahiro Sakata, M.D. The scientific staff are devoted full-time to research on the Army Grant DAMD 17-88-Z-8023. There are four students in the laboratory, working 20 hours/week schedules.

Background. The focus of the neuroscience program is to apply the expertise of the current research staff to investigate the role of nutrition in behavior. Projects are underway which include behavioral, neurophysiological, and molecular neurobiological measurements to study the effects of macronutrient manipulations on higher brain function. Overall, the research has broad application to problems related to aging and development, mental function and dysfunction, as well as to the questions of nutrition science.

Administrative Items.

Over the course of the past year, Emmanuel Onaivi left the ranks of the Neuroscience Lab. His contribution to the laboratory's efforts were largely in the area of behavioral science. Behavioral studies have continued under the joint-responsibility of Drs. Brock and Hamdi.

The Neuroscience Lab has enhanced its methodological capabilities by joining in collaborative research with the Gene Expression Laboratory and the Analytical Laboratory at the Pennington Biomedical Research Center. The rewards have not only been an advancement of our own research efforts, but a demonstration of our value as a resource for others working in the area of nutritional neuroscience.

The Neuroscience Laboratory currently is developing in a new research direction, investigating the effects of stress on cognitive function and the potential for nutritional intervention to protect against stress-related cognitive deficits.

General Progress.

Project: Determination of tryptophan metabolites using HPLC. The amino acid tryptophan is an initial substrate for brain serotonin synthesis which is not easily transported across the blood brain barrier. Serotonin activity has potential consequences throughout the CNS. Thus, the study of the pathways for tryptophan metabolism is critical to an understanding of cerebral serotonin function in a number of behavioral systems. There are at least two major pathways for tryptophan metabolism. The first pathway leads to the decarboxylation of tryptophan. The second pathway, the pyrotase pathway, results in the formation of metabolites following cleavage of the indole ring. At least two of the metabolites of the tryptophan pyrotase pathway - quinolinic acid and kynurenic acid - have been reported to play important roles in excitatory neurotranmission, neurotoxicity, and epilepsy. Kynurenine has also been shown to act as an excitotoxin in in vitro studies.

Studies into the role of other tryptophan metabolites in the pathogenesis of human neurological disorders are limited by the availability of technology to separate and quantitate these compounds in biological samples. Quinolinic acid, a tryptophan metabolite with a major role in CNS function, has previously not been included with other metabolities in analytical procedures; therefore there is a need for a new sensitive method that can separate and measure many tryptophan metabolities, including quinolinic acid, in a single sample. In order to optimize the conditions for the simultaneous separation of the tryptophan metabolites, a reverse-phase high-performance liquid chromatographic (RP-HPLC) method was developed. This involved the

sequential optimization of the mobile phase, by adjusting the pH, the concentration of of triethylamine and the gradient elution. The baseline resolution of the compounds by this optimized procedure was obtained with an analysis time, including the re-equilibration period of less than 30 minutes.

Project: Cyclo(His-Pro) and food intake. Administration of exogenous CHP to rats and mice has been shown to elicit many endocrine and central nervous system-related biological activities. CHP in a dosage of 2.5 uM/rat/day is known to produce a 20% ($p<0.05$) reduction in daily food intake. Consistent with the appetite-modulating effects of the peptide is the observation that fasting elevates the hypothalamic CHP content which then returns to normal after feeding. Until recently, the inhibitory effects of CHP on food intake had been demonstrated using a mixed diet only. It is well known, however, that rodents can regulate their macronutrient intake when presented separately with carbohydrate (C), protein (P), and fat (F) diets. This led us to investigate whether intraventricularly administered CHP may affect caloric intake and, if so, would the changes in caloric intake be due to alterations in the intake of all or only some of the macronutrients.

To accomplish this, rats were allowed to choose from C-, P-, and F-rich diets to display macronutrient preferences after vehicle or CHP infusion into the cerebral ventricles. Ninety percent of the calories in C-, P-, and F-rich diets were derived from C, P, and F, respectively, with the remaining ten percent of the calories derived from equal parts of the other two macronutrients. Fisher 344 rats (400-450 gm) were implanted with indwelling intraventricular canulae, housed individually, and then allowed to recover from surgery for 4-5 days. Rats were fasted from food, but not water, for 21 hours and then allowed to consume three macronutrients presented separately for a total period of 3 hours. Total energy intake (Kcal/Kg/3 hrs) and percent of total energy derived from each macronutrient was calculated on five consecutive days prior to vehicle or peptide (CHP, 1-methyl CHP, or 3-methyl CHP) administration.

Administration of saline (vehicle) alone led to an appreciable increase in total caloric intake, which was characterized by increased preference for fat and decreased preference for both carbohydrate and protein. These changes after vehicle administration may be due to non-specific stress resulting from handling and intraventricular perfusion. On intraventricular administration of CHP (0.5 uM/Kg), but not 1-methyl CHP or 3-methyl CHP, both total caloric intake ($p=0.0075$) and fat preference ($p=0.0354$) decreased, whereas carbohydrate preference increased ($p=0.0518$), with no change in protein preference ($p=0.2458$). In conclusion, these data show that CHP differentially modulates macronutrient selection. Therefore, endogenous CHP in the central nervous system may play a role in

regulation of food preferences.

Project: Determination of dopamine (D2) receptor messenger RNA expression. The application of this technology has a major contribution in the study of central dopaminergic mechanisms which are implicated in a number of neurological and mental disorders. Since joining the laboratory, Dr. Sakata, working with Dr. Farooqui has made rapid progress in establishing the protocol for the determination of the dopamine D2 receptor mRNA expression using Northern blot analysis. Using the modified guanidium thiocyanate method, the total mRNA extracted was denatured at 55°C in 50% formamide, (6% formaldehyde solution for 15 minutes and electrophoresed in 1% agarose / 0.66M formaldehyde gels. After electrophoresis, RNA on the gels was transferred to nylon filters and the filter was baked at 80°C for 2 hours. The filter was prehybridized for one hour at 42°Cin 50% formamide, 0.25M NaCl, 0.25M sodium phosphate (pH 7.2), 1mM EDTA and 0.1% SDS in a volume of 10ml and hybridized for 24 hours at 42°C with 1.0x106 c.p.m./ml 32-P-labeled PD2 cDNA in the same hybridization buffer. The membranes were washed at room temperature in a solution containing 2xSsc and 0.1% SDS (200ml) and then twice at 65°C in 200ml 0.1ml 0.1xSSC and 0.1% SDS. Autoradiography was done at -70° C for one day. All northern blots were probed also for B-actin mRNA content, as control.

The D2 mRNA that was detected using the PD2-DNA probe was 2.6kb and was prominent in pituitary and striatal tissues, but was not seen in the testes and liver. As positive control using the B-actin probe, strong bands were detected following hybridization in all samples indicating a successful RNA preparation. With this capability, a number of problems can now be investigated in the laboratory, such as: 1) the expression of D2 mRNA following dietary and other physiological and pharmacological manipulations relevant to the aging process, 2) the mechanism of regulation of the D2 mRNA expression in animal models and its control, and 3) dopamine agonists and antagonistic effects and the effects of dietary manipulation on the D2 mRNA.

Project: Dopamine D2 receptor protein antibody mapping in the rat brain. Mapping of dopamine D2 receptor antibody binding in the rat brain has been completed. Rabbits were innoculated with a keyhole limpet hemocyanin-conjugated oligopeptide identical to amino acid sequence 24-34 of the D2 receptor. The polyclonal antisera interacted with native dopamine receptor isolated from rat striatal membranes, probably at or near the ligand binding site on Western blot. Also, the antisera inhibited the photoaffintiy labeling of D2 receptors using the D2 antagonist, YM-09151-2. These data suggest that the antibody was selective against dopamine D2 receptor protein.

The next important step the lab undertook was to demonstrate the utility of the antibody as a D2-selective label by

determining the distribution of antibody binding in situ. Rat brains were dissected and sliced on a freezing microtome into 40 micron sections. Every fourth section was incubated with D2-selective antisera, following the procedure of peroxidase-anti-peroxidase (PAP) immunocytochemical labeling. Alternate sections were incubated with pre-immune sera and antisera plus free oligopeptide. The anatomical distribution of PAP complex was verified in selected sections which were stained with cresyl violet, and compared to Paxinos' "The Rat Brain in Stereotaxic Coordinates".

PAP complex staining was heavy in the striatum, frontal and parietal cortices. PAP complex was distributed throughout the basal forebrain and stained the heaviest in the olfactory tubercle, medial septal nuclei and nuclei of the diagonal band In the hypothalamus, lighter, diffuse staining continued throughout, with heaviest precipitate in the periventricular area. Staining was evident throughout the medial forebrain bundle all the way back to the ventral tegmental area and the substantia nigra pars compacta. Heavy staining was observed in the dorsal thalamic nuclei and in the medial habenula, and more caudally in the midbrain, the central gray area around the Aquaduct of Sylvius. Unexpectedly, PAP was seen in lateral thalamic nuclei, also in the superior and inferior colliculi. This previously undescribed distribution of D2 receptors may belong to the periaquaductal dopaminergic system, which have their cell bodies of origin in the zona compacta and send afferents to the dorsal midbrain.

Sections incubated with primary antiserum followed by free peptide antigen in concentrations greater than 10 microgm/ml showed no precipitate in any of the above mentioned areas. Inhibition of specific antibody binding in this way resulted in little or no contrast staining, and an appearance identical to those sections incubated with pre-immune serum. These data are consistent with the distribution of efferent dopaminergic fibers, and the binding distributions of known D2 receptor radioligands. Also, these data are in good agreement with the areas known to express D2 mRNA, which has been found in the highest concentrations in the neostriatum, olfactory tubercle, substantia nigra, ventral tegmental area, nucleus accumbens, and the intermediate lobe of the pituitary gland. These data suggest that D2 receptor protein was recognizable at all levels of the dopaminergic system, i.e., target tissue, axons, and cell bodies of origin.

Project: Dietary protein and dopamine receptor regulation. We have collected a large body of evidence that dietary-protein manipulations have definite effects on higher brain function in animals, with evidence accumulating from behavioral, neurophysiological, and neurochemical studies. Preliminary data from our lab suggests that these effects include changes in

neurotransmitter receptor populations in the central nervous system. Binding data was collected using the rat striata of the 8% casein, 20% casein, and 50% casein diet groups. The data indicated a 30% decrease in D2 receptor binding in the group of animals that were fed the low protein diet. The low-protein diet group also demonstrated a reduction in striatal dopamine receptor protein compared to controls, as indicated by D2-selective antibodies recently developed by our lab. Animals which were fed the high-protein diet demonstrated more dense antibody binding on immunoblot, suggesting that more dopamine receptor protein was present in the sample. Strangely, in the binding studies, Bmax for the high-protein group was not different from control. In total, there is evidence that central dopaminergic mechanisms may be respectively facilitated or reduced by an increase or decrease in dietary-protein levels.

Project: Effects of dietary protein on monoamines and monoamine metabolites. The digestion products of food serve not only as the building blocks of brain structures and as energy sources, but also as the starting materials for neurotransmitter synthesis. Proteins are particularly important foodstuffs for the brain, since their breakdown products, the amino acids, serve as precursors of almost all known neurotransmitters. There is ample evidence that peptides derived from dietary proteins play a role in modulating behavior. However, studies by most previous investigators in the area of nutrition and behavior have been scanty and inconclusive. Therefore, the determination of monoamines, dopamine, norepinephrine, serotonin, and their metabolites following dietary protein manipulation has been undertaken.

In the first series of experiments, 5 groups of animals were placed on one of five diets: 8% casein ad lib, 20% casein ad lib, 50% casein ad lib, 20% casein pair-fed, and 50% casein pair-fed. After the animals had been on their respective diets for 8 months, all were sacrificed by rapid decapitation and their brains were stored at -80°C. Brains selected from the 8%, 20% pair-fed, and 50% pair-fed animals were sliced using a freezing microtome. Thirty-six areas of the brain were collected by punch-dissection and processed for analysis by high-performance liquid chromatography/electrochemical detection. Analyses of 4 major neurotransmitters (dopamine, serotonin, norepinephrine, epinephrine) and 3 metabolites (HVA, 5-HIAA, DOPAC) in each of the tissue-punch samples are presently underway.

Preliminary data suggests that there are distinct abnormalities in dopamine levels in the brain. There are increases in dopamine levels in some dopaminergic areas, while other dopaminergic areas show a decrease. Although the precise pattern of dopamine changes are not clear at present, it will be interesting to determine if different dopaminergic central neural circuits are affected selectively by the dietary manipulation.

Project: Dietary protein and preparatory arousal in rats. Previous investigators have observed that rats fed high-protein diets (50-80% casein) are easily frightened and demonstrate more violent behavior than rats on control diets. Data from our laboratory have shown that rats fed a chronic, high-protein diet (50% casein) are more reactive to nociceptive stimuli than those fed either normal-or low-protein diets (20 and 8% casein, respectively). The mechanisms underlying these changes are unknown. One theory is that high-dietary protein increases tyrosine availability for the synthesis of central catecholamines which, in turn, increase arousal levels in the animal. A weakness of this theory is that tyrosine levels are not elevated in the rat brain at dietary-protein levels of up to 80% casein.

The Cortical Negativity Response is an electrical correlate of the Alerting Reaction and preparatory arousal levels. This negative shift in cortical slow potentials is easily recordable even in anesthetized animals, when the animal is conditioned using an alerting stimulus-imperative stimulus paradigm. Cortical Negativity Responses were successfully recorded in urethane/chloralose anesthetized rats which were fed either a 20% or 50% casein diet for 36-40 weeks. There were two identifiable negative deflections, designated N1 and N2, which occurred after the alerting stimulus and before the imperative stimulus. Each peak was analyzed with regard to latency, amplitude, and duration. N1, which is generated by the frontal cortex as an orienting response to alerting stimuli, was not different between the two diet groups. However, the N2 deflection, which is generated by the motor cortex, was significantly prolonged in latency and higher in amplitude in the high-protein diet group. It is known from primate studies that the amplitude of this deflection is related to the subject's basal arousal level and the subject's preparation, or intention, to move. Furthermore, N2 amplitude is directly correlated with dopaminergic activation in the central nervous system. Additional testing revealed no differences between groups with regard to somatosensory evoked potentials and short-latency brainstem auditory evoked responses. These results suggest that the high-protein diet caused an increase in preparatory arousal mechanisms, which was not accompanied by changes in sensory information processing. These data are consistent with the theory that high-protein diets cause an over expression of catechol- aminergic mediated behavior.

Project: Dietary protein and neuronal plasticity. In the relatively short time that the Neuroscience Laboratory has been operational, we have collected a large body of evidence that dietary-protein manipulations have effects on higher brain function in animals. There is reason to believe that central dopaminergic mechanisms are facilitated or inhibited, respectively, by an increase or decrease in dietary-protein levels. The available evidence has accumulated from behavioral, neurophysiological, pharmacological, and neurochemical studies.

Such a multi- disciplinary approach is necessary, given the complexity of the brain; no one method can provide sufficient information to describe adequately the changes that occur after nutritional manipulations.
Combining descriptive morphology with neurotransmitter level measurements, etc., may provide further insight into the complex processes underlying behavior.

Changes in neurotransmitter and postsynaptic membrane protein synthesis alter the functional properties of synapses. These may be accompanied by alterations in synaptic structural properties as well. Although functional deficits of the brain can be caused by changes which are not reflected in gross morphology, recent works have shown that synaptic densities in certain areas of the brain are modified by nutrition.

Under certain conditions, synapses show plasticity, i.e., a change in their pattern of structural or functional connectivity. In the cerebral cortex, 80-90% of axons terminate on dendritic spines. In general, dendritic spines constitute as much as 96% of the surface area of pyramidal cells in the cerebral cortex and it is now well-accepted that dendritic spines play an important role in mechanisms of behavior, including learning, general states of alertness, and mentation. The purpose of the present study is to determine if the dramatic functional and biochemical changes which result from manipulating dietary protein are accompanied by changes in dendritic spine density. This is important because a decrease in dendritic spine density, i.e., a deficit in synaptic connections, would provide a simple causal explanation for the relationship between nutrition and functional impairment.

The Rapid Golgi method, which involves incubating brain tissue with osmium dichromate and silver nitrate, offers the opportunity to view single neurons with all their processes stained. This stain penetrates to very few cells in the tissue, but makes visible the details of axonal and dendritic ramifications not seen with usual histological techniques. This allows one to compare fine details of dendritic morphology between normal and experimental animals.

The present study was undertaken to determine if the dramatic functional and biochemical changes which result from manipulating dietary protein are accompanied by changes in dendritic spine density. Brains were dissected from different groups of rats which consumed 8%, 20%, or 50% casein diets for 4 weeks. The tissues were fixed in 10% formalin and sliced into 150 micron sections, using a freezing microtome. The sections were stained using the Rapid Golgi method and dendrites were visualized by Nomarski differential phase-contrast microscopy. Dendritic spine densities were determined for the following areas: frontal cortex, parietal cortex, entorhinal cortex, striatum, and septum.

Spine densities were statistically analyzed using single factor Analysis of Variance, followed by Student's t-tests. Statistical significance was accepted at the 95% confidence level (alpha = 0.05, two-tailed test). In animals maintained on 50% casein for 4 weeks, dendritic spine densities were significantly increased in all 5 brain areas investigated ($p<0.05$), compared to the control group (animals maintained on 20% casein). For the animals maintained on the 8% casein diet for 4 weeks, dendritic spine densities were only significantly different in the striatum and entorhinal cortex, being elevated in both areas compared to the control animals. In the animals consuming the 8% casein diet, spine densities in the frontal cortex, parietal cortex, and septum were not different from control animals. These rather surprising results suggest that dendritic spine density is sensitive to levels of protein in the diet; however, the relationship between dietary protein and brain cell morphology is not a simple covariance. This non-linear effect on spine density induced by the dietary manipulation suggests that protein undernutrition and overnutrition stimulate different physiological mechanisms in the brain. The possibility is underscored by the observation that, not only did protein undernutrition and overnutrition have non-linear effects on specific brain areas, but the responses were also different between brain areas. These differences probably reflect the neural and biochemical individuality of each area.

Our understanding of the physiological roles of these specific brain areas in their contribution to behavioral expression provide for some interesting speculation as to the mechanisms involved in the effects of dietary protein on behavior. In the case of the 8% casein-fed animals, increased spine density in the striatum and entorhinal cortex may reflect an increase in food-searching behavior in the animal while sparing general cognitive function. In the case of the 50% casein-fed animals, the overdevelopment of dendritic spines in the cerebral cortex, striatum, and septum suggests a widespread increase in neuronal excitability in the brain. An increase in neuronal excitability in these key brain areas may be the neural substrate of the behavioral hyperactivity and hyper-responsiveness previously observed in animals maintained on long-term, high-protein diets.

<u>Project: Dietary protein and microtubule-associated proteins.</u> This investigation is intimately related to the subject of neuronal plasticity, mentioned above. Dendritic spines are dynamic structures that are capable of very rapid structural modification. These shape changes involve actin which is present in the spine in a microspecialized configuration that permits local contraction or extension of the cell membrane. Actin networks are isotropic gels and actin gel-solution transitions are under the control of local calcium concentrations. Others have shown that actin gel-solution transition may also involve the differential phosphorylation of microtubule-associated

protein (MAP) subtypes, MAP1, MAP2, and MAP-tau. MAP2 is expressed exclusively in the brain and is highly localized in neuronal soma and dendrites, whereas MAP1 and tau are expressed throughout the cell. The phosphorylation of high molecular weight MAP2 appears to be a dendrite-specific event that is required for neuronal plasticity; it is believed that interaction between MAP2 and actin allows for rapid cytoskeletal rearrangements within dendrites. In contrast, MAP1 and MAP-tau proteins are associated with stabilized (unchanging or non-plastic) cytoskeletal structures. Tau expression specifically is important for regulating the selective stabilization of microtubules accompanying extension of the neuronal cell membrane. Although phosphorylation of MAP2 itself is not sufficient to induce the formation of dendritic spines, the local expression of microtubule-associated proteins are useful indices of dynamic changes in dendritic surface area.

Rats were fed 8% (ad lib), 20% (pair-fed; equicaloric with 8% group), 20% (ad lib), or 50% (pair-fed; equicaloric with 8% group) casein for 36 weeks and their brains were collected. Selected areas of the brain (frontal cortex, entorhinal cortex, striatum, cerebellum) were dissected. MAP2 and MAP-tau proteins were solubilized and separated using 3-15% polyacrylamide gel electrophoresis. The blots were incubated with mouse monoclonal anti-MAP2 and mouse monoclonal anti-Tau antibodies. The results of the immunoblots are presented in the appendix (Figures 1 - 4). Both low (8%) and high (50%) casein diets resulted in increased expression of high molecular weight MAP2 (HMW-MAP2) in the frontal cortex and cerebellum, but diminished expression of HMW-MAP2 in the striatum and entorhinal cortex, compared to the equicaloric, 20% casein-fed group. Caloric restriction alone resulted in a dramatic increase in HMW-MAP2 in the striatum and entorhinal cortex, but a decrease in HMW-MAP2 in the cerebellum. In the striatum and cerebellum, these effects apparently were compensated when dietary protein was fed at both 8% and 50% levels. Caloric restriction had no effect on expression of HMW-MAP2 in the frontal cortex. Expression of MAP-tau proteins were not significantly altered by manipulation of dietary protein or caloric restriction.

Manipulating dietary protein and caloric restriction resulted in a complexed pattern of changes in MAP2 expression which must be interpreted cautiously. However, a few observations may be made from the data which are intrigueing:

1) Expression of HMW-MAP2 was sensitive to manipulations of dietary protein in all brain regions analyzed.

2) The frontal cortex was sensitive to manipulations in dietary protein, but apparently insensitive to caloric restriction.

3) Within the same brain region, high- and low-dietary protein resulted in qualitatively similar expressions of HMW-MAP2.

4) As a result of manipulating dietary protein, intracellular mechanisms associated with neuronal plasticity were enhanced in the frontal cortex and cerebellum, but diminished in the striatum and entorhinal cortex.

Project: Dietary protein and brain amino acid profiles. High dietary protein in rats results in hyperactivity, hyper-responsiveness, anxiolysis, and increased basal arousal levels. These observations suggest a very complex pattern of neurotransmitter and neuromodulator involvement. First, hyperactivity and hyper-responsiveness suggest an over-expression of the central dopaminergic system in the brain. Interestingly, total dopamine content of the brain remains apparently unchanged by a 50% casein diet. However, analysis of discrete brain nuclei by punch dissection and HPLC/ED revealed that certain areas of the brain had significantly greater amounts of dopamine, while levels were diminished in other areas. Increases in dopamine should be accompanied by an increase in the availability of the amino acid, tyrosine, as precursor. Although others have shown that total brain tyrosine level is not significantly elevated by 50% casein diet, there remains the possibility that the differential increases in dopamine concentration may be accompanied by corresponding increases in tyrosine levels.

Hyper-responsiveness may involve under-expression of the serotonergic system. High dietary protein tends to reduce uptake of the amino acid tryptophan (serotonin precursor) into the brain. The observed hyper- and hypo-responsiveness in rats consuming high-and low-protein diets, respectively, are consistent with reports of decreased pain sensitivity in humans following tryptophan administration.

The phenomenon of anxiety, or aversion, behavior in rats is very complex. Serotonergic system involvement is complex and controversial. Also, high dietary protein results in anti-aversive, or anxiolytic, behavior which is similar to the action of diazepam in humans. Diazepam is an agonist for part of the gamma-aminobutyric acid (GABA) receptor complex. The implications are that GABA activity may be inhibited in certain areas of the brain, as a result of the high-protein diet, in a way which dis-inhibits the expression of behavioral reflexes. To make the story even more complicated, there is compelling evidence that inhibitory amino acids (GABA, glycine, taurine) and excitatory amino acids (glutamate, aspartate) may function to counter-balance each other, within highly localized anatomical domains, to control the expression of behavioral subroutines.

Rats consuming a high-protein diet also display an increase in basal arousal level. The mechanism for this observation is not

known, although the observed amplification of cortical negativity responses is consistent with dopamine over-expression. The phenomenon also may involve an increase in energy expenditure, which may be revealed by alterations in brain levels of amino acids associated with the tricarboxylic acid cycle (glutamate, alanine) and reflect changes in cerebral protein metabolism (leucine, methionine).

The point from this discussion is that it is imperative to determine the effects of dietary protein on rat brain amino acid profiles in order to elucidate the mechanism of protein-induced hyperactivity, hyper-responsiveness, and anxiolysis. With this objective in mind, rats were fed 8%, 20%, or 50% casein diets for 4 weeks and for 36 weeks, then sacrificed by rapid decapitataion, and their brains stored at -80°C until ready for processing. Selected areas of the rats' brains (frontal cortex, parietal cortex, occipital cortex, enhorhinal cortex, cerebellar cortex, striatum, septum, hippocampus, anterior thalamus, and hypothalamus) were dissected and processed for analysis. Samples of each area were taken into 600 microliters of 3% perchloric acid, weighed, and sonicated. Protein assays are presently being performed on the homogenates. The samples will be filtered (.45 um) and amino acids will be analyzed, using precolumn derivatization and HPLC, by the PBRC Analytical Laboratory.

Project: Diet and Stress. Data collection has begun on a new project which will investigate the effects of stress on cognitive function and the potential for nutritional intervention to protect against stress-related cognitive deficits. Rats will be subjected to rapid eye movement (REM) sleep deprivation for 96 hours to develop a model of stress-induced cognitive dysfunction.

After decades of sleep research, involving a variety of animals including humans, much is yet unknown about the physiologic role of rapid eye movement sleep. However, a few facts are established which are relevant to our purpose:

* Sleep deprivation has obvious effects on behavior, depending upon its duration (e.g., tiredness, time disorientation, visual misperceptions). The significance of behavioral and perceptual deficits for human sleep function is unclear. They could be due to some form of conflict between a sleep drive and the need to stay awake, and/or some form of lack of cerebral restitution.

* Investigators agree that the cerebrum is the part of the body which is in the most need of sleep; perhaps for recovery of, and changes in, plastic processes (by comparison, the midbrain and brainstem structures appear not to require rest). For the cerebrum, sleep may be the means for its most efficient recovery following activity.

* In humans, the psychological performance tests which are most

vulnerable to sleep deprivation are not complex decision-making tasks, but the simple, low-interest, long-duration tasks, such as 1 hour of auditory vigilance. Decrements in performance also occur during tasks which are regarded as "uninteresting" by the subject. The attribute of "interest" apparently evokes compensatory effort on the part of the subject during performance of the task (viz., modulation of preparatory arousal levels).

* In rats, sleep deprivation is an extremely potent stressor. For this species, prolonged sleep deprivation means imminent death. Rats survive only 11-32 days during total sleep deprivation; they survive only 16-54 days during REM sleep deprivation. Prior to death, rats experience pathologies with obvious multiple organ-system involvement. A short list of these abnormalities includes increased cerebral excitability, increased basal arousal, enhanced drive-related behaviors, increased food intake, increased energy expenditure, increased plasma norepinephrine, loss of weight, decreased body temperature, and severe ulcerations of the skin. Most of these observations are only correlated with sleep deprivation, with little certainty of causality. The precise cause of death in chronically sleep-deprived rats is unknown. More toward our purpose, mechanisms involved in the effects of sleep deprivation on the rat cerebrum remain a mystery, and are a central issue in this study.

The effects of 96-hour REM sleep deprivation (REMD) on higher brain function in the rat will be characterized using behavioral, neurophysiological, and biochemical methods. The specific experimental aims of this study are to determine the effects of 96-hour REMD on:

1) shuttlebox performance, using a fixed ratio-2 contingency, to demonstrate decrements in reference memory (this paradigm is very sensitive to disruption of frontal cortical function). A more standard shuttlebox paradigm would probably be insufficient. Running is an important part of the rat's defense behavior, and largely reflexive. Thus, the cognitive consequences of foot-shock in the REM-deprived animal may be masked in a simple shuttle/escape task. However, when the task is associatively more difficult, or motorically more demanding (such as the fixed ratio-2 contingency, or the 3-second delay paradigm), subtle deficits in performance are revealed.

2) rat swimming/immobility test, a rather simple but important evaluation of the rat's adaptability or ability to cope with sudden stress. This test is selectively sensitive to REM sleep deprivation.

3) electrical correlates of behavior; recording cortical negativity responses (a purely frontal cortex-generated potential), to demonstrate abnormalities in preparatory arousal and selective attention; sensory mismatch negativity responses

(an associative cortex-generated potential), to demonstrate decrements in working memory (the duration of an auditory memory trace). Also, effort will be make to record P300 responses in the rat. The P300 potential is known to be generated by the septal-hippocampal circuit, a part of the forebrain intimately involved in memory storage and retrieval, and which mediates attentional-switching in response to environmental cues.

4) macronutrient selection, using the Three-Choice diet (carbohydrate, protein, fat), to demonstrate abnormalities in food intake. In rats, macronutrient selection is normally well-regulated, and mediated largely at the level of the anterior and ventromedial nuclei of the hypothalamus by a complex interaction of neurotransmitters, neuropeptides, and amino acids. Identifying abnormalities in macronutrient selection in the sleep-deprived rats will contribute to our understanding of why the animals increase their total intake, yet lose weight to a debilitating degree.

5) neuronal dendrite morphology (dendritic spine density), to demonstrate plastic changes in key areas of the brain (cerebrum, septum, hippocampus, striatum) which may contribute to impairment of cognitive function. It is now known that dendritic spines play an important role in neuronal function, and abnormalities in dendritic spine density are correlated with learning, general states of alertness, and mentation.

6) monoamine neurotransmitter and amino acid levels in selected areas of the brain, to determine the nature and extent of neurochemical changes which may contribute to observed functional abnormalities. Our lab has shown that monoamine neurotransmitter activity is sensitive to dietary manipulation and the effects of diet on amino acid profiles in the blood and brain are already well known. Amino acid levels are especially important to measure, since they are not only precursors for most classical neurotransmitters, but some amino acids (glutamate, aspartate, GABA, taurine, glycine) are themselves putative neurotransmitters. Other amino acids are related to the tricarboxylic acid cycle (e.g., glutamate and alanine) and reflect changes in cerebral protein metabolism (e.g., leucine and methionine).

After the animal model for REMD has been established, studies will be undertaken to determine if nutritional manipulation can sustain performance under REMD conditions. Characterizing the effects of REMD using this multi-disciplinary approach should not only clarify mechanisms underlying REMD-induced cognitive deficits, but reveal possible points of intervention where we may protect against those deficits.

At present, our laboratory awaits completion of reconstruction of the behavioral testing laboratories.

Meanwhile, we have initiated control studies for one of the electrical correlates of behavior, the sensory mismatch negativity (MMN). We have successfully recorded MMN responses from urethane/alpha-chloralose anesthetized rats. The data represents not only the first recording of MMNs from the rat, but the first such recording in any anesthetized animal. Additional experiments are planned which employ relevant manipulations that will validate the interpretation of MMN responses as a measurement of the duration of auditory memory traces. The recording of sensory mismatch negativity in anesthetized rats presents an economical model for studying the mechanisms of short-term memory formation. This data should be of interest to a broad spectrum of Neuroscientists who are generally interested in the study of higher brain function.

Manuscripts, Neuroscience Lab, 1989-91 Data collection has been completed for a large number of studies regarding the effects of dietary protein on behavior, and manuscripts which report these results are in various stages of completion.

1. Shakeel M. Farooqui, Jeffery W. Brock, Anwar Hamdi, and Chandan Prasad. Antibodies against synthetic peptides predicted from the nucleotide sequence of D_2 receptor recognize native dopamine receptor protein in rat striatum. In press, Journal of Neurochemistry, 1991)

2. Jeffery W. Brock and Chandan Prasad. Motor, but not sensory, cortical potentials are amplified by high-protein diet. (In press, Physiology and Behavior, 1991).

3. Jeffery W. Brock, Shakeel Farooqui, Keith Ross, and Chandan Prasad. Polyclonal antibody reveals widespread distribution of dopamine D_2 receptor protein in the rat brain. (submitted in July, 1991, to Brain Research).

4. Emmanuel S. Onaivi, Jeffery W. Brock, and Chandan Prasad. Behavior modification in rats involving changes in dietary protein. (submitted to Nutrition Research, 1991)

5. Jeffery W. Brock and Chandan Prasad. Alterations in dendritic spine density in the rat associated with protein malnutrition. (submitted in August, 1991, to Brain Research).

6. Shakeel Farooqui, Jeffery W. Brock, and Chandan Prasad. Protein malnutrition increases expression of MAP2 proteins in the rat brain. (submitted in August, 1991, to Neuroscience Letters).

Abstracts, Neuroscience Laboratory, 1989-91

Jeffery W. Brock, Shakeel Farooqui, and Chandan Prasad. Dopamine D2 receptor-specific antibodies. Society for Neuroscience Abstracts 16(1):209, 1990.

Emmanuel S. Onaivi, Jeffery W. Brock, Anwar Hamdi, and Chandan Prasad. High-protein diet modulates dopamine- and non-dopamine mediated behaviors in rats. Society for Neuroscience Abstracts 16(2):1051, 1990.

Shakeel M. Farooqui, Anwar Hamdi, Jeffery W. Brock, and Chandan Prasad. Production and characterization of antibodies to dopamine D_2 receptor using an undecapeptide corresponding to the NH_2 terminal sequence. (Am. Fed. Clin. Res. Southern Meeting, Endocrinology Section, 1991)

Sheila Venugopal, Shakeel M. Farooqui, Jeffery W. Brock, and Chandan Prasad. Protein kinase C induced release of dopamine is independent of G-protein uncoupling. (Am. Fed. Clin. Res. Southern Meeting, Metabolism Section, 1991).

Jeffery W. Brock and Chandan Prasad. Motor, but not sensory, cortical potentials are amplified by high-protein diet. (submitted to Third IBRO World Congress of Neuroscience, 1991).

Emmanuel S. Onaivi, Shorye Payne, Jeffery W. Brock, and Chandan Prasad. Nicotine and age-associated decrease in the tail-flick latency. (submitted to Third IBRO World Congress of Neuroscience, 1991).

Masarat Ali, Jeffery W. Brock, C. Douglas Gulley, Marcie Lavergne, and Wayne V. Vedeckis. Regional distribution of retinoic acid receptor alpha (RARa), -beta, and -gamma forms in rat brain. (submitted to Third IBRO World Congress of Neuroscience, 1991).

Jeffery W. Brock, Shakeel Farooqui, Keith Ross, and Chandan Prasad. Localization of dopamine D2 receptor protein in rat brain using polyclonal antibody. (submitted to Society For Neuroscience, 1991).

Masahiro Sakata, Shakeel Farooqui, and Chandan Prasad. Age dependent changes in dopamine D2 receptor mRNA levels in anterior pituitary glands of Fisher 344 rats. (submitted to The Endocrine Society, 1991).

Book Chapters, Neuroscience Laboratory, 1990-91

Chandan Prasad, Anwar Hamdi, Jeffery W. Brock, and Charles W. Hilton. Cyclo(His-Pro) and food intake. In: The Science of Food Regulation. George Bray, Ed. Louisiana State University Press, Baton Rouge, Louisiana. In press, 1991.

IV. Fort Polk Study

Introduction

The past decade has seen increased interest in nutritional and overall health status issues in Americans. As more data become available for the nation as a whole, it is natural to explore various sub-populations with an eye for contrasts relative to the whole. To this end both sexes and many ethnic and racial groups have received considerable attention.

Another sub-population approach is to investigate health issues among different occupational groups. One of the largest is, of course, the U.S. military. During the late 1980's the U.S. Congress mandated the Army to conduct research into a variety of nutritional, health, and wellness behavior topics in both soldiers and their families. In 1988 the Fort Polk Heart Smart Project was instituted specifically to gather data on military families. Three sub-studies with interlocking goals were developed. These were:

Project 1. Nutritional and Physical Activity Assessment of Military Wives;

Project 2. Cardiovascular Disease Risk Factor Status of Military Families; and

Project 3. Health Promotion in Military Families.

The goals of these studies were:

1. To investigate eating patterns in military dependents'

2. To characterize health influencing behaviors (exercise, smoking, alcohol consumption) in the same population;

3. To determine typical levels of traditional cardiovascular (CV) risk factors in the same population; and

4. To develop a CV health promotion model addressing issues of eating, exercise, and general lifestyle in the same population.

From August 1989 through July 1991, studies were implemented at Fort Polk, Louisiana, 15,000 military personnel. Data collection ended on July 25 of this year. The results of the year from August 1990 to the end of the project are presented below.

Basic Findings: August 1990 - July 1991

Results from Projects 1 and 2 are now available. Nutrition

data from Project 1 were presented in the previous annual reports. More recent results will combine the Project 1 and 2 samples unless otherwise indicated.

CV Risk Factor Results

Attachment A contains summary figures and tables for the CV risk factor and lifestyle questionnaire evaluations completed on Fort Polk personnel and their dependents. Table A-1 outlines the age, race, and sex characteristics of this group. 703 individuals participated in CV risk screening ending in January 1991. Adult females predominated reflecting their sole participation in Project 1. In the subsequent descriptions, comparisons are made with Bogalusa Heart Study norms on an age-appropriate basis. Racial comparisons are limited to black/white contrasts.

The first set in Attachment A presents anthropometric and body composition results for this group. Overall, the Fort Polk sample shows little racial difference in height or in comparison with the Bogalusa population. Weight shows systematic contrasts within Fort Polk females, with adult blacks being systematically heavier. There is also a tendency for the Fort Polk adults to be heavier than their Bogalusa counterparts.

Measures of obesity show typical racial contrasts. By all gauges, skinfold and Quetelet (body mass) index (wt/ht^2) black women exceed white ones. White men demonstrate thicker skinfold measures than black men, but similar Quetelet figures. Upper quartile of Quetelet index (greater than 27.0) includes 40-50% of whites at Fort Polk and 40-70% of blacks depending on age and sex.

Blood pressure data are shown in the next section of Attachment A. As is seen nationally, black adults at Fort Polk show somewhat higher levels of both systolic and diastolic measures than whites. Pressures, however, are systematically lower when compared to Bogalusa norms.

Lipid data comprise the following section of Attachment A. Generally, black men exhibit higher levels of both total cholesterol and low-density lipoprotein (LDL) while no clear trend is evident in women. In addition, black men at Fort Polk show higher values relative to Bogalusa norms. High-density lipoprotein (HDL) levels are higher in black males than in white ones, while no clear pattern emerges among females at Fort Polk. Comparisons with Bogalusa results show little contrast among whites but do show consistently higher levels in Bogalusa blacks. Very-low-density lipoprotein tends to be systematically higher in whites of both sexes.

Approximately 40-50% of Fort Polk men of both races exceed NCEP guidelines for moderate elevation of total cholesterol (greater than 200 mg/dl). Black men additionally show 10-20% with high levels of cholesterol (greater than 239 mg/dl). Women fall in the moderately elevated range about 30-40% of the time with, typically, 5-10% falling in the high grouping. All race-sex groups, except white males, at Fort Polk exceed their Bogalusa counterparts for excessive levels of cholesterol. LDL results mirror those of total cholesterol, as expected.

A figure of 34 mg/dl or less of HDL is a potential risk category for heart disease. Fort Polk screenees show little tendency in this direction, with fewer than 5% of the sample of either sex, overall, falling into this assignment. By comparison, Bogalusa residents fall below 35 mg/dl at a rate 2-4 times greater then Fort Polk adults.

Blood chemistry data appear next. Overall, blacks tend to exceed whites in levels of all proteins and related molecules, LDH, calcium, phosphorus, and creatinine. Whites exceed blacks in levels of urea and uric acid. No consistent trends are evident in other measures.

Hematology results comprise the next section of Attachment A. As is usually seen, whites exceed blacks in levels of hemoglobin, hematocrit, and white blood cell (WBC) count.

The final section of Attachment A presents data on lifestyle influencing variables including smoking behavior, alcohol consumption, socio-economic (SES) indicators (military rank, educational level, etc.), and family size. Smoking behavior statistics indicate that about between 36 and 47% of adult males and about 30% percent of adult females classify themselves as smokers. All race/sex groups except white males, who are much higher, approximate National Health Survey norms in this respect. Alcohol consumption is reported on a regular basis by between 40 and 70% of adult respondents. Blacks report a higher prevalence of drinking than other races. Overall reported alcohol consumption tends to be higher at Fort Polk though is typical of the military world-wide and is consistent across ranks in men.

Family Health Promotion

The Family Health Promotion (Project 3) component of the Fort Polk Heart Smart Project was initiated with a pilot study on 6 families during the summer of 1990. The study began on a full scale in September of 1990. Three cycles of program administration occurred between that time and July 1991. Approximately 70 families, comprising about 225 individuals, participated.

The practical goal of this sub-study was to develop a self-contained health education and promotion model suitable for military families and to deliver this model to test for acceptability, efficacy, and its effect on CVD risk factor levels and behaviors.

Attachment B is the resulting Health Promotion Manual. It comprises a statement on background, rationale, and theoretical base and then proceeds through the mechanisms of delivering such a program at a military installation.

The actual program consisted of a CVD risk factor screening and a battery of health-related questionnaires delivered on both a pre- and post-test basis and a set of educational sessions deliverable in a 8-12 week time frame. The manual describes session topics, agendas, and ancillary activities as well as incentive and maintenance programs. Calendars of actual sessions are also presented.

Attachment C comprises the complete battery of Project 3 evaluations. Included are: standards and normative data, CVD risk factor screening data forms, lifestyle questionnaires, nutritional assessments, and process/program evaluations. Ancillary subject communication forms (screening feedback, consent letters, etc.) are included.

The data collection phase for Project 3 ended on July 25, 1992. Data are entering the final edit stage and, excepting dietary recall information, will be available for analysis in August, 1991. Nutritional assessments require product and menu research and are scheduled for final analysis during the fall of 1991.

Conclusions

The process of data collection at Fort Polk has provided a wealth of information for project staff. Aside from a massive amount of CVD risk factor and lifestyle data which will take months to digest, a number of general conclusions have formed.

1. Families in the military largely mirror society in general. Although specific contrasts occur (greater dependence on fast food, more alcohol consumption, increased levels of physical activity) in the bulk of characteristics, Fort Polk Denizens were quite like other Americans.

2. This means, overall, that military families eat too much fat and sodium, are somewhat overweight, smoke too much, and suffer from a number of pervasive stresses. They exhibit unhealthy lipid profiles more often than is acceptable and they consume alcohol at high rates.

3. In this regard they are prime candidates for health promotion.

4. The military provides excellent resources for the delivery of health promotion programs.

5. A multi-focal health promotion is feasible and well accepted by military families.

Our efforts at Fort Polk prove that such programs are needed and possible. A model for delivery is now available for further implementation in a variety of military settings.

V. Menu Modification Study

INTRODUCTION AND BACKGROUND

Since 1985, nutrition initiatives have been introduced into the Armed Forces Recipe Service, the Army Master Menu and the Army Food Service Program to provide soldiers with diets lower in sodium, fat, and cholesterol. The Military Nutrition Division of the United States Army Research Institute of Environmental Medicine (USARIEM) has conducted assessments of soldiers' nutrient intakes. These studies resulted in the following nutrition related recommendations: continue revision of the Armed Forces Recipe File to reduce sodium in recipes, continue to decrease the percentage of calories obtained from fat to 35% or less of total calories, and provide soldiers low cholesterol, low fat alternatives to eggs, and evaluate the acceptability and impact of using this approach to moderate soldiers' cholesterol intakes.

The Menu Modification Project incorporates modification of two weeks of Army garrison menus to meet the nutrition targets specified by the Army. The purpose of the Menu Modification Project is to provide healthful, nutritious menu selections which moderate soldier's sodium, fat, and cholesterol intakes.

PROGRESS

During this annual reporting period, Ms. Doris Sherman, USARIEM, conducted a site visit on September 25-27, 1990, to provide technical assistance and monitor procedures and progress of the Menu Modification Project. Ms. Sherman visited the LSU School of Human Ecology, LSU Residence Foodservice, Broussard and Pentagon cafeterias, and Pennington Biomedical Research Center (PBRC). Recipes were reviewed and evaluated, as well as procedures for acceptance testing. Ms. Sherman was accompanied by Dr. Catherine Champagne, PBRC, who assisted with demonstrating the Menu Modification procedures and the current and future applications of the Extended Table of Nutrient Values to the Menu Modification Project.

Dr. Catherine Champagne visited the Military Nutrition Division of USARIEM on October 11-12, 1990. The purpose of the visit was to meet with Natick nutritionists to discuss the Menu Modification Project and to compare the Army nutrient data base with The Extended Table of Nutrient Values, the Pennington nutrient data base. Possibilities for future cooperative projects were also discussed. More details of this visit are included in the Ninth Quarterly Report for the U.S. Army Grant No. DAMD 17-88-Z-8023.

Sixteen recipes were prepared in quantity and served to athletes dining in Broussard Cafeteria on the Louisiana State University campus. Students rated the items for acceptability. Quantity preparation of recipes was conducted in Broussard Cafeteria. The results of the acceptability ratings are also found in the Ninth Quarterly Report.

During the Tenth Quarter, five days of menus were modified and analyzed using the Extended Table of Nutrient Values (ETNV). The data was presented to Army officials at the time of their December 13, 1990 visit to the Pennington Center. The following conclusions were drawn from the data presented (see Tenth Quarterly Report):

1. Modifications resulted in a decrease in fat from 40% to 36% of calories and in saturated fat from 12% to 10% of calories.

2. Carbohydrate represented 48% of calories in the modified menu and 45% in the regular menu.

3. In terms of calories, protein was only 1% higher in the modified menu (16% vs. 15%).

4. There was a significant reduction in calories (12%) from a mean of 3500 to 3080 per day.

5. Cholesterol was significantly reduced (36%) from a mean of 720 mg to 462 mg per day. A comparison of breakfast menus also showed a significant reduction in cholesterol.

In January, 1991, a meeting was held at USARIEM to review the progress and plans for the Menu Modification Project. The results of this meeting were as follows:

1. The original two week menu cycle from the Army 1989 Master Menu will be replaced with a more current version from the 1991 Army Master Menu.

2. The fat content of the menu revision will be modified from 35% of total kilocalories from fat to more closely approach 30% of total kilocalories from fat. Individual recipe items will be reformulated as needed to more closely approach the lowered

level of fat.

3. A nutrient analysis of the two weeks of Army menus will be calculated using all selections offered on the menu, an individual analysis of each menu items and a two week analysis of the average both the regular and modified menus.

4. Acceptability testing by student athletes will be discontinued due to lack of an adequate number of participants.

5. Quantities for 100 portions will be checked.

In February 1991, Dr. Catherine Champagne (Johnson) presented a paper entitled "Computer Analysis of Army Recipes and Menus Using the Extended Table of Nutrient Values (ETNV)" at the annual meeting of the Southern Association of Agricultural Scientists in Fort Worth, Texas. An abstract of this paper can be found in the Ninth Quarterly Report.

Coding and analysis of Army and modified menus has been continued. Two hundred and sixty recipes were submitted to Nutrient Data Systems at the Pennington Biomedical Research Center for analysis using the Extended Table of Nutrient Values. Quantity recipe testing was continued until the end of the spring 1991 academic semester in a student cafeteria on the Louisiana State University campus. The menu items prepared were: Parmesan Fish, Chicken Divan Casserole, Omelet Sandwich, Grits and Ham Pie, Breakfast Brunch Casserole, and Ham and Eggs a la Swiss. Coding and nutrient analysis will continue and plans will be formalized for small batch acceptability testing of reformulated recipes. Quantity preparation will resume in the fall 1991 semester and continue through the spring 1992 academic semester.

The analyses of 101 modified and regular Army recipes can be found in the appendix of the Twelfth Quarterly Report.

CONCLUSIONS

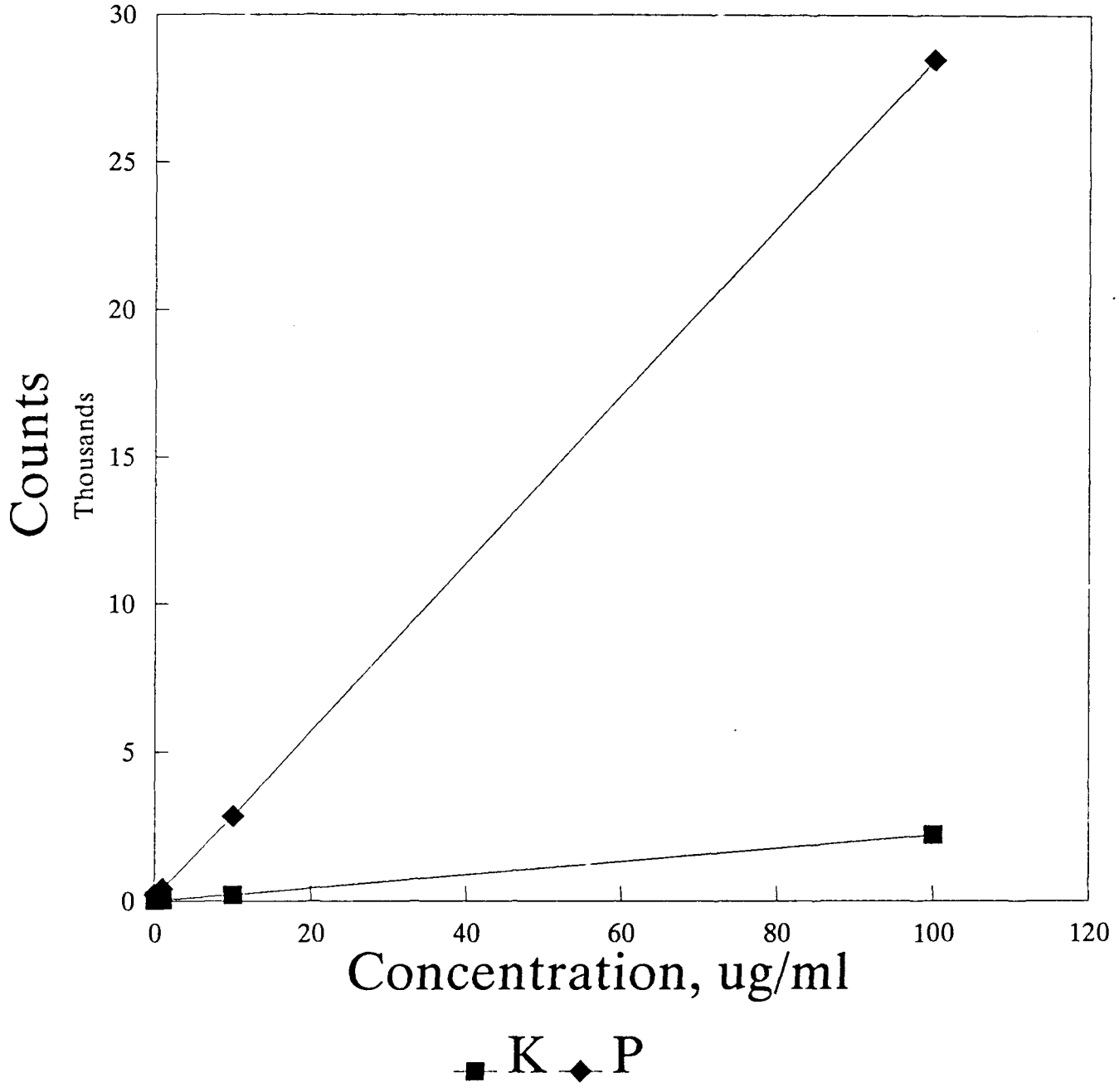
It is apparent that further work needs to be done in the area of menu modification of Army menus. From our initial experiments, it was evident that improving breakfast menus led to the most significant reduction in fat and cholesterol in soldiers' diets. More work in modifying other meals will help to achieve our objectives of reducing total fat, sodium, and cholesterol. While it is evident that reducing sodium may be a more difficult task, additional work should be devoted to this project.

APPENDIX

CLINICAL RESEARCH LABORATORY

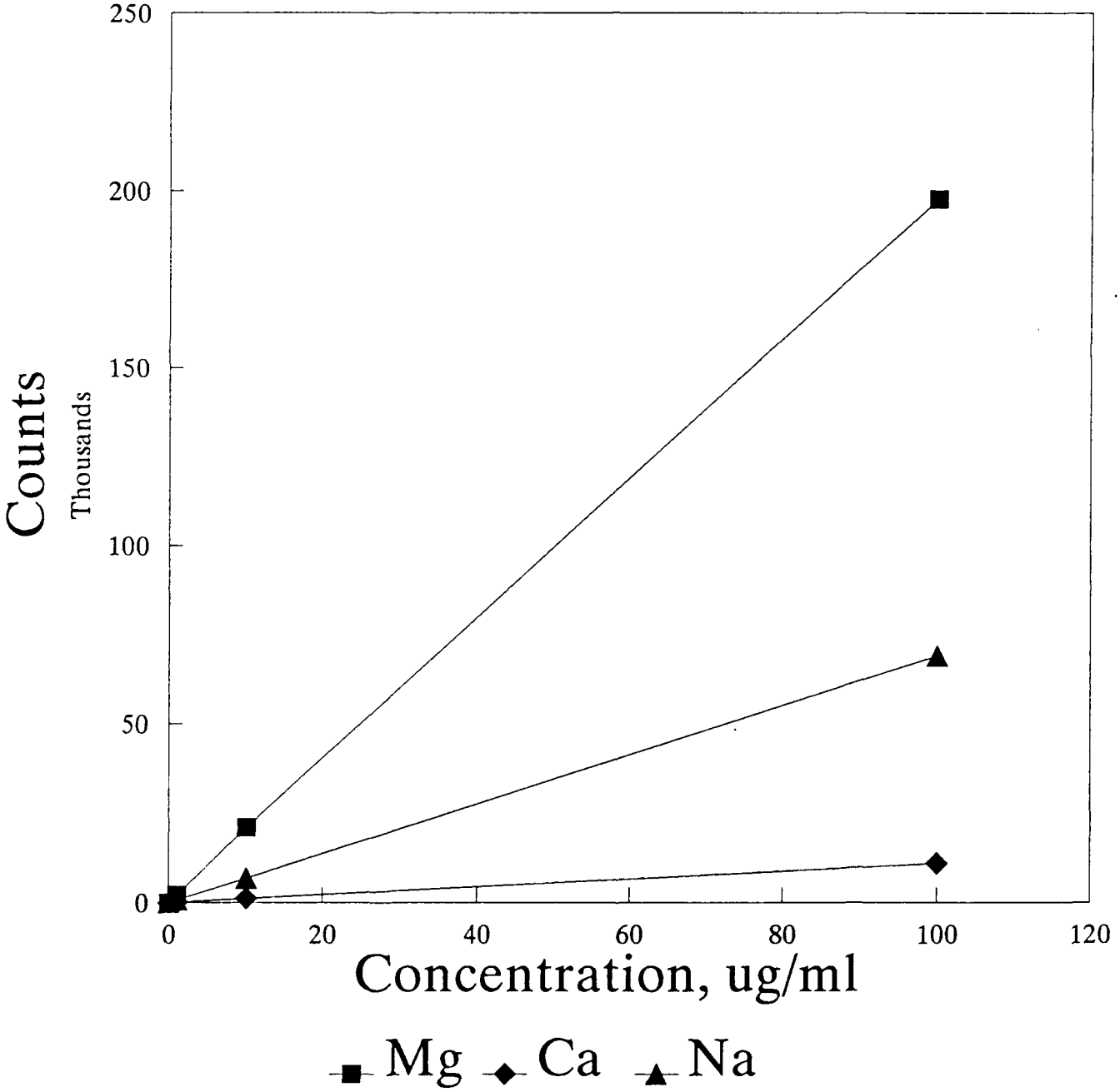
ICP Linearities

H2SO4/H2O2/CuSO4



ICP Linearities

H2SO4/H2O2/CuSO4



DEPARTMENT OF THE ARMY
US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE
NATICK, MASSACHUSETTS 01760-5007

22 March 1991

Dr. Richard Tulley
Clinical Lab Director
Pennington Biomedical Research Center
6400 Perkins Road
Baton Rouge, LA 70808

Dear Dr. Tulley:

Thanks for the tour of your labs when we attended the Pennington Symposium last week; the capabilities of your lab are impressive.

I told you that I would send you more information on the lipid analyses regarding national standardization. I was partially wrong about the HDL-cholesterol method of choice: Dr. Russ Warnick does advocate the dextran-sulfate method as the most stable and reproducible but the ReLABS program which we've been enrolled in (enclosure 1) lists the proposed CDC reference method as heparin-manganese precipitation. I think that at least there is agreement that the phosphotungstate method is the least desirable.

I have enclosed three papers for you which you may already have. One is the Clin Chem reprint of the NCEP laboratory standardization goals for cholesterol measurements. The other two describe methods combining heparin-manganese precipitation of non-HDL classes and dextran sulfate precipitation of the HDL-3 subfraction to estimate HDL-2 and HDL-3 cholesterol concentrations. Lou is going to try running this in our lab here but at some point we might defer to your expertise. In any case, we hope to include these values in a manuscript of some of the West Point data for a refereed publication.

Sincerely,

Karl E. Friedl, Ph.D.
Major, Medical Service Corps
Research Physiologist

Enclosures

copy furnished:
COL Askew, Pennington COR

HDL METHOD CORRELATIONS

SAMPLE	DMA HDL	DEXTRAN SO4	BECKMAN PTA
1	42.6	40.2	41.4
2	49.9	46.3	47.3
3	59.5	55.9	57.8
5	30.1	29.7	29.7
6	58.7	55.7	55.6
7	40.2	38.7	38
8	33.3	32.4	32.7
9	41.3	40.3	40.6
10	38.4	36.3	37.5
11	50	47.1	49.6
12	42.5	41.2	41.4
13	54.6	52.4	52.5
14	50.1	45.9	48.2
15	42.9	41.2	41.9
16	47.2	43.7	45.1
17	36	33.5	34.4
18	65.7	59.3	62.3
19	40.5	38.9	39.1
20	42.1	40.4	41
4	48.6	46.5	
avg	45.71	43.28	44.00526
sd	9.080337	8.003591299	8.68693

DMA vs DEXT SO4

Regression Output:

Constant		3.194152
Std Err of Y Est		0.826155
R Squared		0.989906
No. of Observations		20
Degrees of Freedom		18
X Coefficient(s)	0.87696	
Std Err of Coef.	0.020873	

DMA vs BECKMAN

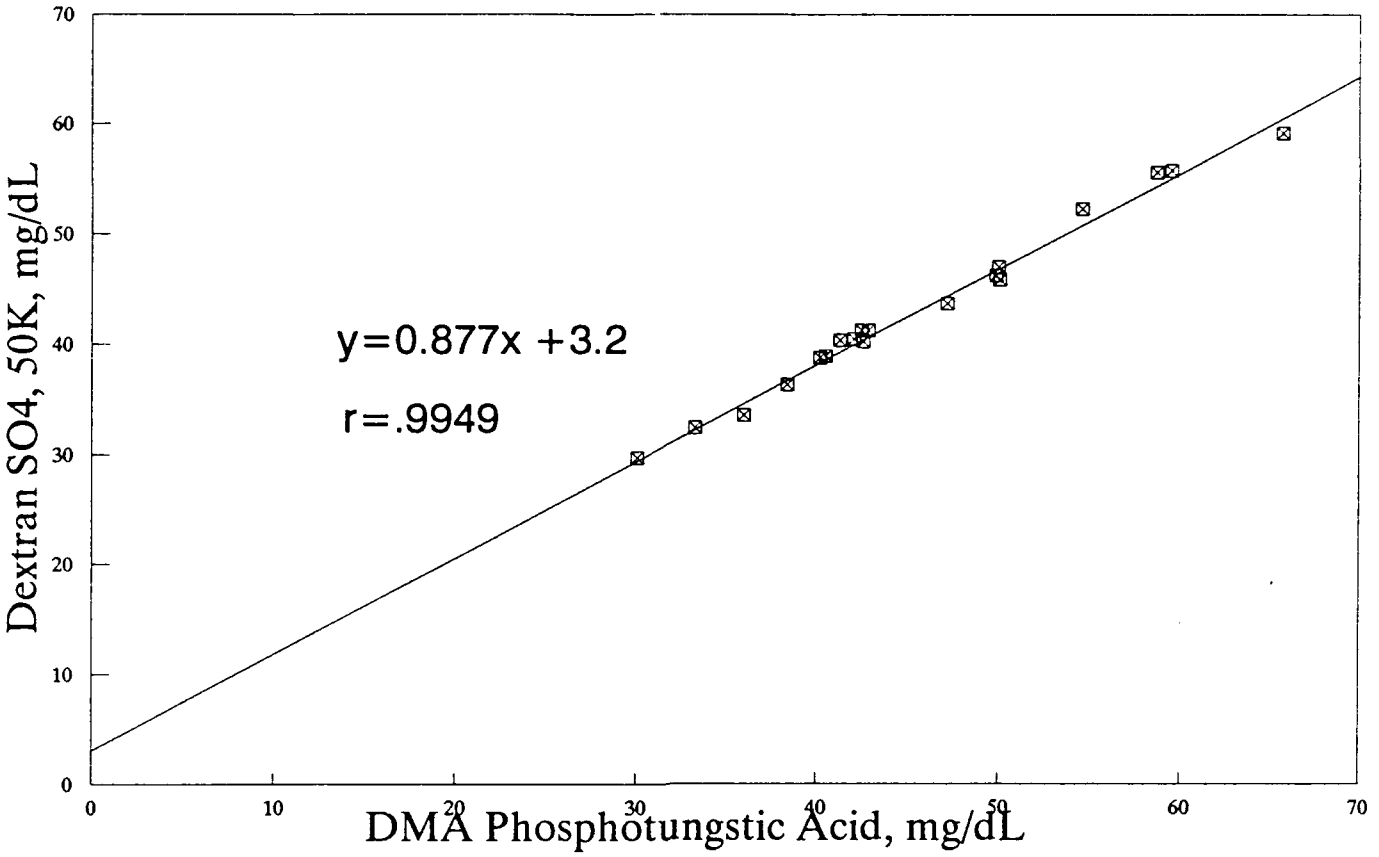
Regression Output:

Constant		1.563767
Std Err of Y Est		0.611554
R Squared		0.995319
No. of Observations		19
Degrees of Freedom		17
X Coefficient(s)	0.931595	
Std Err of Coef.	0.015495	

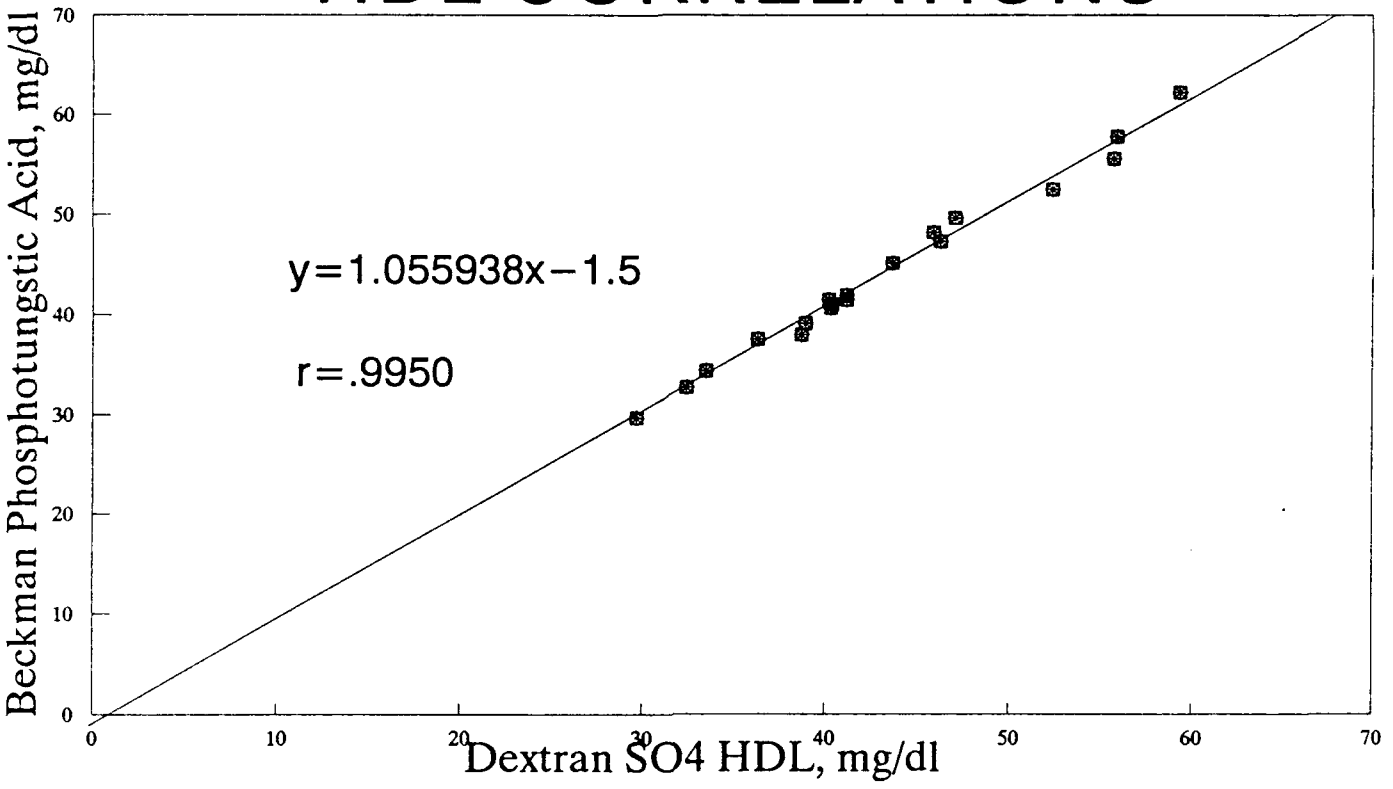
DEXT SO4 vs BECKMAN

Regression Output:

Constant		−1.51678
Std Err of Y Est		0.888994
R Squared		0.990109
No. of Observations		19
Degrees of Freedom		17
X Coefficient(s)	1.055938	
Std Err of Coef.	0.025597	


y=0.877x +3.2
r=.9949
Dextran SO4, 50K, mg/dL
DMA Phosphotungstic Acid, mg/dL
0
10
20
30
40
50
60
70

HDL CORRELATIONS

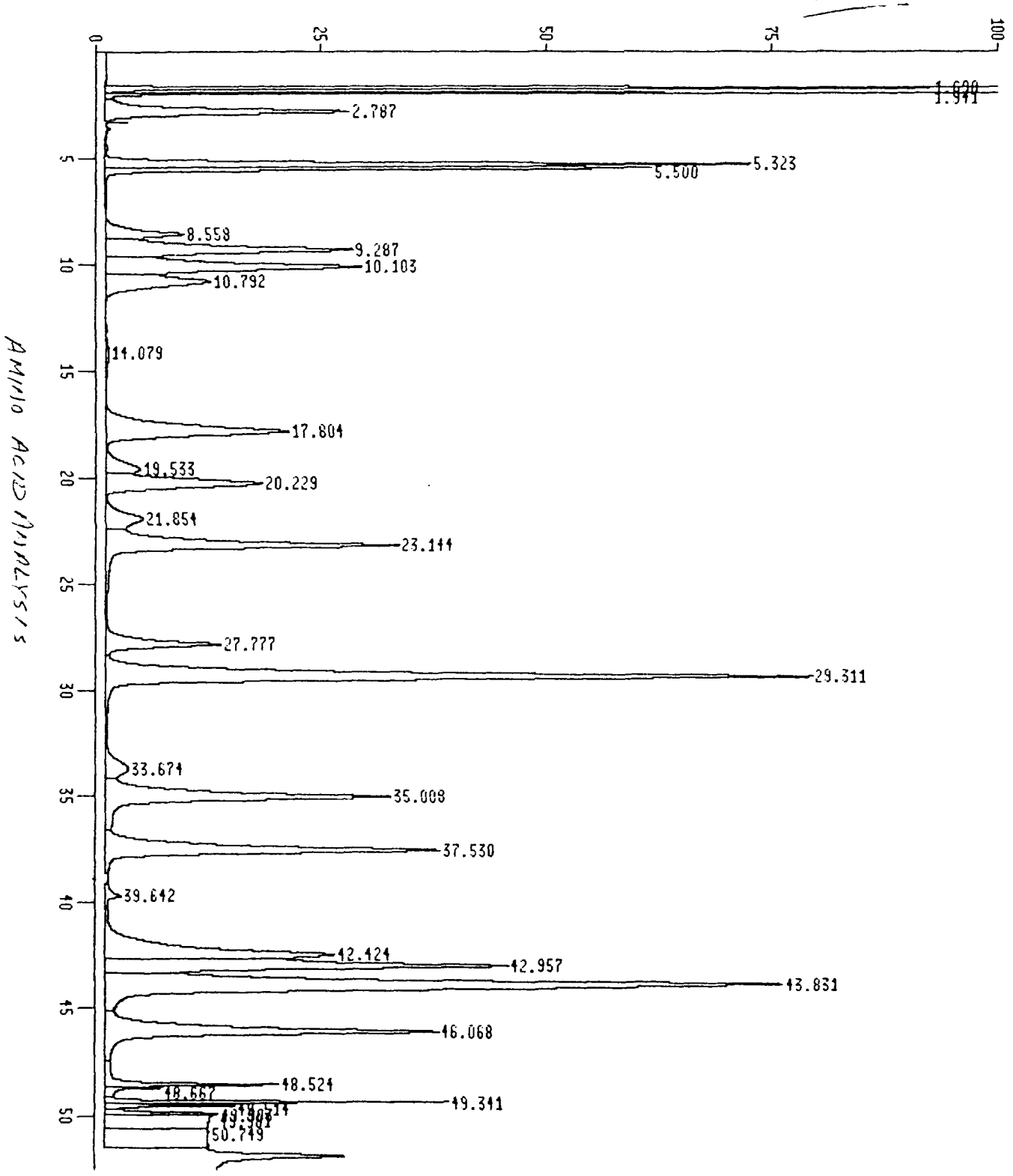


7/24/91 0.0314 (A
100 nM (B
18:4

AMINO ACID ANALYSIS

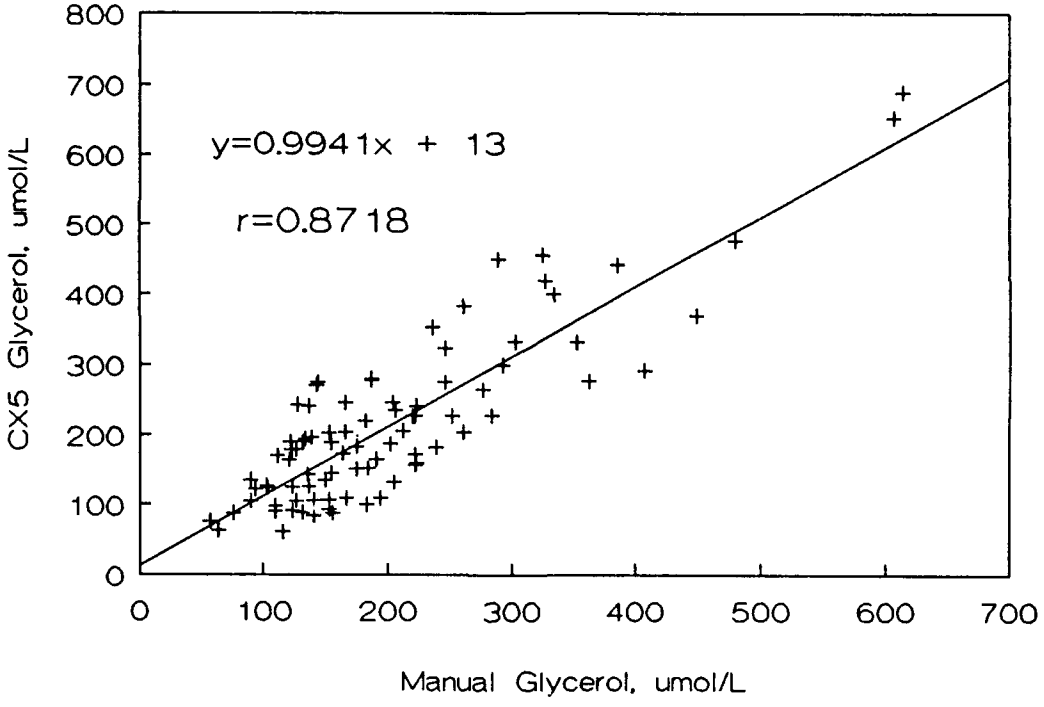
1: LC X FLUORESCENCE of 7/23A14B.D

GOOD!

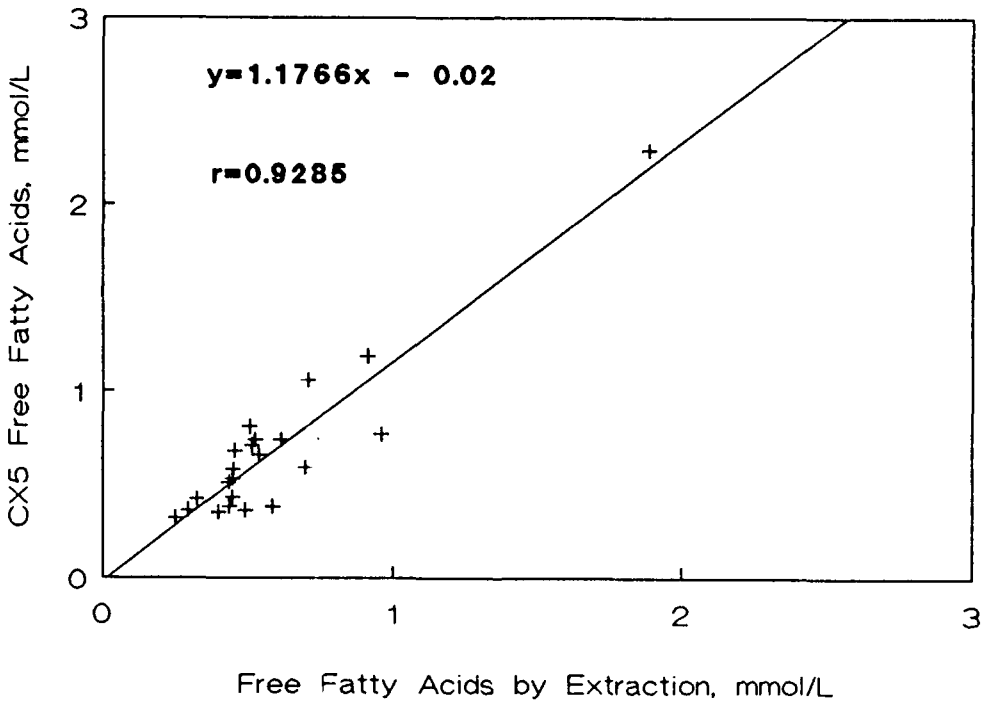


End of plot. Time = 0.05 to 52.50 minutes Chart speed = 0.38 cm/min

Glycerol Correlation
CX5 vs Manual



Free Fatty Acid Correlation
CX5 vs Copper Extraction

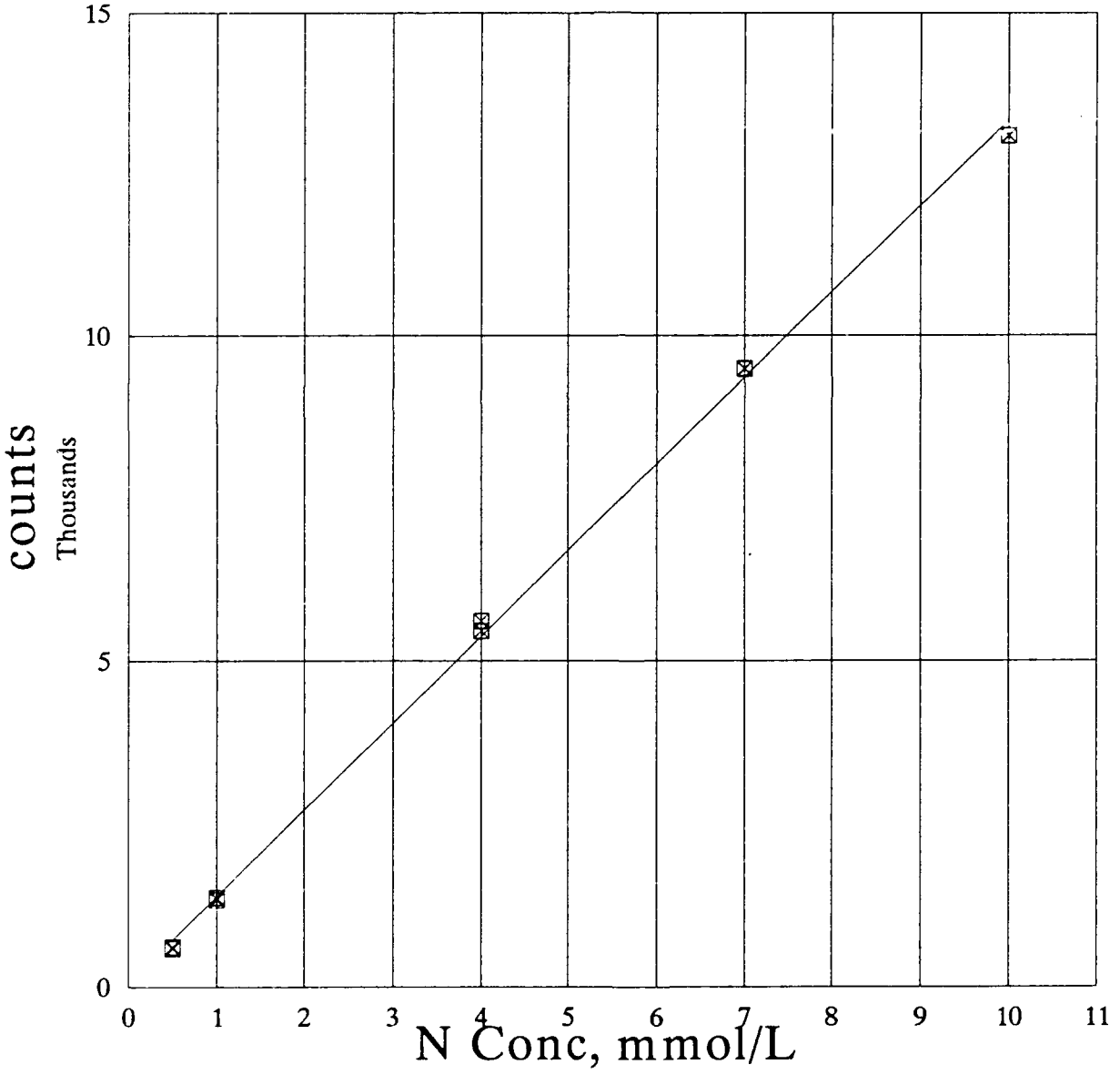


Nitrogen Standard Curve

std	counts
0.5	586
0.5	613
1	1329
1	1366
4	5459
4	5606
7	9492
7	9493
10	13091
10	13102

Regression Output:

Constant	59.5827	13340
Std Err of Y Est	174.829	723.58
R Squared	0.99893	
No. of Observations	10	
Degrees of Freedom	8	
X Coefficient(s)	1328	
Std Err of Coef.	15.3335	



Nitrogen Recovery Studies

Amt Added	Amt Recov	% Recov
181.8	187.9	103.3
181.8	152.1	83.6
333.3	281.1	84.3
333.3	352.0	105.6
571.4	585.9	102.5
571.4	592.2	103.6
1000.0	973.7	97.4
1000.0	1104.8	110.5
1400.0	1505.1	107.5
	AVE:	99.8
	SD:	9.7

CONSTITUENT / REAGENT/METHOD	INSTRUMENT	UNITS	TEMP	# LABS	MONTHLY LEVEL I MEAN	MONTHLY LOT 39301 SD	MONTHLY LOT 39301 CV	MONTHLY LEVEL II MEAN	MONTHLY LOT 39302 SD	MONTHLY LOT 39302 CV	CUMULATIVE LEVEL I MEAN	CUMULATIVE LOT 39301 SD	CUMULATIVE LOT 39301 CV	CUMULATIVE LEVEL II MEAN	CUMULATIVE LOT 39302 SD	CUMULATIVE LOT 39302 CV
CHOLESTEROL (TOTAL)																
	Beckman CX5	mg/dL		YOUR LAB	128.00	1.89	1.5	78.39	1.07	1.4	128.71	2.35	1.8	79.25	1.48	1.9
					SDI VALUE = -0.3			SDI VALUE = -0.7			SDI VALUE = 0.1			SDI VALUE = -0.3		
	Beckman CX5	mg/dL		4	128.76	2.51	2.0	80.02	2.49	3.1	128.53	1.92	1.5	79.80	1.62	2.0
other	other	mg/dL		1	0	0	0	0	0	0	130.09	6.00	4.6	85.70	3.86	4.5
Sigma	other	mg/dL		1	136.30	8.14	6.0	91.36	5.61	6.1	136.66	5.89	4.3	92.37	4.46	4.8
	A.Mon.Parallel	mg/dL		2	134.06	4.74	3.5	91.20	4.40	4.8	133.47	6.05	4.5	90.33	4.80	5.3
	A.Mon.Perspec.	mg/dL		2	136.00	3.57	2.6	88.00	2.98	3.4	130.94	5.94	4.5	86.94	4.07	4.7
	Abbott EPx	mg/dL		1	0	0	0	0	0	0	135.50	4.38	3.2	89.29	14.33	16.0
	Abbott Spectrum	mg/dL		14	136.05	5.23	3.8	90.19	4.22	4.7	136.18	4.62	3.4	90.42	3.28	3.6
	Abbott TDx	mg/dL		2	126.43	2.99	2.4	81.33	2.74	3.4	127.61	8.39	6.6	82.62	7.05	8.5
	Beckman Astra	mg/dL		4	121.73	3.24	2.7	72.42	3.38	4.7	117.47	4.99	4.2	69.50	4.60	6.6
	BMD Hitachi	mg/dL		38	136.90	3.19	2.3	89.50	3.03	3.4	137.12	3.42	2.5	89.71	2.69	3.0
Alpkem	BMD Hitachi	mg/dL		1	0	0	0	0	0	0	137.37	5.91	4.3	91.43	5.17	5.7
Roche	BMD Hitachi	mg/dL		1	139.89	5.89	4.2	89.08	3.80	4.3	141.66	3.86	2.7	90.45	2.78	3.1
Sigma	BMD Hitachi	mg/dL		2	133.00	1.80	1.4	84.50	2.20	2.6	133.76	3.95	3.0	84.41	3.42	4.1
	Coulter Dacos	mg/dL		9	131.04	4.20	3.2	83.48	3.30	4.0	130.72	4.90	3.7	83.22	3.39	4.1
	Dade Paramax	mg/dL		3	137.50	2.94	2.1	91.39	1.98	2.2	141.36	4.31	3.0	94.96	3.75	4.0
	DuPont aca	mg/dL		5	110.00	2.56	2.3	76.87	3.34	4.3	114.79	5.99	5.2	82.61	4.64	5.6
	DuPont Dim.	mg/dL		18	126.16	4.47	3.5	80.29	3.15	3.9	127.42	4.65	3.6	81.11	3.38	4.2
	ENI Gemstar	mg/dL		1	0	0	0	0	0	0	121.52	4.58	3.8	87.08	2.52	2.9
Sigma	ENI Gemstar	mg/dL		1	0	0	0	0	0	0	135.38	6.53	4.8	92.83	4.41	4.8
other	Gilford Impact	mg/dL		1	0	0	0	0	0	0	135.79	2.30	1.7	94.22	1.98	2.1
	IL Monarch	mg/dL		4	0	0	0	0	0	0	133.52	5.77	4.3	93.78	4.25	4.5
Behring	IL Monarch	mg/dL		1	134.99	4.46	3.3	86.24	3.11	3.6	125.81	4.87	3.9	83.93	3.00	3.6
	Kodak DT60	mg/dL		3	142.00	4.95	3.5	94.34	4.50	4.8	140.70	4.18	3.0	92.98	2.88	3.1
	Kodak Ektachem	mg/dL		28	134.47	4.23	3.1	90.45	2.83	3.1	134.34	5.23	3.9	90.73	3.44	3.8
Behring	Kone Progress	mg/dL		1	0	0	0	0	0	0	134.33	3.19	2.4	90.63	3.35	3.7
	Olympus Demand	mg/dL		5	137.99	3.39	2.5	94.84	6.27	6.6	136.51	3.61	2.6	94.18	5.02	5.3
other	Olympus Demand	mg/dL		1	132.94	3.00	2.3	83.21	1.72	2.1	132.63	3.48	2.6	83.23	2.08	2.5
DMA	Olympus Demand	mg/dL		1	0	0	0	0	0	0	136.72	3.79	2.8	96.55	2.86	3.0
Technicon	Olympus Demand	mg/dL		1	0	0	0	0	0	0	133.58	4.21	3.2	89.31	2.86	3.2
other	Roche Cobas-Bio	mg/dL		1	0	0	0	0	0	0	126.12	5.03	4.0	82.55	4.35	5.3
DMA	Roche Cobas-Bio	mg/dL		1	139.88	3.91	2.8	99.64	2.58	2.6	139.12	4.75	3.4	98.04	3.38	3.4
	Roche Cobas-Mir	mg/dL		1	135.16	3.55	2.6	80.62	2.56	3.2	136.07	3.91	2.9	82.42	7.35	8.9
Sigma	Roche Cobas-Mir	mg/dL		1	144.25	6.35	4.4	95.48	4.13	4.3	137.96	6.60	4.8	89.60	4.93	5.5
	Tech. Chem I	mg/dL		1	0	0	0	0	0	0	142.00	2.58	1.8	98.19	1.40	1.4
	Tech. RA-1000	mg/dL		5	134.54	6.73	5.0	94.32	21.29	22.6	136.11	7.45	5.5	94.99	9.05	9.5
other	Tech. RA-1000	mg/dL		1	133.30	5.49	4.1	92.19	4.73	5.1	130.50	6.65	5.1	88.92	5.02	5.6
Behring	Tech. RA-1000	mg/dL		1	0	0	0	0	0	0	135.93	4.29	3.2	91.23	2.09	2.3
	Tech. RA-500	mg/dL		2	136.41	2.26	1.7	99.70	1.83	1.8	138.71	3.98	2.9	100.22	2.33	2.3
	Tech.6/60 12/60	mg/dL		1	138.21	3.96	2.9	96.46	4.30	4.5	135.20	4.06	3.0	91.52	4.50	4.9
	Technicon DAX	mg/dL		1	0	0	0	0	0	0	140.91	3.64	2.6	94.24	2.60	2.8
	Technicon RA-XT	mg/dL		3	137.02	1.16	0.8	98.72	1.03	1.0	137.20	3.12	2.3	99.15	2.25	2.3
	Technicon SMAC	mg/dL		2	130.30	5.35	4.1	90.34	2.99	3.3	136.35	5.21	3.8	90.40	4.37	4.8
alternate calibration	Technicon SMAC	mg/dL		1	0	0	0	0	0	0	136.33	4.90	3.6	90.88	4.35	4.8
Amresco	Technicon SMAC	mg/dL		1	128.76	1.51	1.2	89.08	2.06	2.3	128.76	1.51	1.2	89.08	2.06	2.3
	GROUP VALUES			161	134.48	5.53	4.1	89.27	6.79	7.6	134.25	6.28	4.7	89.07	5.99	6.7

INTERLABORATORY QUALITY ASSURANCE PROGRAM DATA EVALUATION

Prepared for Pennington Biomedical Research Center

	ASSAY VALUE	MEAN YOUR	MEAN POOL	SD YOUR	SD POOL	SD MEAN	CV YOUR	CV 1	CV 2	CV 3	CV POOL	LABS	N.	SDI	CVI
Low	4.4	4.4	4.4	.10	.09	.09	2.27	.00	2.09	2.09	2.05	79	15	.00	1.11
Nor	10.0	9.8	9.9	.15	.11	.13	1.53	.00	1.08	.85	1.11	63	15	-.77	1.38
High	19.9	19.5	19.5	.20	.18	.27	1.03	.16	1.26	.74	.92	78	15	.00	1.12
Low	2.40	2.43	2.42	.020	.026	.021	.82	.61	1.10	.62	1.07	79	15	.48	.77
Nor	4.12	4.14	4.13	.030	.037	.032	.72	.95	.98	.48	.90	63	15	.31	.80
High	5.25	5.24	5.22	.045	.046	.044	.86	.97	1.34	.38	.88	78	15	.45	.98
Low	6.8	6.8	6.9	.05	.06	.06	.74	.00	.76	.61	.87	79	15	-1.67	.85
Nor	12.6	12.6	12.6	.05	.06	.09	.40	.00	.63	.47	.48	63	15	.00	.83
High	16.9	17.0	16.9	.10	.10	.14	.59	.00	.71	.52	.59	78	15	.71	1.00
Low	18.9	19.3	19.3			.22						79		.91	
Nor	35.7	35.9	35.6			.35						63		.86	
High	47.8	48.6	48.0			.52						78		1.15	
Low	78.8	80.2	79.8	.60	.56	.64	.75	.10	1.45	.98	.70	79	15	.63	1.07
Nor	86.6	86.6	86.4	.70	.47	.66	.81	.08	1.02	.48	.54	63	15	.61	1.50
High	91.0	92.8	91.9	.80	.55	.86	.86	.11	1.31	.52	.60	78	15	1.05	1.43
Low	28.3	28.0	28.4			.34						79		-1.18	
Nor	30.6	30.4	30.5			.33						63		-.30	
High	32.2	32.4	32.4			.34						78		.00	
Low	36.0	34.9	35.6			.52						79		-1.35	
Nor	35.3	35.1	35.3			.44						63		-.45	
High	35.4	35.0	35.3			.42						78		-.71	
Low	15.8	15.3	15.2	.20	.27	.23	1.31	.24	2.24	1.42	1.78	79	15	.4	.74
Nor	14.4	14.1	13.9	.35	.27	.32	2.48	.28	2.10	1.43	1.94	63	15	.63	1.28
High	15.2	14.1	14.0	.50	.34	.27	3.55	.47	4.34	2.50	2.43	78	15	.37	1.46
Low	60.	69.	71.	2.5	2.1	1.7	3.62	.00	4.57	2.46	2.96	79	15	-1.18	1.22
Nor	210.	201.	209.	5.0	3.4	3.8	2.49	.00	2.76	1.95	1.63	63	15	-2.11	1.53
High	408.	382.	397.	8.0	7.2	6.0	2.09	.00	1.68	1.96	1.81	78	15	-2.50	1.15

= Number of Labs in Pool

N = Number of Your Values used in Calculations

SURVEY SET: C - A
CAP NUMBER: 38988-01-01-01 KIT# 01
ATTENTION:
INSTITUTION: PENNINGTON BIOMEDICAL RSCH CTR

COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

KIT MAILED: 3/25/91
QUEST. EVAL: 6/02/91

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT) QTR	-100	-75	-50	-25	0	25	50	75	100
ALBUMIN G/DL	C-01	2.6	13	2.69	.08	267	-1.1	2.4 -	3.0	91A				2	-2	-1			
DYE BINDING-BCP	C-02	3.7	13	3.77	.09	266	-0.8	3.3 -	4.2										
BECKMAN SYNCHRON CX4/5	C-03	2.9	13	2.95	.08	260	-0.6	2.6 -	3.3										
	C-04	3.9	13	3.92	.11	258	-0.2	3.5 -	4.4										
	C-05	2.6	13	2.68	.08	260	-1.0	2.4 -	3.0										
	C-01			2.80	.18	576	-1.1												
DYE BINDING-BCG W/RA	C-02			3.85	.23	573	-0.7												
ALL INSTRUMENTS	C-03			3.07	.20	565	-0.9												
	C-04			4.00	.23	564	-0.4												
	C-05			2.80	.20	563	-1.0												
BILIRUBIN, TOTAL MG/DL	C-01	1.1	13	1.13	.07	241	-0.4	.8 -	1.5	91A				1	-4				
DIAZO J-G W/O BLANK	C-02	5.1	13	5.20	.14	242	-0.7	4.1 -	6.3										
BECKMAN SYNCHRON CX4/5	C-03	1.2	13	1.24	.07	233	-0.6	.9 -	1.6										
	C-04	5.1	13	5.39	.16	234	-1.8	4.3 -	6.5										
	C-05	1.1	13	1.14	.07	233	-0.6	.8 -	1.5										
	C-01			.95	.12	4958	+1.3												
ALL METHOD PRINCIPLES	C-02			5.07	.38	4999	+0.1												
ALL INSTRUMENTS	C-03			1.06	.12	4802	+1.2												
	C-04			5.26	.40	4867	-0.4												
	C-05			.96	.12	4805	+1.2												
CALCIUM-SERUM MG/DL	C-01			9.34	.23	225	-0.2			91A				1	-1	-1	-----2		
ARSENAZO III DYE	C-02			12.61	.31	231	-0.7												
BECKMAN SYNCHRON CX4/5	C-03			10.18	.26	223	-1.5												
	C-04			13.06	.32	220	-1.1												
	C-05			9.33	.26	224	-0.1												
	C-01	9.3	14	9.15	.28	5046	+0.5	8.1 -	10.2										
ALL METHOD PRINCIPLES	C-02	12.4	14	12.59	.43	5040	-0.4	11.5 -	13.6										
ALL INSTRUMENTS	C-03	9.8	14	10.05	.31	4937	-0.8	9.0 -	11.1										
	C-04	12.7	14	13.09	.48	4938	-0.8	12.0 -	14.1										
	C-05	9.3	14	9.17	.29	4892	+0.4	8.1 -	10.2										

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COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CAP NUMBER: 38988-01-01-01 KIT# 01

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT) QTR	-100 -75 -50 -25 0 25 50 75 100
IONIZED CALCIUM	C-01									91A	
MMOL/L	C-02										
TEST NOT PERFORMED											
NO COMPARATIVE METHOD	C-01										
	C-02										
CHLORIDE	C-01			92.0	1.7	189	-1.2			91A	1 2 11
MMOL/L	C-02			121.1	2.1	187	-1.0				
ION SELEC./DILUTED	C-03			102.4	1.5	184	-0.9				
BECKMAN SYNCHRON CX4/5	C-04			126.7	2.2	186	-1.2				
	C-05			93.2	1.5	184	-0.8				
ALL CHLORIDE COMMON GP	C-01	90	14	93.8	2.1	1163	-1.6	88 -	98		
ALL AUTO CHEM INSTR	C-02	119	14	119.7	3.2	1174	-0.2	113 -	126		
	C-03	101	14	101.2	2.3	1132	-0.5	97 -	108		
	C-04	124	14	124.3	3.4	1131	-0.1	118 -	131		
	C-05	92	14	93.5	2.2	1121	-0.7	88 -	99		
CO2	C-01	17	10	16.9	1.1	188	+0.1			91A	
MMOL/L	C-02	28	10	27.6	1.2	186	+0.3				
ION SELEC./DILUTED											
BECKMAN SYNCHRON CX4/5											
NO COMPARATIVE METHOD	C-01										
	C-02										

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CAP NUMBER: 38988-01-01-01 KIT# 01

COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT) QTR
CORTISOL - SERUM	C-01									91A
MCG/DL	C-02									
TEST NOT PERFORMED	C-03									
	C-04									
	C-05									
NO COMPARATIVE METHOD	C-01									
	C-02									
	C-03									
	C-04									
	C-05									
CREATININE-SERUM	C-01			1.07	.07	167	+0.4			91A
MG/DL	C-02			4.89	.14	167	+0.1			
KINETIC ALK. PICRATE	C-03			1.17	.06	161	-1.2			
BECKMAN SYNCHRON CX4/5	C-04			5.07	.14	160	+0.2			
	C-05			1.07	.05	161	+0.6			
ALL METHOD PRINCIPLES	C-01	1.1	14	1.05	.12	5522	+0.4	.7 -	1.4	
ALL INSTRUMENTS	C-02	4.9	14	5.01	.27	5493	-0.4	4.2 -	5.8	
	C-03	1.1	14	1.15	.13	5362	-0.4	.8 -	1.5	
	C-04	5.1	14	5.22	.29	5340	-0.4	4.4 -	6.0	
	C-05	1.1	14	1.05	.12	5349	+0.4	.7 -	1.4	
GLUCOSE-SERUM	C-01			98.5	2.3	180	-1.5			91A
MG/DL	C-02			291.8	6.4	184	-0.8			
HEXOKINASE, UV	C-03			108.8	2.4	179	-1.6			
BECKMAN SYNCHRON CX4/5	C-04			301.1	7.5	181	-1.1			
	C-05			98.3	2.5	180	-0.9			
GLU OXIDASE O2 ELEC	C-01	95	14	94.7	2.5	833	+0.1	85 -	105	
ALL AUTO CHEM INSTR	C-02	287	14	283.7	6.5	831	+0.5	255 -	313	
	C-03	105	14	104.6	2.6	806	+0.2	94 -	116	
	C-04	293	14	292.6	6.5	805	+0.1	263 -	322	
	C-05	96	14	95.0	2.4	802	+0.4	85 -	105	

RT 6-16-91

CAP NUMBER: 38988-01-01-01 KIT# 01

COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT) QTR
IRON	C-01	68	13	67.5	3.1	108	+0.2	54 -	81	91A
MCG/DL	C-02	91	13	93.3	3.9	109	-0.6	74 -	112	
FERRACHROME W/O PPR	C-03	73	13	73.1	3.1	106	+0.0	58 -	88	
BECKMAN SYNCHRON CX4/5	C-04	93	13	97.7	4.3	106	-1.1	78 -	118	
	C-05	66	13	67.0	3.2	105	-0.3	53 -	81	
	C-01			67.5	6.6	2895	+0.1			
ALL METHOD PRINCIPLES	C-02			91.2	10.7	2905	+0.0			
ALL INSTRUMENTS	C-03			73.0	8.5	2827	+0.0			
	C-04			95.2	12.1	2839	-0.2			
	C-05			67.1	6.9	2799	-0.2			
LACTIC ACID	C-01	1.2	10			11				91A
MMOL/L	C-02	2.8	10			11				
OXIDATION AUT										
BECKMAN SYNCHRON CX4/5										
	C-01									
NO COMPARATIVE METHOD	C-02									
LITHIUM	C-01									91A
MMOL/L	C-02									
TEST NOT PERFORMED	C-03									
NOT GIVEN	C-04									
	C-05									
	C-01			.44	.06	1934				
ALL METHOD PRINCIPLES	C-02			2.39	.14	1941				
ALL INSTRUMENTS	C-03			.51	.06	1878				
	C-04			2.50	.15	1880				
	C-05			.45	.06	1870				

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CAP NUMBER: 38988-01-01-01 KIT# 01

COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN		NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER		UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT)
MAGNESIUM	C-01	1.9	13	1.88	.06	216	+0.3	1.4	-	2.4	91A	21-2
MG/DL	C-02	4.0	13	4.06	.12	218	-0.5	3.0	-	5.1		
CALMAGITE	C-03	2.0	13	2.07	.08	213	-0.9	1.5	-	2.6		
BECKMAN SYNCHRON CX4/5	C-04	4.1	13	4.21	.14	214	-0.8	3.1	-	5.3		
	C-05	1.9	13	1.88	.07	215	+0.3	1.4	-	2.4		
ATOMIC ABSORPTION	C-01			1.84	.12	22	+0.5					
ALL ATOMIC ABSORP SPEC	C-02			4.01	.18	22	-0.1					
	C-03			2.02	.15	22	-0.1					
	C-04			4.18	.20	21	-0.4					
	C-05			1.86	.09	22	+0.4					
ONCOTIC PRESSURE	C-01										91A	
MM HG	C-02											
TEST NOT PERFORMED												
NO COMPARATIVE METHOD	C-01											
	C-02											
OSMOLALITY-SERUM	C-01										91A	
MOSM/KG H2O	C-02											
TEST NOT PERFORMED												
NO COMPARATIVE METHOD	C-01											
	C-02											

RC 6-16-91

CAP NUMBER: 38988-01-01-01 KIT# 01

COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT)
PHOSPHORUS-SERUM	C-01	4.3	13	4.45	.24	233	-0.6	3.9 -	5.0	91A	
MG/DL	C-02	7.5	13	7.68	.32	234	-0.6	6.8 -	8.5		
PHOSPHOMOLYBDATE UV	C-03	4.8	13	4.86	.22	225	-0.3	4.3 -	5.4		
BECKMAN SYNCHRON CX4/5											
	C-01			4.36	.23	4569	-0.3				
ALL METHOD PRINCIPLES	C-02			7.45	.35	4612	+0.1				
ALL INSTRUMENTS	C-03			4.80	.25	4442	+0.0				
POTASSIUM-SERUM	C-01			3.36	.07	198	+2.0			91A	
MMOL/L	C-02			5.98	.09	196	+1.3				
ION SELEC./DILUTED	C-03			3.70	.07	196	+1.4				
BECKMAN SYNCHRON CX4/5	C-04			6.24	.10	196	+0.6				
	C-05			3.35	.07	192	+0.7				
	C-01	3.5	14	3.38	.09	2636	+1.3	2.8 -	3.9		
ALL POTASSIUM COMMON	C-02	6.1	14	5.99	.14	2638	+0.8	5.4 -	6.5		
ALL INSTRUMENTS	C-03	3.8	14	3.73	.10	2543	+0.7	3.2 -	4.3		
	C-04	6.3	14	6.24	.15	2555	+0.4	5.7 -	6.8		
	C-05	3.4	14	3.39	.10	2555	+0.1	2.8 -	3.9		
PROTEIN, TOTAL-SERUM	C-01	4.5	13	4.57	.08	279	-0.9	4.1 -	5.1	91A	
G/DL	C-02	6.1	13	6.18	.11	282	-0.7	5.5 -	6.8		
BIURET	C-03	4.8	13	4.99	.09	270	-2.1	4.4 -	5.5		
BECKMAN SYNCHRON CX4/5	C-04	6.2	13	6.43	.11	272	-2.1	5.7 -	7.1		
	C-05	4.5	13	4.56	.09	268	-0.7	4.1 -	5.1		
	C-01			4.52	.21	4818	-0.1				
BIURET	C-02			6.16	.27	4819	-0.2				
ALL INSTRUMENTS	C-03			4.97	.23	4691	-0.7				
	C-04			6.43	.29	4682	-0.8				
	C-05			4.54	.21	4611	-0.2				

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COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT) QTR
PREALBUMIN / MG/DL / TEST NOT PERFORMED	C-01									91A
	C-02									
NO COMPARATIVE METHOD	C-01									
	C-02									
SODIUM-SERUM / MMOL/L / ION SELEC./DILUTED / BECKMAN SYNCHRON CX4/5	C-01			122.2	1.4	199	+1.3			91A
	C-02			153.7	1.7	195	+0.2			
	C-03			132.1	1.4	193	-0.1			
	C-04			158.6	2.2	194	+0.2			
	C-05			122.0	1.5	192	+0.0			
ALL SODIUM COMMON GP / ALL INSTRUMENTS	C-01	124	14	122.4	1.8	2609	+0.9	118 -	127	
	C-02	154	14	154.4	2.1	2593	-0.2	150 -	159	
	C-03	132	14	132.7	1.8	2527	-0.4	128 -	137	
	C-04	159	14	159.5	2.3	2508	-0.2	155 -	164	
	C-05	122	14	122.5	1.8	2514	-0.3	118 -	127	
T-3 UPTAKE / % UPTAKE / TEST NOT PERFORMED	C-01									91A
	C-02									
	C-03									
	C-04									
	C-05									
NO COMPARATIVE METHOD	C-01									
	C-02									
	C-03									
	C-04									
	C-05									

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COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	LIMITS OF ACCEPTABILITY UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT) QTR
T UPTAKE / UPTAKE UNITS / TEST NOT PERFORMED	C-01									91A
	C-02									
	C-03									
	C-04									
	C-05									
NO COMPARATIVE METHOD	C-01									
	C-02									
	C-03									
	C-04									
	C-05									
THYROXINE / MCG/DL / TEST NOT PERFORMED	C-01									91A
	C-02									
	C-03									
	C-04									
	C-05									
NO COMPARATIVE METHOD	C-01									
	C-02									
	C-03									
	C-04									
	C-05									
TRANSFERRIN / MG/DL / TEST NOT PERFORMED	C-01									91A
	C-02									
NO COMPARATIVE METHOD	C-01									
	C-02									

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COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT)
UREA - SERUM	C-01			24.2	.8	191	-0.3			91A	
MG N/DL	C-02			49.2	1.3	191	-0.2				
UREASE WITH GLDH	C-03			26.3	.8	189	-1.6				
BECKMAN SYNCHRON CX4/5	C-04			51.1	1.5	189	-0.1				
	C-05			24.1	.8	190	-0.1				
	C-01	24	14	23.3	1.3	3408	+0.5	21 -	26		
UREASE WITH GLDH	C-02	49	14	48.7	2.5	3396	+0.1	44 -	54		
ALL AUTO CHEM INSTR	C-03	25	14	25.6	1.4	3313	-0.4	23 -	28		
	C-04	51	14	50.6	2.7	3309	+0.1	46 -	56		
	C-05	24	14	23.3	1.3	3294	+0.5	21 -	26		
URIC ACID	C-01			5.85	.12	285	+0.4			91A	
MG/DL	C-02			8.39	.15	282	+0.1				
URICASE	C-03			6.41	.13	277	-0.8				
BECKMAN SYNCHRON CX4/5	C-04			8.66	.17	274	-0.9				
	C-05			5.84	.13	278	+0.5				
	C-01	5.9	14	5.82	.30	4902	+0.3	4.8 -	6.9		
URICASE	C-02	8.4	14	8.55	.44	4911	-0.3	7.1 -	10.0		
ALL INSTRUMENTS	C-03	6.3	14	6.42	.35	4789	-0.3	5.3 -	7.6		
	C-04	8.5	14	8.87	.49	4786	-0.8	7.3 -	10.4		
	C-05	5.9	14	5.84	.32	4763	+0.2	4.8 -	6.9		
AMYLASE-SERUM	C-01	126	13	124.1	4.4	218	+0.4	110 -	138	91A	
IU/L	C-02	330	13	327.2	8.7	217	+0.3	301 -	354		
BECKMAN SYNCHRON CX4/5	C-03	132	13	136.6	4.4	211	-1.0	123 -	150		
BECKMAN/37 C	C-04	333	13	337.4	9.8	212	-0.4	308 -	367		
	C-05	123	13	124.0	4.3	211	-0.2	111 -	137		
	C-01										
NO COMPARATIVE METHOD	C-02										
	C-03										
	C-04										
	C-05										

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COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION -100=LOWER LIMIT 0=TARGET +100=UPPER LIMIT QTR -100 -75 -50 -25 0 25 50 75 100
ALT SGPT	C-01	67	13	65.6	3.7	266	+0.4	52 -	79	91A 2-21
IU/L	C-02	142	13	140.1	4.5	265	+0.4	112 -	169	
BECKMAN SYNCHRON CX4/5	C-03	72	13	72.5	3.8	257	-0.1	58 -	87	
BECKMAN/37 C	C-04	146	13	147.0	4.6	257	-0.2	117 -	177	
	C-05	66	13	65.6	3.7	257	+0.1	52 -	79	
NO COMPARATIVE METHOD	C-01									
	C-02									
	C-03									
	C-04									
	C-05									
ALKALINE PHOSPHATASE	C-01	64	13	61.6	3.2	227	+0.8	52 -	72	91A 1-2--1--1
IU/L	C-02	183	13	174.4	7.1	226	+1.2	153 -	196	
BECKMAN SYNCHRON CX4/5	C-03	68	13	67.0	3.2	224	+0.3	57 -	77	
BECKMAN/37 C	C-04	180	13	177.4	7.1	221	+0.4	156 -	199	
	C-05	62	13	61.8	3.1	222	+0.1	52 -	72	
NO COMPARATIVE METHOD	C-01									
	C-02									
	C-03									
	C-04									
	C-05									
AST SGOT	C-01	57	13	58.7	2.7	272	-0.6	47 -	71	91A 221
IU/L	C-02	136	13	138.9	4.7	275	-0.6	111 -	167	
BECKMAN SYNCHRON CX4/5	C-03	62	13	63.7	2.7	264	-0.6	51 -	77	
BECKMAN/37 C	C-04	140	13	145.1	4.9	266	-1.0	116 -	175	
	C-05	56	13	58.4	2.6	260	-0.9	46 -	71	
NO COMPARATIVE METHOD	C-01									
	C-02									
	C-03									
	C-04									
	C-05									

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E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT) QTR	-100	-75	-50	-25	0	25	50	75	100
CREATINE KINASE	C-01	208	13	221.8	14.2	258	-1.0	179 -	265	91A			1-	11	-2				
IU/L	C-02	487	13	509.8	27.2	258	-0.8	428 -	592										
BECKMAN SYNCHRON CX4/5	C-03	220	13	242.8	15.4	254	-1.5	196 -	289										
BECKMAN/37 C	C-04	471	13	513.0	30.7	252	-1.4	420 -	606										
	C-05	193	13	219.5	15.0	250	-1.8	174 -	265										
NO COMPARATIVE METHOD	C-01																		
	C-02																		
	C-03																		
	C-04																		
	C-05																		
GAMMA GLUTAMYL TRANS	C-01	54	10	52.1	2.2	206	+0.9			91A									
IU/L	C-02	171	10	165.7	6.0	205	+0.9												
BECKMAN SYNCHRON CX4/5																			
BECKMAN/37 C																			
NO COMPARATIVE METHOD	C-01																		
	C-02																		
LACTATE DEHYDROGENASE	C-01	149	13	144.8	6.2	267	+0.7	115 -	174	91A						2-	21		
IU/L	C-02	352	13	340.0	10.6	268	+1.1	272 -	408										
BECKMAN SYNCHRON CX4/5	C-03	162	13	156.9	5.6	259	+0.9	125 -	189										
BECKMAN/37 C	C-04	356	13	353.9	11.4	259	+0.2	283 -	425										
	C-05	145	13	143.4	6.0	259	+0.3	114 -	173										
NO COMPARATIVE METHOD	C-01																		
	C-02																		
	C-03																		
	C-04																		
	C-05																		

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COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	EVALUATION AND COMPARATIVE-METHOD STATISTICS: SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	LIMITS OF ACCEPTABILITY SDI	LOWER	UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT): QTR
APOLIPOPROTEIN A1 / MG/DL / TEST NOT PERFORMED / NOT GIVEN	C-06 C-07									91A
NO COMPARATIVE METHOD	C-06 C-07									
APOLIPOPROTEIN B / MG/DL / TEST NOT PERFORMED / NOT GIVEN	C-06 C-07									91A
NO COMPARATIVE METHOD	C-06 C-07									
LDL CHOLESTEROL / MG/DL / TRIGLYCERIDE /5	C-06 C-07	115 201	10 10	128.1 208.6	14.2 14.8	2382 2359	-0.9 -0.5			91A
NO COMPARATIVE METHOD	C-06 C-07									

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E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT)
CHOLESTEROL L / MG/DL / ENZYMATIC / BECKMAN SYNCHRON CX4/5	C-06			176.4	4.3	269	-0.1			91A	
	C-07			259.2	6.3	270	-0.5				
	C-08			189.5	4.2	260	-1.5				
	C-09			293.8	6.9	261	-1.1				
	C-10			210.9	4.6	258	-0.2				
ENZYMATIC / ALL MULTICON ANALYZERS	C-06	176	14	181.8	10.8	4515	-0.5	163 -	200		
	C-07	256	14	266.6	16.4	4521	-0.6	239 -	294		
	C-08	183	14	197.0	12.2	4397	-1.1	177 -	217		
	C-09	286	14	300.7	17.0	4382	-0.9	270 -	331		
	C-10	210	14	217.4	12.6	4395	-0.6	195 -	240		
HDL CHOLESTEROL (L) / MG/DL / PHOS/MG WITH ENZ QUANT / BECKMAN SYNCHRON CX4/5	C-06	35	10	35.6	14.3	93	+0.0			91A	
	C-07	20	10	18.8	3.8	94	+0.3				
	C-08	42	10	43.1	18.6	92	-0.1				
	C-09	46	10	23.8	4.6	87	+4.8				
	C-10	42	10	35.7	11.9	90	+0.5				
NO COMPARATIVE METHOD	C-06										
	C-07										
	C-08										
	C-09										
	C-10										
TRIGLYCERIDE (L) / MG/DL / ENZ-COLOR W/OGB W/OSB / BECKMAN SYNCHRON CX4/5	C-06	133	13	130.6	6.6	195	+0.4	110 -	151	91A	
	C-07	179	13	184.0	6.9	195	-0.7	163 -	205		
	C-08	108	13	112.3	5.9	190	-0.7	94 -	130		
	C-09	198	13	203.8	7.8	189	-0.7	180 -	228		
	C-10	152	13	155.8	6.1	191	-0.6	137 -	175		
NO COMPARATIVE METHOD	C-06										
	C-07										
	C-08										
	C-09										
	C-10										

changing HDL method to dextran SO4 - Don't know why this is high. RT

Avg. of Phosphotungstic acid and 5 Q7.

RT 6-16-94

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COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	EVALUATION AND COMPARATIVE-METHOD STATISTICS: SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	LIMITS OF ACCEPTABILITY UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT): QTR
BILIRUBIN, DIRECT MG/DL TEST NOT PERFORMED NOT GIVEN	C-92									91A
NO COMPARATIVE METHOD	C-92									
BILIRUBIN, TOTAL "U" MG/DL TEST NOT PERFORMED NOT GIVEN	C-92									91A
ALL METHOD PRINCIPLES ALL INSTRUMENTS	C-92			17.26	1.61	3738				
AMMONIA UMOL/L GLUTAMATE DEHYDROGENAS BECKMAN SYNCHRON CX4/5	C-96	27	10	29.2	7.0	38	-0.3			91A
NO COMPARATIVE METHOD	C-96									

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COMP CHEMISTRY SERIES 1A

E V A L U A T I O N

PENNINGTON BIOMEDICAL RSCH CTR
CLINICAL RESEARCH LABORATORY
6400 PERKINS RD.
BATON ROUGE LA 70808

YOUR NEXT SURVEY KIT, SET C-B, IS SCHEDULED TO BE SHIPPED ON JUNE 24, 1991.

CHECKED BY ..... DATE REVIEWED .....

SURVEY SET: FH6 - B
CAP NUMBER: 38988-01-01-01 KIT# 01
ATTENTION:
INSTITUTION: PENNINGTON BIOMEDICAL RSCH CTR

COMP.HEMATOLOGY - FH6

E V A L U A T I O N

KIT MAILED: 5/20/91
QUEST. EVAL: 8/04/91

Kit 8/8/91

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	LIMITS OF ACCEPTABILITY UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT)
WHITE BLOOD CELL COUNT / THOUSAND/UL / COULTER STKS	FH606	3.0	13	3.19	.11	493	-1.7	2.8	3.6	91B	
	FH607	7.2	13	7.44	.16	499	-1.5	6.9	8.0		
	FH608	7.1	13	7.40	.16	500	-1.9	6.9	7.9		
	FH609	9.9	13	10.30	.21	501	-1.9	9.6	11.0		
	FH610	25.6	13	26.11	.53	502	-1.0	24.5	27.7		
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
RED CELL COUNT (FH) / MILLION/UL / COULTER STKS	FH606	6.00	13	5.922	.074	502	+1.1	5.70	6.15	91B	
	FH607	3.88#	13	3.318	.041	499	+13.7	3.19	3.45		
	FH608	3.33	13	3.273	.041	502	+1.4	3.15	3.40		
	FH609	2.81	13	2.768	.033	499	+1.3	2.66	2.87		
	FH610	2.03	13	2.008	.026	502	+0.8	1.93	2.09		
NO COMPARATIVE METHOD	FH606										
	FH607	ERROR ON ENTERING FIGURE; OUR RESULTS									
	FH608	WERE ACTUALLY 3.38 (SEE ATTACHED DOCUMENTS)									
	FH609										
	FH610										
HEMOGLOBIN / G/DL / COULTER STKS	FH606	18.6	13	18.65	.21	499	-0.2	18.0	19.3	91B	
	FH607	9.9	13	9.89	.11	501	+0.1	9.5	10.3		
	FH608	9.7	13	9.74	.10	499	-0.4	9.4	10.1		
	FH609	8.3	13	8.33	.10	501	-0.3	8.0	8.7		
	FH610	5.8	13	5.69	.09	500	+1.2	5.4	6.0		
ALL INSTRUMENTS	FH606			18.66	.22	671	-0.3				
	FH607			9.86	.13	674	+0.3				
	FH608			9.71	.12	671	-0.1				
	FH609			8.30	.11	673	+0.0				
	FH610			5.67	.10	672	+1.3				

#RESULT EXCEEDS FIXED CRITERIA

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COMP.HEMATOLOGY - FH6

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT)
HEMATOCRIT / PERCENT / COULTER STKS	FH606	56.1	13	56.15	.87	500	-0.1	53.5 -	58.8	91B	
	FH607	29.6	13	29.50	.44	501	+0.2	28.1 -	30.9		
	FH608	29.0	13	29.02	.46	502	+0.0	27.6 -	30.4		
	FH609	24.5	13	24.49	.37	500	+0.0	23.3 -	25.6		
	FH610	16.4	13	16.44	.26	500	-0.2	15.6 -	17.3		
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
MCV / FEMTOLITERS / COULTER STKS	FH606	93.5	10	94.74	.90	496	-1.4			91B	
	FH607	87.6	10	88.87	.80	495	-1.6				
	FH608	87.2	10	88.59	.81	495	-1.7				
	FH609	87.2	10	88.38	.81	498	-1.5				
	FH610	80.6	10	81.79	.74	497	-1.6				
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
MCH / PICOGRAMS / COULTER STKS	FH606	31.1	10	31.50	.43	500	-0.9			91B	
	FH607	29.4	10	29.81	.41	497	-1.0				
	FH608	29.2	10	29.76	.38	499	-1.5				
	FH609	29.7	10	30.09	.41	499	-1.0				
	FH610	28.2	10	28.31	.51	501	-0.2				
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										

CAP NUMBER: 38988-01-01-01 KIT# 01

COMP.HEMATOLOGY - FH6

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION -100=LOWER LIMIT 0=TARGET +100=UPPER LIMIT
MCHC	FH606	33.2	10	33.21	.52	500	+0.0			91B	
G/DL	FH607	33.5	10	33.54	.52	498	-0.1				
COULTER STKS	FH608	33.4	10	33.57	.52	499	-0.3				
	FH609	33.9	10	34.03	.53	498	-0.2				
	FH610	35.0	10	34.59	.69	502	+0.6				
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
RDW/RCMI	FH606	14.8	10	15.03	.24	497	-1.0			91B	
	FH607	15.5	10	15.75	.23	496	-1.1				
COULTER STKS	FH608	15.6	10	15.70	.26	498	-0.4				
	FH609	14.8	10	14.88	.24	500	-0.3				
	FH610	15.9	10	15.55	.27	500	+1.3				
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
PLT CT-WHOLE BLOOD	FH606	612	13	630.2	19.2	501	-0.9	572 -	688	91B	1-2-1--1
THOUSAND/UL	FH607	205	13	212.3	6.4	503	-1.1	193 -	232		
COULTER STKS	FH608	86	13	89.7	3.1	503	-1.2	80 -	99		
	FH609	156	13	163.3	4.9	497	-1.5	148 -	178		
	FH610	160	13	162.9	5.4	503	-0.5	146 -	180		
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										

CAP NUMBER: 38988-01-01-01 KIT# 01

COMP.HEMATOLOGY - FH6

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	QTR
NEUT/GRAN	FH606	69	10			451				91B
PERCENT	FH607	61	10			474				
COULTER STKS	FH608	61	10			477				
	FH609	65	10			475				
	FH610	74	10			482				
NO COMPARATIVE METHOD	FH606									
	FH607									
	FH608									
	FH609									
	FH610									
LYMPHOCYTES	FH606	25	10			448				91B
PERCENT	FH607	30	10			475				
COULTER STKS	FH608	31	10			479				
	FH609	27	10			477				
	FH610	20	10			477				
NO COMPARATIVE METHOD	FH606									
	FH607									
	FH608									
	FH609									
	FH610									
MONOCYTES	FH606	5	10			447				91B
PERCENT	FH607	6	10			465				
COULTER STKS	FH608	6	10			471				
	FH609	6	10			469				
	FH610	5	10			478				
NO COMPARATIVE METHOD	FH606									
	FH607									
	FH608									
	FH609									
	FH610									

EVALUATION AND COMPARATIVE-METHOD STATISTICS

PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION
-100=LOWER LIMIT 0=TARGET +100=UPPER LIMIT

QTR -100 -75 -50 -25 0 25 50 75 100

CAP NUMBER: 38988-01-01-01 KIT# 01

COMP.HEMATOLOGY - FH6

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	LIMITS OF ACCEPTABILITY UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT)
EOSINOPHILS / PERCENT / COULTER STKS	FH606	1	10			459				91B	
	FH607	2	10			484					
	FH608	1	10			486					
	FH609	1	10			484					
	FH610	1	10			453					
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
BASOPHILS / PERCENT / COULTER STKS	FH606	0	10			446				91B	
	FH607	1	10			477					
	FH608	1	10			482					
	FH609	1	10			473					
	FH610	0	10			466					
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
WHITE CELL 2ND INST / THOUSAND/UL / NOT GIVEN	FH606									91B	
	FH607										
	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										

CAP NUMBER: 38988-01-01-01 KIT# 01

COMP.HEMATOLOGY - FH6

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	LIMITS OF ACCEPTABILITY UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT)
RED CELL CNT 2NDIN FH / MILLION/UL / NOT GIVEN	FH606									91B	
	FH607										
	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
HEMOGLOBIN 2ND INST. / G/DL / NOT GIVEN	FH606									91B	
	FH607										
	FH608										
	FH609										
	FH610										
ALL INSTRUMENTS	FH606			18.66	.22	671					
	FH607			9.86	.13	674					
	FH608			9.71	.12	671					
	FH609			8.30	.11	673					
	FH610			5.67	.10	672					
HEMATOCRIT 2ND INST. / PERCENT / NOT GIVEN	FH606									91B	
	FH607										
	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										

CAP NUMBER: 38988-01-01-01 KIT# 01

COMP.HEMATOLOGY - FH6

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION -100=LOWER LIMIT 0=TARGET +100=UPPER LIMIT -100 -75 -50 -25 0 25 50 75 100
MCV 2ND INSTRUMENT / FEMTOLITERS / NOT GIVEN	FH606									91B	
	FH607										
	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
MCH 2ND INSTRUMENT / PICOGRAMS / NOT GIVEN	FH606									91B	
	FH607										
	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
MCHC 2ND INSTRUMENT / G/DL / NOT GIVEN	FH606									91B	
	FH607										
	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										

CAP NUMBER: 38988-01-01-01 KIT# 01

COMP.HEMATOLOGY - FH6

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	LIMITS OF ACCEPTABILITY UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION -100=LOWER LIMIT 0=TARGET +100=UPPER LIMIT QTR	-100 -75 -50 -25 0 25 50 75 100
RDW/RCMI 2ND INST.	FH606									91B	
	FH607										
NOT GIVEN	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
PLATELET COUNT (2ND) THOUSAND/UL	FH606									91B	
	FH607										
NOT GIVEN	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
NEUT/GRAN (2ND INST) PERCENT	FH606									91B	
	FH607										
NOT GIVEN	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										

CAP NUMBER: 38988-01-01-01 KIT# 01

COMP.HEMATOLOGY - FH6

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	LIMITS OF ACCEPTABILITY UPPER	QTR	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION -100=LOWER LIMIT 0=TARGET +100=UPPER LIMIT -100 -75 -50 -25 0 25 50 75 100
LYMPHOCYTES (2ND INST)	FH606									91B	
PERCENT	FH607										
NOT GIVEN	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
MONOCYTES (2ND INST)	FH606									91B	
PERCENT	FH607										
NOT GIVEN	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										
EOSINOPHILS (2ND INST)	FH606									91B	
PERCENT	FH607										
NOT GIVEN	FH608										
	FH609										
	FH610										
NO COMPARATIVE METHOD	FH606										
	FH607										
	FH608										
	FH609										
	FH610										

CAP NUMBER: 38988-01-01-01 KIT# 01

COMP.HEMATOLOGY - FH6

E V A L U A T I O N

CONSTITUENT / UNIT OF MEASURE / YOUR REPORTED METHOD / COMPARATIVE METHOD	SPECIMEN	YOUR RESULT	EVAL CODE	MEAN	SD	NO. LABS	SDI	LIMITS OF ACCEPTABILITY LOWER	LIMITS OF ACCEPTABILITY UPPER	PLOTS OF THE RELATIVE DISTANCE OF YOUR RESULTS FROM TARGETS AS PERCENTAGES OF ALLOWED DEVIATION (-100=LOWER LIMIT, 0=TARGET, +100=UPPER LIMIT) QTR
BASOPHILS (2ND INST) / PERCENT / NOT GIVEN	FH606									91B
	FH607									
	FH608									
	FH609									
	FH610									
NO COMPARATIVE METHOD	FH606									
	FH607									
	FH608									
	FH609									
	FH610									
RETICULOCYTE COUNT / PERCENT / TEST NOT PERFORMED	HE-32									91B
ALL METHOD PRINCIPLES	HE-32			3.97	1.18	391				

CONSTITUENT METHODS	SPEC.	**** YOUR RESULT ****	CODE	GOOD PERFORMANCE	ACCEPTABLE PERFORMANCE
BLOOD CELL IDENT	HE-22	EOSINOPHIL, ANY STAGE	71	EOSINOPHIL, ANY STAGE	
	HE-23	BAND/STAB/NEUTROPHIL	71	BAND/STAB/NEUTROPHIL	BAND NEUTROPHIL W/TOXC
	HE-24	POLYCHROMATOPHILIC RC	71	POLYCHROMATOPHILIC RC	MACROCYTE OVAL OR ROUD
	HE-25	PLATELETS, NORMAL	71	PLATELETS, NORMAL	

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COMP.HEMATOLOGY - FH6

E V A L U A T I O N

CAP NUMBER: 38988-01-01-01 KIT# 01

CONSTITUENT METHODS	SPEC.	**** YOUR RESULT ****	CODE	GOOD PERFORMANCE	ACCEPTABLE PERFORMANCE
BLOOD CELL IDENT	HE-26	SEGMENTED NEUTROPHIL	71	SEGMENTED NEUTROPHIL	SEGMENTED NEUT TOXIC
	HE-27	BASOPHIL, MATURE	10	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	HE-28	TEAR-DROP CELL	10	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	HE-29	MYELOBLAST	10	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	HE-30	NUCLEATED RED CELL	10	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	HE-31	PLATELET GIANT MACROTH	10	SEE SUMMARY REPORT	SEE SUMMARY REPORT

YOUR NEXT SURVEY KIT, SET FH6-C, IS SCHEDULED TO BE SHIPPED ON AUGUST 26, 1991.

PENNINGTON BIOMEDICAL RSCH CTR
CLINICAL RESEARCH LABORATORY
6400 PERKINS RD.
BATON ROUGE LA 70808

CHECKED BY ....Kristine Rhodes..... DATE REVIEWED ..8/8/91....

SURVEY SET: CM - A
CAP NUMBER: 38988-01-01-01 KIT# 01
ATTENTION:
INSTITUTION: PENNINGTON BIOMEDICAL RSCH CTR

1991

CLINICAL MICROSCOPY

EVALUATION

KIT MAILED: 4/01/91
QUEST. EVAL: 6/29/91

Kevin Hanson
7/10/91
OUT ON 1 PARAMETER, CONSTITUTIVE
A 97.8% CORRECT
ANSWER ON GRADED
PORTION OF SURVEY

PENNINGTON BIOMEDICAL RSCH CTR
CLINICAL RESEARCH LABORATORY
6400 PERKINS RD.
BATON ROUGE LA 70808

SURVEY SET: CM - A
CAP NUMBER: 38988-01-01-01 KIT# 01
ATTENTION:
INSTITUTION: PENNINGTON BIOMEDICAL RSCH CTR

CLINICAL MICROSCOPY

E V A L U A T I O N

KIT MAILED: 4/01/91
QUEST. EVAL: 6/29/91

CONSTITUENT / METHODS	SPEC.	YOUR RESULT	**** CODE	EVALUATION MEAN	STATISTICS S.D.	LABS	**** SDI	********** COMPARATIVE METHODS	STATISTICS MEAN	S.D.	LABS	SDI
SPECIFIC GRAVITY,URINE												
AMES CLINITEK 200	CM-01	1.029	13	1.0294	.0017	1022	-0.2	REFRACTOMETER	1.0288	.0012	2331	+0.2
	CM-02	1.025	13	1.0254	.0017	1172	-0.2		1.0171	.0010	2302	+7.9
	CM-03	1.020	13	1.0195	.0036	1241	+0.1		1.0088	.0010	2337	+11.2
	CM-04	1.010	13	1.0125	.0027	1241	-0.9		1.0057	.0008	2344	+5.4
	CM-05	1.015	13	1.0153	.0020	1224	-0.2		1.0070	.0009	2349	+8.9
OSMOLALITY-URINE	MOSM/KG H2O											
TEST NOT PERFORMED	CM-01		10					ADVANCED INSTRUMENTS	1181.4	14.6	1041	+0.0
	CM-02		10						688.7	8.8	1026	+0.0
	CM-03		10						419.4	6.9	1068	+0.0
	CM-04		10						159.5	3.5	1061	+0.0
	CM-05		10						244.9	4.8	1064	+0.0
PROTEIN QUANT. URINE	MG/DL											
TEST NOT PERFORMED	CM-01		10					NO COMPARATIVE METHOD				
	CM-02		10									
	CM-03		10									
	CM-04		10									
	CM-05		10									

CONSTITUENT / METHODS	SPEC.	**** YOUR RESULT ****	CODE	GOOD PERFORMANCE	ACCEPTABLE PERFORMANCE
PH IN URINE					
AMES-CLINITEK	CM-01	7.5	61	7.0 7.5 8.0 OR MORE	
	CM-02	7.5	61	6.5 7.0 7.5	
	CM-03	5.5	61	5.0 5.5 6.0	

CAP NUMBER: 38988-01-01-01 KIT# 01

CLINICAL MICROSCOPY

E V A L U A T I O N

CONSTITUENT METHODS	SPEC.	**** YOUR RESULT ****	CODE	GOOD PERFORMANCE	ACCEPTABLE PERFORMANCE
	CM-04	8.0 OR MORE	61	7.0 7.5 8.0 OR MORE	
	CM-05	8.0 OR MORE	61	7.0 7.5 8.0 OR MORE	
PROTEIN QUAL, URINE AMES-CLINITEK	CM-01	300-500 MG/DL (3+)	61	300-500 MG/DL (3+)	TRACE 30 MG/DL (1+) 100 MG/DL (2+) 1000 MG/DL(4+)OR MORE
	CM-02	300-500 MG/DL (3+)	61	300-500 MG/DL (3+)	TRACE 30 MG/DL (1+) 100 MG/DL (2+) 1000 MG/DL(4+)OR MORE
	CM-03	NEGATIVE	61	NEGATIVE	
	CM-04	30 MG/DL (1+)	61	30 MG/DL (1+)	TRACE 100 MG/DL (2+) 300-500 MG/DL (3+) 1000 MG/DL(4+)OR MORE
	CM-05	100 MG/DL (2+)	61	100 MG/DL (2+) 300-500 MG/DL (3+)	TRACE 30 MG/DL (1+) 1000 MG/DL(4+)OR MORE
GLUCOSE REDUC SUB-UR AMES-CLINITEK	CM-01	500 MG/DL	61	250 MG/DL 500 MG/DL	UNDER 100 MG/DL 100 MG/DL 1000 MG/DL 2000 MG/DL OR MORE
	CM-02	500 MG/DL	61	250 MG/DL 500 MG/DL	UNDER 100 MG/DL 100 MG/DL 1000 MG/DL 2000 MG/DL OR MORE

CAP NUMBER: 38988-01-01-01 KIT# 01

CLINICAL MICROSCOPY

E V A L U A T I O N

CONSTITUENT METHODS	SPEC.	**** YOUR RESULT ****	CODE	GOOD PERFORMANCE	ACCEPTABLE PERFORMANCE
	CM-03	250 MG/DL	61	250 MG/DL 500 MG/DL	UNDER 100 MG/DL 100 MG/DL 1000 MG/DL 2000 MG/DL OR MORE
	CM-04	* 100 MG/DL REPEATED + GOT SAME RESULT KM	61	NEGATIVE	
	CM-05	NEGATIVE	61	NEGATIVE	
KETONES-URINE AMES-CLINITEK	CM-01	LARGE (3+)	61	LARGE (3+)	SMALL (1+) MODERATE (2+)
	CM-02	NEGATIVE	61	NEGATIVE	
	CM-03	NEGATIVE	61	NEGATIVE	
	CM-04	LARGE (3+)	61	LARGE (3+)	SMALL (1+) MODERATE (2+)
	CM-05	LARGE (3+)	61	LARGE (3+)	SMALL (1+) MODERATE (2+)
BILIRUBIN, URINE AMES-CLINITEK	CM-01	POSITIVE (MOD OR 2+)	61	POSITIVE (MOD OR 2+)	TRACE (SMALL OR 1+) LARGE AMOUNT (3+)
	CM-02	NEGATIVE	61	NEGATIVE	
	CM-03	NEGATIVE	61	NEGATIVE	
	CM-04	TRACE (SMALL OR 1+)	61	TRACE (SMALL OR 1+)	POSITIVE (MOD OR 2+) LARGE AMOUNT (3+)
	CM-05	NEGATIVE	61	NEGATIVE	
BLOOD/HEMOGLOBIN URINE AMES-CLINITEK	CM-01	TRACE (5-10 ERY/UL)	61	TRACE (5-10 ERY/UL) POSITIVE (50 ERY/UL)	MARKED POSITIVE (250)
	CM-02	POSITIVE (50 ERY/UL)	61	POSITIVE (50 ERY/UL) MARKED POSITIVE (250)	TRACE (5-10 ERY/UL)

CAP NUMBER: 38988-01-01-01 KIT# 01

CLINICAL MICROSCOPY

E V A L U A T I O N

CONSTITUENT METHODS	SPEC.	**** YOUR RESULT ****	CODE	GOOD PERFORMANCE	ACCEPTABLE PERFORMANCE
	CM-03	NEGATIVE	61	NEGATIVE	
	CM-04	POSITIVE (50 ERY/UL)	61	TRACE (5-10 ERY/UL) POSITIVE (50 ERY/UL)	MARKED POSITIVE (250)
	CM-05	NEGATIVE	61	NEGATIVE	
LEUKOCYTE ESTERASE AMES-CLINITEK	CM-01	MODERATE (2+)	61	MODERATE (2+)	TRACE SMALL (1+) LARGE (3+)
	CM-02	LARGE (3+)	61	MODERATE (2+) LARGE (3+)	TRACE SMALL (1+)
	CM-03	NEGATIVE	61	NEGATIVE	
	CM-04	LARGE (3+) ✓	62	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	CM-05	LARGE (3+)	61	MODERATE (2+) LARGE (3+)	TRACE SMALL (1+)
NITRITE/URINE AMES-CLINITEK	CM-01	NEGATIVE ✓	62	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	CM-02	POSITIVE ✓	62	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	CM-03	POSITIVE ✓	62	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	CM-04	NEGATIVE ✓	61	NEGATIVE	
	CM-05	POSITIVE	61	POSITIVE	
URINE HCG TEST NOT PERFORMED	CM-01		10	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	CM-02		10	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	CM-03		10	SEE SUMMARY REPORT	SEE SUMMARY REPORT

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CLINICAL MICROSCOPY

E V A L U A T I O N

CAP NUMBER: 38988-01-01-01 KIT# 01

CONSTITUENT METHODS	SPEC.	**** YOUR RESULT ****	CODE	GOOD PERFORMANCE	ACCEPTABLE PERFORMANCE
	CM-04		10	SEE SUMMARY REPORT	SEE SUMMARY REPORT
	CM-05		10	SEE SUMMARY REPORT	SEE SUMMARY REPORT
SIMULATED URINE SEDIMT	CM-02	ERYTHROCYTES 99.5% BACTERIA 91.0% CLUE CELL 0.8% LEUKOCYTE NUTR,EOS,LYM 96.9%	10	SEE SUMMARY REPORT	SEE SUMMARY REPORT
URINE SEDIMENT IDENT.	CM-06	LEUKOCYTE NUTR,EOS,LYM ✓	61	LEUKOCYTE NUTR,EOS,LYM	
	CM-07	YEAST/FUNGI ✓	61	YEAST/FUNGI	
	CM-08	FIBER FECAL CONTMNTN ✓	61	FIBER FECAL CONTMNTN	
CSF & BODY FLUID	CM-09	TEST NOT PERF. IN LAB.	61	NEUTROPHIL SEGMENTED	
	CM-10	TEST NOT PERF. IN LAB.	61	YEAST/FUNGI NEUTROPHIL W/FUNGI	

* NOT ACCEPTABLE

YOUR NEXT SURVEY KIT, SET CM-B, IS SCHEDULED TO BE SHIPPED JULY 8, 1991.

PENNINGTON BIOMEDICAL RSCH CTR
CLINICAL RESEARCH LABORATORY
6400 PERKINS RD.
BATON ROUGE LA 70808

CHECKED BY ..... DATE REVIEWED .....

Food Minerals File: ICPFOOD
Note: revised results using sulfuric acid/hydrogen peroxide/cupric sulfate in standards
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

SOME OF THESE RESULTS HAVE SINCE BEEN FOUND TO BE IN ERROR - SEE REPORT OF MAY 6, 1991

Army id #	PBRC log #		Food Item Description	Total Weight g	Amount Digstd g	Vol Digstd ml	Dil'd to ml	Concentration in Diluted Digest					Concentration per Weight/Weight Basis				
								Mg ug/ml	Ca ug/ml	Na ug/ml	K ug/ml	P ug/ml	Mg mg/g	Ca mg/g	Na mg/g	K mg/g	P mg/g
1	1306		Quaker 100% Ceral	*	0.2		200	0.821	1.147	0.656	3.639	4.000	0.821	1.147	0.656	3.639	4.000
2	1337		M nute Maid Orange Juice,ml	250		1	200	0.493	0.545	0.299	8.149	0.894	0.099	0.109	0.060	1.630	0.179
3	1289	b	Sliced White Bread, per slice	27.22	1		200	0.546	0.821	13.205	3.036	2.472	0.109	0.164	2.641	0.607	0.494
4	1294	b	Unsalted Butter, 1 stick	115	0.2		200	0.034	0.151	0.380	0.488	0.058	0.034	0.151	0.380	0.488	0.058
5	1311		Welch's Grape Jelly	510	0.5		200	0.164	0.242	1.129	0.937	1.034	0.066	0.097	0.452	0.375	0.414
6	1292		Whole Milk	24.9	1		200	0.482	4.401	2.291	7.464	4.255	0.096	0.880	0.458	1.493	0.851
7	1313	a	Delmonte Peach Halves, peaches only	237.1	1		200	0.166	0.149	0.708	3.067	0.583	0.033	0.030	0.142	0.613	0.117
7b	1313	b	Peaches, syrup only	25.6	1		200	0.236	0.179	0.794	4.831	0.710	0.047	0.036	0.159	0.966	0.142
7			Peaches, syrup + peaches	262.7									0.035	0.030	0.143	0.648	0.119
8	1289		Sara Lee Danish Cheese, per roll	39.6	1		200	0.320	0.796	7.908	2.055	1.748	0.064	0.159	1.582	0.411	0.350
9	1335		Ocean Spray Cran-Grape Juice,ml	250		1	200	0.157	0.229	0.432	0.414	0.534	0.031	0.046	0.086	0.083	0.107
10	1293	b	Green Apples, cored	143	1		200	0.115	0.093	0.265	2.181	0.295	0.023	0.019	0.053	0.436	0.059
11	1290	b	Brown & Serve Rolls, per roll	30.6	1		200	0.547	3.009	14.677	2.98	2.146	0.102	0.168	1.897	0.689	0.605
12	1320		Minute Rice	*	0.5		200	0.412	0.299	0.490	0.688	2.905	0.165	0.120	0.196	0.275	1.162
13	1301	a	Dole Pineapple Chunks	148.7	1		200	0.341	0.421	0.707	2.644	0.094	0.068	0.084	0.141	0.529	0.019
13b	1301	b	Pineapple, Canned, syrup	23.7	1		200	0.618	0.499	0.763	4.512	0.621	0.124	0.100	0.153	0.902	0.124
13			Pineapples + syrup	172.4									0.076	0.086	0.143	0.580	0.033
14	1291	b	Whole Potatoes,peeled	139.6	1		200	0.498	0.222	0.442	9.782	1.298	0.100	0.044	0.088	1.956	0.260
14b	1291	b2	Whole Potatoes, unpeeled	247.8	1		200	0.555	0.297	0.401	10.137	1.858	0.111	0.059	0.080	2.027	0.372
15	1293		Hood Sour Cream,16oz=480g	480	1		200	0.631	6.234	2.753	9.004	5.346	0.126	1.247	0.551	1.801	1.069
16	1333		V-8 Juice, Unsalted,ml	177		1	200	0.670	0.995	1.045	13.837	1.193	0.134	0.199	0.209	2.767	0.239
17	1291		Sara Lee Pound Cake	114.3	1		200	0.257	0.734	8.329	1.932	2.669	0.051	0.147	1.666	0.386	0.534
18	1300		Lays Unsalted Potato Chips	*	0.2		200	0.340	0.122	0.424	7.392	0.762	0.340	0.122	0.424	7.392	0.762
19	1321		Plain M & M's	48.1	0.2		200	0.504	1.290	0.633	2.931	1.970	0.504	1.290	0.633	2.931	1.970
20	1314		Peter Pan Peanut Butter, salt free,18oz=	540	0.2		200	1.933	0.651	0.287	7.120	4.763	1.933	0.651	0.287	7.120	4.763
21	1303		Frosted Miniwheats	*	0.5		200	2.766	0.908	0.573	9.786	9.902	1.106	0.363	0.229	3.914	3.961
22	1326		Dole Pineapple Juice, ml	177		1	200	0.472	0.546	0.336	5.976	0.332	0.094	0.109	0.067	1.195	0.066
24	1302		Nabisco Low Salt Crackers	*	0.5		200	0.577	4.332	10.955	16.736	2.475	0.231	1.733	4.382	6.694	0.990
25	1288	b	Oranges, per orange	143.65	1		200	0.495	1.419	0.244	8.263	1.127	0.099	0.284	0.049	1.653	0.225
26	1304		Mueller's Egg Noodles	*	0.5		200	1.626	0.845	0.567	5.597	6.616	0.650	0.338	0.227	2.239	2.646
27	1315	a	Delmonte Fruit cocktail, no syrup	356.4	1		200	0.174	0.220	0.567	2.958	0.268	0.035	0.044	0.113	0.592	0.054
27b	1315	b	Fruit Cocktail, syrup only	24.9	1		200	0.293	0.289	0.645	5.449	0.670	0.059	0.058	0.129	1.090	0.134
			Fruit Cocktail + syrup	381.3									0.0934	0.1018	0.2424	1.6814	0.1876
28	1339		Welch's Grape Juice,ml	250		1	200	0.367	0.524	0.294	0.954	0.098	0.073	0.105	0.059	0.191	0.020
29	1290		Sara Lee Carrot Cake	176	1		200	0.511	0.841	9.485	3.446	3.023	0.102	0.168	1.897	0.689	0.605
30	1307		Grandaddy's Unsalted Tortilla Chips		0.2		200	0.706	1.077	0.293	1.373	2.131	0.706	1.077	0.293	1.373	2.131
31	1322		Kit Kat Bar	42	0.2		200	0.441	1.749	0.840	3.010	2.227	0.441	1.749	0.840	3.010	2.227
32	1309		Sun Maid Dried Mixed Fruit	234	1		200	0.996	0.984	3.069	20.385	1.961	0.199	0.197	0.614	4.077	0.392
34	1312		Delmonte Pear Halves, pears only	201	1		200	0.120	0.125	0.413	2.186	0.374	0.024	0.025	0.083	0.437	0.075
34b	1312	b	Pear Halve syrup only	24.2	1		200	0.208	0.175	0.774	4.425	0.617	0.042	0.035	0.155	0.885	0.123
34			Pear Halves + syrup	225.2									0.0656	0.06	0.2374	1.3222	0.1981
35	1292	b	Unsalted Cheese	136.6	0.2		200	0.191	4.687	0.129	2.206	3.910	0.191	4.687	0.129	2.206	3.910
36	1324		Pepperidge Farms Milano Cookies	*	0.2		200	0.348	0.291	1.640	1.207	1.167	0.348	0.291	1.640	1.207	1.167
37	1323		Peanut M & M's	49.2	0.2		200	0.612	1.094	0.617	2.913	1.508	0.612	1.094	0.617	2.913	1.508
39	1305		Shredded Wheat Raisin Squares	75.2	1		200	2.231	1.340	0.693	14.255	8.122	0.446	0.268	0.139	2.851	1.624
40	1336		Ocean Spray Cran-Apple Juice,ml	250		1	200	0.087	0.158	0.384	0.935	0.370	0.017	0.032	0.077	0.187	0.074
41	1325		Planter's Cashews, unsalted	*	0.2		200	2.385	0.439	0.210	5.838	5.388	2.385	0.439	0.210	5.838	5.388
43	1334		Juice Bowl Apple Juice,ml	177		1	200	0.247	0.410	0.391	4.493	0.374	0.049	0.082	0.078	0.899	0.075
44	1332		V-8 Juice, Regular,ml	177		1	200	0.603	0.798	14.385	12.633	1.131	0.121	0.160	2.877	2.527	0.226
53	1296		Dole Fruit/Yogurt Bar-Mixed Berry	83.8	1		200	0.204	1.193	1.204	2.444	1.092	0.041	0.239	0.241	0.489	0.218
54	1294		Dole Fruit/Yogurt Bar-Straw/banana	76.3	1		200	0.166	0.660	0.844	1.899	0.664	0.033	0.132	0.169	0.380	0.133
55	1295		Dole Fruit Juice Bar-Raspberry	135.9	1		200	0.121	0.261	0.685	0.963	0.610	0.024	0.052	0.137	0.193	0.122

Food Minerals File: ICPFOOD
Note: revised results using sulfuric acid/hydrogen peroxide/cupric sulfate in standards
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Army id #	PBRC log #		Food Item Description	Total Weight g	Amount Digstd g	Vol Digstd ml	Dil'd to ml	Concentration in Diluted Digest					Concentration per Weight/Weight Basis				
								Mg ug/ml	Ca ug/ml	Na ug/ml	K ug/ml	P ug/ml	Mg mg/g	Ca mg/g	Na mg/g	K mg/g	P mg/g
58	1286	b	Dole Fruit Juice Bar-Fruit Blend	142	1		200	0.242	0.391	0.282	1.840	0.560	0.048	0.078	0.056	0.368	0.112
59	1331		Citrus Cooler Gatorade, ml	*		1	200	0.037	0.126	2.286	0.621	0.742	0.007	0.025	0.457	0.124	0.148
60	1330		Orange Gatorade, ml	*		1	200	0.032	0.113	2.316	0.583	0.620	0.006	0.023	0.463	0.117	0.124
61	1328		Lemon-Lime Gatorade (moldy), ml	*		1	200	0.025	0.072	2.805	0.773	0.558	0.005	0.014	0.561	0.155	0.112
62	1327		Lemonade Gatorade, ml	*		1	200	0.033	0.135	2.209	0.281	0.703	0.007	0.027	0.442	0.056	0.141
63	1329		Fruit Punch Gatorade, ml	*		1	200	0.031	0.122	2.393	0.836	0.610	0.006	0.024	0.479	0.167	0.122
64	1299		Caprisun Rasberry Apple Juice, ml	200		1	200	0.181	0.362	0.702	0.815	0.532	0.036	0.072	0.140	0.163	0.106
65	1298		Caprisun Red Berry Juice, ml	200		1	200	0.173	0.320	0.359	0.685	0.472	0.035	0.064	0.072	0.137	0.094
68	1317		Hire's Root Bear, -CO2,ml	355		1	200	0.034	0.223	0.936	0.209	0.290	0.007	0.045	0.187	0.042	0.058
69	1316		Sunkist Orange Soda, -CO2,ml	355		1	200	0.040	0.225	0.753	0.140	0.409	0.008	0.045	0.151	0.028	0.082
70	1318		Coca Cola Classic, -CO2,ml	355		1	200	0.039	0.226	0.386	0.710	1.005	0.008	0.045	0.077	0.142	0.201
71	1319		Schweppes Raspberry Ginger Ale-CO2	355		1	200	0.039	0.237	0.792	0.249	0.420	0.008	0.047	0.158	0.050	0.084
75	1308		Quaker Oatmeal	*	0.5		200	3.759	1.345	0.338	9.867	14.141	1.504	0.538	0.135	3.947	5.656
78	1338		Minute Maid Fruit Punch,ml	250		1	200	0.082	0.219	0.334	0.517	0.360	0.016	0.044	0.067	0.103	0.072
79	1310		Tabasco Sauce, 2 oz	19	0.5		200	0.332	0.410	19.439	3.790	0.595	0.133	0.164	7.776	1.516	0.238
1001	1364		MRE-Chicken Ala King (low Na)	226	1		200	0.371	0.382	4.805	4.092	3.185	0.074	0.076	0.961	0.818	0.637
1001	1365		MRE-Chicken Ala King (low Na)	218.5	1		200	0.345	0.440	5.676	3.898	3.257	0.069	0.088	1.135	0.780	0.651
1002	1367		MRE-Pork/Rice/BBQ (low salt)	217.4	1		200	0.588	0.527	1.474	9.199	3.342	0.118	0.105	0.105	0.295	1.840
1002	1366		MRE-Pork/Rice/BBQ (low salt)	221	1		200	0.556	0.624	1.488	8.301	3.310	0.111	0.125	0.298	1.660	0.662
1003	1361		MRE-Beef Stew (low Na)	223.3	1		200	0.379	0.297	1.779	4.890	2.615	0.076	0.059	0.356	0.978	0.523
1003	1360		MRE-Beef Stew (low Na)	217.5	1		200	0.360	0.297	1.734	5.065	2.203	0.072	0.059	0.347	1.013	0.441
1004	1358		MRE-Tuna/Noodles (low Na)	224.5	1		200	0.433	0.499	2.868	2.820	2.561	0.087	0.100	0.574	0.564	0.512
1004	1359		MRE-Tuna/Noodles (low Na)	216.1	1		200	0.480	0.441	2.875	3.177	2.662	0.096	0.088	0.575	0.635	0.532
1005	1368		MRE-Spaghetti/Meat Sauce (low salt)	218.9	1		200	0.411	0.942	2.773	6.557	2.849	0.082	0.188	0.555	1.311	0.570
1005	1369		MRE-Spaghetti/Meat Sauce (low salt)	224.1	1		200	0.506	1.087	2.244	7.987	3.114	0.101	0.217	0.449	1.597	0.623
1006	1370		MRE-Chicken & Rice (low salt)	226.8	1		200	0.460	0.387	1.392	4.082	4.227	0.092	0.077	0.278	0.816	0.845
1006	1371		MRE-Chicken & Rice (low salt)	222.8	1		200	0.342	0.419	1.527	3.948	3.280	0.068	0.084	0.305	0.790	0.656
1007	1340		MRE-Chicken Stew (low Na)	219.3	1		200	0.422	0.636	4.837	5.194	3.106	0.084	0.127	0.967	1.039	0.621
1007	1341		MRE-Chicken Stew (low Na)	214.3	1		200	0.395	0.578	4.793	5.084	2.434	0.079	0.116	0.959	1.017	0.487
1008	1363		MRE-Meatballs/Tomato Sauce (low salt)	223.9	1		200	0.638	0.544	1.361	10.031	3.565	0.128	0.109	0.272	2.006	0.713
1008	1362		MRE-Meatballs/Tomato Sauce (low salt)	225.7	1		200	0.705	0.613	1.517	10.776	3.368	0.141	0.123	0.303	2.155	0.674
1009	1345		MRE-Chicken Ala King (hi salt)	220.9	1		200	0.421	0.477	6.104	4.804	3.269	0.084	0.095	1.221	0.961	0.654
1009	1344		MRE-Chicken Ala King (hi salt)	225.2	1		200	0.398	0.436	6.089	4.729	3.054	0.080	0.087	1.218	0.946	0.611
1010	1350		MRE-Pork/Rice/BBQ	228	1		200	0.483	0.329	13.235	7.347	2.830	0.097	0.066	2.647	1.469	0.566
1010	1351		MRE-Pork/Rice/BBQ	224.2	1		200	0.470	0.310	12.242	7.588	3.149	0.094	0.062	2.448	1.518	0.630
1011	1355		MRE-Beaf Stew	225.4	1		200	0.394	0.326	12.116	6.622	2.807	0.079	0.065	2.423	1.324	0.561
1011	1354		MRE-Beaf Stew	228.5	1		200	0.398	0.299	11.482	5.540	2.880	0.080	0.060	2.296	1.108	0.576
1012	1357		MRE-Tuna/Noodles	215.3	1		200	0.319	0.358	7.626	1.966	2.198	0.064	0.072	1.525	0.393	0.440
1012	1356		MRE-Tuna/Noodles	222.8	1		200	0.336	0.385	7.583	2.350	1.825	0.067	0.077	1.517	0.470	0.365
1013	1347		MRE-Spaghetti/Meat Sauce	231	1		200	0.625	1.149	9.661	9.435	3.028	0.125	0.230	1.932	1.887	0.606
1013	1346		MRE-Spaghetti/Meat Sauce	230.4	1		200	0.609	1.048	8.881	8.537	2.421	0.122	0.210	1.776	1.707	0.484
1014	1348		MRE-Chicken & Rice	232	1		200	0.403	0.292	7.855	2.972	3.117	0.081	0.058	1.571	0.594	0.594
1014	1349		MRE-Chicken & Rice	235.1	1		200	0.393	0.258	7.683	3.351	3.082	0.079	0.052	1.537	0.670	0.616
1015	1343		MRE-Chicken Stew (hi Na)	221.1	1		200	0.370	0.548	7.721	4.815	2.730	0.074	0.110	1.544	0.963	0.546
1015	1342		MRE-Chicken Stew (hi Na)	224.3	1		200	0.368	0.597	7.781	4.402	2.850	0.074	0.119	1.556	0.880	0.570
1016	1353		MRE-Meatballs & Rice	225.5	1		200	0.551	0.445	15.187	9.796	2.978	0.110	0.089	3.037	1.959	0.596
1016	1352		MRE-Meatballs & Rice	227.8	1		200	0.606	0.506	16.357	11.183	2.663	0.121	0.101	3.271	2.237	0.533
3000c	1297		Sugar Free Kool Aid-Tropical Punch,64	2000		1	200	0.075	0.556	0.311	0.528	0.325	0.015	0.111	0.062	0.106	0.065

* = TOTAL WEIGHT NOT AVAILABLE

Food Minerals File: ICPFOCD
Note: revised results using sulfuric acid/hydrogen peroxide,
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Clinical Research Laboratory

Army id #	PBRC log #		Food Item Description	Note: if per ml	Total Concentration per Item Mg mg	Ca mg	Na mg	K mg	P mg
1	1306		Quaker 100% Ceral		*	*	*	*	*
2	1337		Minute Maid Orange Juice,ml	per ml	24.65	27.25	14.95	407.45	44.70
3	1289	b	Sliced White Bread, per slice		2.97	4.47	71.89	16.53	13.46
4	1294	b	Unsalted Butter, 1 stick		3.91	17.37	43.70	56.12	6.67
5	1311		Welch's Grape Jelly		33.46	49.37	230.32	191.15	210.94
6	1292		Whole Milk		2.40	21.91	11.41	37.17	21.19
7	1313	a	Delmonte Peach Halves, peaches only		7.87	7.07	33.57	145.44	27.65
7b	1313	b	Peaches, syrup only		1.21	0.92	4.07	24.73	3.64
7			Peaches, syrup + peaches		9.08	7.98	37.64	170.17	31.28
8	1289		Sara Lee Danish Cheese, per roll		2.53	6.30	62.63	16.28	13.84
9	1335		Ocean Spray Cran-Grape Juice,ml	per ml	7.85	11.45	21.60	20.70	26.70
10	1293	b	Green Apples, cored		3.29	2.66	7.58	62.38	8.44
11	1290	b	Brown & Serve Rolls, per roll		3.13	5.15	58.05	21.09	18.50
12	1320		Minute Rice		*	*	*	*	*
13	1301	a	Dole Pineapple Chunks		10.14	12.52	21.03	78.63	2.78
13b	1301	b	Pineapple, Canned, syrup		2.93	2.37	3.62	21.39	2.94
13			Pineapples + syrup		13.07	14.89	24.64	100.02	5.72
14	1291	b	Whole Potatoes,peeled		13.90	6.20	12.34	273.11	36.24
14b	1291	b2	Whole Potatoes, unpeeled		27.51	14.72	19.87	502.39	92.08
15	1293		Hood Sour Cream,16oz=480g		60.58	598.46	264.29	864.38	513.22
16	1333		V-8 Juice, Unsalted,ml	per ml	23.72	35.22	36.99	489.83	42.23
17	1291		Sara Lee Pound Cake		5.88	16.78	190.40	44.17	61.01
18	1300		Lays Unsalted Potato Chips		*	*	*	*	*
19	1321		Plain M & M's		24.24	62.05	30.45	140.98	94.73
20	1314		Peter Pan Peanut Butter, salt free,18oz=		1043.82	351.54	154.98	3844.80	2572.02
21	1303		Frosted Miniwheats		*	*	*	*	*
22	1326		Dole Pineapple Juice, ml	per ml	16.71	19.33	11.89	211.55	11.75
24	1302		Nabisco Low Salt Crackers		*	*	*	*	*
25	1288	b	Oranges, per orange		14.22	40.77	7.01	237.40	32.38
26	1304		Mueller's Egg Noodles		*	*	*	*	*
27	1315	a	Delmonte Fruit cocktail, no syrup		12.40	15.68	40.42	210.85	19.10
27b	1315	b	Fruit Cocktail, syrup only		1.46	1.44	3.21	27.14	3.34
			Fruit Cocktail + syrup		13.862	17.121	43.628	237.98	22.44
28	1339		Welch's Grape Juice,ml	per ml	18.35	26.20	14.70	47.70	4.90
29	1290		Sara Lee Carrot Cake		17.99	29.60	333.87	121.30	106.41
30	1307		Grandaddy's Unsalted Tortilla Chips		*	*	*	*	*
31	1322		Kit Kat Bar		18.52	73.46	35.28	126.42	93.53
32	1309		Sun Maid Dried Mixed Fruit		46.61	46.05	143.63	954.02	91.75
34	1312		Delmonte Pear Halves, pears only		4.82	5.03	16.60	87.88	15.02
34b	1312	b	Pear Halve syrup only		1.01	0.85	3.75	21.42	2.99
34			Pear Halves + syrup		5.8307	5.872	20.349	109.29	18.008
35	1292	b	Unsalted Cheese		26.09	640.24	17.62	301.34	534.11
36	1324		Pepperidge Farms Milano Cookies		*	*	*	*	*
37	1323		Peanut M & M's		30.11	53.82	30.36	143.32	74.19
39	1305		Shredded Wheat Raisin Squares		33.55	20.15	10.42	214.40	122.15
40	1336		Ocean Spray Cran-Apple Juice,ml	per ml	4.35	7.90	19.20	46.75	18.50
41	1325		Planter's Cashews, unsalted		*	*	*	*	*
43	1334		Juice Bowl Apple Juice,ml	per ml	8.74	14.51	13.84	159.05	13.24
44	1332		V-8 Juice, Regular,ml	per ml	21.35	28.25	509.23	447.21	40.04
53	1296		Dole Fruit/Yogurt Bar-Mixed Berry		3.42	19.99	20.18	40.96	18.30
54	1294		Dole Fruit/Yogurt Bar-Straw/banana		2.53	10.07	12.88	28.98	10.13
55	1295		Dole Fruit Juice Bar-Raspberry		3.29	7.09	18.62	26.17	16.58

Food Minerals File: ICPFOOD
Note: revised results using sulfuric acid/hydrogen peroxide.
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Clinical Research Laboratory

Army id #	PBRC log #		Food Item Description	Note: if per ml	Total Concentration per Item Mg mg	Ca mg	Na mg	K mg	P mg
58	1286	b	Dole Fruit Juice Bar-Fruit Blend		6.87	11.10	8.01	52.26	15.90
59	1331		Citrus Cooler Gatorade, ml	per ml	*	*	*	*	*
60	1330		Orange Gatorade, ml	per ml	*	*	*	*	*
61	1328		Lemon-Lime Gatorade (moldy), ml	per ml	*	*	*	*	*
62	1327		Lemonade Gatorade, ml	per ml	*	*	*	*	*
63	1329		Fruit Punch Gatorade, ml	per ml	*	*	*	*	*
64	1299		Caprisun Rasberry Apple Juice, ml	per ml	7.24	14.48	28.08	32.60	21.28
65	1298		Caprisun Red Berry Juice, ml	per ml	6.92	12.80	14.36	27.40	18.88
68	1317		Hire's Root Bear, -CO2,ml	per ml	2.41	15.83	66.46	14.84	20.59
69	1316		Sunkist Orange Soda, -CO2,ml	per ml	2.80	15.98	53.46	9.94	29.04
70	1318		Coca Cola Classic, -CO2,ml	per ml	2.77	16.05	27.41	50.41	71.36
71	1319		Schweppes Raspberry Ginger Ale-CO2	per ml	2.77	16.83	56.23	17.68	29.82
75	1308		Quaker Oatmeal		*	*	*	*	*
78	1338		Minute Maid Fruit Punch,ml	per ml	4.10	10.95	16.70	25.85	18.00
79	1310		Tabasco Sauce, 2 oz		2.52	3.12	147.74	28.80	4.52
1001	1364		MRE-Chicken Ala King (low Na)		16.77	17.27	217.19	184.96	143.96
1001	1365		MRE-Chicken Ala King (low Na)		15.08	19.23	248.04	170.34	142.33
1002	1367		MRE-Pork/Rice/BBQ (low salt)		25.57	22.9	22.91	64.09	399.97
1002	1368		MRE-Pork/Rice/BBQ (low salt)		24.55	27	65.77	366.88	146.29
1003	1361		MRE-Beef Stew (low Na)		16.93	13.26	79.45	218.39	116.79
1003	1360		MRE-Beef Stew (low Na)		15.66	12.92	75.43	220.33	95.83
1004	1358		MRE-Tuna/Noodles (low Na)		19.44	22.41	128.77	126.62	114.99
1004	1359		MRE-Tuna/Noodles (low Na)		20.75	19.06	124.24	137.29	115.03
1005	1368		MRE-Spaghetti/Meat Sauce (low salt)		17.99	41.24	121.40	287.07	124.73
1005	1369		MRE-Spaghetti/Meat Sauce (low salt)		22.68	48.72	100.58	357.98	139.57
1006	1370		MRE-Chicken & Rice (low salt)		20.87	17.55	63.14	185.16	191.74
1006	1371		MRE-Chicken & Rice (low salt)		15.24	18.67	68.04	175.90	146.13
1007	1340		MRE-Chicken Stew (low Na)		18.51	27.89	212.15	227.81	136.23
1007	1341		MRE-Chicken Stew (low Na)		16.93	24.77	205.43	217.90	104.32
1008	1363		MRE-Meatballs/Tomato Sauce (low salt)		28.57	24.36	60.95	449.19	159.64
1008	1362		MRE-Meatballs/Tomato Sauce (low salt)		31.82	27.67	68.48	486.43	152.03
1009	1345		MRE-Chicken Ala King (hi salt)		18.60	21.07	269.67	212.24	144.42
1009	1344		MRE-Chicken Ala King (hi salt)		17.93	19.64	274.25	212.99	137.55
1010	1350		MRE-Pork/Rice/BBQ		22.02	15.00	603.52	335.02	129.05
1010	1351		MRE-Pork/Rice/BBQ		21.07	13.90	548.93	340.25	141.20
1011	1355		MRE-Beaf Stew		17.76	14.70	546.19	298.50	126.52
1011	1354		MRE-Beaf Stew		18.19	13.66	524.70	253.18	131.59
1012	1357		MRE-Tuna/Noodles		13.74	15.42	328.38	84.66	94.65
1012	1356		MRE-Tuna/Noodles		14.97	17.16	337.90	104.72	81.32
1013	1347		MRE-Spaghetti/Meat Sauce		28.85	53.06	446.34	435.90	139.87
1013	1346		MRE-Spaghetti/Meat Sauce		28.06	48.29	409.21	393.38	111.56
1014	1348		MRE-Chicken & Rice		723.14	13.55	364.47	137.90	137.90
1014	1349		MRE-Chicken & Rice		18.48	12.13	361.25	157.56	144.92
1015	1343		MRE-Chicken Stew (hi Na)		16.36	24.23	341.42	212.92	120.70
1015	1342		MRE-Chicken Stew (hi Na)		16.51	26.78	349.06	197.47	127.85
1016	1353		MRE-Meatballs & Rice		24.83	20.07	684.93	441.78	134.29
1016	1352		MRE-Meatballs & Rice		27.61	23.03	745.22	509.47	121.33
3000c	1297		Sugar Free Kool Aid-Tropical Punch,64(	per ml	30.00	222.40	124.40	211.20	130.00

*=TOTAL WEIGHT NOT AVAILABLE

Fecal Minerals File: ICPFECAL
stds in sulfuric acid/hydrogen peroxide/cupric sulfate
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
Fisher	11-May-90	a	142.4	0.5	200	5.19	11.38	1.9	8.98	10.02	295.6	648.2	108.2	511.5	570.7
Fisher	11-May-90	b	124.8	0.5	200	5.37	11.96	0.67	10.08	10.73	268.1	597.0	33.4	503.2	535.6
Fisher	11-May-90	TOTAL	267.2								563.69	1245.2	141.67	1014.7	1106.4
Fisher	12-May-90		100.5	0.5	200	4.54	9.88	1.48	9.11	9.81	182.5	397.2	59.5	366.2	394.4
Fisher	13-May-90	b	124.3	0.5	200	3.6	9.62	2.53	7.14	9.16	179.0	478.3	125.8	355.0	455.4
Fisher	13-May-90	c	235.6	0.5	200	4.99	11.25	1.11	8.53	10.5	470.3	1060.2	104.6	803.9	989.5
Fisher	13-May-90	TOTAL	359.9								649.25	1538.5	230.4	1158.9	1445
Fisher	May 11-13	TOTAL	727.6								1395.5	3180.9	431.56	2539.8	2945.7
Fisher	14-May-90	a	174.8	0.5	200	3.84	10.1	0.71	8.3	8.32	268.5	706.2	49.6	580.3	581.7
Fisher	14-May-90	b	116.2	0.5	200	3.48	9.59	2.87	5.79	7.97	161.8	445.7	133.4	269.1	370.4
Fisher	14-May-90	TOTAL	291								430.24	1151.9	183.04	849.46	952.18
Fisher	15-May-90	a	186.7	0.5	200	3.16	7.55	2.28	7.74	6.32	236.0	563.8	170.3	578.0	472.0
Fisher	15-May-90	b	192.5	0.5	200	3.42	7.61	1.04	7.78	7.01	263.3	586.0	80.1	599.1	539.8
Fisher	15-May-90	TOTAL	379.2								499.33	1149.8	250.35	1177.1	1011.7
Fisher	May 14-15	TOTAL	670.2								929.57	2301.7	433.39	2026.5	1963.9
Fisher	16-May-90	a	112.3	0.5	200	2.86	7.53	1.1	8.25	6.91	128.5	338.2	49.4	370.6	310.4
Fisher	16-May-90	b	60.9	0.5	200	2.65	9.02	0.58	6.33	7.74	64.6	219.7	14.1	154.2	188.5
Fisher	16-May-90	TOTAL	173.2								193.03	557.97	63.541	524.79	498.94
Fisher	17-May-90	A	140	0.5	200	4.14	13.43	2.27	8.05	10.66	231.8	752.1	127.1	450.8	597.0
Fisher	17-May-90	b	32	0.5	200	5.61	16.25	1.48	10.36	14.73	71.8	208.0	18.9	132.6	188.5
Fisher	17-May-90	b2	198.6	0.5	200	5.74	9.91	1.65	7.78	8.8	456.0	787.3	131.1	618.0	699.1
Fisher	17-May-90	TOTAL	370.6								759.63	1747.3	277.14	1201.5	1484.6
Fisher	May 16-17	TOTAL	543.8								952.66	2305.3	340.68	1726.2	1983.5
Fisher	18-May-90	A	25.2	0.5	200	6.15	12.55	1.43	11.08	11.51	62.0	126.5	14.4	111.7	116.0
Fisher	18-May-90	b	224.6	0.5	200	4.59	8.71	2.32	9.89	8.42	412.4	782.5	208.4	888.5	756.5
Fisher	18-May-90	TOTAL	249.8								474.36	909.01	222.84	1000.2	872.47
Fisher	19-May-90		69	0.5	200	8.48	14.65	0.64	8.71	12.73	234.0	404.3	17.7	240.4	351.3
Fisher	May 18-19	TOTAL	318.8								708.41	1313.4	240.51	1240.6	1223.8

Fecal Minerals File: ICPFECAL
stds in sulfuric acid/hydrogen peroxide/cupric sulfate
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
sub#	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
Fisher	20-May-90	A	154.3	0.5	200	5.73	9.63	1.635	6.425	9.86	353.7	594.4	100.9	396.6	608.6
Fisher	20-May-90	b	185.3	0.5	200	5.105	11.445	2.41	7.78	11.415	378.4	848.3	178.6	576.7	846.1
Fisher	20-May-90	TOTAL	339.6								732.04	1442.7	279.54	973.2	1454.6
Fisher	21-May-90	1	124	0.5	200	5.97	11.84	1.77	6.23	11.37	296.1	587.3	87.8	309.0	564.0
Fisher	21-May-90	2	191.4	0.5	200	3.68	7.63	1.25	3.66	7.42	281.7	584.2	95.7	280.2	568.1
Fisher	21-May-90	TOTAL	315.4								577.85	1171.4	183.49	589.22	1132
Fisher	May 20-21	TOTAL	655								1309.9	2614.1	463.03	1562.4	2586.7
Fisher	22-May-90		241	0.5	200	5.47	10.38	2.36	10.29	9.7	527.3	1000.6	227.5	992.0	935.1
Fisher	23-May-90		202.7	0.5	200	5.65	14.28	1.03	8.75	11.65	458.1	1157.8	83.5	709.5	944.6
Fisher	May 22-23	TOTAL	443.7								985.41	2158.5	311.02	1701.4	1879.7
Unlabeled Sample			91.5	0.5	200	4.76	18.41	1.37	12.63	15.135	174.2	673.8	50.1	462.3	553.9
1 McGeshick	16-Mar-90		280.8	0.5	200	4.41	9.07	0.84	11.56	9.14	495.3	1018.7	94.3	1298.4	1026.6
1 McGeshick	17-Mar-90		265.2	0.5	200	5.27	11.65	0.84	10.68	11.16	559.0	1235.8	89.1	1132.9	1183.9
1 McGeshick	Mar 16-17	no 18	546								1054.4	2254.6	183.46	2431.4	2210.5
1 McGeshick	19-Mar-90		238.8	0.5	200	4.02	9.95	2.98	7.89	10.35	384.0	950.4	284.6	753.7	988.6
1 McGeshick	20-Mar-90		217.5	0.5	200	6.11	16.085	0.245	10.29	13.427	531.6	1399.4	21.3	895.2	1168.1
1 McGeshick	Mar 19-20	TOTAL	456.3								915.56	2349.8	305.96	1648.9	2156.8
1 McGeshick	22-Mar-90	no 21	274.7	0.5	200	5.59	14.13	0.51	12.28	13.79	614.2	1552.6	56.0	1349.3	1515.2
1 McGeshick	24-Mar-90	no 23	112.4	0.5	200	6.74	19.26	0.83	12.11	17.35	303.0	865.9	37.3	544.5	780.1
1 McGeshick	25-Mar-90		185.9	0.5	200	6.14	17.38	0.56	11.2	16.52	456.6	1292.4	41.6	832.8	1228.4
1 McGeshick	26-Mar-90		287.9	0.5	200	4.8	12.63	0.74	11.03	11.11	552.8	1454.5	85.2	1270.2	1279.4
1 McGeshick	Mar 25-26	TOTAL	473.8								1009.3	2746.8	126.86	2103	2507.9
1 McGeshick	28-Mar-90	no 27	338.4	0.5	200	4.1	11.07	2.08	8.16	9.28	555.0	1498.4	281.5	1104.5	1256.1

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Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
2 Jones	16-Mar-90		197.9	0.5	200	4.4	16.33	0.5	14.27	12.59	348.3	1292.7	39.6	1129.6	996.6
2 Jones	17-Mar-90		145.1	0.5	200	3.85	14.02	0.23	10.86	11.54	223.5	813.7	13.3	630.3	669.8
2 Jones	18-Mar-90		129.4	0.5	200	4.95	17.81	0.48	9.08	15.13	256.2	921.8	24.8	470.0	783.1
2 Jones	Mar 16-18	TOTAL	472.4								827.97	3028.2	77.774	2229.9	2449.5
2 Jones	19-Mar-90		71.4	0.5	200	4.2	19.45	1.05	10.7	17.72	120.0	555.5	30.0	305.6	506.1
2 Jones	20-Mar-90		179.3	0.5	200	4.02	18.51	0.53	11.34	14.6	288.3	1327.5	38.0	813.3	1047.1
2 Jones	Mar 19-20	TOTAL	250.7								408.27	1883	68	1118.9	1553.2
2 Jones	21-Mar-90	NO 22	102.2	0.5	200	5.3	21.02	1.26	12.8	18.41	216.7	859.3	51.5	523.3	752.6
2 Jones	23-Mar-90	NO 24	78.2	0.5	200	5.66	24.91	0.51	16.56	19.715	177.0	779.2	16.0	518.0	616.7
2 Jones	25-Mar-90	a	126.8	0.5	200	6.59	32.91	0.47	13.93	22.73	334.2	1669.2	23.8	706.5	1152.9
2 Jones	25-Mar-90	b	70.7	0.5	200	6.12	31.42	0.47	14.18	21.32	173.1	888.6	13.3	401.0	602.9
2 Jones	25-Mar-90	TOTAL	197.[illegible]								507.32	2557.8	37.13	1107.5	1755.8
2 Jones	26-Mar-90		116	0.5	200	6.08	28.26	0.4	14.08	20.397	282.1	1311.3	18.6	653.3	946.4
2 Jones	Mar 25-26	TOTAL	313.5								789.43	3869	55.69	1760.9	2702.2
2 Jones	27-Mar-90		59.2	0.5	200	2.25	10.3	0.36	7.67	9.89	53.3	243.9	8.5	181.6	234.2
2 Jones	27-Mar-90	jones	167	0.5	200	5.29	25.48	0.43	15.04	19.975	353.4	1702.1	28.7	1004.7	1334.3
2 Jones	27-Mar-90	TOTAL	226.2								406.65	1946	37.249	1186.3	1568.5
2 Jones	28-Mar-90		128.6	0.5	200	4.94	21.88	0.4	14.87	17.54	254.1	1125.5	20.6	764.9	902.3
2 Jones	Mar 27-28	TOTAL	354.8								660.77	3071.5	57.825	1951.2	2470.8
3 Anido	16-Mar-90		229.6	0.5	200	3.32	9.99	0.97	9.41	6.58	304.9	917.5	89.1	864.2	604.3
3 Anido	17-Mar-90	A	238.6	0.5	200	3.03	10.47	0.99	9.65	8.685	289.2	999.3	94.5	921.0	828.9
3 Anido	17-Mar-90	B	264.1	0.5	200	3.24	9.71	2.19	9.9	7.4	342.3	1025.8	231.4	1045.8	781.7
3 Anido	17-Mar-90	TOTAL	502.7								631.46	2025	325.84	1966.8	1610.6
3 Anido	Mar 16-17	no 18	732.3								936.37	2942.5	414.92	2831	2214.9

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subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
3 Anido	19-Mar-90		192	0.5	200	3.2	12.94	0.53	12.46	10.42	245.8	993.8	40.7	956.9	800.3
3 Anido	20-Mar-90		208.5	0.5	200	3.47	10.92	2.49	9.14	9.28	9.0	910.7	207.7	762.3	774.0
3 Anido	Mar 19-20	TOTAL	400.5								254.76	1904.5	248.37	1719.2	1574.2
3 Anido	21-Mar-90		59.3	0.5	200	3.36	11.39	1.24	11.45	11.34	79.7	270.2	29.4	271.6	269.0
3 Anido	21-Mar-90	2	203.4	0.5	200	3.14	10.95	0.83	11.58	11.14	255.5	890.9	67.5	942.1	906.4
3 Anido	21-Mar-90	TOTAL	262.7								335.17	1161.1	96.942	1213.7	1175.3
3 Anido	22-Mar-90		194.1	0.5	200	3.07	13.26	0.86	10.94	8.77	238.4	1029.5	66.8	849.4	680.9
3 Anido	Mar 21-22	TOTAL	456.8								573.52	2190.6	163.71	2063.1	1856.2
3 Anido	23-Mar-90		250.1	0.5	200	3.56	15.79	0.7	11.96	11.03	356.1	1579.6	70.0	1196.5	1103.4
3 Anido	24-Mar-90		257.2	0.5	200	3.51	16.61	0.84	10.48	9.64	361.1	1708.8	86.4	1078.2	991.8
3 Anido	Mar 23-24	TOTAL	507.3								717.25	3288.5	156.45	2274.7	2095.2
3 Anido	25-Mar-90		248.7	0.5	200	2.71	14.19	0.61	9.71	9.465	269.6	1411.6	60.7	966.0	941.6
3 Anido	26-Mar-90		223.4	0.5	200	2.89	12.92	0.74	10.58	7.975	258.3	1154.5	66.1	945.4	712.6
3 Anido	Mar 25-26	TOTAL	472.1								527.84	2566.2	126.81	1911.4	1654.2
3 Anido	27-Mar-90		246	0.5	200	3.45	12.47	0.81	11.56	7.72	339.5	1227.0	79.7	1137.5	759.6
3 Anido	28-Mar-90		257.6	0.5	200	3.04	11.75	1.13	8.56	7.71	313.2	1210.7	116.4	882.0	794.4
3 Anido	Mar 27-28	TOTAL	503.6								652.72	2437.8	196.14	2019.5	1554.1
4 Beckman	17-Mar-90	sub	95.8	0.5	200	5.05	12.04	0.77	12.91	11.275	193.5	461.4	29.5	494.7	432.1
4 Beckman	17-Mar-90	beckma	292.2	0.5	200	4.95	12.35	0.91	13.19	12.84	578.6	1443.5	106.4	1541.6	1500.7
4 Beckman	17-Mar-90	TOTAL	388								772.07	1904.8	135.87	2036.4	1932.8
4 Beckman	19-Mar-90	a	133.7	0.5	200	7.05	18.61	0.83	17.93	20.52	377.0	995.3	44.4	958.9	1097.4
4 Beckman	19-Mar-90	b	86.5	0.5	200	5.22	14.99	1.22	14.01	15.65	180.6	518.7	42.2	484.7	541.5
4 Beckman	19-Mar-90	TOTAL	220.2								557.65	1513.9	86.6	1443.6	1638.9
4 Beckman	20-Mar-90		159.5	0.5	200	6.46	19.37	1.52	16.43	18.76	412.1	1235.8	97.0	1048.2	1196.9
4 Beckman	Mar 19-20	TOTAL	379.7								969.79	2749.7	183.58	2491 9	2835.8

Fecal Minerals File: ICPFECAL
std: in sulfuric acid/hydrogen peroxide/cupric sulfate
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
4 Beckman	21-Mar-90		149.8	0.5	200	5.27	15.56	1.45	13.26	16.71	315.8	932.4	86.9	794.5	1001.3
4 Beckman	22-Mar-90		299.1	0.5	200	3.94	10.47	0.8	12.37	11.61	471.4	1252.6	95.7	1479.9	1389.0
4 Beckman	Mar 21-22	TOTAL	448.9								787.16	2185	182.6	2274.5	2390.3
4 Beckman	23-Mar-90		259	0.5	200	4.37	17.06	0.81	13.07	13.9	452.7	1767.4	83.9	1354.1	1440.0
4 Beckman	24-Mar-90		222.1	0.5	200	4.99	15.58	1.04	13.61	15.67	443.3	1384.1	92.4	1209.1	1392.1
4 Beckman	Mar 23-24	TOTAL	481.1								896.04	3151.5	176.31	2563.2	2832.2
4 Beckman	26-Mar-90	1	132.4	0.5	200	4.71	12.06	1.12	11.865	12.35	249.4	638.7	59.3	628.4	654.1
4 Beckman	26-Mar-90	2	342.4	0.5	200	4.89	14.71	0.63	13.37	13.72	669.7	2014.7	86.3	1831.2	1879.1
4 Beckman	26-Mar-90	TOTAL	474.8								919.18	2653.4	145.6	2459.5	2533.1
5 Sharp	16-Mar-90	A	108.4	0.5	200	4.8	11.77	0.83	9.61	10.185	208.1	510.3	36.0	416.7	441.6
5 Sharp	16-Mar-90	sub	142.8	0.5	200	4.7	10.93	0.63	9.74	10.96	268.5	624.3	36.0	556.3	626.0
5 Sharp	16-Mar-90	TOTAL	251.2								476.59	1134.7	71.974	973.04	1067.7
5 Sharp	17-Mar-90		150.3	0.5	200	3.67	10.25	1.23	7.93	8.82	220.6	616.2	73.9	476.8	530.3
5 Sharp	17-Mar-90	sharp	221.6	0.5	200	4.31	12.45	1.15	8.38	10.96	382.0	1103.6	101.9	742.8	971.5
5 Sharp	17-Mar-91	SUB	119.8	0.5	200	3.1	9.4	0.99	6.36	8.25	148.6	450.4	47.4	304.8	395.3
5 Sharp	17-Mar-91	TOTAL	491.7								751.23	2170.2	223.32	1524.3	1897.1
5 Sharp	Mar 16-17	no 18	742.9								1227.8	3304.9	295.3	2497.4	2964.7
5 Sharp	20-Mar-90		124.6	0.5	200	5.37	18.94	1.36	8	13.9	267.6	944.0	67.8	398.7	692.8
5 Sharp	20-Mar-90	sharp	116.9	0.5	200	4.9	16.98	0.44	9.75	12.83	229.1	794.0	20.6	455.9	599.9
5 Sharp	20-Mar-90	TOTAL	241.5								496.76	1738	88.357	854.63	1292.7
5 Sharp	21-Mar-90	1	124.3	0.5	200	4.81	15.23	1.28	8.15	12.29	239.2	757.2	63.6	405.2	611.1
5 Sharp	21-Mar-90	2	91.9	0.5	200	4.35	14.42	1.47	10.73	14.3	159.9	530.1	54.0	394.4	525.7
5 Sharp	21-Mar-90	TOTAL	285.3								400.15	918.24	224.64	566.22	772.06
5 Sharp	22-Mar-90		186	0.5	200	3.67	10.16	0.99	11.11	8.42	273.0	755.9	73.7	826.6	626.4
5 Sharp	22-Mar-90	2	186.7	0.5	200	3.12	11.74	1.66	9.18	10.11	233.0	876.7	124.0	685.6	755.0
5 Sharp	22-Mar-90	TOTAL	372.7								506.05	1632.6	197.62	1512.1	1381.5
5 Sharp	Mar 21-22	TOTAL	658								906.2	2550.9	422.27	2078.4	2153.5

Fecal Minerals File: ICPFECAL
stds in sulfuric acid/hydrogen peroxide/cupric sulfate
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
5 Sharp	23-Mar-90		116.8	0.5	200	4.895	19.415	0.595	10.7	16.105	228.7	907.1	27.8	499.9	752.4
5 Sharp	24-Mar-90	A	76.5	0.5	200	3.92	11.22	0.36	10.26	9.61	120.0	343.3	11.0	314.0	294.1
5 Sharp	24-Mar-90	b	277.2	0.5	200	2.05	6.89	2.01	5.85	5.64	227.3	764.0	222.9	648.6	625.4
5 Sharp	24-Mar-90	TOTAL	353.7								347.26	1107.3	233.88	962.6	919.43
5 Sharp	Mar 23-24	TOTAL	470.5								575.95	2014.4	261.68	1462.5	1671.9
5 Sharp	25-Mar-90		192.4	0.5	200	4.72	14.57	1.03	9.6	13.16	363.3	1121.3	79.3	738.8	1012.8
5 Sharp	26-Mar-90	1	174.2	0.5	200	3.61	11.53	0.57	8.68	10.15	251.5	803.4	39.7	604.8	707.3
5 Sharp	26-Mar-90	2	68	0.5	200	2.63	9.79	0.5	4.45	7.56	71.5	266.3	13.6	121.0	205.6
5 Sharp	26-Mar-90	TOTAL	242.2								323.08	1069.7	53.318	725.86	912.88
5 Sharp	Mar 25-26	TOTAL	434.6								686.33	2191	132.59	1464.7	1925.7
5 Sharp	27-Mar-90		131.1	0.5	200	5.48	12.81	0.6	11.84	12.24	287.4	671.8	31.5	620.9	641.9
5 Sharp	28-Mar-90	A	111.8	0.5	200	4.01	10.98	0.65	9.44	11.39	179.3	491.0	29.1	422.2	509.4
5 Sharp	28-Mar-90	b	152.8	0.5	200	3.89	10.8	1.47	10.21	10.34	237.8	660.1	89.8	624.0	632.0
5 Sharp	28-Mar-90	TOTAL	264.6								417.08	1151.1	118.91	1046.2	1141.3
5 Sharp	Mar 27-28	TOTAL	395.7								704.46	1822.9	150.38	1667.1	1783.2
6 Beardslee	no date	16:40	154.8	0.25	200	1.38	8.2967	0.26	3.9033	6.0133	170.9	1027.5	32.2	483.4	744.7
6 Beardslee	no date	a	130.2	0.25	200	1.28	5.89	1.08	4.38	4.29	133.3	613.5	112.5	456.2	446.8
6 Beardslee	no date	A*	196.1	0.25	200	1.3367	6.4267	0.37	5.72	5.5133	209.7	1008.2	58.0	897.4	864.9
6 Beardslee	no date	b	171.6	0.5	200	2.155	9.875	0.54	12.335	7.52	147.9	677.8	37.1	846.7	516.2
6 Beardslee	no date	c	171.1	0.5	200	3	10.01	0.34	9.88	10.265	205.3	685.1	23.3	676.2	702.5
6 Beardslee	no date	d	265.1	0.5	200	1.395	4.63	2.425	8.46	4.365	147.9	491.0	257.1	897.1	462.9
6 Beardslee	no date	e	159	0.5	200	3.03	14.715	0.48	10.115	12.38	192.7	935.9	30.5	643.3	787.4
6 Beardslee	no date	f	234.2	0.5	200	2.17	9.25	0.42	10.52	7.11	203.3	866.5	39.3	985.5	666.1

Fecal Minerals File: ICPFECAL
stds in sulfuric acid/hydrogen peroxide/cupric sulfate
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
6 Beardslee	no date	g	267.5	0.5	200	1.85	8.99	0.38	11.72	7.6	198.0	961.9	40.7	1254.0	813.2
6 Beardslee	no da e	h	208.9	0.5	200	2.58	10.11	0.22	10.765	8.92	215.6	844.8	18.4	899.5	745.4
6 Beardslee	no date	i	151.5	0.5	200	3.24	12.32	0.48	7.84	10.18	196.3	746.6	29.1	475.1	616.9
6 Beardslee	no date	j	200.8	0.5	200	4.01	11.06	0.48	9.75	11.22	322.1	888.3	38.6	783.1	901.2
6 Beardslee	no date	k	119.1	0.5	200	3.37	13.39	0.46	11.01	12.89	160.5	637.9	21.9	524.5	614.1
6 Beardslee	no date	l	110	0.5	200	3.18	11.17	0.44	11.04	11.07	139.9	491.5	19.4	485.8	487.1
6 Beardslee	no date	m	89.8	0.5	200	2.86	10.79	0.5	10.55	8.19	102.7	387.6	18.0	379.0	294.2
6 Beardslee	no date	n	179.1	0.5	200	3.07	13.84	0.45	11.75	11.79	219.9	991.5	32.2	841.8	844.6
6 Beardslee	no date	sub	185.8	0.5	200	2.41	7.76	0.59	9.19	7.1	179.1	576.7	43.8	683.0	527.7
6 Beardslee	16-Mar-90		202.6	0.5	200	2.34	6.6	0.32	9.54	5.96	189.6	534.9	25.9	773.1	483.0
6 Beardslee	17-Mar-90		231	0.5	200	2.03	8.27	0.37	7.09	7.4	187.6	764.1	34.2	655.1	683.8
6 Beardslee	Mar 16-17	no 18	433.6								377.21	1299	60.121	1428.2	1166.8
7 Clark	16-Mar-90		161.9	0.5	200	5.94	15.05	0.4	9.41	14.27	384.7	974.6	25.9	609.4	924.1
7 Clark	17-Mar-90		140.9	0.5	200	4.23	12.85	0.63	8.02	10.53	238.4	724.2	35.5	452.0	593.5
7 Clark	18-Mar-90	a	142.2	0.5	200	5.34	14.03	1.08	7.96	13.46	303.7	798.0	61.4	452.8	765.6
7 Clark	18-Mar-90	clark	30.3	0.5	200	4.59	13.76	0.67	9.53	13.005	55.6	166.8	8.1	115.5	157.6
7 Clark	18-Mar-90	TOTAL	172.5								359.37	964.8	69.551	568.27	923.23
7 Clark	Mar 16-18	TOTAL	475.3								982.45	2663.7	130.96	1629.7	2440.8
7 Clark	19-Mar-90		46.4	0.5	200	5.75	19.56	1.2	9.32	17.54	106.7	363.0	22.3	173.0	325.5
7 Clark	20-Mar-90		193.1	0.5	200	5.75	16.1	0.7	8.6	15.49	444.1	1243.6	54.1	664.3	1196.4
7 Clark	Mar 19-20	TOTAL	239.5								550.85	1606.6	76.34	837.24	1522

Fecal Minerals File: ICPFECAL
stds in sulfuric acid/hydrogen peroxide/cupric sulfate
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
7 Clark	22-Mar-90		290.1	0.5	200	5.01	15.85	0.45	10.26	16.07	581.4	1839.2	52.2	1190.6	1864.8
7 Clark	23-Mar-90		164	0.5	200	6.08	15.73	0.52	10.54	16.28	398.8	1031.9	34.1	691.4	1068.0
7 Clark	24-Mar-90	A	86.8	0.5	200	5.74	18.35	0.39	10.93	18.43	199.3	637.1	13.5	379.5	639.9
7 Clark	24-Mar-90	clark	82.4	0.5	200	7.42	23.59	0.37	11.57	21.51	244.6	777.5	12.2	381.3	709.0
7 Clark	24-Mar-90	TOTAL	169.2								443.86	1414.6	25.736	760.84	1348.9
7 Clark	Mar 23-24	TOTAL	333.2								842.7	2446.5	59.848	1452.3	2416.8
7 Clark	25-Mar-90		174.9	0.5	200	5.35	15.42	0.53	9.85	14.74	374.3	1078.8	37.1	689.1	1031.2
7 Clark	26-Mar-90		201.4	0.5	200	5.74	17.18	0.46	10.32	15.435	462.4	1384.0	37.1	831.4	1243.4
7 Clark	Mar 25-26	TOTAL	376.3								836.7	2462.8	74.136	1520.5	2274.7
7 Clark	28-Mar-90	no 27	172.5	0.5	200	5.07	13.94	0.47	9.14	12.82	349.8	961.9	32.4	630.7	884.6
8 Pulliam	no date	a	320.2	0.5	200	4.54	11.53	0.47	7.76	8.995	581.5	1476.8	60.2	993.9	1152.1
8 Pulliam	no date	b	125	0.5	200	4.18	11.98	0.47	7.43	10.27	209.0	599.0	23.5	371.5	513.5
8 Pulliam	no date	TOTAL	445.2								790.48	2075.8	83.698	1365.4	1665.6
8 Pulliam	16-Mar-90		317.3	0.5	200	3.96	12.37	0.42	9.14	10.47	502.6	1570.0	53.3	1160.0	1328.9
8 Pulliam	17-Mar-90		148.8	0.5	200	6.23	15.12	0.49	9.48	12.5	370.8	899.9	29.2	564.2	744.0
8 Pulliam	Mar 16-17	no 18	466.1								873.41	2469.9	82.471	1724.3	2072.9
8 Pulliam	20-Mar-90	no 19	139.7	0.5	200	4.78	13.93	1.06	7	10.01	267.1	778.4	59.2	391.2	559.4
8 Pulliam	22-Mar-90	1	144.3	0.5	200	5.95	18.3	0.45	5.49	12.42	343.4	1056.3	26.0	316.9	716.9
8 Pulliam	22-Mar-90	2	223.1	0.5	200	5.37	14.31	0.41	9.21	13.09	479.2	1277.0	36.6	821.9	1168.2
8 Pulliam	22-Mar-90	TOTAL	367.4								822.65	2333.3	62.562	1138.8	1885
8 Pulliam	23-Mar-90		182	0.5	200	5.88	18.49	0.43	10.03	15.66	428.1	1346.1	31.3	730.2	1140.0
8 Pulliam	25-Mar-90	A	131.4	0.5	200	4.18	11.81	0.49	9.14	10.945	219.7	620.7	25.8	480.4	575.3
8 Pulliam	25-Mar-90	b	240.9	0.5	200	5.83	18.62	0.46	8.7	17.09	561.8	1794.2	44.3	838.3	1646.8
8 Pulliam	25-Mar-90	TOTAL	372.3								781.48	2415	70.08	1318.7	2222.1

Fecal Minerals File: IC FECAL
stds in sulfuric acid/hydrogen peroxide/cupric sulfate
PENNINGTON BIOMEDICAL RESEA CH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
8 Pulliam	26-Mar-90		229	0.5	200	4.89	16.85	0.24	8.11	12.415	447.9	1543.5	22.0	742.9	1137.2
8 Pulliam	Mar 25-26	TOTAL	601.3								1229.4	3958.4	92.064	2061.6	3359.3
8 Pulliam	28-Mar-90	no 27	305.1	0.5	200	6.12	15.46	0.4	10.49	15.05	746.9	1886.7	48.8	1280.2	1836.7
9	16-Mar-90		268	0.5	200	4.73	10.88	0.69	11.41	10.565	507.1	1166.3	74.0	1223.2	1132.6
9	17-Mar-90		139.7	0.5	200	4.73	12.08	0.53	8.53	12.54	264.3	675.0	29.6	476.7	700.7
9	18-Mar-90		267.3	0.5	200	3.5	8.13	0.76	7.85	7.895	374.2	869.3	81.3	839.3	844.1
9	Mar 16-18	TOTAL	675								1145.6	2710.6	184.84	2539.1	2677.4
9	19-Mar-90		62.2	0.5	200	4.84	15.67	1.13	8.2	13.73	120.4	389.9	28.1	204.0	341.6
9	20-Mar-90		209.9	0.5	200	4.29	12.45	0.45	7.28	10.47	360.2	1045.3	37.8	611.2	879.1
9	Mar 19-20	TOTAL	272.1								480.61	1435.2	65.896	815.24	1220.7
9	21-Mar-90		112.2	0.5	200	5.89	15.11	1.23	10.02	14.84	264.3	678.1	55.2	449.7	666.0
9	22-Mar-90		296.9	0.5	200	4.53	12.77	1.06	9.49	12.5	538.0	1516.6	125.9	1127.0	1484.5
9	Mar 21-22	TOTAL	409.1								802.33	2194.7	181.09	1576.7	2150.5
9	23-Mar-90		208.9	0.5	200	4.38	13.16	0.61	10.11	12.8	366.0	1099.6	51.0	844.8	1069.6
9	24-Mar-90		59.6	0.5	200	3.33	9.79	0.44	5.02	10.63	79.4	233.4	10.5	119.7	253.4
9	Mar 23-24	TOTAL	268.5								445.38	1333	61.461	964.47	1323
9	25-Mar-90		212.9	0.5	200	4.38	12.59	0.47	7.69	11.585	373.0	1072.2	40.0	654.9	986.6
9	26-Mar-90		262.3	0.5	200	4.75	13.39	0.65	10	12.82	498.4	1404.9	68.2	1049.2	1345.1
9	Mar 25-26	TOTAL	475.2								871.37	2477	108.22	1704.1	2331.7
9	27-Mar-90		206.7	0.5	200	4.67	11.1	0.64	9.74	12.33	386.1	917.7	52.9	805.3	1019.4
9	28-Mar-90		229	0.5	200	5.36	13.83	0.63	11.97	12.94	491.0	1266.8	57.7	1096.5	1185.3
9	Mar 27-28	TOTAL	435.7								877.09	2184.6	110.62	1901.8	2204.7

Fecal Minerals File: ICPFECAL
stds in sulfuric acid/hydrogen peroxide/cupric sulfate
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
11	16-Mar-90		147.8	0.5	200	6.63	19.25	0.91	10.41	15.94	392.0	1138.1	53.8	615.4	942.4
11	17-Mar-90	1	194.4	0.5	200	7.51	24.81	0.69	11.44	20.675	584.0	1929.2	53.7	889.6	1607.7
11	17-Mar-90	2	123.3	0.5	200	7.19	22.88	1.33	8.44	18.247	354.6	1128.4	65.6	416.3	899.9
11	17-Mar-90	TOTAL	317.7								938.59	3057.7	119.25	1305.8	2507.6
11	18-Mar-90		142.6	0.5	200	8.98	27.91	0.74	8.72	23.96	512.2	1592.0	42.2	497.4	1366.7
11	Mar 16-18	TOTAL	608.1								1842.8	5787.7	215.26	2418.7	4816.7
11	20-Mar-90	1	225.5	0.25	200	7.53	27.96	0.485	11.995	24.35	1358.4	5044.0	87.5	2163.9	4392.7
11	20-Mar-90	2	13.7	0.25	200	4.69	21.13	0.67	4.69	16.31	51.4	231.6	7.3	51.4	178.8
11	20-Mar-90	TOTAL	239.2								1409.8	5275.6	94.837	2215.3	4571.5
11	21-Mar-90		110	0.5	200	9.85	35.05	0.43	11.89	28.12	433.4	1542.2	18.9	523.2	1237.3
11	23-Mar-90	A	164.7	0.5	200	8.48	29.64	0.42	11.12	25.43	558.7	1952.7	27.7	732.6	1675.3
11	23-Mar-90	b	130	0.5	200	7.88	26.46	0.27	11.2	22.78	409.8	1375.9	14.0	582.4	1184.6
11	23-Mar-90	TOTAL	294.7								968.42	3328.6	41.71	1315	2859.9
11	25-Mar-90		108.4	0.5	200	10.865	36.25	0.425	13.31	31.15	471.1	1571.8	18.4	577.1	1350.7
11	26-Mar-90		156	0.5	200	11.7	39.55	0.46	13.96	36.74	730.1	2467.9	28.7	871.1	2292.6
11	Mar 25-26	TOTAL	264.4								1201.2	4039.7	47.132	1448.2	3643.2
11	27-Mar-90	1	194.5	0.5	200	7.66	24.72	0.46	12.78	22.2	595.9	1923.2	35.8	994.3	1727.2
11	27-Mar-90	b	38.6	0.5	200	6.39	22.23	0.4	8.43	20.26	98.7	343.2	6.2	130.2	312.8
11	27-Mar-90	2	203.9	0.5	200	8.605	27.61	0.38	12.61	24.567	701.8	2251.9	31.0	1028.5	2003.7
11	27-Mar-90	TOTAL	437								1396.4	4518.3	72.957	2152.9	4043.6
11	28-Mar-90		168	0.5	200	6.01	18.33	0.62	11.74	18.4	403.9	1231.8	41.7	788.9	1236.5
11	Mar 27-28	TOTAL	605								1800.3	5750.1	114.62	2941.8	5280.1
12 Curnutte	no date	a	178.8	0.5	200	7.345	18.96	0.53	14.95	18.605	525.3	1356.0	37.9	1069.2	1330.6
12 Curnutte	no date	b	169	0.5	200	7.255	21.01	0.31	15.57	21.29	490.4	1420.3	21.0	1052.5	1439.2

Fecal Minerals File: ICPFECAL
stds in sulfuric acid/hydrogen peroxide/cupric sulfate
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt [illegible]	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
13	no date	a	118.7	0.5	200	5.995	20.805	0.3	10.8	16.53	284.6	987.8	14.2	512.8	784.8
13	no date	b	54	0.5	200	7.195	27.6	0.34	12.1	21.69	155.4	596.2	7.3	261.4	468.5
13	16-Mar-90		237.2	0.5	200	5.41	13.86	0.57	11.91	12.65	513.3	1315.0	54.1	1130.0	1200.2
13	17-Mar-90		143.8	0.5	200	4.76	12.64	0.85	10.49	9.995	273.8	727.1	48.9	603.4	574.9
13	18-Mar-90		238.2	0.5	200	4.84	12.74	0.59	8.53	11.6	461.2	1213.9	56.2	812.7	1105.2
13	Mar 16-18	TOTAL	619.2								1248.3	3256	159.19	2546.1	2880.4
13	19-Mar-90		101.1	0.5	200	6.82	21.05	0.38	11.23	17.345	275.8	851.3	15.4	454.1	701.4
13	20-Mar-90	1	131.2	0.5	200	6.21	19.72	1.23	8.22	15.43	325.9	1034.9	64.6	431.4	809.8
13	20-Mar-90	2	109.8	0.5	200	5.33	16.37	0.51	8.71	12.86	234.1	719.0	22.4	382.5	564.8
13	20-Mar-90	TOTAL	241								559.99	1753.9	86.95	813.93	1374.6
13	Mar 19-20	TOTAL	342.1								835.8	2605.1	102.32	1268.1	2076
13	27-Mar-90		156.2	0.5	200	5.825	22.595	0.47	10.02	16.895	363.9	1411.7	29.4	626.0	1055.6
14	16-Mar-90		361.3	0.5	200	4.38	19.08	0.93	10.23	10.255	633.0	2757.4	134.4	1478.4	1482.1
14	17-Mar-90		275.5	0.5	200	3.36	15.48	1.28	7.44	8.41	370.3	1705.9	141.1	819.9	926.8
14	18-Mar-90		288.9	0.5	200	3.71	16.46	1.37	7.82	10.145	428.7	1902.1	158.3	903.7	1172.4
14	Mar 16-18	TOTAL	925.7								1432	6365.5	433.78	3202	3581.2
14	19-Mar-90		69.9	0.5	200	2.35	13.33	3.07	6.49	8.2	65.7	372.7	85.8	181.5	229.3
21 Dilworth	14-May-90		224.8	0.5	200	7.16	17.61	1.21	11.29	16.48	643.8	1583.5	108.8	1015.2	1481.9
21 Dilworth	17-May-90		2[illegible]0	0.5	200	7.01	17.1	1.12	12.12	16.6	673.0	1641.6	107.5	1163.5	1593.6
21 Dilworth	18-May-90		168.2	0.5	200	5.38	13.2	0.53	12.42	14.185	362.0	888.1	35.7	835.6	954.4
21 Dilworth	21-May-90		325.3	0.5	200	7.55	19.34	0.41	15.05	17.51	982.4	2516.5	53.3	1958.3	2278.4

Fecal Minerals File: ICPFECAL
stds in sulfuric acid/hydrogen peroxide/cupric sulfate
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
21 Dilworth	22-May-90		221.7	0.5	200	6.42	14.24	0.71	13.33	14.95	569.3	1262.8	63.0	1182.1	1325.8
22 Zepida	12-May-90		390.1	0.5	200	3.59	10.81	1.64	7.31	8.1	560.2	1696.8	255.9	1140.7	1263.9
22 Zepida	13-May-90		313.5	0.5	200	2.44	9.64	2.05	7.59	7.95	306.0	1208.9	257.1	951.8	996.9
22 Zepida	May 12-13	no 11	703.6								866.16	2895.6	512.98	2092.4	2260.9
22 Zepida	15-May-90		397.3	0.5	200	3.61	12.14	1.04	8.49	8.74	573.7	1929.3	165.3	1349.2	1389.0
22 Zepida	17-May-90		243.2	0.5	200	4.38	22.07	0.78	9.03	17.37	426.1	2147.0	75.9	878.4	1689.8
22 Zepida	18-May-90		384	0.5	200	5.1	14.45	0.51	12.02	13.41	783.4	2219.5	78.3	1846.3	2059.8
22 Zepida	20-May-90		405.3	0.5	200	5.94	15.09	0.44	10.38	13.97	963.0	2446.4	71.3	1682.8	2264.8
22 Zepida	22-May-90		291	0.5	200	7.86	18.33	0.45	9.08	18.46	914.9	2133.6	52.4	1056.9	2148.7
23 McKinney	11-May-90	a	144.4	0.5	200	4.43	9.51	0.75	11.92	10.76	255.9	549.3	43.3	688.5	621.5
23 McKinney	11-May-90	b	88.3	0.5	200	4.67	9.53	1.57	9.86	9.35	164.9	336.6	55.5	348.3	330.2
23 McKinney	11-May-90	TOTAL	232.7								420.82	885.9	98.772	1036.8	951.74
23 McKinney	12-May-90	A	173.9	0.5	200	4.6	10.91	1.04	12.38	10.18	320.0	758.9	72.3	861.2	708.1
23 McKinney	12-May-90	b	118.8	0.5	200	3.1	8.69	0.77	9.55	8.81	147.3	412.9	36.6	453.8	418.7
23 McKinney	12-May-90	2	137.3	0.5	200	3.3	7.07	1.99	8.48	7.415	181.2	388.3	109.3	465.7	407.2
23 McKinney	12-May-90	TOTAL	430								648.52	1560.1	218.22	1780.7	1534
23 McKinney	13-May-90		169	0.5	200	3.52	11.57	0.92	9.75	9.5767	238.0	782.1	62.2	659.1	647.4
23 McKinney	May 11-13	TOTAL	831.7								1307.3	3228.2	379.19	3476.5	3133.1
23 McKinney	14-May-90		84.7	0.5	200	4.32	11.17	0.93	8.26	10.555	146.4	378.4	31.5	279.8	357.6
23 McKinney	15-May-90	A	173	0.5	200	2.92	7.97	1.84	8.85	7.55	202.1	551.5	127.3	612.4	522.5
23 McKinney	15-May-90	b	145.2	0.5	200	5.21	13.26	0.37	12.88	13.36	302.6	770.1	21.5	748.1	775.9
23 McKinney	15-May-90	TOTAL	318.2								504.66	1321.7	148.82	1360.5	1298.4
23 McKinney	May 14-15	TOTAL	402.9								651.02	1700.1	180.33	1640.3	1656
23 McKinney	16-May-90		56.4	0.5	200	4.93	12.62	1.32	11.51	13.57	111.2	284.7	29.8	259.7	306.1

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PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
25 Windsor	12-May-90		166.2	0.5	200	5.75	17.72	0.59	15.76	14.99	382.3	1178.0	39.2	1047.7	996.5
25 Windsor	13-May-90	A	108.7	0.5	200	4.35	13.98	1.84	10.47	12.8	189.1	607.9	80.0	455.2	558.3
25 Windsor	13-May-90	b	273.3	0.5	200	4.77	13.76	1.04	11.68	13.5	521.5	1504.2	113.7	1276.9	1475.8
25 Windsor	13-May-90	TOTAL	382								534.3	2112.1	193.7	1732.1	2034.1
25 Windsor	May 12-13	no 11	548.2								916.56	3290.1	232.92	2779.8	3030.6
25 Windsor	14-May-90		72.4	0.5	200	5.46	20.59	0.72	11.3	16.64	158.1	596.3	20.9	327.2	481.9
25 Windsor	15-May-90		138.8	0.5	200	3.93	13.51	1.85	9.09	10.95	218.2	750.1	102.7	504.7	607.9
25 Windsor	May 14-15	TOTAL	211.2								376.32	1346.4	123.56	831.92	1089.8
25 Windsor	16-May-90		190.1	0.5	200	5.33	16.89	1.62	9.57	15.16	405.3	1284.3	123.2	727.7	1152.8
25 Windsor	17-May-90		105.6	0.5	200	5.38	20.78	0.84	10.6	18.24	227.3	877.7	35.5	447.7	770.5
25 Windsor	May 16-17	TOTAL	295.7								632.54	2162.1	158.67	1175.4	1923.2
25 Windsor	18-May-90		100.2	0.5	200	5.95	15.96	0.43	15.55	15.2	238.5	639.7	17.2	623.2	609.2
25 Windsor	19-May-90		170.2	0.5	200	6.73	16.12	0.54	12.55	15.78	458.2	1097.4	36.8	854.4	1074.3
25 Windsor	20-May-90		68.7	0.5	200	7.08	15.47	0.58	9.01	14.83	194.6	425.1	15.9	247.6	407.5
25 Windsor	21-May-90		171.6	0.5	200	7.63	19.7	0.51	11.9	18.94	523.7	1352.2	35.0	816.8	1300.0
25 Windsor	May 20-21	TOTAL	240.3								718.28	1777.3	50.945	1064.4	1707.6
25 Windsor	22-May-90		142.8	0.5	200	8.48	20.71	0.73	14.99	19.325	484.4	1183.0	41.7	856.2	1103.8
25 Windsor	23-May-90		116.2	0.5	200	7.13	19.54	0.39	15.76	17.625	331.4	908.2	18.1	732.5	819.2
25 Windsor	May 22-23	TOTAL	259								815.78	2091.2	59.825	1588.8	1923.1
27 Keeney	10-May-90	date?	145.8	0.5	200	4.6	13.21	1.02	12.93	11.25	268.3	770.4	59.5	754.1	656.1
27 Keeney	12-May-90		126.8	0.5	200	5.07	13.88	0.67	12.95	12.743	257.2	704.0	34.0	656.8	646.3
27 Keeney	13-May-90	1	195.4	0.5	200	5.16	13.98	0.57	12.23	12.855	403.3	1092.7	44.6	955.9	1004.7

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Clinical Research Laboratory

						AMOUNT MEASURED IN DIGEST SOLUTION					TOTAL AMOUNT IN FECAL SAMPLE				
subj #	date		Total Wt	Amt Dig	Dil to	Mg	Ca	Na	K	P	Mg	Ca	Na	K	P
			grams	grams	ml	ug/ml	ug/ml	ug/ml	ug/ml	ug/ml	mg	mg	mg	mg	mg
27 Keeney	13-May-90	2	175.9	0.5	200	4.01	12.53	1.51	12.19	12.085	282.1	881.6	106.2	857.7	850.3
27 Keeney	13-May-90	TOTAL	371.3								685.45	1974.3	150.79	1813.6	1855
27 Keeney	May 12-13	no 11	498.1								942.6	2678.3	184.78	2470.4	2501.3
27 Keeney	17-May-90		154.5	0.5	200	5.17	17.67	1.3	10.25	15.035	319.5	1092.0	80.3	633.5	929.2
27 Keeney	19-May-90		151.3	0.5	200	5.13	15.44	0.44	13.34	15.13	310.5	934.4	26.6	807.3	915.7
27 Keeney	21-May-90		123.6	0.5	200	8.15	24.9	0.355	17.845	22.05	402.9	1231.1	17.6	882.3	1090.2
27 Keeney	22-May-90		175.1	0.5	200	7.06	21.85	0.39	17.15	22.1	494.5	1530.4	27.3	1201.2	1547.9
27 Keeney	23-May-90		190.1	0.5	200	6.38	19.57	0.44	15.93	20.18	485.1	1488.1	33.5	1211.3	1534.5
27 Keeney	May 22-23	TOTAL	365.2								979.62	3018.5	60.773	2412.5	3082.4
60	12-Jun-90		86	0.5	200	3.34	6.62	1.48	4.93	7.43	114.9	227.7	50.9	169.6	255.6

11 3/20-1 was weighed wet, then lyophillzed; amt digested was weighed dry; 24 hr total may not be accurate.

DEPARTMENT OF THE ARMY
US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE
NATICK, MASSACHUSETTS 01760-5007

July 16, 1991

Reply to Military Nutrition Division

Dr. Richard Tulley
Pennington Biomedical Research Center
Louisiana State University
6400 Perkins Road
Baton Rouge, LA

Dear Dr. Tulley:

I have sent under separate cover, samples of the MRE entrees from the salt study for chemical analysis. As we discussed on the telephone (16 Jul 91), the determined content of sodium in the first set of samples did not agree with what we predicted would be present. Since most of the sodium in the MRE entrees is added based on recipe formulations, the chemically-determined sodium content should be closer to the predicted sodium content than the values originally obtained.

With the information I have on hand, it isn't clear whether the disagreement between the predicted and actual sodium content is an analytical problem (arising from processing or sampling error or methodological problems) or an actual formulation problem with the ration. The content of sodium in this particular food item is critical to our interpretation of the data, and I need to be reasonably sure that the numerical value reported for sodium content is accurate.

I am requesting that you review the methods and techniques used in the original analysis, to ensure that any factors which might contribute to errors in the determination of sodium content have been adequately addressed. I also would request that the enclosed samples be analyzed for mineral content (Na, K, Ca, Mg, and P). These two actions should provide us with the needed information to confirm/refute the original values.

Please contact me (508-651-4875/4874) if you need further information. I will be on TDY in Georgia until August, but the Division Secretary (Veronica Panciocco, 641-4874) can reach me if needed. Thank you for your prompt attention to this matter.

Sincerely,

Robert J. Moore
Captain, U.S. Army

Pennington Biomedical Research Center
LOUISIANA STATE UNIVERSITY

August 9, 1991

Captain Robert J. Moore
US Army Research Institute of Environmental Medicine
ATTN: SGRD-UE-NR (CPT Moore)
Natick, MA 01760-5007

Dear Captain Moore:

Enclosed are 1) the revised food mineral analyses from the salt study and 2) the analyses on the new MRE samples recently sent.

On the first set of foods (File: ICPFOOD2), we erroneously forgot to take into consideration that an equal amount of water had been added to some foods before homogenization and digestion. This caused the weight/gram to be half of the actual value. The samples which are highlighted in the report have changed due to this. All other foods are the same as before. As I mentioned before, we also re-digested half of the MRE's from before. This was done using nitric acid/hydrogen peroxide rather than the original method we used (sulfuric acid/hydrogen peroxide/cupric sulfate). The values agree very well with the recalculated results enclosed. So as to be less confusing, I have not enclosed these but they are available if you'd like. I hope this solves the discrepancy you told me about for sodium.

The results for the new MRE samples you sent are listed as File: ICPfood3. One gram of a 1:1 mixture of food and water was homogenized and digested with sulfuric acid/hydrogen peroxide/cupric acetate (resulting in 0.5 g of food being digested). Results were calculated before; this time the dilution factor was taken into consideration in the final calculations.

Sincerely,

Richard Tulley

Richard Tulley, Ph.D.
Clin. Res. Lab Manager

6400 Perkins Road, Baton Rouge, Louisiana 70808-4124 • Phone (504) 767-0880, Fax (504) 765-2525

Food Minerals File: ICPFOOD2 8/8/91
Corrected Food Analyses
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

Army id #	PBRC log #		Food Item Description	Total Weight g	Amount Digstd g	Vol Digstd ml	Dil'd to ml	Concentration in Diluted Digest					Concentration per Weight/Weight Basis					Note: if per ml
								Mg ug/ml	Ca ug/ml	Na ug/ml	K ug/ml	P ug/ml	Mg mg/g	Ca mg/g	Na mg/g	K mg/g	P mg/g	
1	1306		Quaker 100% Ceral	*	0.2		200	0.821	1.147	0.656	3.639	4.000	0.821	1.147	0.656	3.639	4.000	
2	1337		Minute Maid Orange Juice,ml	250		1	200	0.493	0.545	0.299	8.149	0.894	0.099	0.109	0.060	1.630	0.179	per ml
3	1289	b	Sliced White Bread, per slice	27.22	0.5		200	0.546	0.821	13.205	3.036	2.472	0.218	0.328	5.282	1.214	0.989	
4	1294	b	Unsalted Butter, 1 stick	115	0.2		200	0.034	0.151	0.380	0.488	0.058	0.034	0.151	0.380	0.488	0.058	
5	1311		Welch's Grape Jelly	510	0.5		200	0.164	0.242	1.129	0.937	1.034	0.066	0.097	0.452	0.375	0.414	
6	1292		Whole Milk	24.9	1		200	0.482	4.401	2.291	7.464	4.255	0.096	0.880	0.458	1.493	0.851	
7	1313	a	Delmonte Peach Halves, peaches only	237.1	0.5		200	0.166	0.149	0.708	3.067	0.583	0.066	0.060	0.283	1.227	0.233	
7b	1313	b	Peaches, syrup only	25.6	1		200	0.236	0.179	0.794	4.831	0.710	0.047	0.036	0.159	0.966	0.142	
7			Peaches, syrup + peaches	262.7									0.065	0.057	0.271	1.201	0.224	
8	1289		Sara Lee Danish Cheese, per roll	39.6	0.5		200	0.320	0.796	7.908	2.055	1.748	0.128	0.318	3.163	0.822	0.699	
9	1335		Ocean Spray Cran-Grape Juice,ml	250		1	200	0.157	0.229	0.432	0.414	0.534	0.031	0.046	0.086	0.083	0.107	per ml
10	1293	b	Green Apples, cored	143	0.5		200	0.115	0.093	0.265	2.181	0.295	0.046	0.037	0.106	0.872	0.118	
11	1290	b	Brown & Serve Rolls, per roll	30.6	0.5		200	0.547	3.009	14.677	2.98	2.146	0.204	0.336	3.794	1.378	1.209	
12	1320		Minute Rice	*	0.5		200	0.412	0.299	0.490	0.688	2.905	0.165	0.120	0.196	0.275	1.162	
13	1301	a	Dole Pineapple Chunks	148.7	0.5		200	0.341	0.421	0.707	2.644	0.094	0.136	0.168	0.283	1.058	0.037	
13b	1301	b	Pineapple, Canned, syrup	23.7	1		200	0.618	0.499	0.763	4.512	0.621	0.124	0.100	0.153	0.902	0.124	
13			Pineapples + syrup	172.4									0.135	0.159	0.265	1.036	0.049	
14	1291	b	Whole Potatoes,peeled	139.6	0.5		200	0.498	0.222	0.442	9.782	1.298	0.199	0.089	0.177	3.913	0.519	
14b	1291	b2	Whole Potatoes, unpeeled	247.8	0.5		200	0.555	0.297	0.401	10.137	1.858	0.222	0.119	0.160	4.055	0.743	
15	1293		Hood Sour Cream,16oz=480g	480	1		200	0.631	6.234	2.753	9.004	5.346	0.126	1.247	0.551	1.801	1.069	
16	1333		V-8 Juice, Unsalted,ml	177		1	200	0.670	0.995	1.045	13.837	1.193	0.134	0.199	0.209	2.767	0.239	per ml
17	1291		Sara Lee Pound Cake	114.3	0.5		200	0.257	0.734	8.329	1.932	2.669	0.103	0.294	3.332	0.773	1.068	
18	1300		Lays Unsalted Potato Chips	*	0.2		200	0.340	0.122	0.424	7.392	0.762	0.340	0.122	0.424	7.392	0.762	
19	1321		Plain M & M's	48.1	0.2		200	0.504	1.290	0.633	2.931	1.970	0.504	1.290	0.633	2.931	1.970	
20	1314		Peter Pan Peanut Butter, salt free,18oz=	540	0.2		200	1.933	0.651	0.287	7.120	4.763	1.933	0.651	0.287	7.120	4.763	
21	1303		Frosted Miniwheats	*	0.5		200	2.766	0.908	0.573	9.786	9.902	1.106	0.363	0.229	3.914	3.961	
22	1326		Dole Pineapple Juice, ml	177		1	200	0.472	0.546	0.336	5.976	0.332	0.094	0.109	0.067	1.195	0.066	per ml
24	1302		Nabisco Low Salt Crackers	*	0.5		200	0.577	4.332	10.955	16.736	2.475	0.231	1.733	4.382	6.694	0.990	
25	1288	b	Oranges, per orange	143.65	1		200	0.495	1.419	0.244	8.263	1.127	0.099	0.284	0.049	1.653	0.225	
26	1304		Mueller's Egg Noodles	*	0.5		200	1.626	0.845	0.567	5.597	6.616	0.650	0.338	0.227	2.239	2.646	
27	1315	a	Delmonte Fruit cocktail, no syrup	356.4	0.6		200	0.174	0.220	0.567	2.958	0.269	0.070	0.088	0.227	1.183	0.107	
27b	1315	b	Fruit Cocktail, syrup only	24.9	1		200	0.293	0.289	0.645	5.449	0.670	0.059	0.058	0.129	1.090	0.134	
			Fruit Cocktail + syrup	381.3									0.1282	0.1458	0.3558	2.273	0.2412	
28	1339		Welch's Grape Juice,ml	250		1	200	0.367	0.524	0.294	0.954	0.098	0.073	0.105	0.059	0.191	0.020	per ml
29	1290		Sara Lee Carrot Cake	176	0.6		200	0.511	0.841	9.405	3.446	3.023	0.204	0.336	3.794	1.378	1.209	
30	1307		Grandaddy's Unsalted Tortilla Chips		0.2		200	0.706	1.077	0.293	1.373	2.131	0.706	1.077	0.293	1.373	2.131	
31	1322		Kit Kat Bar	42	0.2		200	0.441	1.749	0.840	3.010	2.227	0.441	1.749	0.840	3.010	2.227	
32	1309		Sun Maid Dried Mixed Fruit	234	0.5		200	0.996	0.984	3.069	20.385	1.981	0.398	0.394	1.228	8.154	0.784	
34	1312		Delmonte Pear Halves, pears only	201	0.5		200	0.120	0.125	0.413	2.186	0.374	0.048	0.050	0.165	0.874	0.149	
34b	1312	b	Pear Halve syrup only	24.2	1		200	0.208	0.175	0.774	4.425	0.617	0.042	0.035	0.155	0.885	0.123	
34			Pear Halves + syrup	225.2									0.0896	0.085	0.32	1.7594	0.2729	
35	1292	b	Unsalted Cheese	136.6	0.1		200	0.191	4.687	0.129	2.206	3.910	0.382	9.374	0.258	4.412	7.820	
36	1324		Pepperidge Farms Milano Cookies	*	0.2		200	0.348	0.291	1.640	1.207	1.167	0.348	0.291	1.640	1.207	1.167	
37	1323		Peanut M & M's	49.2	0.2		200	0.612	1.094	0.617	2.913	1.508	0.612	1.094	0.617	2.913	1.508	
39	1305		Shredded Wheat Raisin Squares	75.2	0.5		200	2.231	1.340	0.693	14.255	8.122	0.892	0.536	0.277	5.702	3.249	
40	1336		Ocean Spray Cran-Apple Juice,ml	250		1	200	0.087	0.158	0.384	0.935	0.370	0.017	0.032	0.077	0.187	0.074	per ml
41	1325		Planter's Cashews, unsalted	*	0.2		200	2.385	0.439	0.210	5.638	5.388	2.385	0.439	0.210	5.638	5.388	
43	1334		Juice Bowl Apple Juice,ml	177		1	200	0.247	0.410	0.391	4.493	0.374	0.049	0.082	0.078	0.899	0.075	per ml

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								Mg ug/ml	Ca ug/ml	Na ug/ml	K ug/ml	P ug/ml	Mg mg/g	Ca mg/g	Na mg/g	K mg/g	P mg/g	
44	1332		V-8 Juice, Regular,ml	177		1	200	0.603	0.798	14.385	12.633	1.131	0.121	0.160	2.877	2.527	0.226	per ml
53	1296		Dole Fruit/Yogurt Bar-Mixed Berry	83.8	0.5		200	0.204	1.193	1.204	2.444	1.092	0.082	0.477	0.482	0.978	0.437	
54	1294		Dole Fruit/Yogurt Bar-Straw/banana	76.3	0.5		200	0.166	0.660	0.844	1.899	0.664	0.066	0.264	0.338	0.760	0.265	
55	1295		Dole Fruit Juice Bar-Raspberry	135.9	0.5		200	0.121	0.261	0.685	0.963	0.610	0.048	0.104	0.274	0.385	0.244	
56	1285	b	Dole Fruit Juice Bar-Pineapple	127	0.5		200	0.294	0.367	0.660	2.532	0.418	0.118	0.147	0.264	1.013	0.167	
57	1287	b	Dole Fruit Juice Bar-Strawberry	110.8	0.5		200	0.168	0.266	0.517	1.758	0.408	0.067	0.106	0.207	0.703	0.163	
58	1286	b	Dole Fruit Juice Bar-Fruit Blend	142	0.5		200	0.242	0.391	0.282	1.840	0.560	0.097	0.156	0.113	0.736	0.224	
59	1331		Citrus Cooler Gatorade, ml	*		1	200	0.037	0.126	2.286	0.621	0.742	0.007	0.025	0.457	0.124	0.148	per ml
60	1330		Orange Gatorade, ml	*		1	200	0.032	0.113	2.316	0.583	0.620	0.006	0.023	0.463	0.117	0.124	per ml
61	1328		Lemon-Lime Gatorade (moldy), ml	*		1	200	0.025	0.072	2.805	0.773	0.558	0.005	0.014	0.561	0.155	0.112	per ml
62	1327		Lemonade Gatorade, ml	*		1	200	0.033	0.135	2.209	0.281	0.703	0.007	0.027	0.442	0.056	0.141	per ml
63	1329		Fruit Punch Gatorade, ml	*		1	200	0.031	0.122	2.393	0.836	0.610	0.006	0.024	0.479	0.167	0.122	per ml
64	1299		Caprisun Rasberry Apple Juice, ml	200		1	200	0.181	0.362	0.702	0.815	0.532	0.036	0.072	0.140	0.163	0.106	per ml
65	1298		Caprisun Red Berry Juice, ml	200		1	200	0.173	0.320	0.359	0.685	0.472	0.035	0.064	0.072	0.137	0.094	per ml
68	1317		Hire's Root Bear, -CO2,ml	355		1	200	0.034	0.223	0.936	0.209	0.290	0.007	0.045	0.187	0.042	0.058	per ml
69	1316		Sunkist Orange Soda, -CO2,ml	355		1	200	0.040	0.225	0.753	0.140	0.409	0.008	0.045	0.151	0.028	0.082	per ml
70	1318		Coca Cola Classic, -CO2,ml	355		1	200	0.039	0.226	0.386	0.710	1.005	0.008	0.045	0.077	0.142	0.201	per ml
71	1319		Schweppes Raspberry Ginger Ale-CO2,	355		1	200	0.039	0.237	0.792	0.249	0.420	0.008	0.047	0.158	0.050	0.084	per ml
75	1308		Quaker Oatmeal	*	0.5		200	3.759	1.345	0.338	9.867	14.141	1.504	0.538	0.135	3.947	5.656	
78	1338		Minute Maid Fruit Punch,ml	250		1	200	0.082	0.210	0.334	0.517	0.360	0.016	0.044	0.067	0.103	0.072	per ml
79	1310		Tabasco Sauce, 2 oz	19	0.5		200	0.332	0.410	19.439	3.790	0.595	0.133	0.164	7.776	1.516	0.238	
1001	1364		MRE-Chicken Ala King (low Na)	226	0.5		200	0.371	0.382	4.805	4.092	3.185	0.148	0.153	1.922	1.637	1.274	
1001	1365		MRE-Chicken Ala King (low Na)	218.5	0.5		200	0.345	0.440	5.676	3.898	3.257	0.138	0.176	2.270	1.559	1.303	
1002	1367		MRE-Pork/Rice/BBQ (low salt)	217.4	0.5		200	0.588	0.527	1.474	9.199	3.342	0.235	0.211	0.211	0.590	3.680	
1002	1366		MRE-Pork/Rice/BBQ (low salt)	221	0.5		200	0.556	0.624	1.488	8.301	3.310	0.222	0.249	0.595	3.320	1.324	
1003	1361		MRE-Beef Stew (low Na)	223.3	0.5		200	0.379	0.297	1.779	4.890	2.615	0.152	0.119	0.712	1.956	1.046	
1003	1360		MRE-Beef Stew (low Na)	217.5	0.5		200	0.360	0.297	1.734	5.065	2.203	0.144	0.119	0.694	2.026	0.881	
1004	1358		MRE-Tuna/Noodles (low Na)	224.5	0.5		200	0.433	0.499	2.868	2.820	2.561	0.173	0.200	1.147	1.128	1.024	
1004	1359		MRE-Tuna/Noodles (low Na)	216.1	0.5		200	0.480	0.441	2.875	3.177	2.662	0.192	0.176	1.150	1.271	1.065	
1005	1368		MRE-Spaghetti/Meat Sauce (low salt)	218.9	0.5		200	0.411	0.942	2.773	6.557	2.849	0.164	0.377	1.109	2.623	1.140	
1005	1369		MRE-Spaghetti/Meat Sauce (low salt)	224.1	0.5		200	0.506	1.087	2.244	7.987	3.114	0.202	0.435	0.898	3.195	1.246	
1006	1370		MRE-Chicken & Rice (low salt)	226.8	0.5		200	0.460	0.387	1.392	4.082	4.227	0.184	0.155	0.557	1.633	1.691	
1006	1371		MRE-Chicken & Rice (low salt)	222.8	0.5		200	0.342	0.419	1.527	3.948	3.280	0.137	0.166	0.611	1.579	1.312	
1007	1340		MRE-Chicken Stew (low Na)	219.3	0.5		200	0.422	0.636	4.837	5.194	3.106	0.169	0.254	1.935	2.078	1.242	
1007	1341		MRE-Chicken Stew (low Na)	214.3	0.5		200	0.395	0.578	4.793	5.084	2.434	0.158	0.231	1.917	2.034	0.974	
1008	1363		MRE-Meatballs/Tomato Sauce (low salt)	223.9	0.5		200	0.638	0.544	1.361	10.031	3.565	0.255	0.218	0.544	4.012	1.426	
1008	1362		MRE-Meatballs/Tomato Sauce (low salt)	225.7	0.5		200	0.705	0.613	1.517	10.776	3.368	0.282	0.245	0.607	4.310	1.347	
1009	1345		MRE-Chicken Ala King (hi salt)	220.9	0.5		200	0.421	0.477	6.104	4.804	3.269	0.168	0.191	2.442	1.922	1.308	
1009	1344		MRE-Chicken Ala King (hi salt)	225.2	0.5		200	0.398	0.436	6.089	4.729	3.054	0.159	0.174	2.436	1.892	1.222	
1010	1350		MRE-Pork/Rice/BBQ	228	0.5		200	0.483	0.329	13.235	7.347	2.830	0.193	0.132	5.294	2.939	1.132	
1010	1351		MRE-Pork/Rice/BBQ	224.2	0.5		200	0.470	0.310	12.242	7.588	3.149	0.188	0.124	4.897	3.035	1.260	
1011	1355		MRE-Beaf Stew	225.4	0.5		200	0.394	0.326	12.116	6.622	2.807	0.158	0.130	4.846	2.649	1.123	
1011	1354		MRE-Beaf Stew	228.5	0.5		200	0.398	0.299	11.482	5.540	2.880	0.159	0.120	4.593	2.216	1.152	
1012	1357		MRE-Tuna/Noodles	215.3	0.5		200	0.319	0.358	7.626	1.966	2.198	0.128	0.143	3.050	0.786	0.879	
1012	1356		MRE-Tuna/Noodles	222.8	0.5		200	0.336	0.385	7.583	2.350	1.825	0.134	0.154	3.033	0.940	0.730	
1013	1347		MRE-Spaghetti/Meat Sauce	231	0.5		200	0.625	1.149	9.661	9.435	3.028	0.250	0.459	3.864	3.774	1.211	
1013	1346		MRE-Spaghetti/Meat Sauce	230.4	0.5		200	0.609	1.048	8.881	8.537	2.421	0.244	0.419	3.552	3.415	0.968	
1014	1348		MRE-Chicken & Rice	232	0.5		200	0.403	0.292	7.855	2.972	3.117	0.161	0.117	3.142	1.189	1.247	

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								Mg ug/ml	Ca ug/ml	Na ug/ml	K ug/ml	P ug/ml	Mg mg/g	Ca mg/g	Na mg/g	K mg/g	P mg/g	if per ml
1014	1349		MRE-Chicken & Rice	235.1	0.5		200	0.393	0.258	7.603	3.351	3.082	0.157	0.103	3.073	1.340	1.233	
1015	1343		MRE-Chicken Stew (hi Na)	221.1	0.5		200	0.370	0.548	7.721	4.815	2.730	0.148	0.219	3.088	1.926	1.092	
1015	1342		MRE-Chicken Stew (hi Na)	224.3	0.5		200	0.368	0.597	7.781	4.402	2.850	0.147	0.239	3.112	1.761	1.140	
1016	1353		MRE-Meatballs & Rice	225.5	0.5		200	0.551	0.445	15.187	9.796	2.978	0.220	0.178	6.075	3.918	1.191	
1018	1352		MRE-Meatballs & Rice	227.8	0.5		200	0.606	0.506	16.357	11.183	2.663	0.242	0.202	6.543	4.473	1.065	
3000c	1297		Sugar Free Kool Aid-Tropical Punch,64(	2000		1	200	0.075	0.556	0.311	0.528	0.325	0.015	0.111	0.062	0.106	0.065	per ml

*=TOTAL WEIGHT NOT AVAILABLE

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				Mg mg	Ca mg	Na mg	K mg	P mg
1	1306		Quaker 100% Ceral	*	*	*	*	*
2	1337		Minute Maid Orange Juice,ml	24.65	27.25	14.95	407.45	44.70
3	1209	b	Sliced White Bread, per slice	5.94	8.94	143.78	33.06	26.92
4	1294	b	Unsalted Butter, 1 stick	3.91	17.37	43.70	56.12	6.67
5	1311		Welch's Grape Jelly	33.46	49.37	230.32	191.15	210.94
6	1292		Whole Milk	2.40	21.91	11.41	37.17	21.19
7	1313	a	Delmonte Peach Halves, peaches only	15.74	14.13	67.15	290.87	55.29
7b	1313	b	Peaches, syrup only	1.21	0.92	4.07	24.73	3.64
7			Peaches, syrup + peaches	16.95	15.05	71.21	315.61	58.93
8	1289		Sara Lee Danish Cheese, per roll	5.07	12.61	125.26	32.55	27.68
9	1335		Ocean Spray Cran-Grape Juice,ml	7.85	11.45	21.60	20.70	26.70
10	1293	b	Green Apples, cored	6.58	5.32	15.16	124.75	16.87
11	1290	b	Brown & Serve Rolls, per roll	6.25	10.29	116.10	42.18	37.00
12	1320		Minute Rice	*	*	*	*	*
13	1301	a	Dole Pineapple Chunks	20.28	25.04	42.05	157.27	5.56
13b	1301	b	Pineapple, Canned, syrup	2.93	2.37	3.62	21.39	2.94
13			Pineapples + syrup	23.21	27.41	45.67	178.65	8.50
14	1291	b	Whole Potatoes,peeled	27.81	12.40	24.68	546.23	72.48
14b	1291	b2	Whole Potatoes, unpeeled	55.01	29.44	39.75	1004.78	184.16
15	1293		Hood Sour Cream,16oz=480g	60.58	598.46	264.29	864.38	513.22
16	1333		V-8 Juice, Unsalted,ml	23.72	35.22	36.99	489.83	42.23
17	1291		Sara Lee Pound Cake	11.75	33.56	380.80	88.33	122.03
18	1300		Lays Unsalted Potato Chips	*	*	*	*	*
19	1321		Plain M & M's	24.24	62.05	30.45	140.98	94.73
20	1314		Peter Pan Peanut Butter, salt free,18oz=	1043.82	351.54	154.98	3844.80	2572.02
21	1303		Frosted Miniwheats	*	*	*	*	*
22	1326		Dole Pineapple Juice, ml	16.71	19.33	11.89	211.55	11.75
24	1302		Nabisco Low Salt Crackers	*	*	*	*	*
25	1288	b	Oranges, per orange	14.22	40.77	7.01	237.40	32.38
26	1304		Mueller's Egg Noodles	*	*	*	*	*
27	1315	a	Delmonte Fruit cocktail, no syrup	24.81	31.36	80.83	421.69	38.21
27b	1315	b	Fruit Cocktail, syrup only	1.46	1.44	3.21	27.14	3.34
			Fruit Cocktail + syrup	26.2646	32.8024	84.0436	448.829	41.5427
28	1339		Welch's Grape Juice,ml	18.35	26.20	14.70	47.70	4.90
29	1290		Sara Lee Carrot Cake	35.97	59.21	667.74	242.60	212.82
30	1307		Grandaddy's Unsalted Tortilla Chips	*	*	*	*	*
31	1322		Kit Kat Bar	18.52	73.46	35.28	126.42	93.53
32	1309		Sun Maid Dried Mixed Fruit	93.23	92.10	287.26	1908.04	183.50
34	1312		Delmonte Pear Halves, pears only	9.65	10.05	33.21	175.75	30.04
34b	1312	b	Pear Halve syrup only	1.01	0.85	3.75	21.42	2.99
34			Pear Halves + syrup	10.6547	10.897	36.9514	197.171	33.0291
35	1292	b	Unsalted Cheese	52.18	1280.49	35.24	602.68	1068.21
36	1324		Pepperidge Farms Milano Cookies	*	*	*	*	*
37	1323		Peanut M & M's	30.11	53.82	30.36	143.32	74.19
39	1305		Shredded Wheat Raisin Squares	87.11	40.31	20.05	428.79	244.29
40	1336		Ocean Spray Cran-Apple Juice,ml	4.35	7.90	19.20	46.75	18.50
41	1325		Planter's Cashews, unsalted	*	*	*	*	*
43	1334		Juice Bowl Apple Juice,ml	8.74	14.51	13.84	159.05	13.24

Food Minerals File: ICPFOOD2 8/8/91
Corrected Food Analyses
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

Army id #	PBRC log #		Food Item Description	Total Concentration per Item				
				Mg mg	Ca mg	Na mg	K mg	P mg
44	1332		V-8 Juice, Regular,ml	21.35	28.25	509.23	447.21	40.04
53	1296		Dole Fruit/Yogurt Bar-Mixed Berry	6.84	39.99	40.36	81.92	36.60
54	1294		Dole Fruit/Yogurt Bar-Straw/banana	5.07	20.14	25.76	57.96	20.27
55	1295		Dole Fruit Juice Bar-Raspberry	6.58	14.19	37.24	52.35	33.16
56	1285	b	Dole Fruit Juice Bar-Pineapple	14.94	18.64	33.53	128.63	21.23
57	1287	b	Dole Fruit Juice Bar-Strawberry	7.45	11.79	22.91	77.91	18.08
58	1286	b	Dole Fruit Juice Bar-Fruit Blend	13.75	22.21	16.02	104.51	31.81
59	1331		Citrus Cooler Gatorade, ml	*	*	*	*	*
60	1330		Orange Gatorade, ml	*	*	*	*	*
61	1328		Lemon-Lime Gatorade (moldy), ml	*	*	*	*	*
62	1327		Lemonade Gatorade, ml	*	*	*	*	*
63	1329		Fruit Punch Gatorade, ml	*	*	*	*	*
64	1299		Caprisun Rasberry Apple Juice, ml	7.24	14.48	28.08	32.60	21.28
65	1298		Caprisun Red Berry Juice, ml	6.92	12.80	14.36	27.40	18.08
68	1317		Hire's Root Bear, -CO2,ml	2.41	15.83	66.46	14.84	20.59
69	1316		Sunkist Orange Soda, -CO2,ml	2.80	15.98	53.46	9.94	29.04
70	1318		Coca Cola Classic, -CO2,ml	2.77	16.05	27.41	50.41	71.36
71	1319		Schweppes Raspberry Ginger Ale-CO2	2.77	16.83	56.23	17.68	29.82
75	1308		Quaker Oatmeal	*	*	*	*	*
78	1338		Minute Maid Fruit Punch,ml	4.10	10.95	16.70	25.85	18.00
79	1310		Tabasco Sauce, 2 oz	2.52	3.12	147.74	28.80	4.52
1001	1364		MRE-Chicken Ala King (low Na)	33.54	34.53	434.37	369.92	287.92
1001	1365		MRE-Chicken Ala King (low Na)	30.15	38.46	496.08	340.69	284.66
1002	1367		MRE-Pork/Rice/BBQ (low salt)	51.13	45.83	45.83	128.18	799.95
1002	1366		MRE-Pork/Rice/BBQ (low salt)	49.11	55.12	131.54	733.76	292.57
1003	1361		MRE-Beef Stew (low Na)	33.85	26.53	158.90	436.77	233.57
1003	1360		MRE-Beef Stew (low Na)	31.32	25.84	150.86	440.66	191.66
1004	1358		MRE-Tuna/Noodles (low Na)	38.88	44.81	257.55	253.24	229.98
1004	1359		MRE-Tuna/Noodles (low Na)	41.49	38.12	248.47	274.58	230.06
1005	1368		MRE-Spaghetti/Meat Sauce (low salt)	35.99	82.48	242.80	574.13	249.46
1005	1369		MRE-Spaghetti/Meat Sauce (low salt)	45.36	97.44	201.15	715.95	279.14
1006	1370		MRE-Chicken & Rice (low salt)	41.73	35.11	126.28	370.32	383.47
1006	1371		MRE-Chicken & Rice (low salt)	30.48	37.34	136.09	351.80	292.27
1007	1340		MRE-Chicken Stew (low Na)	37.02	55.79	424.30	455.62	272.46
1007	1341		MRE-Chicken Stew (low Na)	33.86	49.55	410.86	435.80	208.64
1008	1363		MRE-Meatballs/Tomato Sauce (low salt)	57.14	40.72	121.89	890.38	319.28
1008	1362		MRE-Meatballs/Tomato Sauce (low salt)	63.65	55.34	136.95	972.86	304.06
1009	1345		MRE-Chicken Ala King (hi salt)	37.20	42.15	539.35	424.48	288.65
1009	1344		MRE-Chicken Ala King (hi salt)	35.85	39.27	548.50	425.99	275.10
1010	1350		MRE-Pork/Rice/BBQ	44.05	30.00	1207.03	670.05	258.10
1010	1351		MRE-Pork/Rice/BBQ	42.15	27.80	1097.86	680.49	282.40
1011	1355		MRE-Beef Stew	35.52	29.39	1092.38	596.99	253.03
1011	1354		MRE-Beef Stew	36.38	27.33	1049.41	506.36	263.19
1012	1357		MRE-Tuna/Noodles	27.47	30.83	656.75	169.31	189.29
1012	1356		MRE-Tuna/Noodles	29.94	34.31	675.80	209.43	162.64
1013	1347		MRE-Spaghetti/Meat Sauce	57.70	106.12	892.68	871.79	279.74
1013	1346		MRE-Spaghetti/Meat Sauce	56.13	96.58	818.43	786.77	223.12
1014	1348		MRE-Chicken & Rice	723.14	27.10	728.94	275.80	275.80

Food Minerals File: ICPFOOD2 8/8/91
Corrected Food Analyses
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

Army id #	PBRC log #		Food Item Description	Total Concentration per Item				
				Mg mg	Ca mg	Na mg	K mg	P mg
1014	1349		MRE-Chicken & Rice	36.96	24.26	722.51	315.13	209.83
1015	1343		MRE-Chicken Stew (hi Na)	32.72	48.47	682.85	425.84	241.40
1015	1342		MRE-Chicken Stew (hi Na)	33.02	53.56	698.11	394.95	255.70
1016	1353		MRE-Meatballs & Rice	49.66	40.14	1369.87	883.55	268.57
1016	1352		MRE-Meatballs & Rice	55.22	46.08	1490.45	1018.95	242.65
3000c	1297		Sugar Free Kool Aid-Tropical Punch,64	30.00	222.40	124.40	211.20	130.00

*=TOTAL WEIGHT NOT AVAILABLE

Food Minerals File: ICPFOODR
MRE Reruns using 0.5 g homogenate (=.25 g of sample)
HNO3/H2O2 Digestion
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

Army id #	PBRC log #		Food Item Description	Total Weight g	Amount Digstd g	Vol Digstd ml	Dil'd to ml	Concentration in Diluted Digest					Concentration per Weight/Weight Basis					Note: if per ml
								Mg ug/ml	Ca ug/ml	Na ug/ml	K ug/ml	P ug/ml	Mg mg/g	Ca mg/g	Na mg/g	K mg/g	P mg/g	
1001	1364		MRE-Chicken Ala King (low Na)	226	0.25		200	0.222	0.287	2.341	1.989	1.686	0.178	0.230	1.873	1.591	1.349	
1002	1366		MRE-Pork/Rice/BBQ (low salt)	221	0.25		200	0.306	0.349	0.514	3.645	1.477	0.245	0.279	0.411	2.916	1.182	
1003	1360		MRE-Beef Stew (low Na)	217.5	0.25		200	0.210	0.204	0.764	2.705	1.189	0.168	0.163	0.611	2.164	0.951	
1004	1358		MRE-Tuna/Noodles (low Na)	224.5	0.25		200	0.250	0.366	1.300	1.243	1.451	0.200	0.293	1.040	0.994	1.161	
1005	1368		MRE-Spaghetti/Meat Sauce (low salt)	218.9	0.25		200	0.273	0.613	1.000	3.958	1.318	0.218	0.490	0.800	3.166	1.054	
1006	1370		MRE-Chicken & Rice (low salt)	226.8	0.25		200	0.252	0.286	0.579	2.132	2.536	0.202	0.229	0.463	1.706	2.029	
1007	1340		MRE-Chicken Stew (low Na)	219.3	0.25		200	0.219	0.373	2.371	3.545	0.731	0.175	0.298	1.897	2.836	0.585	
1008	1362		MRE-Meatballs/Tomato Sauce (low salt)	225.7	0.25		200	0.363	0.373	0.621	5.386	1.714	0.290	0.298	0.497	4.309	1.371	
1009	1344		MRE-Chicken Ala King (hi salt)	225.2	0.25		200	0.230	0.314	3.267	2.149	1.634	0.184	0.251	2.614	1.719	1.307	
1010	1350		MRE-Pork/Rice/BBQ	228	0.25		200	0.260	0.219	6.703	3.924	1.419	0.208	0.175	5.362	3.139	1.135	
1011	1354		MRE-Beaf Stew	228.5	0.25		200	0.216	0.297	5.776	2.649	1.290	0.173	0.238	4.621	2.119	1.032	
1012	1356		MRE-Tuna/Noodles	222.8	0.25		200	0.203	0.236	3.667	1.125	1.169	0.162	0.189	2.934	0.900	0.935	
1013	1346		MRE-Spaghetti/Meat Sauce	230.4	0.25		200	0.310	0.594	4.413	4.347	2.067	0.248	0.475	3.530	3.478	1.654	
1014	1348		MRE-Chicken & Rice	232	0.25		200	0.208	0.236	4.175	1.572	1.177	0.166	0.189	3.340	1.258	0.942	
1015	1342		MRE-Chicken Stew (hi Na)	224.3	0.25		200	0.204	0.376	4.019	2.502	1.209	0.163	0.301	3.215	2.002	0.967	
1016	1352		MRE-Meatballs & Rice	227.8	0.25		200	0.301	0.299	8.009	5.269	1.365	0.241	0.239	6.407	4.215	1.092	

Food Minerals File: ICPFOODR
MRE Reruns using 0.5 g homogenate (=.25 g of sample)
HNO3/H2O2 Digestion
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

Army id #	PBRC log #		Food Item Description	Total Concentration per Item Mg mg	Ca mg	Na mg	K mg	P mg
1001	1364		MRE-Chicken Ala King (low Na)	40.14	51.89	423.25	359.61	304.83
1002	1366		MRE-Pork/Rice/BBQ (low salt)	54.10	61.70	90.88	644.44	261.13
1003	1360		MRE-Beef Stew (low Na)	36.54	35.50	132.94	470.67	206.89
1004	1358		MRE-Tuna/Noodles (low Na)	44.90	65.73	233.48	223.24	260.60
1005	1368		MRE-Spaghetti/Meat Sauce (low salt)	47.81	107.35	175.12	693.12	230.81
1006	1370		MRE-Chicken & Rice (low salt)	45.72	51.89	105.05	386.83	460.13
1007	1340		MRE-Chicken Stew (low Na)	38.42	65.44	415.97	621.93	128.25
1008	1362		MRE-Meatballs/Tomato Sauce (low salt)	65.54	67.35	112.13	972.50	309.48
1009	1344		MRE-Chicken Ala King (hi salt)	41.44	56.57	588.58	387.16	294.38
1010	1350		MRE-Pork/Rice/BBQ	47.42	39.95	1222.63	715.74	258.83
1011	1354		MRE-Beaf Stew	39.48	54.29	1055.85	484.24	235.81
1012	1356		MRE-Tuna/Noodles	36.18	42.06	653.61	200.52	208.36
1013	1346		MRE-Spaghetti/Meat Sauce	57.14	109.49	813.40	801.24	380.99
1014	1348		MRE-Chicken & Rice	273.06	43.80	774.88	291.76	218.45
1015	1342		MRE-Chicken Stew (hi Na)	36.61	67.47	721.17	448.96	216.94
1016	1352		MRE-Meatballs & Rice	54.85	54.49	1459.56	960.22	248.76

Food Mineral File: foodcomp
MRE Reruns using 0.5 g homogenate (=.25 g of sample)
each std made in its respective matrix
PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory

Total Concentration on a per Weight Basis

Army id #	PBRC log #	Food Item Description	Using H2SO4/H2O2/CuSO4 Digestion					Using HNO3/H2O2 Digestion				
			Mg mg/g	Ca mg/g	Na mg/g	K mg/g	P mg/g	Mg mg/g	Ca mg/g	Na mg/g	K mg/g	P mg/g
1001	1364	MRE-Chicken Ala King (low Na)	0.148	0.153	1.922	1.637	1.274	0.178	0.230	1.873	1.591	1.349
1002	1366	MRE-Pork/Rice/BBQ (low salt)	0.222	0.249	0.595	3.320	1.324	0.245	0.279	0.411	2.916	1.182
1003	1360	MRE-Beef Stew (low Na)	0.144	0.119	0.694	2.026	0.881	0.168	0.163	0.611	2.164	0.951
1004	1358	MRE-Tuna/Noodles (low Na)	0.173	0.200	1.147	1.128	1.024	0.200	0.293	1.040	0.994	1.161
1005	1368	MRE-Spaghetti/Meat Sauce (low salt)	0.164	0.377	1.109	2.623	1.140	0.218	0.490	0.800	3.166	1.054
1006	1370	MRE-Chicken & Rice (low salt)	0.184	0.155	0.557	1.633	1.691	0.202	0.229	0.463	1.706	2.029
1007	1340	MRE-Chicken Stew (low Na)	0.169	0.254	1.935	2.078	1.242	0.175	0.298	1.897	2.836	0.585
1008	1362	MRE-Meatballs/Tomato Sauce (low salt)	0.282	0.245	0.607	4.310	1.347	0.290	0.298	0.497	4.309	1.371
1009	1344	MRE-Chicken Ala King (hi salt)	0.159	0.174	2.436	1.892	1.222	0.184	0.251	2.614	1.719	1.307
1010	1350	MRE-Pork/Rice/BBQ	0.193	0.132	5.294	2.939	1.132	0.208	0.175	5.362	3.139	1.135
1011	1354	MRE-Beaf Stew	0.159	0.120	4.593	2.216	1.152	0.173	0.238	4.621	2.119	1.032
1012	1356	MRE-Tuna/Noodles	0.134	0.154	3.033	0.940	0.730	0.162	0.189	2.934	0.900	0.935
1013	1346	MRE-Spaghetti/Meat Sauce	0.244	0.419	3.552	3.415	0.968	0.248	0.475	3.530	3.478	1.654
1014	1348	MRE-Chicken & Rice	0.161	0.117	3.142	1.189	1.247	0.166	0.189	3.340	1.258	0.942
1015	1342	MRE-Chicken Stew (hi Na)	0.147	0.239	3.112	1.761	1.140	0.163	0.301	3.215	2.002	0.967
1016	1352	MRE-Meatballs & Rice	0.242	0.202	6.543	4.473	1.065	0.241	0.239	6.407	4.215	1.092

Mg Regression Output:

Constant	−0.033	
Std Err of Y Est	0.0137	r
R Squared	0.904	0.9508
No. of Observations	16	
Degrees of Freedom	14	
X Coefficient(s)	1.0711	
Std Err of Coef.	0.0933	

CA Regression Output:

Constant	−0.039	
Std Err of Y Est	0.0261	r
R Squared	0.9196	0.9589
No. of Observations	16	
Degrees of Freedom	14	
X Coefficient(s)	0.9064	
Std Err of Coef.	0.0717	

Na Regression Output:

Constant	0.1163	
Std Err of Y Est	0.1233	r
R Squared	0.9957	0.9978
No. of Observations	16	
Degrees of Freedom	14	
X Coefficient(s)	0.9696	
Std Err of Coef.	0.017	

K Regression Output:

Constant	0.005	
Std Err of Y Est	0.2958	r
R Squared	0.9298	0.9643
No. of Observations	16	
Degrees of Freedom	14	
X Coefficient(s)	0.9737	

Std Err of Coef.	0.0715		
P	*Regression Output:*		
Constant		0.7736	
Std Err of Y Est		0.1935	r
R Squared		0.2552	0.5051
No. of Observations		16	
Degrees of Freedom		14	
X Coefficient(s)	0.3308		
Std Err of Coef.	0.151		

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File: ICPfood3
Food Minerals
new mre samples digested with H2SO4/H2O2/CuSO4

PBRC log #	Food Item Description	Total Weight g	Amount Digstd g	Dil'd to ml	Concentration in Diluted Digest					Concentration per Weight/Weight Basis				
					Mg ug/ml	Ca ug/ml	Na ug/ml	K ug/ml	P ug/ml	Mg mg/g	Ca mg/g	Na mg/g	K mg/g	P mg/g
362	Spaghetti w/ meat sauce (low Na)	217.3	0.5	200	0.110	1.107	1.533	7.254	2.116	0.044	0.443	0.613	2.902	0.846
363	Spaghetti w/ meat sauce (low Na)	209.4	0.5	200	0.498	1.299	2.053	7.177	2.592	0.199	0.520	0.821	2.871	1.037
364	Spaghetti w/ meat sauce (hi Na)	230.3	0.5	200	0.499	1.217	9.041	8.593	2.452	0.200	0.487	3.616	3.437	0.981
365	Spaghetti w/ meat sauce (hi Na)	234.2	0.5	200	0.511	1.013	9.124	8.860	2.616	0.204	0.405	3.650	3.544	1.046
366	Chicken ala King (low Na)	218.1	0.5	200	0.439	0.322	4.929	4.457	3.819	0.176	0.129	1.972	1.783	1.528
367	Chicken ala King (low Na)	236.8	0.5	200	0.384	0.210	5.160	3.805	2.658	0.154	0.084	2.064	1.522	1.063
368	Chicken ala King (hi Na)	221.4	0.5	200	0.445	0.534	6.358	5.284	2.998	0.178	0.214	2.543	2.114	1.199
369	Chicken ala King (hi Na)	218.3	0.5	200	0.343	0.377	6.567	5.483	3.543	0.137	0.151	2.627	2.193	1.417
370	Chicken and Rice (low Na)	222.7	0.5	200	0.429	0.309	1.212	3.579	3.836	0.172	0.124	0.485	1.432	1.534
371	Chicken and Rice (low Na)	220.7	0.5	200	0.454	0.490	1.252	3.964	3.362	0.182	0.196	0.501	1.586	1.345
372	Chicken and Rice (hi Na)	228.5	0.5	200	0.372	0.117	8.459	3.378	3.976	0.149	0.047	3.384	1.351	1.590
373	Chicken and Rice (hi Na)	233.4	0.5	200	0.369	0.189	7.893	2.753	3.122	0.148	0.076	3.157	1.101	1.249
374	Tuna with Noodles (low Na)	225.5	0.5	200	0.481	0.345	2.659	2.862	2.679	0.192	0.138	1.064	1.145	1.072
375	Tuna with Noodles (low Na)	215	0.5	200	0.544	0.372	2.566	2.448	2.543	0.218	0.149	1.026	0.979	1.017
376	Tuna with Noodles (hi Na)	214.7	0.5	200	0.332	0.328	7.336	2.156	1.599	0.133	0.131	2.934	0.862	0.640
377	Tuna with Noodles (hi Na)	224.2	0.5	200	0.310	0.369	7.022	2.305	2.090	0.124	0.148	2.809	0.922	0.836
378	Chicken Stew (Low Na)	227.6	0.5	200	0.343	0.640	4.101	4.514	2.073	0.137	0.256	1.640	1.806	0.829
379	Chicken Stew (Low Na)	226.1	0.5	200	0.362	0.695	4.240	4.683	3.275	0.145	0.278	1.696	1.873	1.310
380	Chicken Stew (hi Na)	222.2	0.5	200	0.396	0.595	7.362	4.563	1.739	0.158	0.238	2.945	1.825	0.696
381	Chicken Stew (hi Na)	217.9	0.5	200	0.351	0.555	7.464	4.094	2.746	0.140	0.222	2.986	1.638	1.098
382	Beef Stew (Low Na)	225.2	0.5	200	0.386	0.253	1.321	4.796	2.168	0.154	0.101	0.528	1.918	0.867
383	Beef Stew (Low Na)	218.2	0.5	200	0.356	0.221	1.633	4.366	2.074	0.142	0.088	0.653	1.746	0.830
384	Beef Stew (hi Na)	231.6	0.5	200	0.354	0.280	9.950	5.218	2.325	0.142	0.112	3.980	2.087	0.930
385	Beef Stew (hi Na)	230.1	0.5	200	0.305	0.301	8.965	4.518	1.831	0.122	0.120	3.586	1.807	0.732
386	Pork/Rice/BBQ Sauce (low Na)	224.3	0.5	200	0.590	0.388	1.005	6.838	1.868	0.236	0.155	0.402	2.735	0.747
387	Pork/Rice/BBQ Sauce (low Na)	220.1	0.5	200	0.596	0.532	0.932	8.535	2.959	0.238	0.213	0.373	3.414	1.184
388	Pork/Rice/BBQ Sauce (hi Na)	228.1	0.5	200	0.513	0.331	13.325	8.504	2.728	0.205	0.132	5.330	3.402	1.091
389	Meatballs & Tomato Sauce (Low Na)	215.2	0.5	200	0.722	0.692	1.418	11.053	3.841	0.289	0.277	0.567	4.421	1.536
390	Meatballs & Tomato Sauce (Low Na)	231.8	0.5	200	0.718	0.666	1.455	10.822	1.127	0.287	0.266	0.582	4.329	0.451
391	Meatballs & Tomato Sauce (hi Na)	234.9	0.5	200	0.585	0.487	16.761	11.466	2.749	0.234	0.195	6.704	4.586	1.100
392	Meatballs & Tomato Sauce (hi Na)	234.6	0.5	200	0.590	0.494	16.880	11.178	3.414	0.236	0.198	6.752	4.471	1.366

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File: ICPfood3
Food Minerals
new mre samples digested with H2SO4/H2O2/C

PBRC log #	Food Item Description	Total Concentration per Item Mg mg	Ca mg	Na mg	K mg	P mg
362	Spaghetti w/ meat sauce (low Na)	9.56	96.22	133.25	630.52	183.92
363	Spaghetti w/ meat sauce (low Na)	41.71	108.80	171.96	601.15	217.11
364	Spaghetti w/ meat sauce (hi Na)	45.97	112.11	832.86	791.59	225.88
365	Spaghetti w/ meat sauce (hi Na)	47.87	94.90	854.74	830.00	245.07
366	Chicken ala King (low Na)	38.30	28.09	430.01	388.83	333.17
367	Chicken ala King (low Na)	36.37	19.89	488.76	360.41	251.77
368	Chicken ala King (hi Na)	39.41	47.29	563.06	467.95	265.50
369	Chicken ala King (hi Na)	29.95	32.92	573.43	478.78	309.37
370	Chicken and Rice (low Na)	38.22	27.53	107.96	318 82	341.71
371	Chicken and Rice (low Na)	40.08	43.26	110.53	349.94	296.80
372	Chicken and Rice (hi Na)	34.00	10.69	773.15	308.75	363.41
373	Chicken and Rice (hi Na)	34.45	17.65	736.89	257.02	291.47
374	Tuna with Noodles (low Na)	43.39	31.12	239.84	258.15	241.65
375	Tuna with Noodles (low Na)	46.78	31.99	220.68	210.53	218.70
376	Tuna with Noodles (hi Na)	28.51	28.17	630.02	185.16	137.32
377	Tuna with Noodles (hi Na)	27.80	33.09	629.73	206.71	187.43
378	Chicken Stew (Low Na)	31.23	58.27	373.36	410.95	188.73
379	Chicken Stew (Low Na)	32.74	62.86	383.47	423.53	296.19
380	Chicken Stew (hi Na)	35.20	52.88	654.33	405.56	154.56
381	Chicken Stew (hi Na)	30.59	48.37	650.56	356.83	239.34
382	Beef Stew (Low Na)	34.77	22.79	119.00	432.02	195.29
383	Beef Stew (Low Na)	31.07	19.29	142.53	381.06	181.02
384	Beef Stew (hi Na)	32.79	25.94	921.77	483.40	215.39
385	Beef Stew (hi Na)	28.07	27.70	825.14	415.84	168.53
386	Pork/Rice/BBQ Sauce (low Na)	52.93	34.81	90.17	613.51	167.60
387	Pork/Rice/BBQ Sauce (low Na)	52.47	46.84	82.05	751.42	260.51
388	Pork/Rice/BBQ Sauce (hi Na)	46.81	30.20	1215.77	775.90	248.90
389	Meatballs & Tomato Sauce (Low Na)	62.15	59.57	122.06	951.44	330.63
390	Meatballs & Tomato Sauce (Low Na)	66.57	61.75	134.91	1003.42	104.50
391	Meatballs & Tomato Sauce (hi Na)	54.97	45.76	1574.86	1077.35	258.30
392	Meatballs & Tomato Sauce (hi Na)	55.37	46.36	1584.02	1048.94	320.37

Pennington Biomedical Research Center
LOUISIANA STATE UNIVERSITY

March 15, 1991

Captain Bob Moore
United States Army Institute of Environmental Medicine
Natick Massachusetts 01780-5007
Attn: SGRD-UE-NR (Cpt Moore)

Dear Captain Moore:

Enclosed are the results for the Alaska 91 study. Would you please direct these to the appropriate person? Thank you. The methods are all the same as in previous studies. If any written procedures are required, please let me know. The Pikes Peak study report is in preparation and should be finished in a few days.

Sincerely,

Richard

Richard Tulley, Ph.D.
Clin. Res. Lab Director

6400 Perkins Road, Baton Rouge, Louisiana 70808-4124 • Phone: (504) 767-0880, Fax: (504) 765-2525

PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory
Baton Rouge, LA 70808-4124
ALASKA 91

Serum/Plasma Results
PRE

#	Name	Date	GLUC mg/dl	BUN mg/dl	CREA mg/dl	TP g/dl	CHOL mg/dl	TRIG mg/dl	HDL-C mg/dl	LDL-C mg/dl	LACT mmol/L	NEFA mmol/L	BHBA mmol/L	GLOL umol/L
		Reference Range:	71-77	7-18	0.6-1.3	6.7-8.2	<200	35-160	29-89	<130	0.3-1.3	0.1-0.6	0.0-0.42	61-232
101	Akiyama	27-Jan-91	86	16	1.0	7.6	154	83	37	100	0.90	0.66	0.20	111
102	Ammon	27-Jan-91	99	11	1.0	7.6	218	96	42	157	0.89	0.52	0.14	87
103	Bernard	27-Jan-91	96	18	1.1	7.1	184	64	56	115	0.88	0.73	0.18	131
104	Broussard	27-Jan-91	82	17	1.0	7.1	151	57	44	96	0.66	0.35	0.09	139
105	Brown	27-Jan-91	74	15	1.1	8.4	189	79	47	126	0.77	0.43	0.11	83
107	Carroll	27-Jan-91	85	18	1.1	7.1	183	77	48	120	0.60	0.73	0.21	138
108	Davenport	27-Jan-91	85	17	1.0	7.3	160	269	26	80	1.05	0.38	0.36	92
109	Davies	27-Jan-91	86	16	1.0	7.2	144	45	56	79	1.56	0.86	0.47	108
110	Johnson	27-Jan-91	79	18	1.2	7.8	186	96	47	120	0.81	0.56	0.19	126
111	Kindall	27-Jan-91	85	16	1.1	8.0	195	86	48	130	0.75	0.28	0.09	87
112	Laguerra	27-Jan-91	89	17	1.1	7.4	191	93	51	121	2.21	0.51	0.14	103
113	Lawrence	27-Jan-91	89	18	1.3	7.1	159	64	50	96	0.85	0.64	0.10	109
114	Lin	27-Jan-91	92	14	1.2	7.7	174	101	59	95	0.86	1.27	0.19	189
115	Mati	27-Jan-91	80	16	1.0	7.5	181	212	35	104	1.54	0.16	0.27	99
116	Miles	27-Jan-91	80	21	1.2	7.0	142	60	53	77	0.81	0.76	0.19	146
117	Moran	27-Jan-91	84	16	1.4	7.2	207	54	67	129	0.82	0.78	0.29	125
118	Pearson	27-Jan-91	89	18	1.1	7.3	157	88	52	87	0.85	0.59	0.11	81
119	Porter	27-Jan-91	90	12	1.1	8.2	137	42	53	76	0.86	0.59	0.10	95
120	Shapiro	27-Jan-91	85	17	0.9	8.3	202	121	45	133	0.83	0.58	0.18	118
121	Tanner	27-Jan-91	98	25	1.2	7.9	239.5	237	38	154	2.83	0.64	0.43	136

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POST

#	Name	Date	GLUC mg/dl	BUN mg/dl	CREA mg/dl	TP g/dl	CHOL mg/dl	TRIG mg/dl	HDL-C mg/dl	LDL-C mg/dl	LACT mmol/L	NEFA mmol/L	BHBA mmol/L	GLOL umol/L
		Reference Range:	71-77	7-18	0.6-1.3	6.7-8.2	<200	35-160	29-89	<130	0.3-1.3	0.1-0.6	0.0-0.42	61-232
101	Akiyama	06-Feb-91	86	16	1	7.7	156	79	37	103.2	0.8	0.87	0.3	85
102	Ammon	06-Feb-91	86	15	1.1	8.3	222	130	51	145	0.68	0.34	0.1	69
103	Bernard	06-Feb-91	80	21	1.1	7.7	190	51	62	117.8	0.73	0.55	0.18	66
104	Broussard	06-Feb-91	102	20	1.3	7.9	168	62	49	106.6	1.59	0.35	0.07	45
105	Brown	06-Feb-91	85	13	1.2	8.7	185	93	45	121.4	1.15	0.25	0.09	44
107	Carroll	06-Feb-91	76	16	1	6.6	132	61	53	66.8	0.73	0.39	0.23	75
108	Davenport	06-Feb-91	83	19	1.1	7.7	170	184	30	103.2	0.84	0.19	0.12	54
109	Davies	06-Feb-91	85	20	0.8	7.7	150	54	57	82.2	1.11	0.16	0.04	52
110	Johnson	06-Feb-91	85	21	1.1	8	178	110	49	107	0.72	0.28	0.13	36
111	Kindall	06-Feb-91	89	16	1	8.1	185	86	45	122.8	1.16	0.33	0.07	44
112	Laguerra	06-Feb-91	86	13	1.2	7.8	158	108	28	108.4	1.92	0.41	0.13	51
113	Lawrence	06-Feb-91	85	18	1.4	7.3	155	48	52	93.4	0.99	0.5	0.16	69
114	Lin	06-Feb-91	79	15	1.4	8	182	106	57	103.8	1.22	0.56	0.11	77
115	Mati	06-Feb-91												
116	Miles	06-Feb-91	83	19	1.4	7.3	149	55	46	92	0.72	0.3	0.05	62
117	Moran	06-Feb-91	83	13	1.3	7.1	200	83	54	129.4	1.18	0.24	0.04	54
118	Pearson	06-Feb-91	94	20	1.2	7.7	176	90	48	110	1.18	0.32	0.06	69
119	Porter	06-Feb-91	84	16	1.1	8	137	44	48	80.2	0.82	0.1	0.04	37
120	Shapiro	06-Feb-91	84	15	0.8	7.9	187	122	45	117.6	0.75	0.24	0.08	56
121	Tanner	06-Feb-91	80	21	1.2	7.6	255	148	40	185.4	0.72	0.38	0.1	88
157	Woods	06-Feb-91	85	19	1.1	7.9	197	147	33	134.6	0.7	0.29	0.12	71
308	Dr. Roberts	06-Feb-91	127.5	19	1.2	7.1	224	236	30	146.8		0.31	0.23	86

PENNINGTON BIOMEDICAL RESEARCH CENTER
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ALASKA 91

Urine Results

#	Name	Date Reference Range:	24 hr Vol ml	Urine N mmol/L	Creatinine mg/dl 6-424	24 hr N mmol	24 hr Creat mg 800-1800	Molar Ratio N/Creatinine *
101	Akiyama	03-Feb-91	2400	614	92	1473	2196	75.9
102	Ammon	03-Feb-91	2459	391	86	961	2122	51.2
103	Bernard	03-Feb-91	1039	926	141	963	1460	74.6
104	Broussard	03-Feb-91	1435	696	114	998	1629	69.3
105	Brown	06-Feb-91	3546	610	122	2165	4340	56.4
107	Carroll	06-Feb-91	1988	457	101	908	2010	51.1
108	Davenport	06-Feb-91	2974	480	74	1428	2186	73.9
109	Davies	06-Feb-91	1604	605	94	970	1511	72.6
110	Johnson	03-Feb-91	2003	635	106	1271	2121	67.8
111	Kindall	03-Feb-91	2260	819	168	1851	3795	55.2
112	Laguerra							
113	Lawrence	03-Feb-91	1569	1080	225	1695	3530	54.3
114	Lin	03-Feb-91	1274	438	118	558	1505	42.0
115	Mati							
116	Miles	06-Feb-91	3518	325	67	1144	2371	54.6
117	Moran	06-Feb-91	3518	629	170	2213	5984	41.8
118	Pearson	06-Feb-91	1879	616	106	1158	1988	65.9
119	Porter	03-Feb-91	2110	423	86	894	1806	56.0
120	Shapiro	06-Feb-91	2198	398	68	875	1492	66.4
121	Tanner	06-Feb-91	3794	508	81	1927	3069	71.0
157	Woods	06-Feb-91	1946	840	181	1634	3522	52.5
308	Dr. Roberts							

* Formula for Molar Ratio of N/Creatinine =
Nitrogen (mmol/L)/(Creatinine (mg/dl) * 10/113.12)

Pennington Biomedical Research Center
LOUISIANA STATE UNIVERSITY

May 6, 1991

Elaine Christensen
SGRD-UE-OPN
USARIEM
Natick, MA 01760-5007

Dear Ms. Christensen:

Enclosed are the results for the Pikes Peak study. They should be self explanatory. As you know, no 24 hour urine volumes were available for the July 24th data. We received two samples labeled #15 July 24. We labeled them a and b. The urine creatinine normal range is 6-424 mg/dl for random urine and 800-1800 mg/day for 24 hour urines. I have also enclosed a description of the methods used. Should you require assistance or need any samples repeated, please contact me.

Sincerely,

Richard Tulley, Ph.D.

6400 Perkins Road, Baton Rouge, Louisiana 70808-4124 • Phone: (504) 767-0880, Fax: (504) 765-2525

PENNINGTON BIOMEDICAL RESEARCH CENTER
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Pikes Peak

#	Day	24 hr Urine ml	Urine Creat mg/dl	Urine Creat mg/24 hrs	Urine N mmol/L	Urine N mmol/24 hrs	Urine N g/24 hrs
1	July 11	1940	54.6	1059.2	232.5	451.1	6.31
1	July 12	1800	67.8	1220.4	307.5	553.5	7.75
1	July 13	2125	51.0	1083.8	133	282.6	3.96
1	July 22	1985	109.4	2171.6	231	458.5	6.42
1	July 23	1620	94.3	1527.7	219	354.8	4.97
1	July 24		65.4		162		
2	July 11	1590	76.3	1213.2	279.5	444.4	6.22
2	July 12	1050	102.1	1072.1	348.5	365.9	5.12
2	July 13	1445	165.4	2390.0	465	671.9	9.41
2	July 22	595	202.7	1206.1	604	359.4	5.03
2	July 23	1065	165.6	1763.6	653	695.4	9.74
2	July 24		106.1		438		
3	July 11	3155	69.7	2199.0	371	1170.5	16.39
3	July 12	3985	57.1	2275.4	252	1004.2	14.06
3	July 13	4510	56.6	2552.7	259	1168.1	16.35
3	July 22	1595	82.5	1315.9	405	646.0	9.04
3	July 23	3430	45.7	1567.5	244	836.9	11.72
3	July 24		63.8		372		
4	July 11	2535	60.8	1541.3	263	666.7	9.33
4	July 12	2885	74.1	2137.8	239	689.5	9.65
4	July 13	4635	48.4	2243.3	138	639.6	8.95
4	July 22	2555	65.9	1683.7	271	692.4	9.69
4	July 23	4335	61.6	2670.4	187	810.6	11.35
4	July 24		40.8		154		
5	July 11	900	129.2	1162.8	489	440.1	6.16
5	July 12	1655	81.7	1352.1	408	675.2	9.45
5	July 13	1360	176.0	2393.6	527	716.7	10.03
5	July 22	630	332.6	2095.4	922	580.9	8.13
5	July 23	985	107.2	1055.9	324	319.1	4.47
5	July 24		142.3		358		
6	July 11	2092	105.7	2211.2	259.5	542.9	7.60
6	July 12	1390	144.6	2009.9	273	379.5	5.31
6	July 13	960	202.2	1941.1	282	270.7	3.79
6	July 22	265	220.3	583.8	488	129.3	1.81
6	July 23	980	149.9	1469.0	344	337.1	4.72
6	July 24		62.4		144		
7	July 11	3777	69.0	2606.1	274	1034.9	14.49
7	July 12	3685	71.3	2627.4	115	423.8	5.93
7	July 13	1075	211.4	2272.6	609.5	655.2	9.17

PENNINGTON BIOMEDICAL RESEARCH CENTER
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Pikes Peak

#	Day	24 hr Urine ml	Urine Creat mg/dl	Urine Creat mg/24 hrs	Urine N mmol/L	Urine N mmol/24 hrs	Urine N g/24 hrs
7	July 22	1553	121.7	1890.0	429.6667	667.3	9.34
7	July 23	2010	117.4	2359.7	459.5	923.6	12.93
7	July 24		97.8		404		
8	July 11	3537	31.5	1114.2	135	477.5	6.68
8	July 12	2665	67.9	1809.5	241	642.3	8.99
8	July 13	1400	97.3	1362.2	351	491.4	6.88
8	July 22	2450	50.1	1227.5	147	360.2	5.04
8	July 23	2635	75.6	1992.1	124	326.7	4.57
8	July 24		29.0		79		
9	July 11	2754	79.0	2175.7	255	702.3	9.83
9	July 12	2890	62.2	1797.6	206	595.3	8.33
9	July 13	2485	39.5	981.6	113.5	282.0	3.95
9	July 22	2775	58.4	1620.6	137	380.2	5.32
9	July 23	1135	124.3	1410.8	318	360.9	5.05
9	July 24		110.6		344		
10	July 11	2270	146.7	3330.1	505	1146.4	16.05
10	July 12	3620	72.6	2628.1	235	850.7	11.91
10	July 13	2005	137.8	2762.9	478	958.4	13.42
10	July 22	2495	120.6	3009.0	362	903.2	12.64
10	July 23	2580	112.3	2897.3	328	846.2	11.85
10	July 24		110.5		387		
11	July 11	2560	58.6	1500.2	183	468.5	6.56
11	July 12	3265	77.2	2520.6	272	888.1	12.43
11	July 13	925	215.1	1989.7	760	703.0	9.84
11	July 22	1910	90.5	1728.6	318	607.4	8.50
11	July 23	2680	79.4	2127.9	281	753.1	10.54
11	July 24		133.2		537		
12	July 11	2370	103.1	2443.5	301	713.4	9.99
12	July 12	800	134.4	1075.2	404	323.2	4.52
12	July 13	2640	76.1	2009.0	234	617.8	8.65
12	July 22	1625	143.7	2335.1	283	459.9	6.44
12	July 23	950	222.6	2114.7	415	394.3	5.52
12	July 24		81.4		156		
13	July 11	380	297.2	1129.4	1465.333	556.8	7.80
13	July 12	2555	69.7	1780.8	333	850.8	11.91
13	July 13	2960	93.6	2770.6	302	893.9	12.51
13	July 22	2575	81.5	2098.6	255	656.6	9.19
13	July 23	2520	83.5	2104.2	294	740.9	10.37
13	July 24		77.1		206		

PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory
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Pikes Peak

#	Day	24 hr Urine ml	Urine Creat mg/dl	Urine Creat mg/24 hrs	Urine N mmol/L	Urine N mmol/24 hrs	Urine N g/24 hrs
14	July 11	3628	30.2	1095.7	145	526.1	7.36
14	July 12	2980	70.9	2112.8	227.5	678.0	9.49
14	July 13	1340	69.2	927.3	194	260.0	3.64
14	July 22	2785	66.4	1849.2	224.5	625.2	8.75
14	July 23	3190	27.8	886.8	118	376.4	5.27
14	July 24		53.6		211.5		
15	July 11	2241	102.6	2299.3	340	761.9	10.67
15	July 12	3640	78.1	2842.8	262	953.7	13.35
15	July 13	3010	77.5	2332.8	273	821.7	11.50
15	July 22	2575	101.4	2611.1	387	996.5	13.95
15	July 23	3260	73.0	2379.8	299	974.7	13.65
15	July 24 a		73.4		360		
15	July 24 b		67.0		297		
16	July 11	3059	84.1	2572.6	287	877.9	12.29
16	July 12	2005	74.0	1483.7	269	539.3	7.55
16	July 13	2715	44.7	1213.6	153	415.4	5.82
16	July 22	2655	54.0	1433.7	151	400.9	5.61
16	July 23	1660	69.3	1150.4	168	278.9	3.90
16	July 24		86.3		256		

PENNINGTON BIOMEDICAL RESEARCH CENTER
Clinical Research Laboratory
Total Urinary Nitrogen

Nitrogen analysis was determined by chemiluminescence using a Model 703C Pyrochemiluminescent nitrogen system (Antek Instruments, Inc., Houston, TX 77076) equipped with an automatic sample injector, and a Spectra Physics computing integrator. The instrument combusts the sample at 1100° C and converts any nitrogen to nitric oxide (NO). The NO reacts with ozone, produced by an on-board ozone generator, to form metastable nitrogen dioxide according to the reaction:

$$NO + O_3 \text{ ---> } NO_2*.$$

This molecule then decays to ground state NO_2 with the emission of light, which is measured by a photomultiplier tube in the instrument. The emission is proportional to the amount of nitrogen present in the sample (1). The method correlates well with the Kjeldahl method for total nitrogen content and has been found to be an effective and reliable monitor of nitrogen balance (2,3,4).

Instrumental settings used were as follows:

ATTENUATION:	20
ARGON FLOW:	3.5
OXYGEN FLOW:	3.5
OZONE FLOW:	1.5
BOAT DRIVE:	750

AUTOSAMPLER PROGRAM:

TT	TF	TV
.01	T5	1
.02	T5	0
.5	T6	1
.51	T6	0
2.75	ER	1
3.5	GO	1000

Four standards were used: 1, 4, 7, 10 mmol/l nitrogen as ammonium sulfate. Controls were made by diluting Bio Rad Urine Control 1:125 with water and were analyzed with every run. A new standard curve was performed each day. Linearity was determined to be 1-10 mmol/l at the attenuation used. Samples were diluted either 1:101 or 1:121. Any sample having an uncorrected concentration over 10 was diluted with water 1:2 (final dilutions 1:202 or 1:242) and re-run. Two samples with low nitrogens were diluted 1:51 and 1:26 respectively.

Recovery was performed on a spiked urine at added nitrogen levels of 181.8, 333.3, 571.4, 1000, and 1400 mmol/l. Mean recovery was

99.8%. Dilution studies were performed on two urines. Dilutions of 1:100 to 1:500 were performed on the samples. Linearity was good for both of these samples. Precision, as measured the coefficient of variation on day-day control values was 2.8% at 424 mmol/l (Level 1) and 3.9% at 960 (Level 2).

Urine samples were diluted 1:121 or 1:242 with deionized water before analysis.

References:

1. Pyrochemiluminescent nitrogen system: total urinary nitrogen procedure for in vitro diagnostic use. Antek Application Note No. 121, Antek Instruments, Inc., Houston, TX 77076 (1987).

2. Konstantinides FN, Boehm KA, Radmer WJ, Storm MC, Adderly JT, Weisdorf SA, and Cerra FB, Pyrochemiluminescence: real-time, cost-effective method for determining total urinary nitrogen in clinical nitrogen-balance studies. Clin Chem 1988; 34:2518-2520.

3. Grimble GK, West MFE, Acuti ABC, Rees RG, Hunjan MK, Webster JD, Frost PG, and Silk DBA, Assessment of an automated chemiluminescence nitrogen analyzer for routine use in clinical nutrition. J Parenteral Enteral Nutr 1988; 12:100-106.

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file: saltnitr

U. S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND

FAX Phone Numbers:
Autovon: 256-5298; Commercial: (508) 651-5298
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From:	Office Symbol:	Phone:	Point of Contact:
USARIEM Natick, MA 01760-5007	SGRD-UE-OPN Military Nutrition	AV 256- 4875 (508) 651-4875	CPT Moore or MAJ Friedl

To:	Attn:	Phone:
Dr Richard Tulley Dir, Clin Res Lab PBRC, LSU Baton Rouge LA	Dr Tulley	765-2524 504- FAX 765-2525

Number of Pages 4 + this page = 5

Remarks:

Request acknowledgement of receipt: Yes ____
No X

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"RESEARCH FOR THE SOLDIER"

DEPARTMENT OF THE ARMY
US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE
NATICK, MASSACHUSETTS 01760-5007

March 29, 1991

Reply to Military Nutrition Division

Dr. Richard Tulley
Director, Clinical Research Laboratory
Pennington Biomedical Research Center
Louisiana State University
6400 Perkins Road
Baton Rouge, LA 70808-4124

Dear Dr. Tulley,

We anticipate conducting a field research study in the near future on the impact of consumption of the Meal, Ready-to-Eat (MRE) field ration for extended periods of time on nutritional status and body composition of soldiers. This proposal has been sent through our human use review committee for preliminary review, therefore I do not have a complete copy for your review at this time. As soon as final approval is obtained, I will forward a copy for your information.

At this time however, I do have a pretty good idea of the laboratory support we will need for this project. The attached extract from the protocol is intended to alert you to what will probably be requested. At this time, I ask that you review the list, and get back to me as soon as possible with an special requirements which we will need to follow with respect to blood collection, processing, and storage, etc.

If nothing changes, this study will be conducted from 20 May 1991 through 20 June 1991 at Fort Leonard Wood, Missouri. If it is not conducted then, it will probably be delayed until the August-September 1991 time frame.

Thanks for your prompt attention to this request. On another note, the data from the salt study which you just sent looks good. I'll be getting back with on that as we get close to writing those results up.

Sincerely,

Robert J. Moore
Captain, U.S. Army
Research Biochemist

Enclosure

B_6) ascorbic acid, folacin, and vitamin A. Mean nutrient intakes will be compared to the Military Recommended Dietary Allowances (5).

Anthropometry and Body Composition. Height will be measured in stocking feet standing on a flat surface with the top of the head held horizontal. Body weight (in shorts only) will be measured daily throughout the study using a calibrated digital electronic battery powered scale accurate to 0.1 kg (SECA Model 770).

Body composition will be determined at three points during the study (days -1-3, days 9-12, and days 27-29) by dual energy x-ray absorptiometry (DEXA) soft tissue and bone mass analyses (20,21), by tape circumference measurements (9), and by skinfold thickness (22). For DEXA measurements, subjects will lay face-up on a DEXA scanner table in shorts and t-shirt and will be carefully positioned so that the body is vertically centered, hands are placed palms downward, the head is horizontally aligned, velcro straps will be used to keep the knees together and to support the feet so that they lean away from the body at approximately 45°. Each subject will be scanned in 1 cm slices across the body, beginning from the head, at the "fast" 10 minute scanning speed. Approximately 6000 pixels of data will be analyzed using the Lunar software version 3.1 algorithms to provide body fat, total lean body mass and bone density measurements.

Nine triplicate circumference measurements will be made (nearest 0.1 cm) using a Lufkin fiberglass tape measure at the neck, abdomen at navel, natural waist, suprailiac, hips, thigh, biceps relaxed, biceps flexed, and forearm. Body fat will be estimated and changes in individual circumference measurements will be examined.

Skinfold measurements will be taken at four sites (biceps, triceps, suprailiac and subscapular) and body composition estimated using the equations of Durnin-Womersley (22).

Urinalysis. First void urine samples (50 ml) will be collected daily for the duration of the study. Urine samples will be analyzed for specific gravity and ketones daily using a semi-automated system. Urine specific gravities of 1.030 or higher indicate sub-optimal hydration status (23).

On three occasions (approximately days 0-2, days 6-8 and days 23-25), twenty-four hour urine

Richard, will be between 20-35 subjects, w/a max of 50 if we can get them.

9 urine Nitrogens/subject ∞ - Karl will do cortisols

samples will be collected for up to three successive days for the determination of urine total nitrogen, creatinine, 3-methyl histidine, and free cortisol. These analytical values will be used to estimate total body nitrogen balance, and provide information related to stress-induced muscle breakdown or metabolism. Urine will be collected by each subject into plastic containers and acidified with hydrochloric acid or boric acid for short-term preservation.

Blood Analysis. Blood samples will be collected at three points of time during the study (approximately on days 1, 10, and 29) for the biochemical assessment of nutritional status. All biochemical measurements will be made by the Biochemical Analysis Laboratory at the Pennington Biomedical Research Center, Louisiana State University. Three separate 15 ml samples will be collected into vacutainers: one 15 ml blood sample will be taken to provide serum, and two 15 ml blood samples (EDTA and heparin as anti-coagulants) will be taken to provide plasma and erythrocytes. Those nutrients and their respective biochemical indicators which will be analyzed in the blood are listed in table 1.

In the addition to the specific nutrients described in table 1, other general indicators of health and nutritional status will be determined in separate blood samples: Lactate, glycerol, free fatty acids, total bilirubin, calcium, albumen, chloride, cholesterol, creatinine, glucose, lactate dehydrogenase, potassium, sodium, serum glutamate-oxaloacetate transaminase, amylase, serum glutamate-pyruvate transaminase, total protein, triglycerides, urea nitrogen, uric acid, alkaline phosphatase, B-hydroxybutyrate, phosphorus, and HDL-cholesterol.

Karl will be doing these

Serum samples will also be analyzed for testosterone, sex hormone binding globulin, estradiol, cortisol and insulin.

Physical Performance, Marksmanship Assessment and Symptoms Assessment. The impact of consumption of the MRE on the ability of the soldier to perform heavy physical work will be assessed throughout the study using a road march evaluation test. This test requires each soldier to perform a 8-mile road march carrying a total load of 30% of their original body weight in the best time possible. A baseline assessment will be done within the first three days of the study, and subsequent evaluations

rank order of importance

Table 1. Selected nutrients and their respective biochemical indicators of status to be measured in blood samples

	Nutrient	Biochemical indicator
10	Vitamin A	*Serum Retinol concentration*
2	Vitamin B_6	Erythrocyte glutamate oxaloacetate transaminase activity (EGOT) and in vitro stimulation of EGOT activity by pyridoxal-5'-phosphate (EDTA; -70C)
3	Thiamin	Erythrocyte transketolase (ETK) activity and in vitro stimulation of ETK activity by thiamin diphosphate (heparin)
4	Riboflavin	Erythrocyte glutathione reductase (EGR) activity and in vitro stimulation of EGR by flavin adenine dinucleotide (hep/EDTA)
1	Folacin	Serum folate and erythrocyte folate (EDTA)
5	Ascorbic acid	Plasma ascorbic acid concentration (oxalate or heparin)
6	Calcium	Serum ionized calcium
7	Phosphorus	Serum total phosphorus
8	Magnesium	Serum total magnesium
9	Iron	Serum total Fe, total iron binding capacity (TIBC), serum ferritin

will be made on approximately day 10 and day 29. The weight of the load carried will not change during the course of the study. The road march course will be unsurfaced (dirt or gravel) roads/trails in the Fort Leonard Wood Training Area.

The impact of MRE consumption on marksmanship before and after the road marches will be conducted using a live-fire marksmanship test. The marksmanship task which will be used has been shown to reflect marksmanship decrements resulted from prolonged road marches (J. Knapik, personal communication). The firing event will be performed from the foxhole-supported position immediately prior to commencing the road march and again within 5 minutes of completing the road march.

U. S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND

FAX Phone Numbers:
DSN: 256-5298; Commercial: (508) 651-5298
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From:	Office Symbol:	Phone:	Point of Contact:
USARIEM Natick, MA 01760-5007	SGRD-EN-EDN	DSN 256- (508) 651-5128	ELAINE CHRISTENSEN

To:	Attn:	Phone:
Dr. Richard Tulley Pennington BIOMED	Dr Tulley	504-765-2525

Number of Pages 2 + this page = 3

Remarks: upcoming Shipments

Request acknowledgement of receipt: Yes ____
No X

Phone: _____

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"RESEARCH FOR THE SOLDIER"

SGRD-UE-OPN 14 JUN 1991

MEMORANDUM FOR: Dr Richard Tulley,
Pennington Biomedical Research Center
6400 Perkins Ave
Baton Rougue, LA

SUBJECT: Upcoming biological samples

1. We will be sending samples for analysis on the following dates

17 June from Seattle, WA
Chemistry panel: 20 samples
D20 salivia & urine: 20 samples
24 June from Seattle, WA
Chemistry panel: 40 samples
D20 sallvia & urine: 40 samples
30 June from Seattle, WA
Chemistry panel: 20 samples
D20 sallvia and urine: 20 samples
28 July from FT Benning, GA, RANGER SAMPLES
200 chem panels, Ferritins, Fe, TIBC, Retinols
200 Erthrocyte Folates,
200 Plasma Asc. Acid. Conc.'s, EGR, EGOT, ETK.
12 August from FT Benning, GA
150 RANGER Samples
26 August from FT Leonard Wood, MO
Chem panel: 20 samples
D20 salivia & urine: 20 samples
29 August from FT Leonard Wood, MO
Chem panel: 40 samples
D20 sallvia & urine: 40 samples
31 August from FT Benning, GA
80 RANGER samples
9 September from FT Leonard Wood. MO
20 samples same as before
13 September from FT Benning, GA
60 RANGER Samples
29 September from FT Bliss, El Paso, Texas
50 RANGER Samples
29 September from FT Leonard Wood, MS
40 samples same as before

2. In each carton I will try to make sure a list of what needs to be analyzed with each shipment. Different technicians will be sending them from the different locations and they call for several types of analysis. Some of these will be saliva and D20 samples.

3. I was hoping to be able to visit your facilities this fall but it doesn't look like I will have time to do it. Perhaps in the winter when all the studies are finished.

Elaine

Elaine Christensen
Lab Manager
Military Nutrition
U.S.A.R.I.E.M.

DEPARTMENT OF THE ARMY
US ARMY RESEARCH INSTITUTE OF ENVIRONMENTAL MEDICINE
NATICK, MASSACHUSETTS 01760-5007

June 18, 1991

Military Nutrition Division

Dr. Richard Tulley
Pennington Biomedical Research Center
Louisiana State University
6400 Perkins Road
Baton Rouge, LA 70808-4124

Dear Dr. Tulley:

We will be sending you samples from a number of different studies this summer and fall. To avoid confusion and allow you to plan your laboratories activities, this letter provides an outline of our projected requirements for the June-November 1991 time period. Each investigator should have already coordinated their requests with you (through myself or through Elaine Christensen). The attached outlines should confirm those previous discussions; if conflicts exist, or if you have requests not listed in the attached outlines, please contact me and I will get the matter clarified, and forward needed information to you.

Although the dates listed in the enclosure are subject to change, most studies are in the final planning stages, and the dates should not change very much. As we have discussed on the telephone, the samples coming from the Ranger Study have a high priority. Therefore, we would like emphasis to be placed on getting the Ranger samples completed first.

For those studies where saliva and urine samples are being collected for energy expenditure analyses by the doubly labeled water technique, the samples for Dr. DeLany will be shipped along with the specimen samples intended for your laboratory. We would appreciate your forwarding them to him.

If you have any questions, please contact me at 508-651-4875 or Ms. Elaine Christensen at 508-651-5128/4979. Thank you for your attention to this matter.

Sincerely,

Robert J. Moore
Captain, U.S. Army
Research Biochemist

Enclosures

June-November 1991 Sample Shipping Schedule[1]

1. 17 June 1991
   Survival Ration Study (Fairchild AFB, WA)
   20 serum samples - Chem/lipid panel
   20 saliva and urine (stable isotope)

2. 24 June 1991
   Survival Ration Study (Fairchild AFB, WA)
   40 serum samples - Chem/lipid panel
   40 saliva and urine (stable isotope)

3. 30 June 1991
   Survival Ration Study (Fairchild AFB, WA)
   20 serum samples - Chem/lipid panel
   20 saliva and urine (stable isotope)

4. 28 July 1991
   Ranger Study (Ft. Benning, GA)
   200 serum
   200 plasma (EDTA, heparin, flouride)
   200 washed erythrocytes

5. 12 August 1991
   Ranger Study (Ft. Benning, GA)
   130 serum
   130 plasma (EDTA, heparin, flouride)
   130 washed erythrocytes

6. 26 August 1991
   LLRP Ration Study (Ft. Leonard Wood, MO)
   20 serum samples - Chem/lipid panel
   20 saliva and urine (stable isotope)

7. 29 August 1991
   LLRP Ration Study (Ft. Leonard Wood, MO)
   40 serum samples - Chem/lipid panel
   40 saliva and urine (stable isotope)

8. 29 August 1991
   Ranger Study (Ft. Benning, GA)
   100 serum
   100 plasma (EDTA, heparin, flouride)
   100 washed erythrocytes

9. 9 September 1991
   LLRP Ration Study (Ft. Leonard Wood, MO)
   20 serum samples - Chem/lipid panel
   20 saliva and urine (stable isotope)

10. 13 September 1991
    Ranger Study (Eglin AFB, FL)
    75 serum
    75 plasma (EDTA, heparin, flouride)
    75 washed erythrocytes

11. 29 September 1991
    Ranger Study (Ft. Bliss, TX)
    60 serum
    60 plasma (EDTA, heparin, flouride)
    60 washed erythrocytes

12. 29 August 1991
    LLRP Ration Study (Ft. Leonard Wood, MO)
    40 serum samples - Chem/lipid panel
    40 saliva and urine (stable isotope)

[1]Refer to attached lists for specific chemical analyses needed for each set of samples

Required Blood and Urine[1] Assays for Ranger Study

1. General metabolic assessment (blood)
    - glucose
    - B-hydroxybutyrate
    - glycerol
    - phosphorus
    - potassium
    - calcium
    - serum total protein
    - uric acid
    - total cholesterol
    - triglycerides
    - hemoglobin
    - free fatty acids
    - lactate
    - total bilirubin
    - sodium
    - chloride
    - albumen
    - creatinine
    - urea nitrogen
    - HDL-cholesterol
    - hematocrit
    - serum glutamate-oxaloacetate transaminase
    - serum glutamate-pyruvate transaminase
    - serum total iron, total iron binding capacity, ferritin
    - magnesium

2. Vitamin assessment (blood)

    - serum retinol concentration
    - serum folate and erythrocyte folate
    - plasma or serum ascorbic acid concentration
    - Vitamin B_6: erythrocyte glutamate oxaloacetate transaminase activity (EGOT) and in vitro stimulation of EGOT activity by pyridoxal-5'-phosphate
    - Thiamin: erythrocyte transketolase activity (ETK) and in vitro stimulation of ETK activity by thiamin diphosphate
    - Riboflavin: erythrocyte glutathione reductase activity (EGR) and in vitro stimulation of EGR activity by flavin adenine dinucleotide

3. Hormone and bone turnover assessments (blood)

    - 25-hydroxycholecalciferol
    - total and bone specific alkaline phosphatase
    - tartrate-resistant acid phosphatase

4. Hormone assessments (urine)[1]

    - free cortisol
    - free androgens
    - creatinine
    - vanilmandelic acid (VMA)

[1]Pending determination if single 24-hour urine samples are able to be obtained.

FORT POLK HEART SMART PROJECT - ATTACHMENT A

ANNUAL REPORT - AUGUST, 1990 TO JULY, 1991

FORT POLK HEART SMART PROGRAM

Cardiovascular Risk Factor Screening

1989-1990

NUMBER OF SUBJECTS EXAMINED
FORT POLK HEART SMART PROGRAM

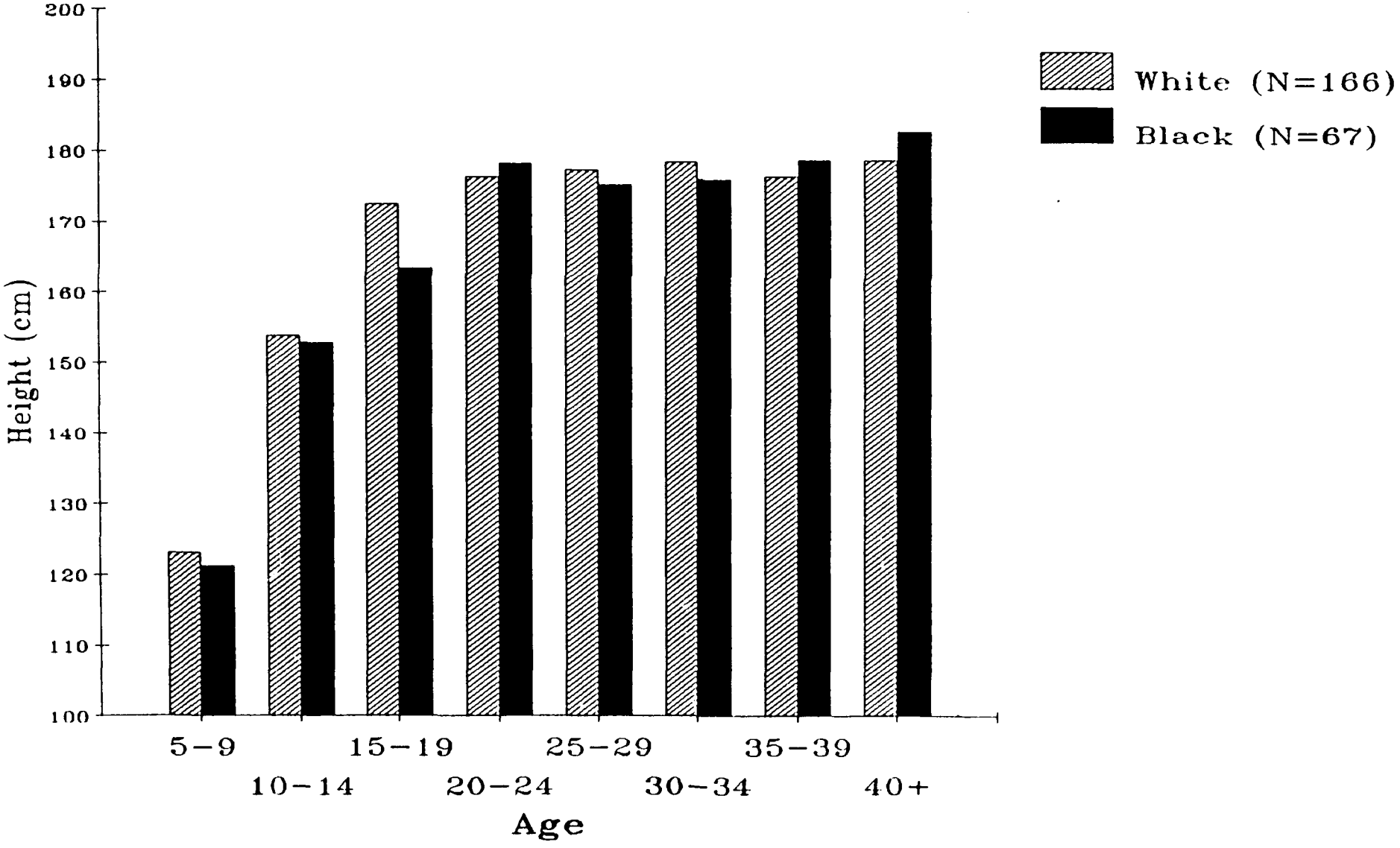
AGE

	0-9	10-19	20-29	30-39	40+	TOTAL
White Males	29	30	53	56	9	177
White Females	20	28	128	79	20	275
Black Males	9	10	25	21	5	70
Black Females	7	14	39	32	5	97
Hispanic Males	2	0	6	6	0	14
Hispanic Females	2	1	17	12	0	32
Other Males	3	4	2	0	1	10
Other Females	4	6	8	9	1	28
Total Males	43	44	86	83	15	271
Total Females	33	49	191	132	26	432
TOTAL	76	93	277	215	41	703

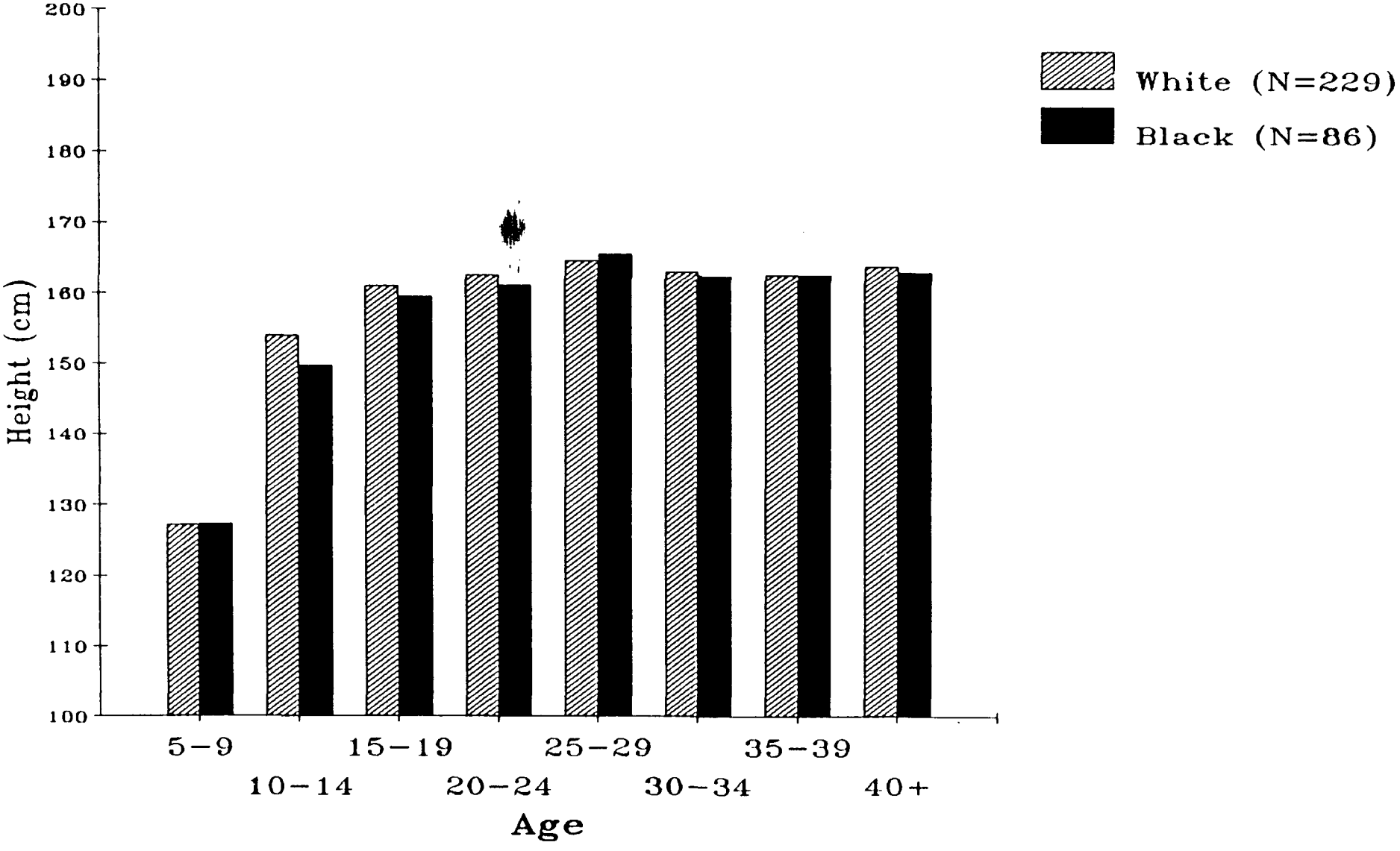
FORT POLK HEART SMART PROGRAM

Anthropometry

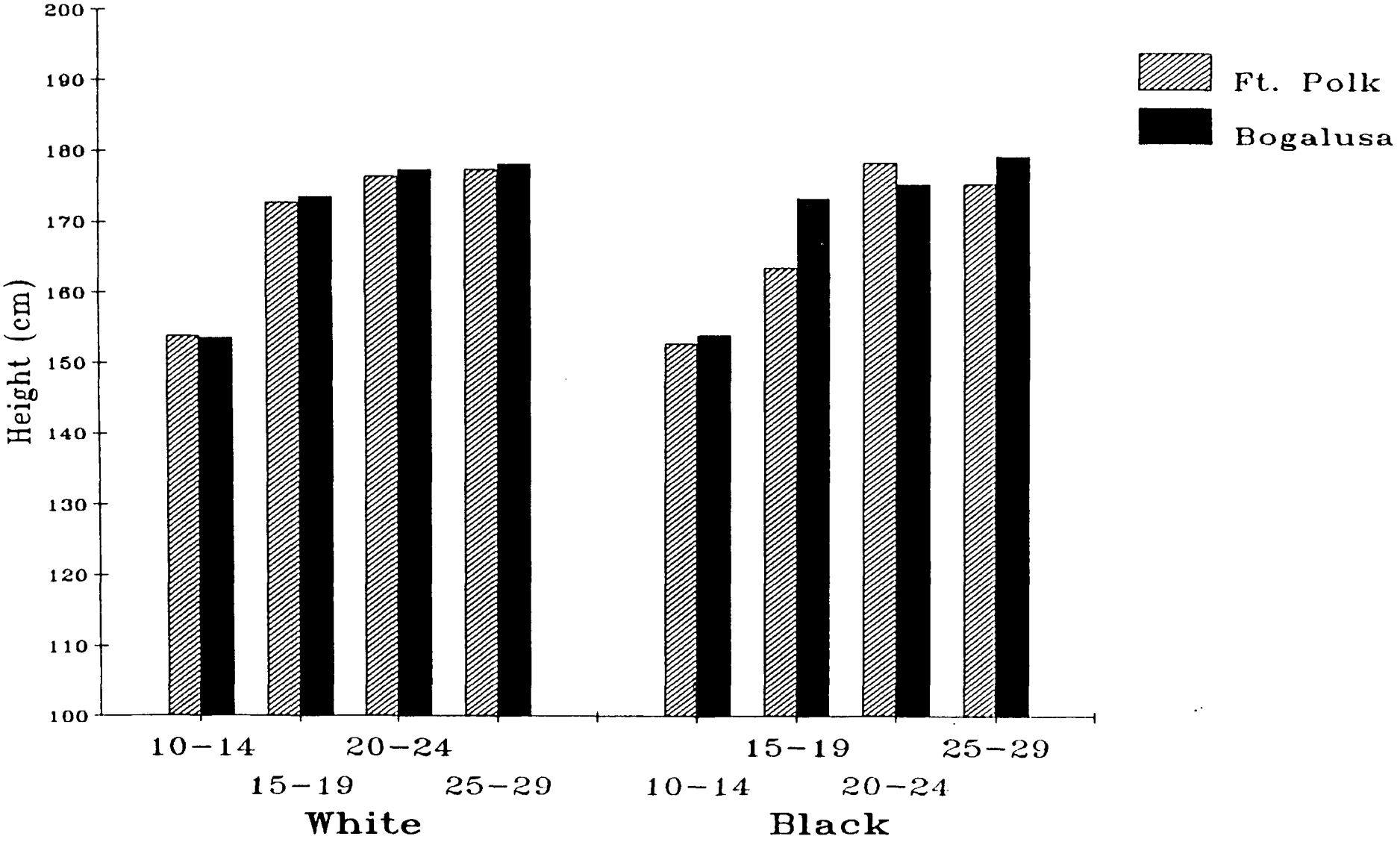
Height by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



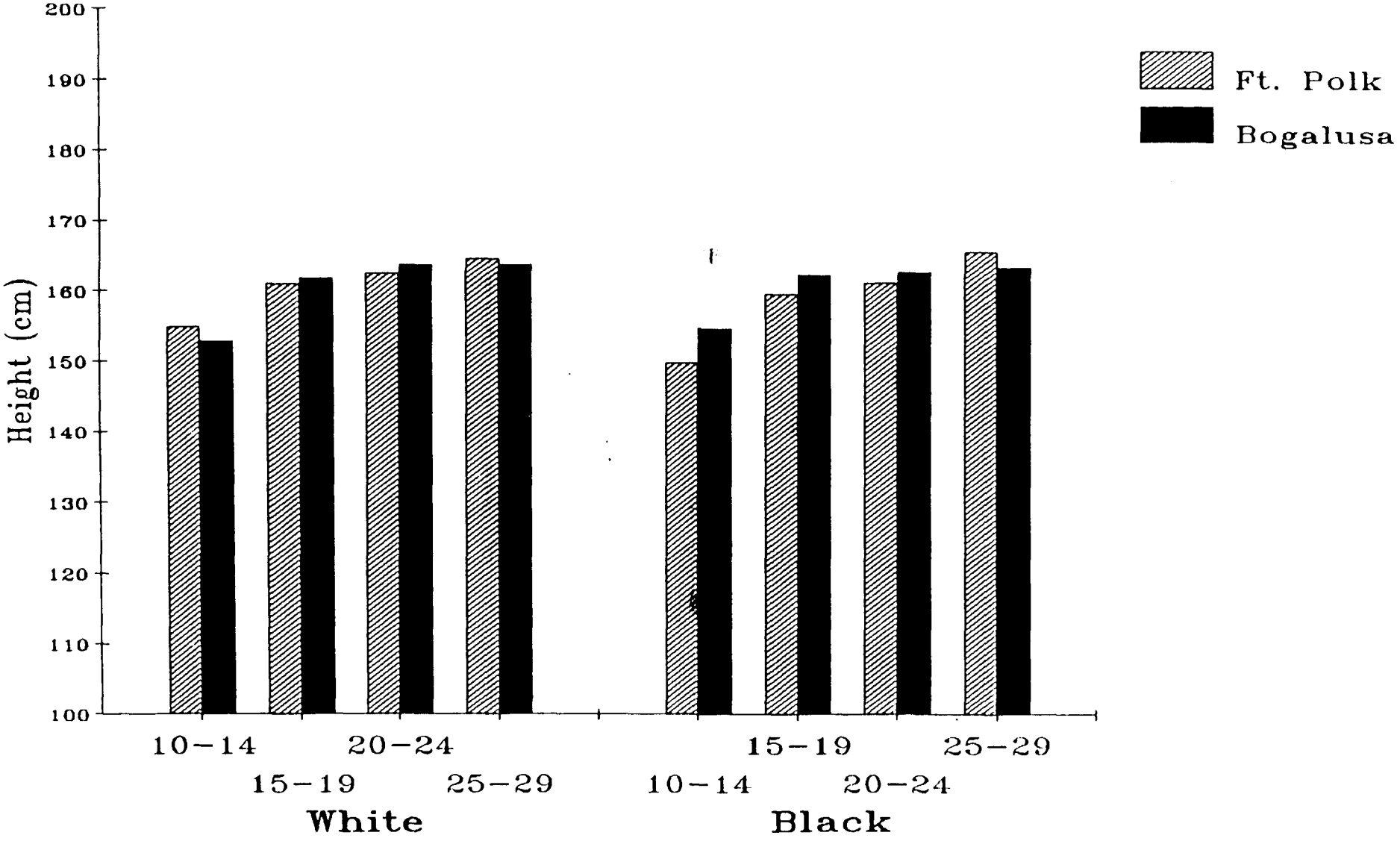
Height by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



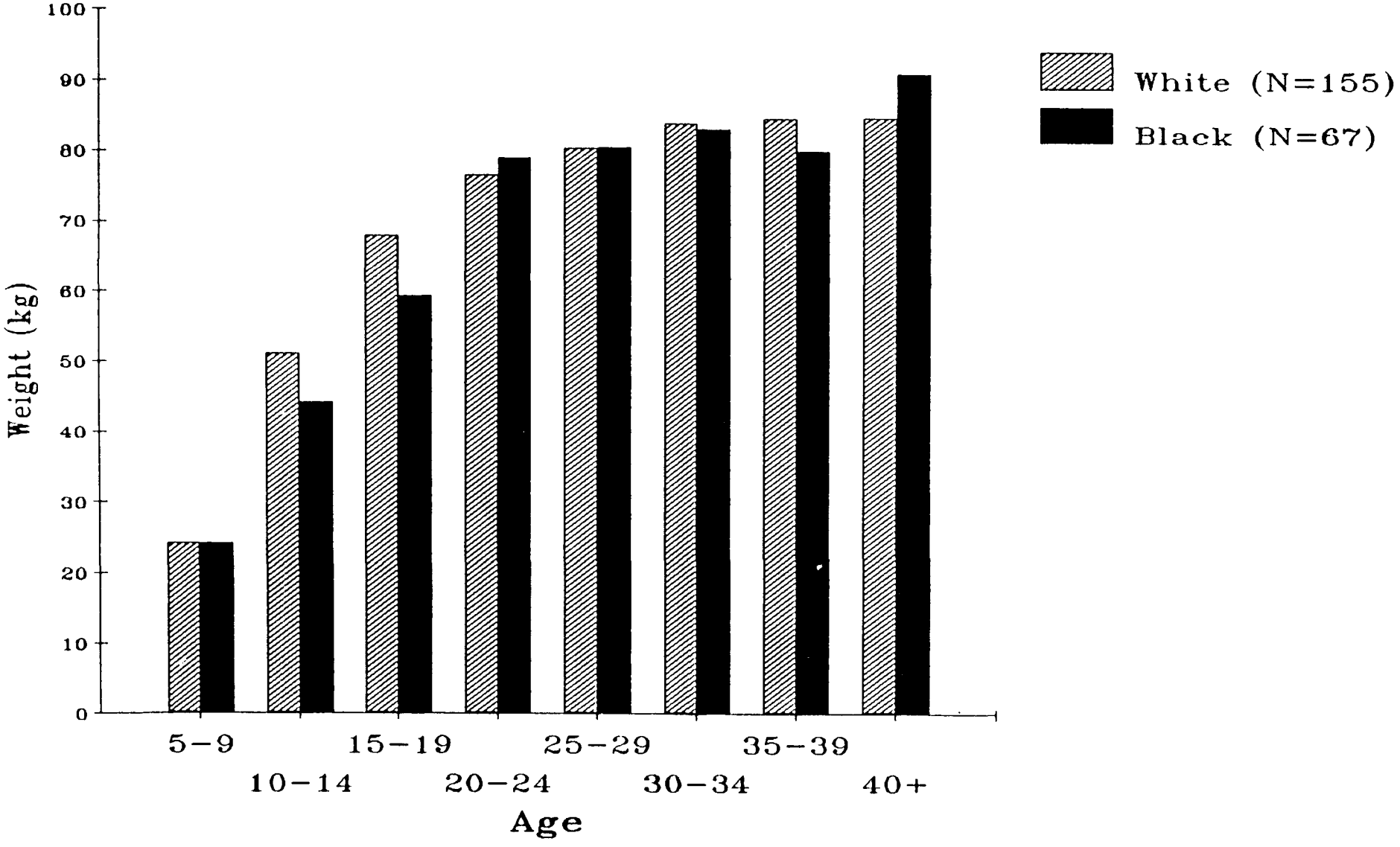
Height
by Age, Race and Community
Males



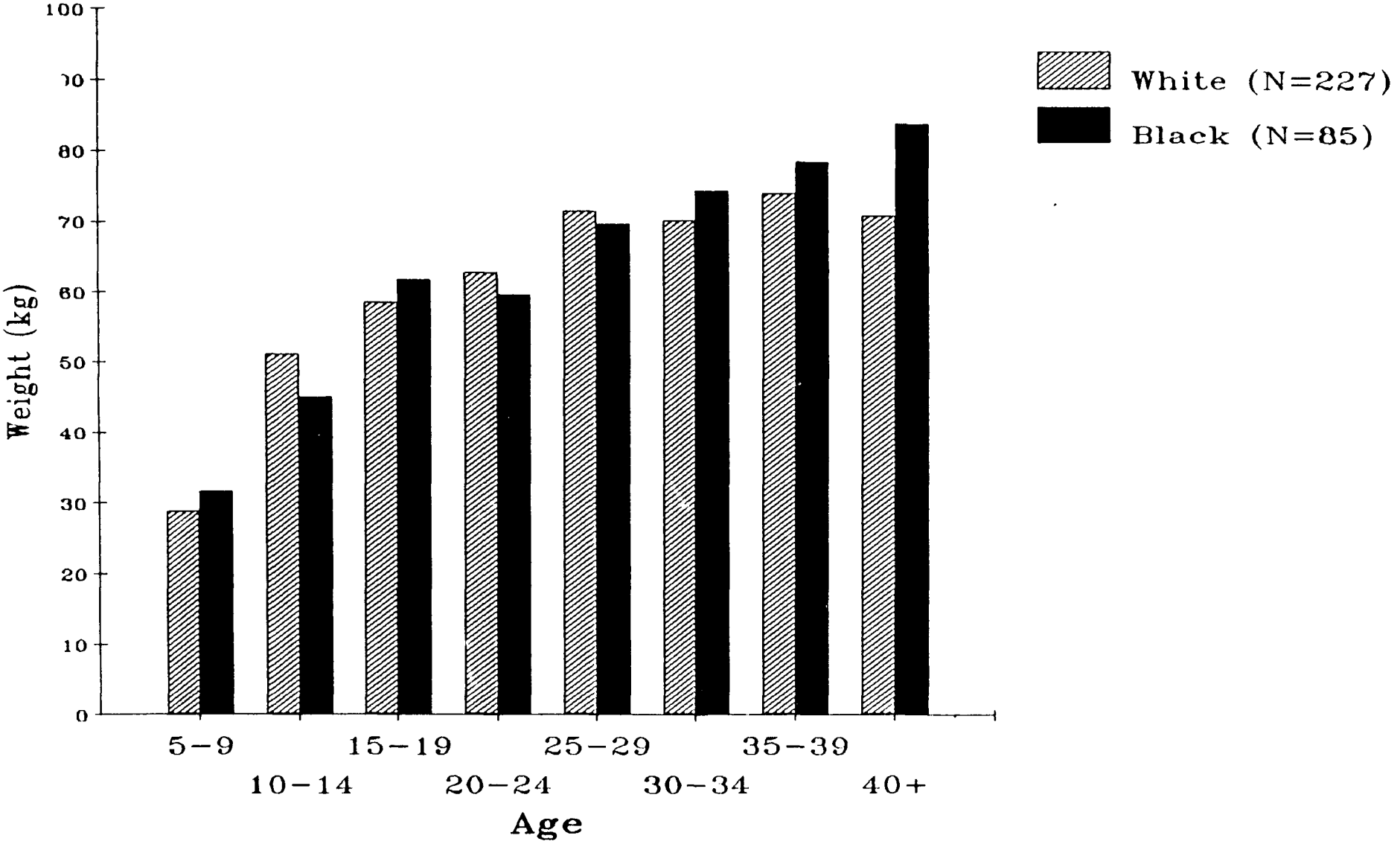
Height
by Age, Race and Community
Females



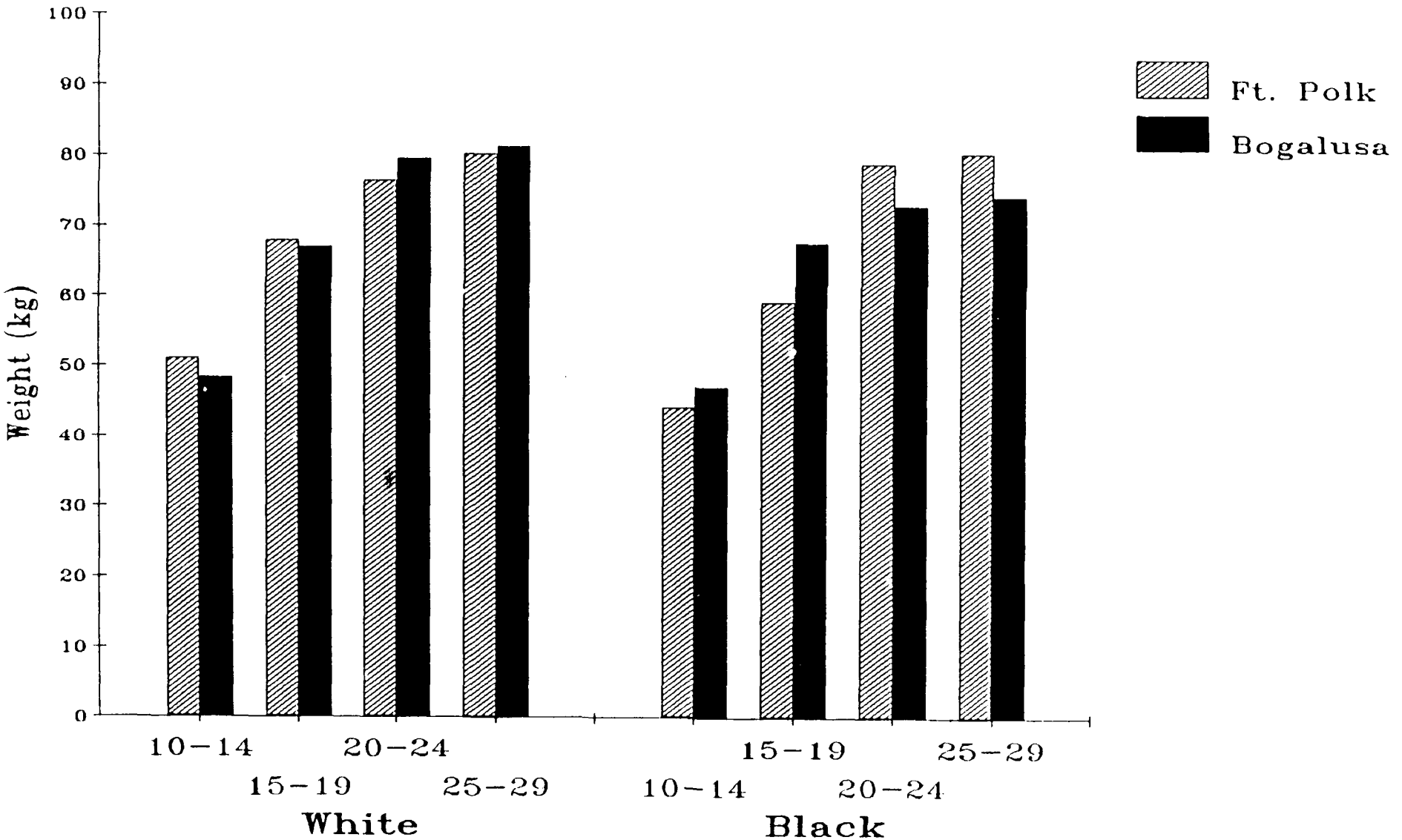
Weight by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



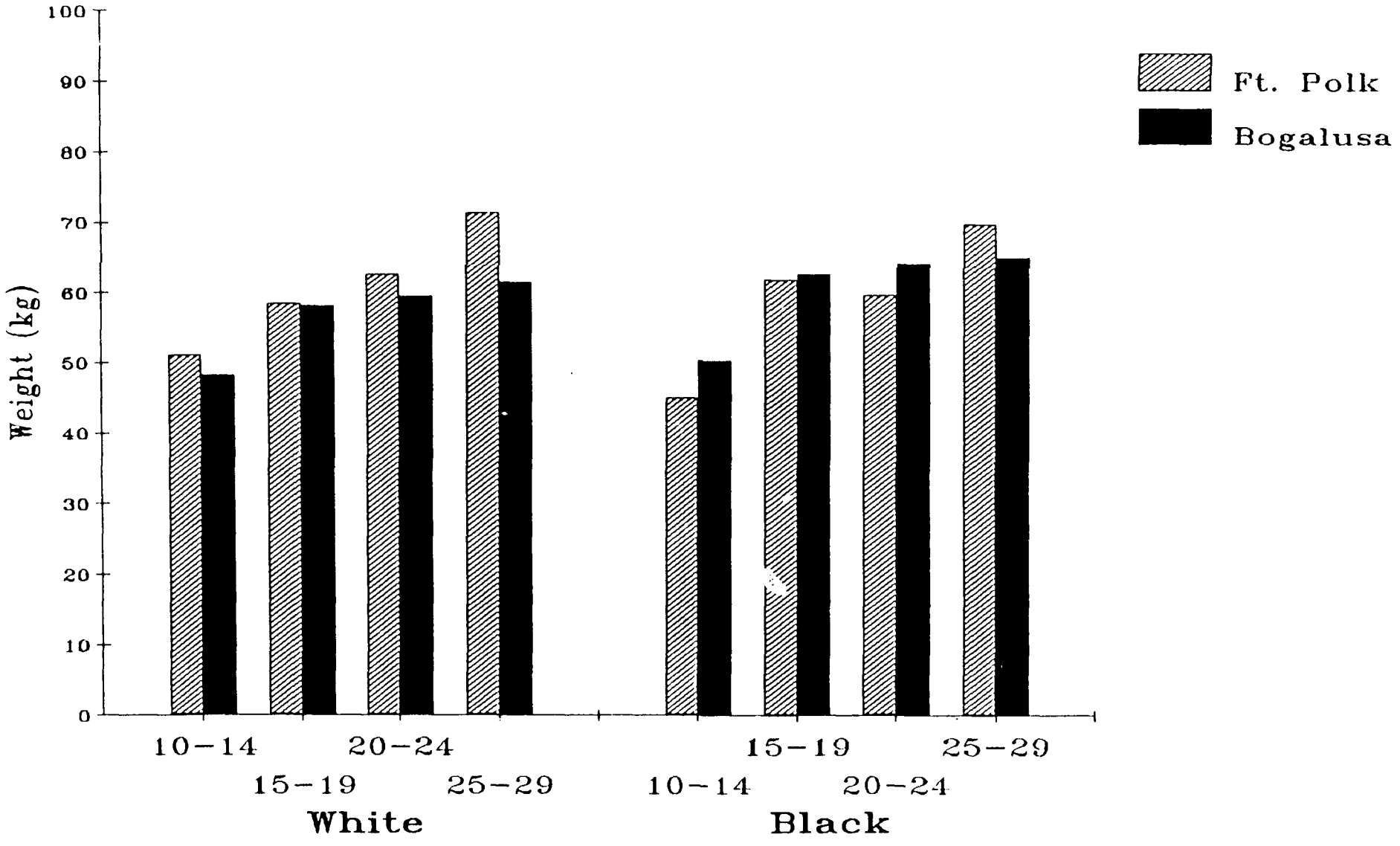
Weight by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



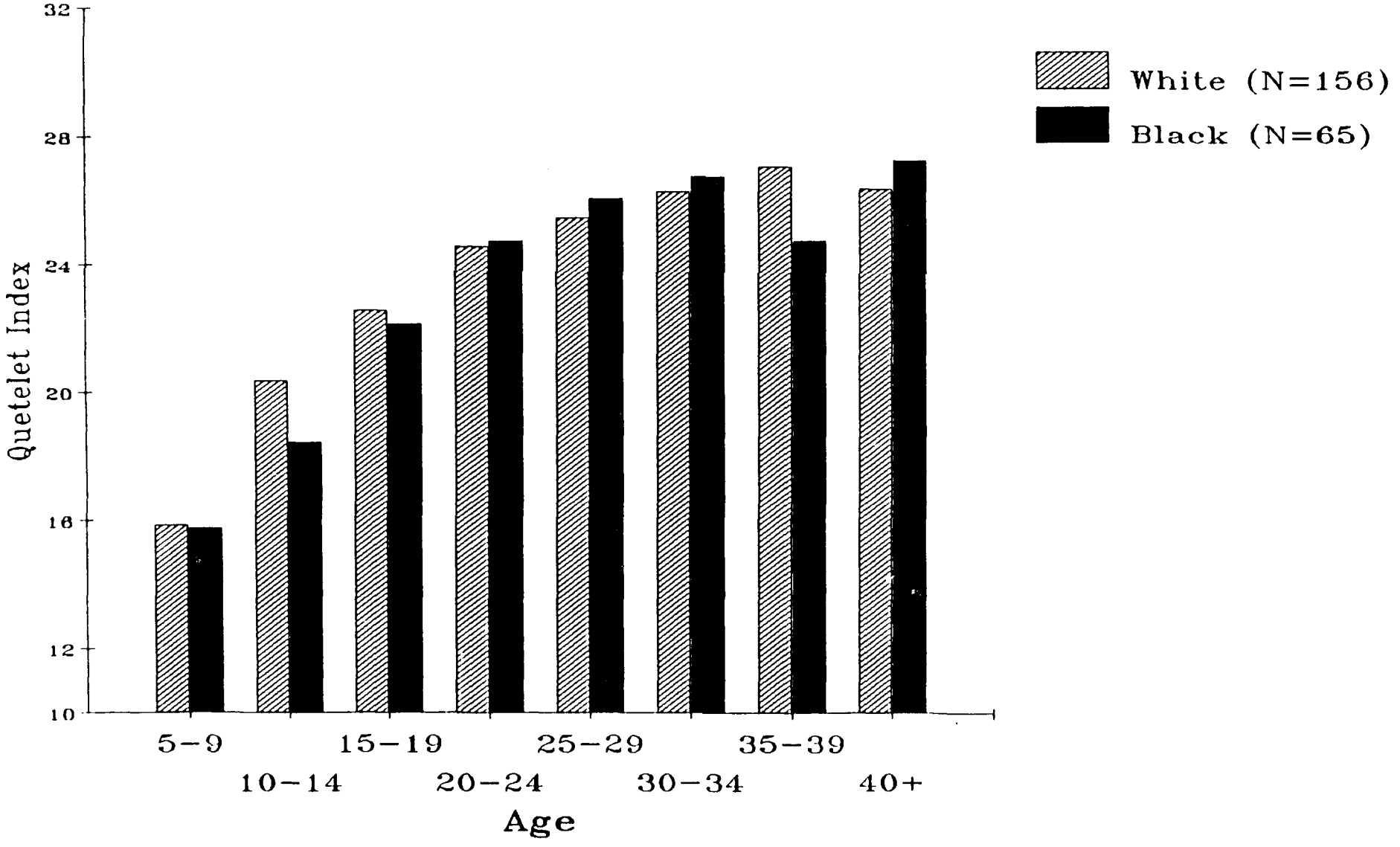
Weight
by Age, Race and Community
Males



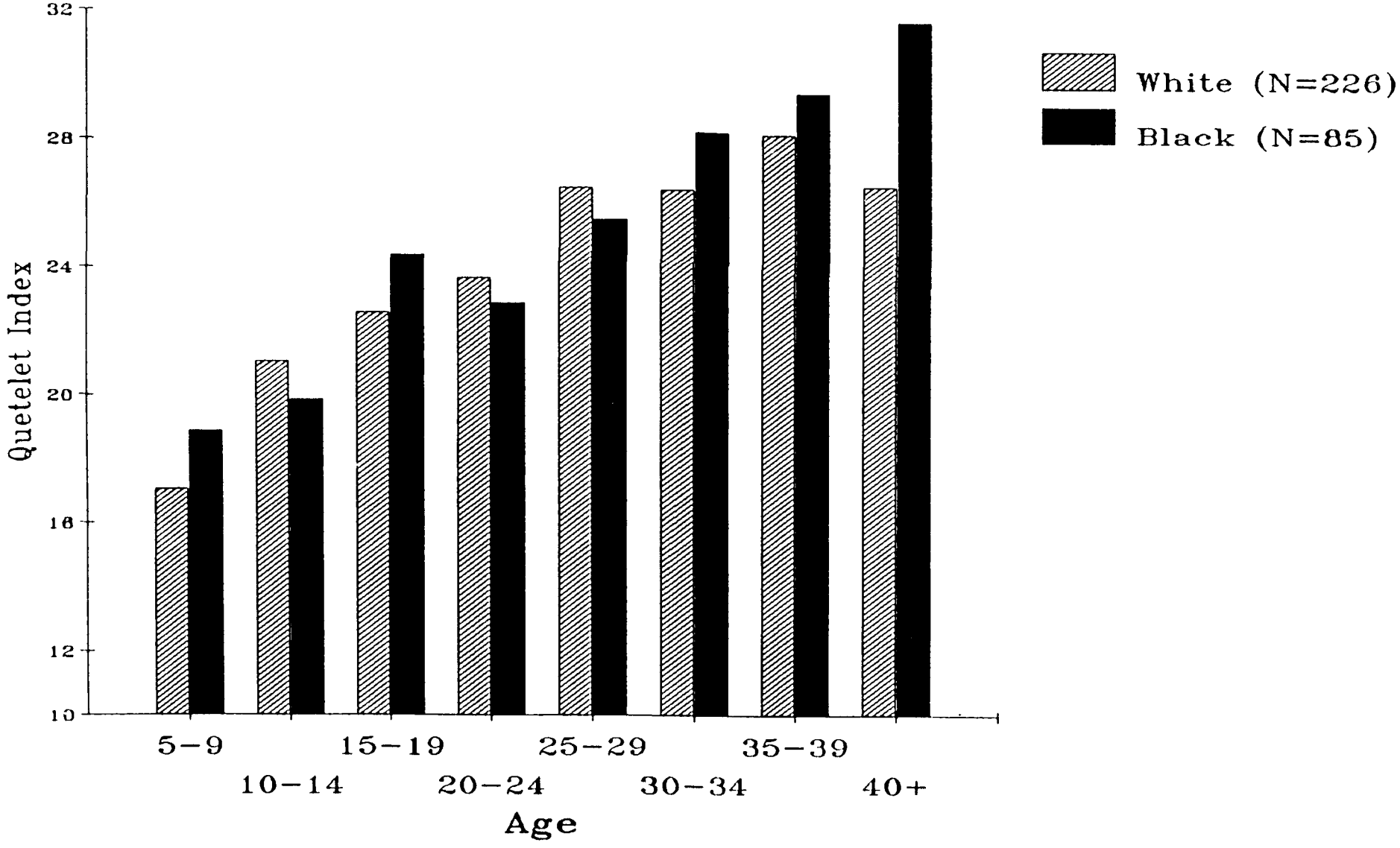
Weight
by Age, Race and Community
Females



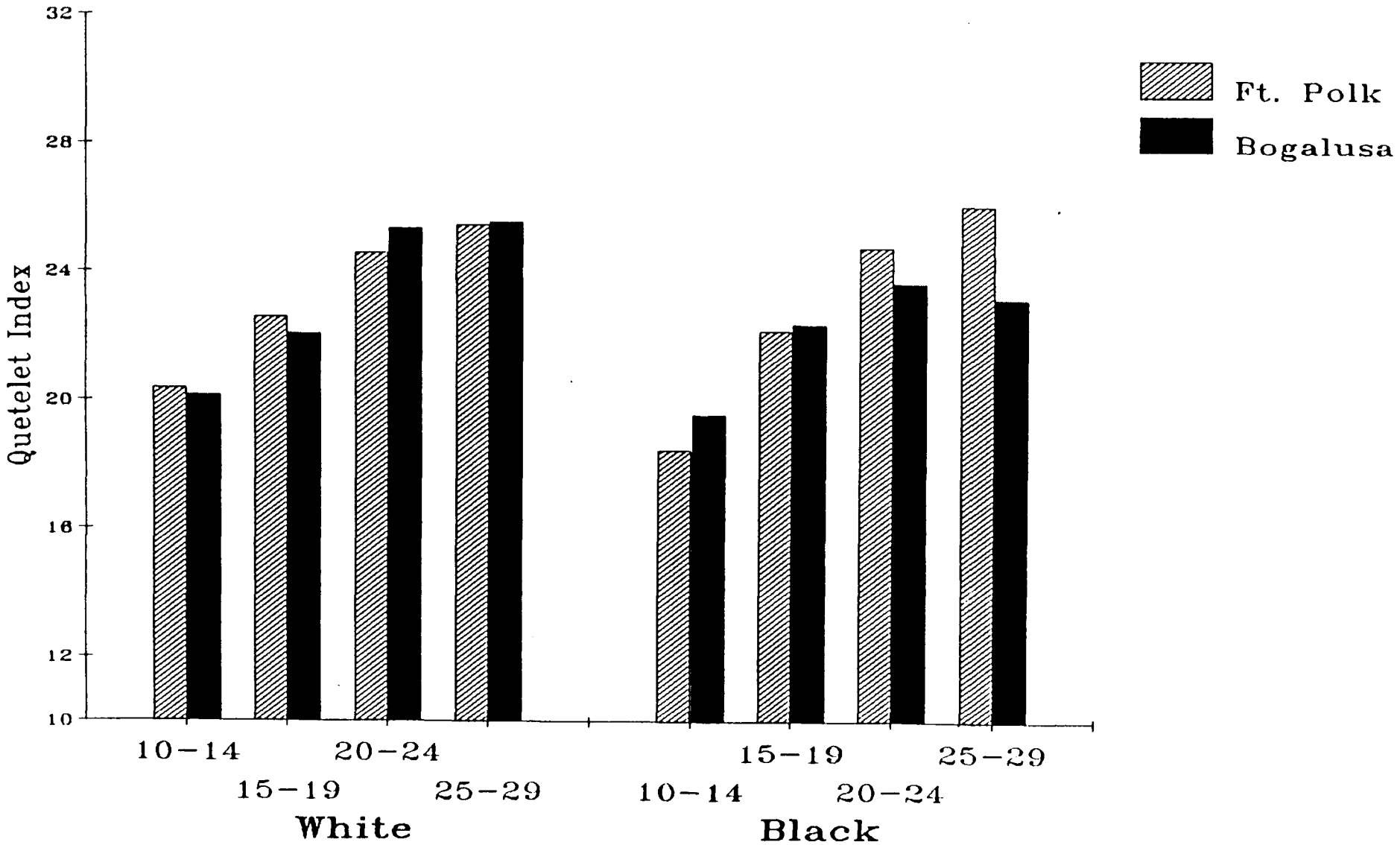
Quetelet Index by Age and Race
Fort Polk, Louisiana, 1989–1990
Males



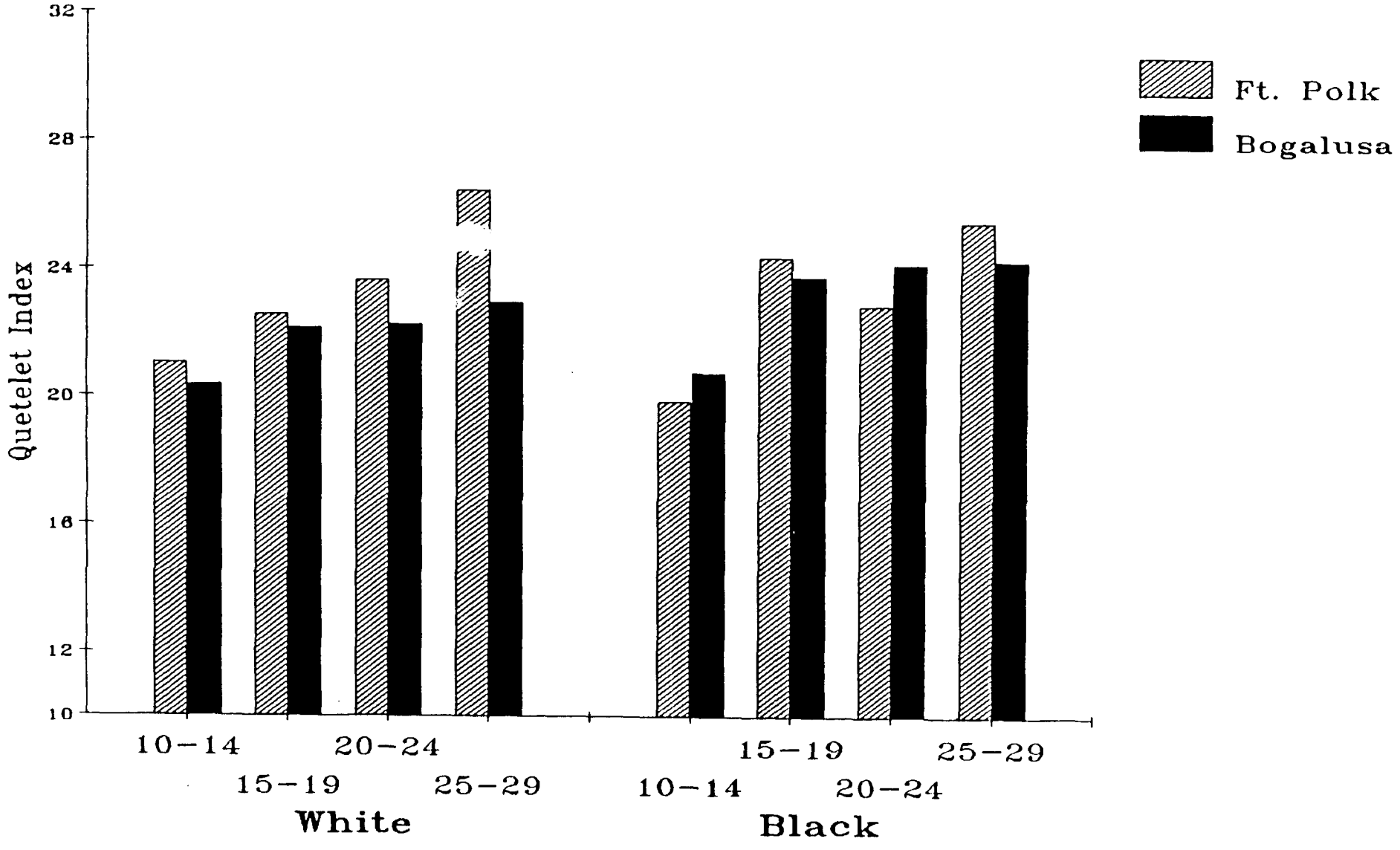
Quetelet Index by Age and Race
Fort Polk, Louisiana, 1989–1990
Females



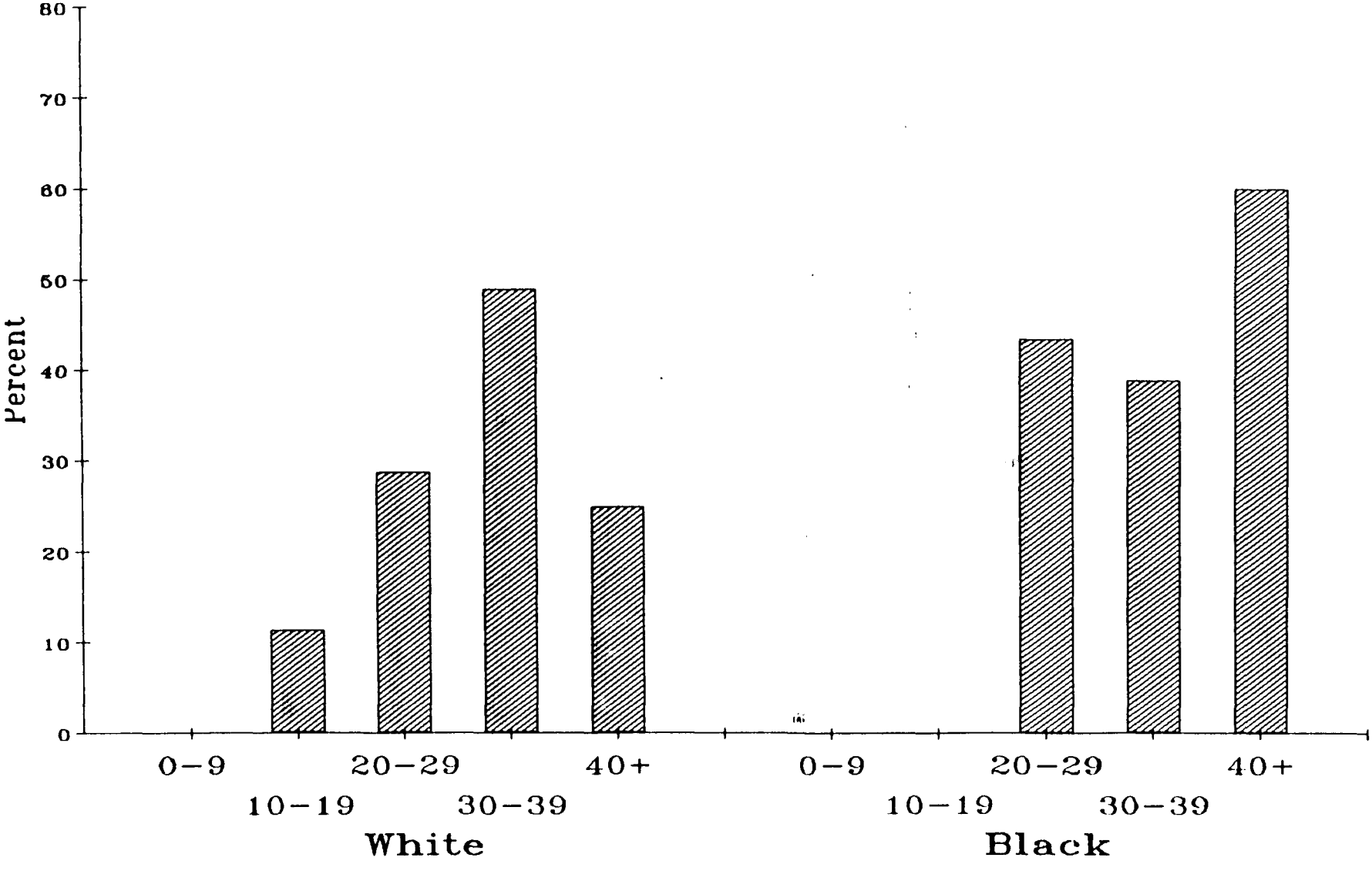
Quetelet Index
by Age, Race and Community
Males



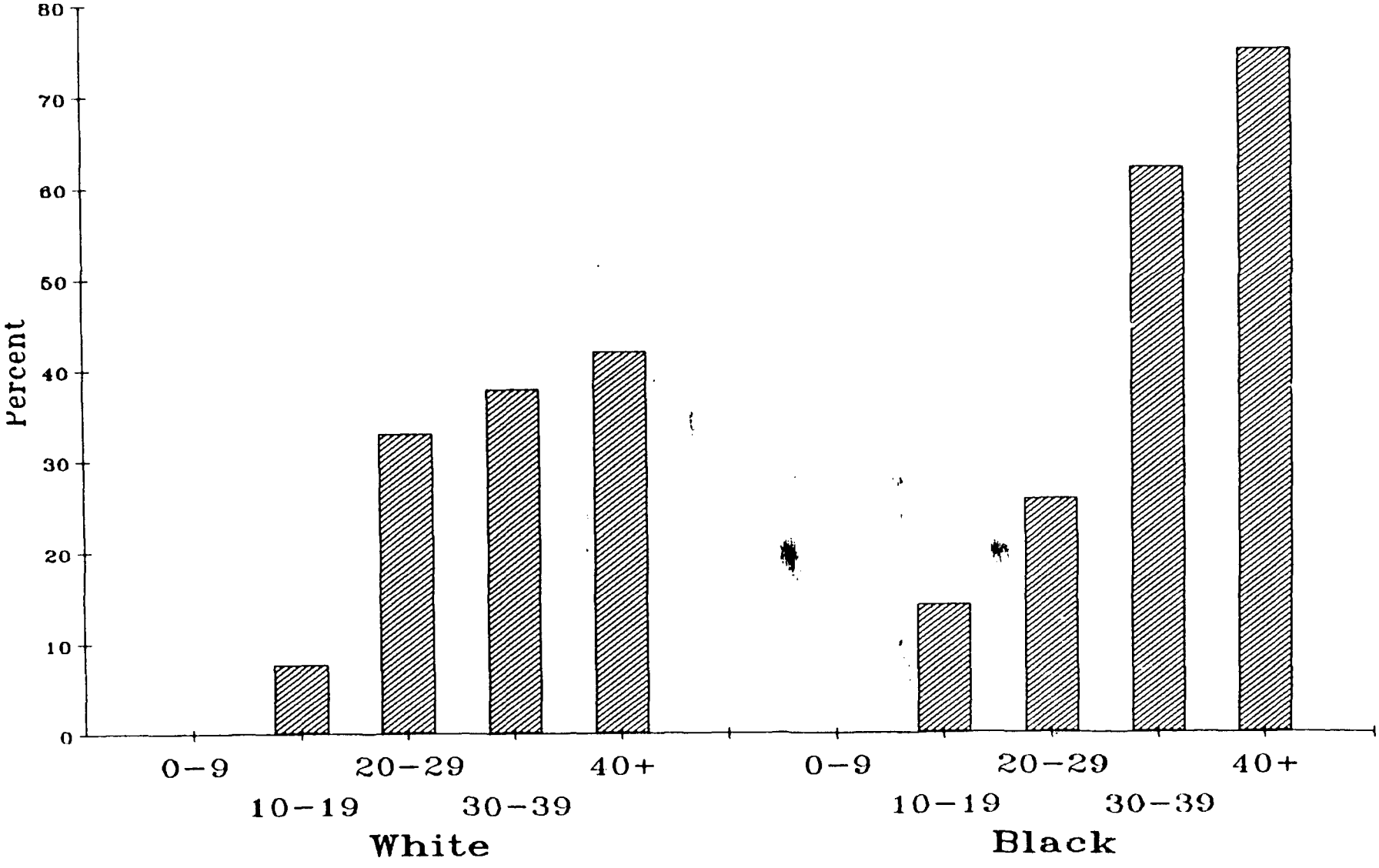
Quetelet Index
by Age, Race and Community
Females



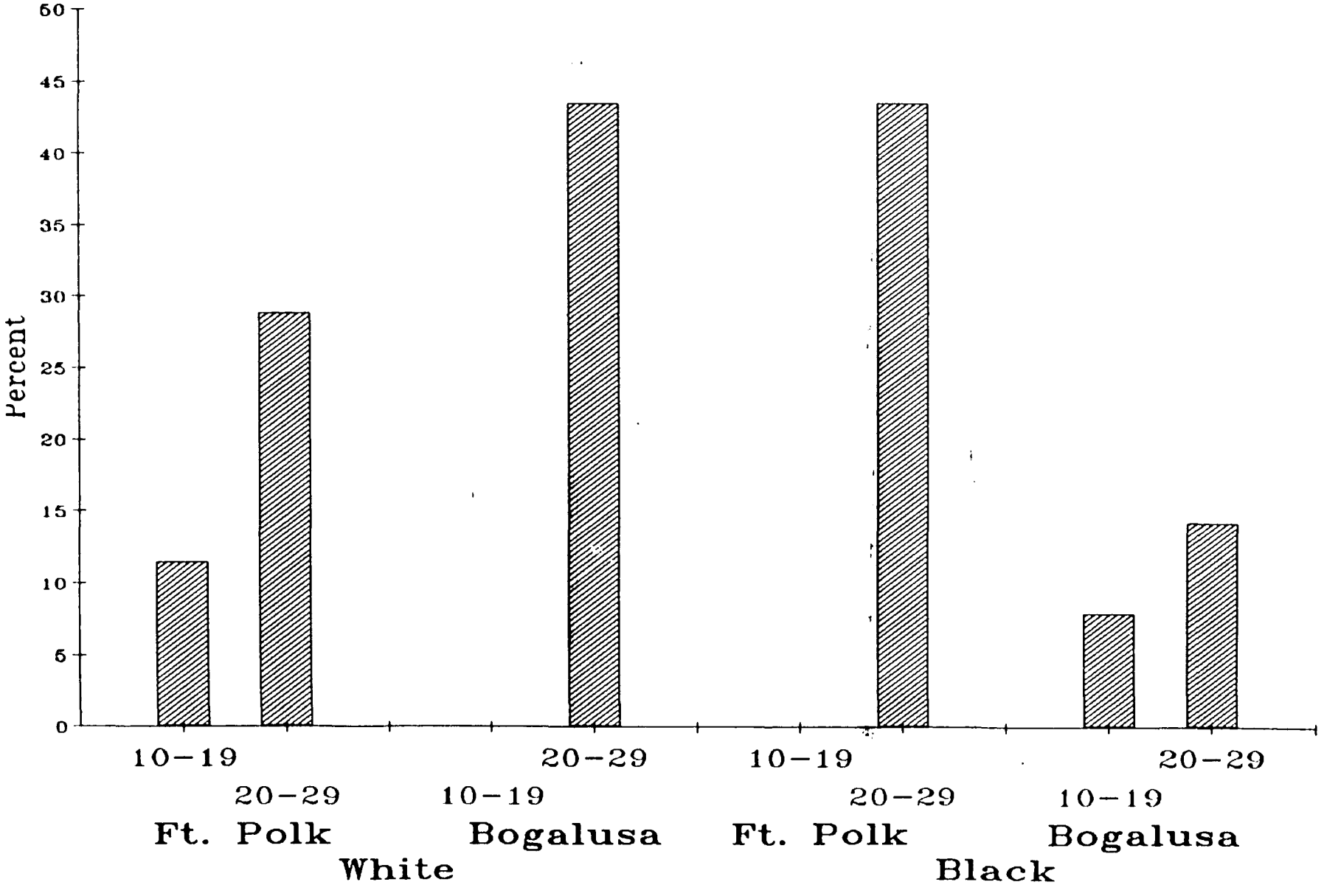
Percent of Males With Quetelet Index Greater Than 27 Ft. Polk Heart Smart Program



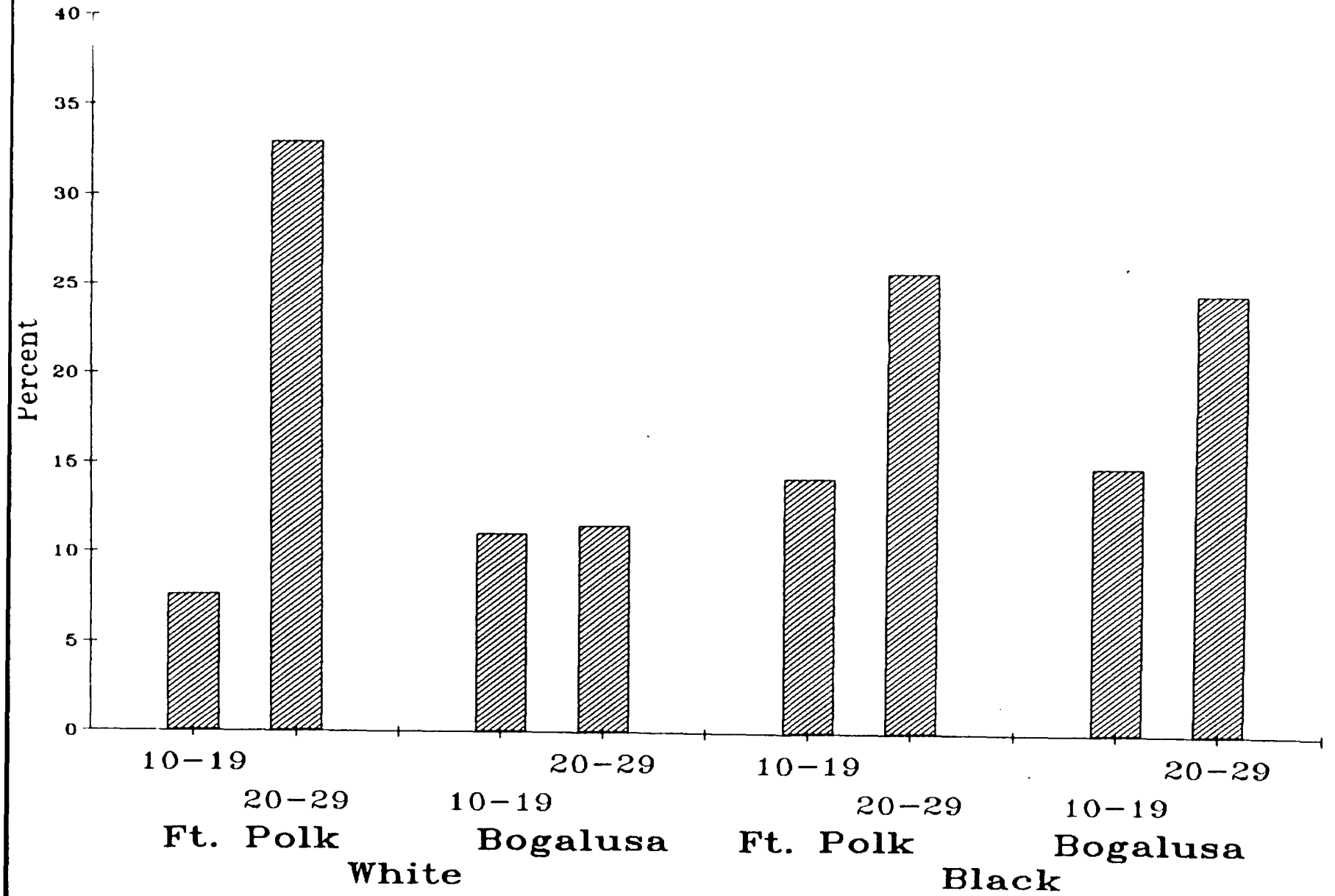
Percent of Females With Quetelet Index Greater Than 27 Ft. Polk Heart Smart Program



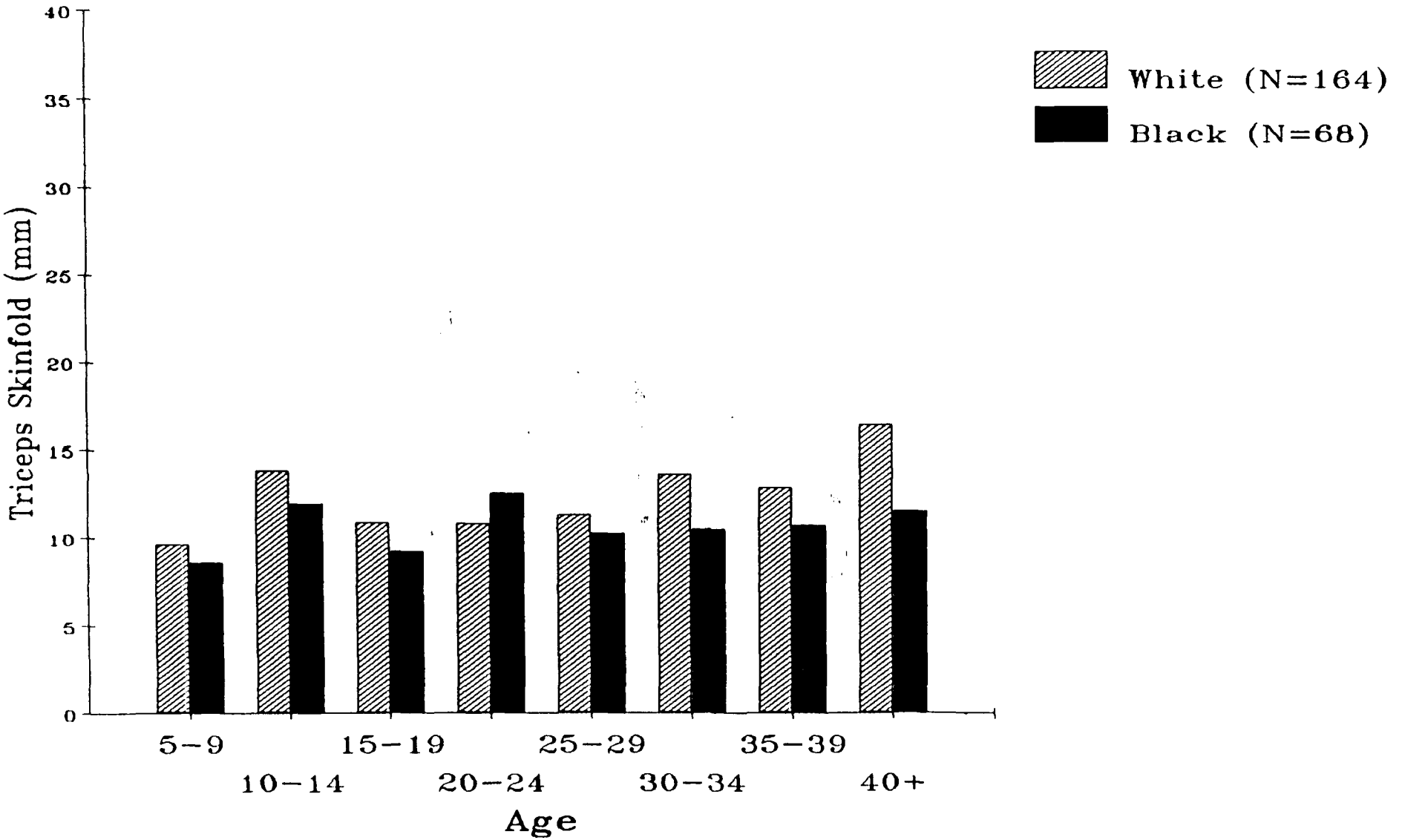
Percent of Males With Quetelet Index Greater Than 27



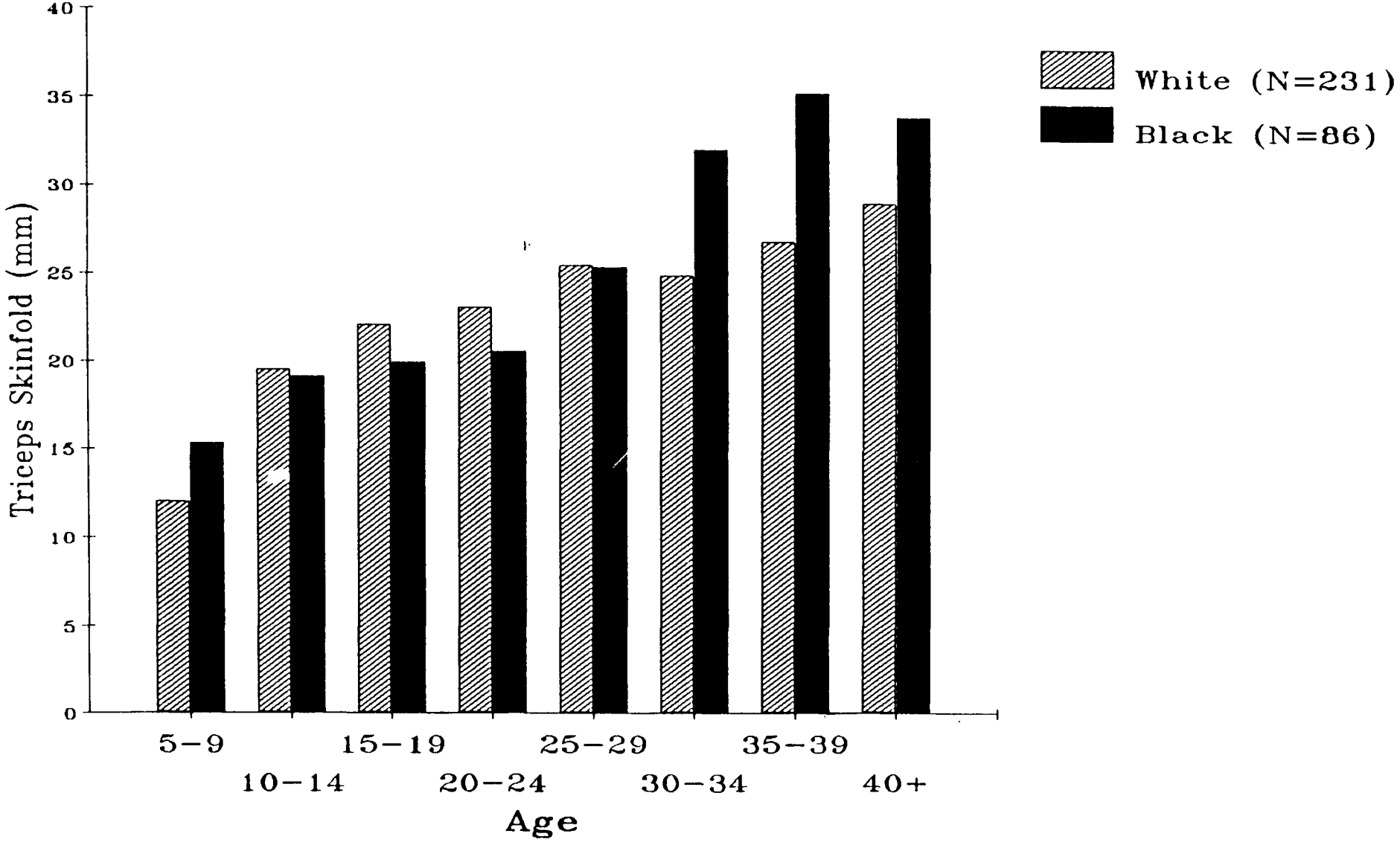
Percent of Females With Quetelet Index Greater Than 27



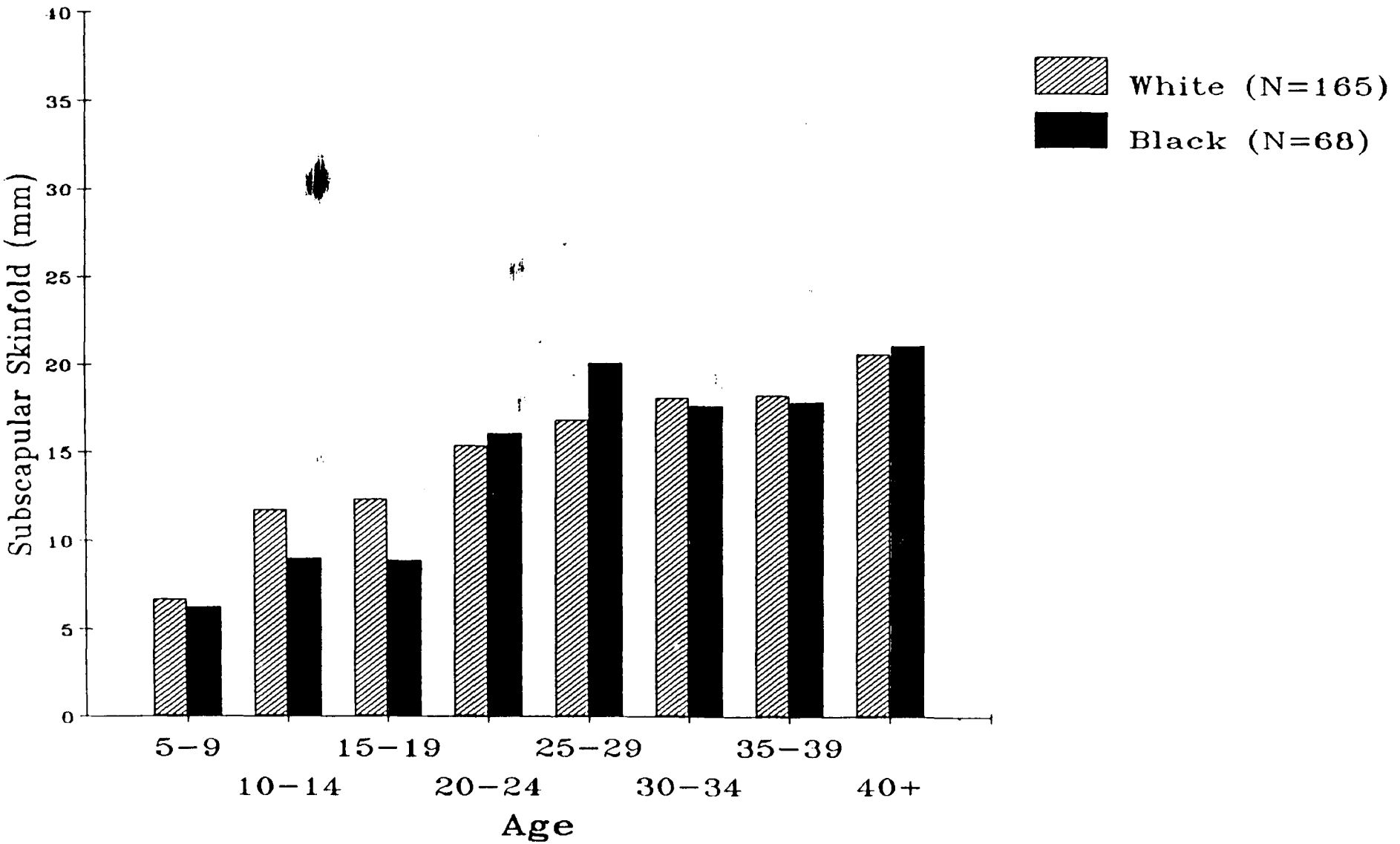
Triceps Skinfold Measurement
Fort Polk, Louisiana, 1989–1991
Males



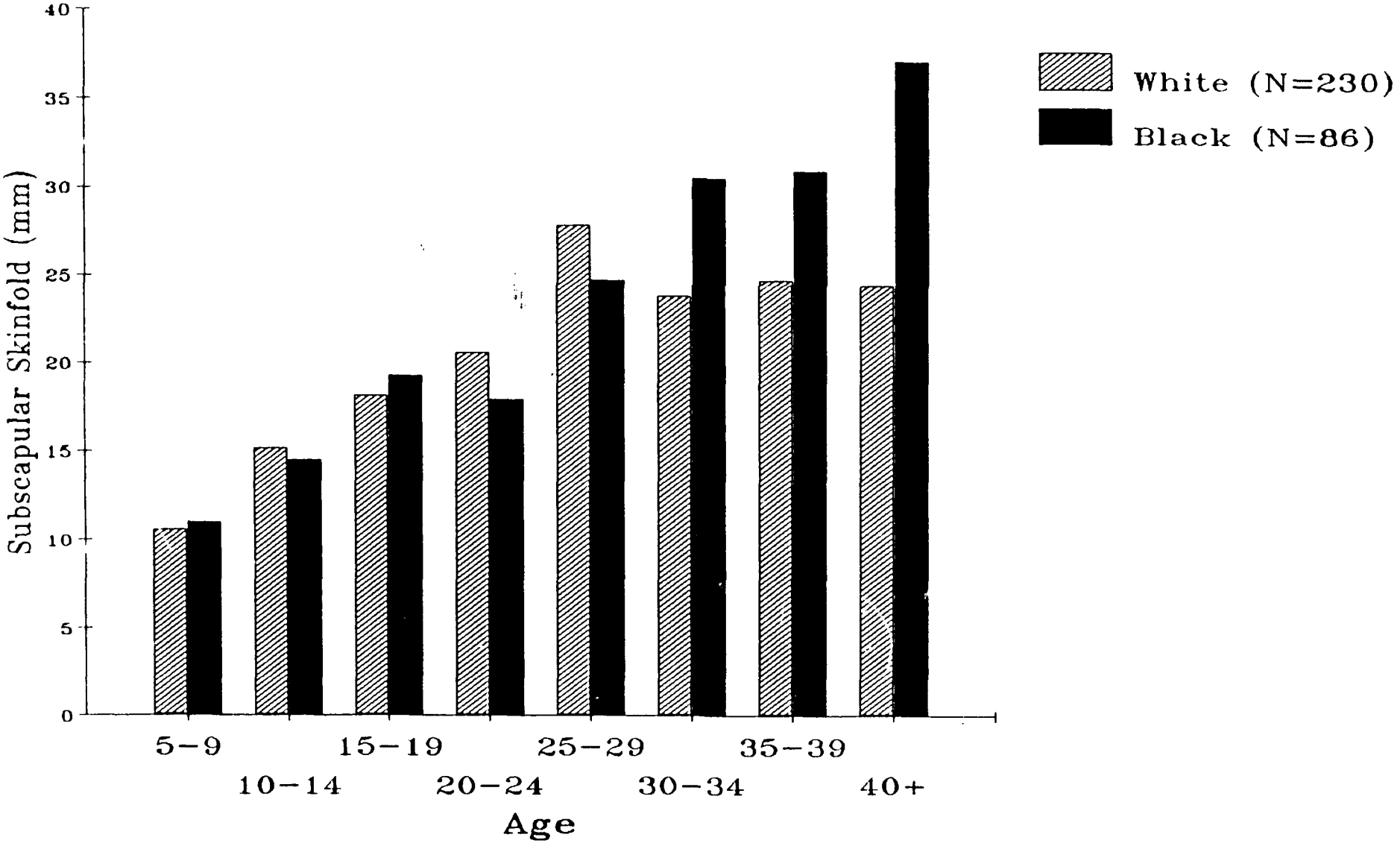
Triceps Skinfold Measurement
Fort Polk, Louisiana, 1989–1991
Females



Subscapular Skinfold Measurement
Fort Polk, Louisiana, 1989–1991
Males



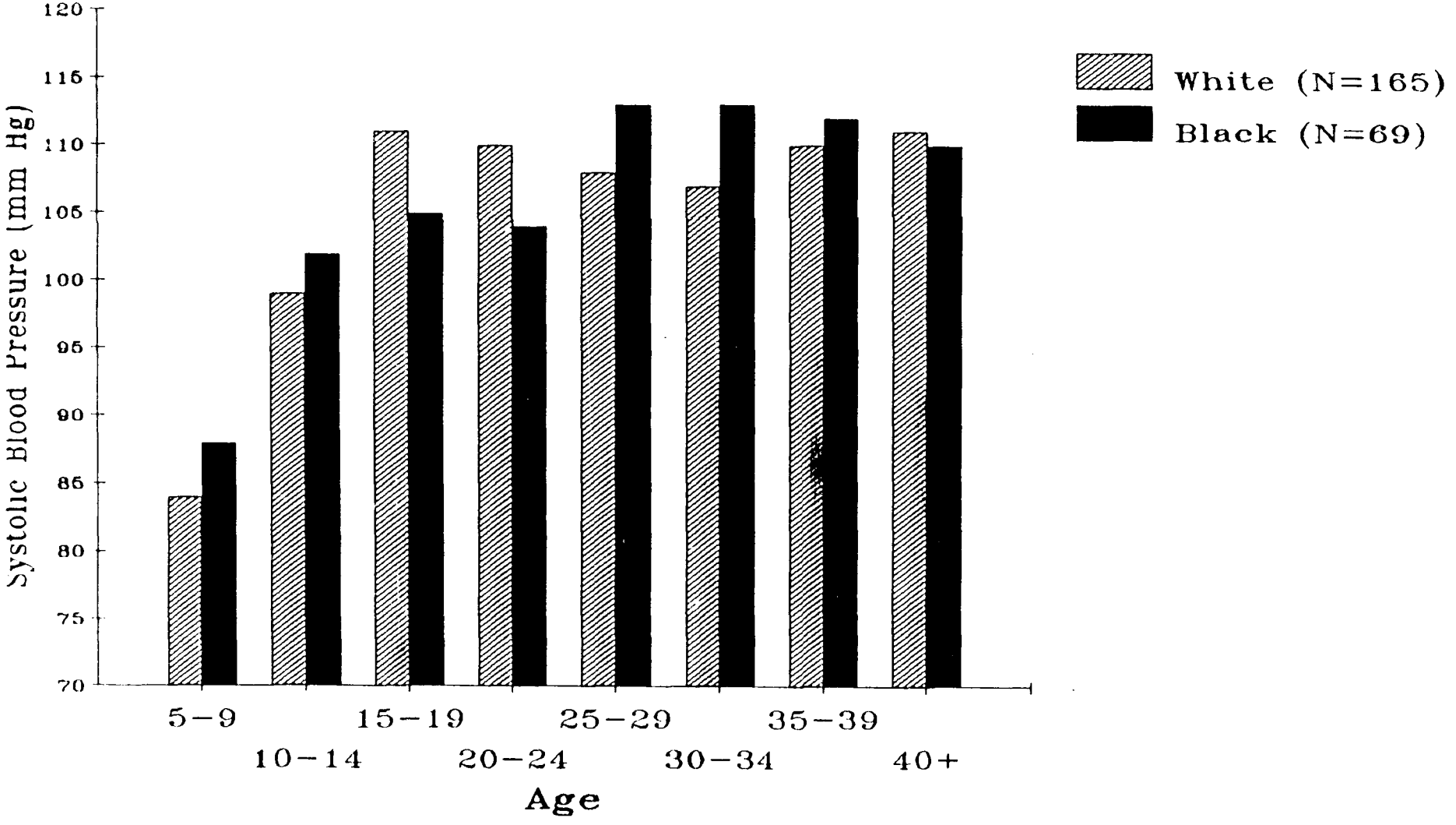
Subscapular Skinfold Measurement
Fort Polk, Louisiana, 1989–1991
Females



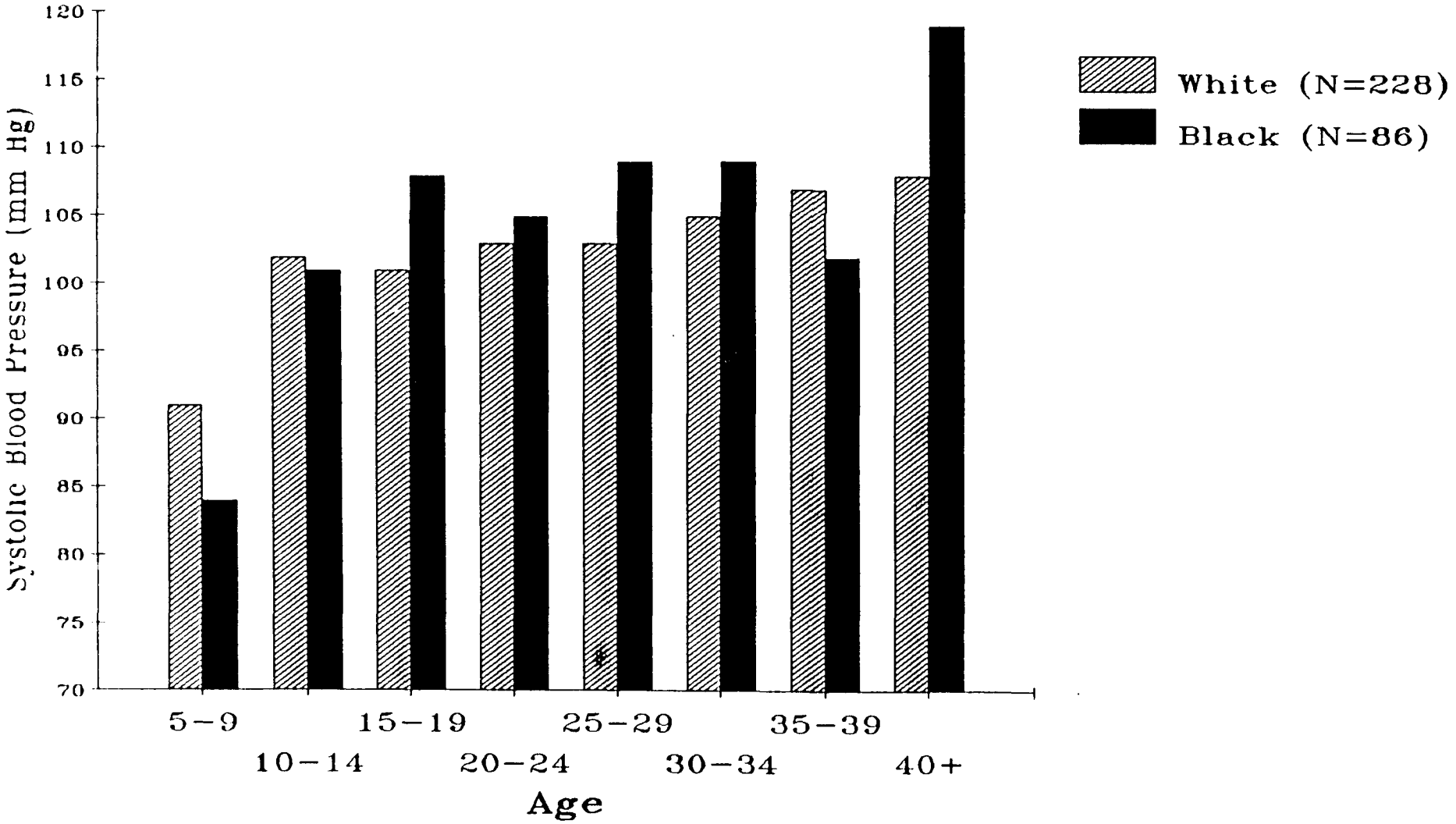
FORT POLK HEART SMART PROGRAM

Blood Pressure

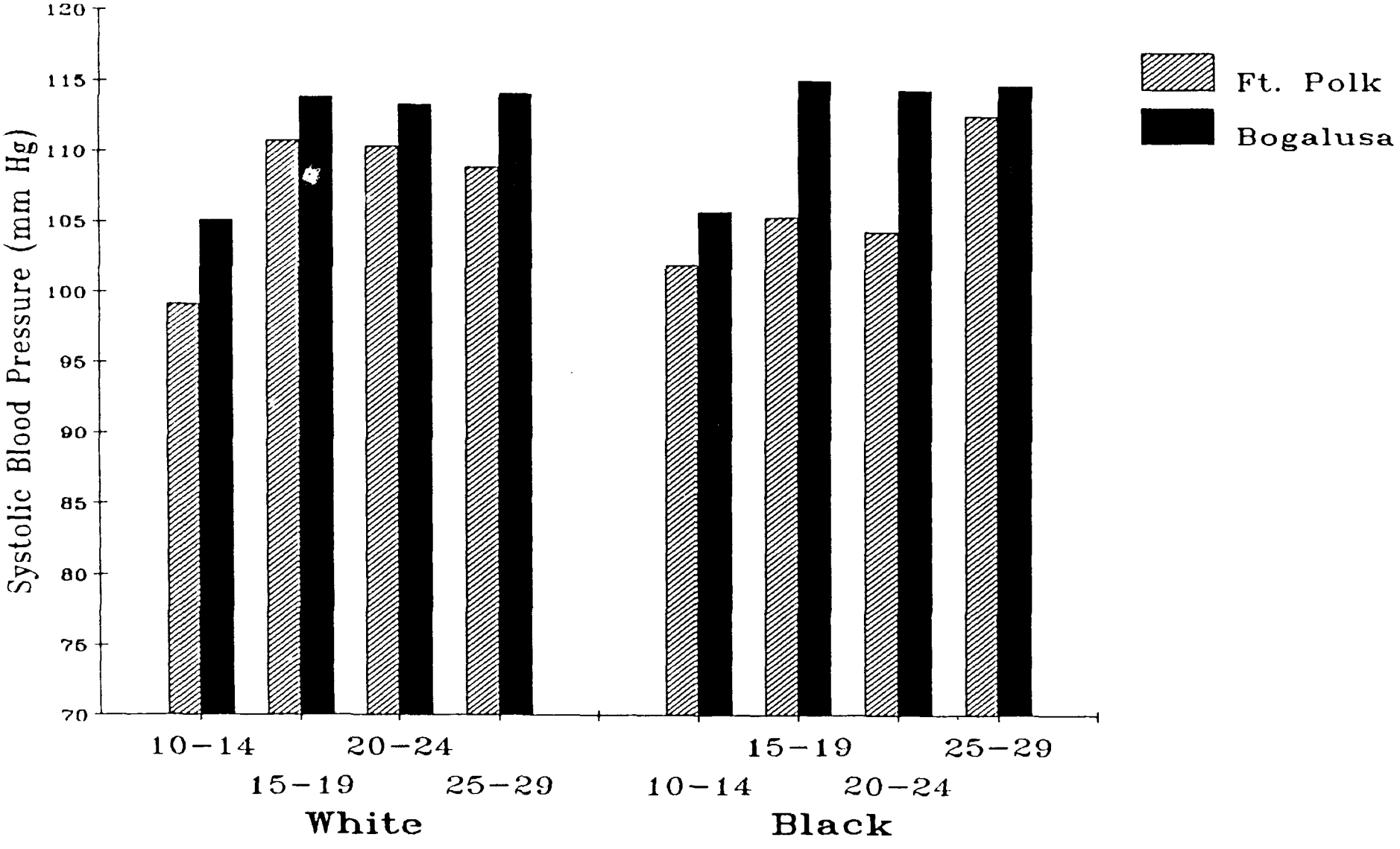
Systolic Blood Pressure Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Males



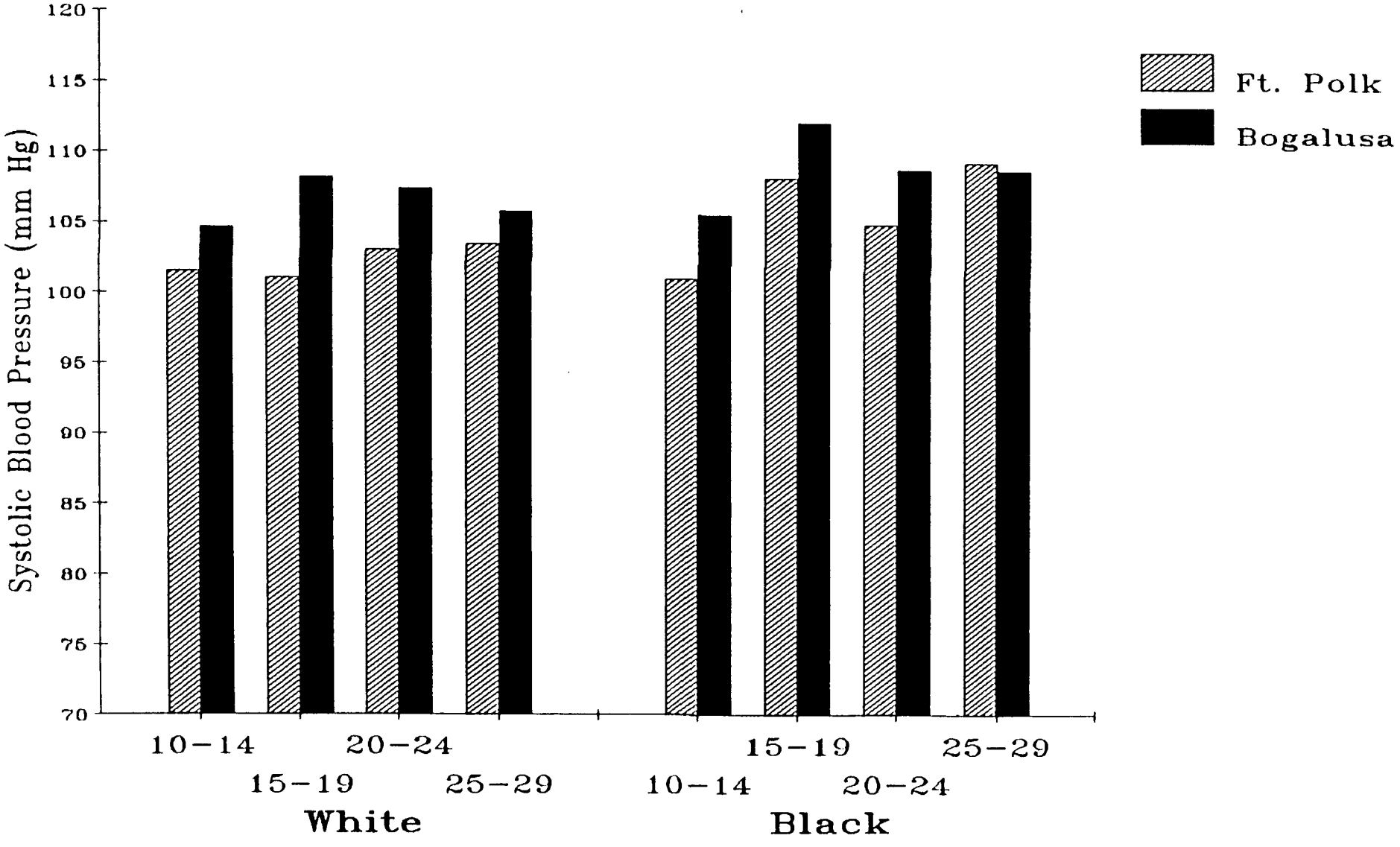
Systolic Blood Pressure Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Females



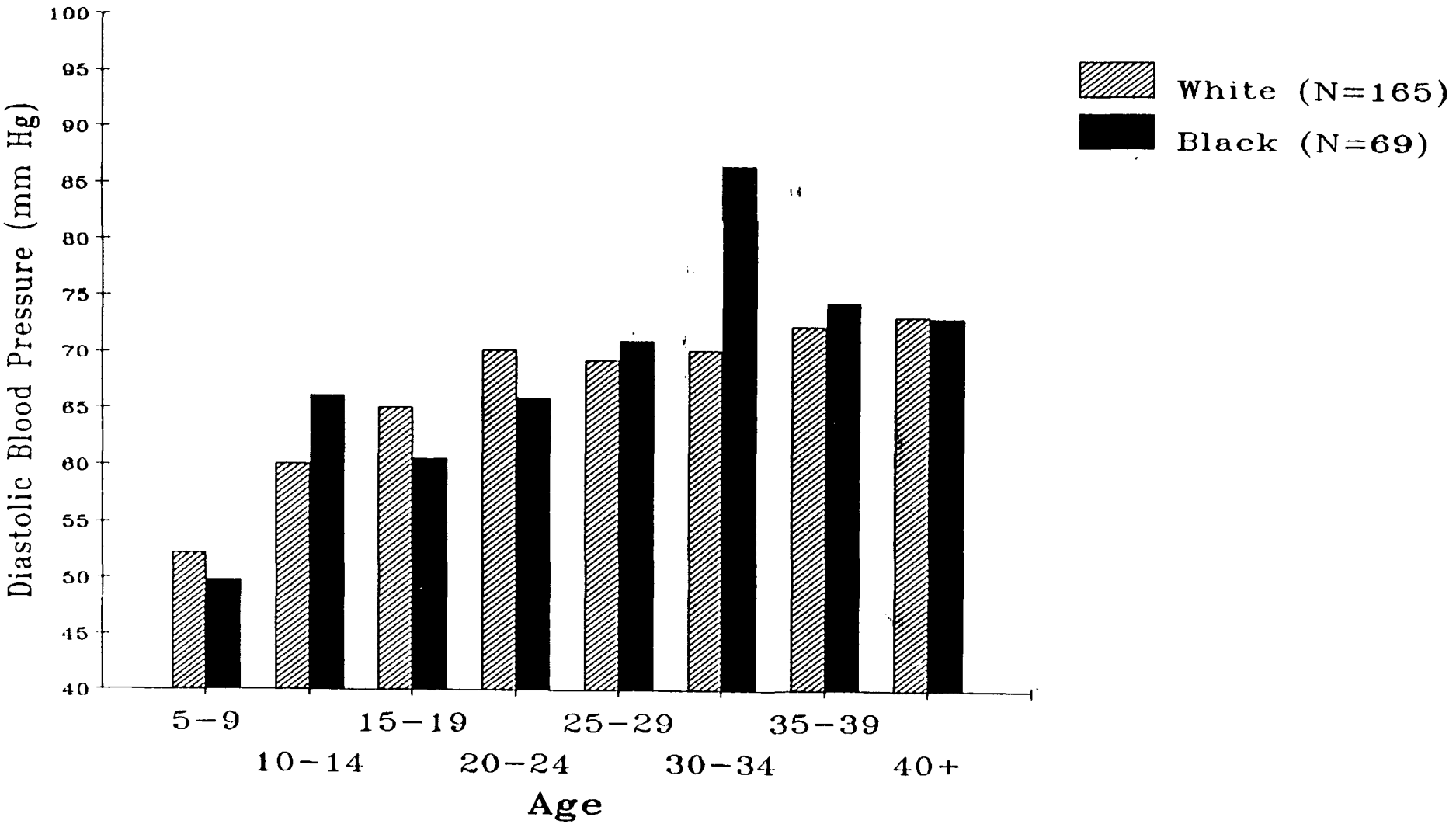
Systolic Blood Pressure Level by Age, Race and Community Males



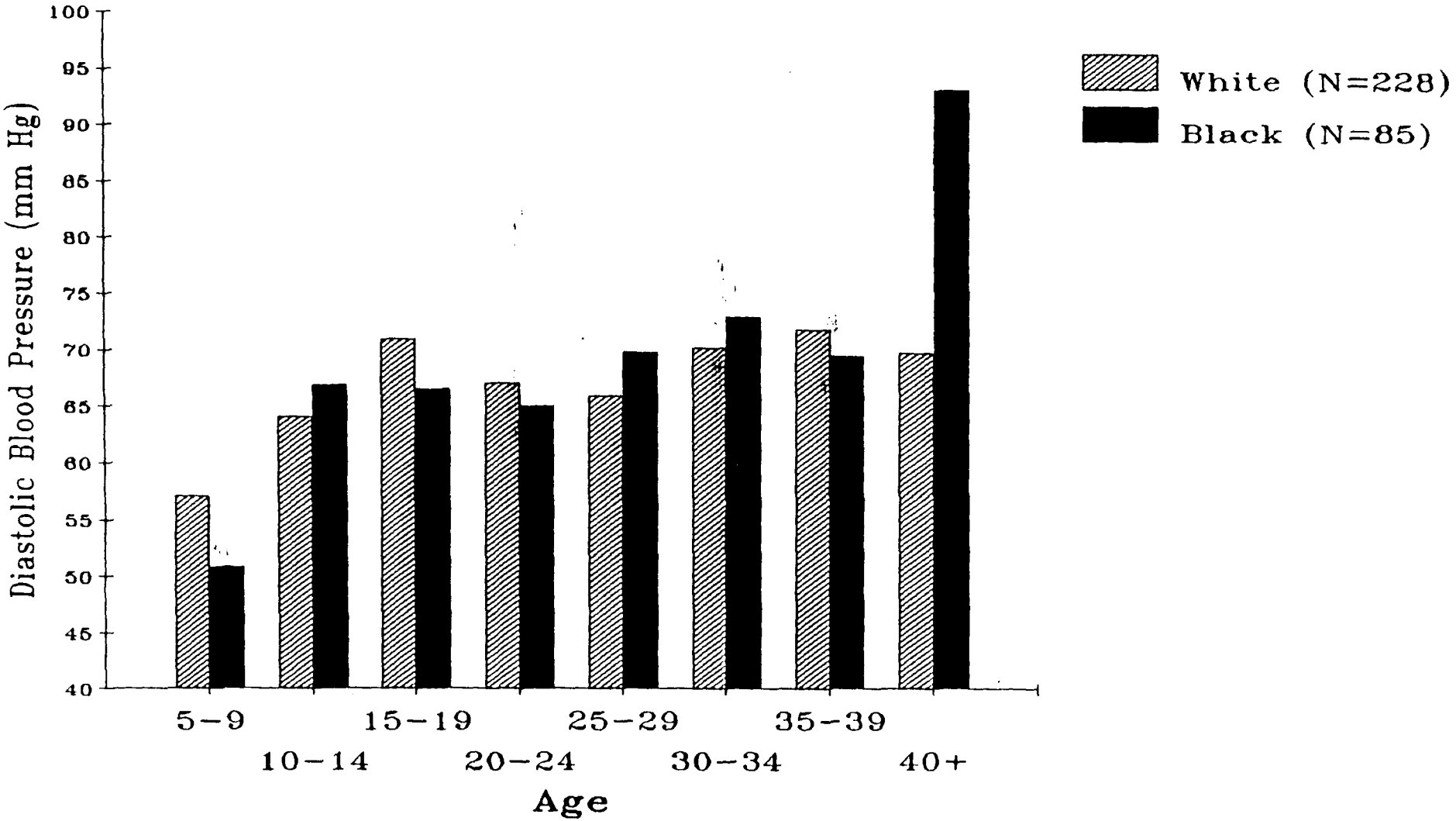
Systolic Blood Pressure Level by Age, Race and Community Females



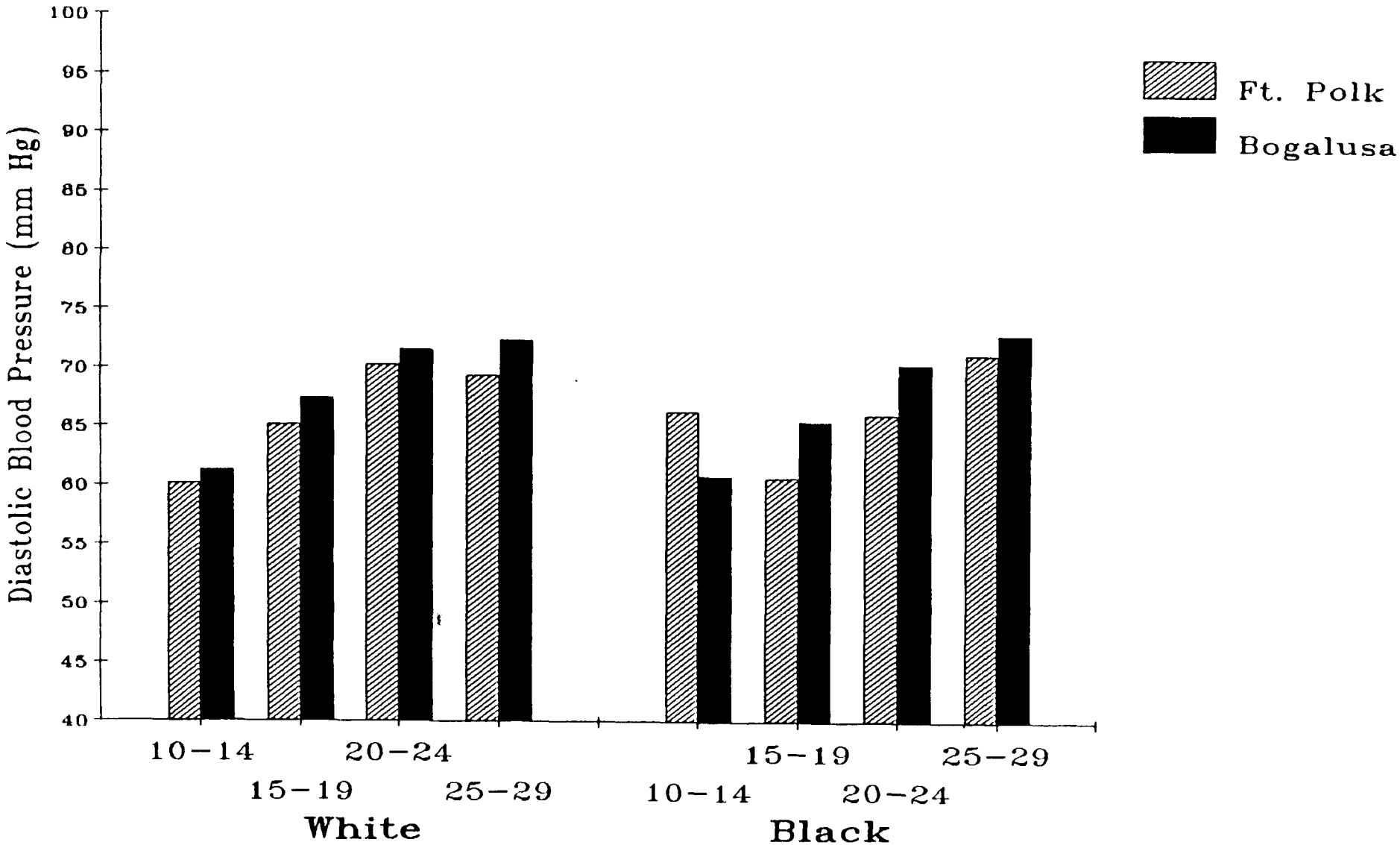
Diastolic Blood Pressure Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Males



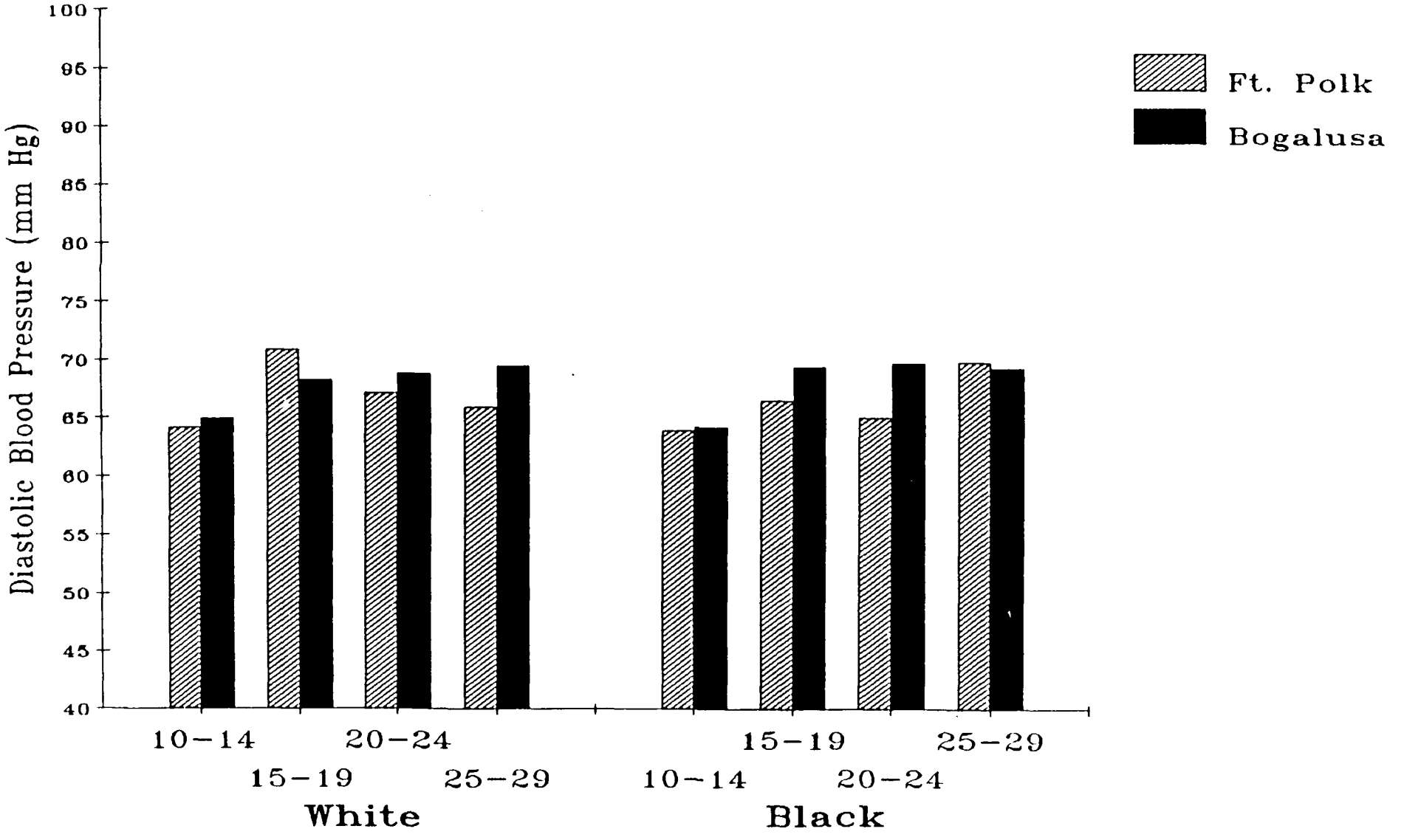
Diastolic Blood Pressure Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Females



Diastolic Blood Pressure Level by Age, Race and Community Males



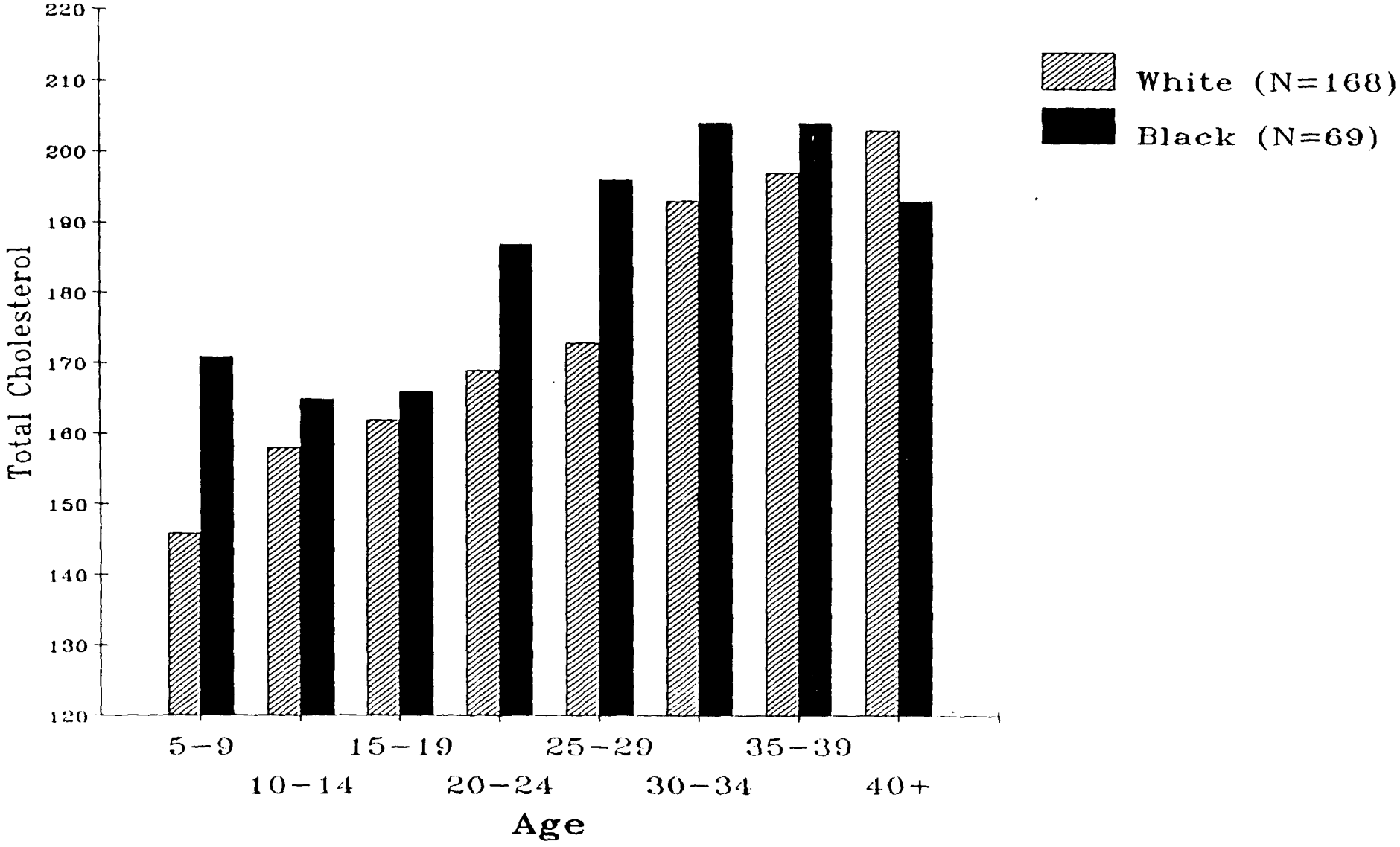
Diastolic Blood Pressure Level by Age, Race and Community Females



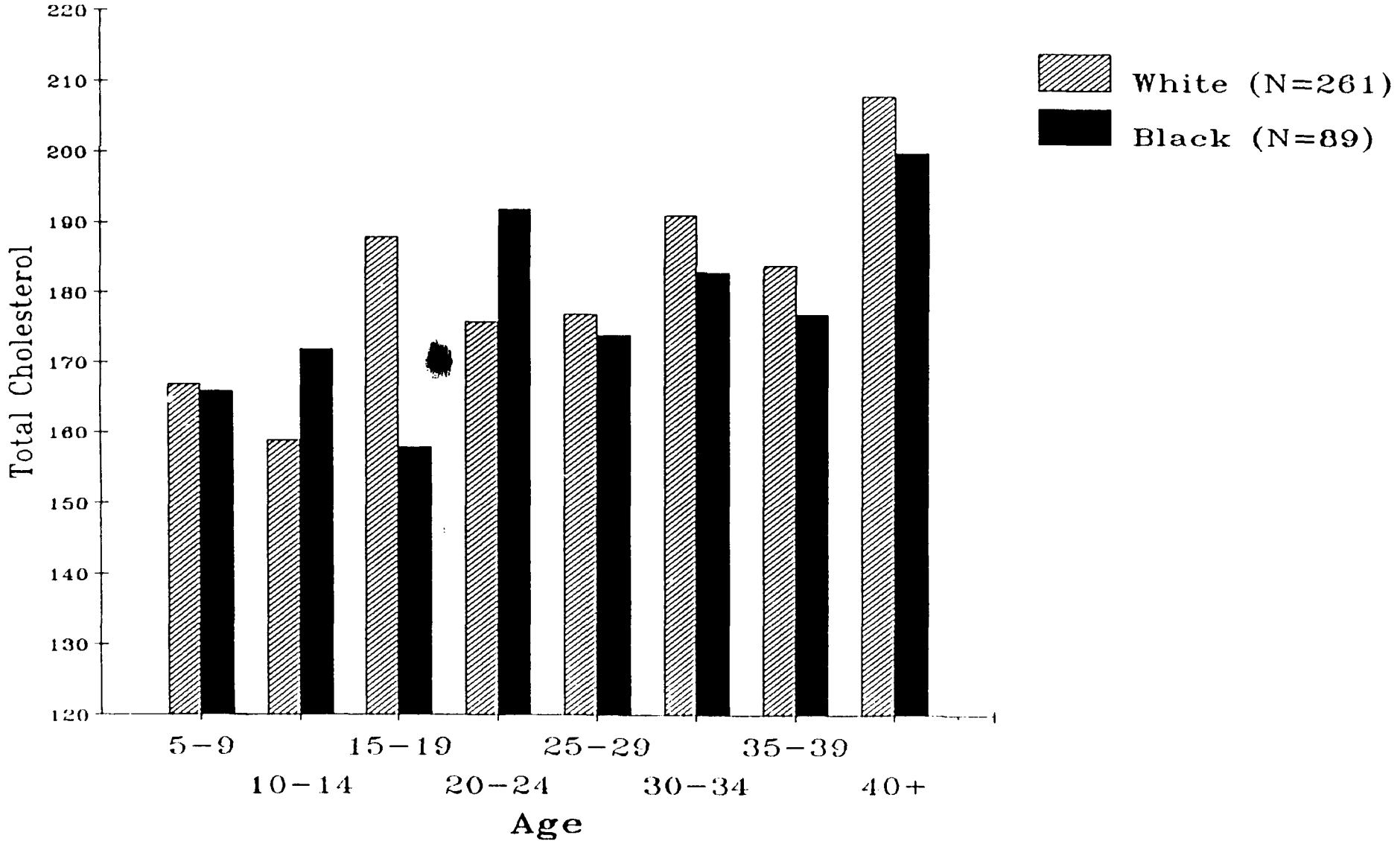
FORT POLK HEART SMART PROGRAM

Serum Lipids and Lipoproteins

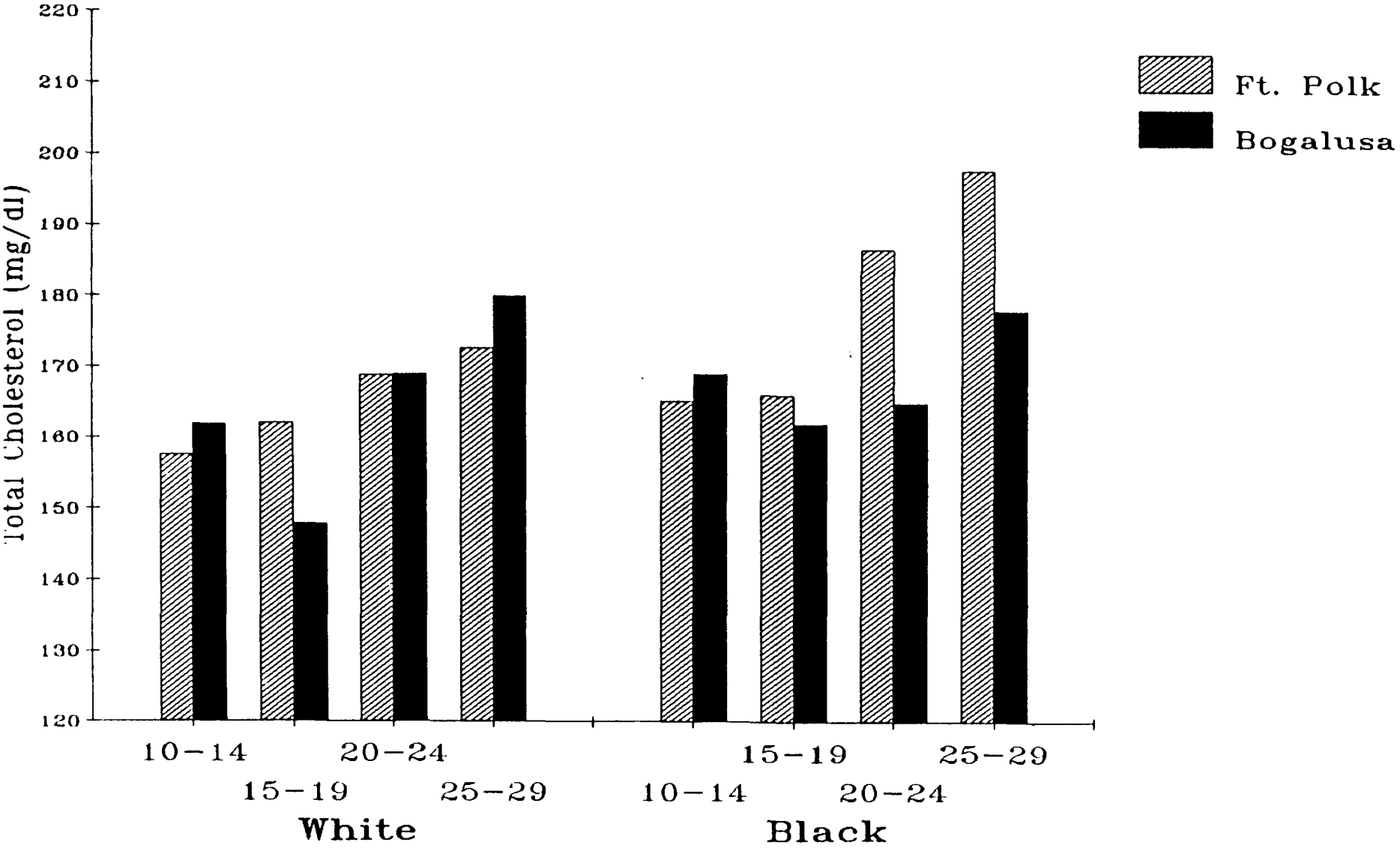
Total Cholesterol by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



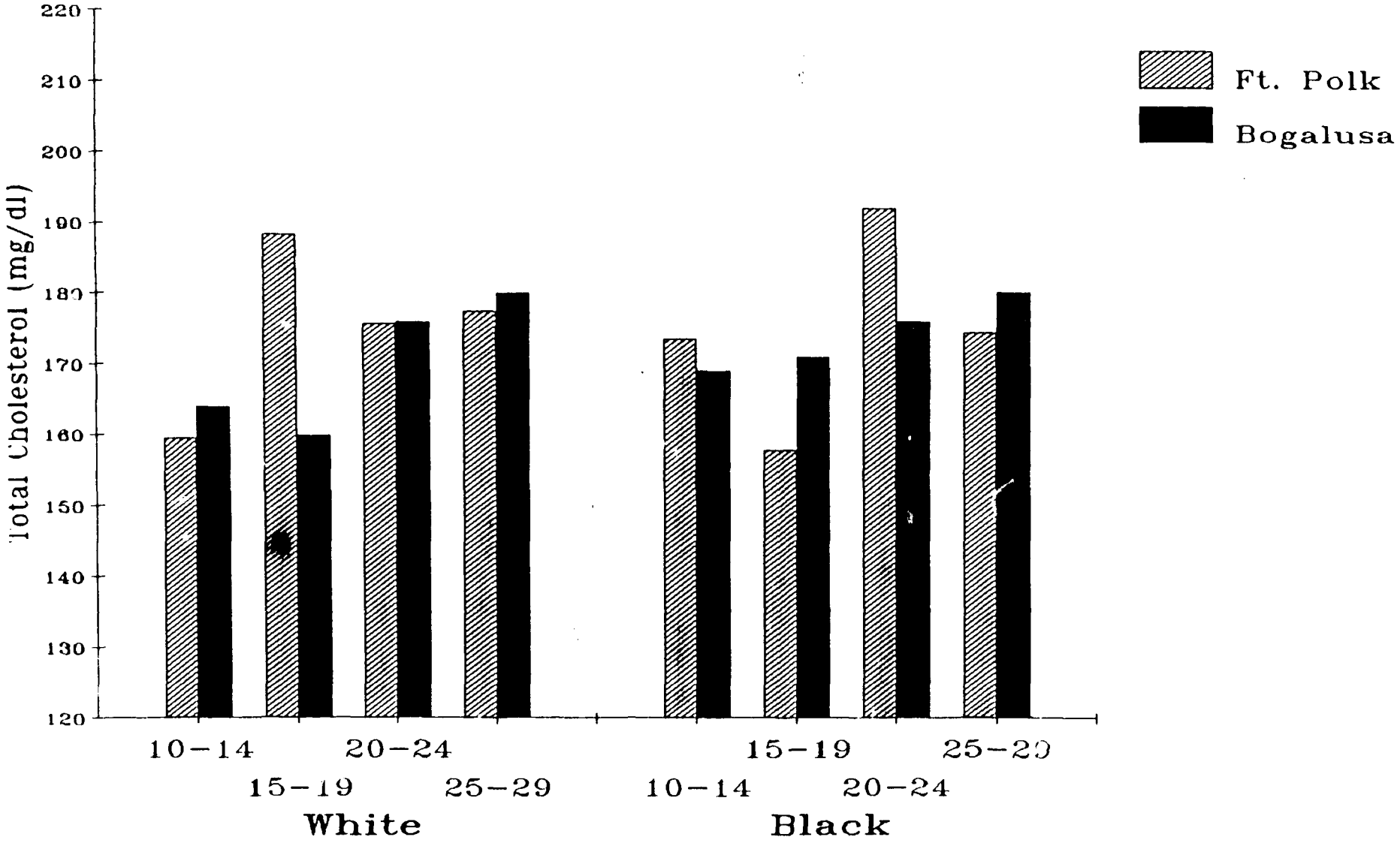
Total Cholesterol by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



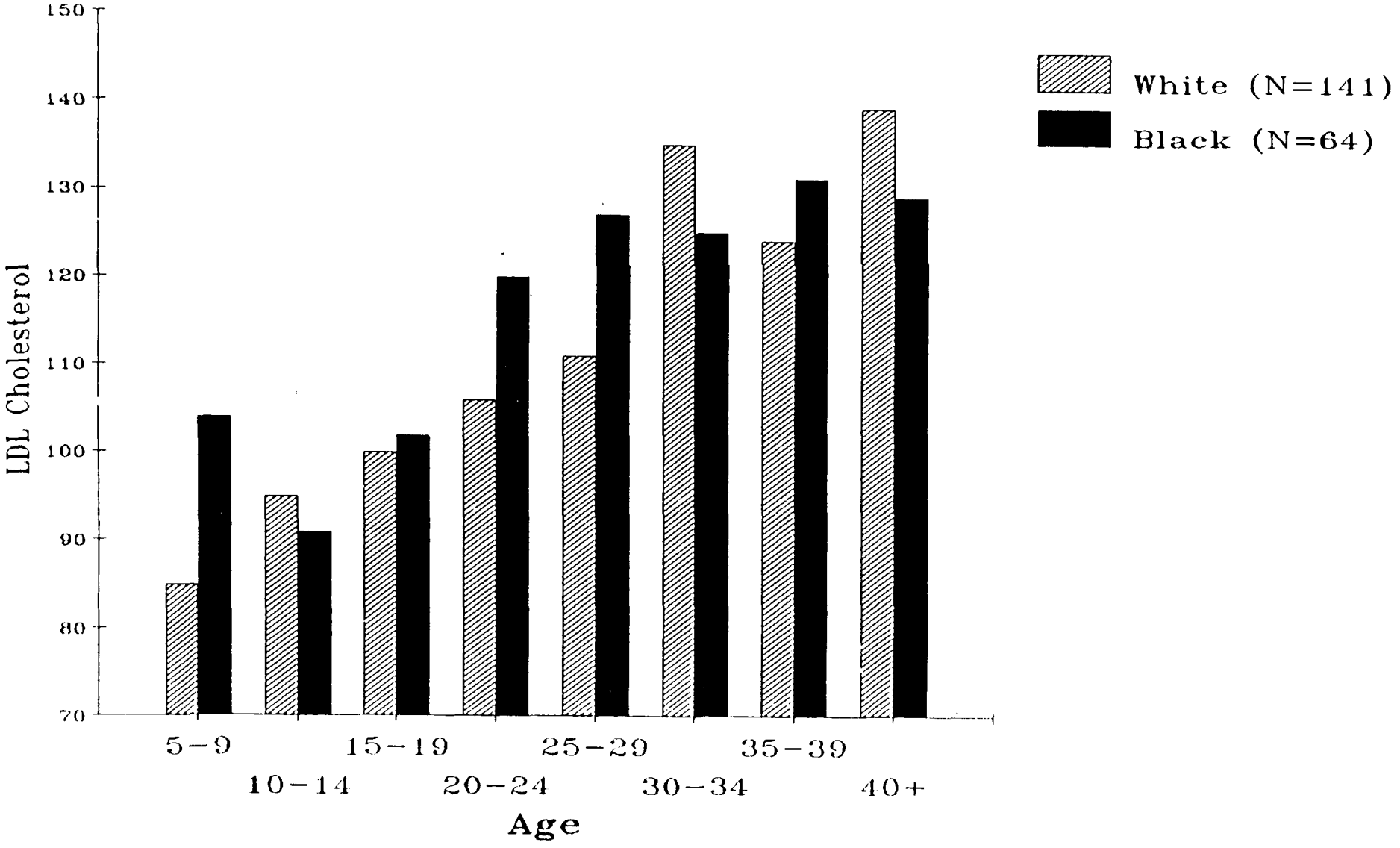
Total Cholesterol Level by Age, Race and Community Males



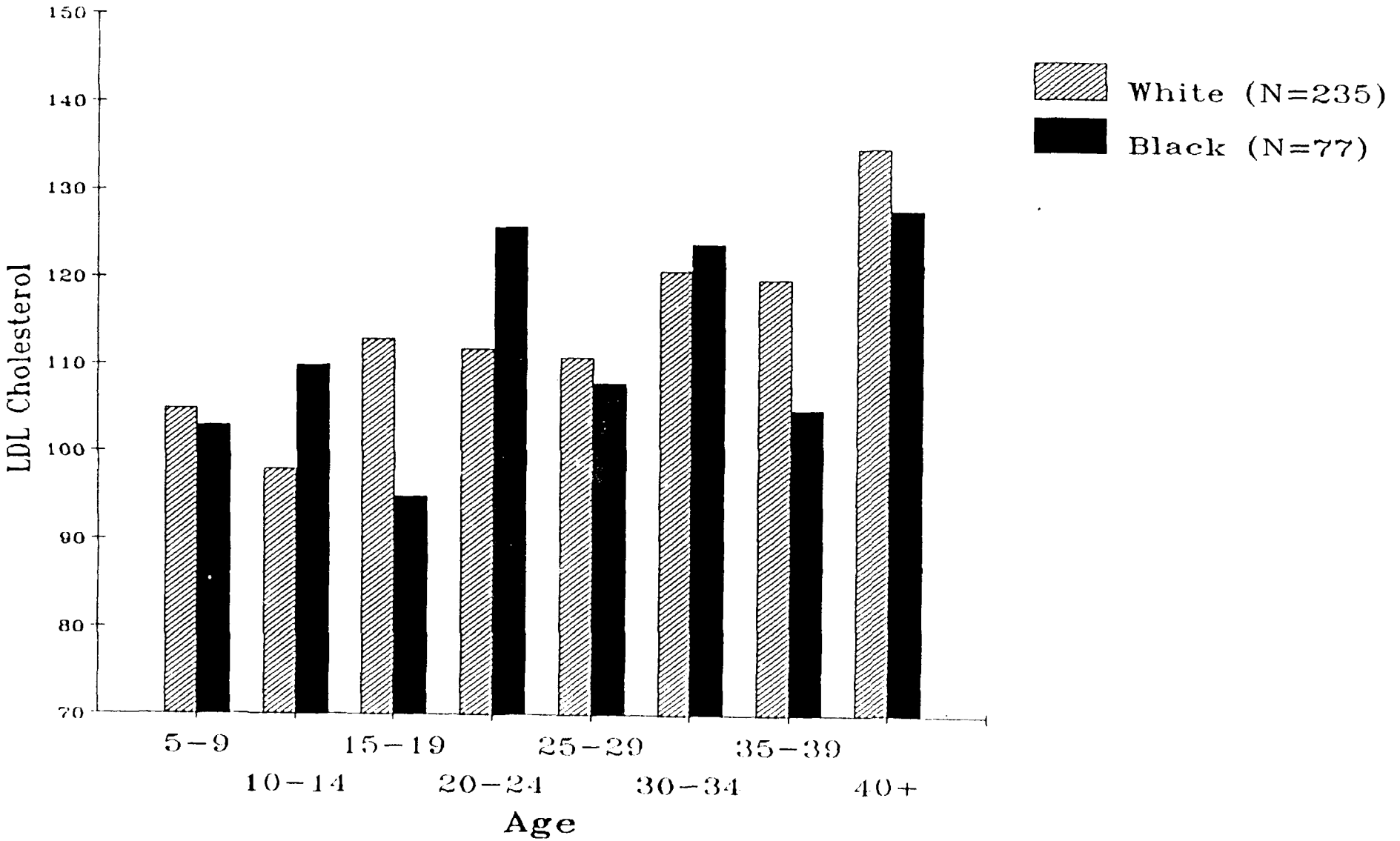
Total Cholesterol Level by Age, Race and Community Females



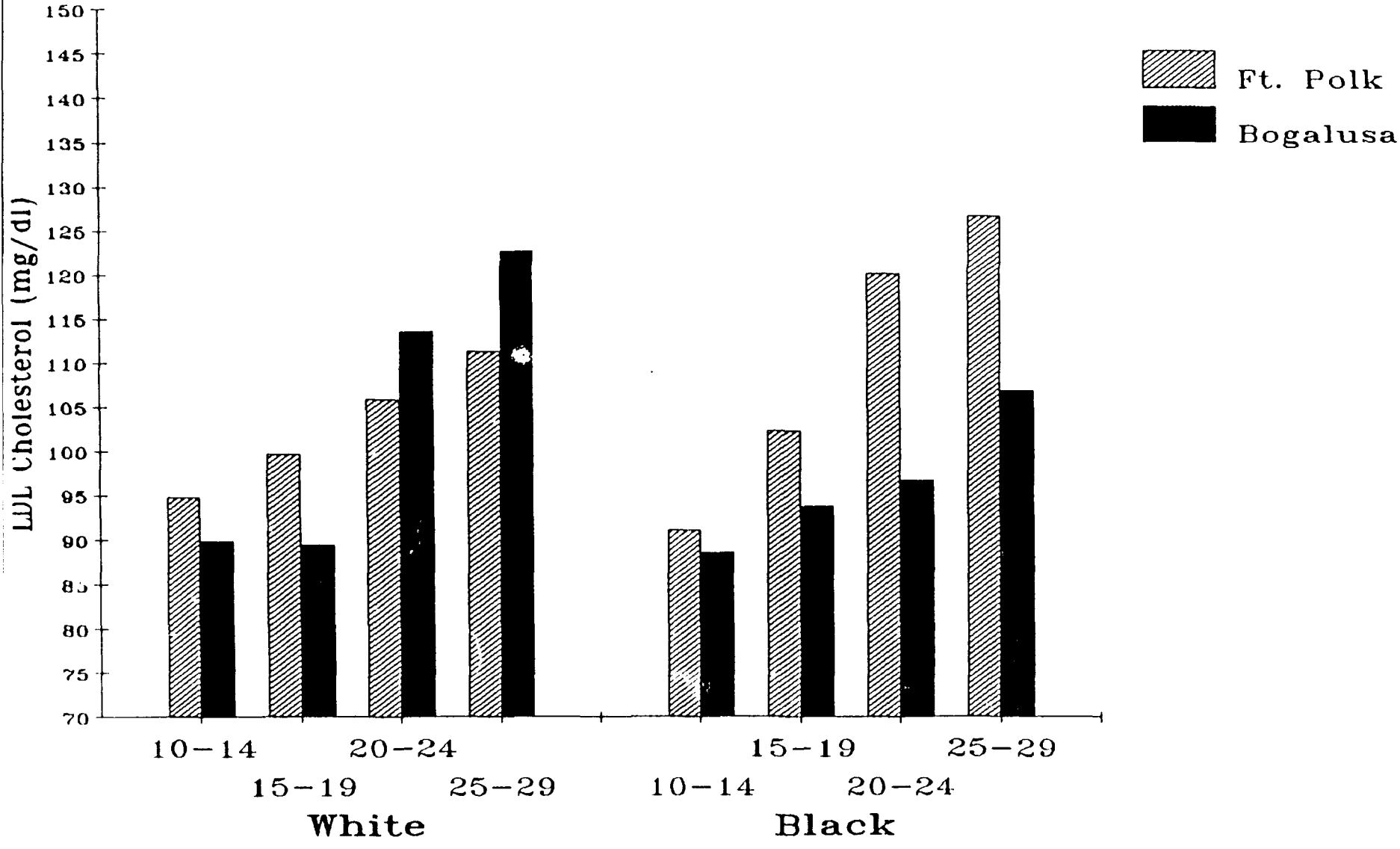
LDL Cholesterol by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



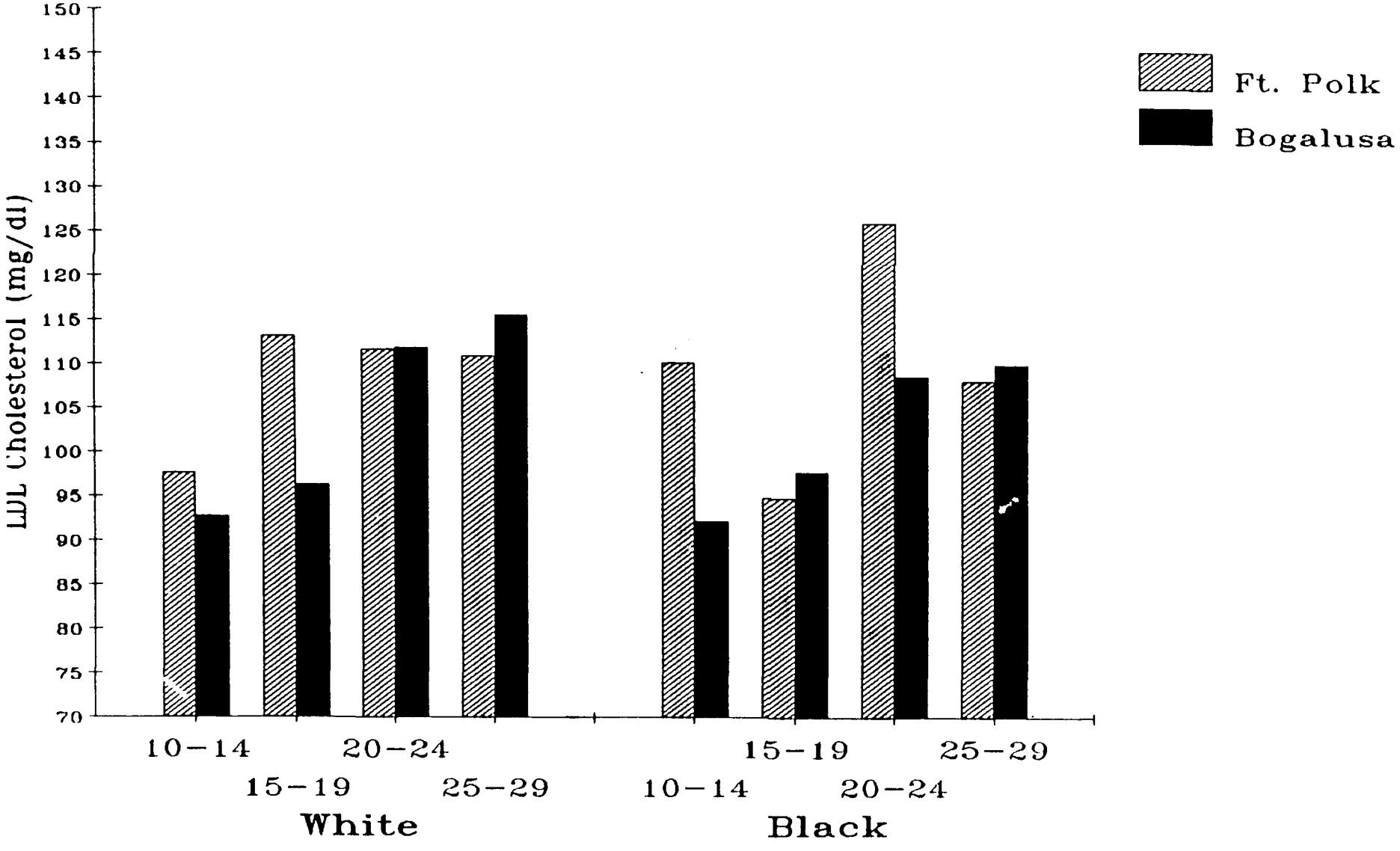
LDL Cholesterol by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



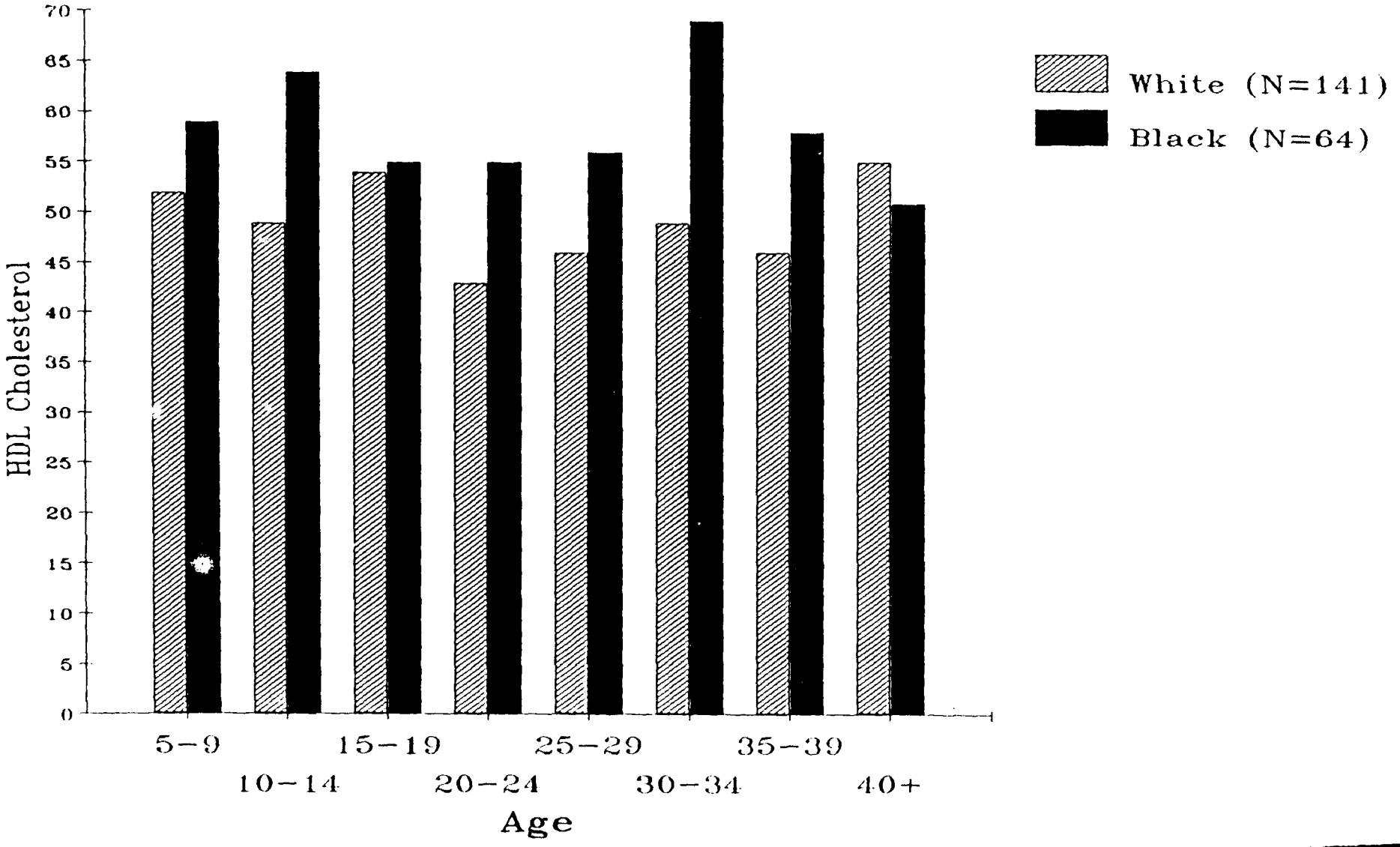
LDL Cholesterol Level by Age, Race and Community Males



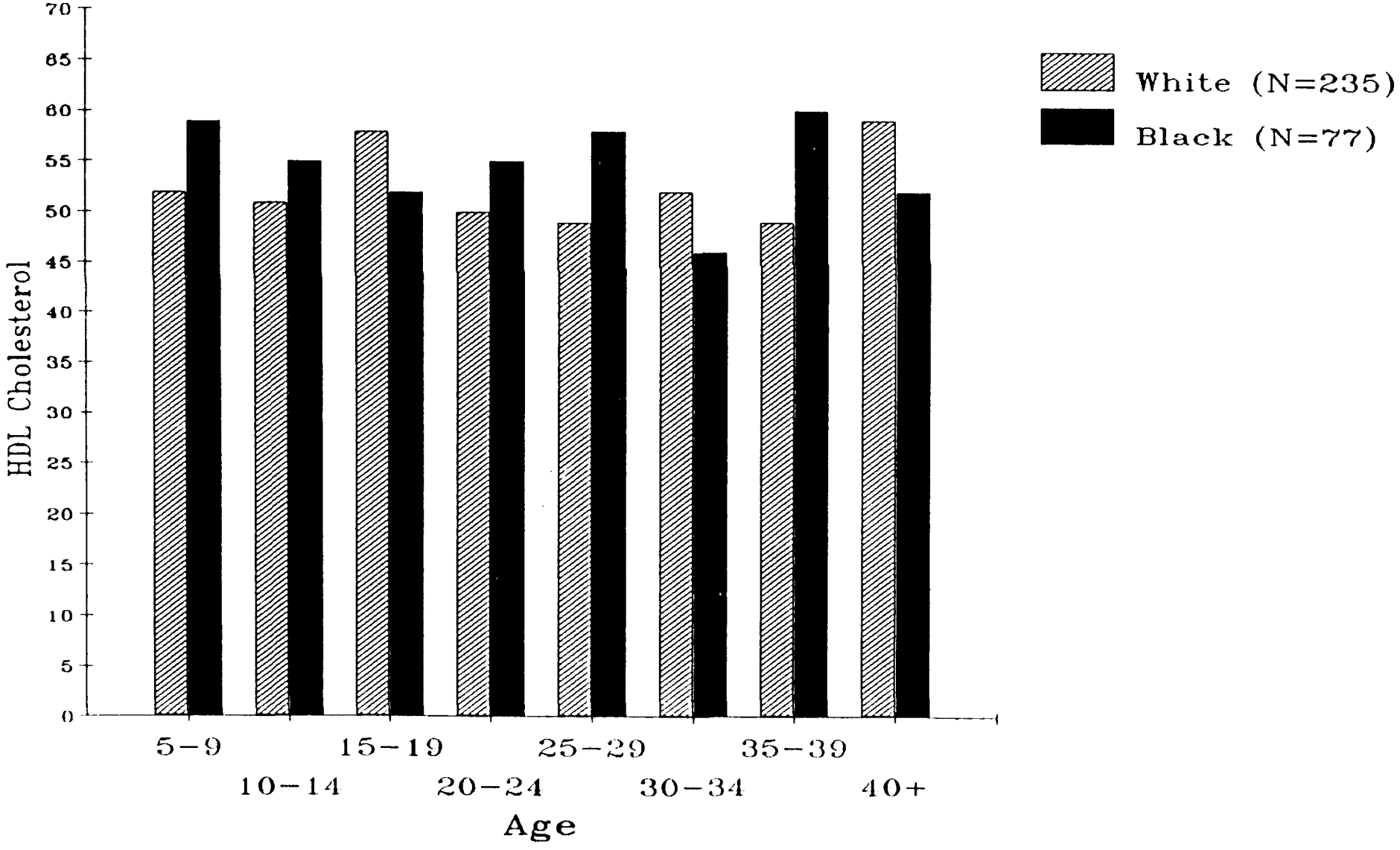
LDL Cholesterol Level by Age, Race and Community Females



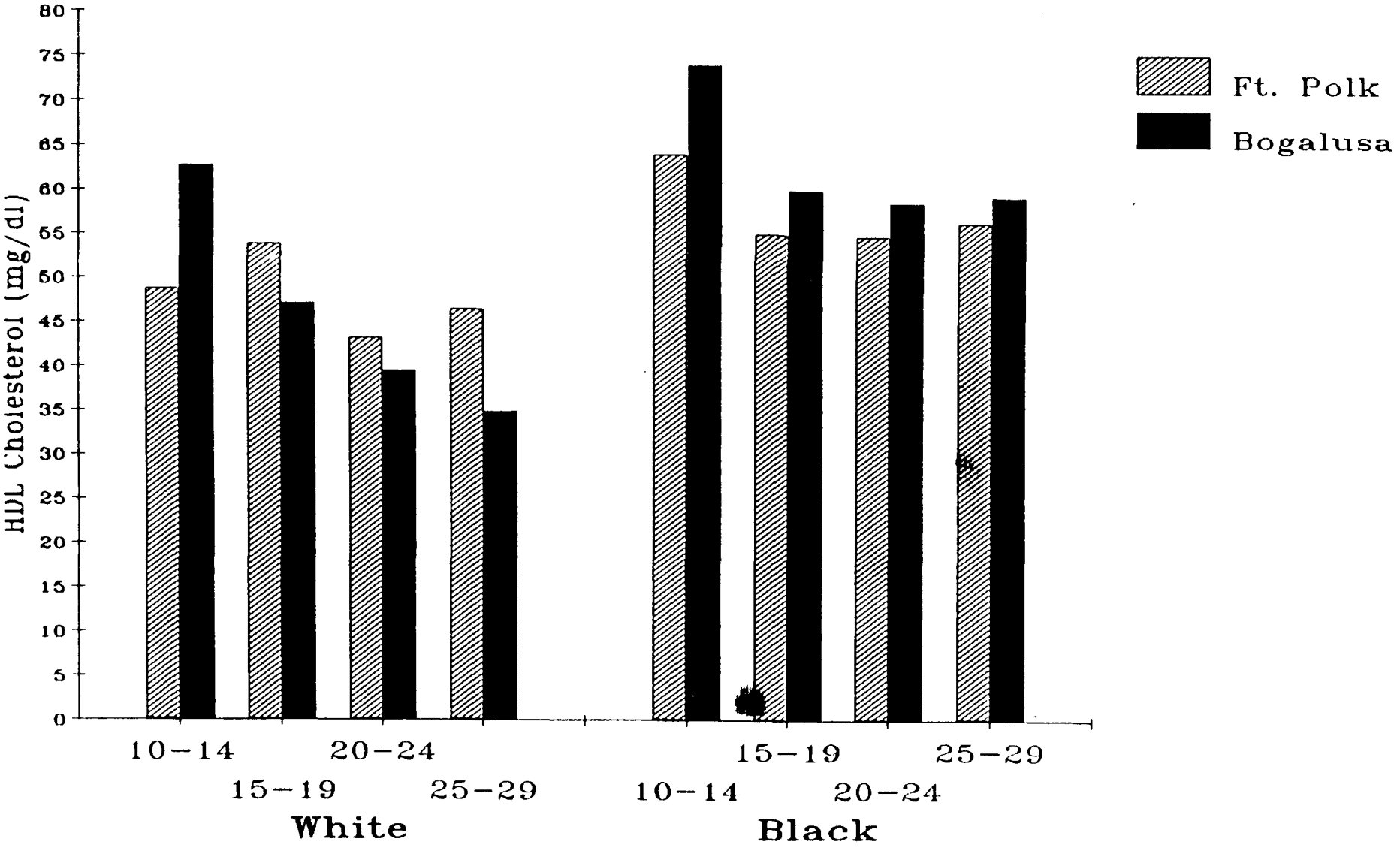
HDL Cholesterol by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



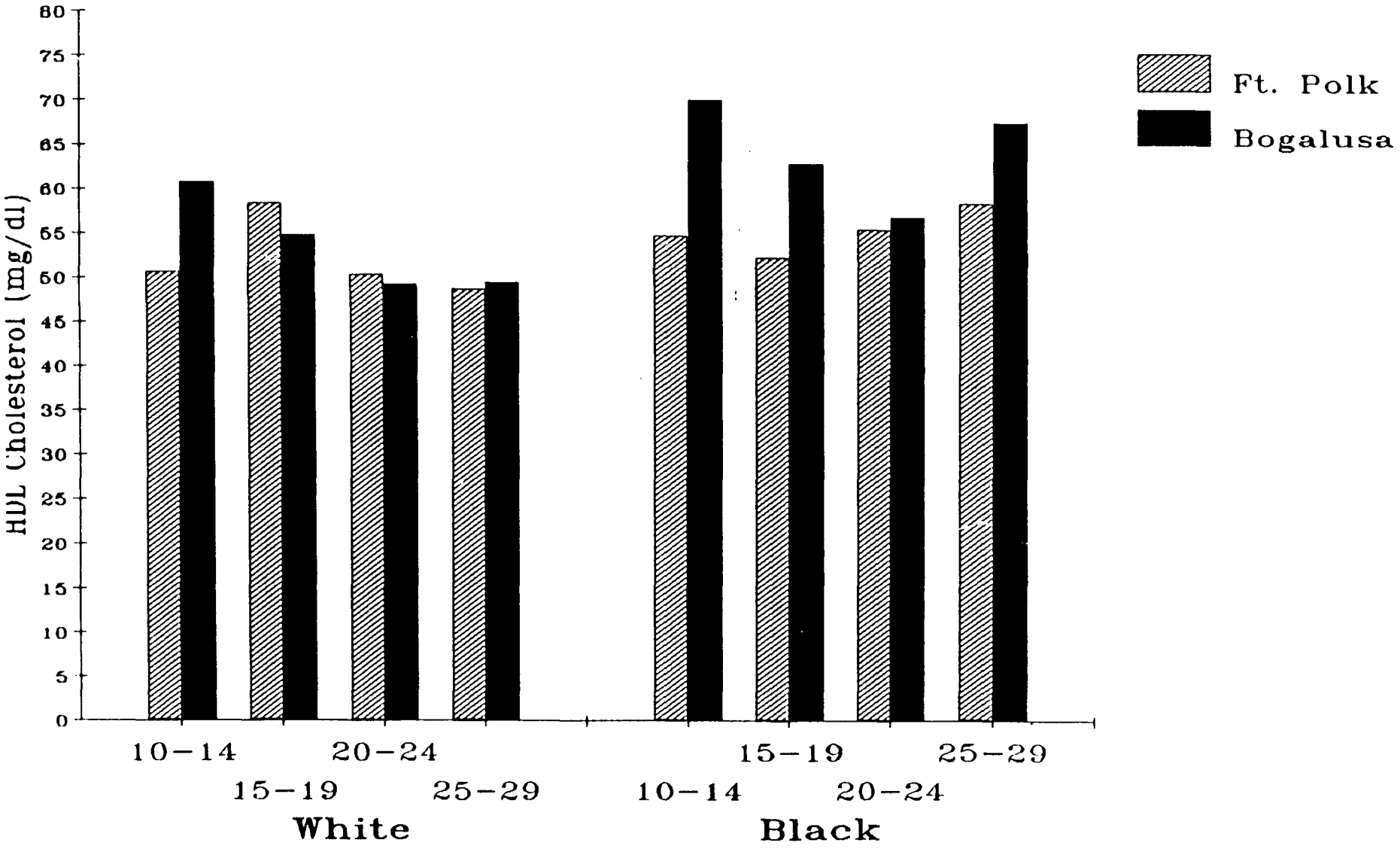
HDL Cholesterol by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



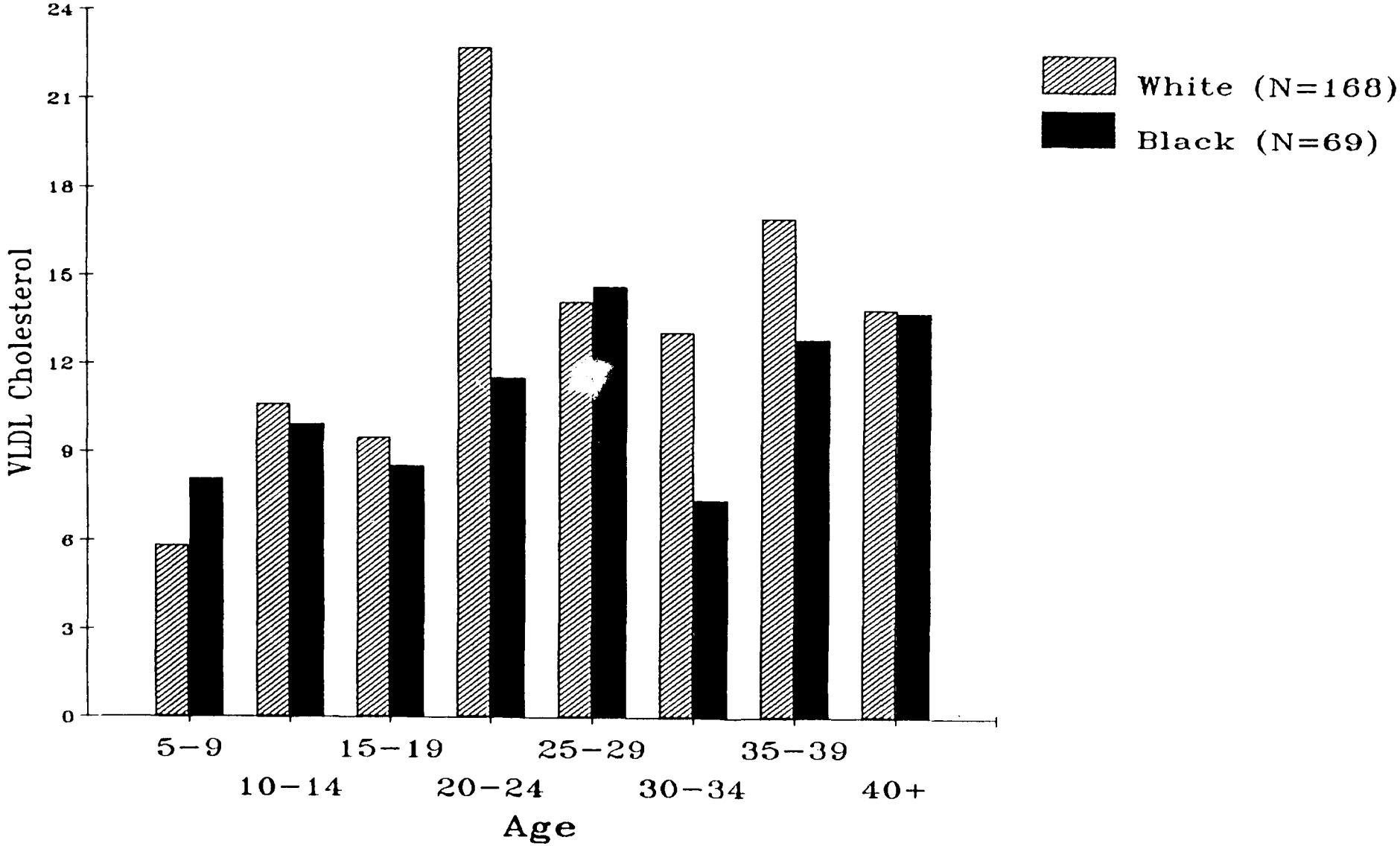
HDL Cholesterol Level by Age, Race and Community Males



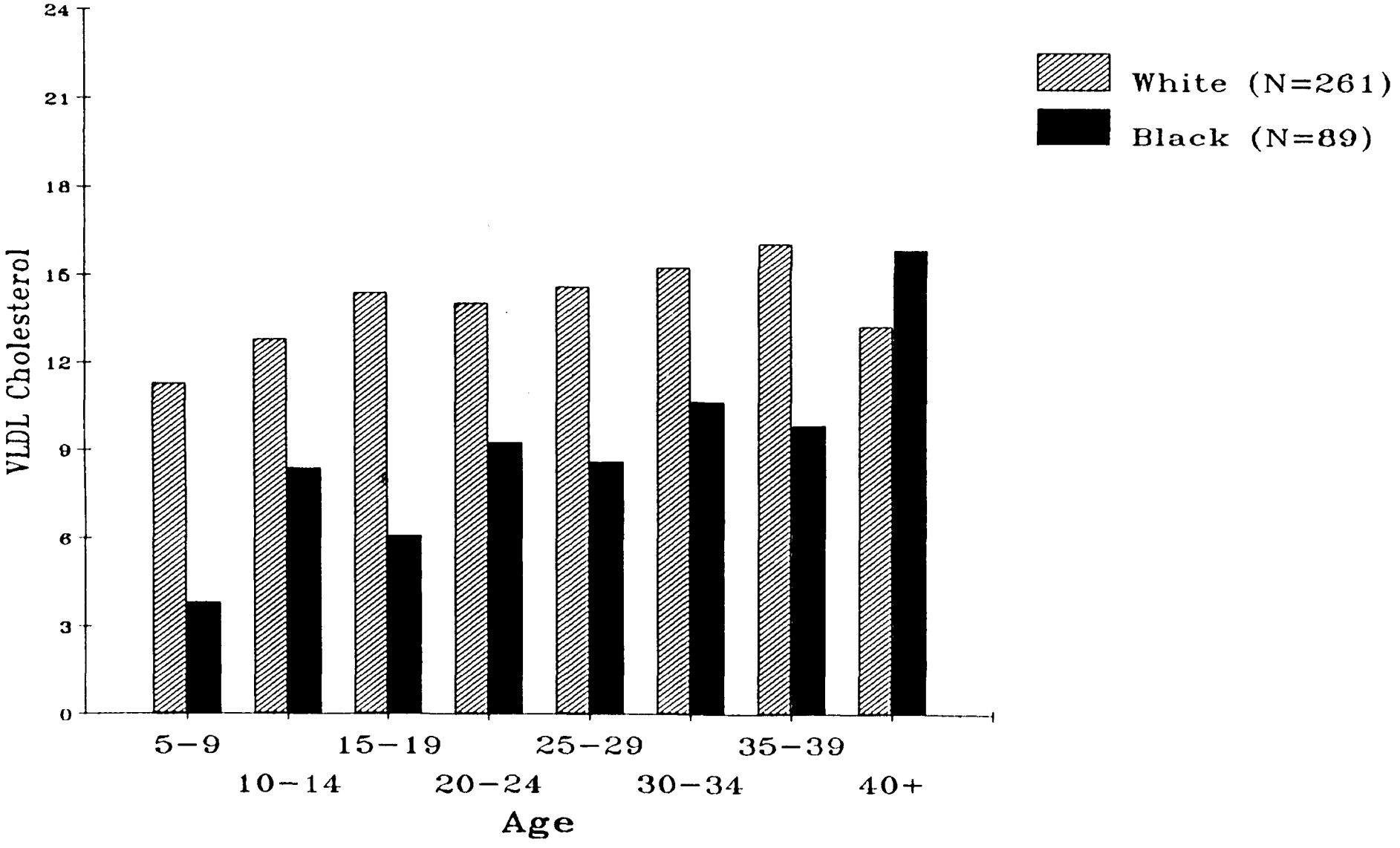
HDL Cholesterol Level by Age, Race and Community Females



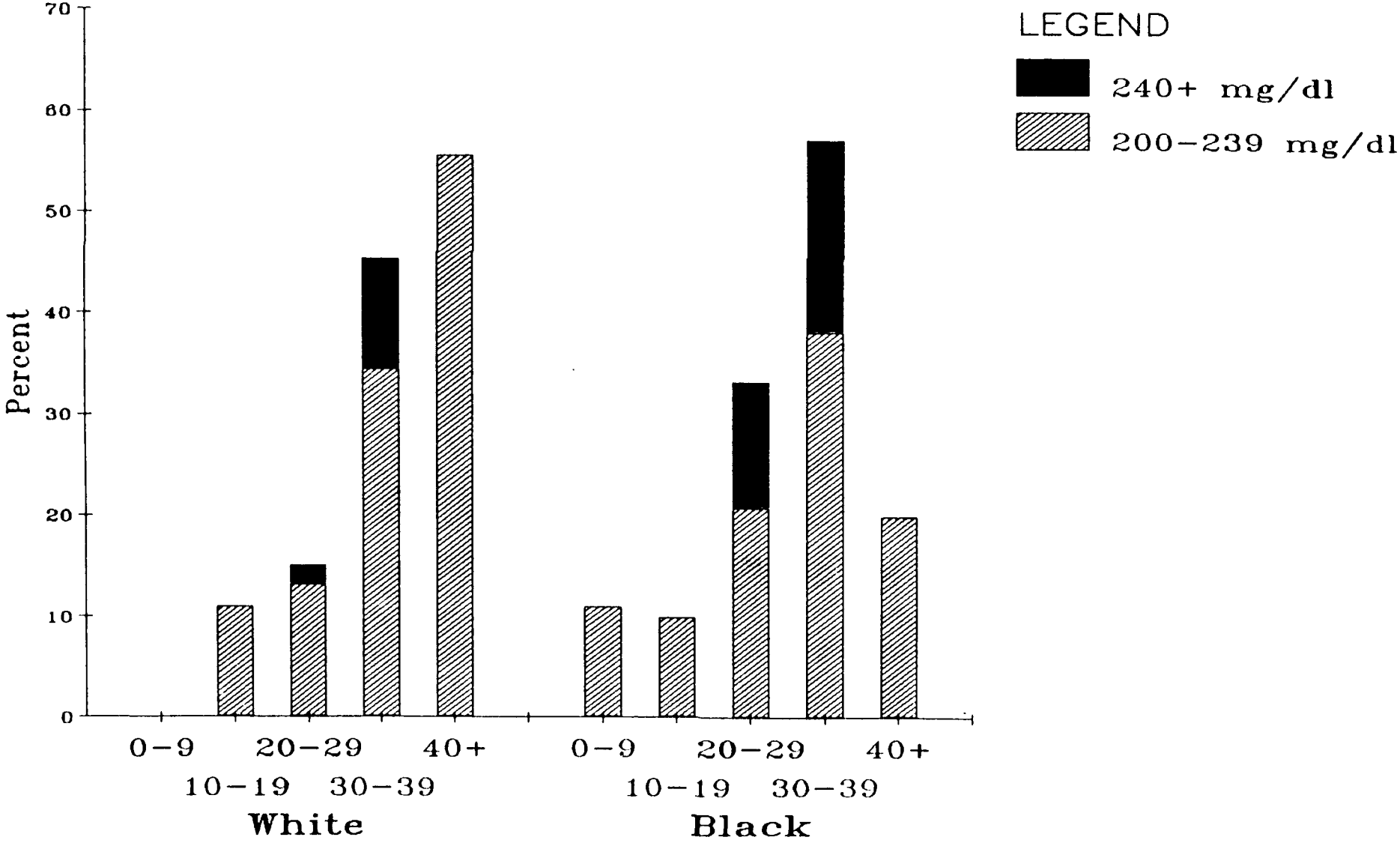
VLDL Cholesterol by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



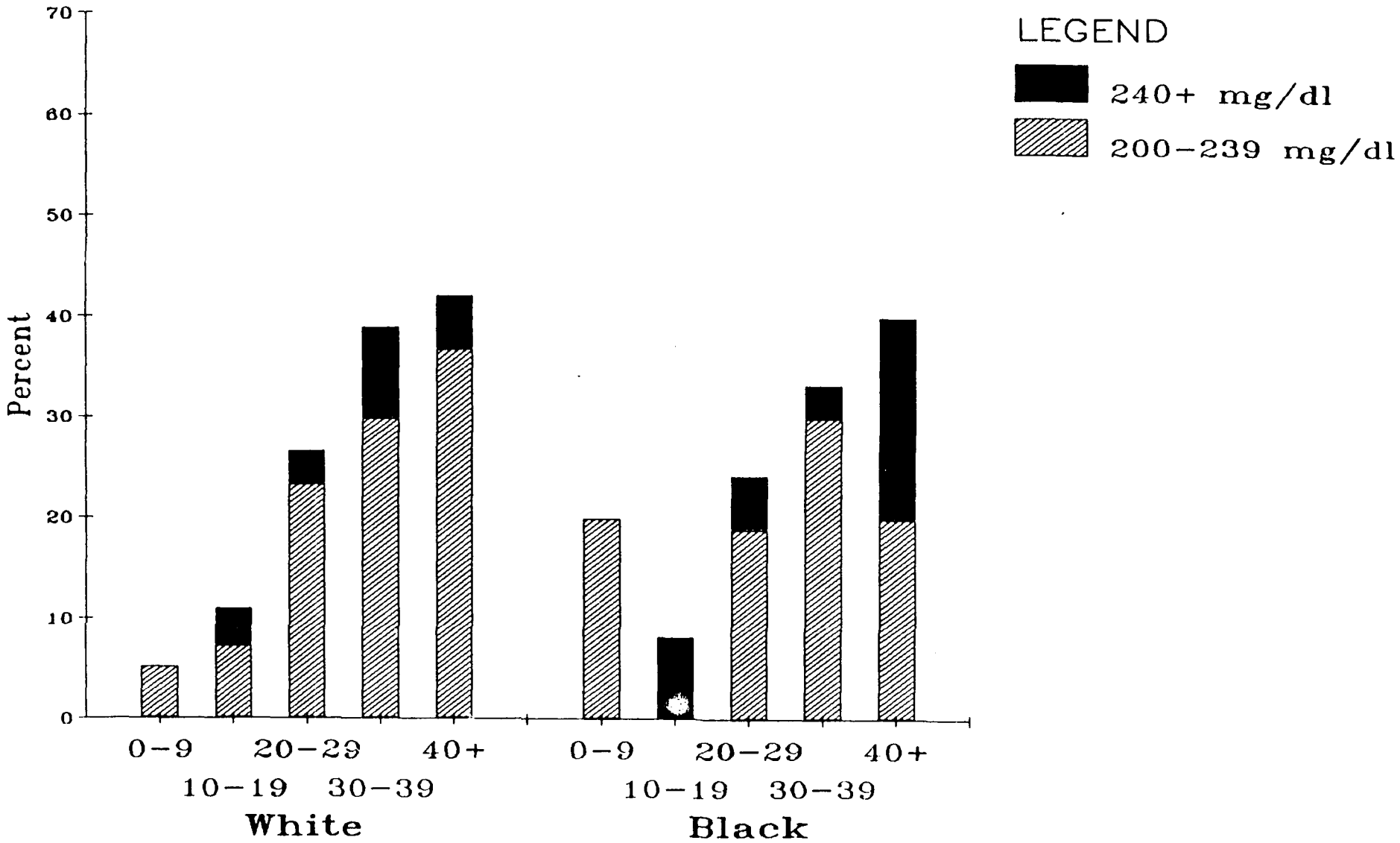
VLDL Cholesterol by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



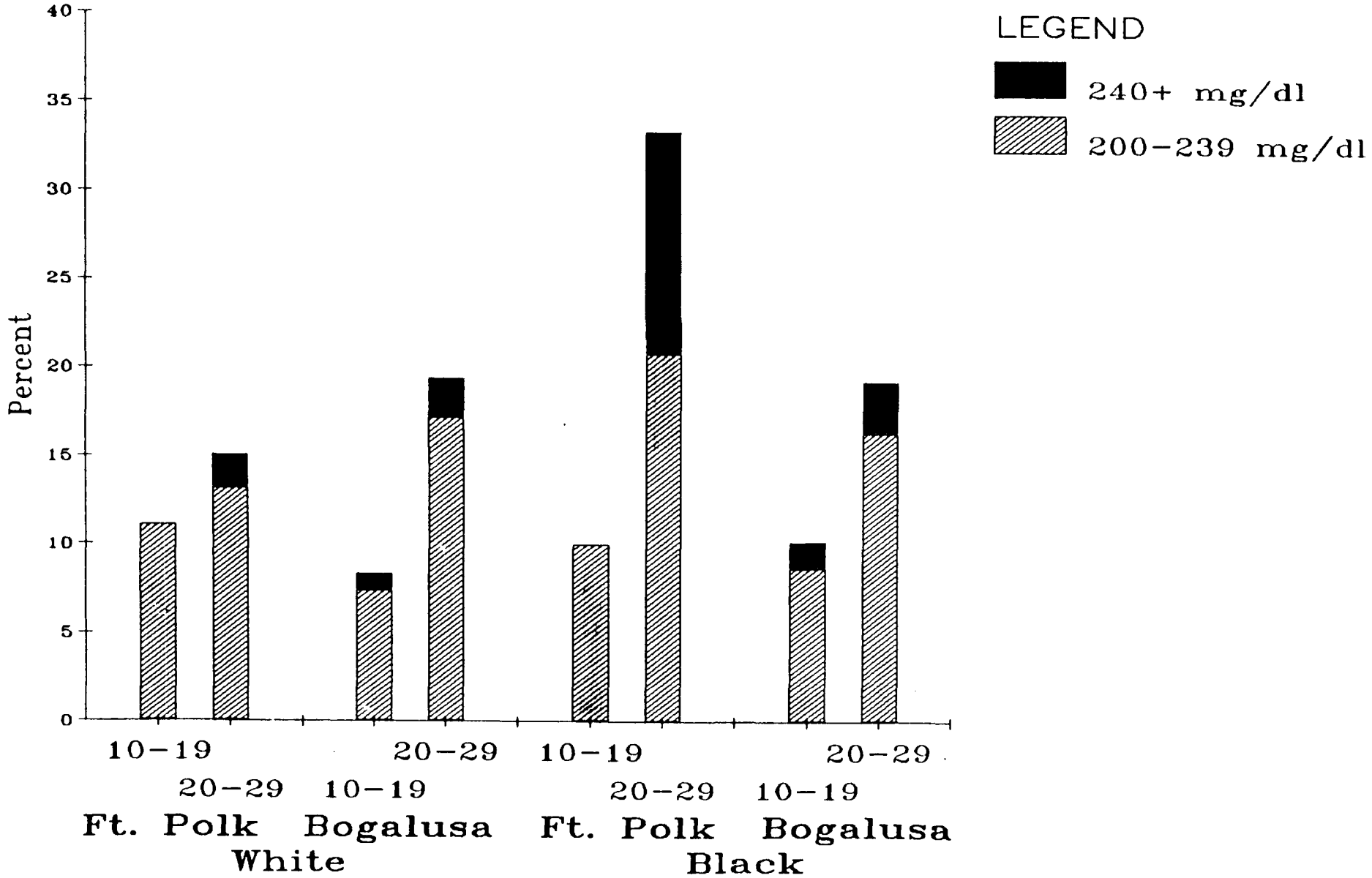
Percent of Males Exceeding NCEP Guidelines for Total Cholesterol Ft. Polk Heart Smart Program



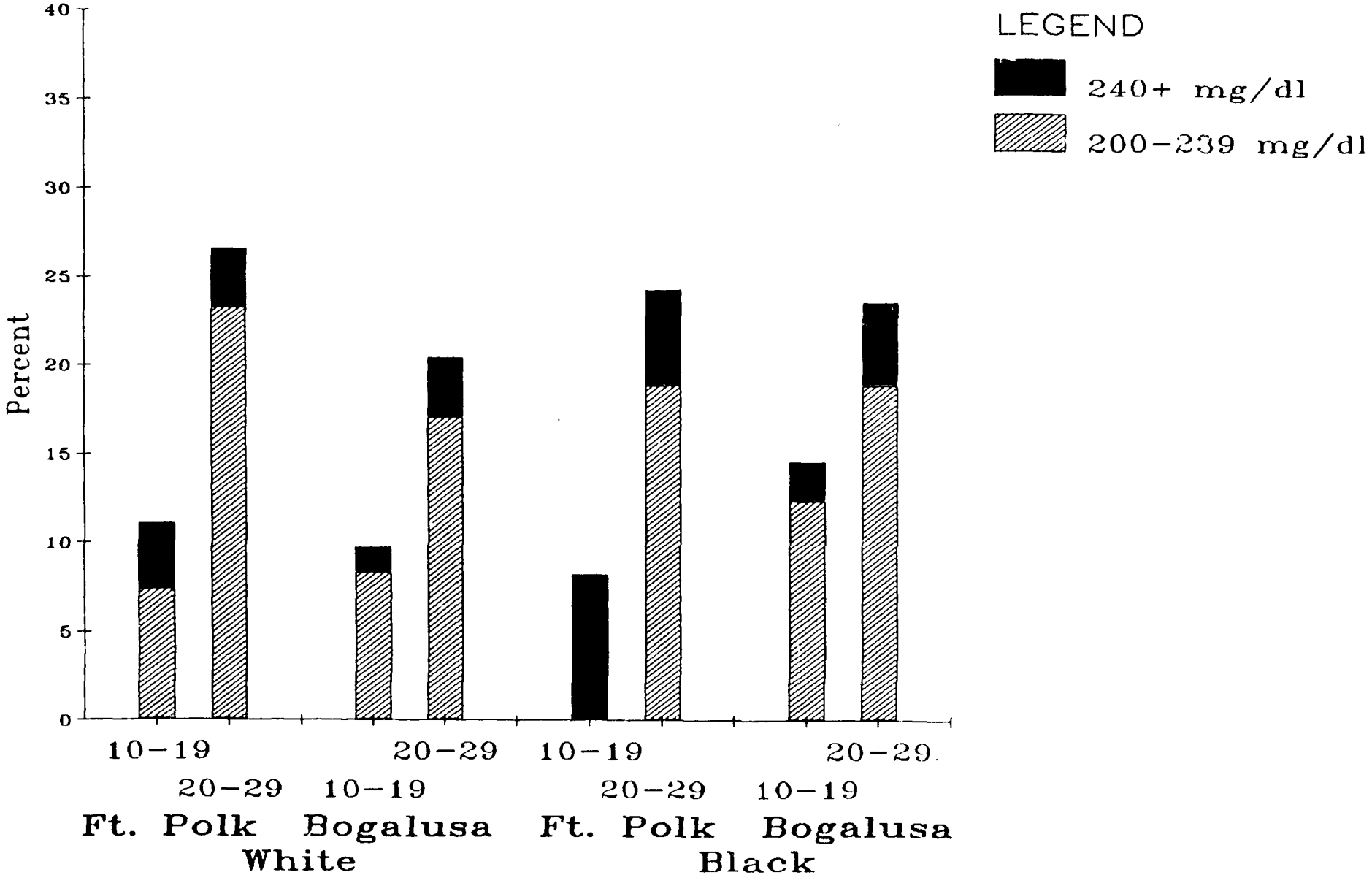
Percent of Females Exceeding NCEP Guidelines for Total Cholesterol Ft. Polk Heart Smart Program



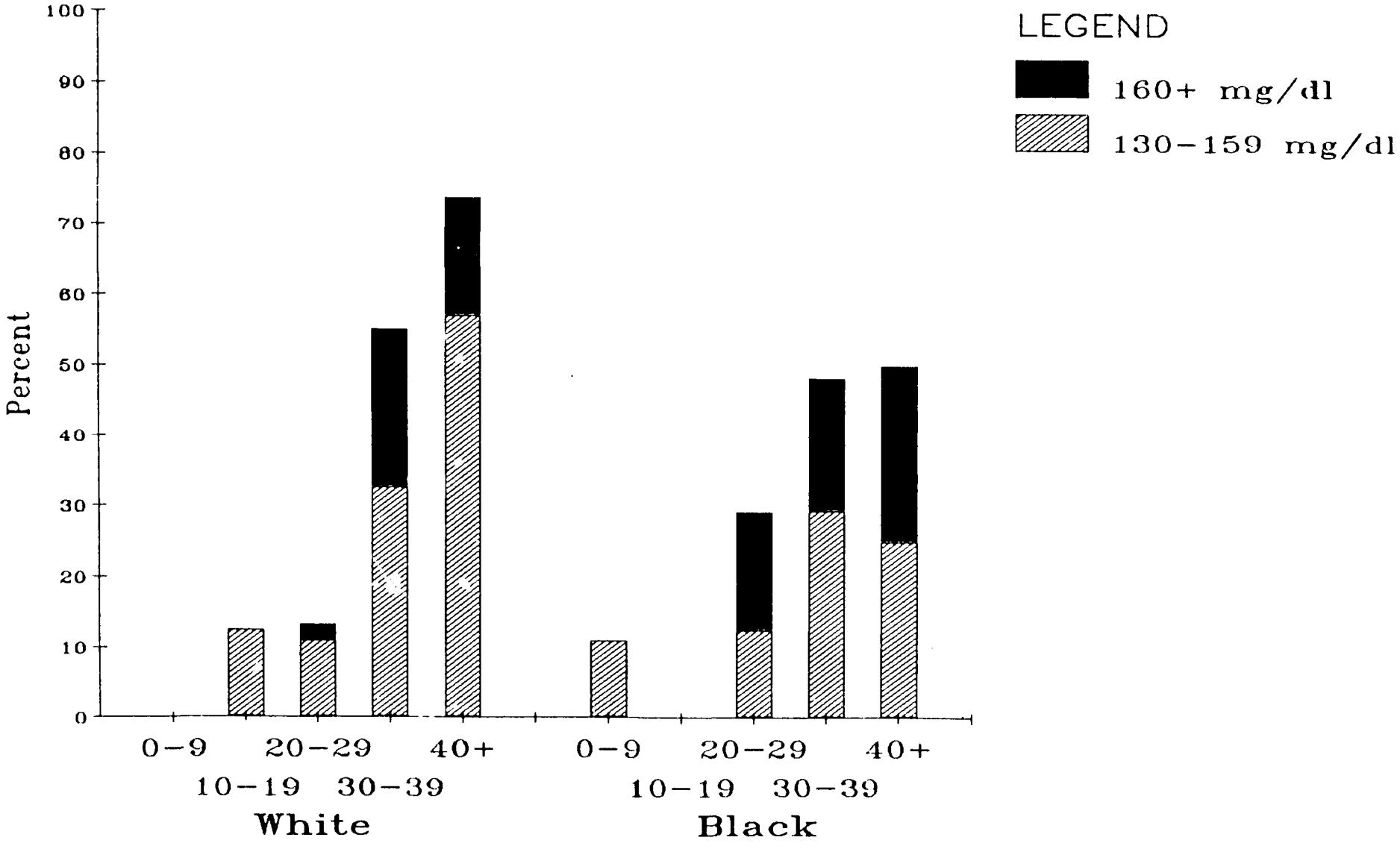
Percent of Males Exceeding NCEP Guidelines for Total Cholesterol



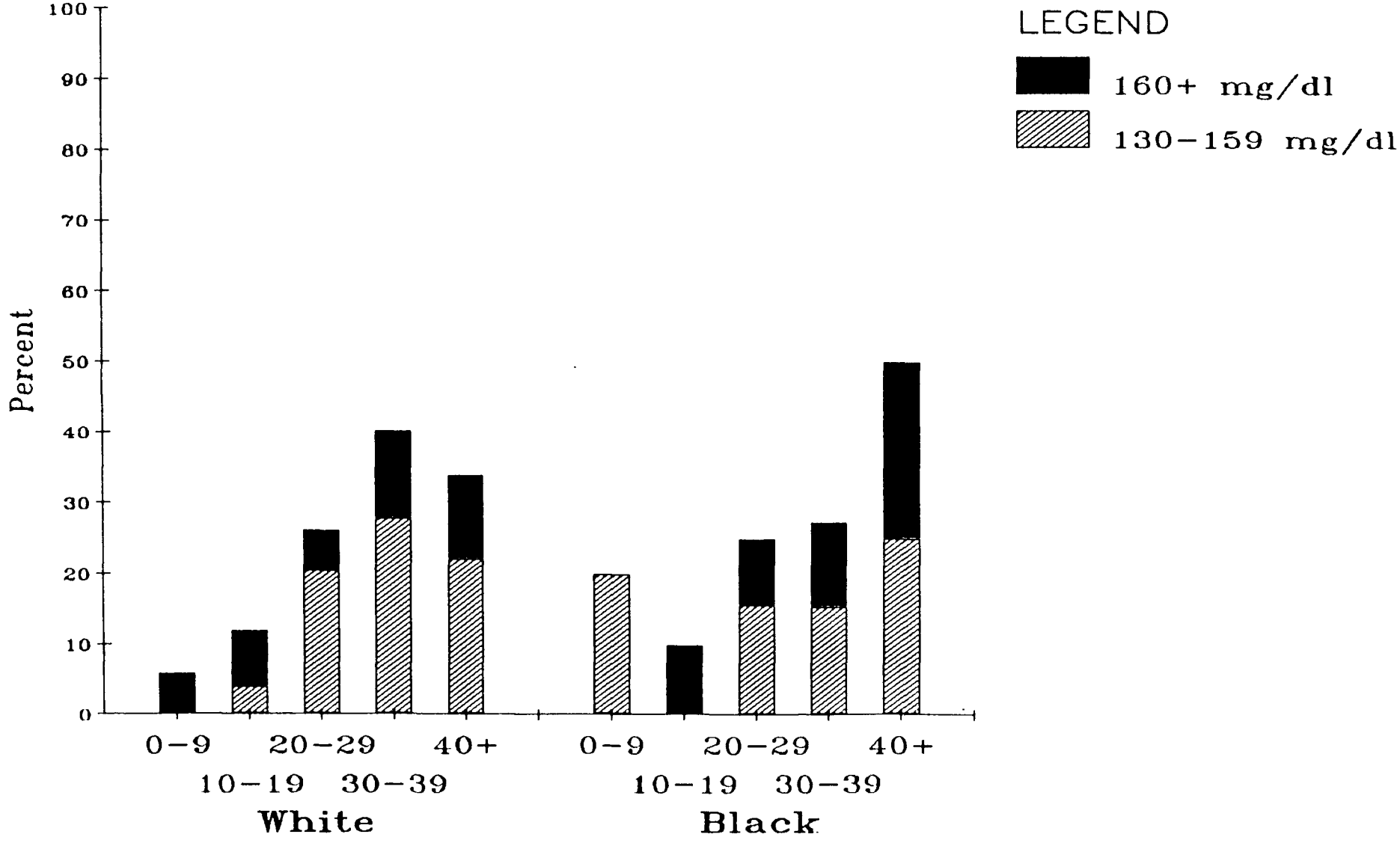
Percent of Females Exceeding NCEP Guidelines for Total Cholesterol



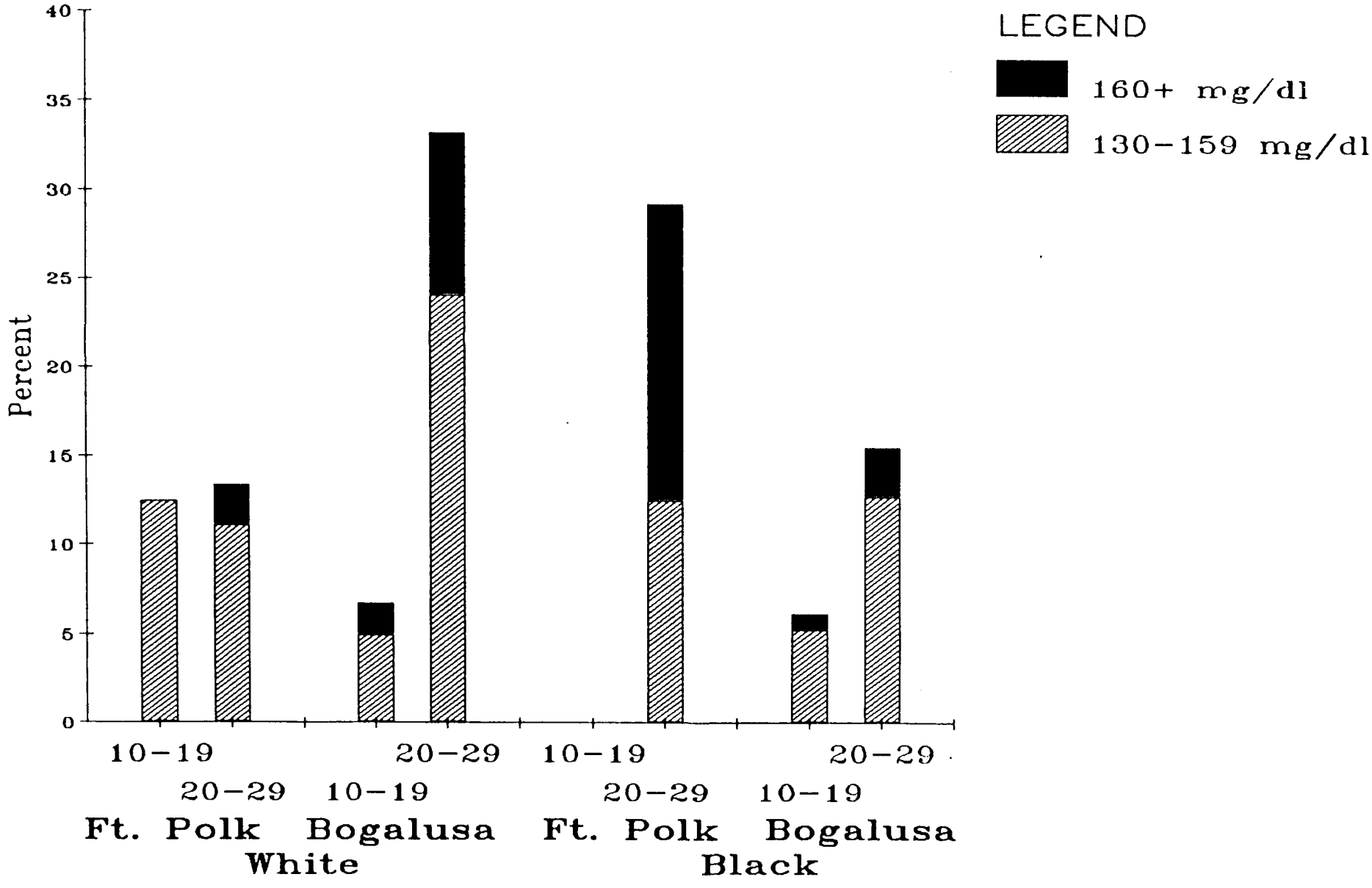
Percent of Males Exceeding NCEP Guidelines for LDL Cholesterol Ft. Polk Heart Smart Program



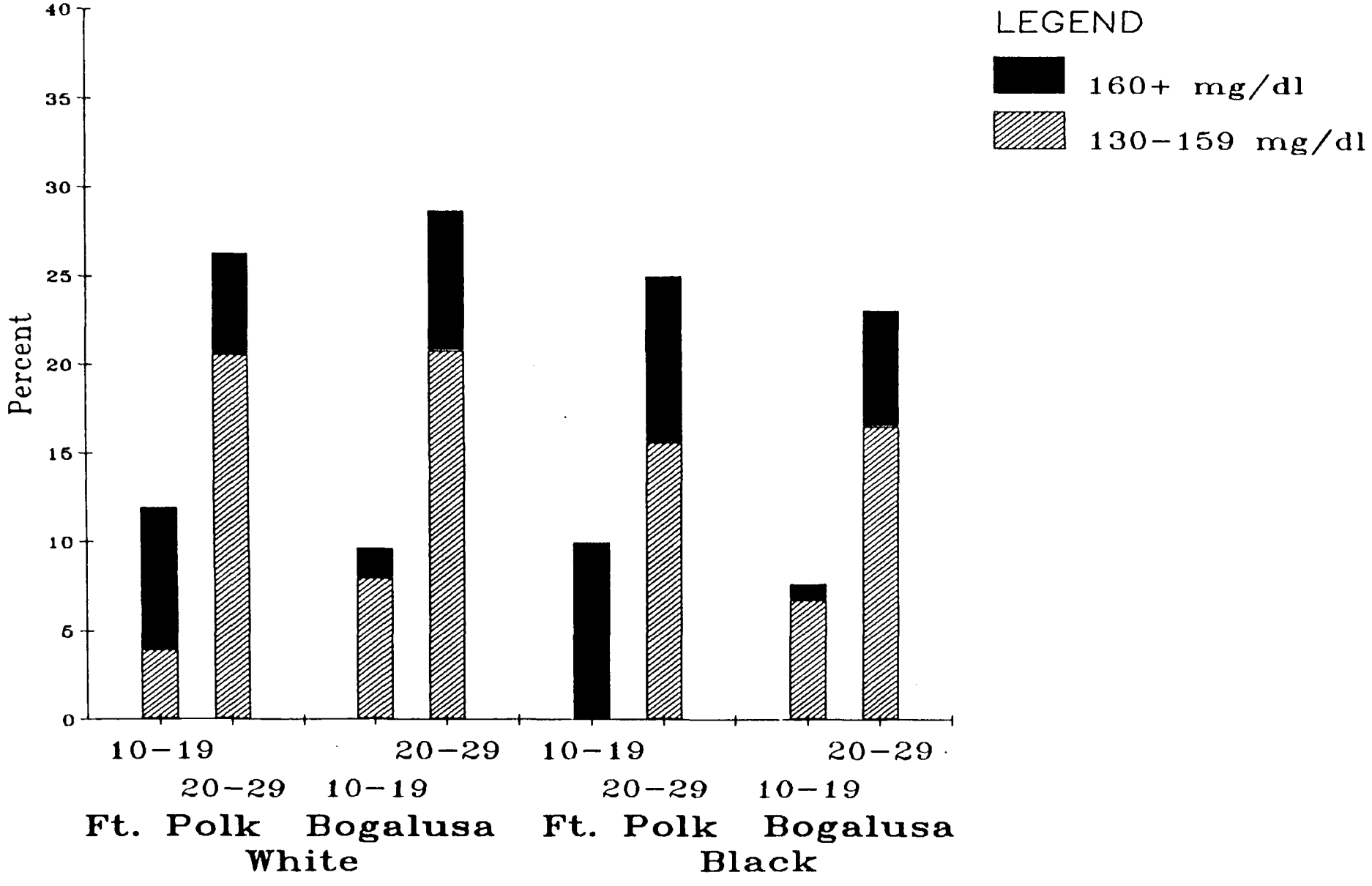
Percent of Females Exceeding NCEP Guidelines for LDL Cholesterol Ft. Polk Heart Smart Program



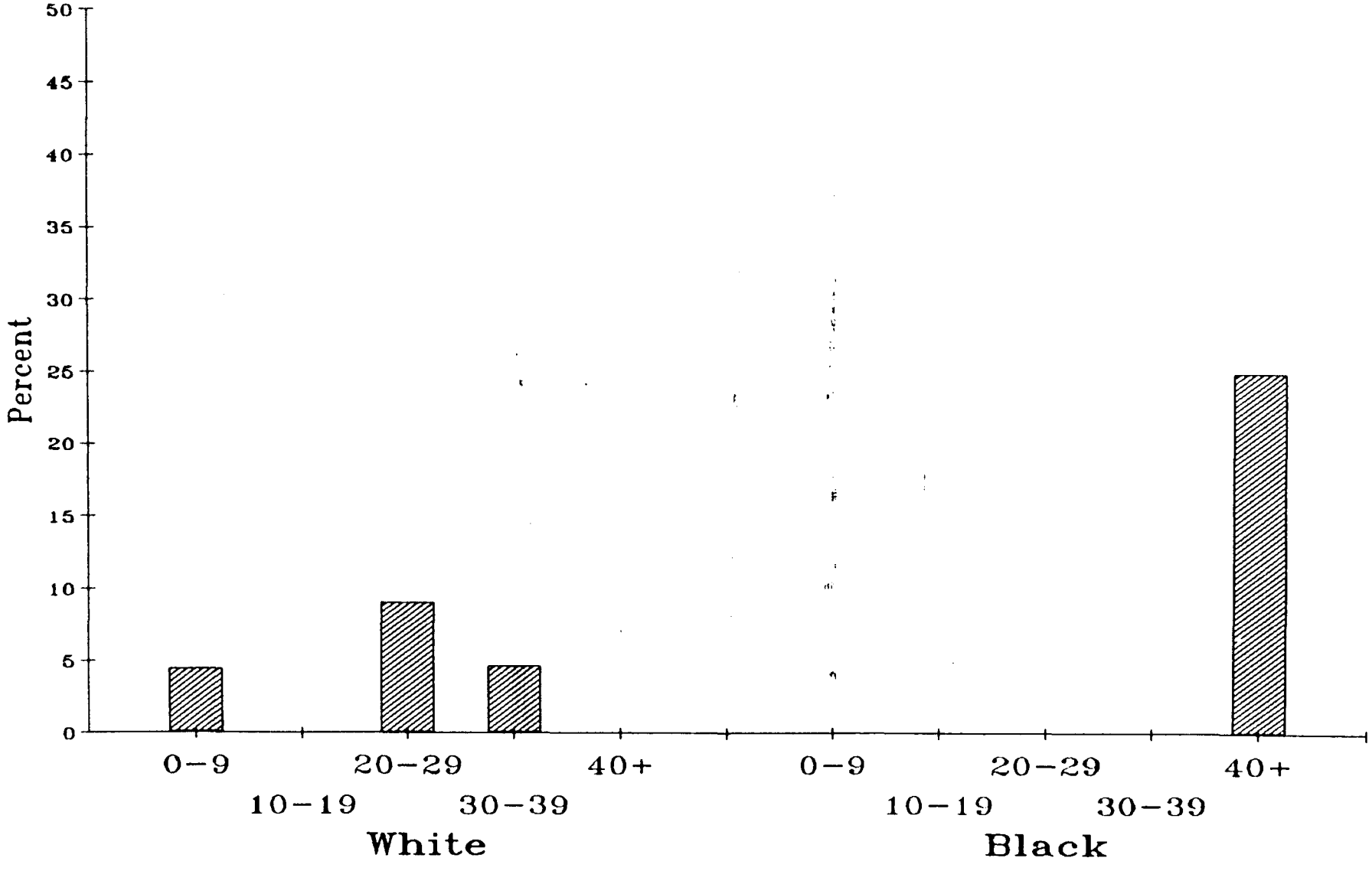
Percent of Males Exceeding NCEP Guidelines for LDL Cholesterol



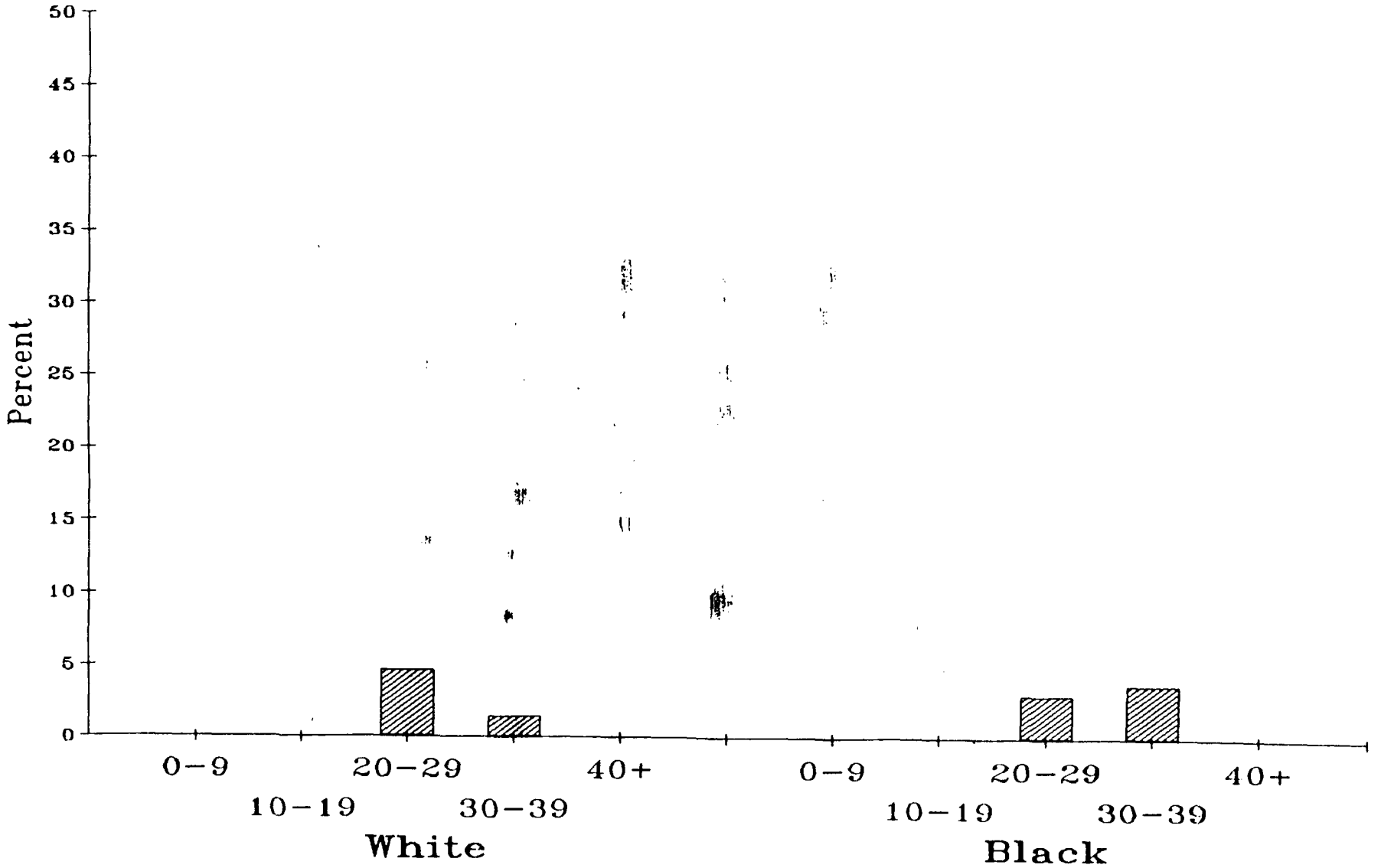
Percent of Females Exceeding NCEP Guidelines for LDL Cholesterol



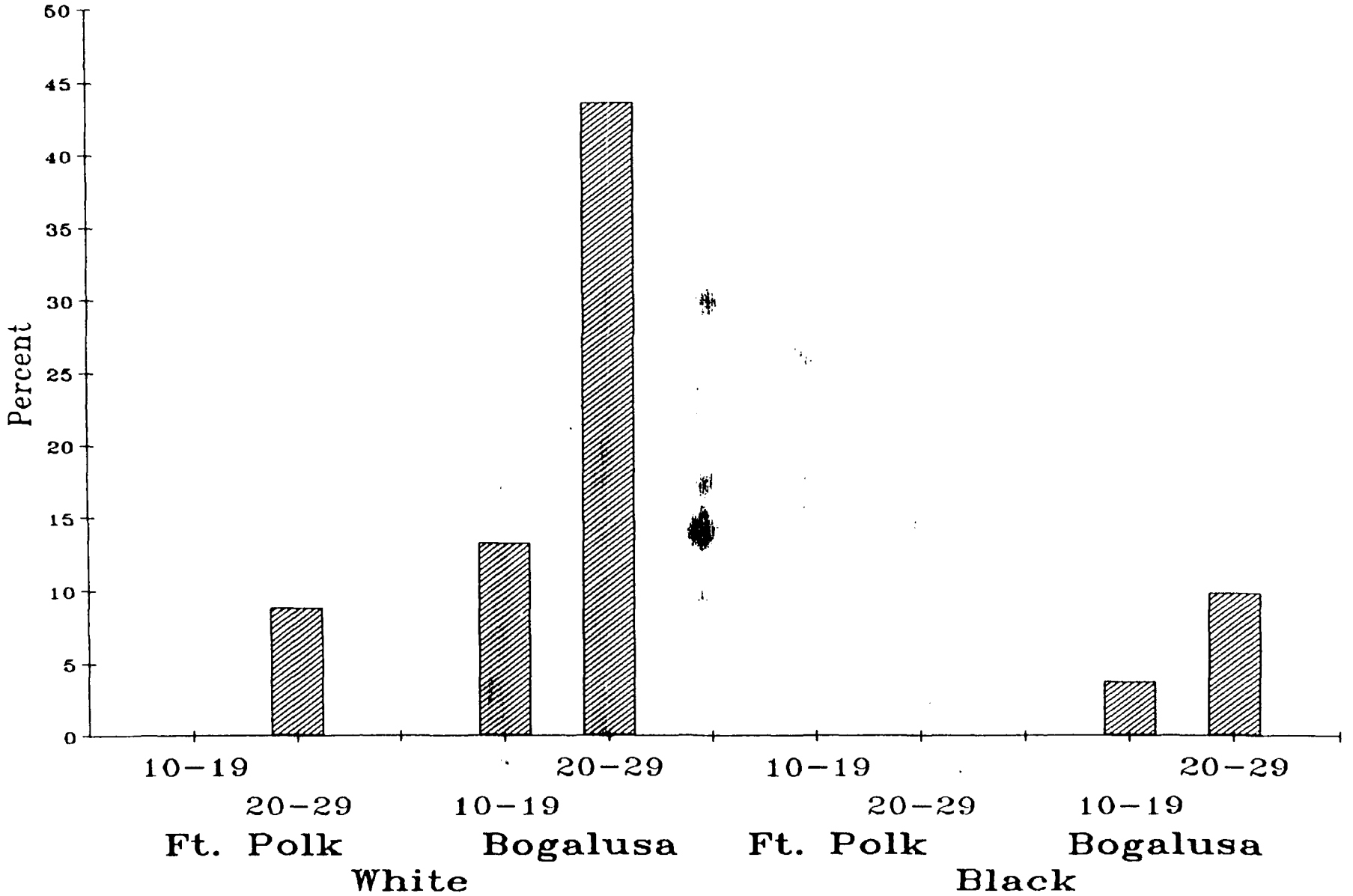
Percent of Males With HDL Cholesterol less Than 35 mg/dl Ft. Polk Heart Smart Program



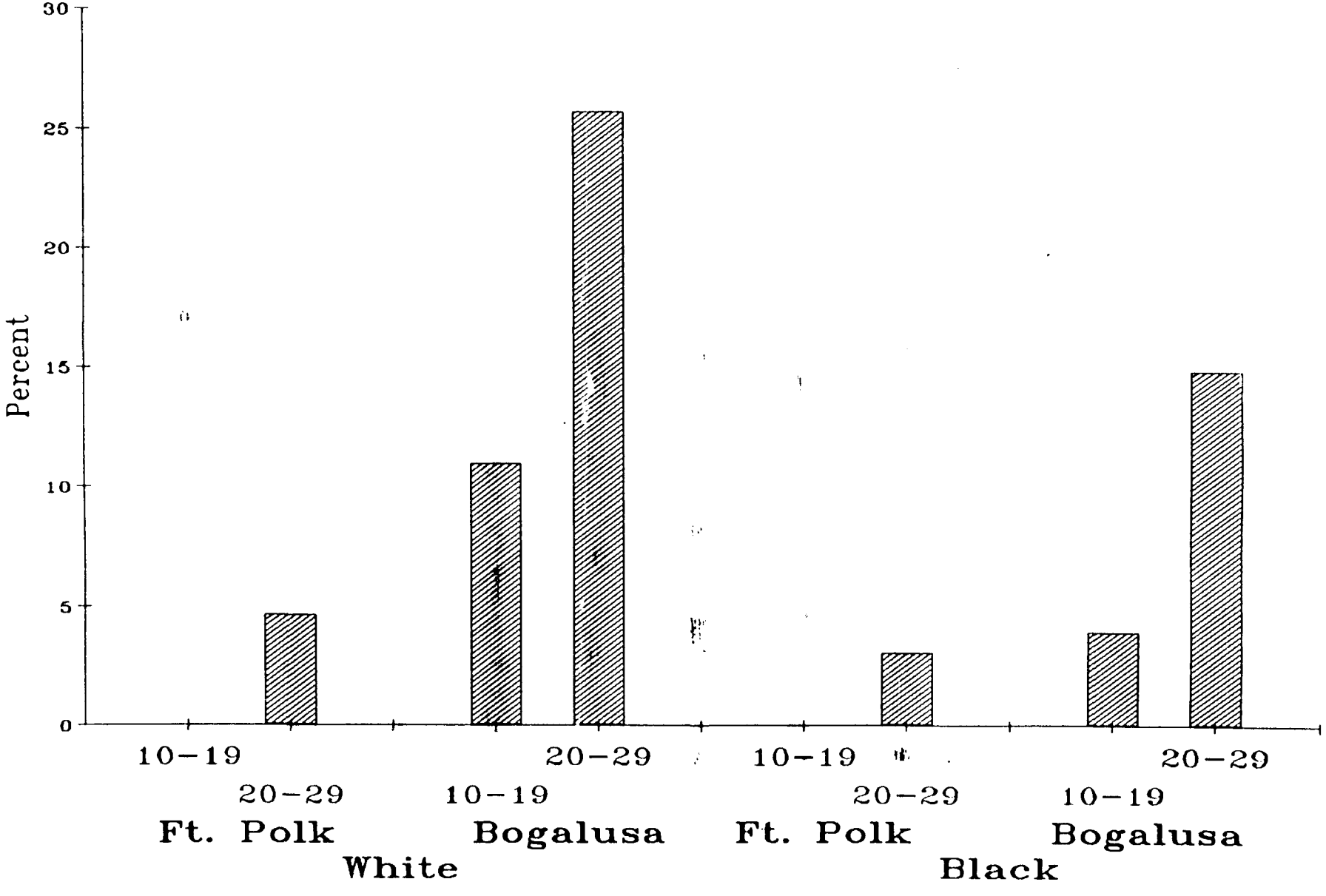
Percent of Females With HDL Cholesterol less Than 35 mg/dl Ft. Polk Heart Smart Program



Percent of Males With HDL Cholesterol Less Than 35 mg/dl



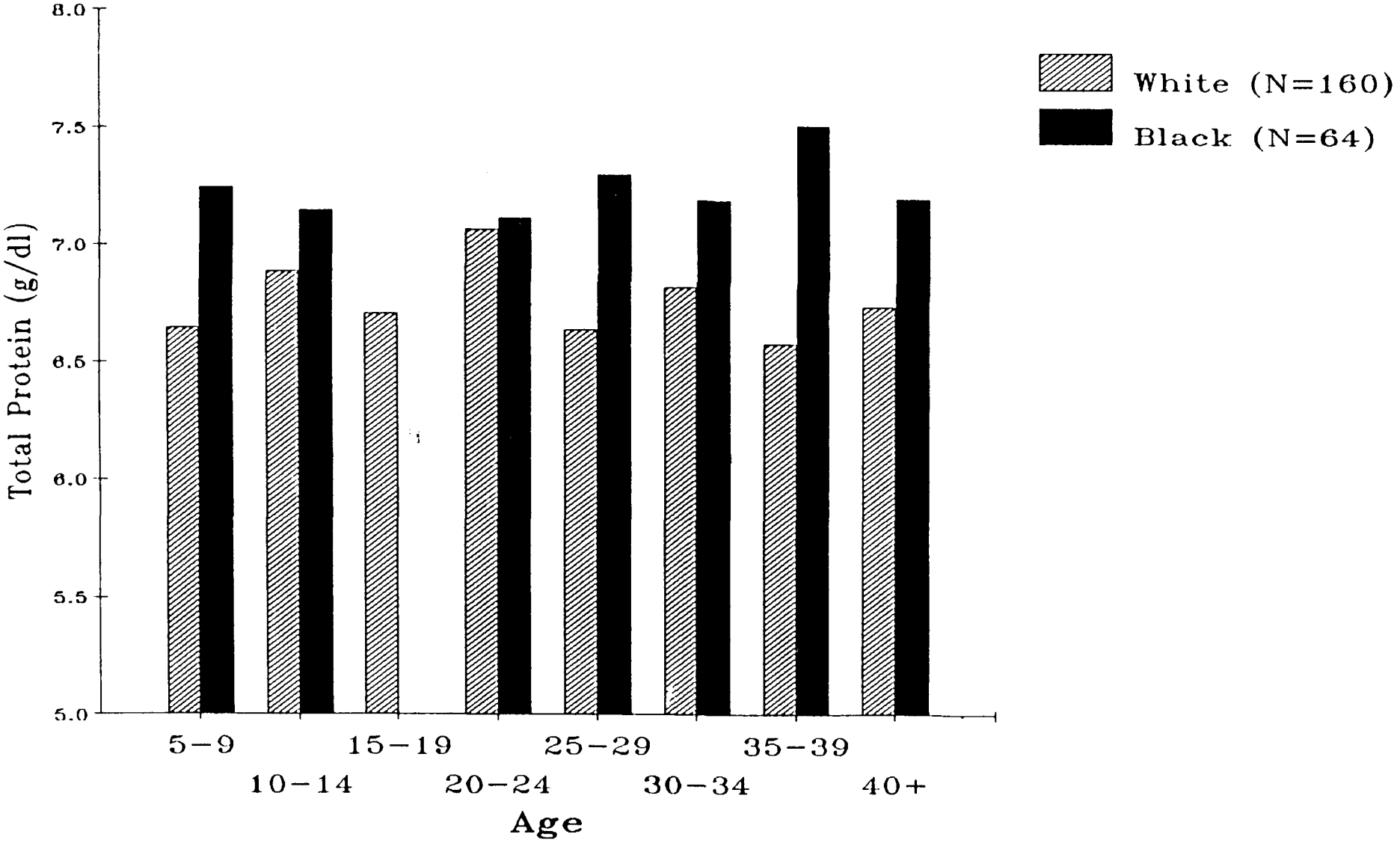
Percent of Females With HDL Cholesterol Less Than 35 mg/dl



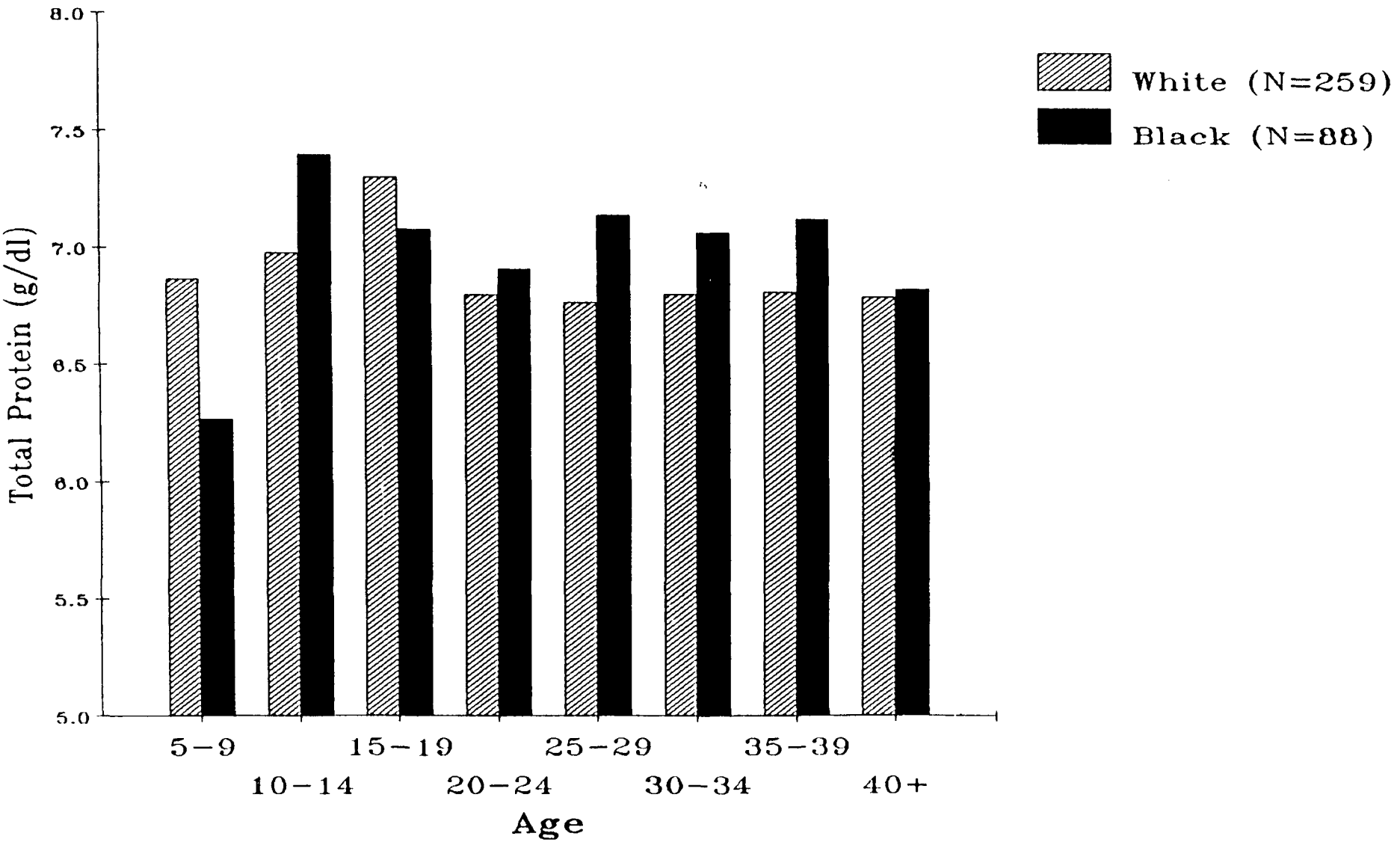
FORT POLK HEART SMART PROGRAM

Blood Chemistries

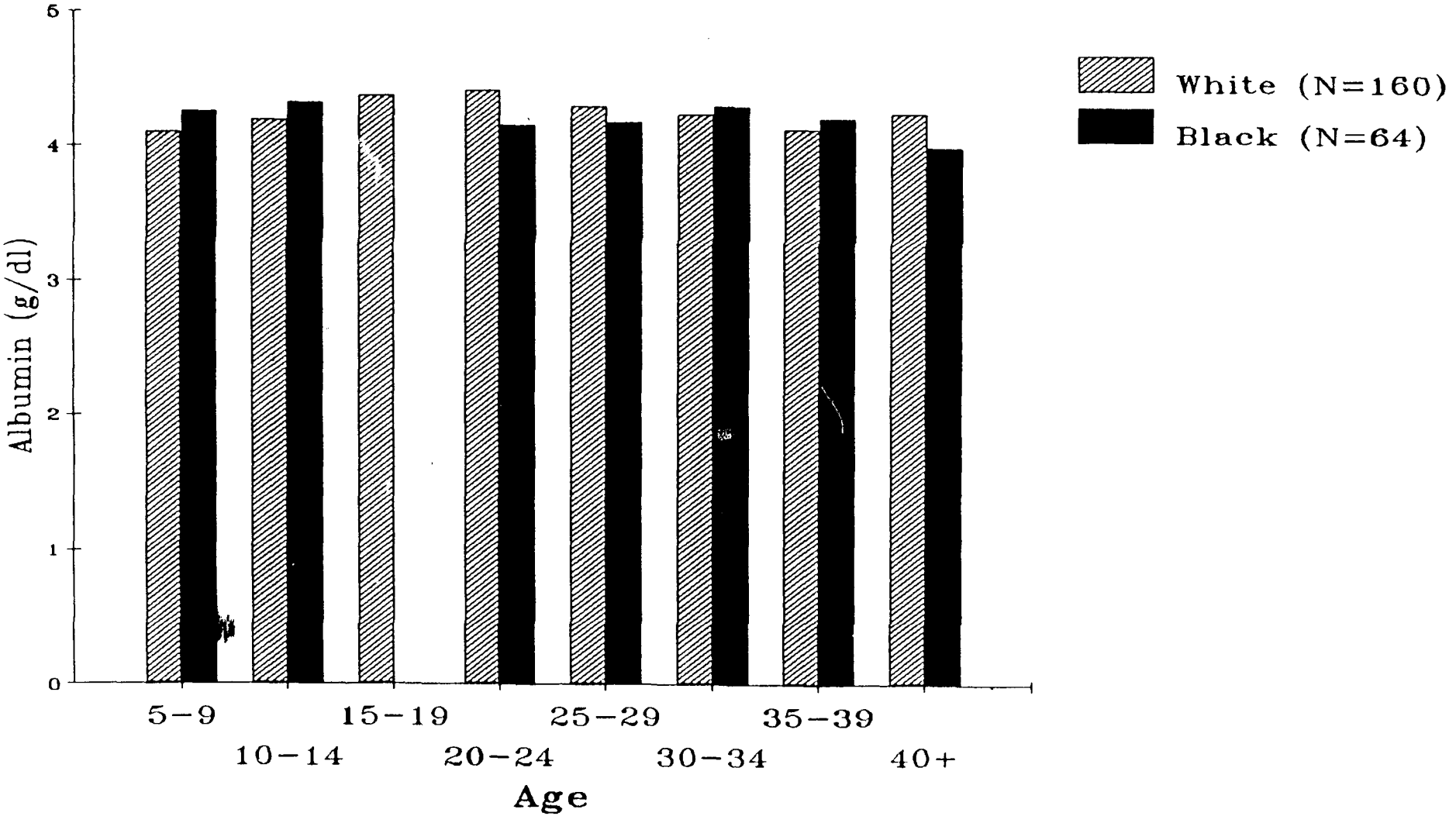
Total Protein by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



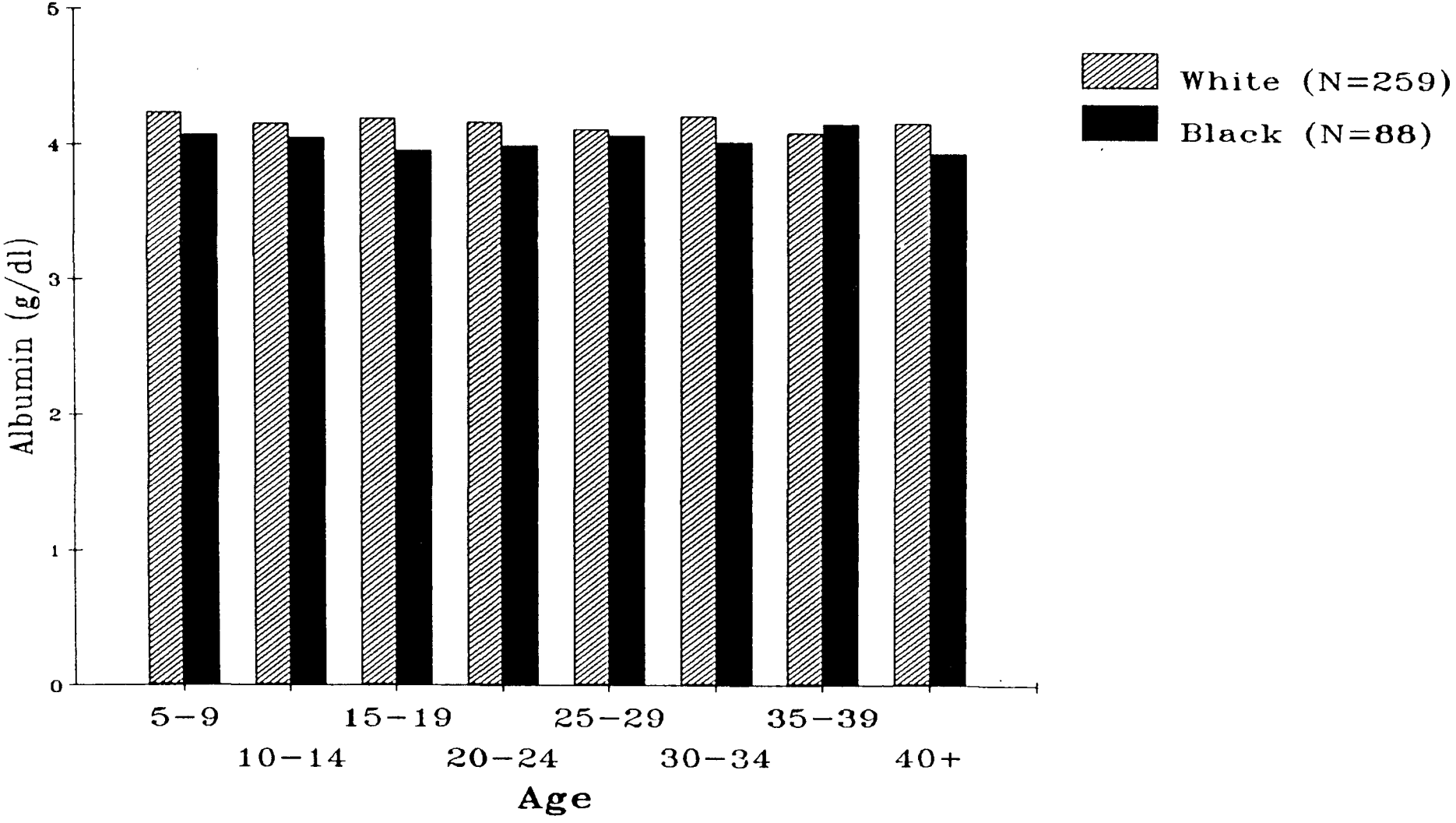
Total Protein by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



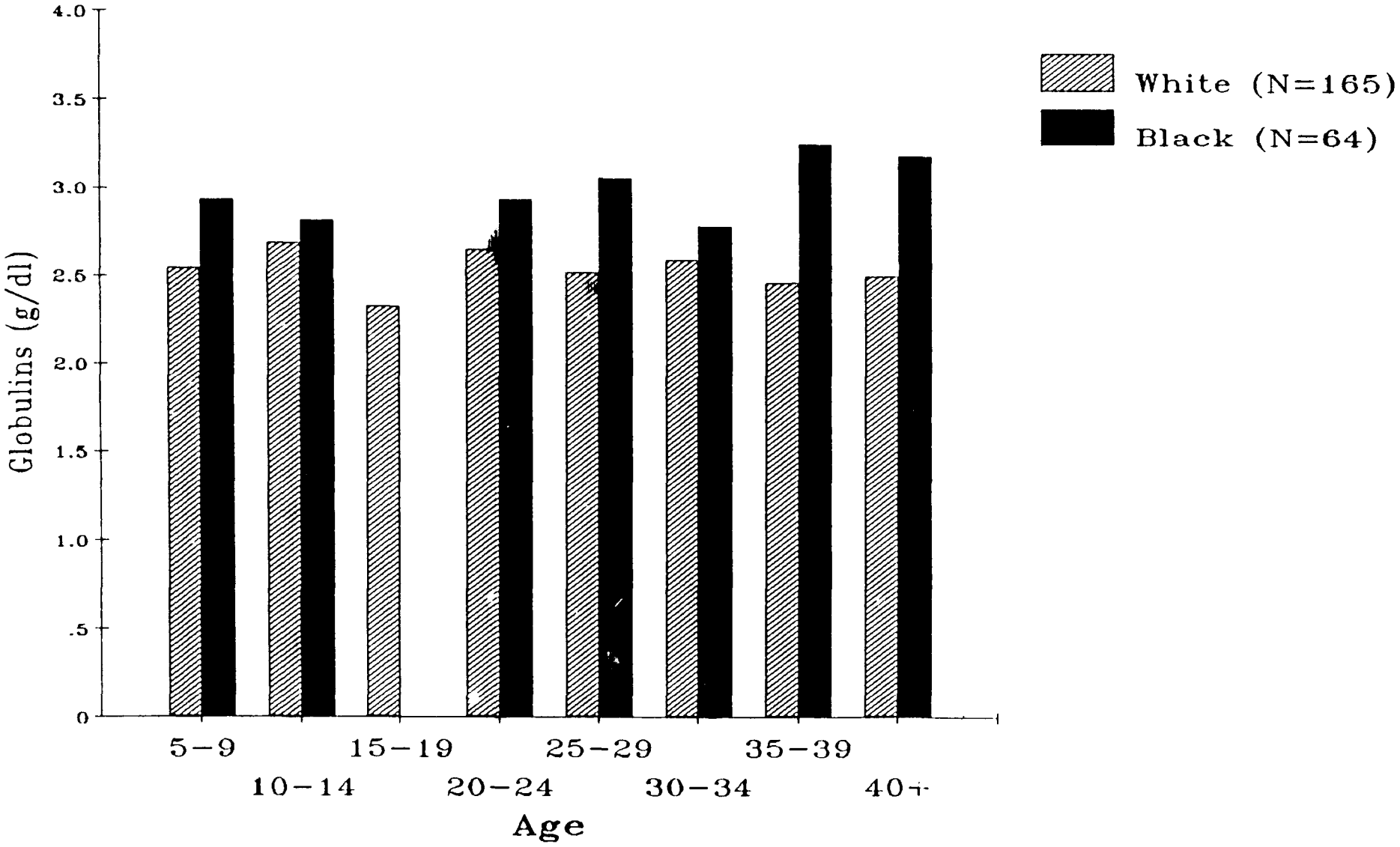
Albumin Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Males



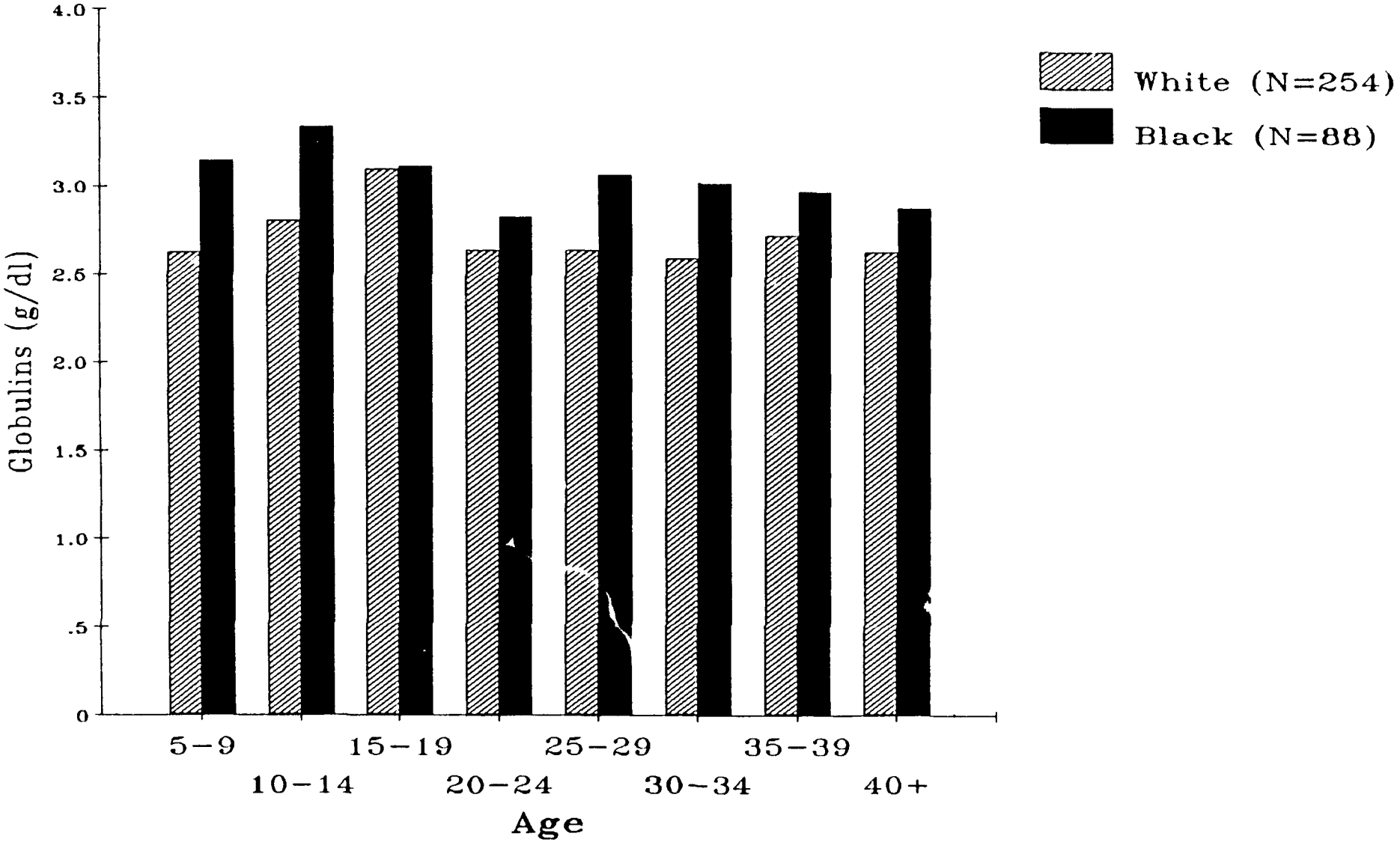
Albumin Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Females



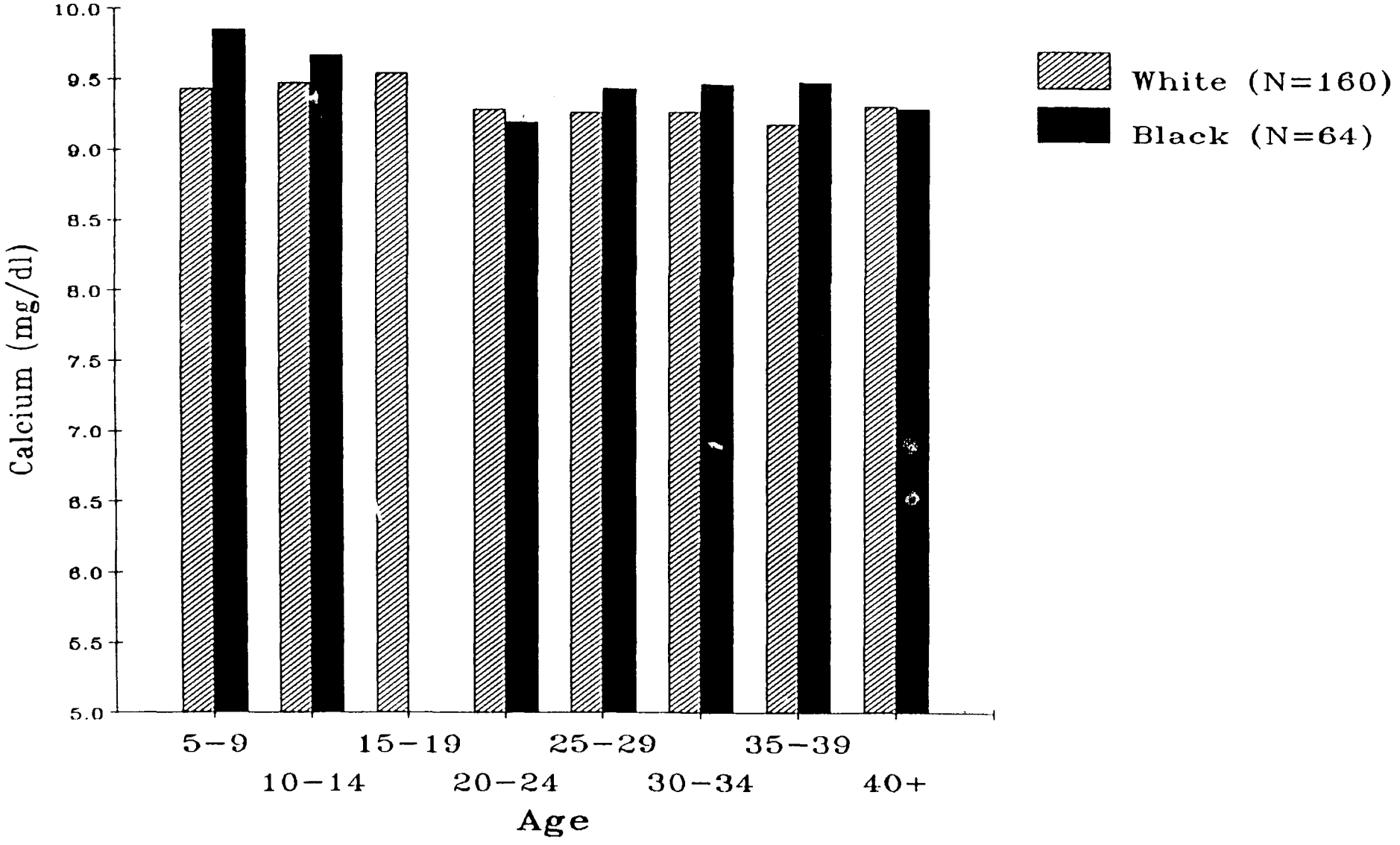
Globulins by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



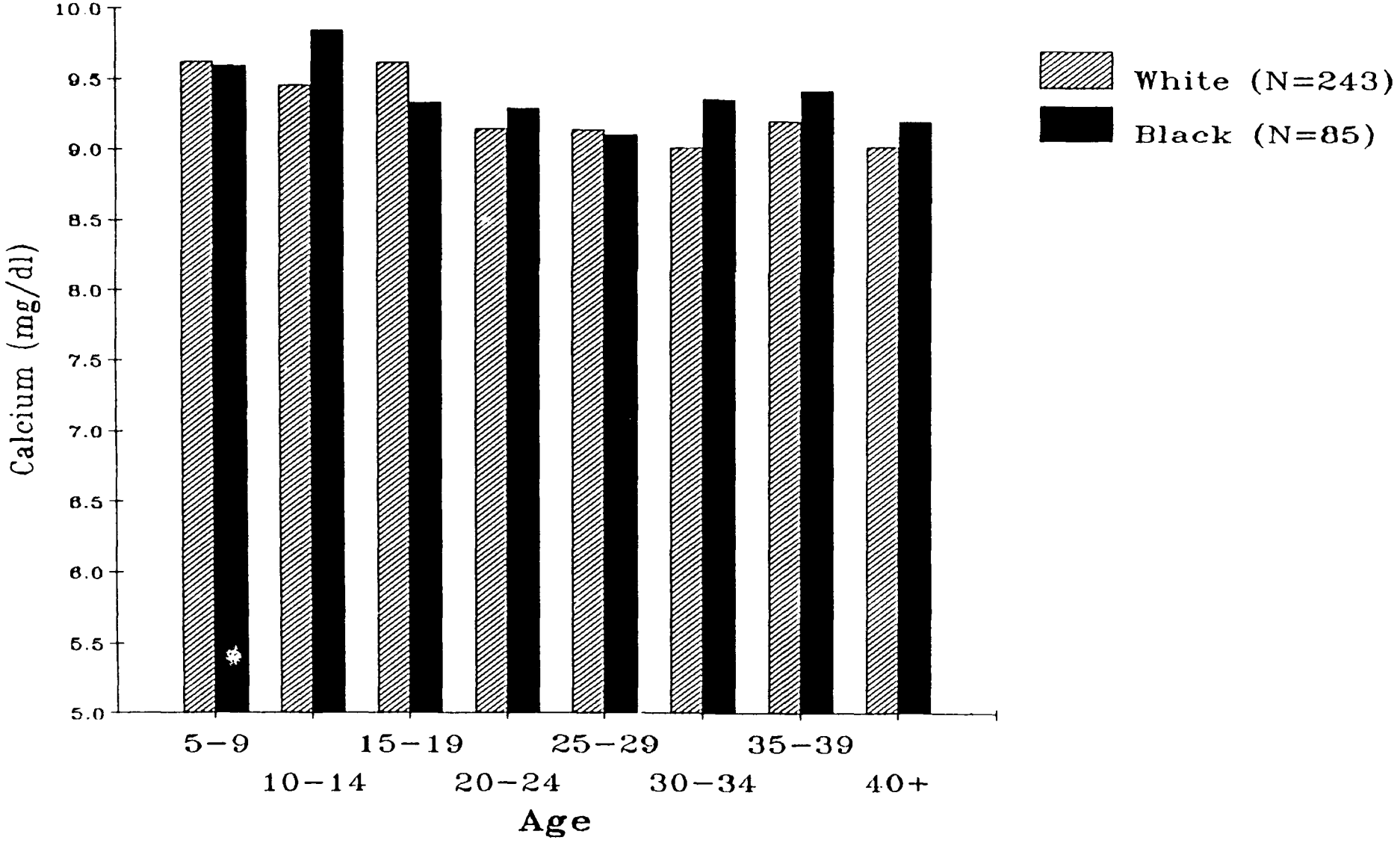
Globulins by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



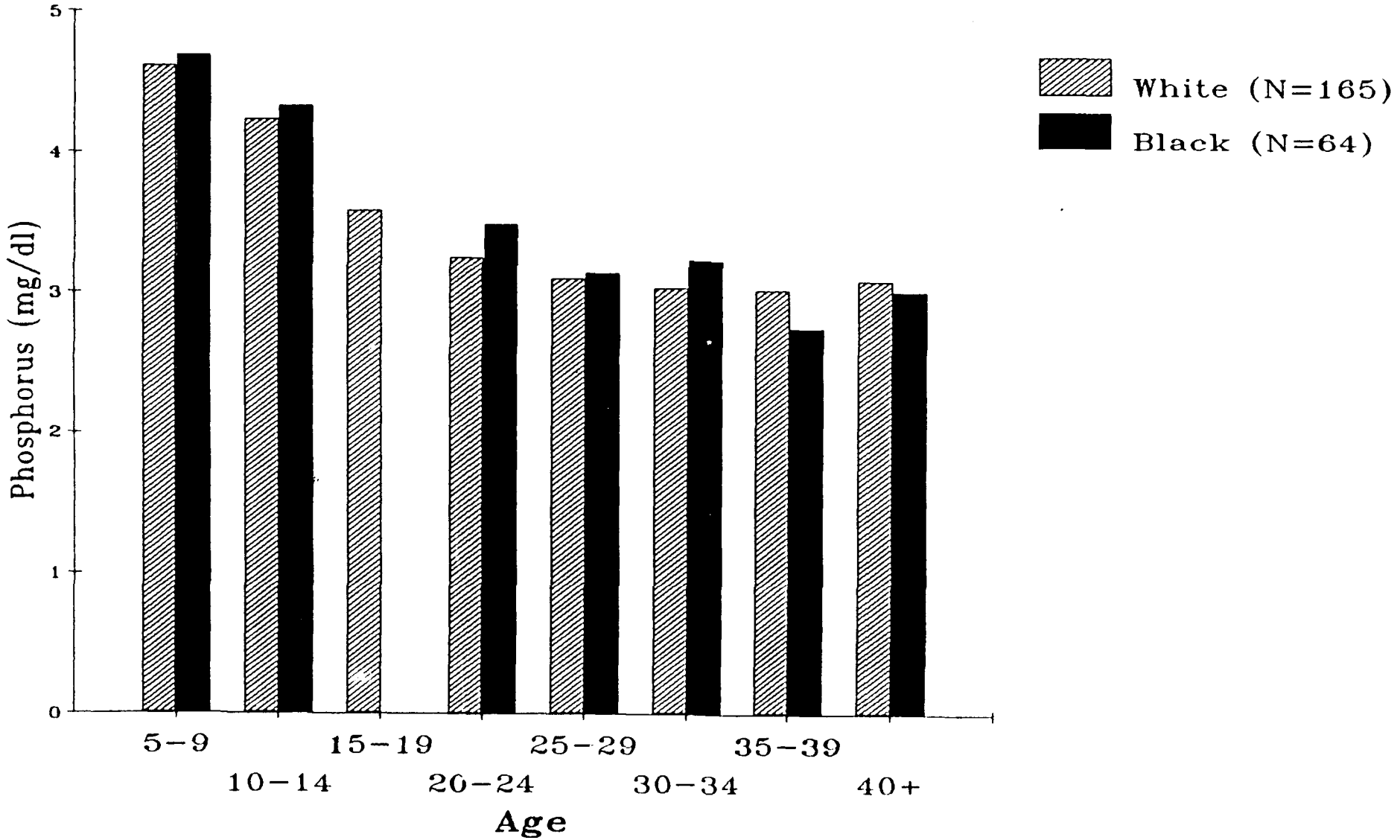
Calcium by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



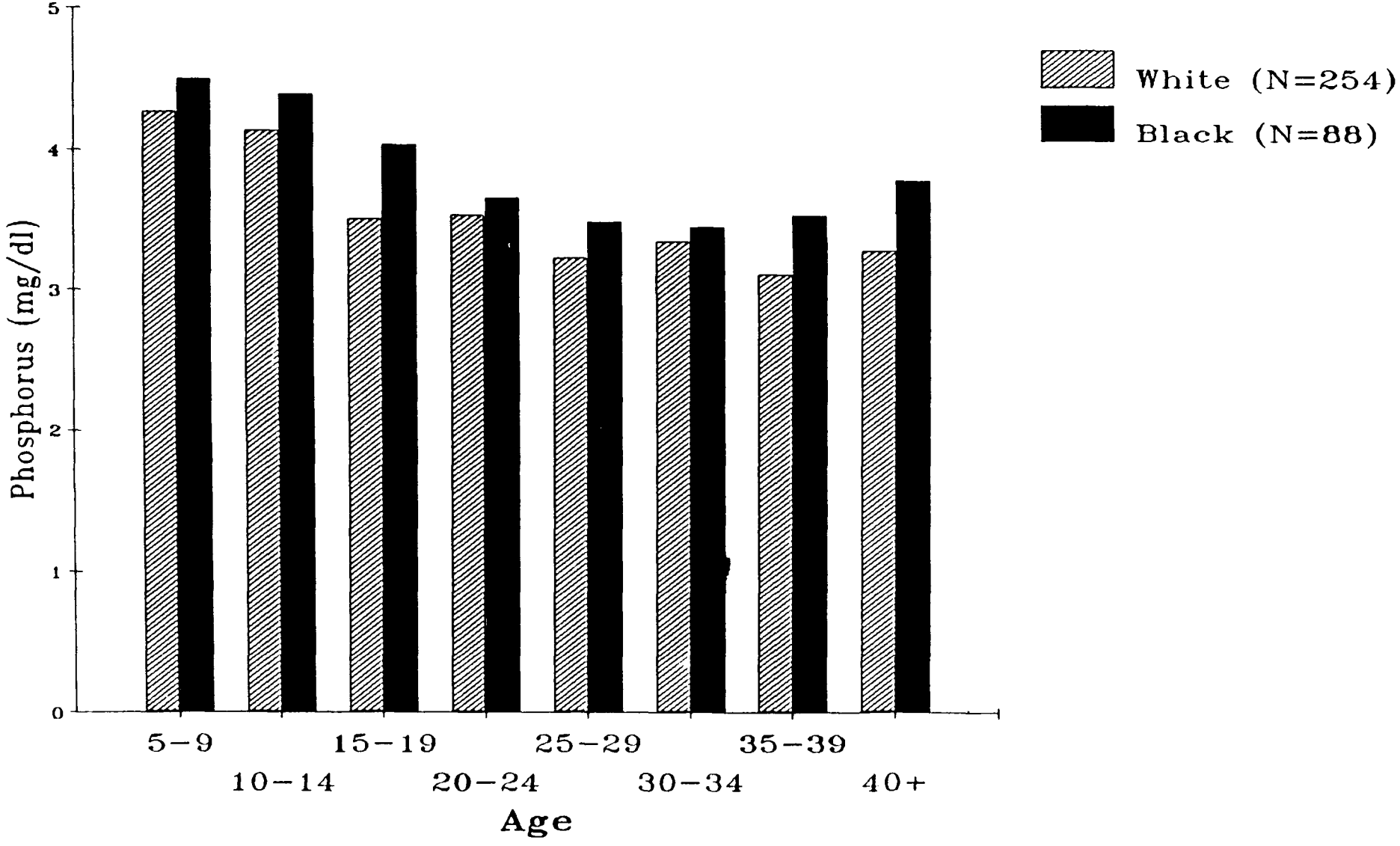
Calcium by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



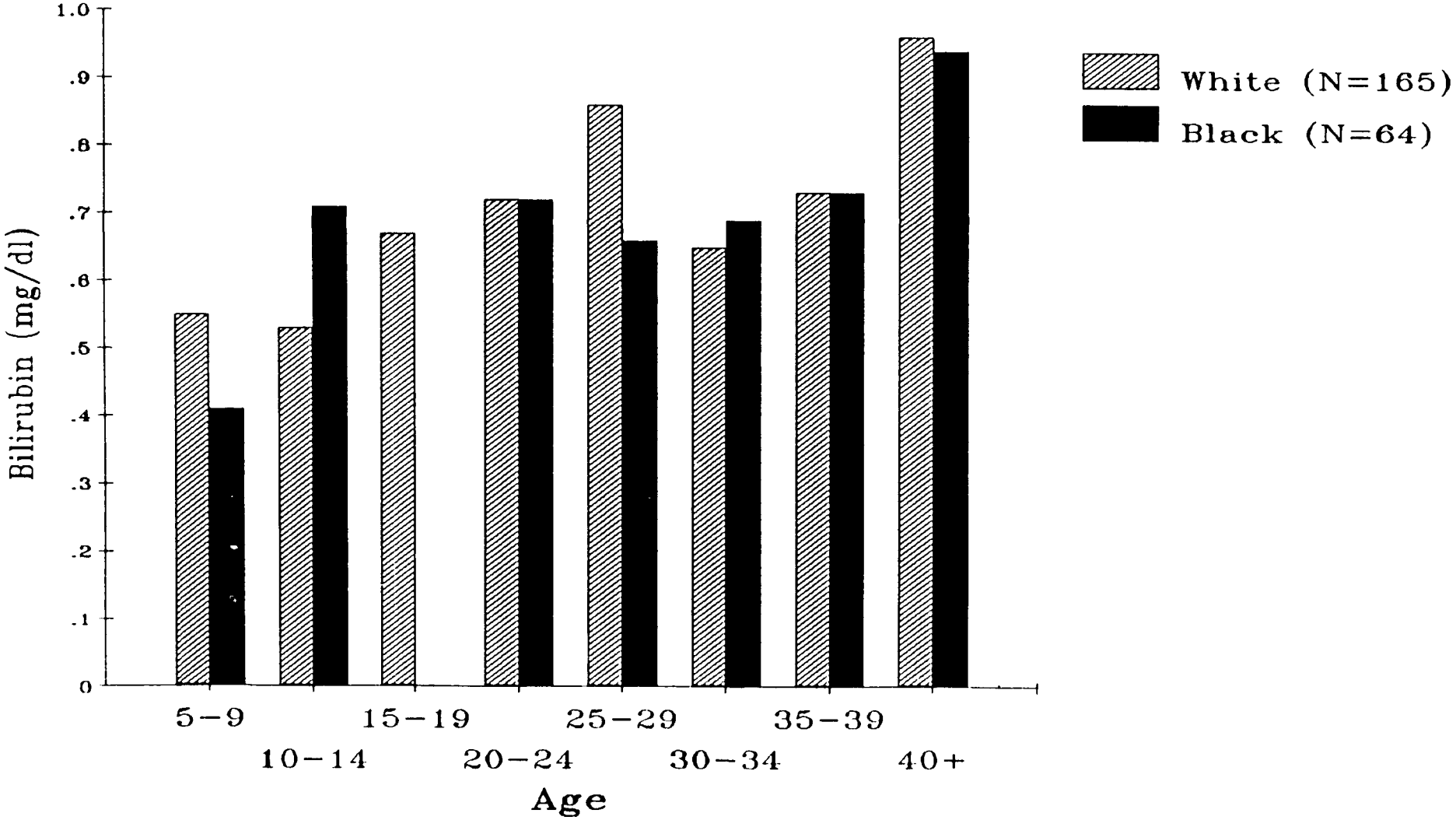
Inorganic Phosphorus by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



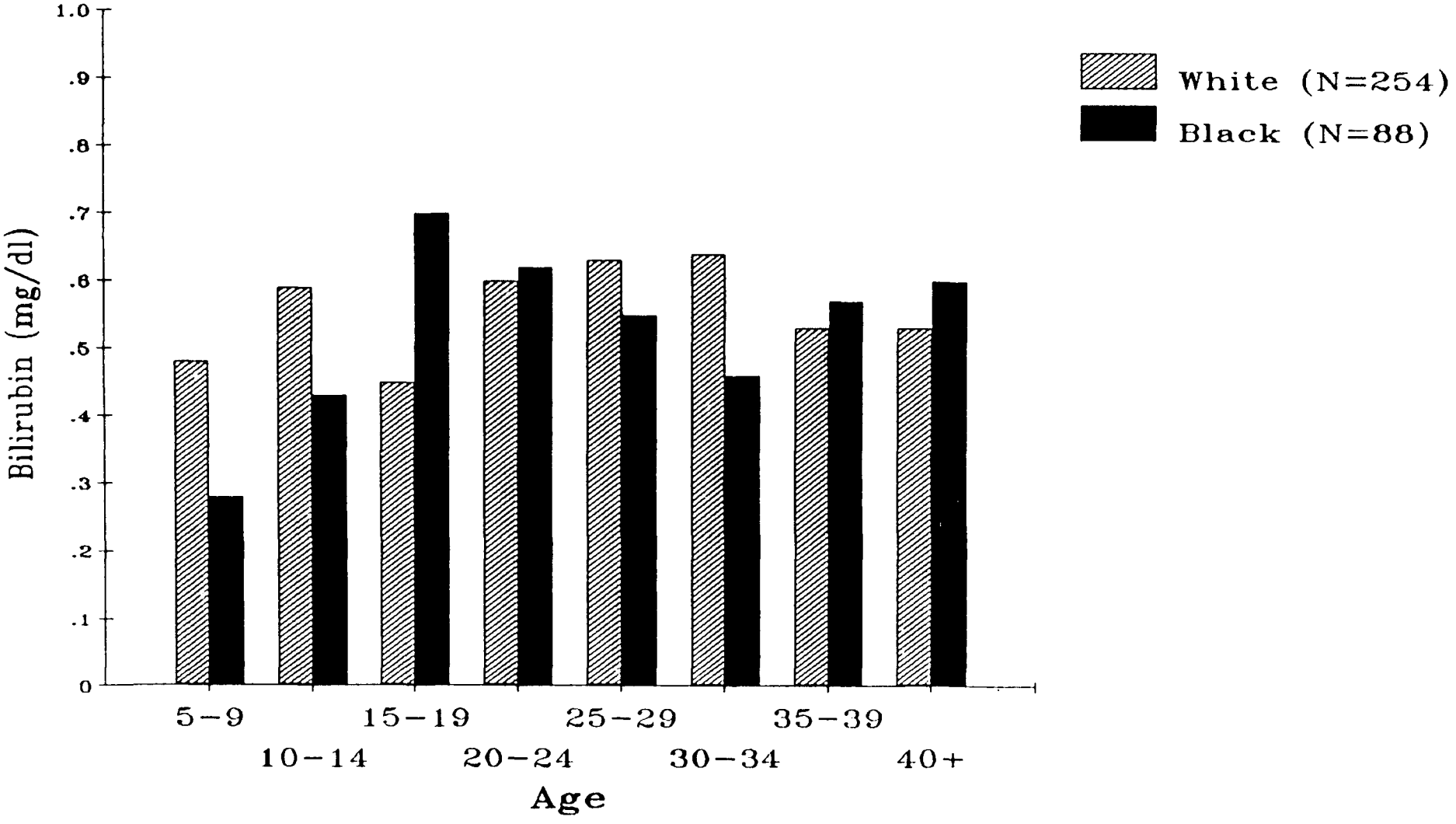
Inorganic Phosphorus by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



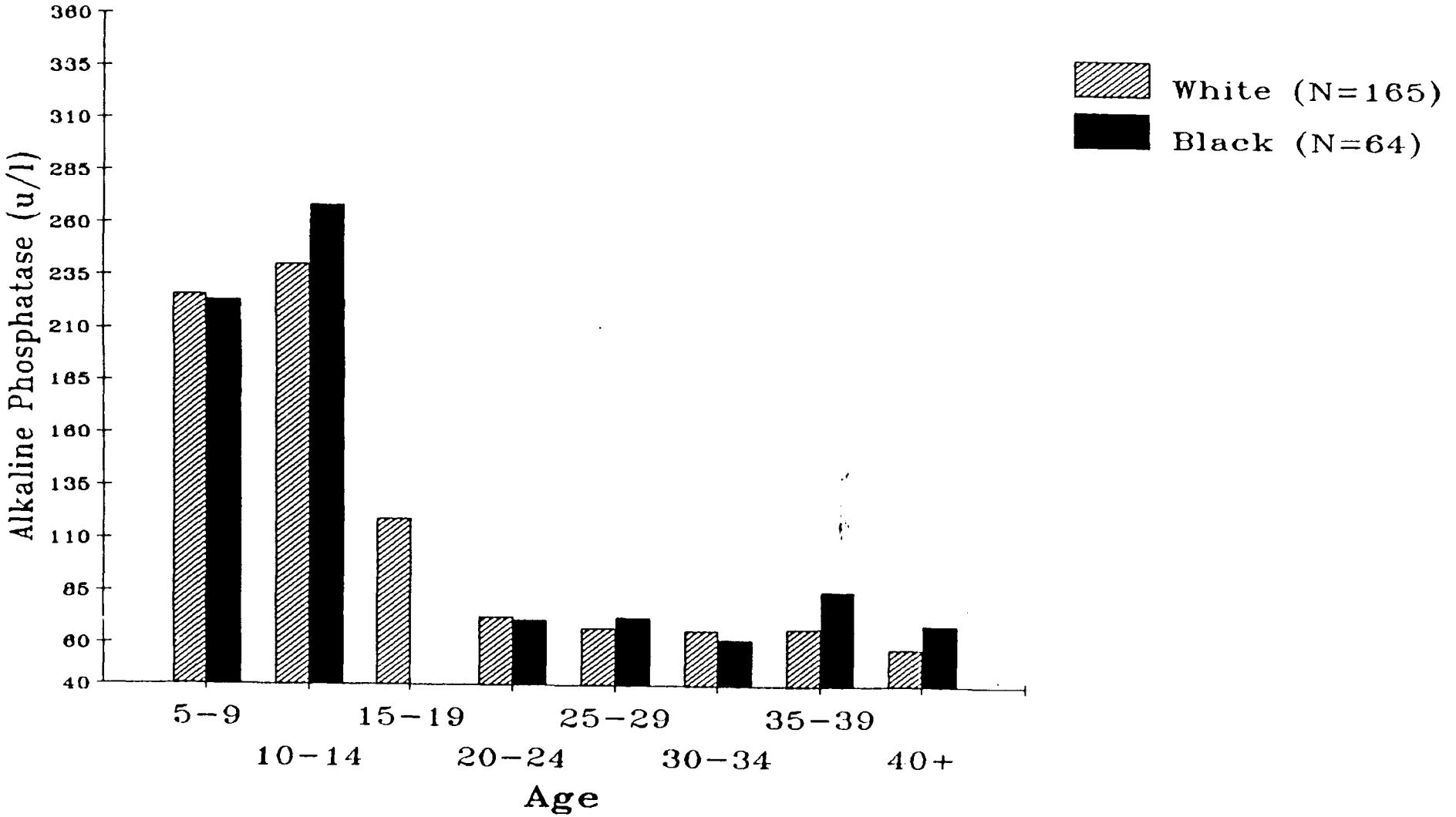
Total Bilirubin by Age and Race Fort Polk, Louisiana, 1989–1991 Males



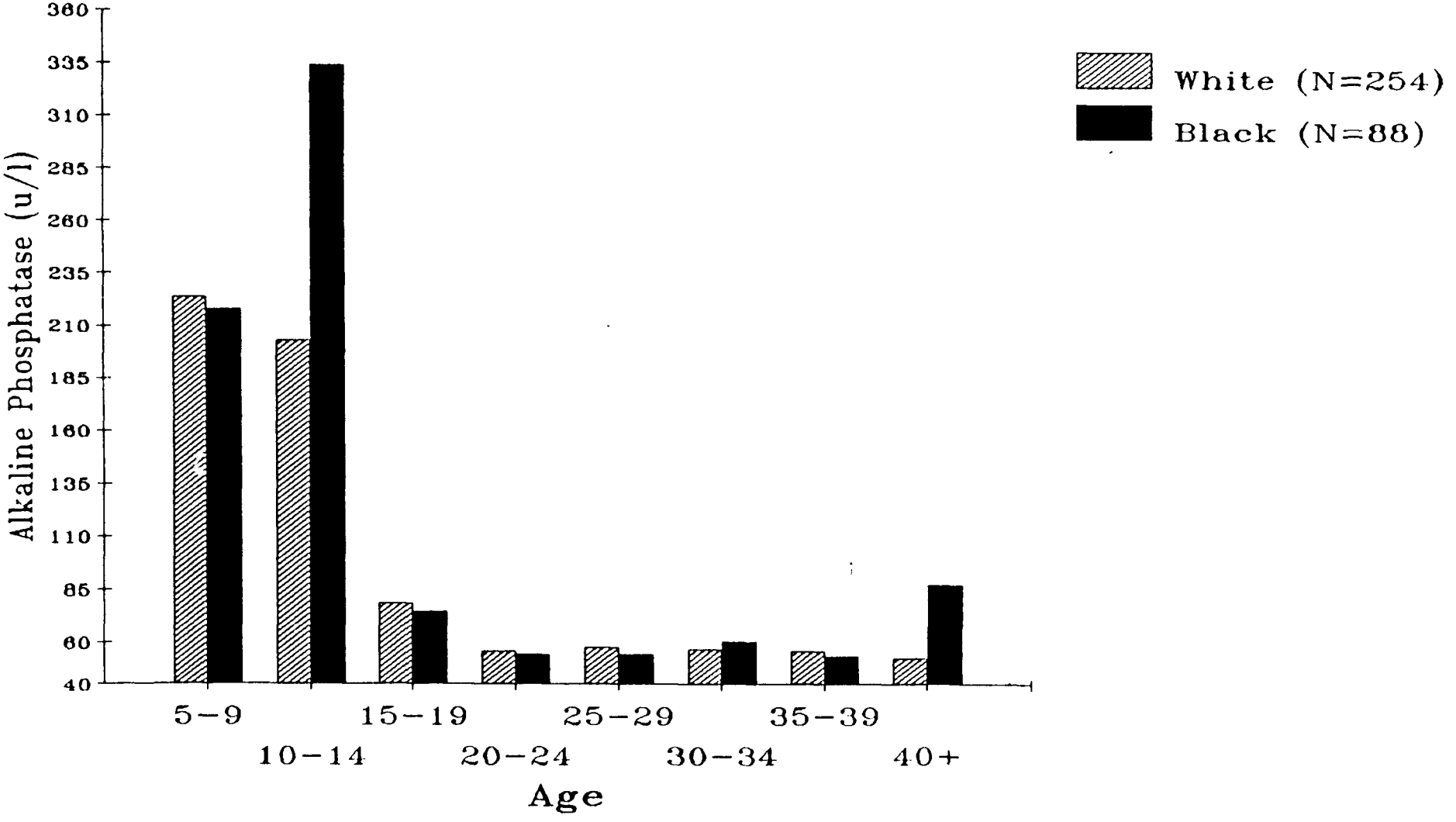
Total Bilirubin
by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



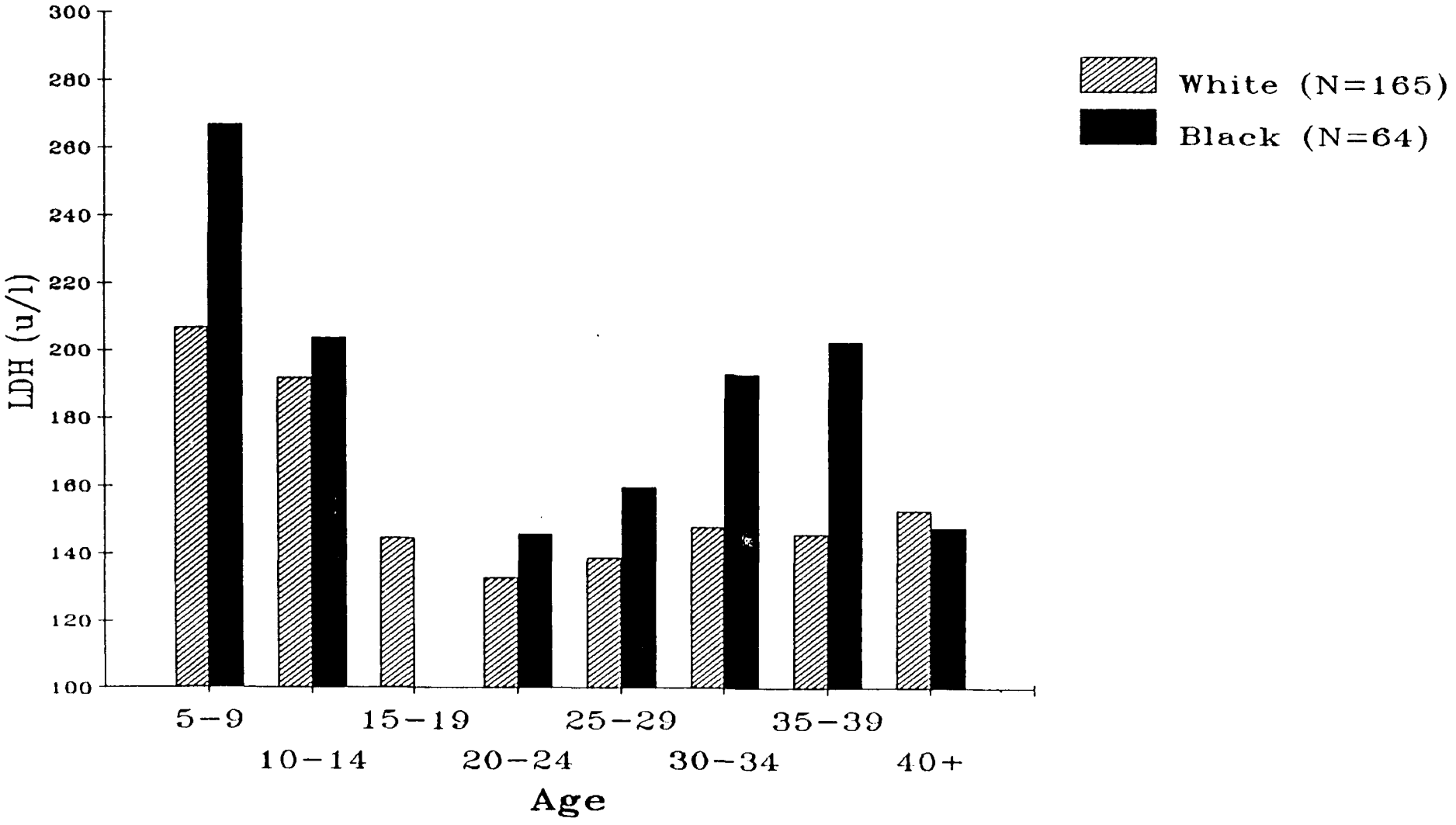
Alkaline Phosphatase by Age and Race Fort Polk, Louisiana, 1989–1991 Males



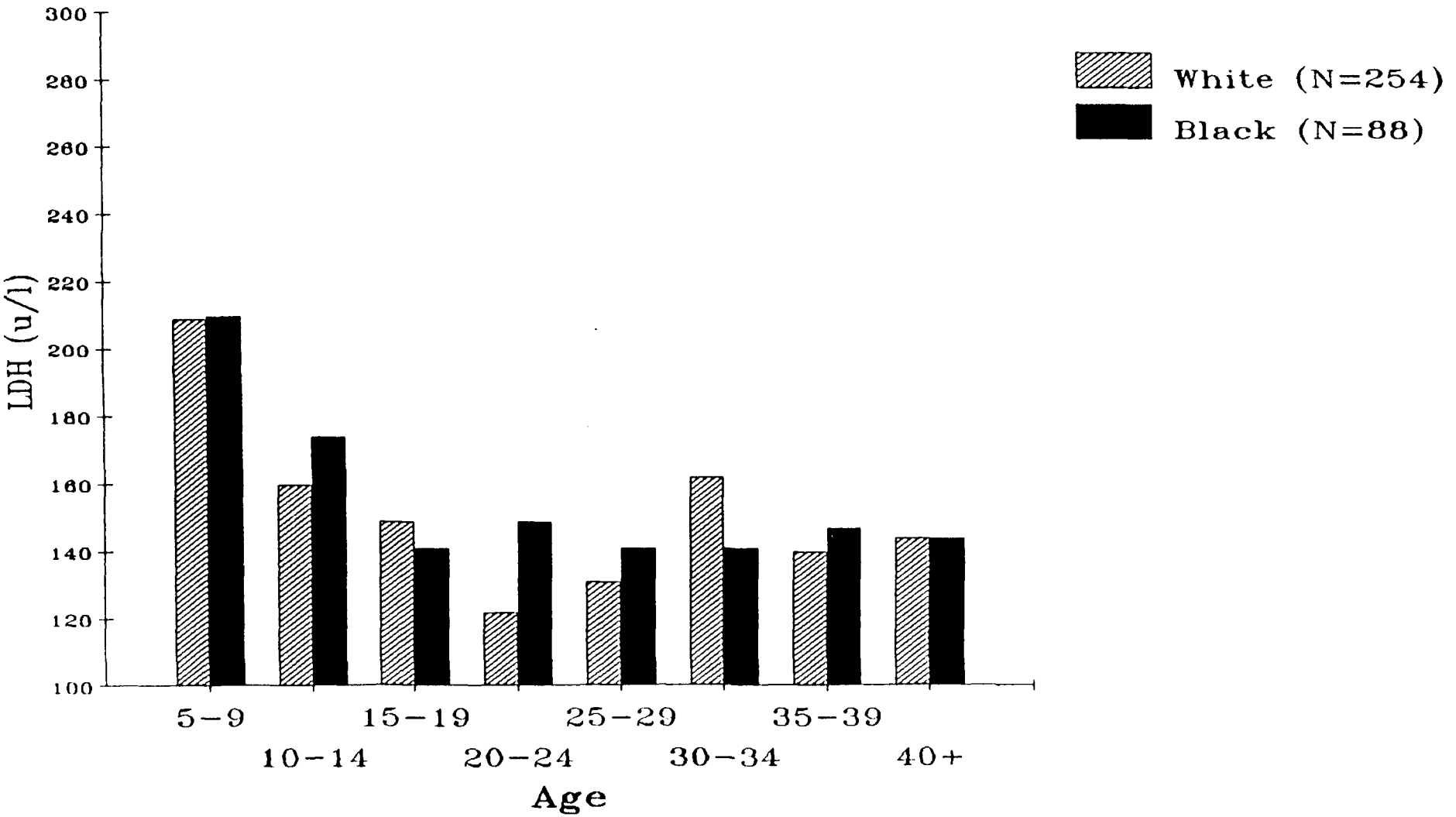
Alkaline Phosphatase by Age and Race Fort Polk, Louisiana, 1989–1991 Females



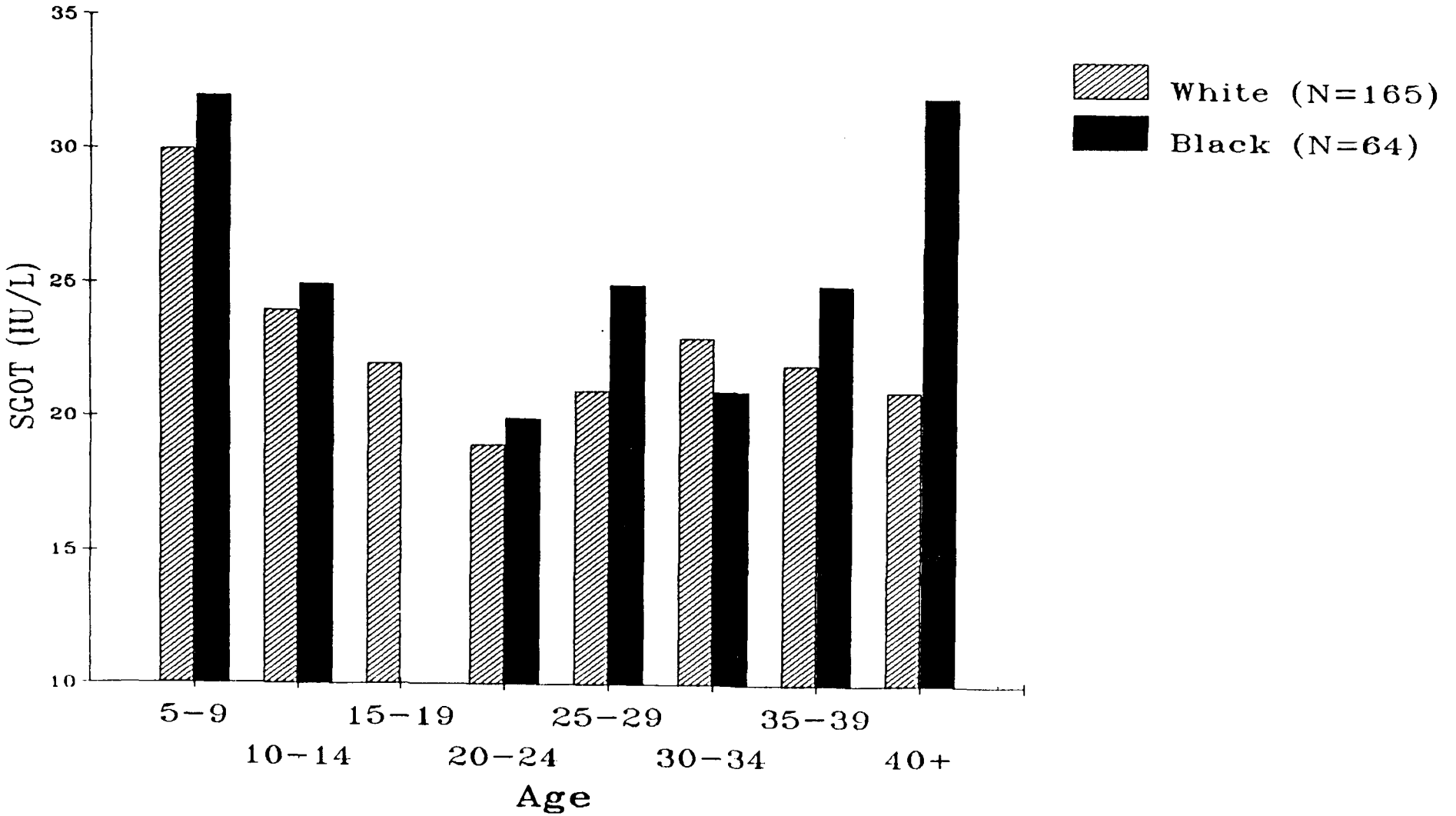
LDH Levels
by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



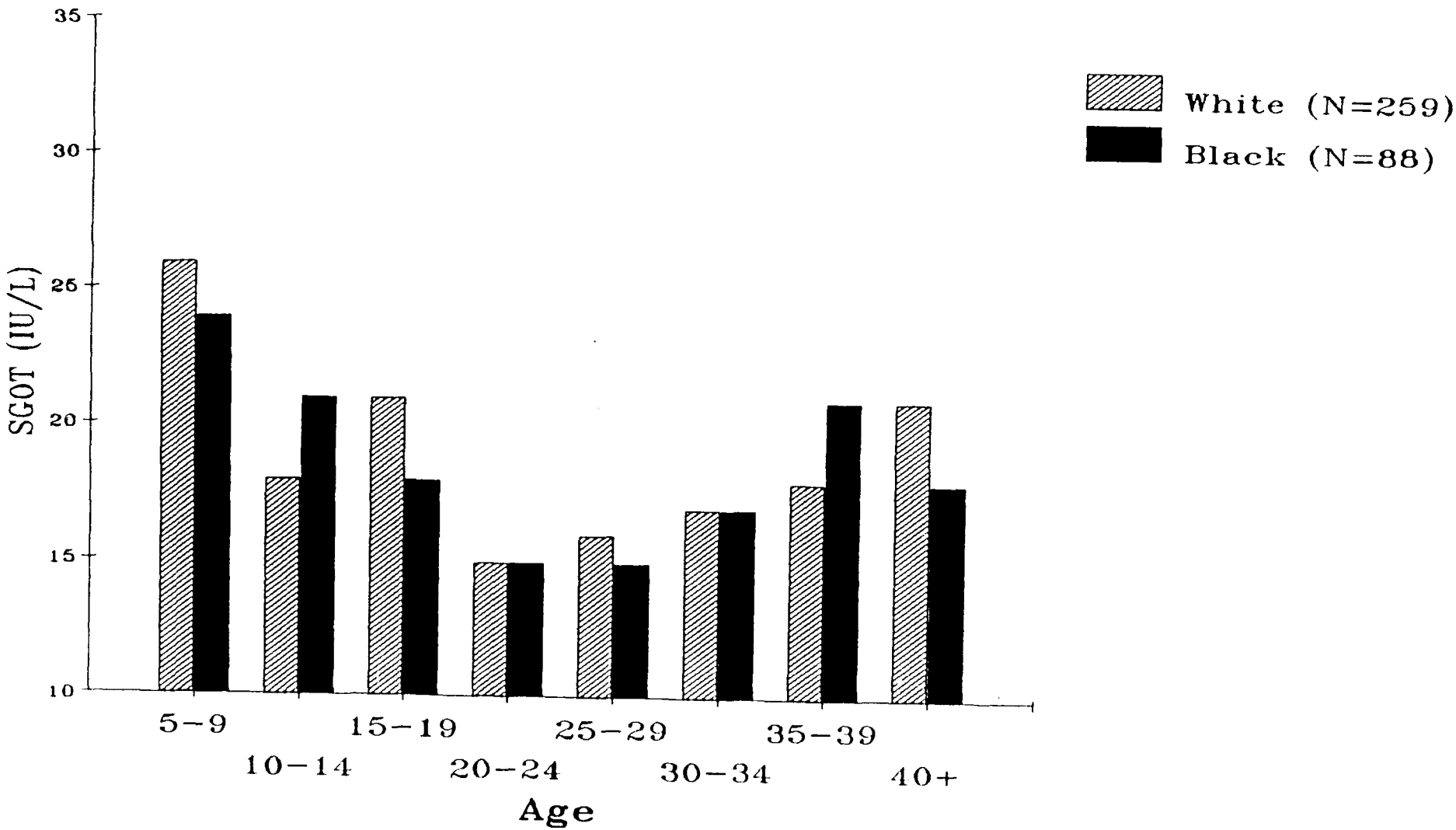
LDH Levels
by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



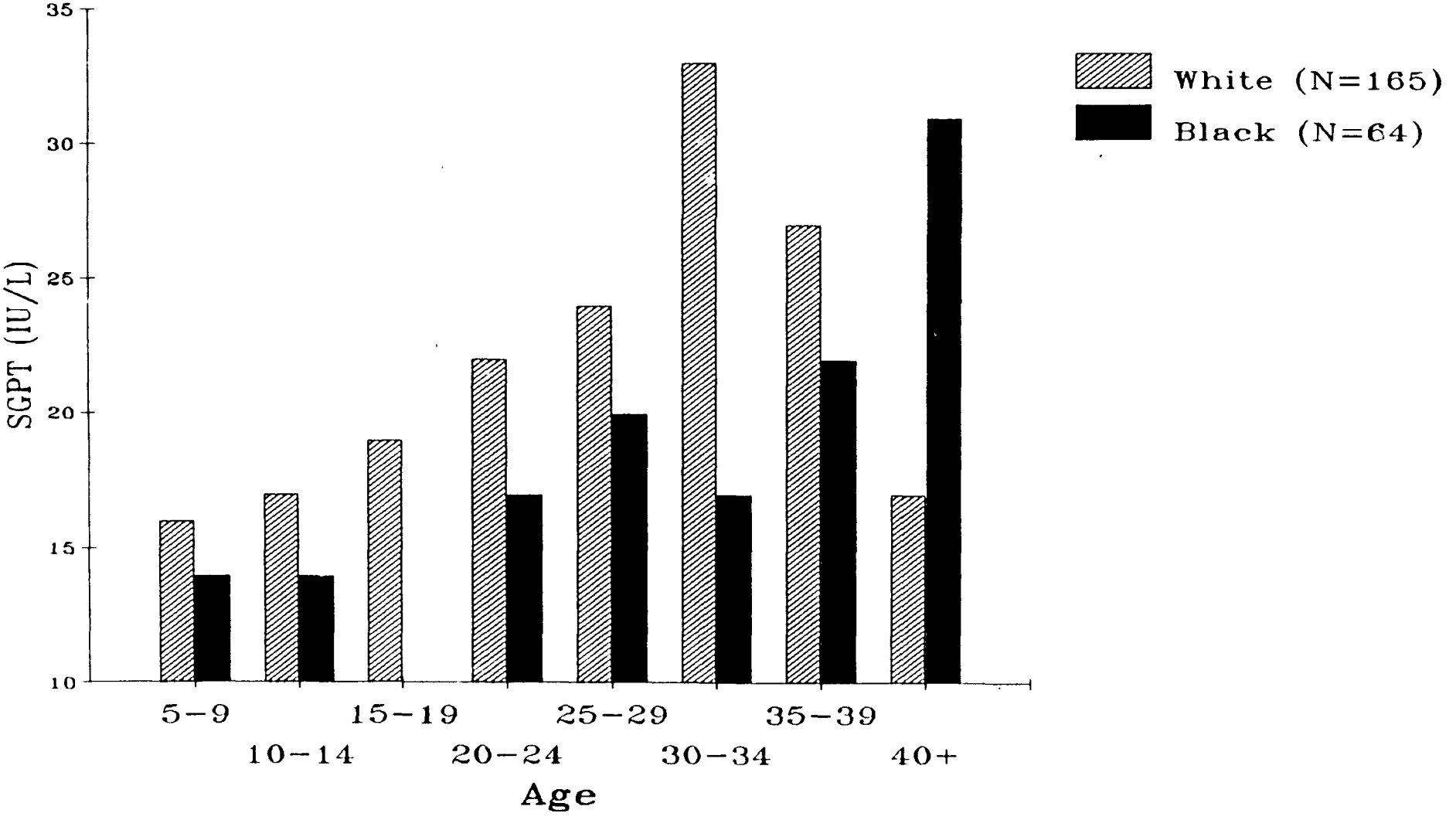
Serum Glutamic Oxaloacetic Transaminase by Age and Race Fort Polk, Louisiana, 1989–1991 Males



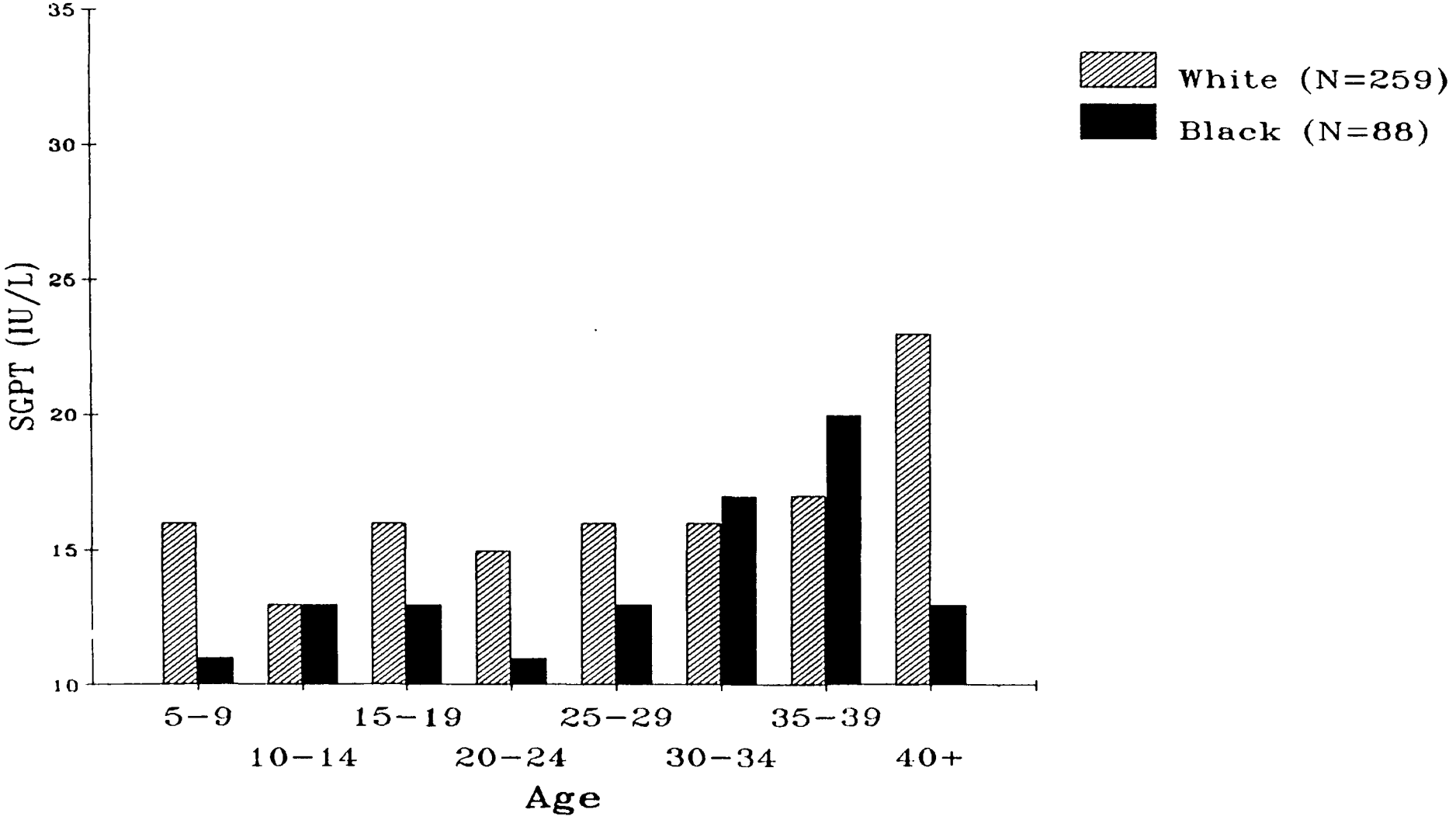
Serum Glutamic Oxaloacetic Transaminase by Age and Race Fort Polk, Louisiana, 1989–1991 Females



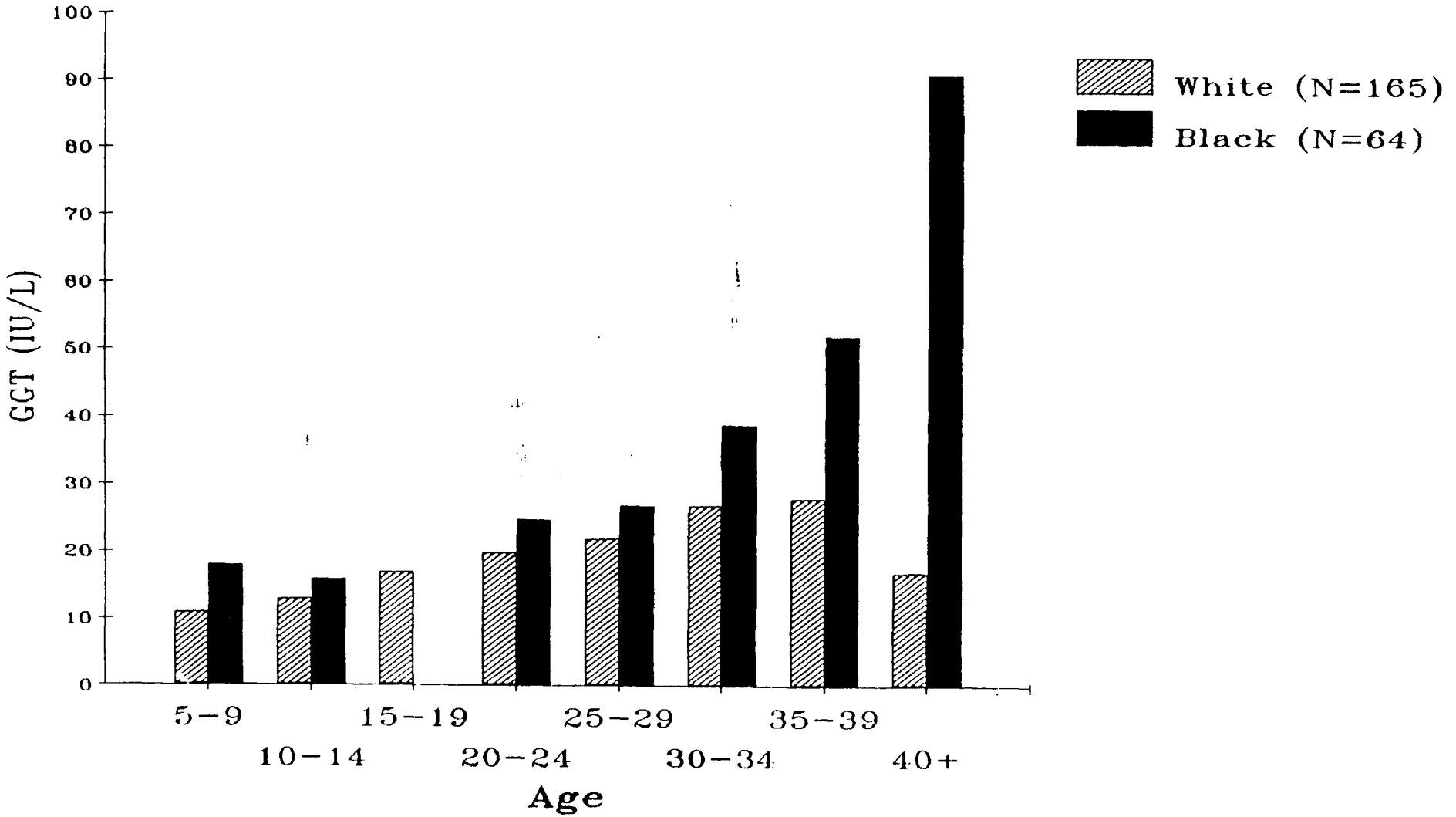
Serum Glutamic Pyruvic Transaminase by Age and Race Fort Polk, Louisiana, 1989–1991 Males



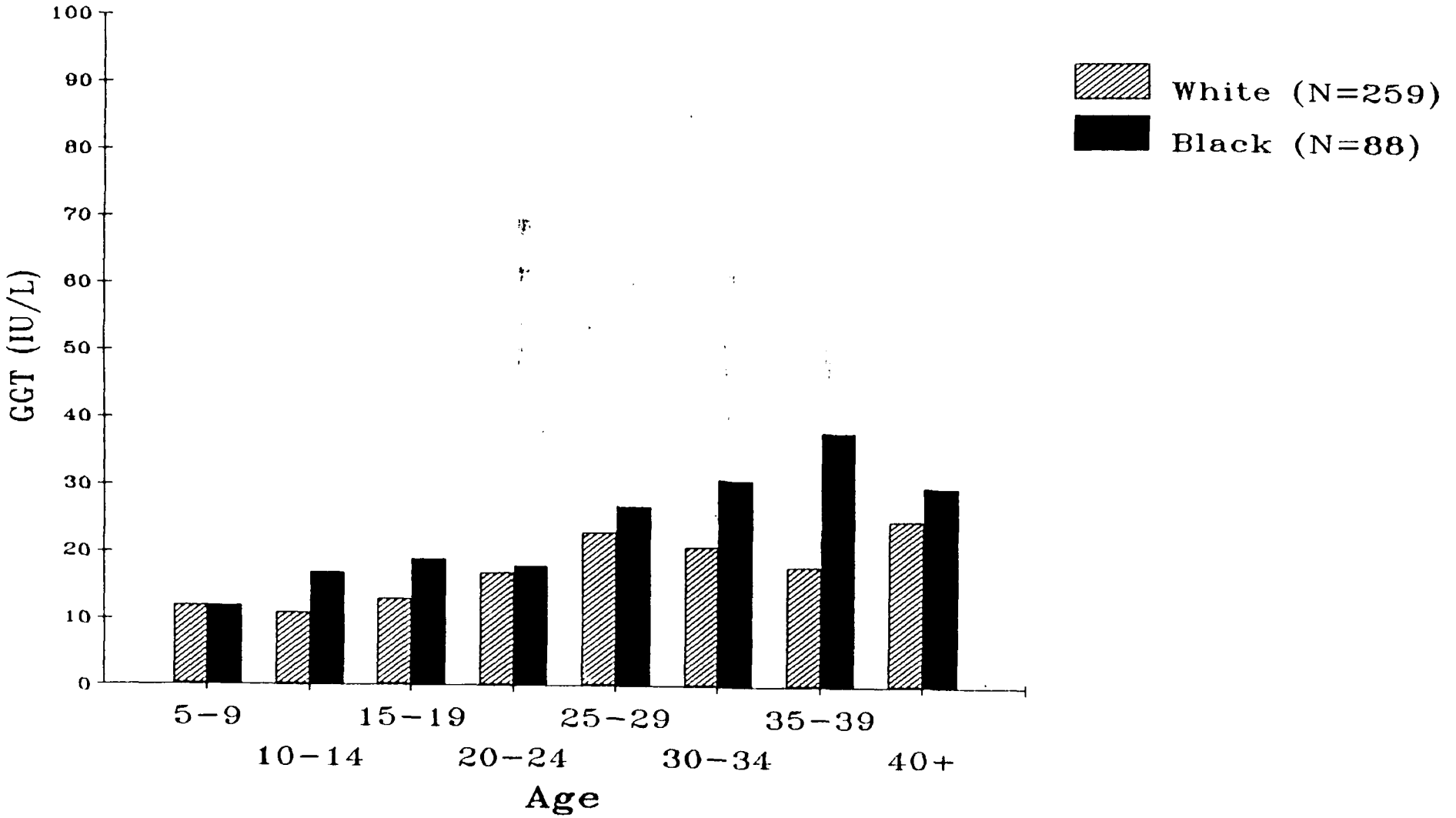
Serum Glutamic Pyruvic Transaminase by Age and Race Fort Polk, Louisiana, 1989–1991 Females



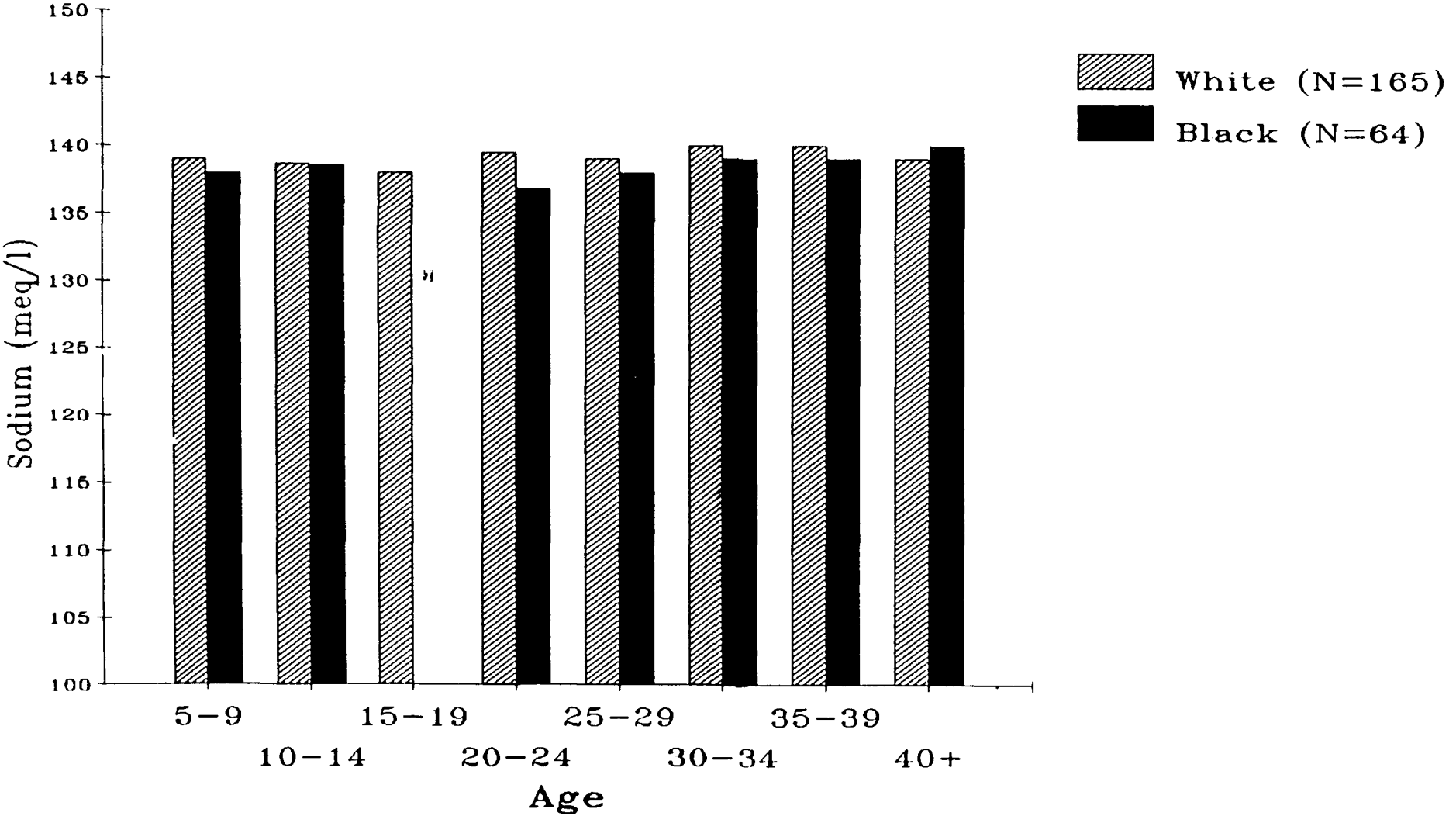
Gamma-Glutamyl Transferase by Age and Race Fort Polk, Louisiana, 1989-1991 Males



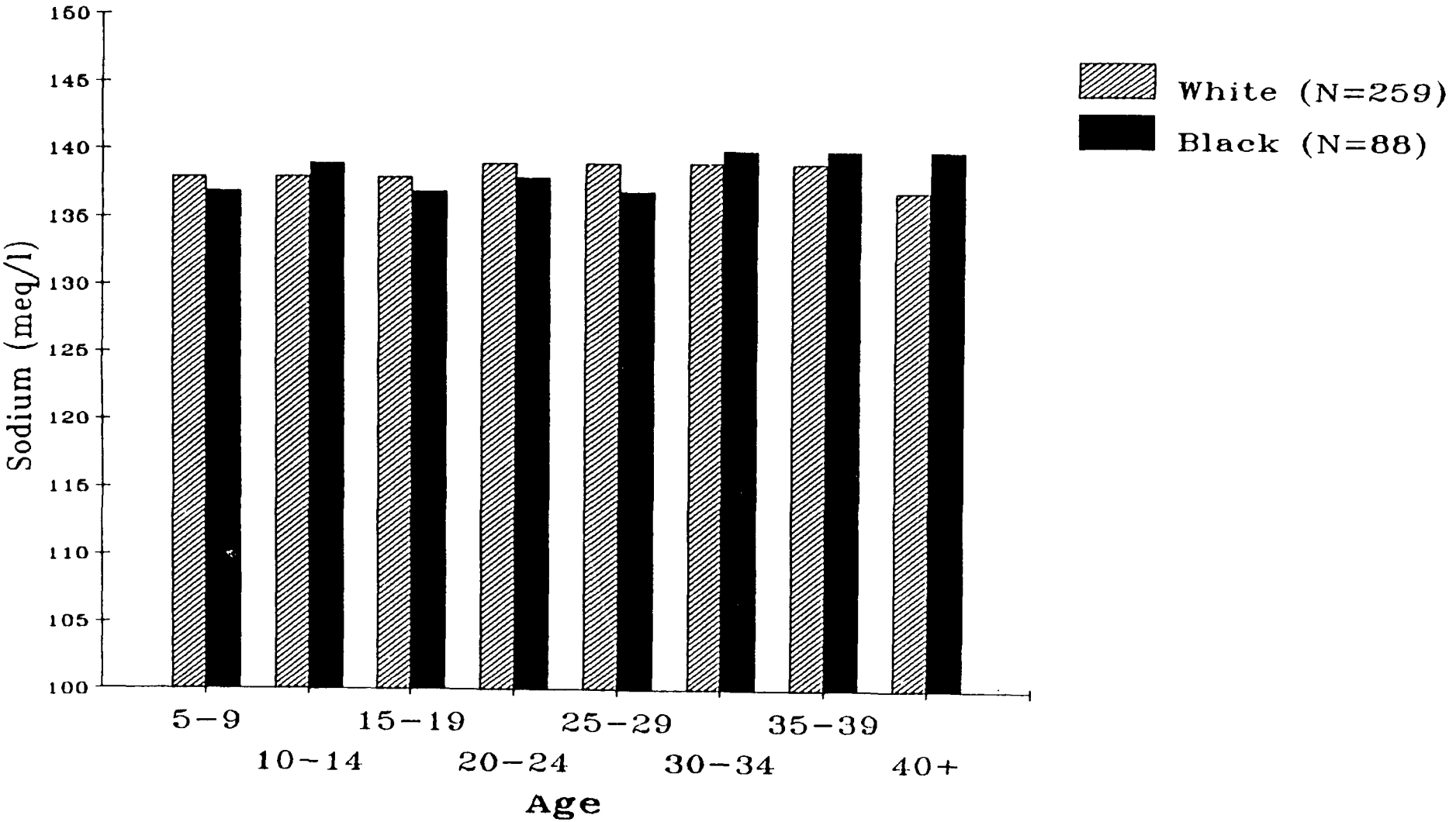
Gamma-Glutamyl Transferase by Age and Race Fort Polk, Louisiana, 1989-1991 Females



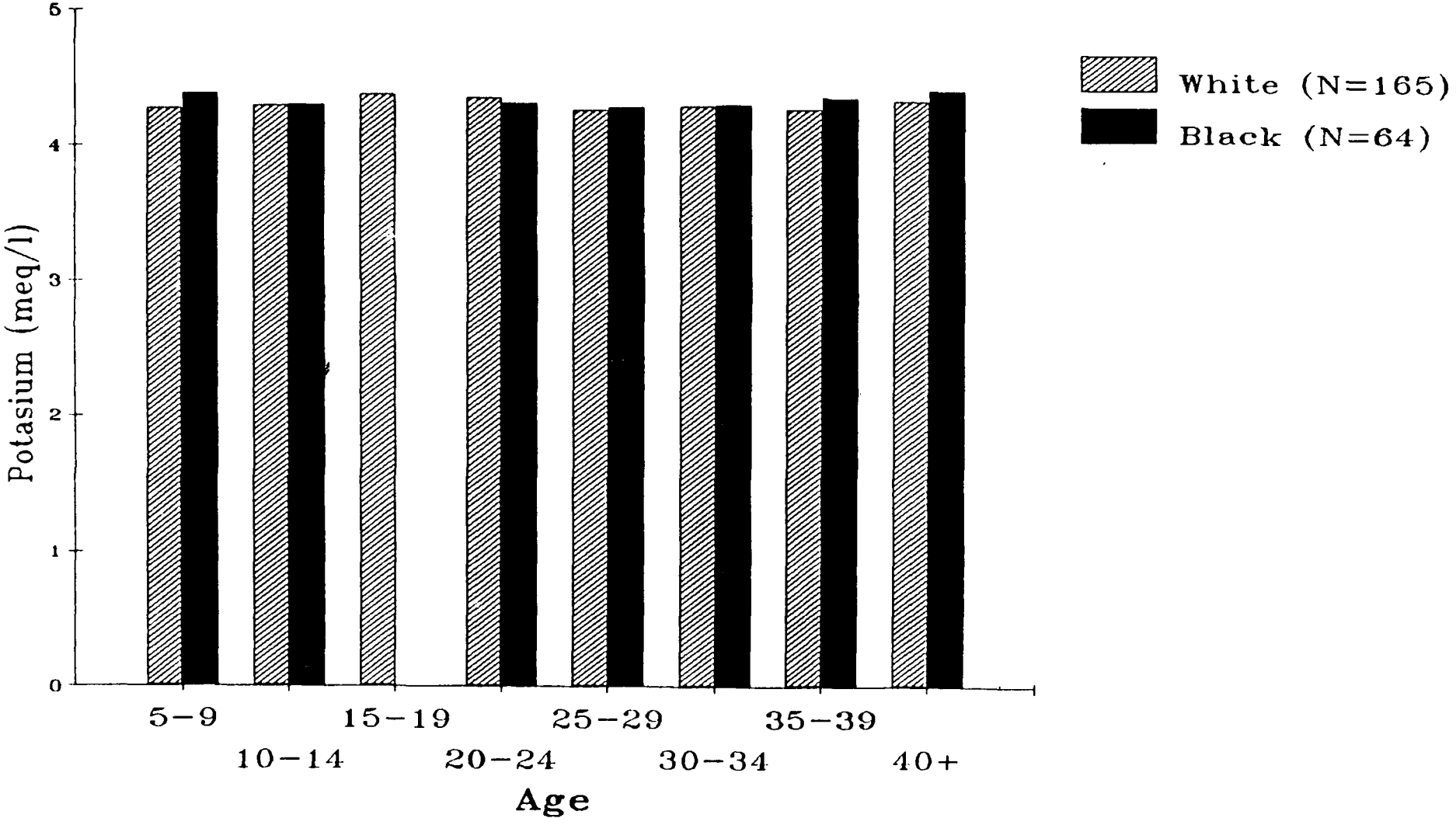
Sodium Concentration by Age and Race Fort Polk, Louisiana, 1989–1991 Males



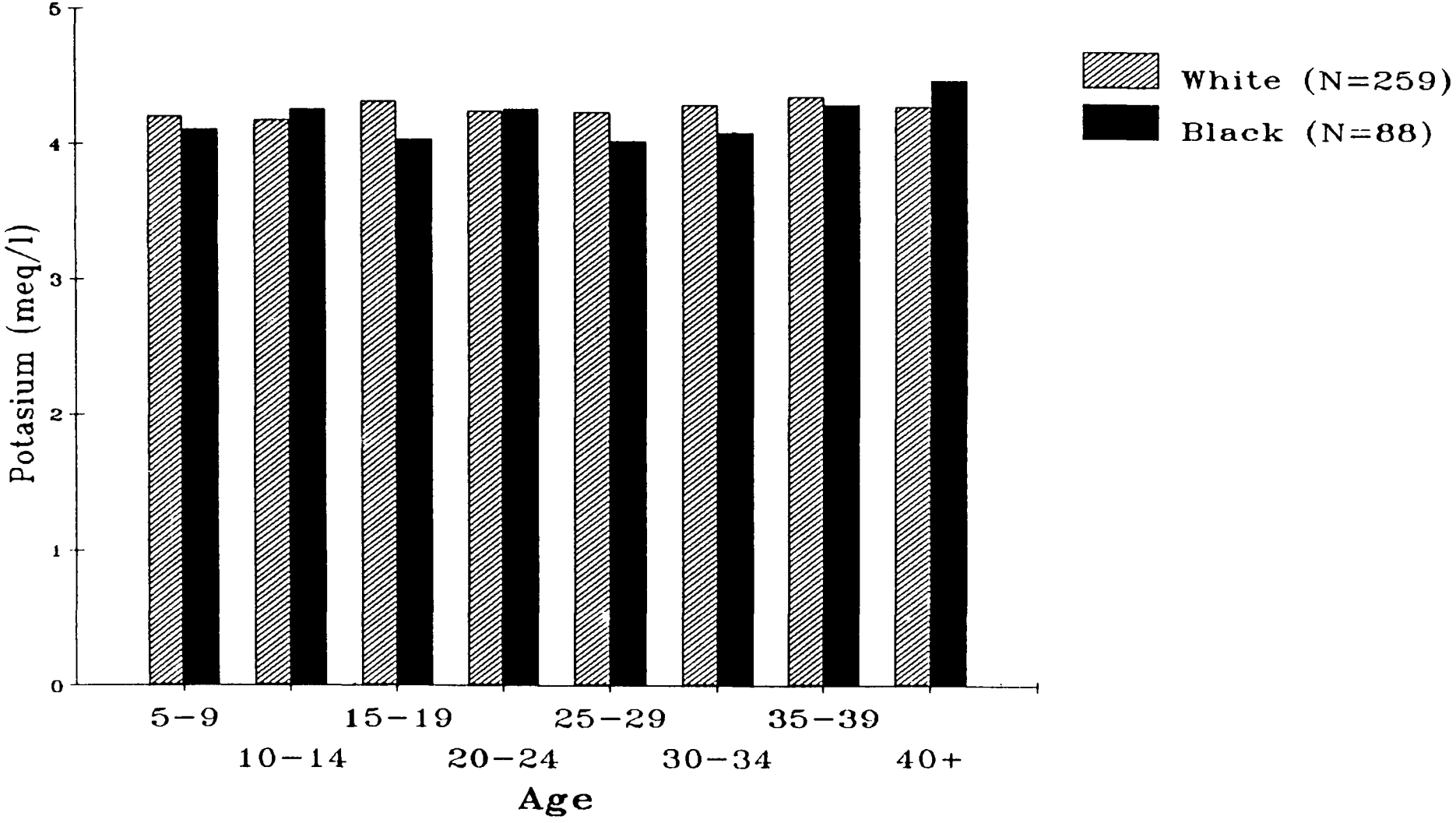
Sodium Concentration by Age and Race Fort Polk, Louisiana, 1989–1991 Females



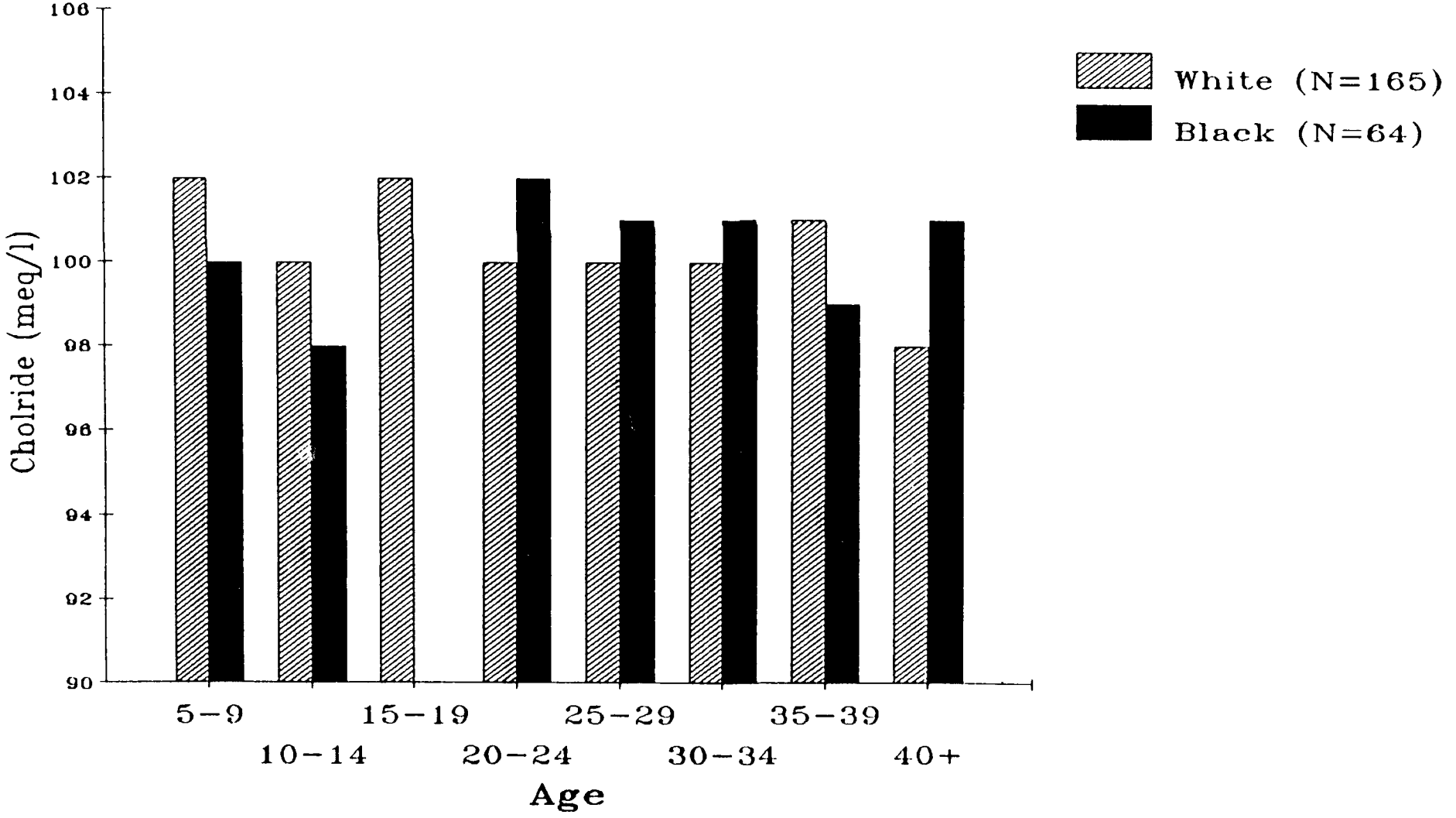
Potassium Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Males



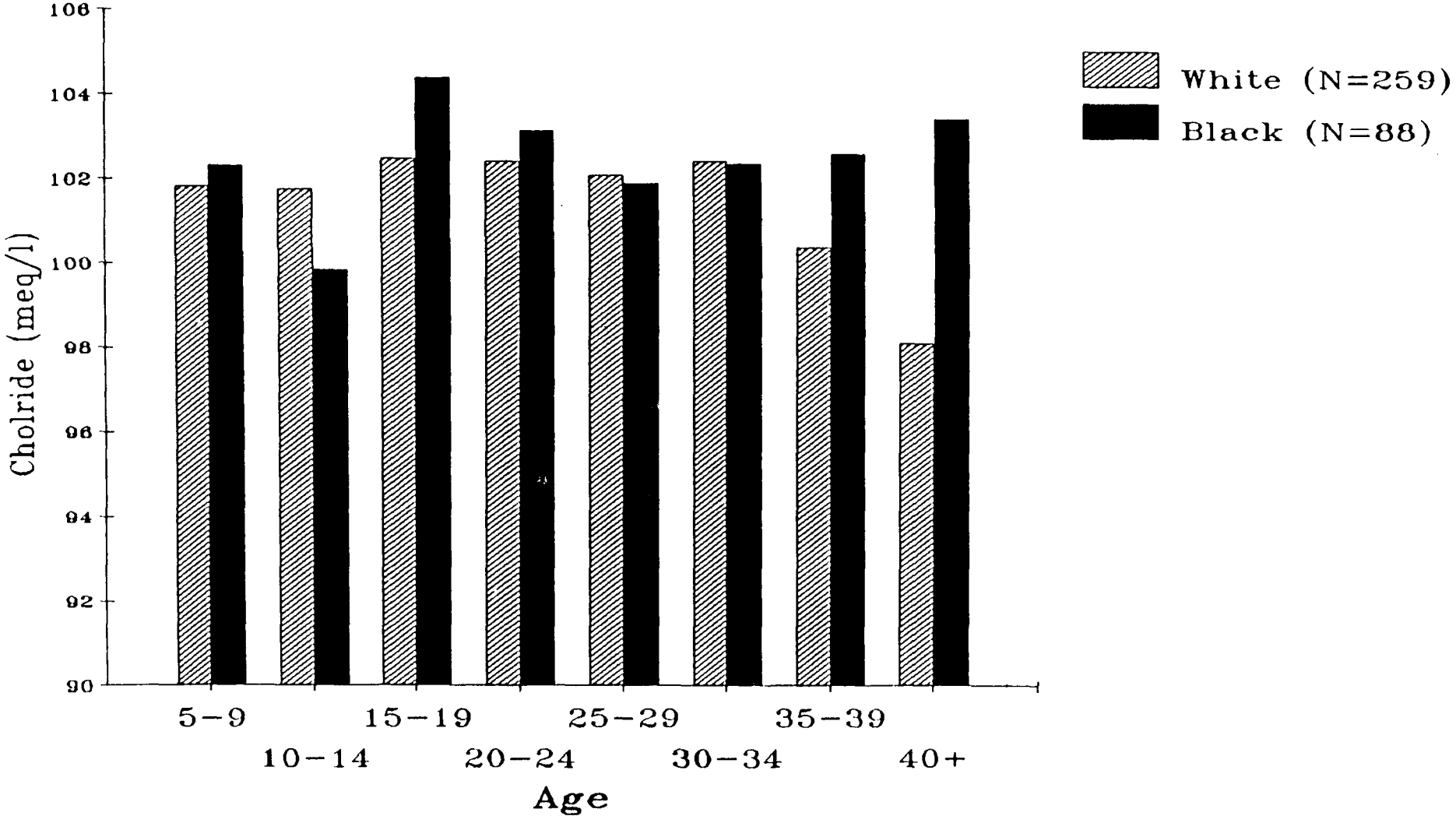
Potassium Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Females



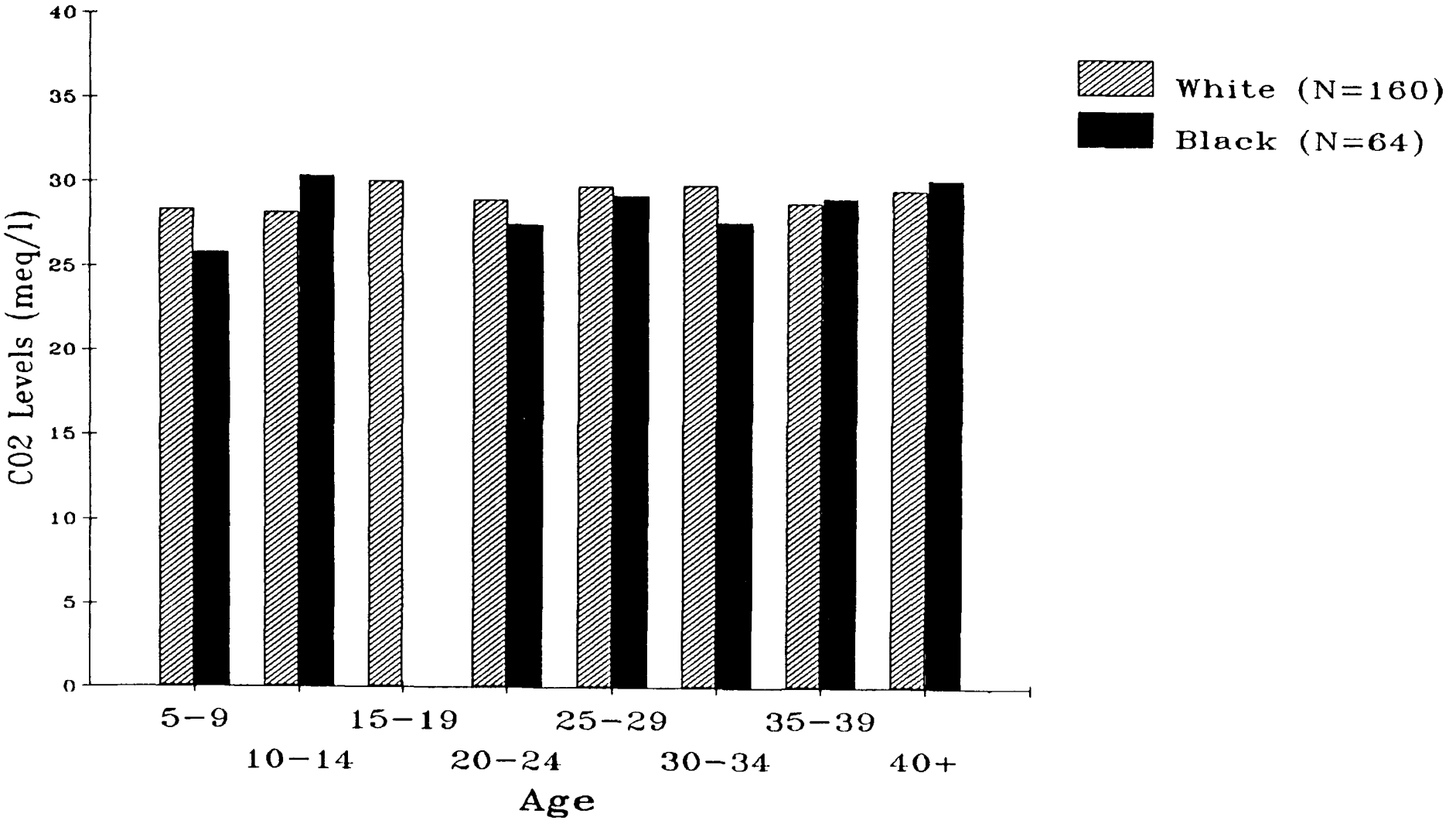
Chloride Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Males



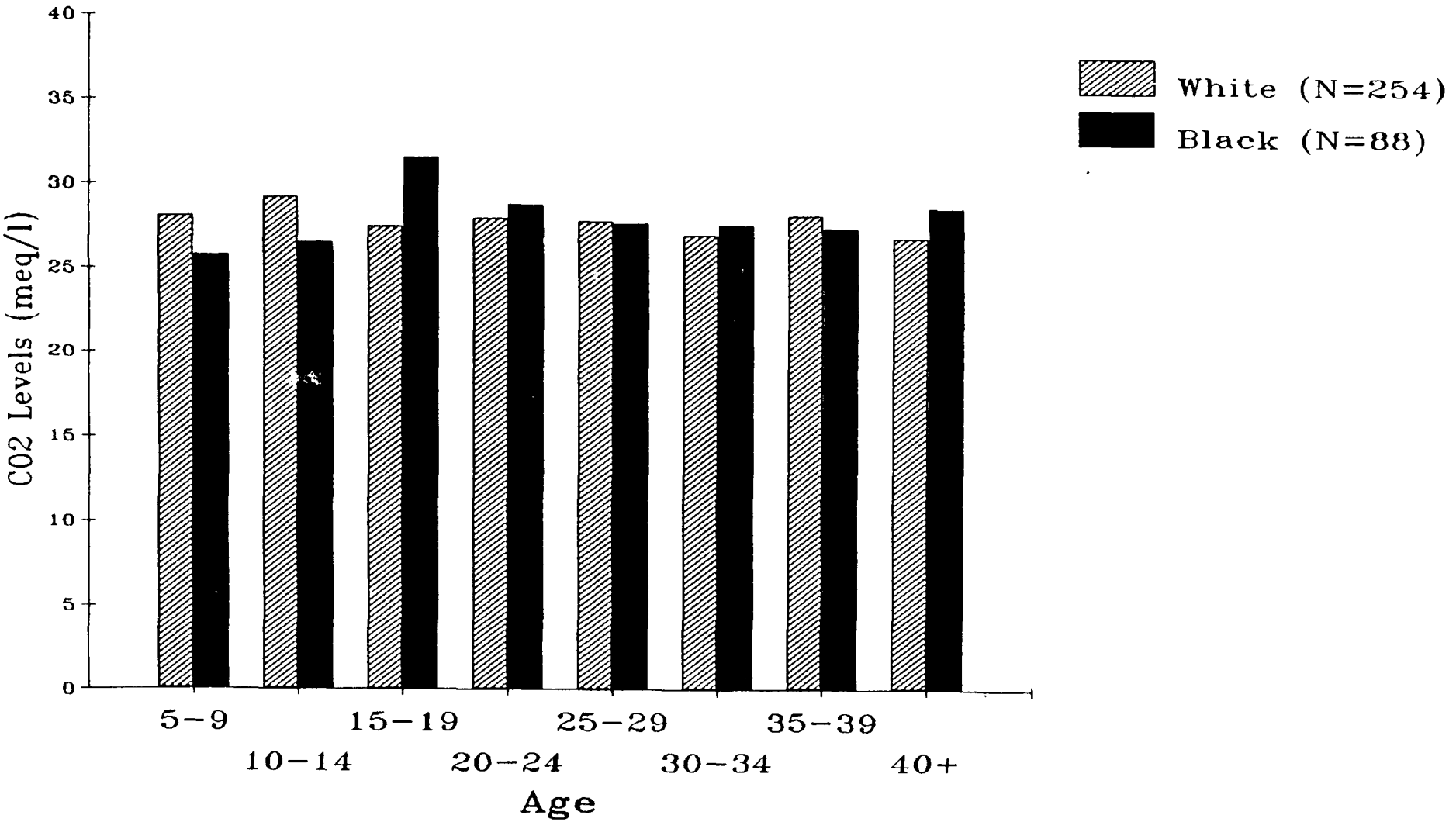
Chloride Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Females



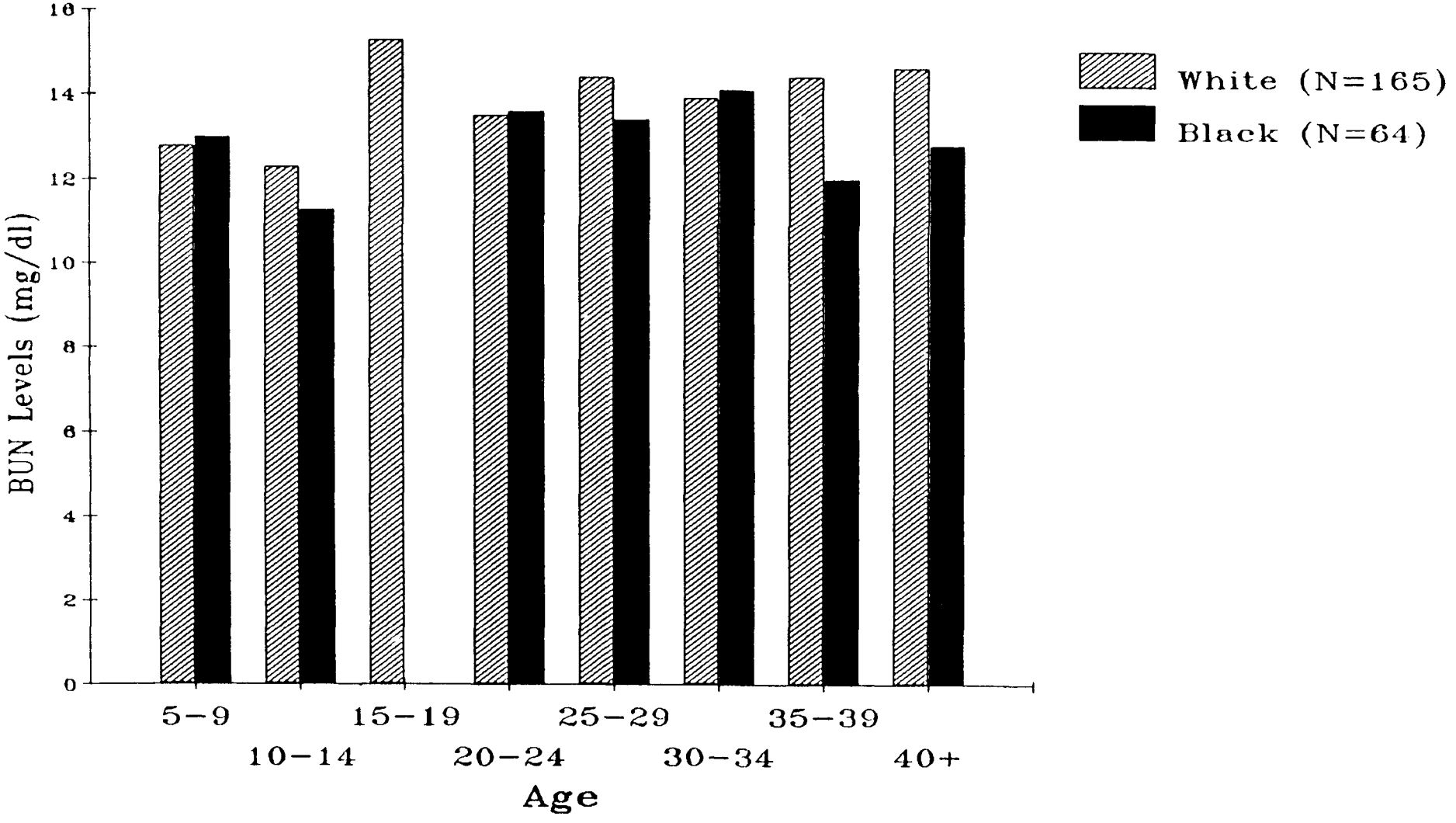
Carbon Dioxide Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Males



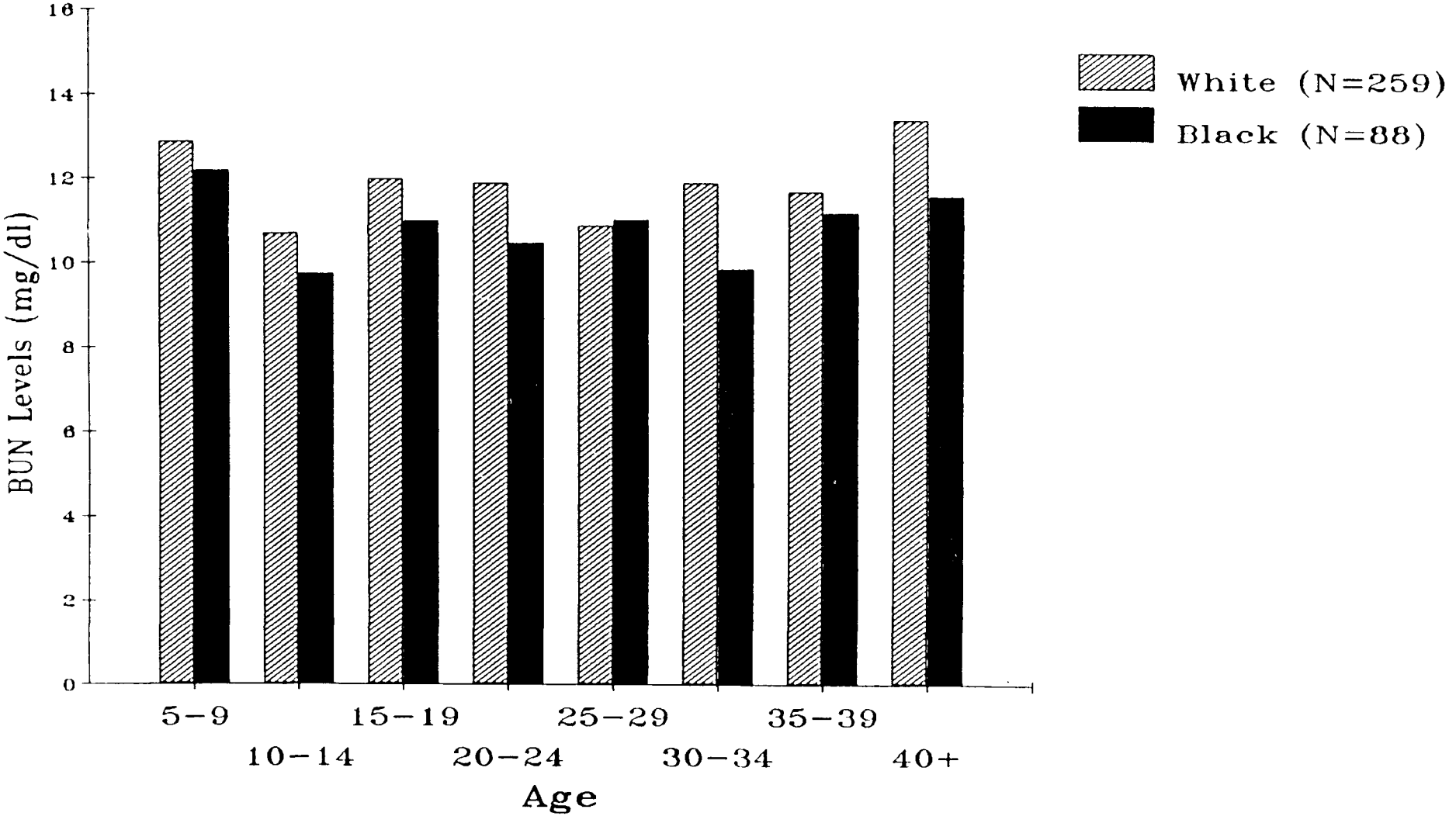
Carbon Dioxide Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Females



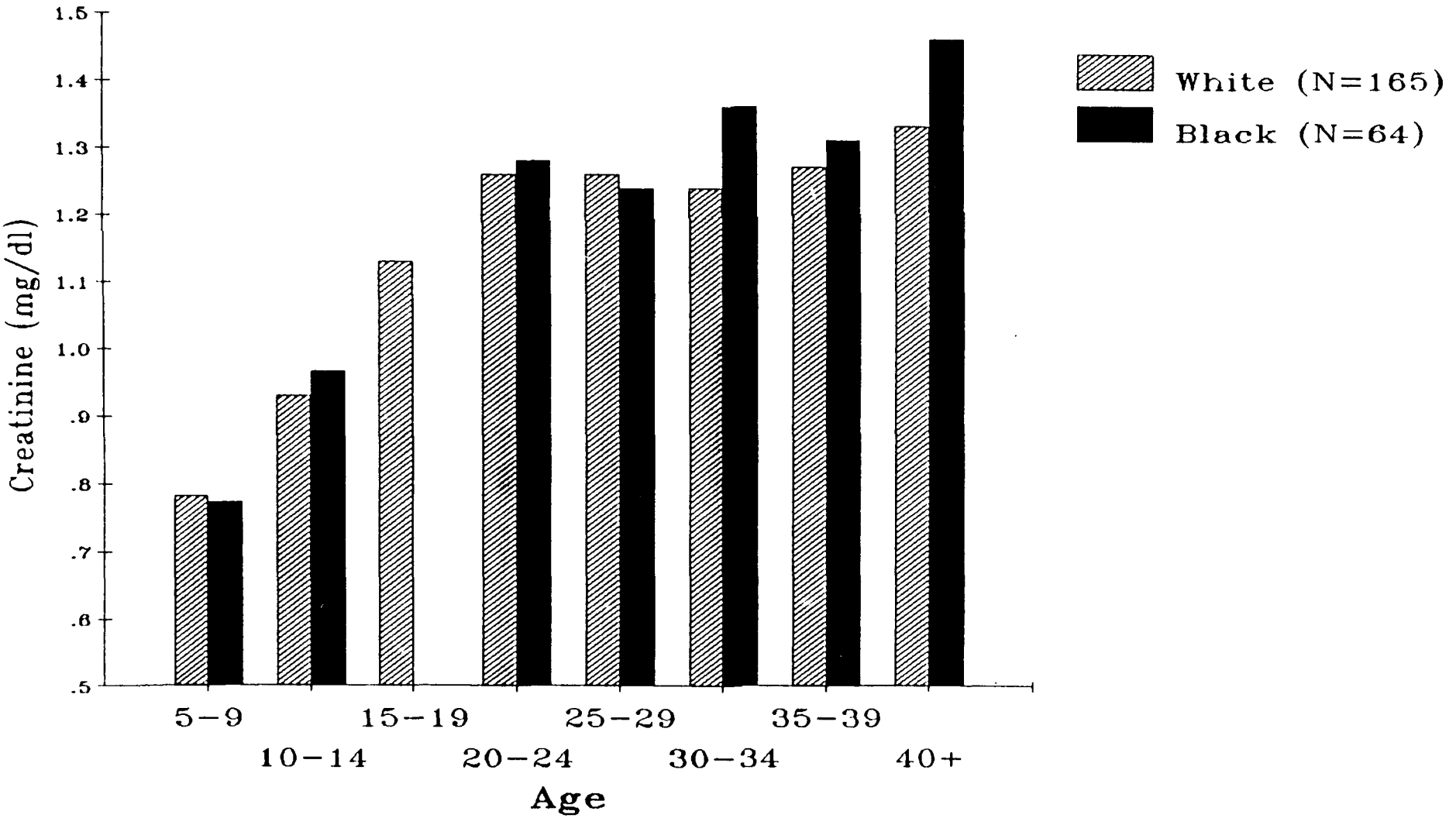
Blood Urea Nitrogen Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Males



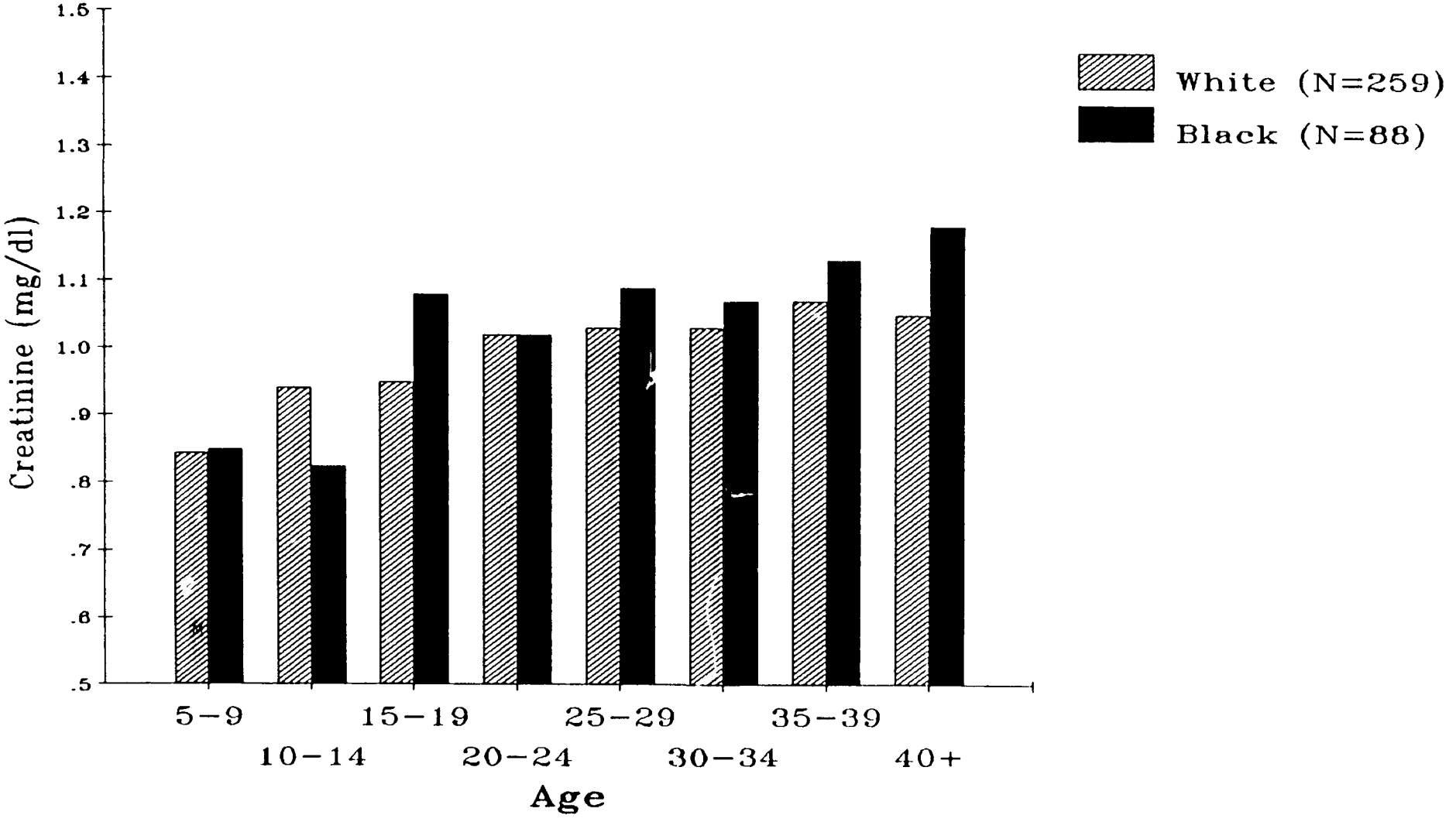
Blood Urea Nitrogen Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Females



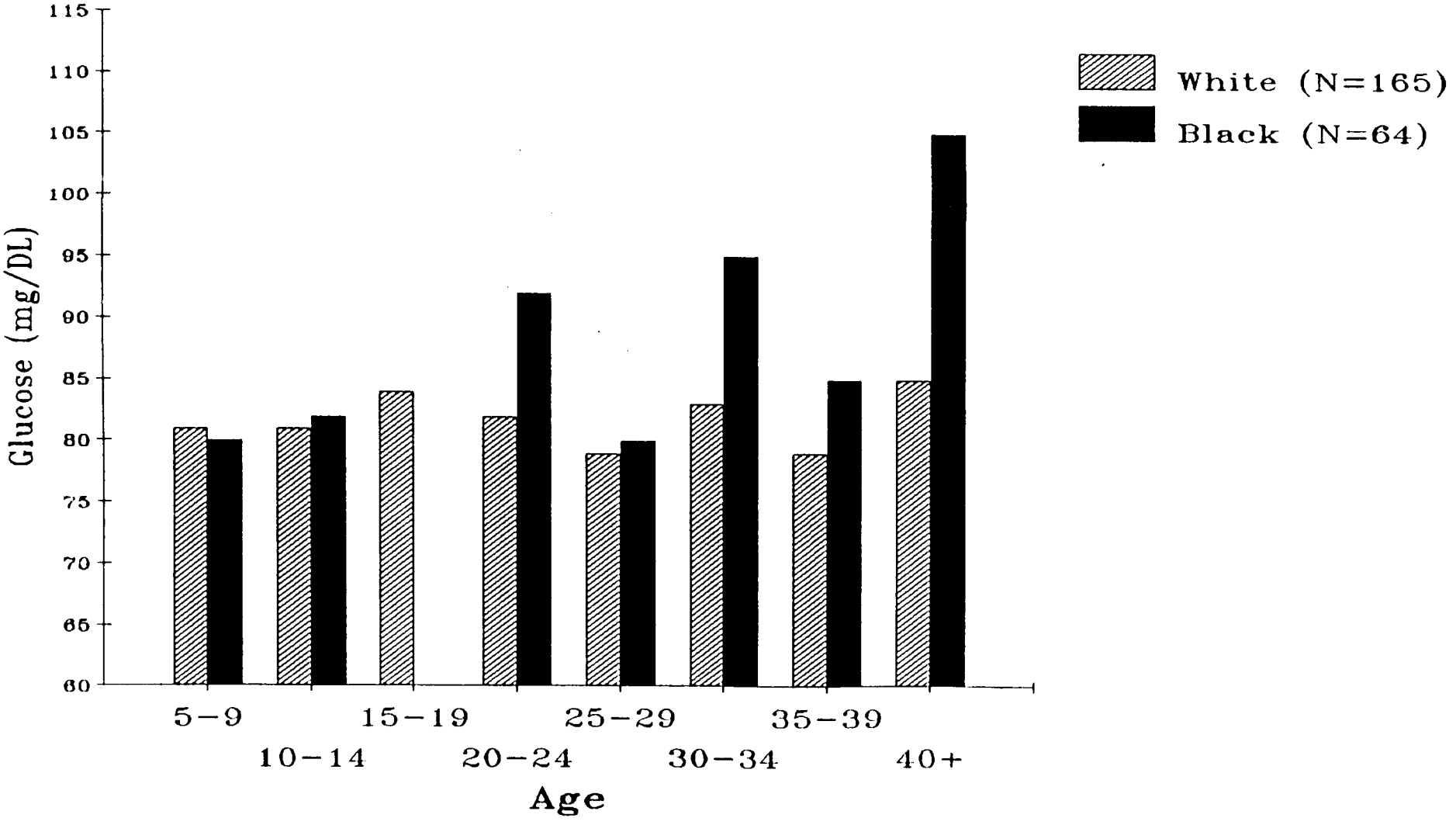
Creatinine Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Males



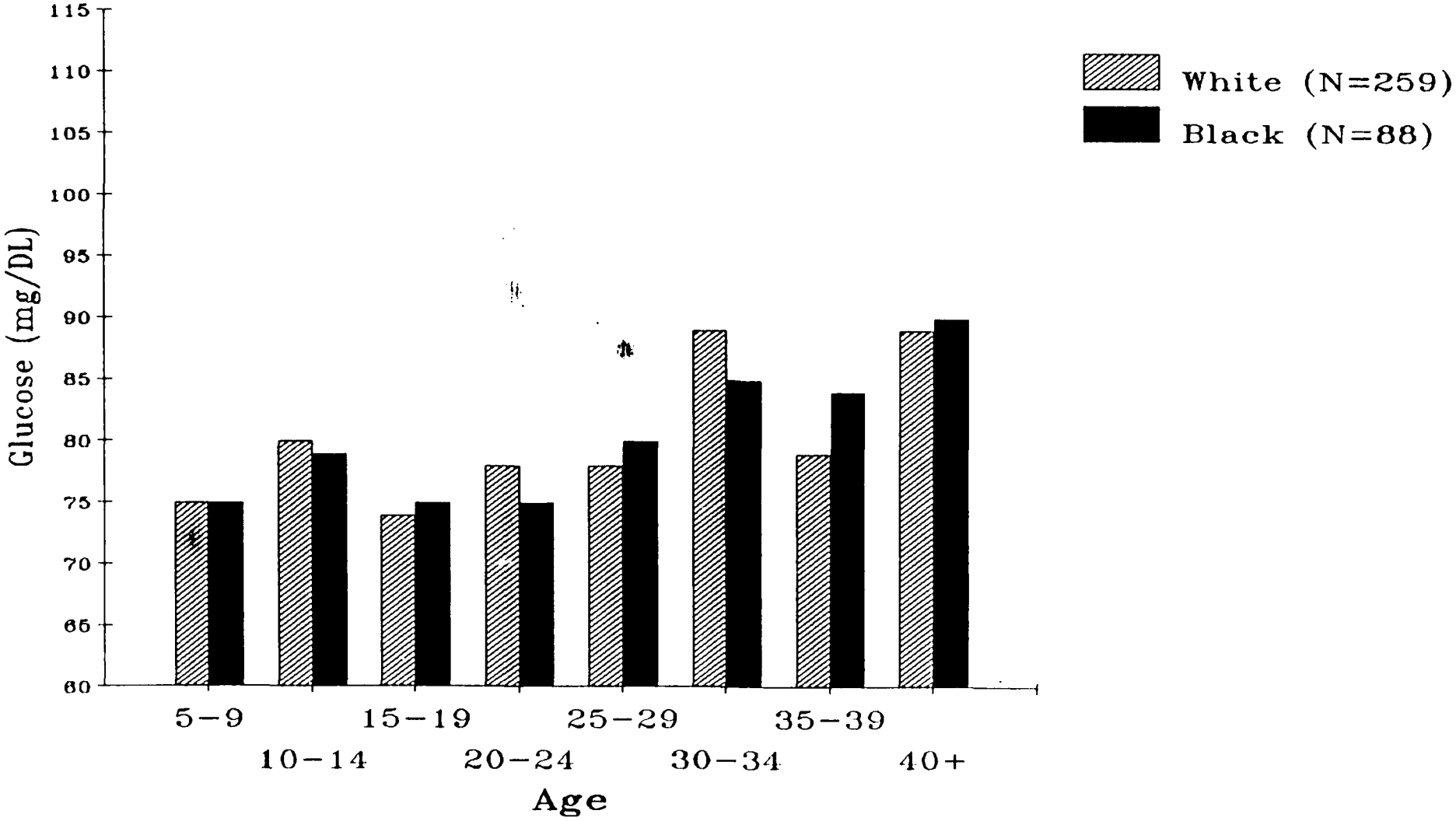
Creatinine Levels by Age and Race Fort Polk, Louisiana, 1989–1991 Females



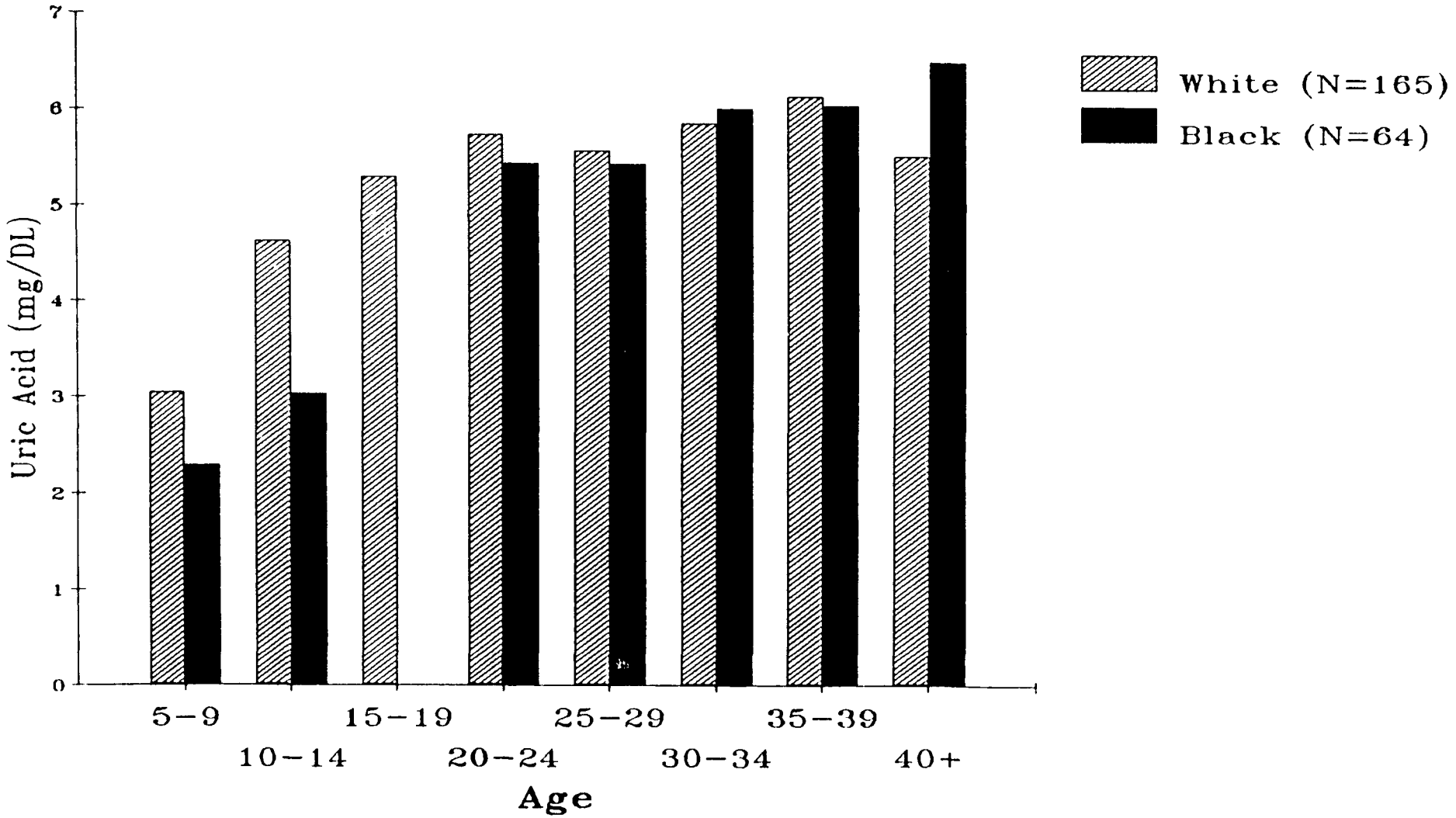
Glucose Concentration by Age and Race Fort Polk, Louisiana, 1989–1991 Males



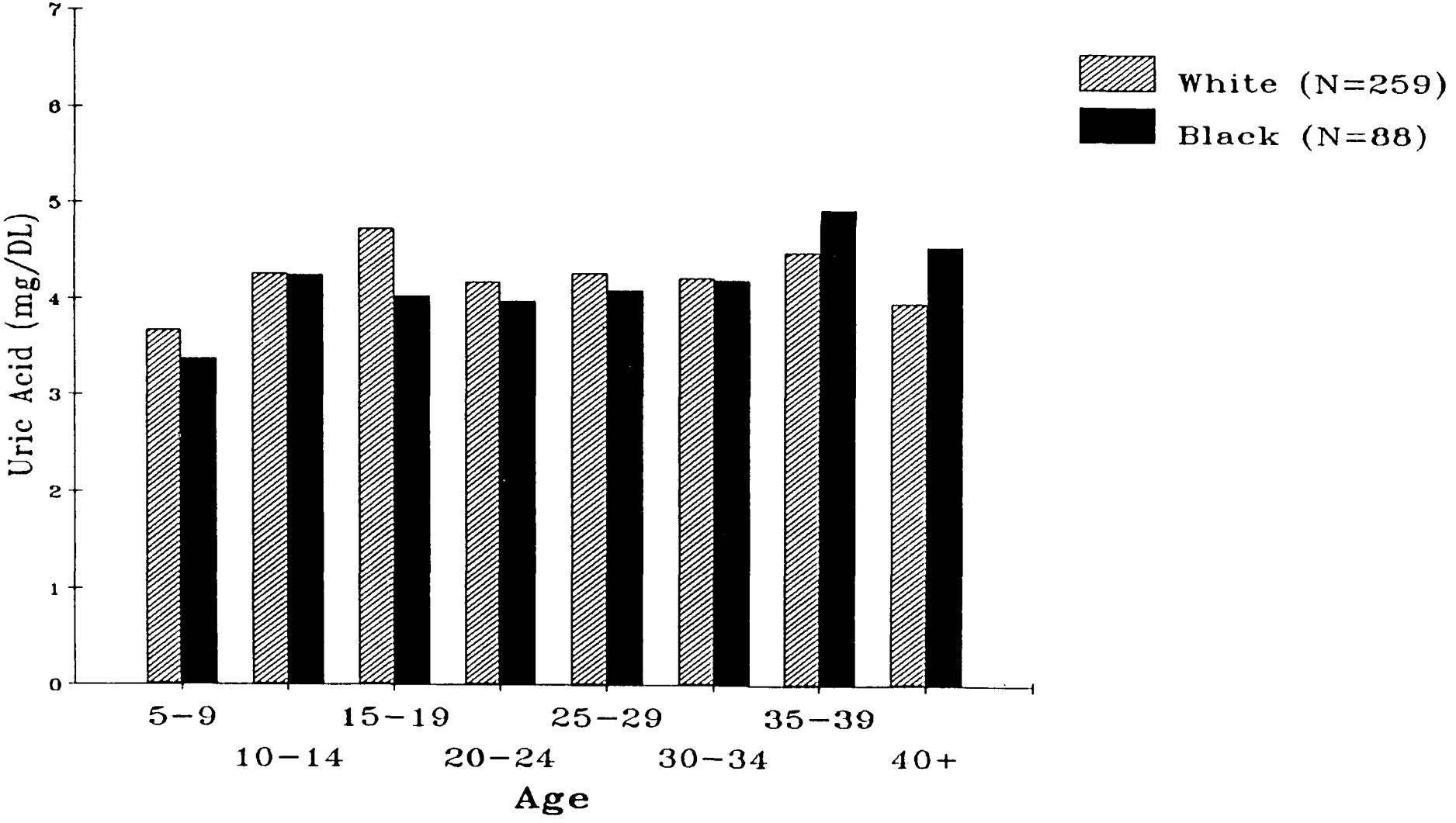
Glucose Concentration by Age and Race Fort Polk, Louisiana, 1989–1991 Females



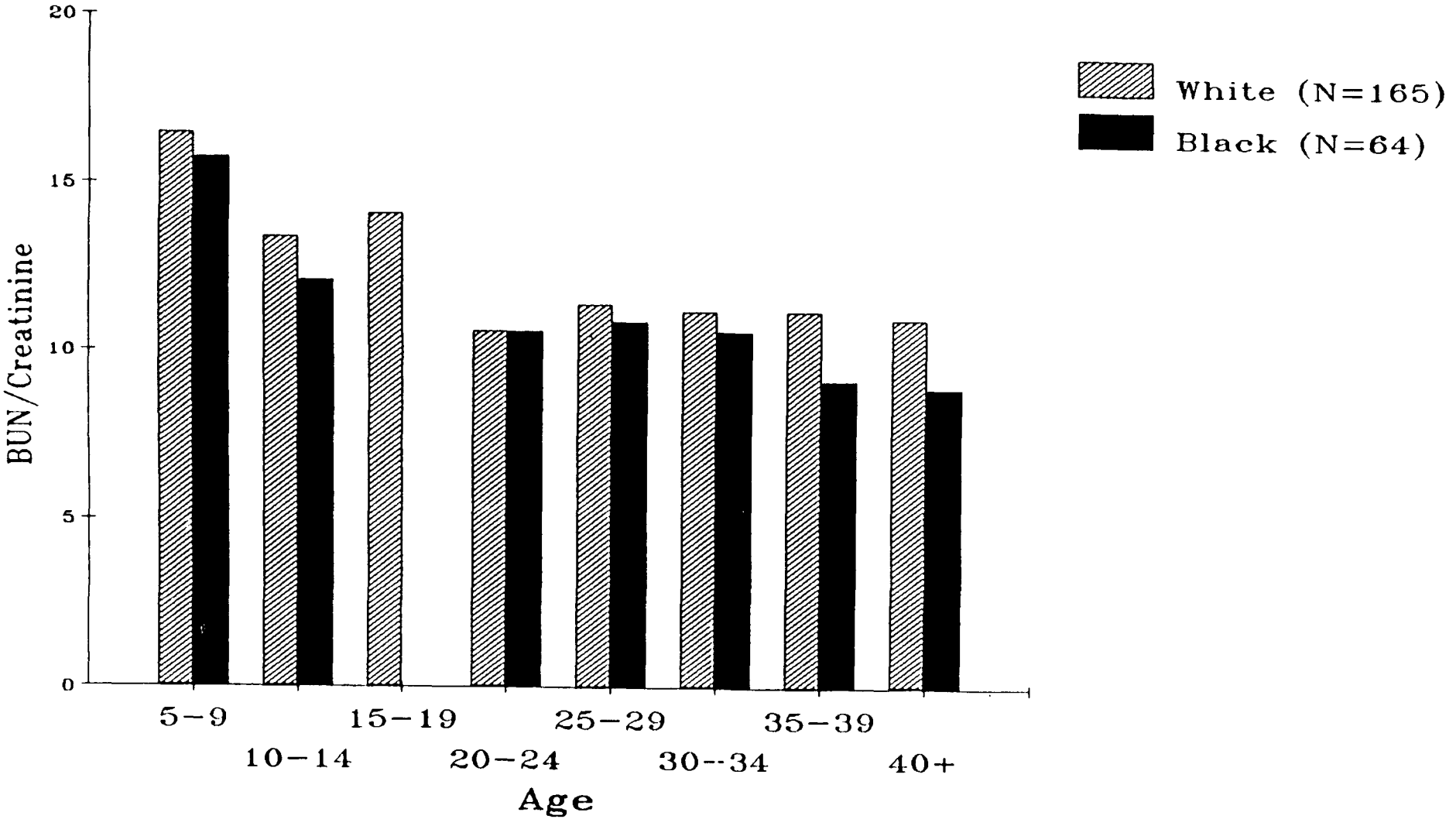
Uric Acid Concentration by Age and Race Fort Polk, Louisiana, 1989–1991 Males



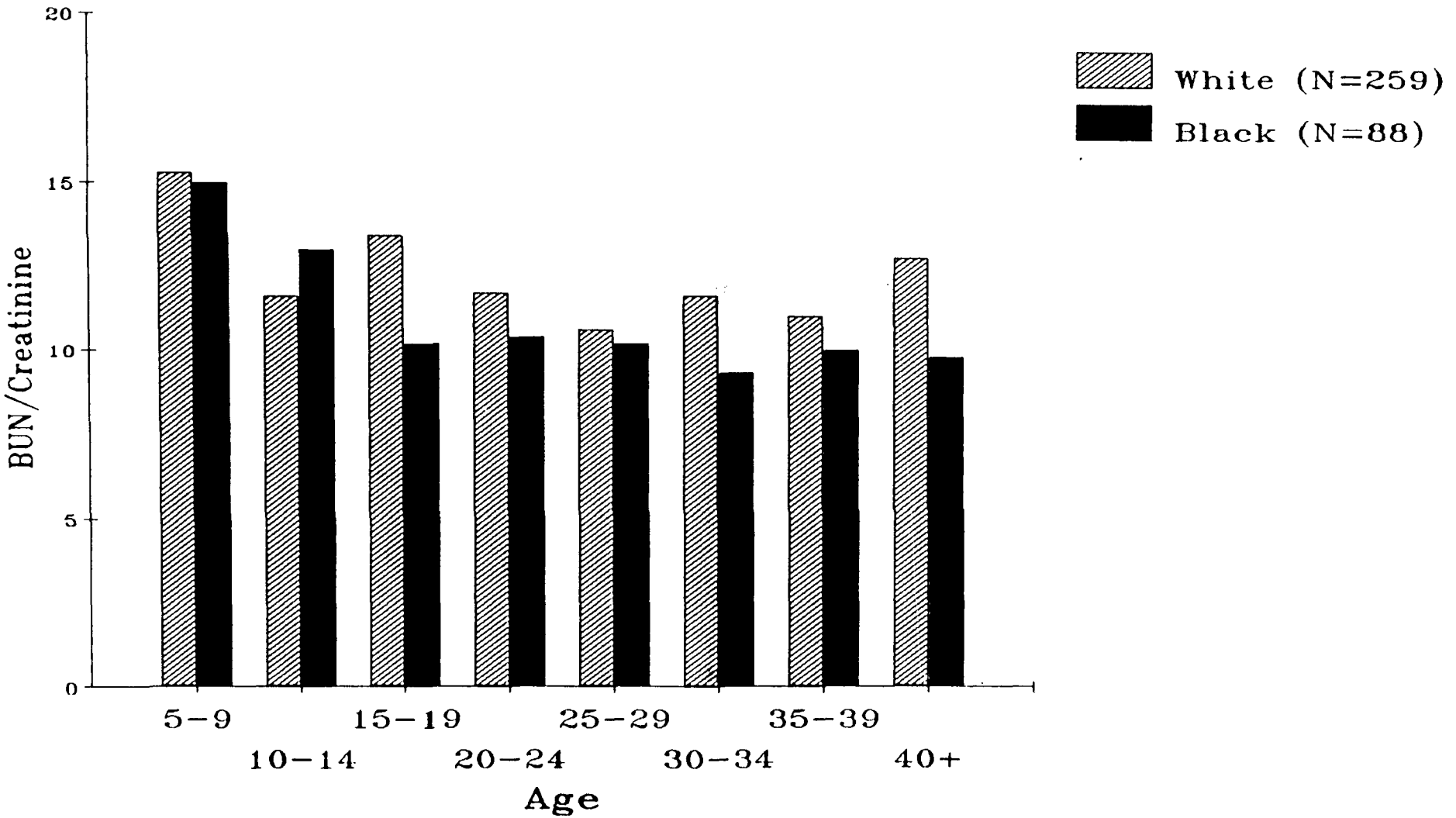
Uric Acid Concentration by Age and Race Fort Polk, Louisiana, 1989–1991 Females



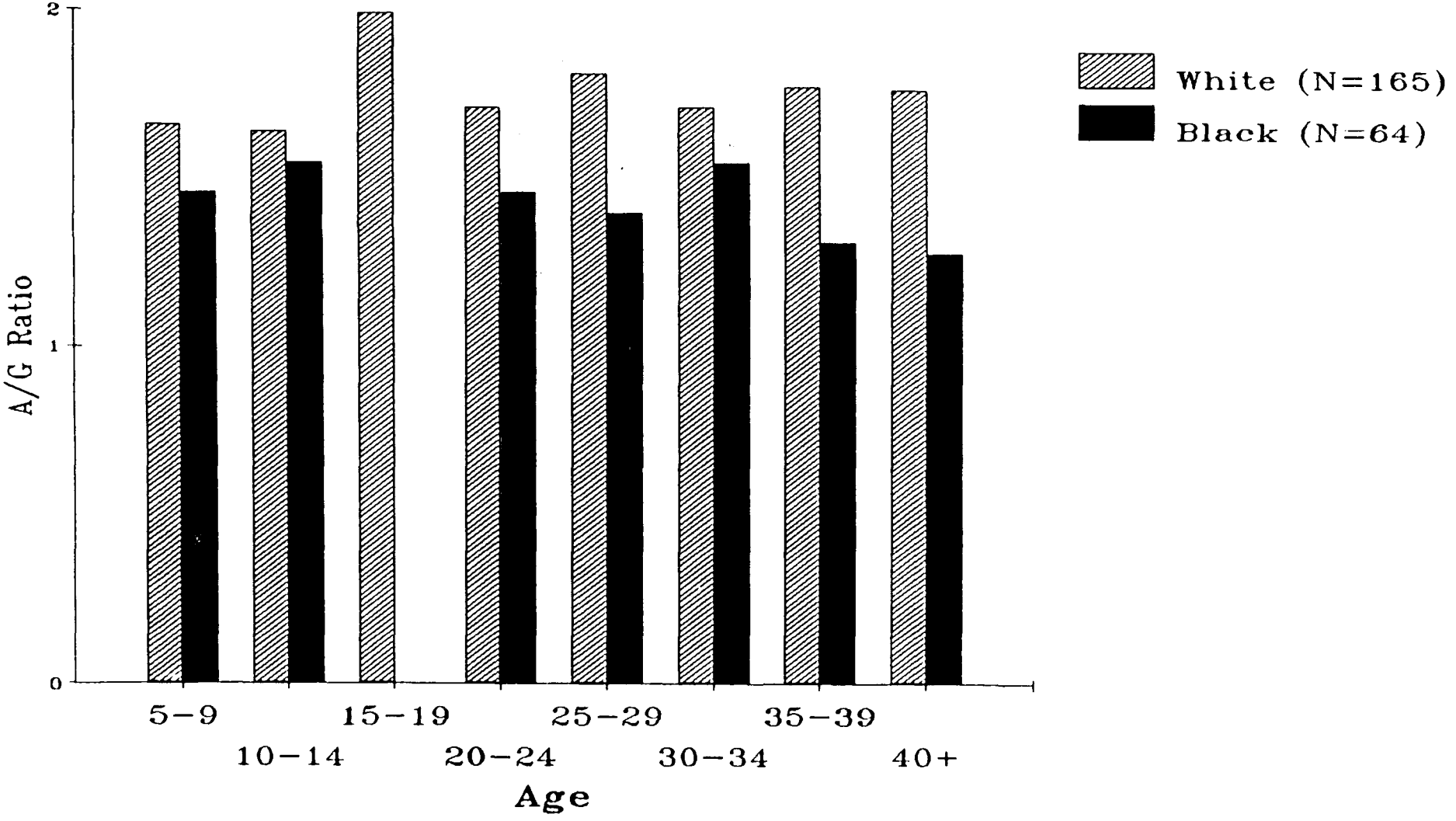
Blood Urea Nitrogen/Creatinine Ratio by Age and Race Fort Polk, Louisiana, 1989–1991 Males



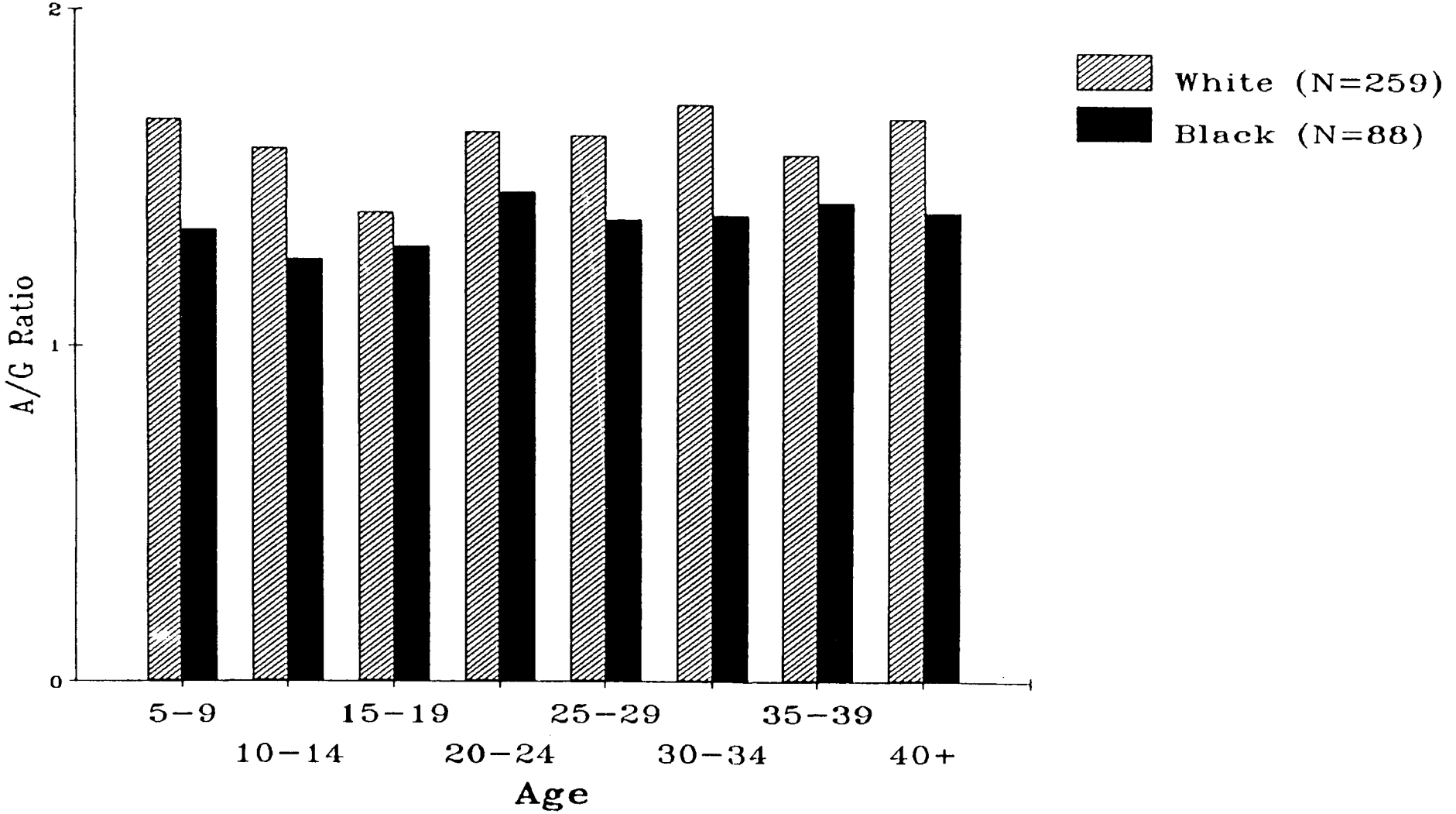
Blood Urea Nitrogen/Creatinine Ratio by Age and Race Fort Polk, Louisiana, 1989–1991 Females



Albumin/Globulin Ratio by Age and Race Fort Polk, Louisiana, 1989–1991 Males



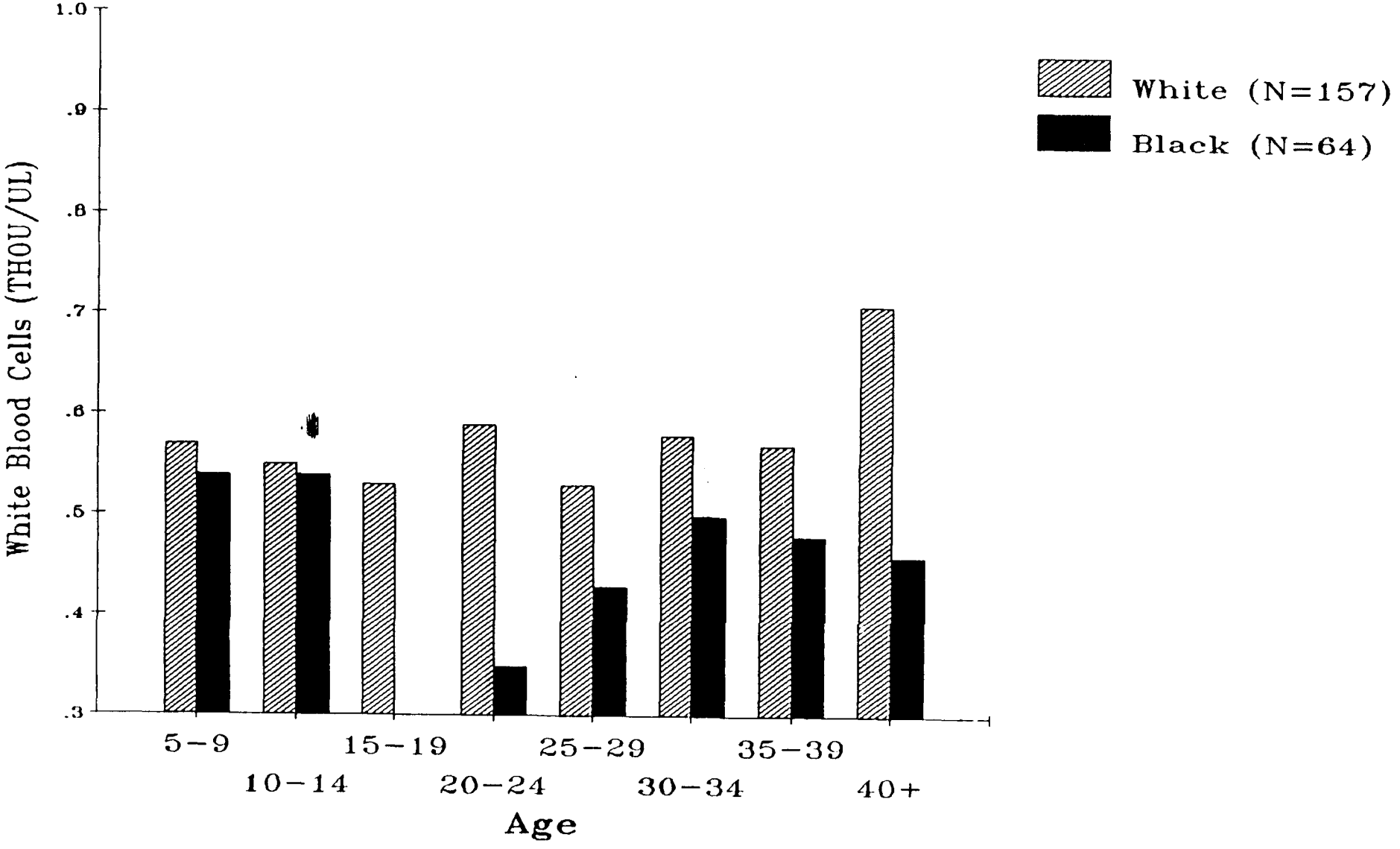
Albumin/Globulin Ratio
by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



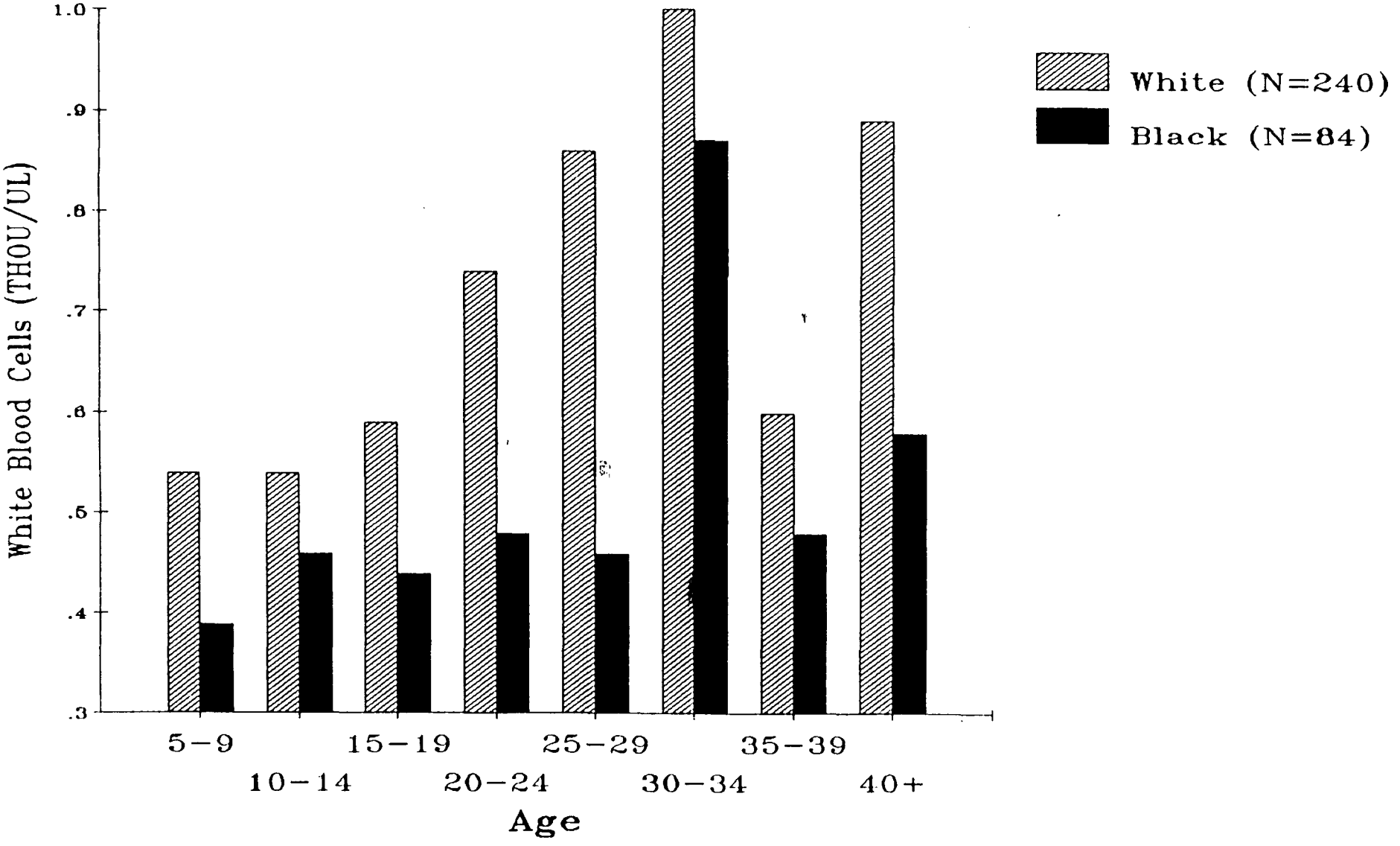
FORT POLK HEART SMART PROGRAM

Hematology

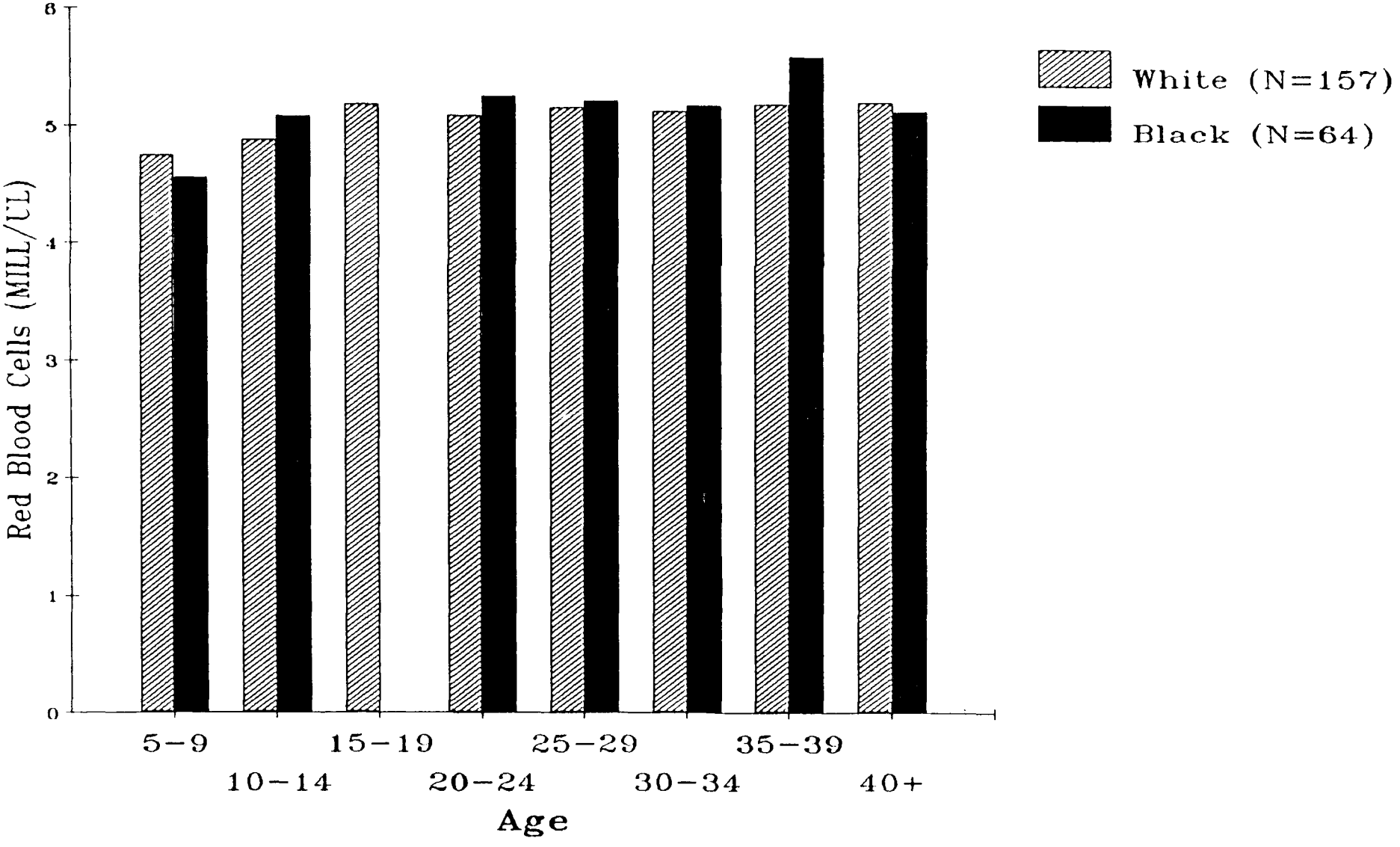
White Blood Cell Count
Fort Polk, Louisiana, 1989–1991
Males



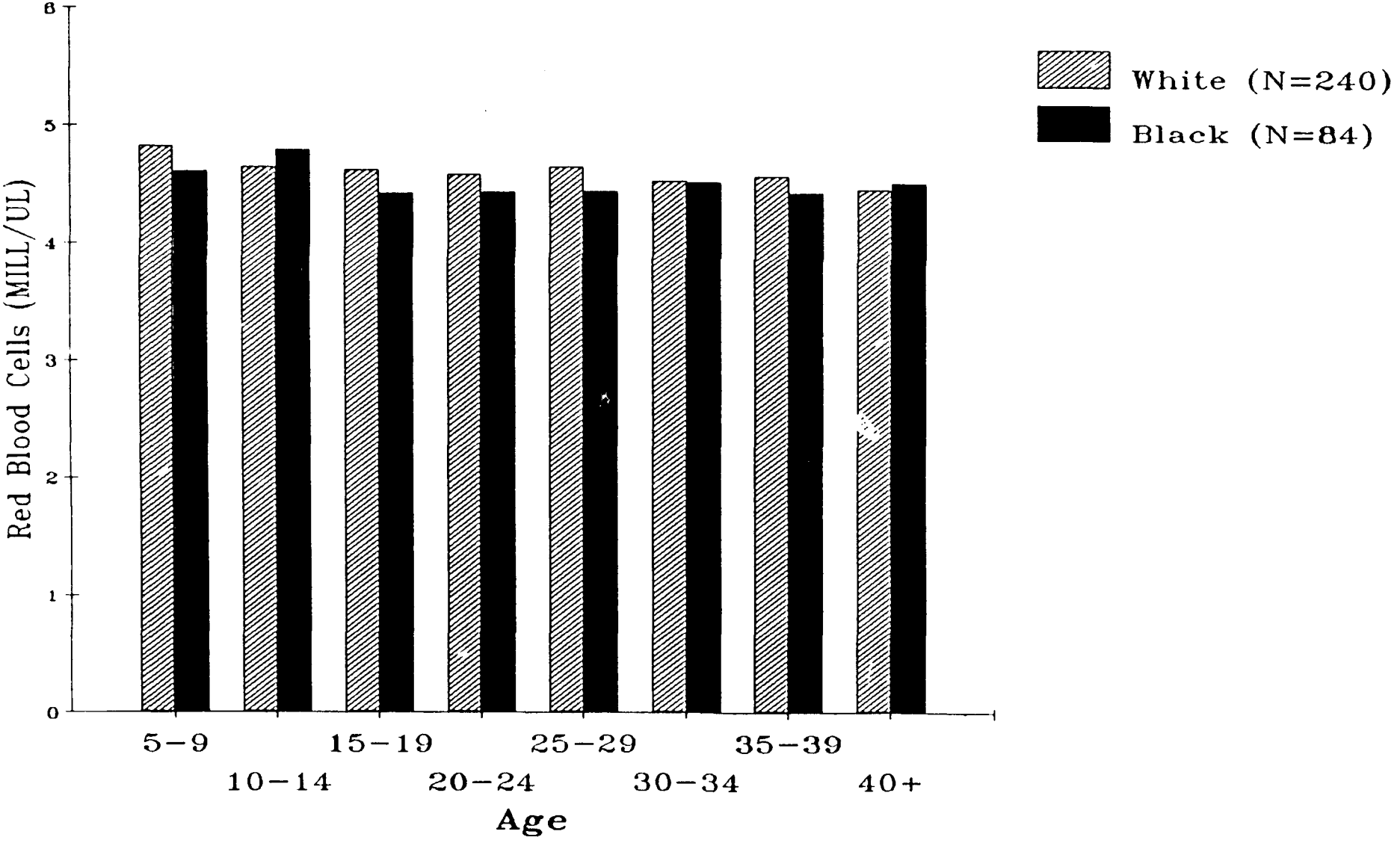
White Blood Cell Count
Fort Polk, Louisiana, 1989–1991
Females



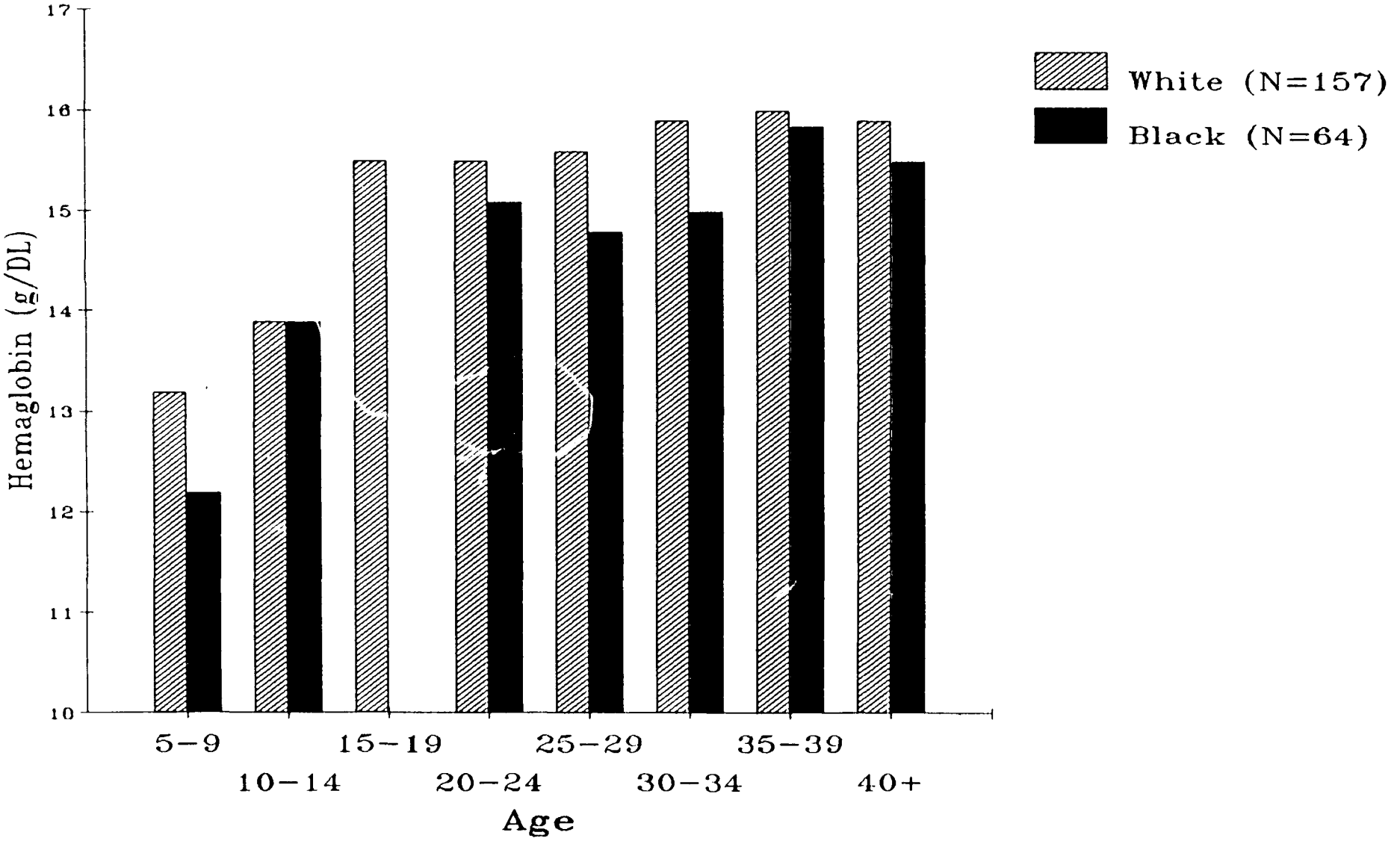
Red Blood Cell Count
Fort Polk, Louisiana, 1989–1991
Males



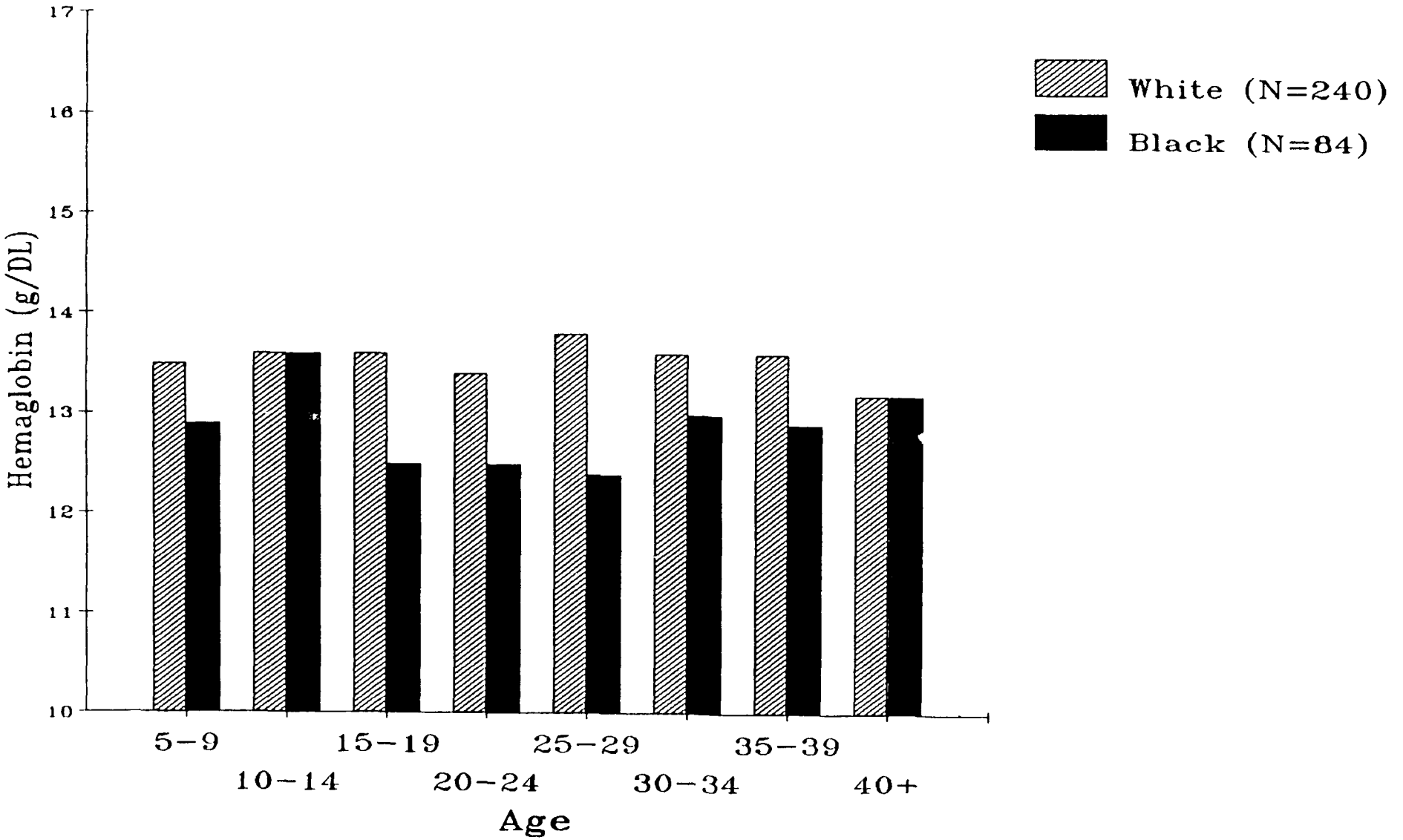
Red Blood Cell Count
Fort Polk, Louisiana, 1989–1991
Females



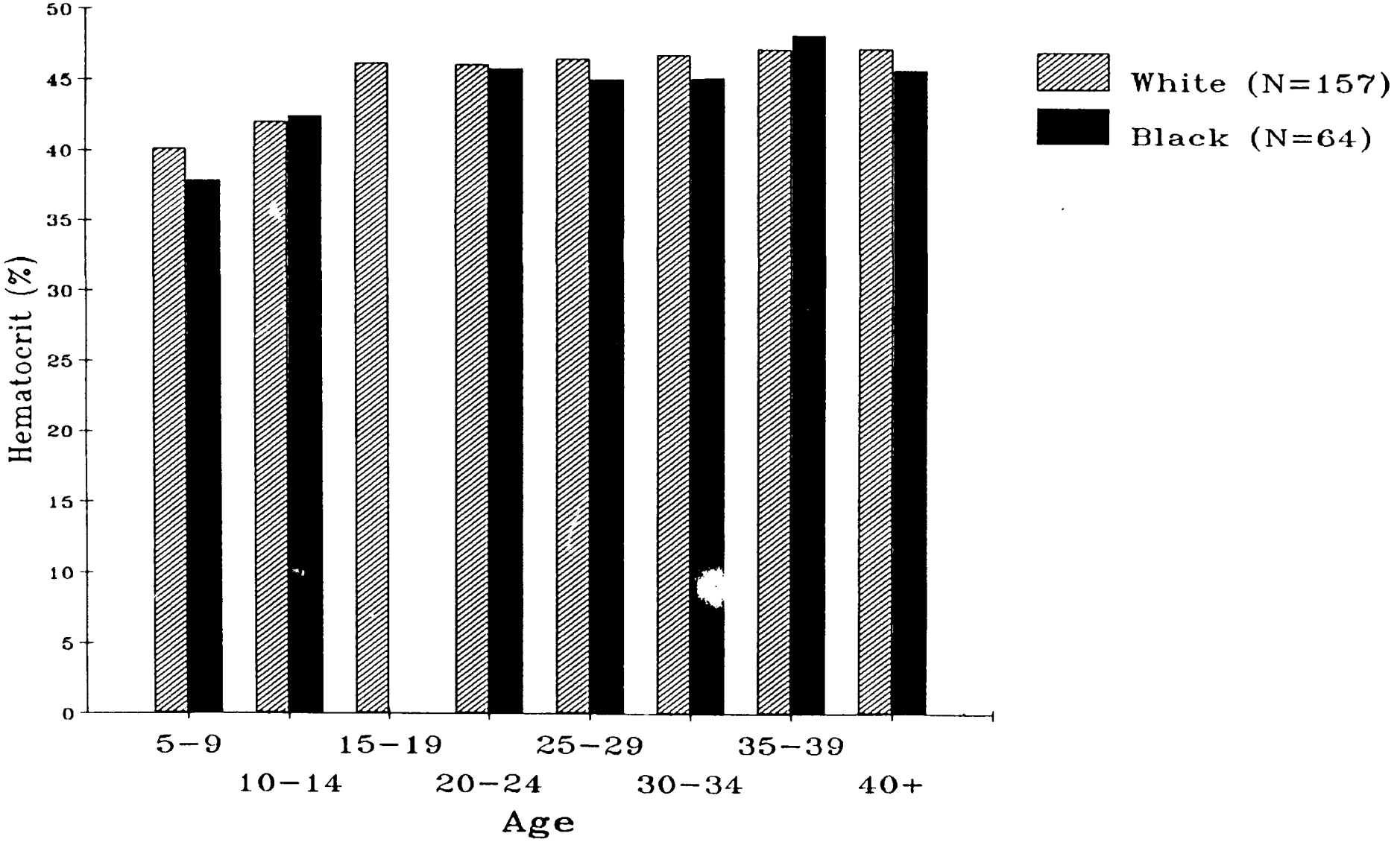
Hemoglobin Concentration
Fort Polk, Louisiana, 1989–1991
Males



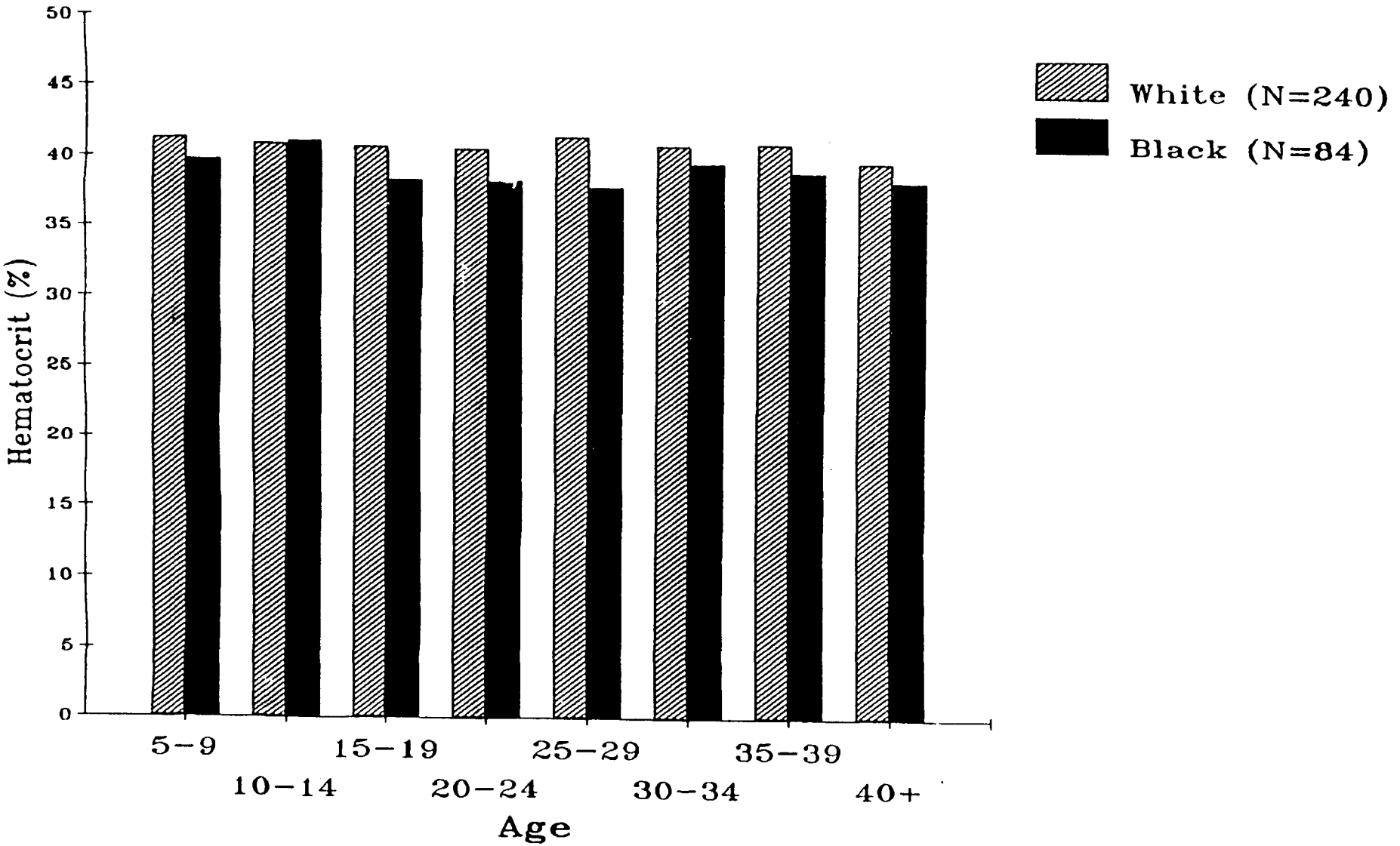
Hemoglobin Concentration
Fort Polk, Louisiana, 1989–1991
Females



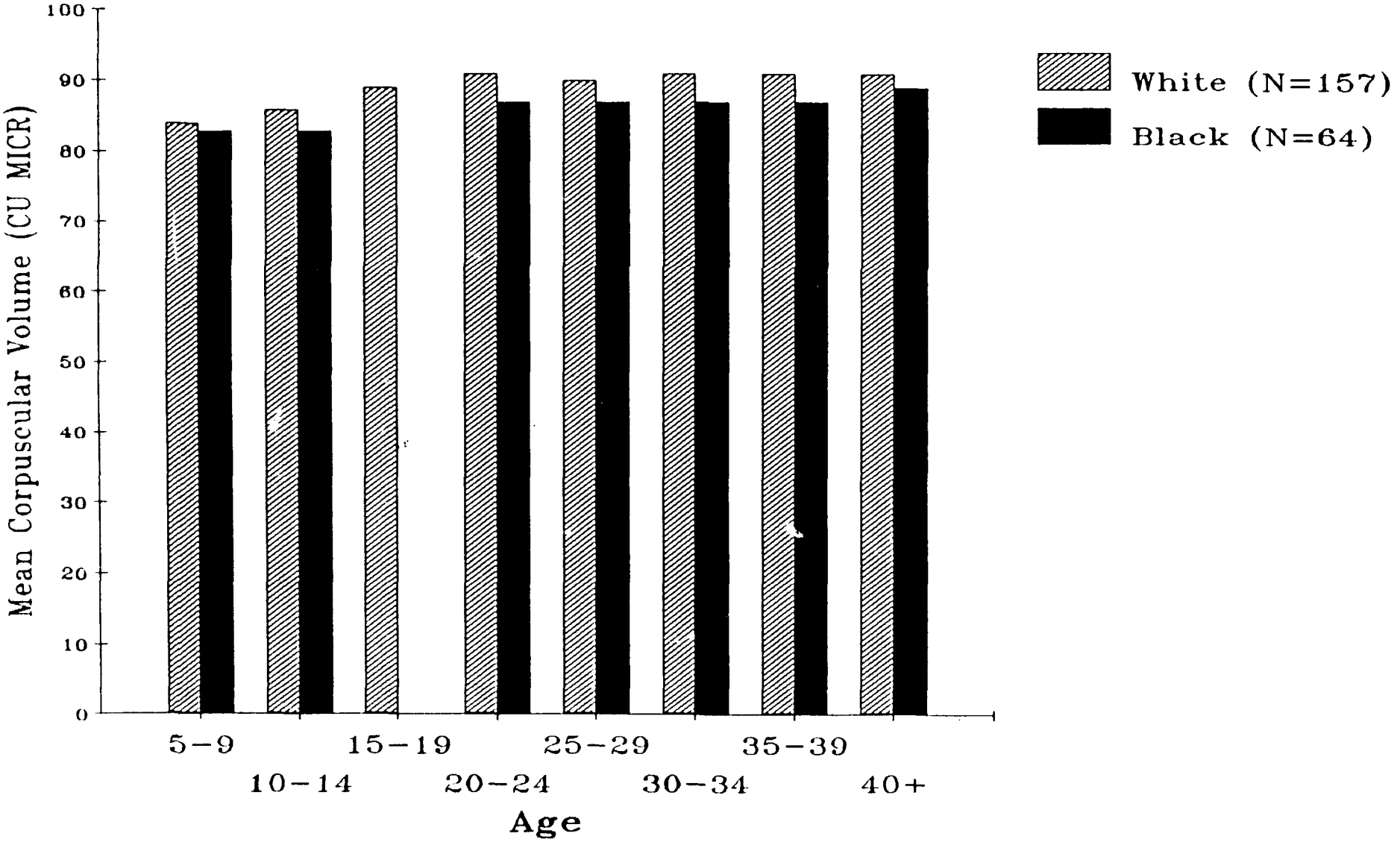
Hematocrit by Age and Race
Fort Polk, Louisiana, 1989–1991
Males



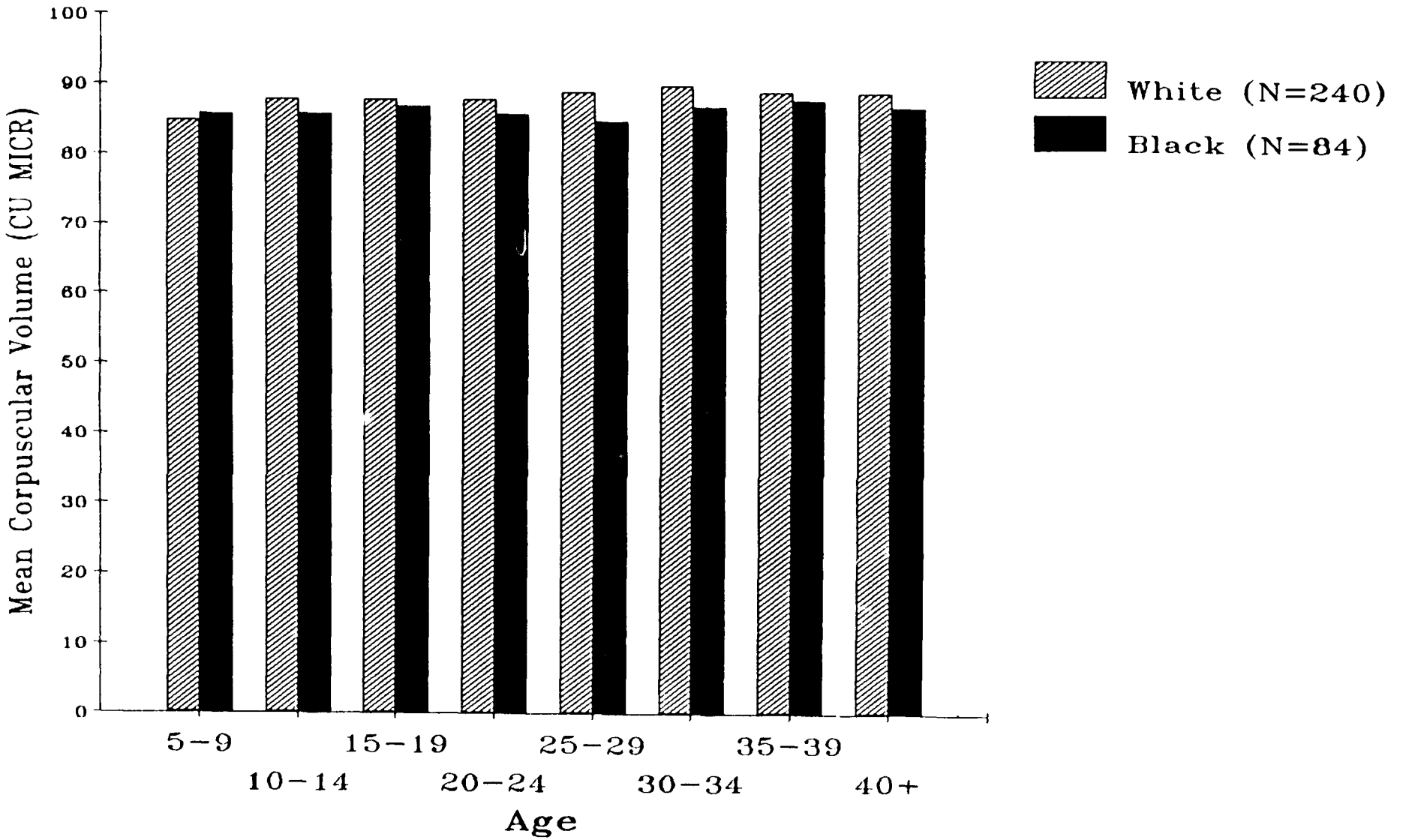
Hematocrit by Age and Race
Fort Polk, Louisiana, 1989–1991
Females



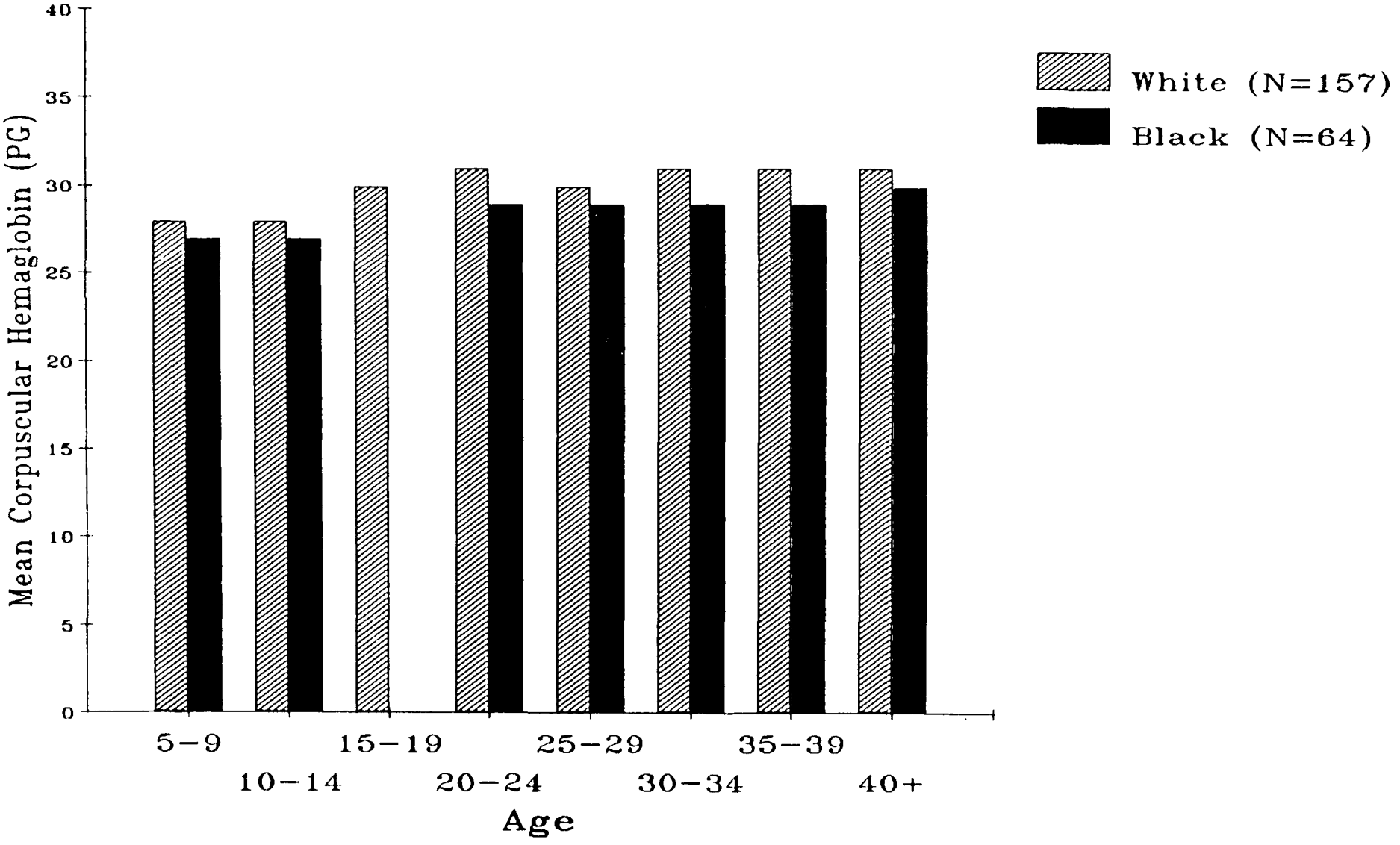
Mean Corpuscular Volume
Fort Polk, Louisiana, 1989–1991
Males



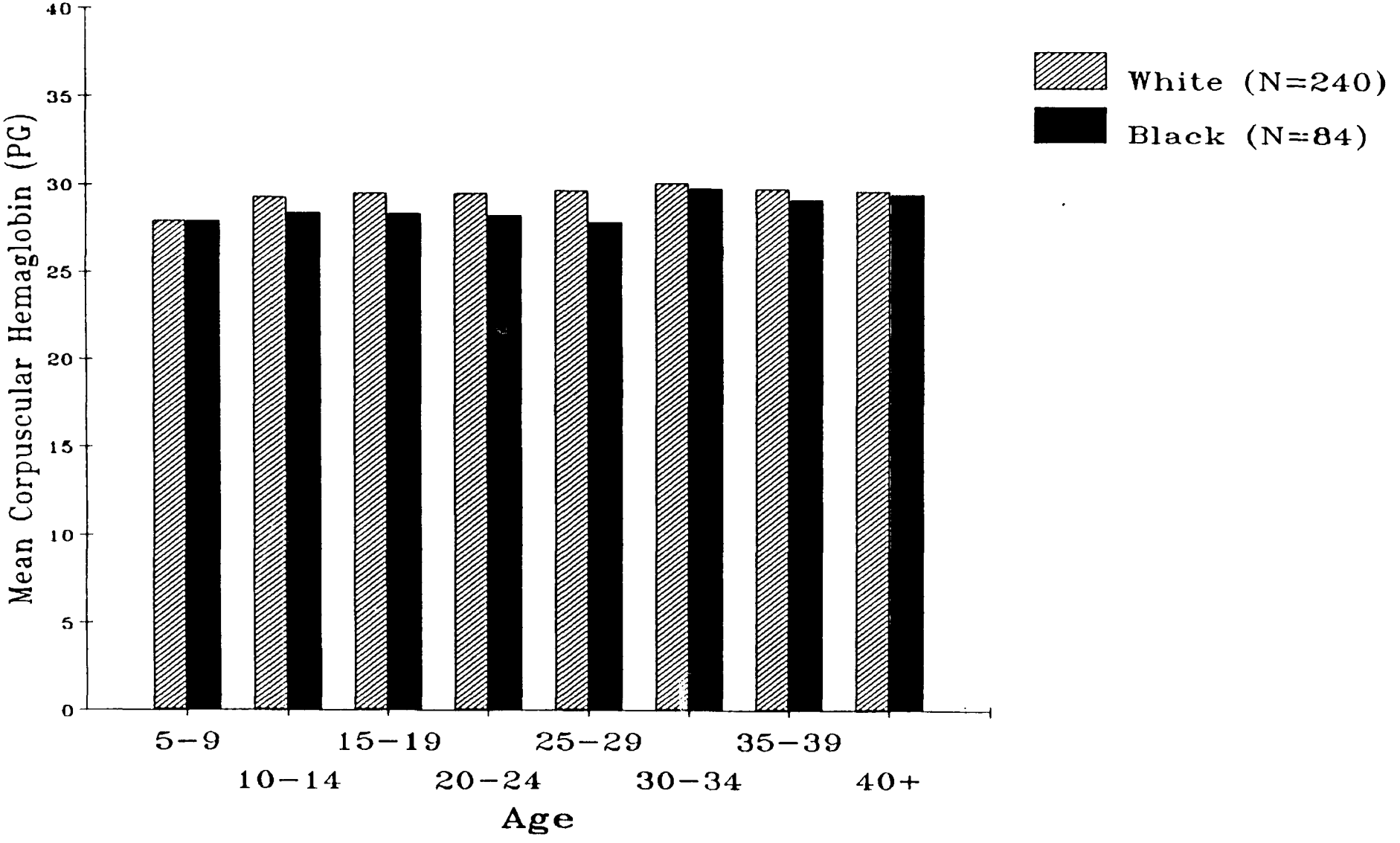
Mean Corpuscular Volume
Fort Polk, Louisiana, 1989–1991
Females



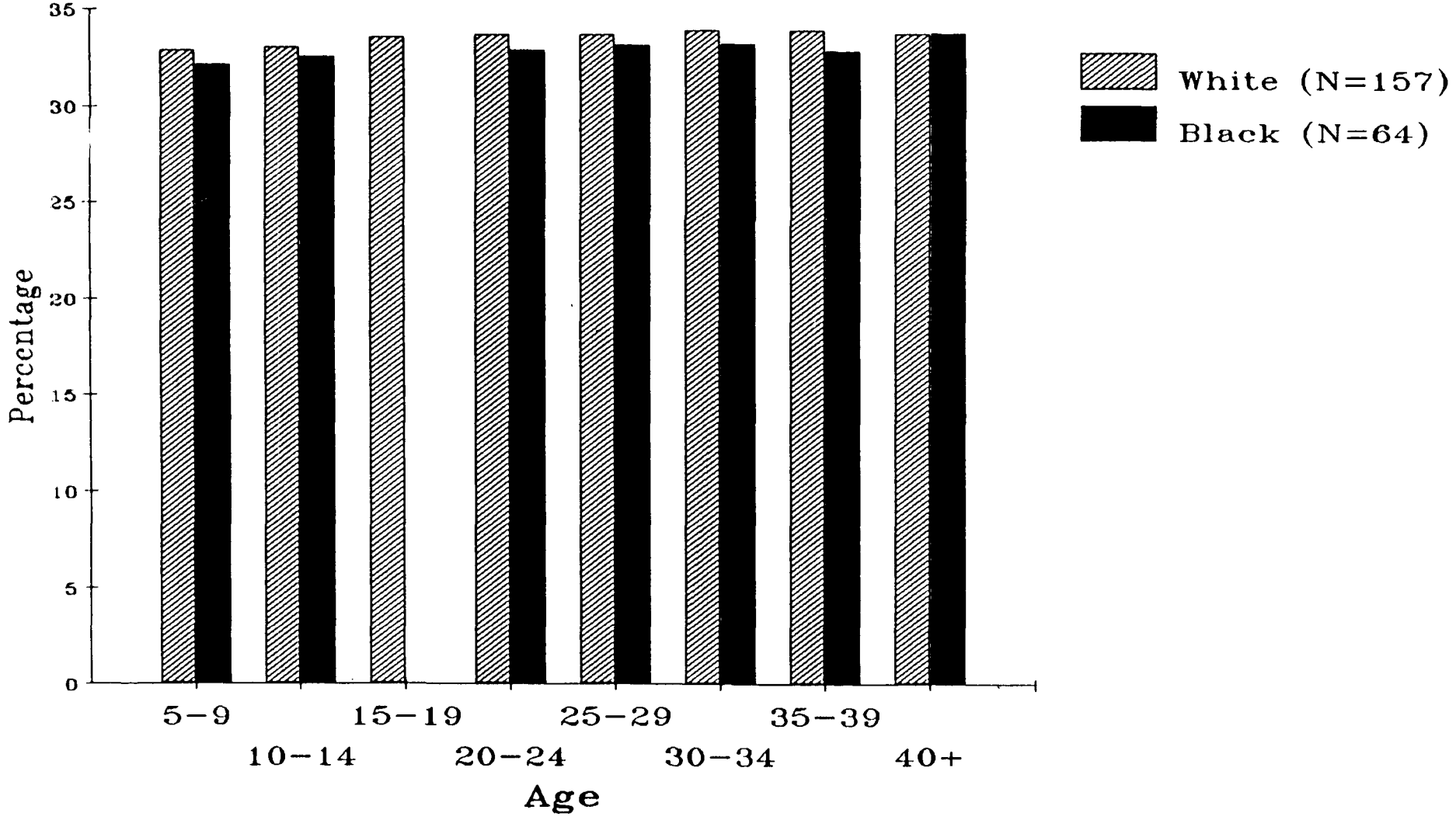
Mean Corpuscular Hemaglobin
Fort Polk, Louisiana, 1989–1991
Males



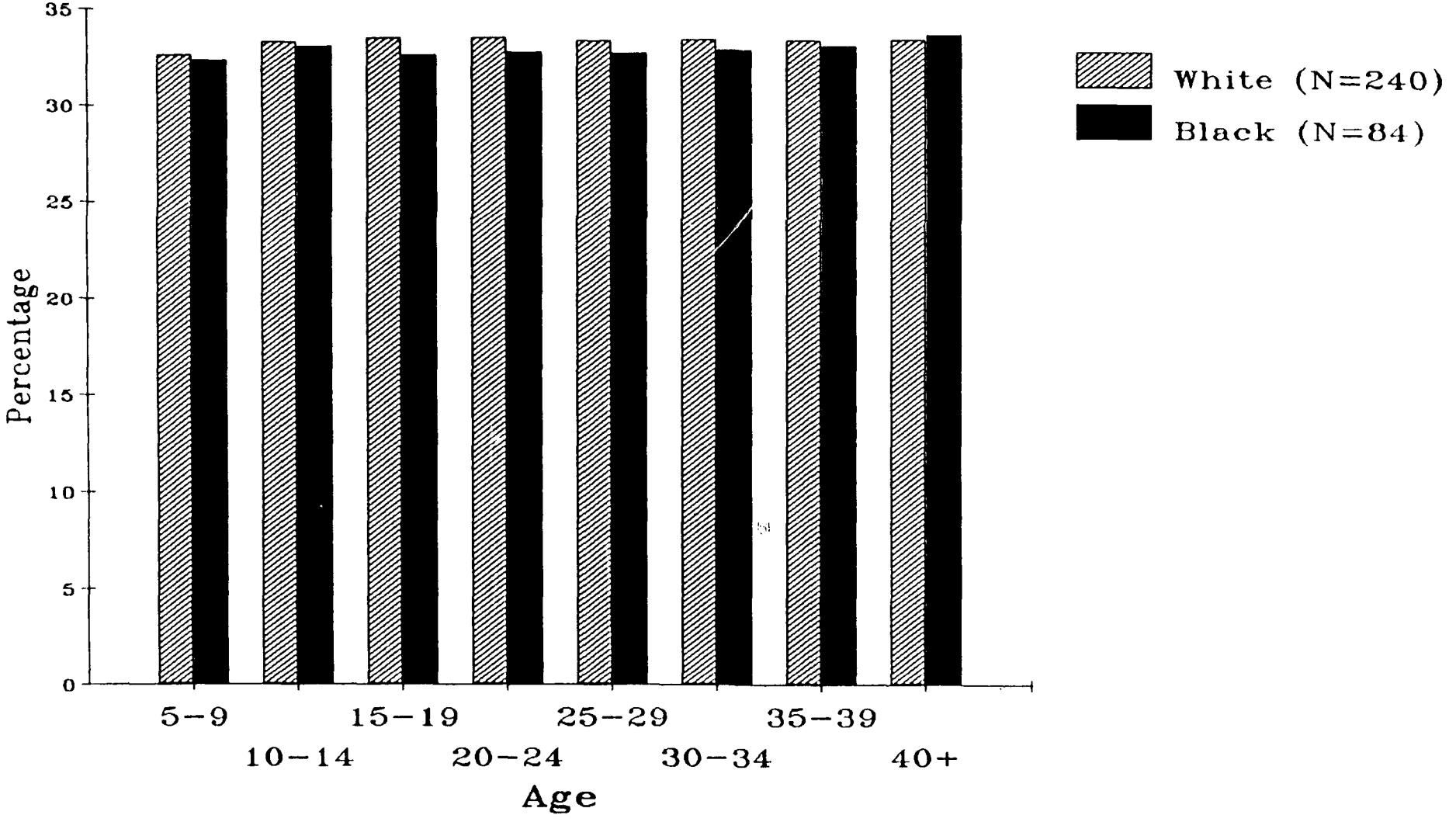
Mean Corpuscular Hemaglobin
Fort Polk, Louisiana, 1989–1991
Females



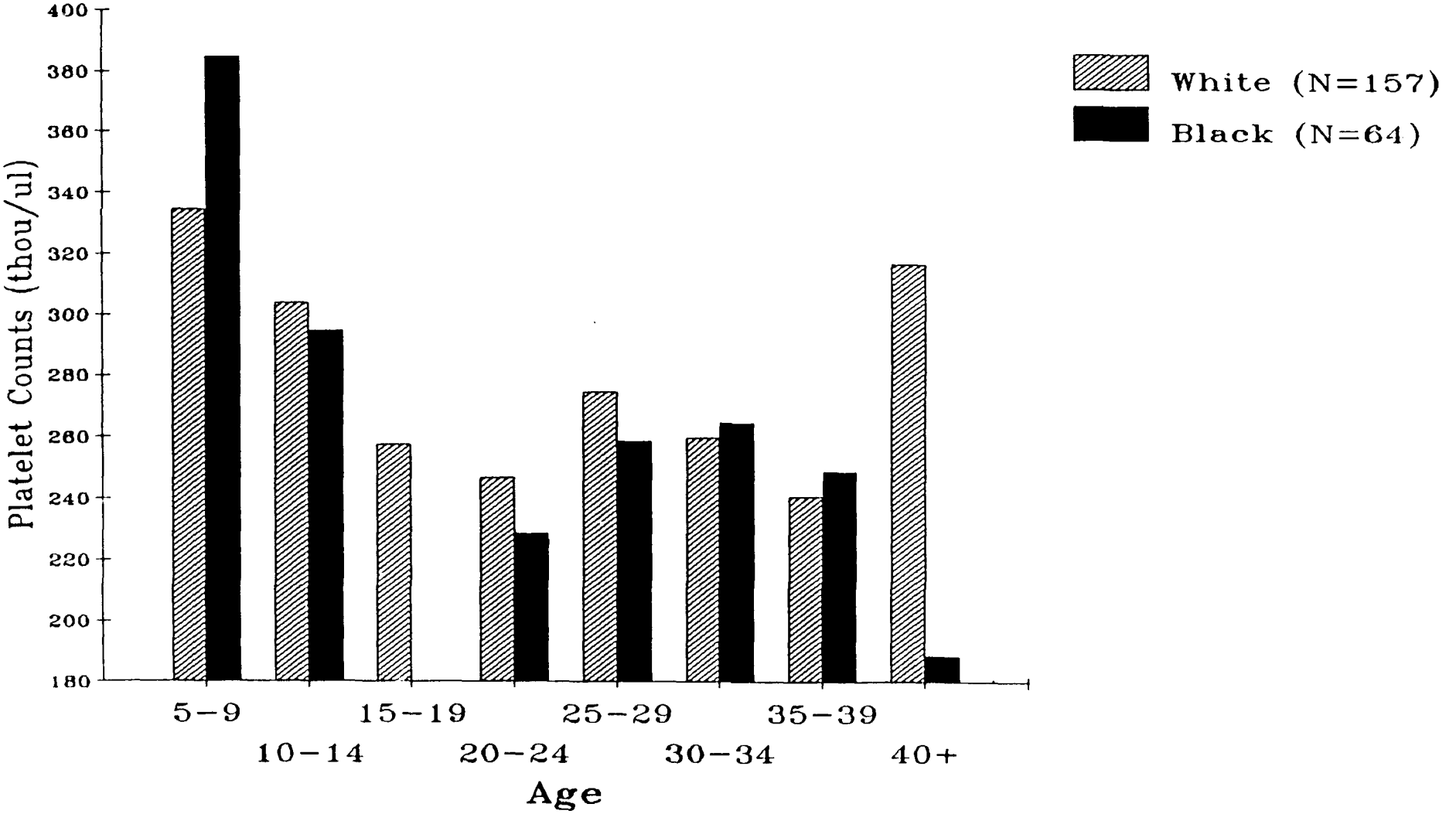
Mean Corpuscular Hemaglobin Concentration by Age and Race Fort Polk, Louisiana, 1989–1991 Males



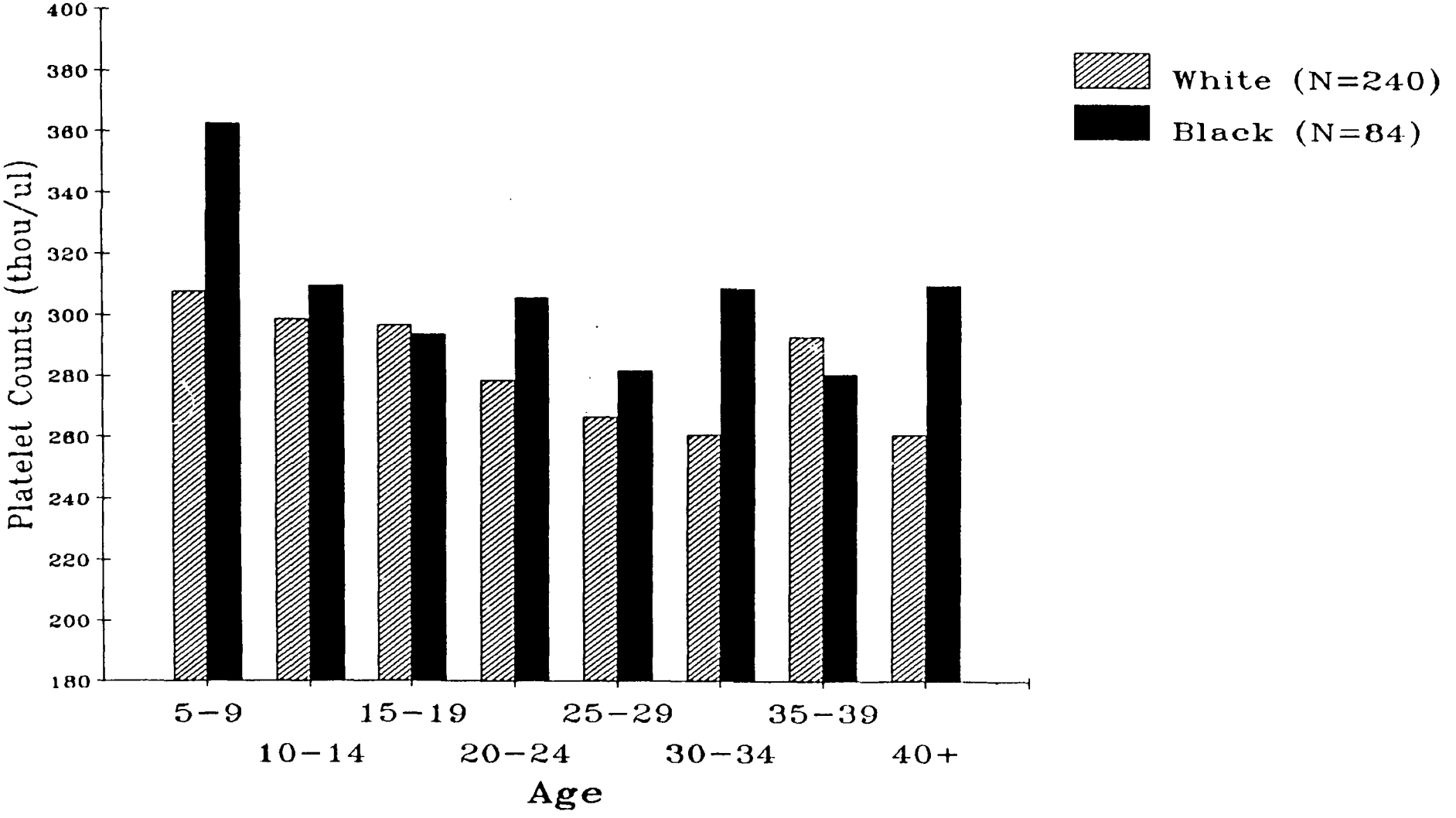
Mean Corpuscular Hemaglobin Concentration by Age and Race Fort Polk, Louisiana, 1989–1991 Females



Platelet Counts
by Age and Race
Fort Polk, Louisiana, 1989–1991
Males

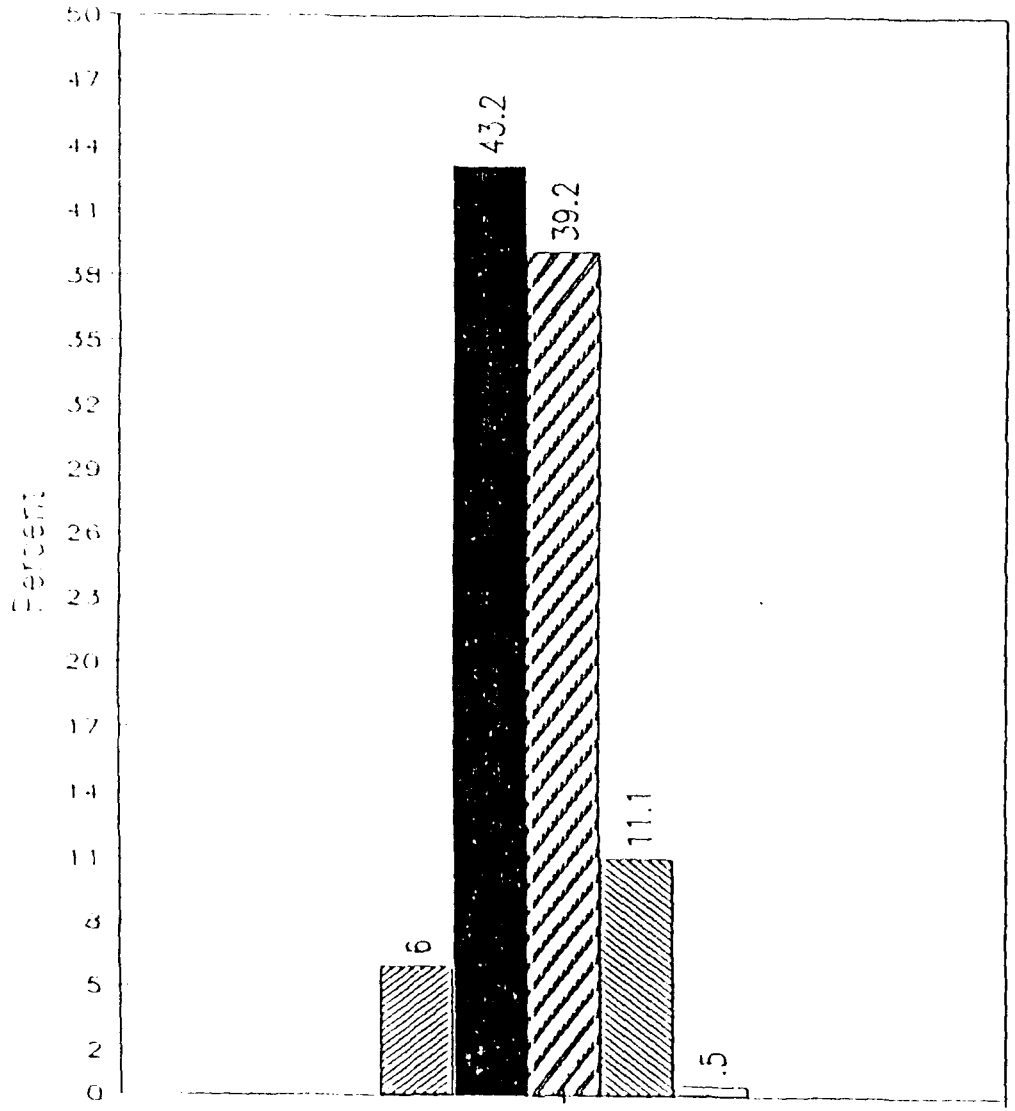


Platelet Counts by Age and Race Fort Polk, Louisiana, 1989–1991 Females



LIFESTYLES

Education of Fort Polk ~~Spouses~~ Wives
Fort Polk Heart Smart Program, 1989



LEGEND

- Non High School Graduate
- High School Graduate
- Some College or Trade School
- 'College Degree
- Advanced Degree

N=199

Differences between Smokers and Drinkers Based on Hostility Scores

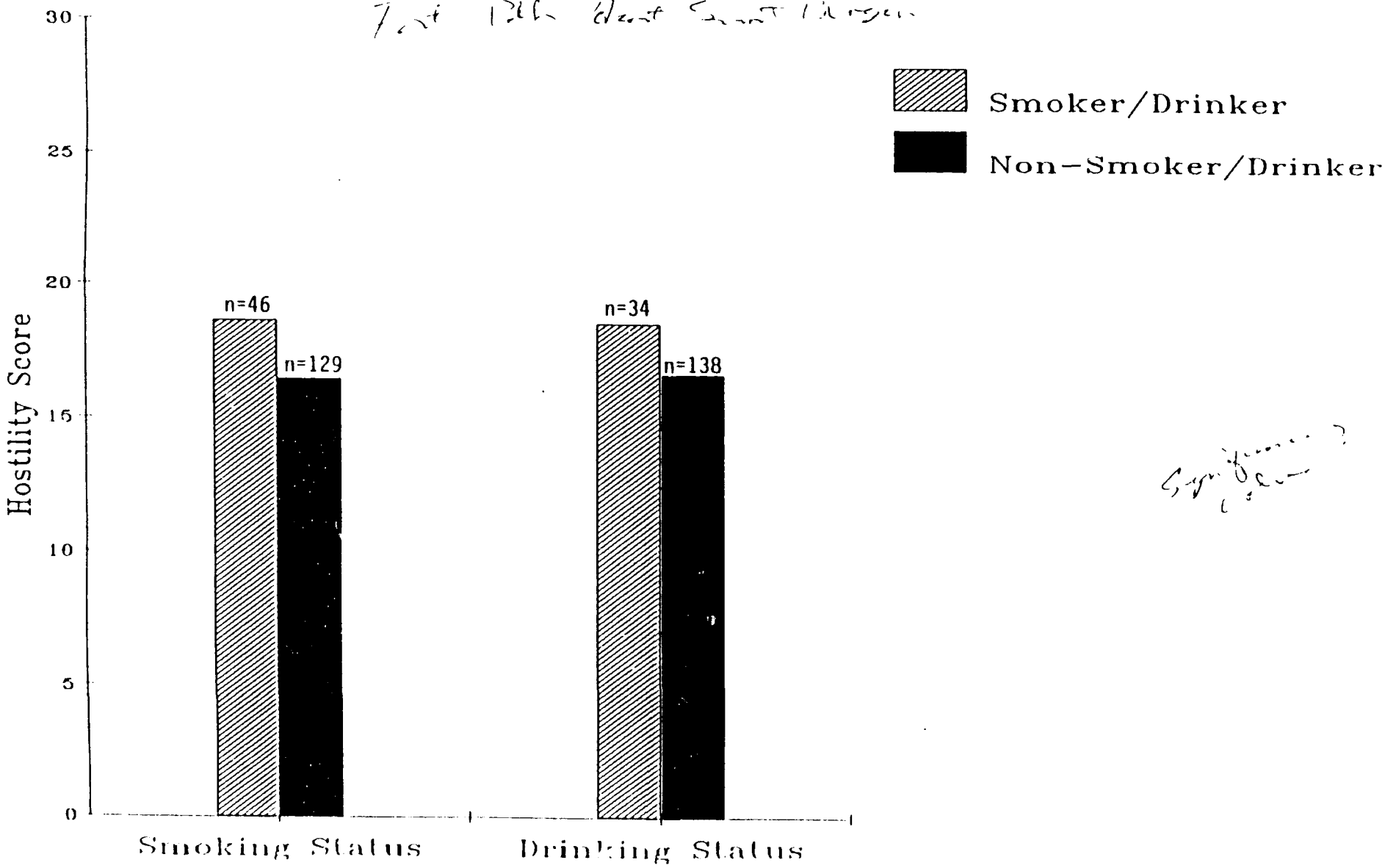


Table 2

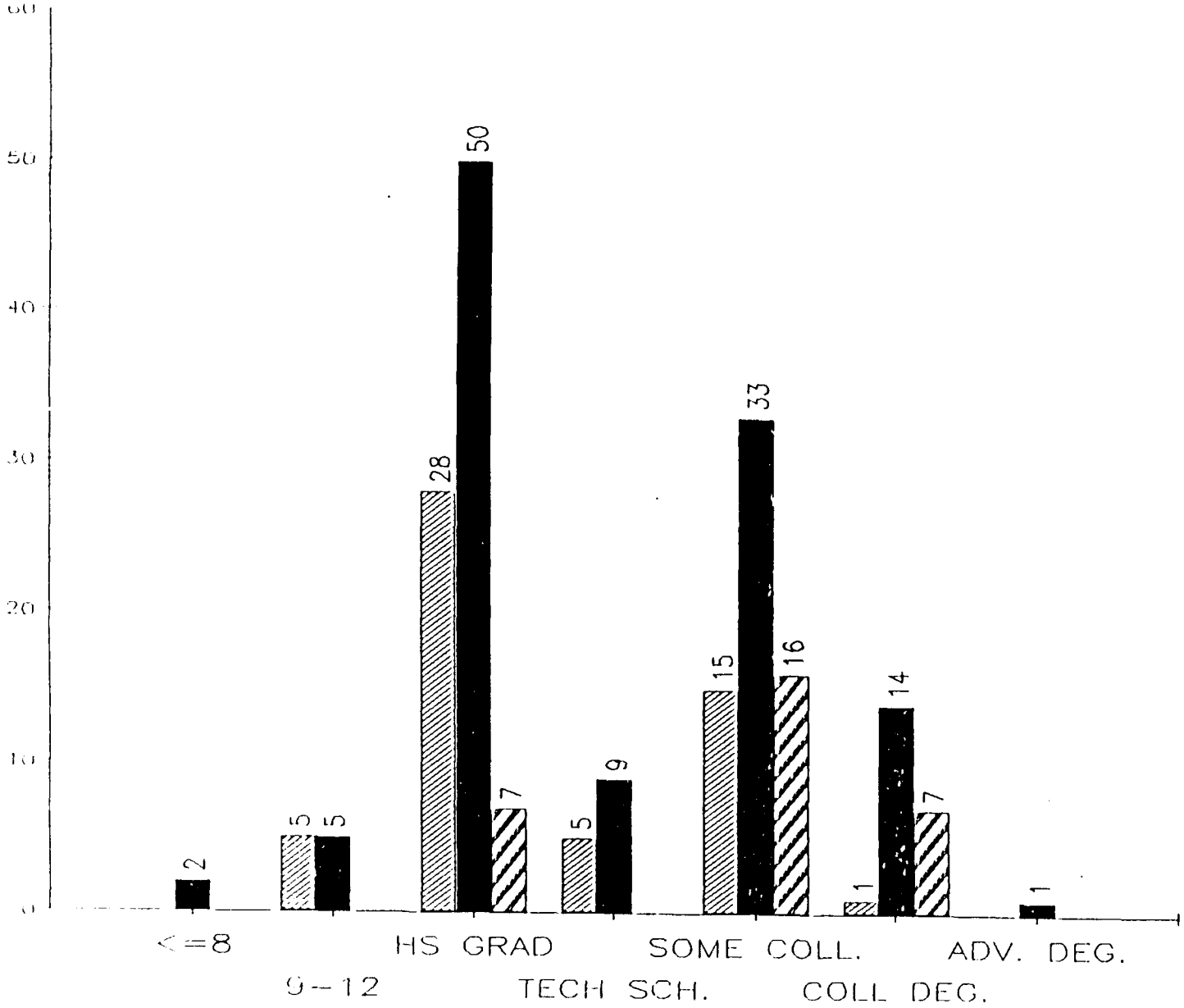
Hostility by Age and Race
Fort Polk Heart Smart Program, 1989

Age (years)	White		Black		Hispanic		Other	
	N	$\bar{X} \pm$ S.D.	N	$\bar{X} \pm$ S.D.	N	$\bar{X} \pm$ S.D.	N	$\bar{X} \pm$ S.D.
20-29	75*	17.89 ±7.14	17	19.82 ±8.89	17*	13.47 ±6.56	3	14.67 ±7.
30-39	41	15.95 ±6.41	14	19.14 ±6.20	2	28.0	3	18.33 ±2.
40-49	8	14.12 ±5.28	1	9.00	0	--	0	--

* Includes 1 woman 19 years old

Fig 2

Education Level of Fort Polk Wives Grouped by Husband's Military Rank



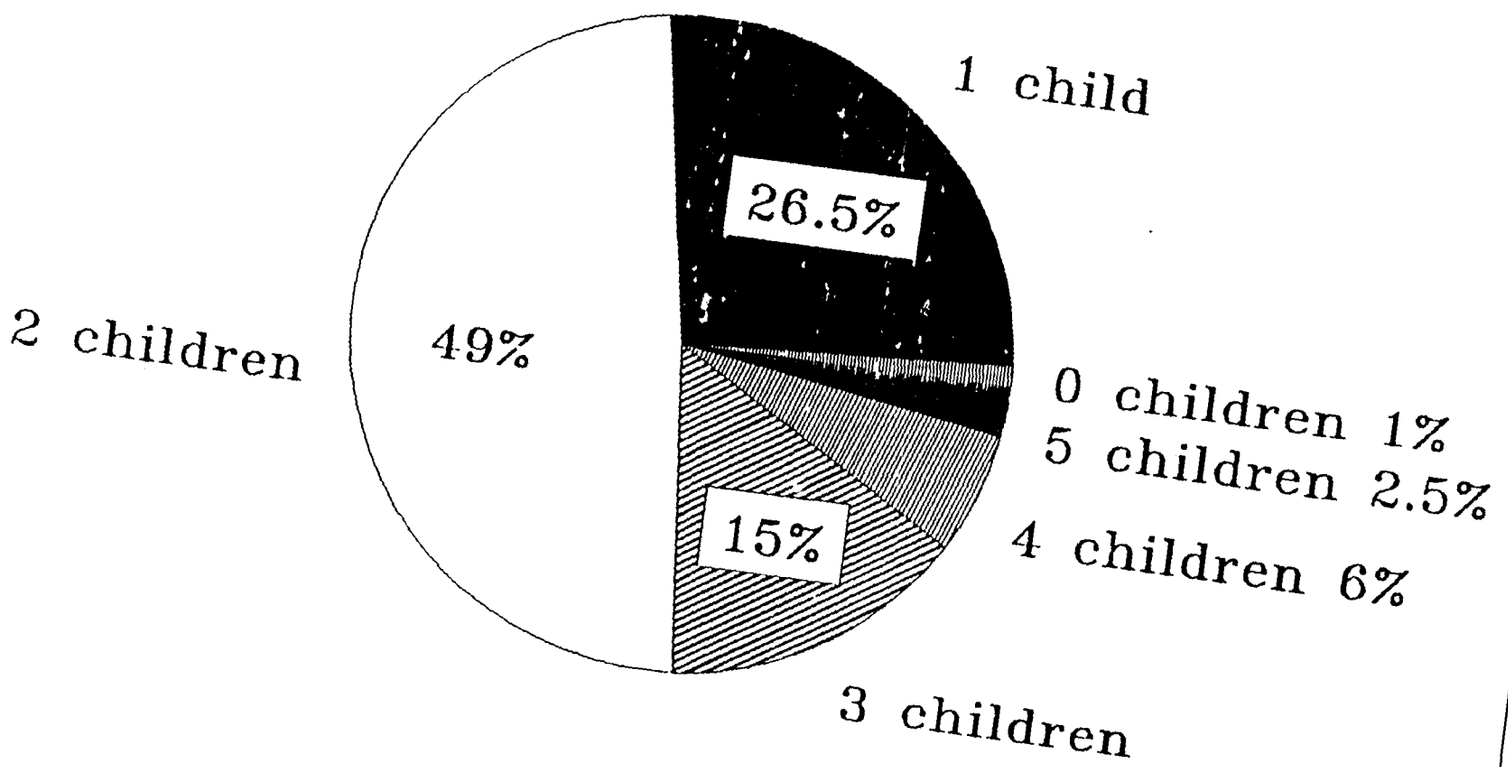
Group I (E1-E4)

Group II (E5-E9, WO1, WO2)

Group III (O1-O7, WO3)

Fig 3

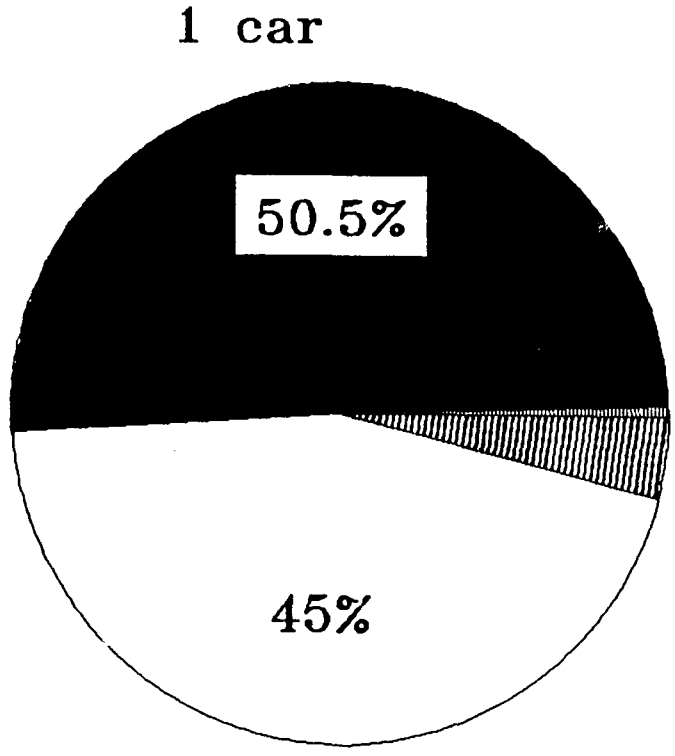
Number of Children Per Family
Fort Polk Heart Smart Program, 1989



N = 200

Figure 4

Number of Cars Per Family
Fort Polk Heart Smart Program, 1989



N = 200

Figure -

Number of Televisions Per Family
Fort Polk Heart Smart Program, 1989

N = 200

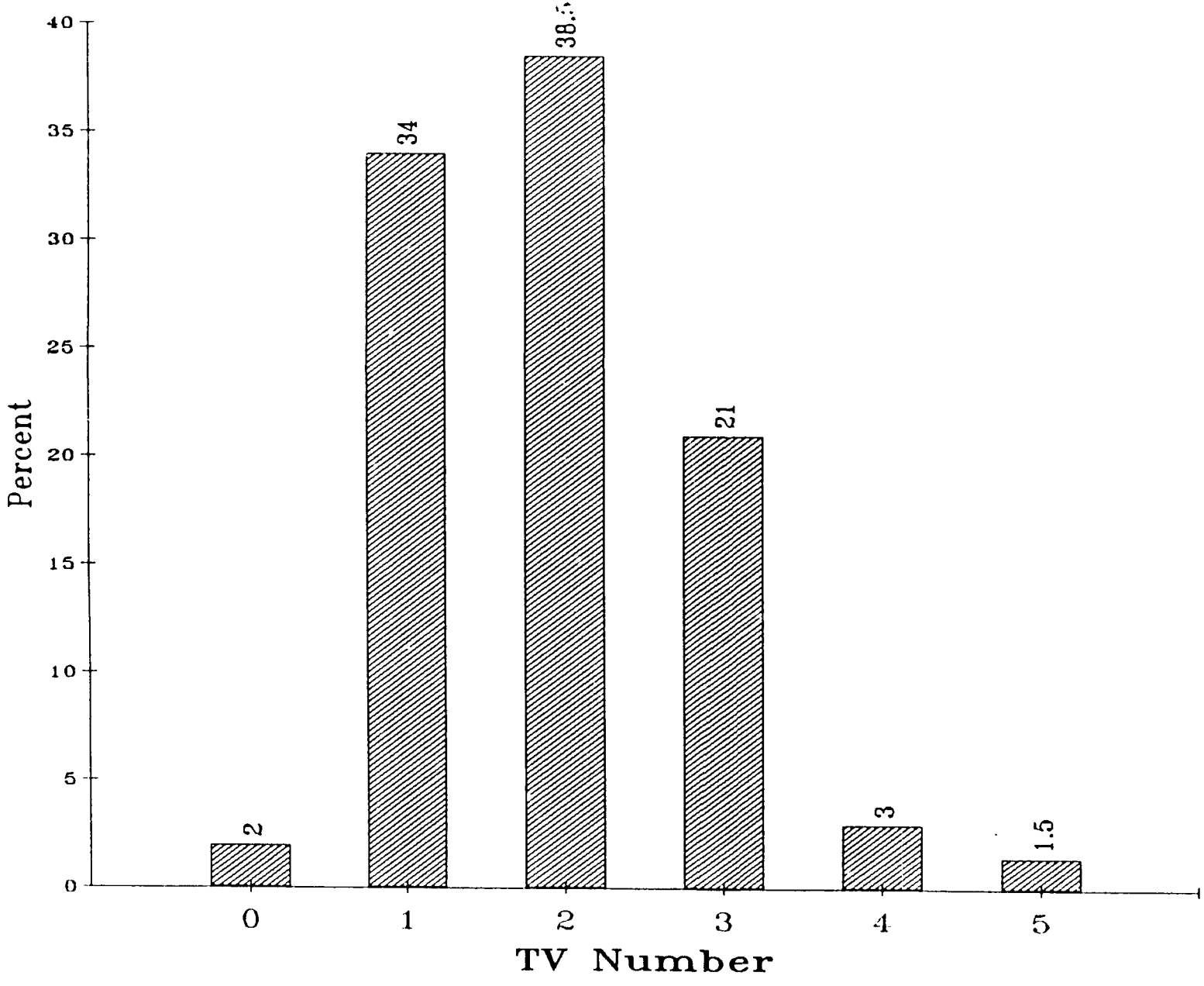


Figure 6

Current Cigarette Smokers Ages 18 and Older by Race and Sex

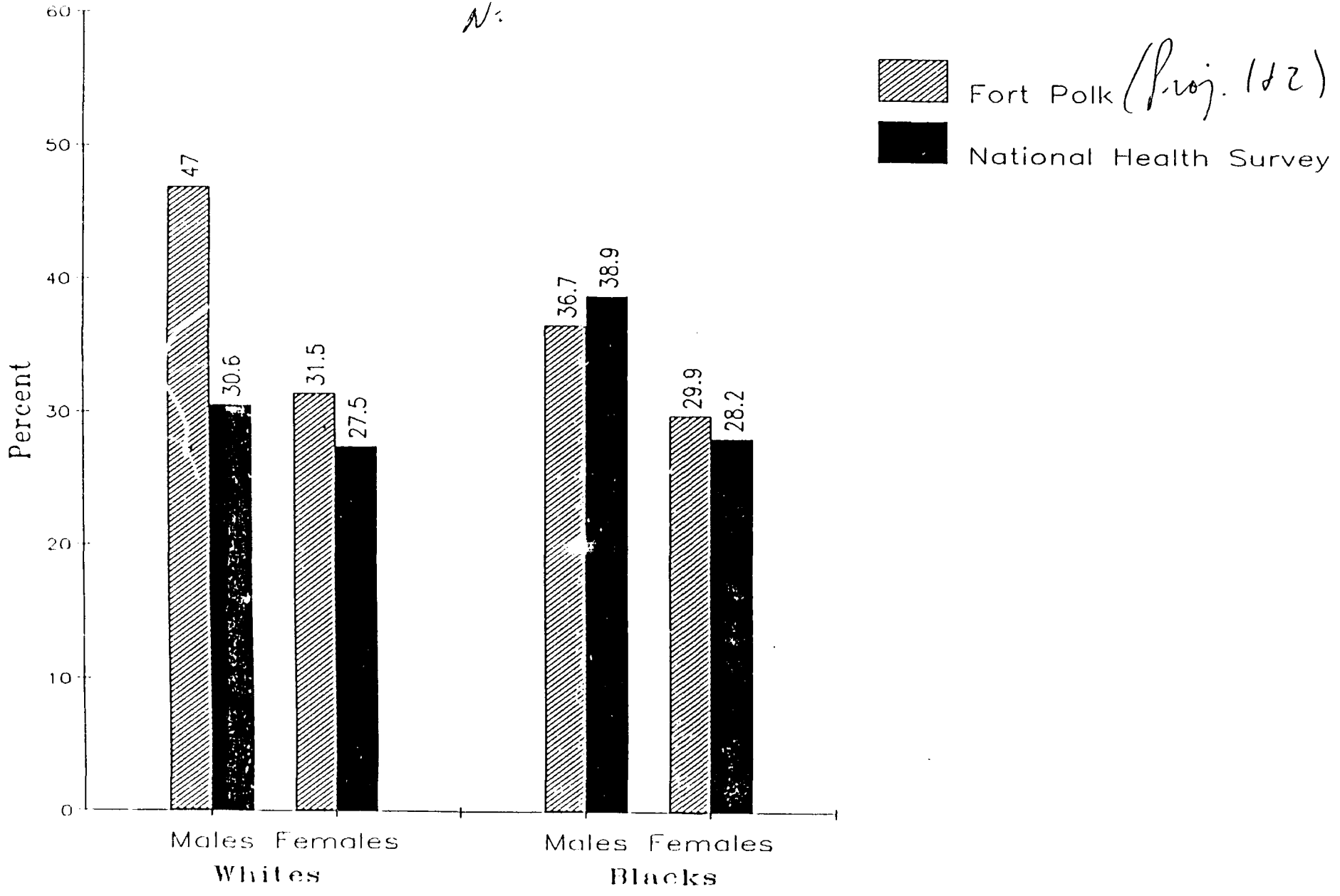


Figure 7

Former Cigarette Smokers
Ages 18 and Older by Race and Sex

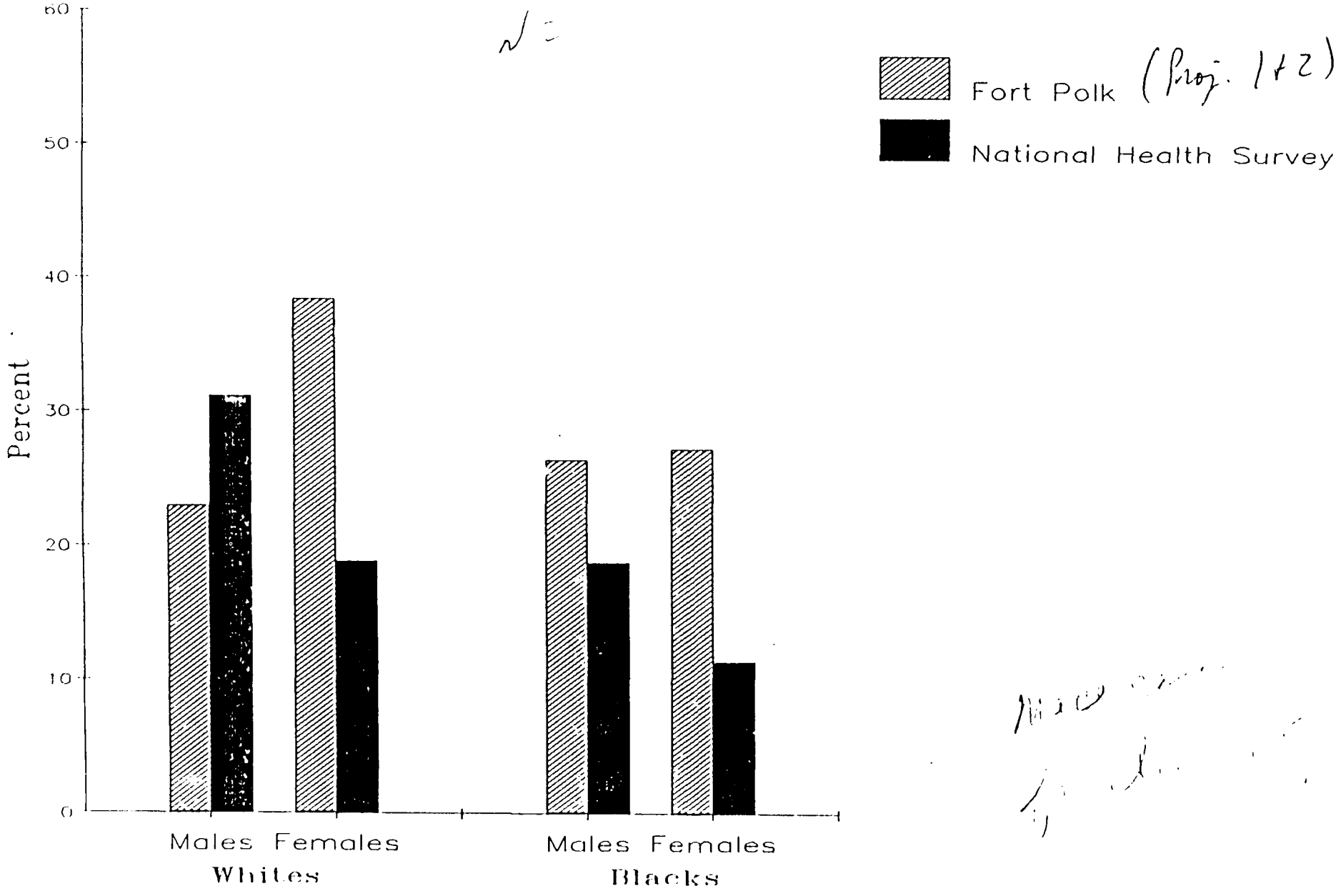


Figure 8

Never Smoked Cigarettes
Ages 18 and Older by Race and Sex

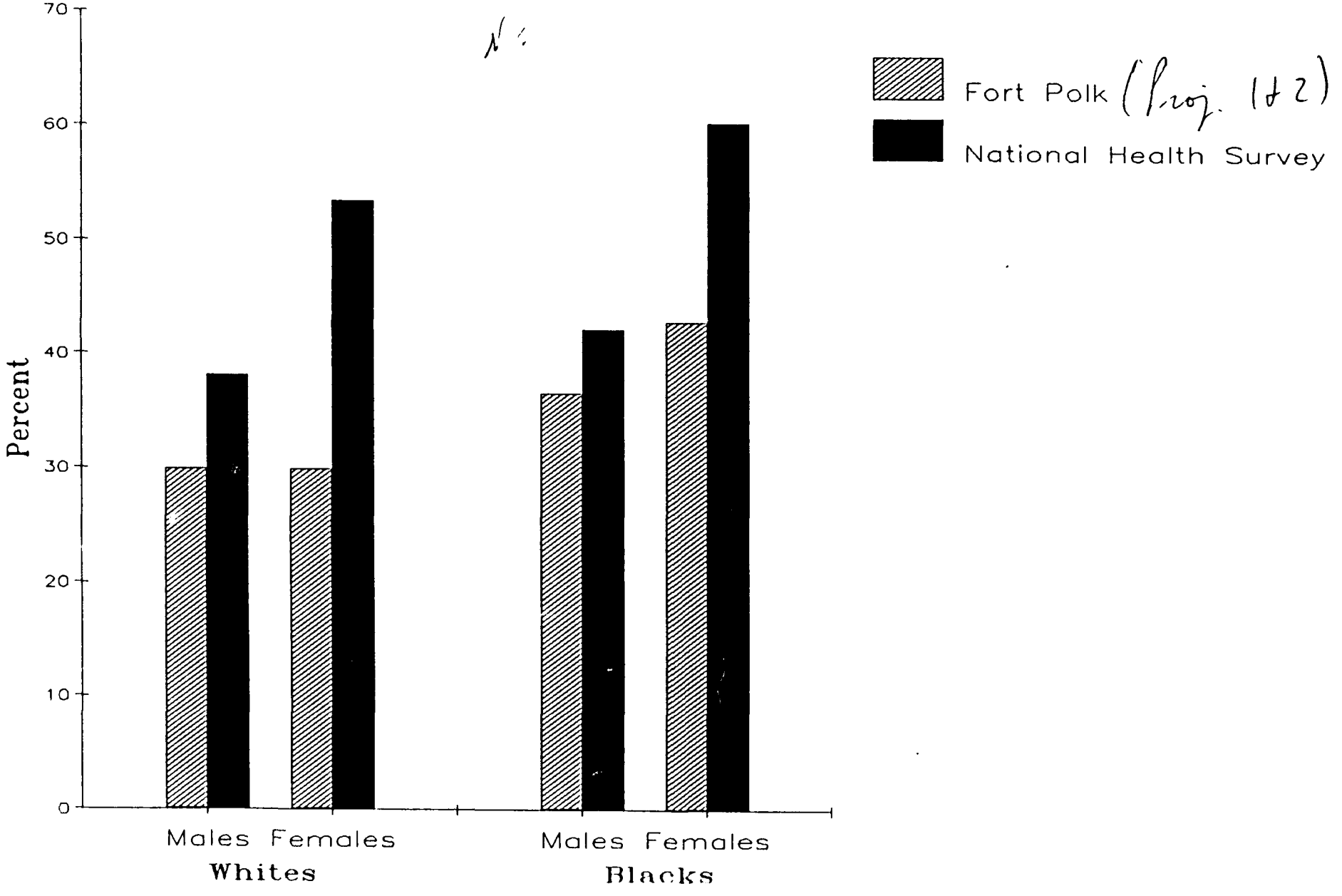


Figure 9

Drinking Among Military Families by Age, Race, and Sex
Fort Polk Heart Smart Program, ~~Project 2, 1989~~

MALES

N =

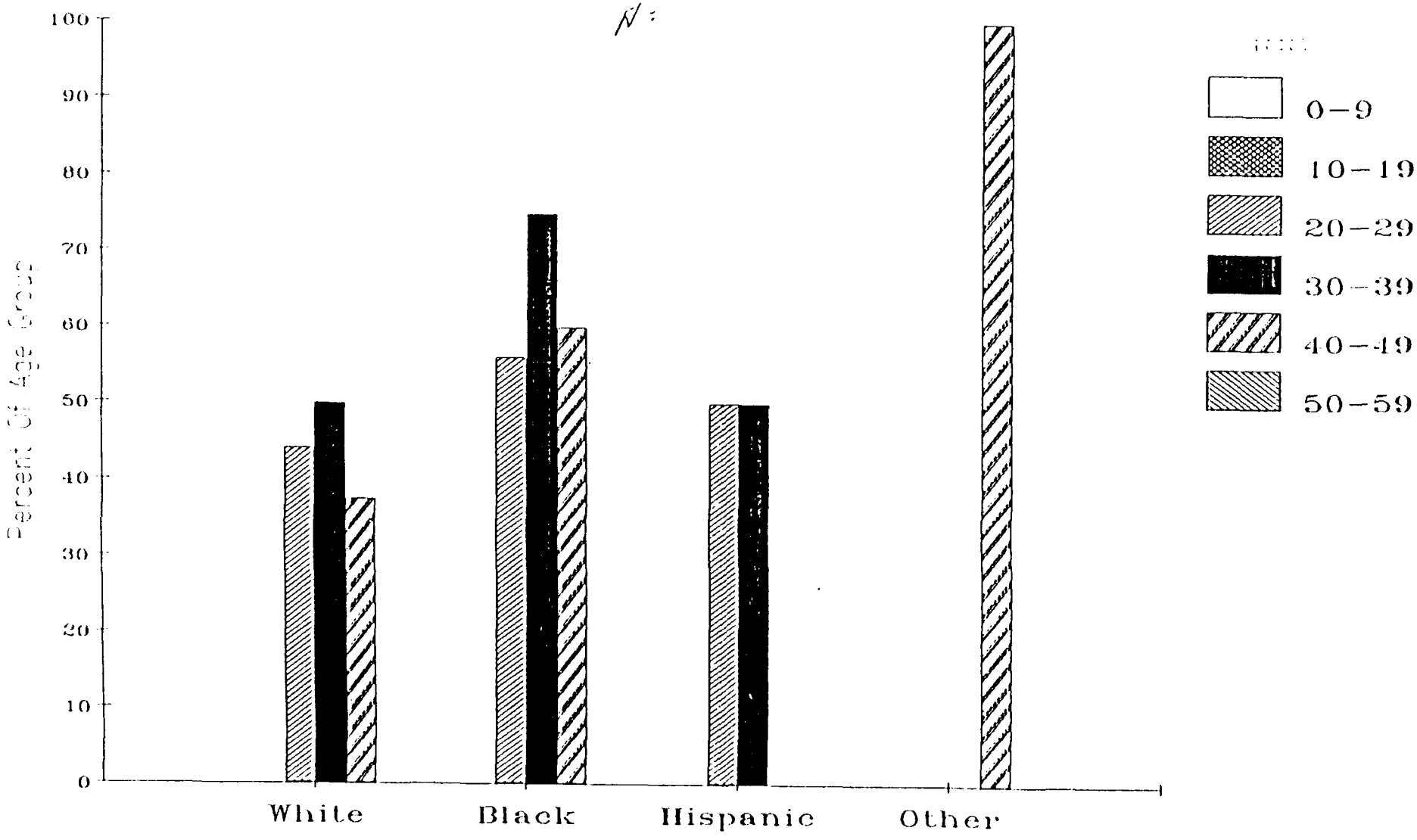


Figure 11

A Comparison of Alcohol Consumption by Ranks
Fort Polk vs. World Wide Military Survey
MALES

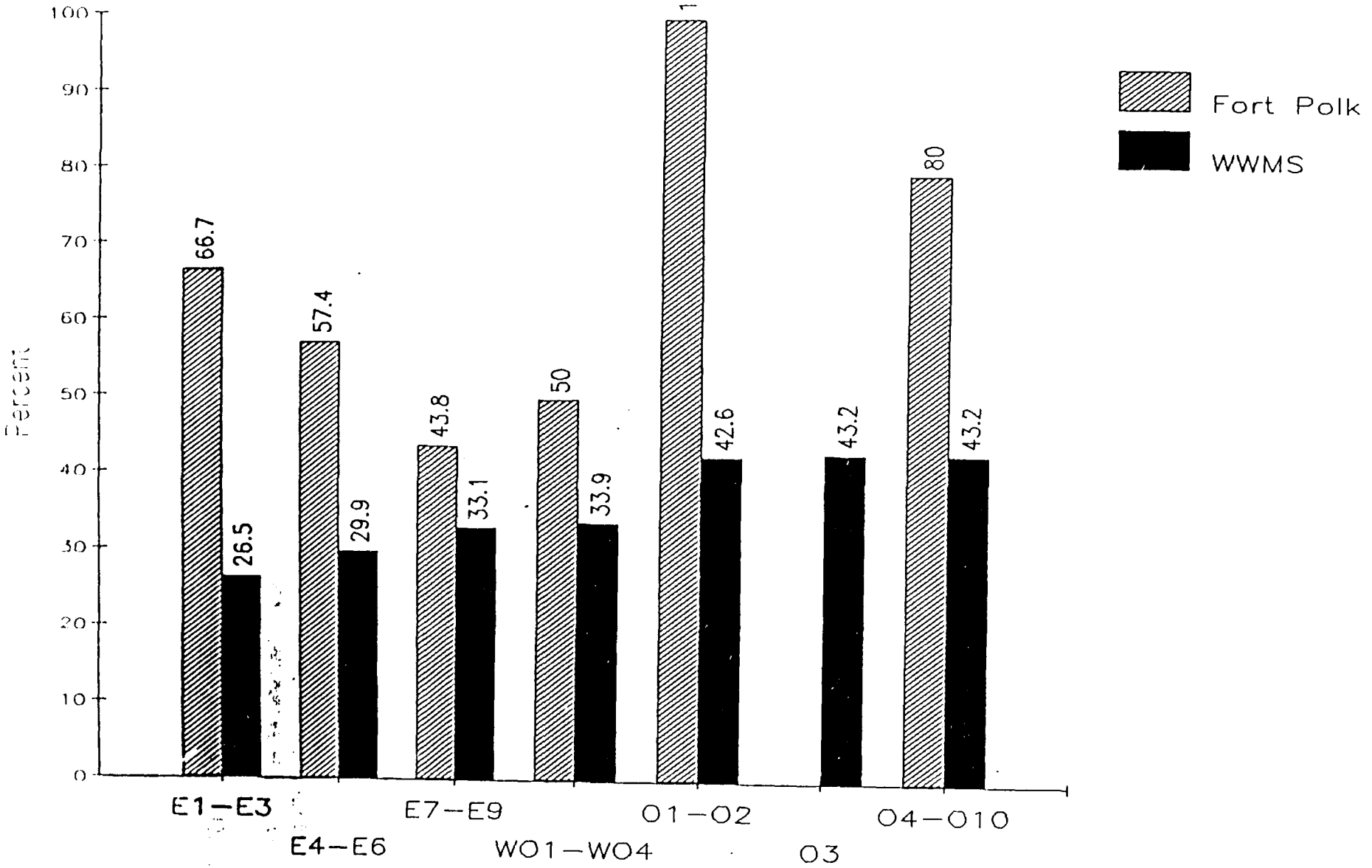
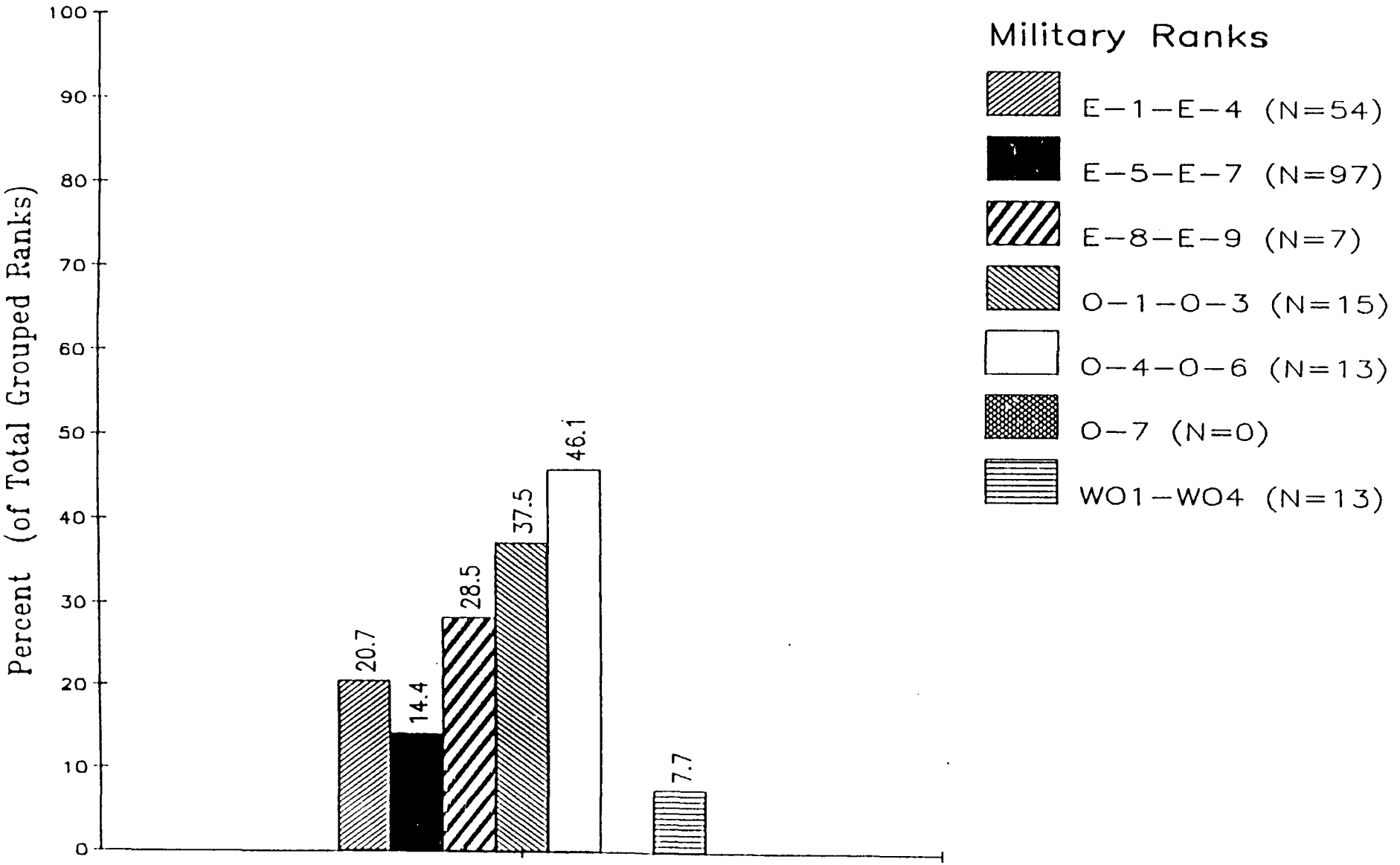


Figure 10

Drinking Among Military Wives by Rank of Husband
Fort Polk Heart Smart Program, ~~Project 1, 1989~~



FORT POLK HEART SMART PROJECT - ATTACHMENT B

ANNUAL REPORT - AUGUST, 1990 TO JULY, 1991

FORT POLK HEART SMART

FAMILY HEALTH PROMOTION PROGRAM

A Cardiovascular Health Promotion Manual

Table of Contents

FORT POLK HEART SMART

FAMILY HEALTH PROMOTION PROGRAM

A Cardiovascular Health Promotion Manual

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BACKGROUND AND RATIONALE

FORT POLK HEART SMART PROGRAM

INTRODUCTION

Cardiovascular disease is a major cause of death in the United States and in Western industrialized countries, e.g. Great Britain, West Germany, and Russia. Despite the slight decrease in prevalence of cardiovascular disease that has occurred over the past two decades, heart disease is still the major killer in the U. S. population. Approximately one and one/half million individuals have a myocardial infarction annually, and two to three hundred thousand cases of sudden death occur each year due to coronary artery disease.

Over the past two decades, significant studies have been conducted exploring the early natural history of coronary artery disease. Multidisciplinary epidemiologic studies conducted at LSU through the National Research and Demonstration Center-Arteriosclerosis and the Specialized Center of Research-Arteriosclerosis have provided both epidemiologic and experimental observations that clearly indicate the evolution of coronary artery disease beginning in youth. The major ongoing program is the Bogalusa Heart Study, an epidemiologic investigation of cardiovascular risk factors in a total pediatric population of approximately 5,000 children. The study has several advantages over previous adult programs, such as Framingham, Evans County and others. It observes changes over time, racial (black-white) contrasts, gender differences, and changes that occur with growth phases of infancy, childhood, adolescence, and young adulthood. These findings apply directly to Army personnel and their health maintenance in peace and under crisis situations. Extensive demographic, anthropometric, blood pressure, serum lipid and lipoprotein, nutritional, lifestyle, and behavioral data have been collected

and are applicable to young adults. These studies have served in the past to stimulate observations by others and currently to call attention in clinical practice to the need for identifying cardiovascular risk factors measured at an early age as a basis for prevention of cardiovascular disease later in life. Identification of Army personnel with high cardiovascular risk has major implications for performance and for future efficiency and cost effectiveness for health related problems.

One important finding in the Bogalusa Heart Study arises from autopsies of children and young adults who meet unexpected death in the community. An amazingly high correlation of antecedent cardiovascular risk factors with anatomic changes has been noted. This relation helps validate and give credence to the clinical cardiovascular risk factors. The studies in Bogalusa are in concert with other autopsy findings made in Army personnel; i.e., a high prevalence of atherosclerotic disease and significant coronary artery disease was noted in young men in our military. In both the Korean War and later in the Vietnam War, significant coronary artery lesions already were present in approximately 70% of the young men autopsied after field death. This is an impressive finding that has relevance to the clinical epidemiology studies on Bogalusa children and young adults.

Another area of concern is the role of nutrition in relation to cardiovascular risk. Diet obviously plays a major role in contributing to hypertension, hyperlipidemia, and obesity. The Bogalusa Heart Study data show that children are consuming a high-fat diet with low P/S ratio which is shown to be associated with adverse lipoprotein profile. Further high sodium, low potassium, and low calcium intakes provide a condition that predisposes certain individuals to hypertension. Obesity with high energy intake and less energy expenditure is another common finding. Our experience suggests that

these dietary patterns will continue through young adulthood and beyond unless preventive measures are instituted. The current health and fitness seen in young soldiers should not be misleading.

A recent study was conducted on serum lipid and lipoproteins of approximately 90 young Army personnel at Fort Jackson, South Carolina. The distributions were similar to those that are found in the Post High School Study of the Bogalusa Heart Study. As expected, some had high levels of serum total cholesterol and low density lipoprotein cholesterol (LDL-C) and some with relatively low high density lipoprotein cholesterol (HDL-C). These can obviously be evaluated as having cardiovascular risk. The other data show low values which may be misinterpreted as an indication of "health". However, it might be pointed out that there is an unusual decrease of serum total cholesterol, LDL-C and HDL-C at puberty with a slow rise in adulthood. The rise of LDL-C in black males is slower than whites. The data of Fort Jackson reflect on this dip in serum total cholesterol and should not be misleading. The corrollary autopsy data on soldiers in Korea, Viet Nam and now Bogalusa show coronary artery disease is developing despite concomitant low levels. In part, such changes may reflect smoking or other adverse lifestyles, but these observations are important to note and consider in continuing research on heart disease.

In the past, health programs have focused on the soldier alone. The Fort Polk Heart Smart Program targets the whole family, with a special focus on wives of military personnel. The benefits of targeting the whole family are twofold. First is the inherent good of promoting wellness behavior in the family that provides emotional support to the soldier. Second is fostering a healthy home environment which will directly affect the soldier. For instance, of 199 military wife respondents, 98% reported that they do the

grocery shopping for their family most often. And of 201 respondents, 97.5% reported that they cook for the family most often. So it is easy to see that the wives can be change agents in the health of their husbands and children.

The purpose of this intervention is to change eating and exercise behaviors and to enhance positive psychosocial factors in servicemen and their dependents. The intervention is a five-step process which includes (1) awareness development, (2) information transfer, (3) skills training (4) psychosocial enhancement and (5) maintenance. Awareness will begin with a rationale for the intervention, an assessment of health knowledge, attitudes and beliefs and psychosocial factors, e.g., self-efficacy, social support, and positive reinforcement. An assessment of cardiovascular risk with feedback will be made. The format of each session will include a rationale, information transfer, hands-on activities, supplemental activities, modeling and mastery experience, handouts and incentives. Hands-on practice sessions will involve, for example, menu planning, food selection, label-reading, recipe modification, and exercise activities. To maintain new behaviors, participants will be taught skills to observe and assess their own behavior and stimulus control.

The long term goal is to develop a Family Health Promotion model that may be utilized on military posts when applicable.

The Fort Polk Heart Smart Program is the collaborative effort of Louisiana State University, the Pennington Biomedical Center and the U.S. Army.

Diet is one of the major environmental determinants of heart disease. Consequently, alteration of eating habits in early childhood (after age two) may delay or prevent cardiovascular disease development.

Dietary studies in the Bogalusa Heart Study document health-risk eating behaviors early in life. Consistent tracking of dietary components, cardiovascular risk factors and their interrelationships begins as early as age two. School-age children eat the typical adult American diet which is characterized by high intakes of sodium, refined carbohydrates, (i.e., sugars) animal protein and fat.

Recommendations for dietary change have come from several scientific organizations. They encourage dietary modification early in life and recommend a reduction and a lifelong moderation of fat, sugar and sodium consumption. These nutrients contribute to high blood pressure, high serum total cholesterol levels and obesity, all of which lead to heart disease. It's important to select foods which will provide adequate calories, protein, vitamins and minerals. Especially for the growth and development of children.

Diet is a practical environment modality that can be altered. It is for this reason that the Family Health Promotion Program has incorporated diet as a major target area for change. The program has incorporated several nutrition modules for the delivery of concepts and skills that we feel are necessary for promoting healthy eating behavior changes. Briefly, the nutrition modules will be discussed.

Food Purchasing. Fat is responsible for about 38% of all calories in the American diet. Fat appears in the diet as meat, dairy products, processed foods, fast foods, commercially baked goods, and refined fats and oils used in cooking. Wise food purchasing is the first step in creating a heart-healthy eating pattern. Once specific foods have been targeted substantial changes

can be made in one's eating pattern through label reading, menu planning, food preparation techniques and selective food purchasing.

Label Reading. Since more than half the foods we eat come in packages, learning to read and understand labels is a critically important part of analyzing and improving our eating habits. Label reading can help you identify hidden sources of sodium, sugar and fat in the foods you eat.

Dining Out. The average American eats out at least once a day. Most of the time we do not know what is in our food, how we can control what goes into it and more importantly, how we can make wise food selections that are lower in fat and sodium. Families can "eat out" in a heart-healthy way through selective ordering, suggesting modifications in preparation and serving of the foods.

Recipe Modification. Many families have been using their old recipes for a long time and are continually trying new recipes. How can we take our favorite recipes and modify the amount of fat, sodium and sugar without altering the taste, texture and appeal? By decreasing the amount of specific ingredients and through creative substitution favorite recipes can be made heart-healthy.

Food Preparation. There are several ways you can change food preparation and cooking techniques that will reduce the amount of fat and sodium in your meals. And, if you consider the amount of time and energy you spend in cooking, why not make the food heart-healthy while you are at it. Meat dishes can be made from lean cuts of meat to achieve 5 to 8 percent fat instead of 25 percent. By eliminating congealed fat on ground meat, soups, and gravies you can save 100 calories per tablespoon of fat removed. You can also save as much as 283 calories by trimming the fat off of your meat. Poultry is

generally lower in fat than red meat providing the skin is removed. Eighteen percent of the fat calories in poultry is found in the skin.

Snacking. More than one-third of the total calories you consume comes from snacks. More specifically, one-third of your total fat intake and more than 50% of your total sucrose intake comes from snacks.

HEART SMART FAMILY HEALTH PROMOTION PROGRAM
FT. POLK, LOUISIANA

PROGRAM OBJECTIVES

EFFECT POSITIVE MODIFICATIONS IN DIET AND PHYSICAL ACTIVITY PATTERNS.

DEVELOP EFFECTIVE BEHAVIORAL STRATEGIES FOR LIFESTYLE MODIFICATIONS.

PREVENT OR REDUCE ELEVATED RISK FACTOR LEVELS.

HEART SMART FAMILY HEALTH PROMOTION PROGRAM
FT. POLK, LOUISIANA

BEHAVIORAL AND COGNITIVE OBJECTIVES

1. TO FACILITATE THE DEVELOPMENT OF CV-HEALTHY EATING AND EXERCISE BEHAVIORS;

2. TO DEVELOP SELF-MANAGEMENT SKILLS;

3. TO INCREASE CV-HEALTH KNOWLEDGE;

4. TO DEVELOP POSITIVE HEALTH BELIEFS AND ATTITUDES.

Behavioral strategies have been welcomed enthusiastically in dietary management and general health care. Matarazzo (22) states that behavioral science plays a major role in effective health care, and Kaplan (23) states that behavioral contributions to the health field have been extensive and at the minimum modestly successful. Behavioral methodologies, learning principles, and cognitive and social variables are becoming the backbone of health care and intervention programs. The selection, combination and presentation of behavioral concepts to achieve dietary change may be the key to success in dietary management.

Traditional change recommendations by medical and dietary professionals generally have been unsuccessful. Zifferblatt and Wilbur (24) have observed that an "illusion" in nutrition intervention is that dietary change can be obtained by short-term counseling. The general format by which the clinical nutritionist allows 30 to 45 minutes to visit a hospitalized or out-patient, and reviews a standardized, printed diet is outmoded. The failure of the unrealistic expectations involved in the above format provides the main reason that underlies the development of behavioral strategies in dietary intervention. Even in the public health arena, principles once used only to encourage public use of unhealthy food and other products (e.g., alcohol, cigarettes) are now being used to market healthy ideas and products. Social marketing and social learning have become the backbone of public health approaches to primary prevention and intervention programs. Publications (e.g., Nutrition and Your Health: Dietary Guidelines for Americans (25)) which provide nutrition information that allow for more informed choices have been helpful. But knowledge alone is not sufficient to achieve individual or population change (26).

Behavioral approaches combined with medical and nutrition expertise offer viable means of aiding intervention in prevention of health risk eating behaviors, such as high fat, high sucrose or low fiber diets, and obesity. Behavioral approaches with obesity, for example, are very important, since chronic obesity, even in children, is resistant to mediation, and mediated change usually deteriorates over the long term. Coupled with medical intervention and nutrition expertise, behavioral strategies serve to reinforce the adoption of healthier lifestyles. This chapter will summarize some of the situational and behavioral strategies appropriate for successful nutrition prevention and intervention, working within the technique of using major food groups as sources of required nutrients.

SELECTION CRITERIA

CARDIOVASCULAR HEALTH PROMOTION FOR MILITARY PERSONNEL AND THEIR DEPENDENTS

CONSENT FORM

Fort Polk Heart Smart Program

Cardiovascular Health Promotion for Military Personnel and their Dependents
Fort Polk, Louisiana

Baseline Assessment of Dietary Intake and
Physical Activity in Military Dependents

Department of Medicine - SCOR-A
Louisiana State University Medical Center

Names of Investigators:

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Work: 568-4664
Home: 897-0381

OBJECTIVES: The purpose of this project is to quantify dietary intakes and describe usual physical activity patterns in military dependents living on or near Fort Polk, Louisiana. Specifically, we will survey a sample of young women (spouses) to quantify nutrient intake, and survey food purchasing patterns to obtain measures of food purchasing and consumption. Several food sources are available to military dependents and the frequency of use of each will be described. In addition, we will obtain a measure of usual physical activity to assess availability and use of military and non-military facilities.

Subject Inclusion Criteria:

1. I am a female spouse of an active duty enlisted man or officer stationed at Fort Polk, Louisiana.

2. I have resided on or near Fort Polk for at least three months, but no longer than two years.

3. I have at least one child between the ages of one year to 15 years currently residing with me.

Subject Exclusion Criteria:

1. If I fail to meet any subject inclusion criteria.

2. If I refuse to sign this consent form.

3. If I am not the wife of an active duty enlisted man or officer at Fort Polk, Louisiana.

4. If I have not resided at Fort Polk, Louisiana for at least three months but no longer than two years.

5. If I do not have at least one dependent child between the ages of one year and 15 years.

Procedures:

I will fill out a series of questionnaires as follows:

1. 24-hour dietary recall. Recalls will be collected on each subject to quantitate actual dietary intakes for the previous 24-hour period.

2. Eating habits questionnaire. This measure will be collected on each subject and will describe eating, purchasing and cooking habits.

3. National Health Survey activity questionnaire. This measure will be collected on each subject and will describe levels and varieties of activity in which each routinely engages.

I will also undergo a physical examination consisting of:

1. Height
2. Weight
3. Skinfold determination
4. Blood pressure
5. Blood sample

These measures will be gathered on all subjects once. The blood sample will consist of drawing two 7 ml tubes or a little less than a tablespoon. The procedure is expected to take two hours per session.

ALTERNATIVES: Since this study is not evaluating various forms of treatment for medical problems, I understand that my primary alternative is to refuse to participate in this study.

RISKS: I understand that experience with other subjects has shown no adverse effects from these procedures, except rarely a small bruise or a fainting spell occurs after giving a blood sample.

BENEFITS: I will be given the results of my physical examination with an interpretation of the significance of my findings. Abnormalities will be reported, with my consent, to my private physician.

FINANCIAL DISCLAIMER: All examinations related to this research study are made at no expense to me. Any costs for treatment of medical conditions discovered during the course of this study but which are not a proximate result of my participation in the study will not be the responsibility of LSUMC.

STATEMENT OF U.S. ARMY MEDICAL CARE: I understand under Army regulations all necessary medical care for injury or disease which is the proximate result of participation in the research will be provided at no cost.

ASSURANCE OF RIGHT TO NONPARTICIPATION: I understand that I am under no obligation to participate in this study.

ASSURANCE OF RIGHT TO PRIVACY: I understand that the records and results of this study may be released to authorized representatives of the U.S. Army Medical Research and Development Command. I also understand that the results of this study may be published. However, my privacy will be protected, and my name will not be used in any manner whatsoever. **Army Personnel Only:** Complete confidentiality cannot be provided, particularly to subjects who are military personnel, because information bearing on your health may be required to be reported to appropriate medical or command authorities.

ASSURANCE OF RIGHT TO WITHDRAW WITHOUT PREJUDICE: I understand that participation in this study is voluntary, and refusal to participate will involve no penalty or loss of access to present or future medical treatment at either LSU Medical Center or the Bayne-Jones Army Community Hospital.

ASSURANCE THAT QUESTIONS HAVE BEEN ANSWERED: All my questions concerning this study have been answered. I understand that I have the right to be provided with answers to questions which may arise during the course of this study.

PERMISSION TO CONTACT SUBJECT'S PHYSICIAN: If any medical abnormalities are found in the results of my physical examination, please contact:

_____ or _____
(Physician) (Hospital)

If I have further questions, I may contact the Fort Polk Heart Smart office at (318) 537-7067 or any of the investigators at the telephone numbers listed on page 1.

COPY OF CONSENT FORM GIVEN TO THE SUBJECT: I acknowledge that I have been given a copy of the consent form for my own personal use.

_____ _____
(Subject's Signature) (Date)

_____ _____
(Please type or print subject's name) (Subject's Permanent Address)

_____ _____
(Witness) (Date)

_____
(Please type or print witness's name)

PLEASE RETURN THIS COPY TO:

Mr. Rolf Kuhlow
Fort Polk Heart Smart Project
P.O. Box 274
Fort Polk, LA 71459-5000

Rev 6/89

ASSURANCE THAT QUESTIONS HAVE BEEN ANSWERED: All my questions concerning this study have been answered. I understand that I have the right to be provided with answers to questions which may arise during the course of this study.

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(Subject's Signature) (Date)

_____ _____
(Please type or print Subject's name) (Subject's permanent address)

_____ _____
(Witness) (Date)

_____
(Please type or print Witness's name)

PLEASE KEEP THIS COPY FOR YOUR RECORDS

For explanation of a research subject's rights, contact:

Staff Judge Advocate, SGRD-AJ
U.S. Army Medical Research and Development Command
Fort Detrick
Frederick, Maryland 21701-5012
AUTOVON 343-2165 or (301) 663-2165

For answers to questions concerning research and reports of research related injuries, contact:

Gerald S. Berenson, M.D.
LSU Medical Center
1542 Tulane Avenue
New Orleans, LA 70112-2865
(504) 568-5845

Cardiovascular Health Promotion for Military Personnel and their Dependents
Fort Polk, Louisiana

Cardiovascular Risk Assessment of Families on Arrival at Fort Polk
Assent of Children Form

If patient is a minor child:

_____ _____
Signature, required if 8 years of age or older. Age of subject

_____ _____
Relationship, if other than subject Date

_____
Type or Print Subject's name

_____ _____
Witness's signature Date

_____
Type or Print Witness's name

Reason for not obtaining assent of a child (MUST BE COMPLETED.)

_____

_____

_____

PLEASE KEEP THIS COPY FOR YOUR RECORDS

For explanation of a research subject's rights, contact:

Staff Judge Advocate, SGRD-AJ
U.S. Army Medical Research and Development Command
Fort Detrick
Frederick, Maryland 21701-5012
AUTOVON 343-2165 or (301) 663-2165

For answers to questions concerning research and reports of research related injuries, contact:

Gerald S. Berenson, M.D.
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Rev 6/89

SOCIAL MARKETING STRATEGIES

Recruitment Structure for Project 3

Fort Polk Heart Smart

Family Health Promotion

I. Letters to 42 division commanders and all health professionals on the base, describing the program, and requesting any help in identifying families.

II. Ongoing weekly annoucement for recruitment of families on radio stations Country 105.5 and the Ft. Polk Station.

III. Ongoing ad in the post newspaper, The Guardian, and the Leesville and DeRidder newspapers, asking for volunteer families.

IV. Posters in lifepath points on base: movie theater, PX, Commissary, gyms, bowling alley, recreation centers, laudromats, etc.

V. After families have been identified:

1. Mail letter
2. One week after mailing letter, follow with telephone call.
    a. Use telephone protocol
    b. Complete telephone contact sheet

SOCIAL MARKETING FOR FAMILY HEALTH PROMOTION

FORT POLK, LOUISIANA

A. Purpose of Public Relations and Recruitment:

1. Disseminate information to sponsors (e.g. base commanders and other health professionals) and potential consumers (active duty personnel and families)

2. Increase acceptance of program philosophy and ideas

3. Increase participation and attendance by consumers

B. Essential Components:

1. Consumer Orientation

a. Provide information about the program to possible sponsors, e.g. general, colonel, sergeants, other health professionals in the area, and to possible consumers, e.g. soldiers and their families.

b. Sales - Convince others by providing rationale, need, etc. (radio announcements, posters, presentations at wives' clubs)

c. Marketing - Integrate consumer needs to produce marketing satisfaction (e.g. provide information by which benefits exceed consumer costs)

2. Cost/Benefit

Analysis of the costs and benefits of the program to the consumer; how does one outweigh the other. For example, what does the program provide; what does the consumer provide:

a. Program

- CV Screening
- Nutrition Education
- Physical Activity
- Social Support Groups
- Opportunity for behavior change, i.e. smoking cessation, and weight reduction.

b. Participation Aides

- Baby-sitting
- Transportation when necessary

c. Incentives

- Demonstration foods/beverages
- Food samples
- Discount food coupons
- "Dining out" discounts
- Food preparation equipment and recipes
- Sporting goods

d. Cost To Consumer

- Time

3. **Consumer Analysis**

a. Homogeneous Subgroups - What kinds of segmentation of consumers might we expect and how do we deal with them? For example, hierarchial military structure: officers & families, enlisted men and families. Another categorization might be demographics (working vs. at-home mothers; residence on base vs. off base).

4. **Formative Research**

a. Pretesting the Program - Pilot

5. **Channel Analysis**

a. How to get the message out - mass media (radio — Country 105.5 and on-base station; newspapers — Leesville, DeRidder; mini media (post newspaper, the Guardian, etc.); organizations (can other established programs and post organizations aid in recruitment; hospital — Health Promotion — CDC — Volunteer Center, etc. life path points (grocery, stores, PX, theaters, laundromat)

TELEPHONE RECRUITMENT PROTOCOL

May I speak to _____? My name is _____ and I am with the Fort Polk Heart Smart staff. We sent you a letter a couple of days ago concerning the H.S. program available to your family. Did you receive the letter? Good.

The reason we wrote you this letter, and that I am calling you now, is this. We have been doing heart screenings of soldiers and their families on the base for over a year. We are now ready to begin an exciting program for soldiers and their families. The program is geared to getting you involved in heart health and providing you and your family with all the skills and knowledge to prevent heart disease later on. At the same time this is a research project being funded by the Army. This program is just as important for your children as it is for you, and I'll tell you why.

We have been working with children in Bogalusa, LA for almost 15 years. What we have found from our work in Bogalusa is that young children who have elevated levels of blood cholesterol, blood pressure and/or weight, will probably continue to have these elevated levels when they become adults. We know that these elevations are the types of factors that can lead to heart disease later in life. We also know that these factors, what we call risk factors, can be changed, or lowered simply by making some changes in lifestyle, for instance by changing eating and exercise habits. But it is preferable that these changes occur early in life.

So, we are contacting a select number of families on the base for the purpose of participating in a family health program. In this program we will learn how to change eating habits and become more active. We will be doing lots of activities with both you and the children and it will be a lot of fun.

We would like you and your wife (husband) and your children to participate in the program. There will be no cost to you whatsoever. The program is free.

We will meet once a week for 12 weeks, and these meetings only last about 90 minutes. All of the sessions will be on Tuesday and will not be like classroom time. We will be participating in activities associated with eating and exercise with the children, and learning to deal with change, with everybody helping each other. In addition, we will be doing a heart screening with everybody in the family who participates and all of these medical tests will be at no charge to you. You will be eligible for some very nice prizes by attending the program, and the only cost to you is a little time each week.

Are there any questions I can answer for you at this time? [Attempt to solicit a positive response to attend orientation. If the family agrees to participate in the program, or at least agrees to come to the orientations, these points should be covered:]

First Week - all other weeks are one session per week.

1) Orientation - (date)

   CV Screening - (date)

Baby-sitting

2) Find out if a baby-sitting service will be required for their family; find out the ages of the children needing baby-sitting — let them know this will be reimbursed.

Dress

3) Advise the family to wear comfortable clothes, preferably tennis shoes, shorts or slacks and shirt or sweats.

RECRUITMENT LETTERS AND FORMS

SCHOOL OF
MEDICINE IN NEW ORLEANS
Louisiana State University
Medical Center
1542 Tulane Avenue
New Orleans, LA 70112-2822
Telephone: (504) 568-5845

Department of Medicine
Bogalusa Heart Study

June 22, 1990

Dear

Heart disease is the number 1 killer in the United States. Three-fourths of the U.S. population is affected by heart disease. Yet, many of the factors that are associated with increased risk for heart disease are preventable.

Currently our group at Louisiana State Medical Center in New Orleans is working with the Fort Polk Heart Smart Project to learn how to prevent future heart disease in military personnel and their families. Our research has been exploring the causes and prevention of coronary artery disease and hypertension for the last two decades. The funding for this project originated at the U.S. Army Institute for Environmental Medicine (USARIEM) at the request of the Congress of the United States.

The Heart Smart Family Health Promotion Program is designed for military personnel and their families to help improve lifestyles like eating habits to prevent future heart disease.

In the study you will be involved in a series of activities designed to teach your family about good nutrition, exercise and other factors which affect your risk of developing heart disease. Weekly sessions will be held with wives and children. In addition, occasional night sessions will include the entire family.

Although this program provides a wealth of information, activities and a cholesterol and risk factor profile there is NO CHARGE. All information is STRICTLY CONFIDENTIAL.

We hope that you will participate. This is an opportunity for you to be involved in the development of a health promotion model which may be used on all U.S. Army posts, in the U.S. and overseas.

We would like you to help. Please complete the enclosed forms and return them to the Fort Polk Heart Study Office.

Sincerely yours,

Gerald S. Berenson, M.D.
Professor of Medicine
Chief Section of Cardiology

GSB:df

SCHOOL OF
MEDICINE IN NEW ORLEANS
Louisiana State University
Medical Center
1542 Tulane Avenue
New Orleans, LA 70112-2822
Telephone: (504) 568-5845

Department of Medicine
Bogalusa Heart Study

June 28, 1990

Dear

We at the Louisiana State University Medical Center are collaborating with the United States Army to introduce an exciting new Health Education program for military families at Fort Polk. Called the Fort Polk Heart Smart Program, this project is the first offering of what we believe can become a standard part of the Army's health promotion efforts around the world. Our concept is that if the family of military personnel is in good health the soldier can be more efficient both in peacetime as well as during time of military action.

Briefly, the Fort Polk Heart Smart Program consists of a 12-week series of presentations and training sessions, aimed at encouraging heart-healthy lifestyles in families tc prevent heart disease. We emphasize appropriate eating and physical activity patterns as well as smoking prevention/cessation and stress control. Sessions are directed toward the military wife and children while others include the serviceman. These will take place during the evening or at convenient times. All sessions emphasize active participation by all and are constructed to be informative, practical, and, above, all, fun.

The Fort Polk Heart Smart Program staff will conduct a cardiovascular risk assessment of adults and children before and after the 12-weeks of health promotion. This consists of measurements of body composition, blood pressure, and cholesterol and other blood materials related to heart disease and cancer, as well as investigation of smoking, alcohol, nutritional, and physical activity status. All results will be reported to family members along with an assessment of each person's health profile. Participation is completely voluntary and is free of charge.

We at the L.S.U. Medical Center have a 30-year history of studying and modifying heart disease risk factors in children and young adults. We are coupling our experience with a commitment to the U.S. Army to encourage informed, healthy military families to improve their well-being and help prevent premature heart disease and other illnesses.

Sincerely,

Gerald S. Berenson, M.D.
Boyd Professor
Chief, Section of Cardiology

FORT POLK HEART SMART

FAMILY HEALTH PROMOTION

TELEPHONE CONTACT SHEET

ACTIVE DUTY PARENT:_____ _____
(Address)

DEPENDENT:_____ _____
(Phone)

CHILDREN:_____ _____

PERSON CONTACTED:_____ DATE:_____

WILL PARTICIPATE ( ) WILL NOT PARTICIPATE ( )

PURPOSE OF CALL:_____

_____

RESULTS OF CALL:_____

_____

_____

_____

_____

_____

_____

_____

COMMENTS:_____

_____

_____

_____

_____

Baby-sitting Required: Yes ☐ No ☐

Transportation Required: Yes ☐ No ☐

(If Additional space is needed, please use separate sheet)

BE HEART SMART

We'd like to introduce you to **HEART SMART**, an innovative concept in health education which is being implemented at Fort Polk.

CHANCES ARE, you are aware that heart disease is the number one killer in America, claiming three times as many lives each year as the second leading cause of death, cancer.

BUT DID YOU KNOW that cardiovascular disease begins in childhood? This is important for Fort Polk families.

BACKGROUND

Since 1972, a Specialized Center of Research and the Section of Cardiology at LSU School of Medicine have been studying cardiovascular risk factors in children. Our team of doctors, nurses and research scientists from multiple backgrounds has studied over 10,000 children in Bogalusa, Louisiana, and has compiled the world's largest data bank of heart disease risk factors in children. We have found that:

- In adolescent white boys there is a dramatic rise in the LDL/HDL (bad/good) cholesterol ratio which, in effect, "programs" them for early heart attacks.

- Hormonal and renal (kidney) factors predispose black children for hypertension.

- In all children cardiovascular risk factors are inter-related, just as they are in adults, i.e., obesity and hypertension.

- More than 50% of children exceed the recommended intakes of sodium, saturated fat and sugar.

- Families with a history of heart disease have children with higher risk factor levels.

WHAT DOES ALL OF THIS RESEARCH ADD UP TO?

We now know that children who are likely to develop heart disease as adults can be identified while they are very young.

With these crucial findings as our foundation, LSU Specialized Center has begun an exciting new project aimed at reducing cardiovascular risk factors in families and young children, thereby preventing heart disease before it begins.

THE HEART SMART PROGRAM - A SPECIAL OPPORTUNITY

This project will enable LSU Medical Center in cooperation with the Pennington Biomedical Research Center and the United States Army, to introduce a comprehensive model for cardiovascular health promotion. The HEART SMART model includes:

1. Education in the principles of cardiovascular health.

2. Screening of incoming army families for cardiovascular risk factors, measuring cholesterol, blood pressure, body composition and health behaviors.

3. Group meetings with Army wives on healthy food purchasing, preparation and dining out.

4. Family aerobic exercises for fun and health.

5. Coping strategies to promote healthy lifestyles.

6. Supportive group games and activities.

OUR HOPE is that through this project we can extend what we have already learned, that heart disease begins in childhood, to build an effective model of prevention which will have a direct positive impact on the health of Army families.

We are pleased to have the opportunity to start Army families on the HEART SMART road to lifelong health.

If you would like further information, please call or write:

Fort Polk Heart Smart Project

P.O. Box 274

Ft. Polk, La. 71459 - 5000

(318) 537-7067

OR

LSU Medical Center

1542 Tulane Avenue

New Orleans, La. 70112-2822

(504)568-4664

VOLUNTEERS

Volunteers honored nationally this week

National Volunteer Week is being celebrated nationally this week. This year's theme is "Volunteers Shine On."

It is a time that has been set aside for organizations and activities to recognize and honor the many valuable contributions volunteers make to organizations and communities.

ACS highlights

National Volunteer Week will be celebrated at Fort Polk with an installation awards ceremony and reception at 10 a.m., Thursday in the NCO Club, honoring those volunteers who have made valuable contributions to the Fort Polk community. Community leaders, unit commanders and leaders, staff chiefs and directors, and concerned citizens of the community are invited to attend this ceremony.

For more information contact Army Community Service, Louis Powell or Jenny Binford, 535-4837/4111.

LSU conducts research

Louisiana State University Medical Center from New Orleans, La., is conducting some research at Fort Polk on behalf of the Pennington Biomedial Research Center and the United States Army.

The aim of the research is to reduce cardiovascular risk factors in families and growing children, thereby preventing heart disease before it begins.

The Fort Polk Heart Smart Project is looking for volunteers as Health Promotion Facilitators. The primary goal of the facilitators is to assist and support program participants in making positive lifestyle changes in eating and exercise behaviors. Specific volunteer opportunities include: assisting with support groups and health educational activities; performing office clerical work; preparing healthy snacks and recipes; demonstrating health food preparation techniques and practices; assisting with cardiovascular risk factor screening of families; assisting with physical activity demonstration and encouraging participation; directing and implementing supportive aerobic exercise opportunities; or acting as a liaison with community organizations to promote opportunities for cardiovascular healthy lifestyles on post.

If you are interested in volunteering, contact Louis Powell or Jenny Binford, Army Community Service, 535-4837/4111, or Deana Stolz, Fort Polk Heart Smart Project 537-7067, 8 a.m.-noon only, Monday through Friday. (ACS)

FORT POLK HEART SMART PROGRAM

Volunteer Job Description

"Health Promotion Facilitator"

The volunteer health promotion facilitator is an integral part of the Fort Polk Heart Smart Program. The primary role of this volunteer is to assist and support program participants in making positive lifestyle changes in eating and exercise behaviors.

Specific responsibilities of the health promotion facilitator include the following:

1) Assisting with health promotion activities in either of two settings:
   a) Support group and educational activities for wives (mornings)
   b) Family health activities (evenings)

2) Assisting with health promotion implementation and small group discussions to encourage support for behavior change.

3) Clerical responsibilities and maintaining telephone contact with health promotion participants. Contacting participants if there are scheduling changes.

4) Obtaining and distributing incentives for the health promotion program.

5) Preparing healthy recipes and snacks for meetings and outside functions.

6) Demonstrating healthy food preparation techniques and practices.

7) Assisting with cardiovascular risk factor screening of families.

8) Assisting with physical activity demonstrations and encouraging participation in aerobic activities formally and informally.

9) Directing and implementing supportive aerobic exercise opportunities (swimming, exercise classes, bicycling etc.) on post. This includes organizing groups of participants for regular exercise activities according to participant interest (i.e., weekly bicycle clubs).

10) Acting as a liason with community organizations to promote opportunities for cardiovascular healthy lifestyles on post.

Volunteer Responsibilities

It has been pointed out that military wives are most eager to volunteer in positions that will provide opportunities for challenge and personal growth. They particularly desire experience that will enhance their resume and provide sources of recommendation for future salaried positions. With this in consideration, we have designated several volunteer opportunities which would be mutually beneficial, both to the Fort Polk Heart Smart Health Promotion and to potential volunteers:

1) Assisting with health promotion activities in either of two settings:
   a) Support group and educational activities for wives (mornings)
   b) Family health activities (evenings)

2) Assisting with health promotion implementation and small group discussions to encourage support for behavior change.

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10) Acting as a liason with community organizations to promote opportunities for cardiovascular healthy lifestyles on post.

Fort Polk Heart Smart Program

Volunteer Structure

Two types of volunteers will be recruited for assistance with the Heart Smart Family Health Promotion: 1) **Army unit wives**

2) **Community organizations**

The term "**Army unit wives**" refers to individual wives who assist with various projects or endeavors that pertain to their spouse's unit. A large number of wives volunteer in this capacity on a regular basis. As cited in the Guardian post newspaper ,"the majority of volunteers are active duty wives." In addition to the large number of potential volunteers, an attractive feature of using Army unit wives is that this group is able to provide positive, continual support for lifestyle change among military families. An example of Army unit wives organization is the Officers Wives Club: 1989-90 President at Fort Polk is Diane O'Keefe (318) 537-3804. The various Officers Wives Clubs hold monthly meetings at which recruitment for volunteers is possible.

Figure 1 indicates the military structure at Fort Polk and reflects the organization of officers' wives clubs. There are three main avenues for recruiting volunteers among Army wives:

A) Officers' Wives Club - this organization is composed of all officers' wives on the post. Meetings are held monthly and consist of a luncheon and program. Attendance is approximately 150-200 women.

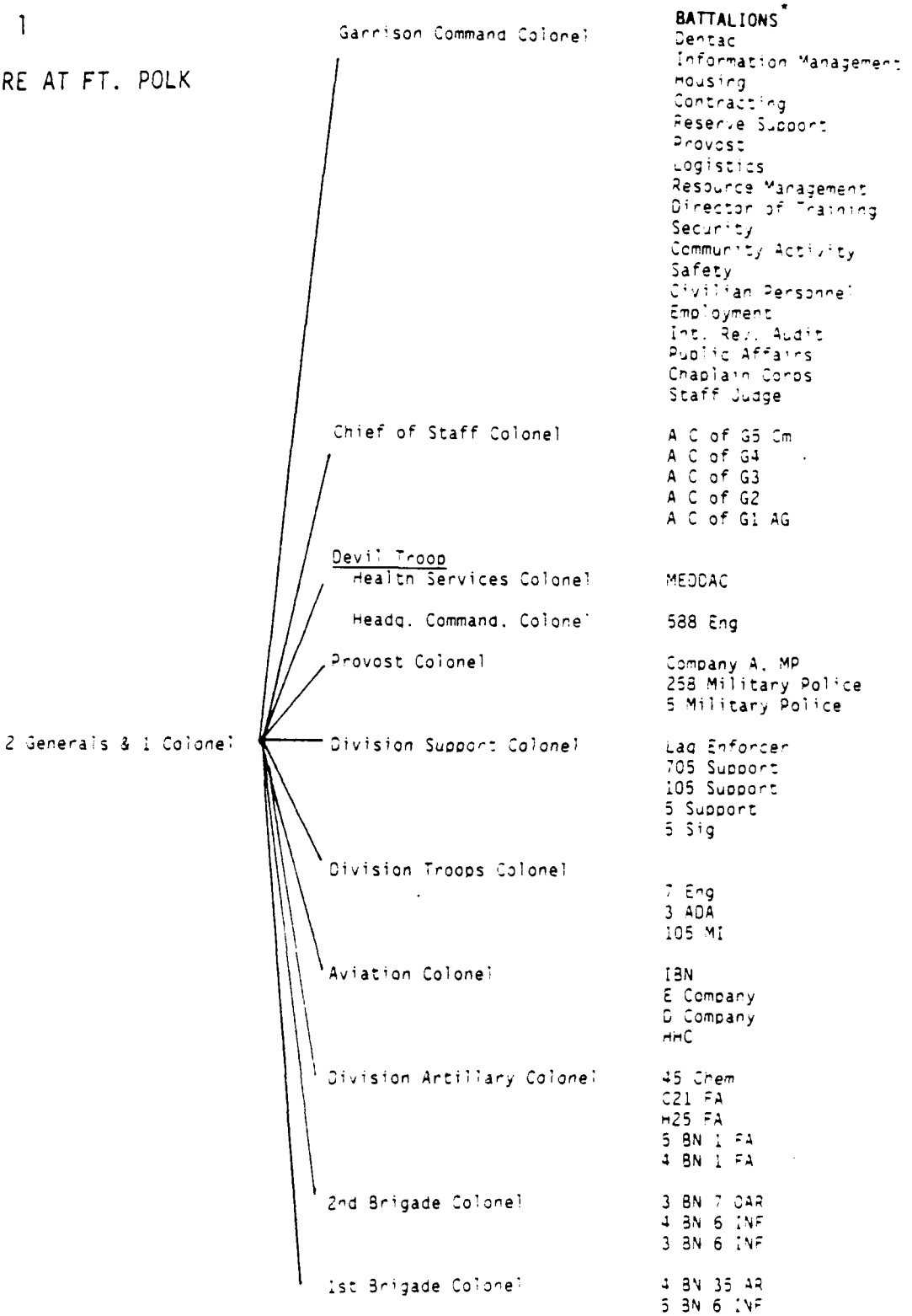
B) Battalion Wives Groups - this organization consists of all the wives of men in a certain battalion. There are approximately 20 battalions on post. Meetings are monthly. Attendance is 20-30 women.

C) "All Wives Coffees" - some brigades (not all) hold "all wives coffees" to include wives of all officers and enlisted men. These meetings are held four times per year. Attendance is approximately 50 women.

Therefore in recruiting Army unit wives for volunteers, each of these organizations would be approached, beginning with the Officers' Wives Club, which is the most populous and the most encompassing. Next, the Battalion Wives Groups and "All Wives Coffees" would be approached.

FIGURE 1

MILITARY STRUCTURE AT FT. POLK



*Each battalion contains 1 Lt. Colonel, 2 Majors, 13 Captains, and 20 Lieutenants

Community Organizations provide a second avenue for recruitment of volunteers for the Heart Smart Family Health Promotion. Several organizations exist on the post or in close proximity and are potential sources of volunteers:

Army Community Service: (ACS)

ACS acts as a clearinghouse for volunteer opportunities that provide service to families at Fort Polk. Approximately 30-50 organizations are listed with ACS with volunteer opportunities. The ACS advertises positions in the Guardian post newspaper and also recruits volunteers through newcomer meetings. Contact person: Louis Powell (318) 535-4837.

Red Cross

While the Red Cross is listed with ACS, it may be possible to network with this organization for specific volunteer opportunities: for aquatic and CPR volunteers, or persons skilled in water aerobics. (318) 535-2128.

Family Member Employment Assistance Program

This organization assists potential volunteers looking for opportunities which will enhance their resume and work /skill background. (318) 535-4837.

SCHOOL OF
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1542 Tulane Avenue
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Telephone: (504) 568-5845

Department of Medicine
Bogalusa Heart Study

HEART SMART VOLUNTEER POLICY STATEMENT

THE HEART SMART PROJECT AT LSU MEDICAL CENTER IS NOT RESPONSIBLE OR LIABLE FOR THE WORK PERFORMED BY VOLUNTEERS. HEART SMART AT LSU MEDICAL CENTER IS NOT RESPONSIBLE FOR RELATED OR RESULTANT ACTIVITIES ASSOCIATED WITH VOLUNTEER WORK. THERE IS NO LIABILITY INSURANCE PROTECTION PROVIDED FOR VOLUNTEERS' WORK-RELATED INJURY OR ILLNESS, NOR IS THERE PROTECTION AGAINST PERSONAL DAMAGES CLAIMS.

Gerald S. Berenson, M.D.
4/11/90

FORT POLK HEART SMART

FAMILY HEALTH PROMOTION

INTERVENTION

The target of intervention will be the serviceman(woman) and dependent. Intervention will focus on changing lifestyles, i.e. eating and exercise behaviors, and enhancing positive psychosocial factors. The intervention will be a five-step process, which is outlined below:

1. **AWARENESS DEVELOPMENT:**
   a. Rationale for intervention
   b. Cardiovascular screening and feedback
   c. Assessment of health knowledge, attitudes and beliefs and psychosocial factors.
2. **INFORMATION TRANSFER:**
   a. Health education via presentations, cooking demonstrations, modeling, role playing, and skits.
3. **SKILLS TRAINING:**
   a. Hands-on practice, e.g. menu planning and food selection, label-reading, recipe modification, etc.; exercise sessions; positive reinforcement; role playing.
4. **PSYCHOSOCIAL ENHANCEMENT:**
   a. Self-efficacy.
   b. Social support
   c. Positive reinforcement.
5. **MAINTENANCE**
   a. Skills by which participants observe and assess their own behavior.

b. Stimulus control.

c. Social support system.

The program will be implemented by a coordinator, phlebotomists, nutritionists, physical educator and behavioral counselor, and will consist of two phases, both of which will be held in the Ft. Polk Chapel Center. Measurement, presentations, activities and practice will be conducted every week for 8 weeks. Then former participants can become volunteers with new participants, and in this way a maintenance and support network can be established.

MEASUREMENT

Pre-intervention, post-intervention, and follow-up assessment will consist of:

1. Cardiovascular screening
    a. Anthropometrics
    b. Blood pressure
    c. Venipuncture
    d. Medical, personal and family history
2. Demographics
3. Self-Report
    a. Cardiovascular health knowledge, attitudes and beliefs
    b. Health behaviors, e.g. Type A, alcohol and tobacco use
    e. Physical Activity
4. Nutrition Interview
    a. 24-Hour Recall
    b. Eating Behaviors

Fort Polk Heart Smart
Family Health Promotion

Tentative Program Format

Education Concepts	Program Format	Program Example
Daytime Session:		
Awareness:	Rationale:	Relationship between salt and Blood Pressure
Information Transfer:	Presentation of Concepts:	Modification of salt intake Receipe Modification
Skills Training:	Demonstration:	How to modify recipe and taste recipe
Hands-on:	Activities:	Write family recipe then write modified recipe Discussion
Evening Session:		
Brief Repetition of Awareness & Information Transfer		
Application:	Program participation and individual application of concepts:	Families bring modified recipe for pot luck dinner
Reinforcement:	Incentives:	Attendance

The above steps should be applied to nutrition, exercise, and adverse lifestyles such as alcohol and smoking, and stress management aspects of program.

Concepts that will be incorporated into the program format are:

a) positive reinforcement
b) social support
c) self-efficacy
d) stimulus control
e) self-monitoring
f) group contracting

Tentative Program Format

Day Session:

15 Mins.	-	Awareness & Information Transfer
40 Mins.	-	Skills Training
20 Mins.	-	Group physical activity
10 Mins.	-	Relaxation Skills

FORT POLK HEART SMART PROGRAM
FAMILY HEALTH PROMOTION

Tentative Program Format

Day Session:

15 mins. - Rationale and Presentation of Concepts
40 mins. - Activities, Demonstrations, Discussion
20 mins. - Group Physical Activity
10 mins. - Practical Relaxation Techniques

GROUP SOCIAL SUPPORT

1. Social Support

The use of social support, within groups with like problems, or within the family, has been associated with more effective outcomes (32). The concept of support is defined by what forms it can have (i.e., physical, emotional, financial, spiritual, etc.), and its sources (i.e., friends, parents, religious, etc.). Self-help groups, such as Weight Watchers, Alcoholics Anonymous, and Overeaters Anonymous, rely heavily on intra-group support. Meetings are held specifically for the experience of support and abandonment of feelings of isolation in what has to be accomplished. These kinds of groups, and groups which the counselor might form, can be helpful in addressing both personal and technical questions. They provide peer support, suggestions, and anecdotal information that is meaningful to each individual. The support of the nutritionist/counselor, the support of family members, the support of group members, is a strong concept that should be developed and used for increasing the probability of success and long-term maintenance.

SELF-EFFICACY

2. Self-Efficacy

Self-efficacy, or the confidence that an individual can perform a specific behavior (33), has been demonstrated to have enormous potential in mediating changes in, for example, diet and exercise. Based on prior learning experiences, individuals develop a sense of whether or not they can cope with confidence in a specific situation. If the sum of prior experience related to the situation has been success, the individual will be self-efficacious, or confident. If, on the other hand, failure has been the result of prior experience, the individual's self-confidence will be diminished, leading to a reluctance to try again. This is the eventual outcome of persistent dieters who do not achieve or maintain their weight loss goal.

Assessment of self-efficacy can be simple and straightforward. For example, ask the client, "Do you think you will be able to ...?". Then ask, "How confident are you about that on a scale from 1 to 10?" Interestingly, research programs have demonstrated that participants' predictions about their own outcomes can be accurate as much as 80% of the time (27).

Four pathways have been postulated for the development of self-efficacy, and can be used in both public health and individual approaches. These are: **1)** as mentioned previously, helping the client to recall previous successes; **2)** verbal persuasion, which focuses on knowledge; **3)** providing vicarious experiences in the form of modeling (observing others); and **4)** correct interpretation of emotional arousal (e.g., the anxiety you are feeling is associated with changing old familiar habits, not your inability to change those habits.)

Self-efficacy

Self-efficacy is a cognitive construct that has far-reaching potential relative to the fundamental processes involved in behavior change. Prior learning experiences provide individuals with a sense of ability to cope with confidence (self-efficacy) vis-a-via problem situations. Self-efficacy can be easily assessed and correlates highly with behavior in a target situation.

Assessment of self-efficacy is simple and might involve little more than asking the following questions:

1) Do you think you are able to ...(carry out the target behavior)?

Yes ____ No ____

2) How confident are you about what you just predicted?

0% ----------100%

Not confident Completely

at all confident

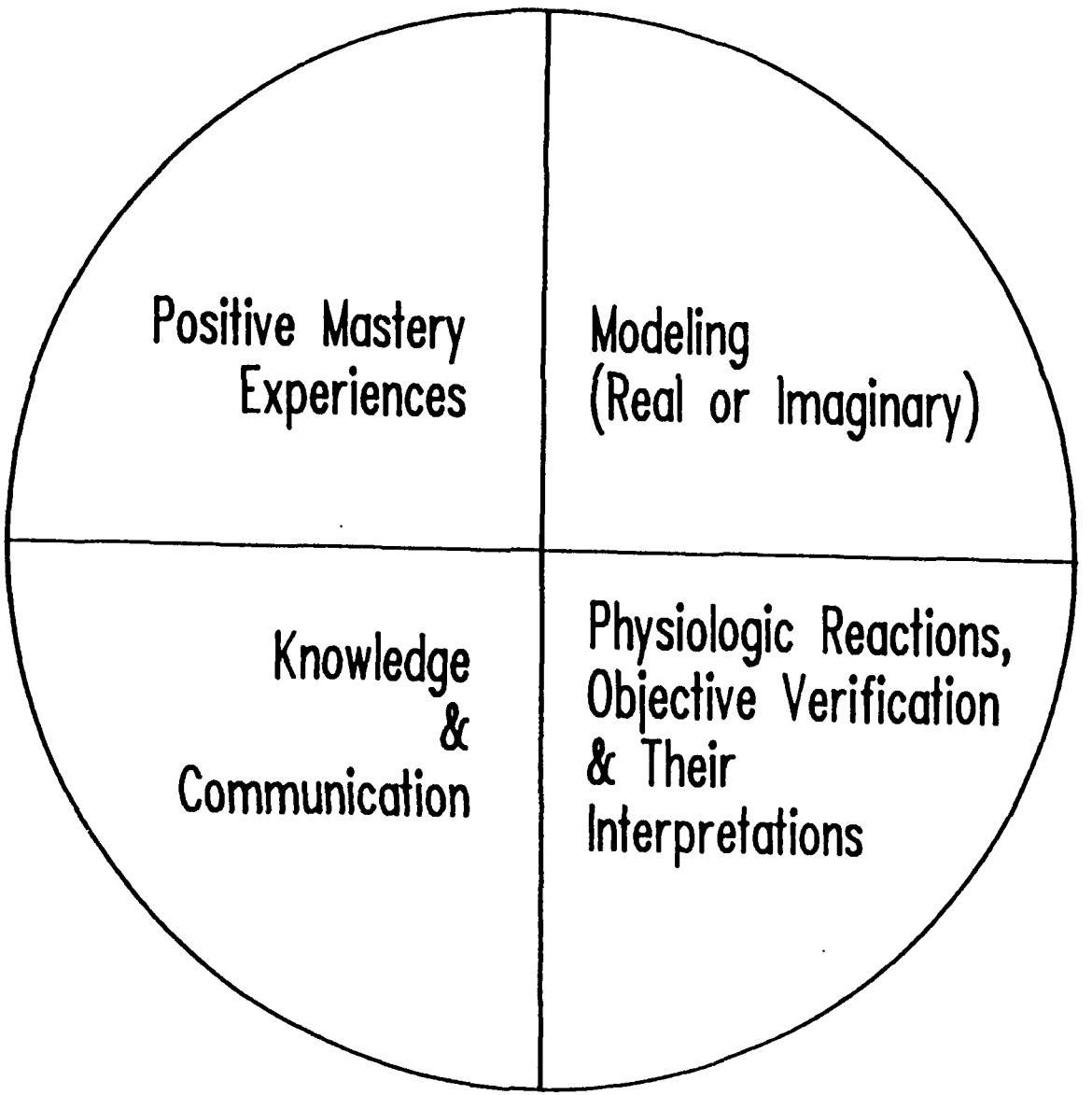
The predictive power of self-efficacy has been demonstrated in health research programs wherein participants' predictions about their own outcomes are accurate as much as 80% of the time.

Efficacy expectations are governed by information that comes from a variety of sources, including performance accomplishments (**mastery experiences**); vicarious experiences (**modeling**), verbal persuasion (**knowledge**), and emotional arousal (**correct interpretation of physiological feedback**).

Self-efficacy expectations can be crucial to effective behavior change because they mediate the likelihood that a person will attempt a goal behavior in a natural context, i.e., outside the research situation. This is one of the reasons that participatory modeling will likely be most effective because it provides the person with experiences of personal mastery during the course of intervention as he/she participates in and actually demonstrates components of goal behaviors.

In the Family Health Promotion Program, participatory modeling is an integral part of every module and every session. Verbal persuasion is enacted through rationale, information transfer, and group discussions. Performance accomplishments are encouraged by skills training, goal setting and contracting. Correct interpretation of emotional arousal, such as fear and anxiety provoked by anticipation of changing ingrained habits are addressed and labeled.

C-V Health Promotion of School-Age Children



FORT POLK HEART SMART PROGRAM
FAMILY HEALTH PROMOTION

Behavioral Concepts

Behavioral	Social/Cognitive
Self-Monitoring	Social Support
Feedback	Modeling
Stimulus Control	Self-Efficacy
Shaping/Skills Building	Positive Self-Statements
Positive Reinforcement	
Goal Setting/Contracting	
Relaxation Skills	

FORT POLK HEART SMART PROGRAM
FAMILY HEALTH PROMOTION

Behavioral Group Instruction

1. The A, B, C's of Behavior (Stimulus Control)

2. Positive Effects of Social Support

3. Self-Efficacy: the Road to Behavior Change

4. Maintenance Planning

Behavior Change Strategies

With the knowledge that CV risk factors can be related to diet, exercise, and stress factors, lifestyle change has become the focus of modern CV health promotion programs. CV mortality in the United States has decreased and public education approaches to CV health promotion have been cited as a major reason for the reduction of CV disease during the last 20 years. In most cases, however, knowledge is necessary, but not sufficient, to effect behavior change.

With the advent of attention to lifestyle alteration, programs using behavioral change concepts aimed at eating and exercise habits have emerged at the forefront as the most successful. Also, the more recent acknowledgement of mediating cognitive and social variables, such as modeling, self-efficacy and social support, has expanded the behavioral program to include awareness and application of these concepts.

Behavioral strategies have been enthusiastically welcomed in health care. Matarazzo states that behavioral science plays a major role in effective health care, and Kaplan states that behavioral contributions to the health field have been extensive and modestly successful. Behavioral science has much to contribute to lifestyle health programs. Behavioral methodologies, learning principles, and cognitive and social variables, have become the backbone of programs of this nature. The behaviorist's creativity in selection, combination, and presentation of these concepts may be the key to successful behavior change in multi-disciplinary health-related programs.

Following are the behavioral and social/cognitive concepts with which this program is designed and which are used to effect positive health behavior change.

Behavioral Concepts

Behavioral	Social/Cognitive
Self-Monitoring	Social Support
Stimulus Control	Modeling
Shaping/Skills Building	Self-Efficacy
Positive Reinforcement	Positive Self-Statements
Goal Setting/Contracting	
Relaxation Skills	

Social/Cognitive Concepts

Social Support

Social support has been linked to a number of health outcomes, including adherence to medical regimens; success in smoking cessation; and weight loss programs. The inclusion of social support via group discussions and activities, and the involvement of the entire family is an effective method of producing long-term changes in health-related behavior. In the Family Health Promotion both intra- and inter-family support is fostered. The concept of support is defined by exemplifying what forms it can have (i.e., physical, emotional, financial, etc.) and its sources (i.e., friends, parents, etc.). The buffering powers of social support and its resultant positive health correlates are emphasized.

Modeling

A basic function served by **modeling** (actual or potential behavior change through the observation of others) is the acquisition of new, appropriate health behavior patterns. Also, the observation of a model's behavior in

various situations will provide social facilitation of appropriate behaviors by inducing the participant to perform these behaviors. Four component processes mediate the effectiveness of modeling: 1) attending to modeled behaviors; 2) remembering the modeled behaviors; 3) being able to reproduce the modeled behaviors; and 4) wanting to reproduce the modeled behaviors (motivation).

In the FHP, sessions are designed to maximize the attendance and attention of the participants. Lecture formats are brief and implementators use visual aids and/or actual products in their presentations. Demonstrations and role plays provide direct modeling of desired behaviors. Also, the staff models appropriate behaviors at all times (e.g., no smoking and eating only CV-healthy snacks at meetings). An added advantage of family participation is that a mutual modeling influence can be initiated in the home and the home becomes a setting for the practice of modeled behaviors.

Modeling, role playing, and role reversal are used in sessions whenever appropriate. One example is the demonstration which assists the eating presentation on snacking. Inappropriate snacking behavior is demonstrated first by a participating mother and child (the mother, who is busy, quickly gives the child potato chips and a candy bar when the child comes home from school). Then they role play and model a more appropriate snacking behavior (the mother offers to make some unsalted, unbuttered popcorn with the child — they have fun together and both have a healthier snack). Parent and child then reverse roles so they both can achieve more complete understanding in a particular behavioral-eating context.

Modeling is an efficient and effective method for the transfer of information. When modeling is followed by role playing, and other participatory activities, the individual demonstrates that he has attended to,

understood, and has the ability to utilize the information presented. With imitation, completion of the modeling process, the information presented has a greater chance of being assimilated and used in everyday life. The repeated practice within the FHP program of the new desired behaviors will help consolidate the memory of these behaviors.

In the Family Health Promotion the physical reproduction of behaviors is made more probable by incorporating products and activities that are independent of unusual cost or transportation requirements. For example, physical activities will be instituted that can be done in the home and/or immediate neighborhood, as well as fitness centers on base, and nutrition products will be used that are economical and easily accessible. Motivation to try the modeled behaviors will be provided by social encouragement, incentives (e.g., samples of products), and rewards for performance, both social (e.g., praise and recognition) and physical (e.g., ticket for a prize raffle).

Self-efficacy

Self-efficacy is a cognitive construct that has far-reaching potential relative to the fundamental processes involved in behavior change. Prior learning experiences provide individuals with a sense of ability to cope with confidence (self-efficacy) vis-a-via problem situations. Self-efficacy can be easily assessed and correlates highly with behavior in a target situation.

Assessment of self-efficacy is simple and might involve little more than asking the following questions:

1) Do you think you are able to ...(carry out the target behavior)?

Yes ____ No ____

2) How confident are you about what you just predicted?

0% ----------100%

Not confident Completely

at all confident

The predictive power of self-efficacy has been demonstrated in health research programs wherein participants' predictions about their own outcomes are accurate as much as 80% of the time.

Efficacy expectations are governed by information that comes from a variety of sources, including performance accomplishments (**mastery experiences**); vicarious experiences (**modeling**), verbal persuasion (**knowledge**), **and emotional arousal (correct interpretation of physiological feedback**).

Self-efficacy expectations can be crucial to effective behavior change because they mediate the likelihood that a person will attempt a goal behavior in a natural context, i.e., outside the research situation. This is one of the reasons that participatory modeling will likely be most effective because it provides the person with experiences of personal mastery during the course of intervention as he/she participates in and actually demonstrates components of goal behaviors.

In the Family Health Promotion Program, participatory modeling is an integral part of every module and every session. Verbal persuasion is enacted through rationale, information transfer, and group discussions. Performance accomplishments are encouraged by skills training, goal setting and

contracting. Correct interpretation of emotional arousal, such as fear and anxiety provoked by anticipation of changing ingrained habits are addressed and labeled.

Positive Self-Statements

Positive self-statements, implicit verbalization that facilitates the self-control of overt verbal and motor behavior, are known to be effective in behavior change programs. It has been postulated that the acquisition of control of voluntary behavior initially develops by control exercised by verbal behavior of others (e.g., parents with the child); then the child is guided through overt speech on the part of adults; finally, much of behavior comes under the control of covert self-speech, i.e., what an individual tells himself.

The logical next step after the enhancement of self-efficacy is the practice of positive self-speech, i.e., having the participant practice such positive statements as, "I learned this; I practiced this; I CAN DO THIS." Whether an individual initiates or tries a new behavior may be influenced by self-efficacy, but how the individual performs will be influenced by the positive (or negative) statements he makes to himself. Practice in positive self-statements about trying new behaviors or changing old behaviors is incorporated into every session of FHP. The goal-setting that is a part of each session is another opportunity to practice the development of positive self-speech.

Behavioral Concepts

Stimulus Control

A fundamental precept of behavioral psychology is that behavior is largely under stimulus control. Consequently, activities within the FHP help participants reduce the probabilities of occurrence of problem behaviors through education in, and modification of, environmental stimuli.

In the FHP program, the "A-B-C's of Behavior" (A = Antecedent; B = Behavior; C = Consequence) are addressed. This presentation is a part of the Snacking Module, and, during the following week each individual practices self-monitoring of snacking behaviors. This helps identify the environmental or personal cues that trigger inappropriate snacking.

Methods of stimulus elimination (e.g., "Do not stop at the bakery on the way home from work.") and stimulus narrowing (e.g., "Eat in only one location in the home.") are reinforced for reducing undesirable behaviors, and methods of stimulus strengthening (e.g., "I will take a one-mile walk every Monday, Wednesday, and Friday at 7 AM") are reinforced for increasing desirable behaviors.

Participants also are taught the value of alternative desirable responses (e.g., "Talk on the phone to a friend instead of eating ice cream"). Each individual learns how to interpret cues in his or her own family environment and adjust these cues accordingly. When subjects are educated in self-monitoring techniques and stimulus control principles, they become not only participants in, but also observers of, their own behavior. Several of the most common cues to eating are time, location and associated activities. When consistently paired with food, these cues can trigger a desire to eat.

Participants are taught how to decrease the number of stimuli eliciting eating behaviors. Other concepts demonstrated are control of physiologic cues and reduction of food consumption. Certain behaviors become so habitual that they lead to automatic overeating. Participants are taught how to control these behaviors and reduce the amount of food consumed and prevent automatic eating.

Self-Monitoring

Self-monitoring is a major function within this program, since the primary source of information about an individual is the individual himself. It has

been demonstrated that self-monitoring in and of itself can have beneficial effects, probably because of the increased attention to behaviors and the contexts in which they occur. Evidence also exists that self-monitoring can maintain behaviors previously modified.

In the FHP, each session will be followed by self-monitoring during the week through the use of a diary or checklist for behaviors that comprise specific concepts covered. For example, a diary will help participants record amount of time spent in their walking program, alone or with other family members and at what times during the day. Another example is the nutrition checklist which will help wives record the various ways they have modified recipes for the family. Self-monitoring also helps identify for the participants areas in which problems still exist, but also their successes, which are reinforcing (mastery experiences). Also, self-monitoring provides the means for meaningful observation and monitoring by participants. By accurately observing and monitoring eating and exercise behaviors, antecedents and consequences, the individual and the family as a unit acquire an appreciation of stimulus control, and, consequently, self-control with health-related behaviors.

Shaping/Skills Building

Within the context of contracting, and/or any procedure where behavior change is desired, the principle of shaping, rewarding successive approximations to a desired goal, is imperative. To expect an individual to jump from the extreme of one behavior to the other extreme of that behavior, and maintain that quantum leap, is unrealistic and asking for failure. Shaping allows the individual to contract for small behavior change increments, for which he is rewarded, until he reaches the desired goal. Also, realistic, self-directed setting of goals has proven more successful

than externally directed goals which do not take individual resources and limitations into consideration. Therefore, recommendations by professionals for discussion and negotiation prior to goal-setting and contracting are important components of the shaping process.

Any behavior can be broken down into component behaviors. The FHP fosters adoption of component behaviors that are reinforced, that become cumulative and lead to the desired goal. For example, if an individual's goal is elimination of dietary sodium, behaviors that result in reduction and lead to elimination are rewarded, e.g., not adding salt at the table.

The shaping and building of new health-related skills in eating and exercise are facilitated by demonstrations and practice. Activities that provide opportunities for practice are included in every FHP session, e.g., reading labels.

Positive Reinforcement

Personal motivation is essential in any behavior change program, especially when individuals must actively strive for a future goal. Determining the personal and unique reinforcements that are realistically obtainable is the key to a motivated, long-term program.

The FHP program uses incentives (e.g., food samples) to motivate initiation of new behaviors, and rewards for trying these behaviors (e.g. raffles and discount coupons for salad bars). The staff uses and models social reinforcement so that social reinforcement can be practiced both within and between family groups. The gradual shifting from extrinsic (prizes, raffles) to intrinsic (personal success and satisfaction) is a necessary goal of FHP if new behaviors are to be maintained long-term.

Goal Setting/Contracting

The staff guides individuals in determining realistic and attainable goals, goals imposed by the participant, not by the professional. Many adults set unrealistically high standards that are never reached and never rewarded; therefore, their behavior does not change. Children, on the other hand, have a tendency to set very lenient goals for themselves; this pattern is usually associated with poor performance. The staff aids both adults and children in setting goals, taking into consideration their resources and limitations.

An instrument that aids in the change process is the contingency contract. The principle that occurrence of behavior is increased when reinforced contingently by valued rewards lead to the use of this contract. The formal contract, a meaningful document in American culture, combined with the concept of reward for performance, has been successful for many kinds of difficult behavior change problems, including adherence to American Heart Association (AHA) diet guidelines ().

Behavioral contracts for eating and exercise goals are negotiated and include rewards for the completion of contract obligations.

Relaxation Training

A CV health promotion program, if it is to do a complete job in helping children and adults develop healthy lifestyles, should provide, not only necessary information on diet and exercise, but also methods to cope with detrimental aspects of the psychosocial pressures that are a part of everyday life. Today, most of our crises are psychologic, not physical, and stress comes as cognitively perceived threats. Stress symptoms can include muscle tension, irritability, and many physical and emotional disturbances, such as hypertension and anxiety. Inappropriate stress reactions are known to include excessive drinking, eating, and smoking practices detrimental to CV health.

Relaxation techniques can help alleviate stress symptoms and obviate unhealthy stress reactions. Participants in the FHP practice deep breathing and imagery. They also learn a brief relaxation technique involving progressive muscle relaxation with four gross muscle groups. Relaxation techniques also aid memory and recall activities; therefore, they are especially useful in conjunction with remembering modeled experiences and recalling previous successful accomplishments. Relaxation training allows participants the opportunity to better understand and control body experiences and enhances correct interpretation of physiological feedback that may contribute to self-efficacious beliefs.

Positive Reinforcement

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INCENTIVES

Incentives are used to reward a specific behavior. Examples of possible incentives include:

- -discount coupons for heart healthy foods
- -exercise sweat bands
- -jump ropes
- -handouts, pamphlets
- -free trial size samples of food items
- -packages of salt-free spices
- -restaurant coupons
- -coupons for bowling, minature golf

Such incentives can be obtained in a variety of ways:

- -contact local fast food or family-style restaurants
- -contact local businesses for donations
- -contact food vendors, food companies, and/or food manufacturers (local or nationally)
- -contact the American Heart Association, American Cancer Society, or other organizations for handouts, brocheres, etc.

There are number of items that can be used as incentives. Keep in mind that food products should be heart healthy and meet the criteria of your program. Do not forget that non-food incentives are also important (i.e. meat basters, jump rope, etc.) Be creative with the incentives you offer!

You can put together your own "coupon book" by organiziing those coupons that have been donated. In this way, participants can choose which coupon from the book they would prefer as their incentive.

Remember, an incentive is meant to reward a specific, quantifiable behavior, and should be a tool to help motivate participants toward that behavior or change.

INCENTIVES

Label Reading- Discount coupon for heart healthy foods at local business: low fat yogurt, etc. Discount coupons for heart healthy foods, condiments from manufacturers: Fat finder wheel.

Snacking- Coupons for frozen yogurt or other healthy snacks (e.e., fig newtons, Harvest Crisp Crackers)

Food Purchasing-Exercise sweat bands, Coupons with free/cents off groceries at local store, Coupons for free bowling or roller skating for each family.

Food Preparation- Meat basters (to withdraw fat from cooked meat), pot holders, Printed aprons that bear "Heart Smart" logo, Food samples: Molly Mcbutter, LouSana Oil, or a can of vegetable spray.

Recipe Modification- Children's Help Your Heart Cookbook, American Heart Association, Fort Polk Cookbook: A cookbook of all modified recipes made by the participants, Food samples: Dash, Salt Substitutes, Small bottle garlic powder or other seasoning can substitute for salt.

Dining Out- Local restaurant coupon (i.e., salad bar)

HANDOUTS

Label Reading-

1) Food Detective game
2) Labeling Take Home Project

The Labeling Take Home Project may be done by individual families with the items in their pantries or as a group in the grocery store. Note that the lable-reading project is similar to the Food Detective Game. If you feel that you don't have enough time or that the participants have a good grasp on the concepts, you may choose to leave one out. However, using both projects will help to reinforce the concepts and give th eparticipants additonal practice in label reading.

3) label Crossword Puzzle
4) "The Secret File for the Private Eye"
5) AHA Pamphlet - An Eating Plan for Healthy Americans
6) Additional Pamphlets, i.e., Mrs. Dash, Low-Sodium Campbell Soup,...

Snacking-

1) AHA Guide to Cardiovascular Healthy Snacks
2) What about Snacks for Kids?
3) Children's Snack Recipes
4) My C-V Healthy Eating Book (Fort Polk)
5) General Rules for Low-fat/High fat Foods
6) Additional pamphlets

Food Purchasing

Substitutions
Heart Healthy Recipes - Ideas
AHA Grocery Guide
Very -low-fat to High-fat Foods
Good/Bad Cuts of Meat
Pamphlets (i.e., Campbell's Supermarket Shopping; The Turkey Store)

Recipe Modification

1) Making gravy from defatted meat drippings.
2) Children's Help Your Heart Cookbook.
3) Simple ways to modify a recipe.
4) Recipe modification tips.
5) Dine Printout of lasagna
   Recipes: old and modified
6) Spice shaker recipes
7) Seasoning food without salt

Dining Out-

Fast Food Handbook
AHA Dining Out Guide
Louisiana AHA Dining Out

FORT POLK HEART SMART
FAMILY HEALTH PROMOTION PROGRAM

Post Chapel Center
~~26 & 28 FEB 91~~
6:30-8:00 pm

6:30-6:40	Introduction	Rolf Kuhlow
6:40-6:55	Review Snacking Review Take Home Project	Christine Moon Cecilia Ockenfels
6:55-7:20	Food Purchasing Module	Christine Moon
7:20-7:30	Review Handouts	Teresa Gras
7:30-7:40	Take Home Project Contracting	Cecilia Ockenfels
7:40-8:00	Exercise and Relaxation	Cecilia Ockenfels
8:00	Snacks	

FT. POLK HEART SMART
FAMILY HEALTH PROMOTION PROGRAM

Post Chapel Center
Food Preparation/Recipe Modification Module
~~March 5th and 7th~~

6:30 - 6:40	Introduction	Rolf Kuhlow
6:40 - 6:55	Food Purchasing Review	Christine Moon
	Review of home assignment	Cecelia Ockenfels
6:55 - 7:20	Food Preparation	Christine Moon
	Recipe Modification	Teresa Gras
7:20 - 7:30	Review of Handouts	Christine Moon Teresa Gras
	Contracting Assignment	Cecelia Ockenfels
7:30 - 7:45	Exercise	Cecelia Ockenfels
7: - 7:55	Relaxation	Cecelia Ockenfels
8:00	Taste Testing "Heart Healthy Jambalaya"	Staff

FORT POLK HEART SMART
FAMILY HEALTH PROMOTION PROGRAM

Post Chapel Center
~~21 FEB 91~~
6:30-8:00 pm

6:30-6:40	Introduction	Rolf Kuhlow
6:40-6:50	Review Label Reading Review Take Home Project	Teresa Gras Cecilia Ockenfels
6:50-7:10	Snacking Module	Christine Moon Cecilia Ockenfels
7:10-7:25	Vending Machine Game	Christine Moon Teresa Gras
7:25-7:35	Take Home Project Contracting	Cecilia Ockenfels
7:35-8:00	Exercise and Relaxation	Cecilia Ockenfels
8:00	Snacks	

~~12 & 14 February 1991~~

FORT POLK HEART SMART
Family Health Promotion
6:30-8:00
Post Chapel

LABEL READING MODULE

6:30-6:35	Greetings & Sign In	Staff
6:35-6:40	Review Results	Rolf D. Kuhlow
6:40-7:10	Label Reading Module Presentation & Discussion Taste Testing	Teresa Gras Christine Moon
7:10	JUICE	
7:10-7:20	Video	Teresa Gras
7:20-7:30	Food Detective Game	Teresa Gras
7:30-7:35	Explanation of Handout (Homework)	Cecelia Ockenfels
7:35-7:45	Exercise	Cecelia Ockenfels
7:45-8:00	Relaxation	Cecelia Ockenfels
8:00	Snacks	Christine Moon

Ft. Polk Heart Smart
Family Health Promotion Program

Agenda

Session 8
Chapel Center, Community Room
~~Tuesday, 7/31/90 - 7:00 pm~~

Greetings and Sign-in	Staff
"Up in Smoke" - Smoking Prevention	Saundra Hunter, Ph.D.
Demonstration: Eating Hints for Better Self-Management	Carolyn Johnson, M.S.
Group Exercise: Stretch and Low-impact Aerobics	Janet Bekkala
~~"Power Up" - "I can do it!"~~ Time Management	~~Saundra Hunter~~ ~~Carolyn Johnson~~

Handouts:
- "Calling It Quits" (AHA)
- "Smoking and Heart Disease" (AHA)
- "Children and Smoking: A Message to Parents" (AHA)

Incentives:
- Reminder about attending sessions to win Walkman

Fort Polk Heart Smart
Family Health Promotion

Agenda

Session 10
Community Room - Chapel Center
7:00 - 8:30 pm

"Recipe Modification" --Modified Recipe Pot Lunch	Staff
"Dining Out" --Salad Bar --Fast Food Restaurant	Mary Lynn Koschak
Group Exercise	Janet Bekkala
Relaxation Time	Janet Bekkala

Handouts:
- Fast Food Handbook
- Dining Out Checklist
- "Dining Out" Handbook (AHA)

Incentives:
- Restaurant Coupons
- Ball

Fort Polk Heart Smart
Family Health Promotion

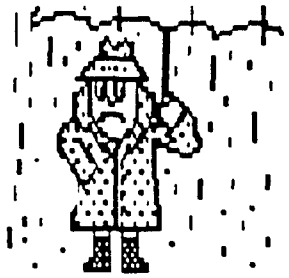
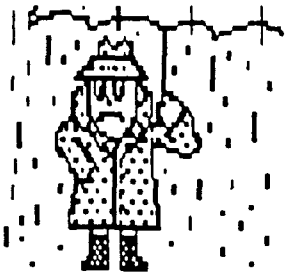
Agenda

Session 11
Community Room - Chapel Center
10:30 am - 12:00 noon

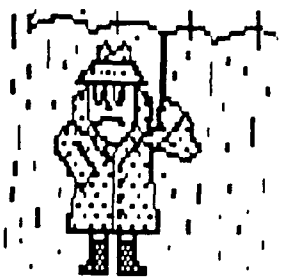
"What Am I Thinking?"	Carolyn Johnson
"Maintenance Planning" (Review & Discuss Maintenance Booklet)	Carolyn Johnson
"Stretching It Out" (15 mins stretching)	Janet Bekkala
"Relaxation Break" (15 mins relaxation exercise)	Janet Bekkala

Handouts:
--Maintenance Booklet

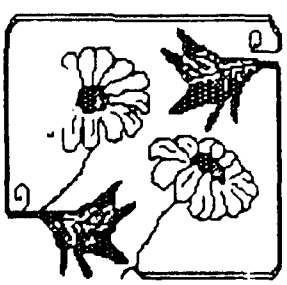
Incentives:
--Reminder about CV screening and determine families eligible for Walkman attendance reward.

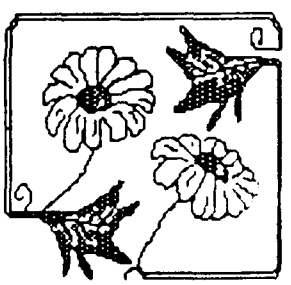
April, 1991
Welcome to Fort Polk Heart Smart

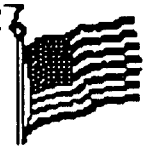
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16 6:30-8:00 pm Orientation Group A	17	18 6:30-8:00 pm Orientation Group B	19	20
21	22	23 Begin Risk Factor Screening & Diet Recalls	24	25	26	27
28	29 Continue Risk Factor Screening & Diet Recalls	30				

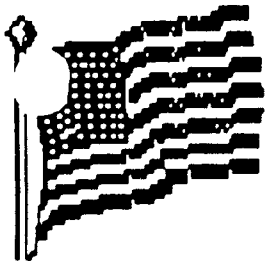


YOU AND YOUR FAMILY ARE ON THE WAY TO A MORE HEALTHFUL WAY OF LIVING
CONGRATULATIONS!

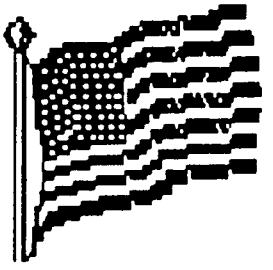


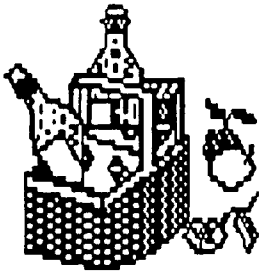
May, 1991
Fort Polk Heart Smart Program

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 Continue Risk Factor Screening & Diet Recalls	2	3	4
5	6 Continue Risk Factor Screening & Diet Recalls	7	8	9	10	11
12  MOTHER'S DAY	13 Continue Risk Factor Screening & Diet Recalls	14	15	16	17	18  Armed Forces Day
19	20	21 6:30-8:00 pm Label Reading Intro to Walking Program Group A	22 Join us for a walk around the golf course	23 6:30-8:00 pm Label Reading Intro to Walking Program Group B	24 Join us for a walk around the golf course	25
26	27  MEMORIAL DAY	28 6:30-8:00 pm Snacking Why Diet and Exercise? Group A	29 Join us for a walk around the golf course	30 6:30-8:00 pm Snacking Why Diet and Exercise? Group B	31 Join us for a walk around the golf course	

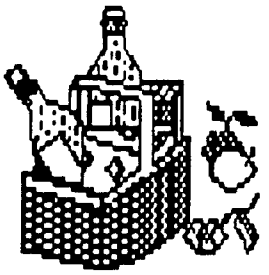


KEEP UP THE GOOD WORK!
YOU'RE ON YOUR WAY!





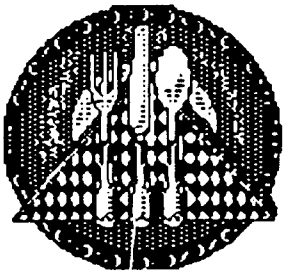
June, 1991
Fort Polk Heart Smart Program

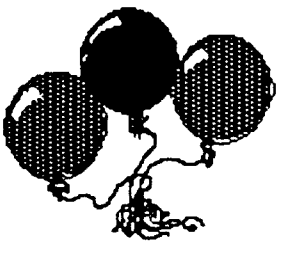


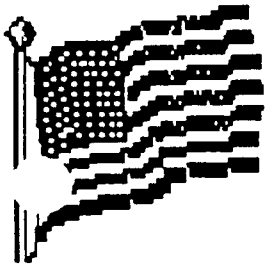
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3 Join us for a walk around the golf course	4 6:30-8:00 pm Food Purchasing Group A	5 Join us for a walk around the golf course	6 6:30-8:00 pm Food Purchasing Group B	7 Join us for a walk around the golf course	8
9	10 Join us for a walk around the golf course	11 6:30-8:00 pm Food Prep/ Recipe Mod Group A	12 Join us for a walk around the golf course	13 6:30-8:00 pm Food Prep/ Recipe Mod Group B	14  Flag Day	15
16  FATHER'S DAY	17 Continue Risk Factor Screening & Diet Recalls	18 6:30-8:00 pm Dining Out Group A	19 Join us for a walk around the golf course	20 6:30-8:00 pm Dining Out Group B	21 Join us for a walk around the golf course	22
23	24 Join us for a walk around the golf course	25 6:30-8:00 pm Maintaining Health/ Up in Smoke Group A	26 Join us for a walk around the golf course	27 6:30-8:00 pm Maintaining Health/ Up in Smoke Group B	28	29
30						

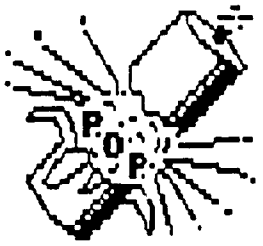
You Did It!

Hurray!

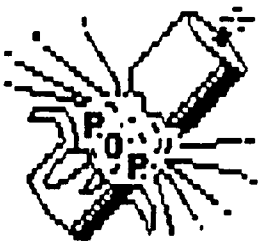


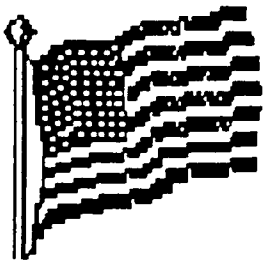




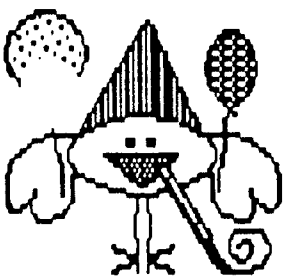


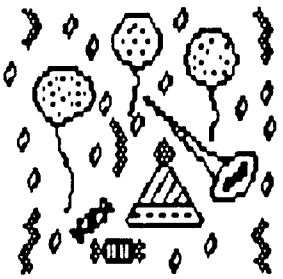
July, 1991
Fort Polk Heart Smart Program

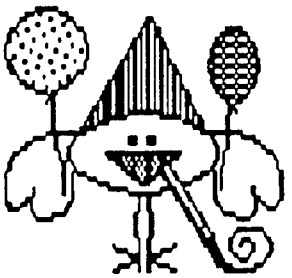


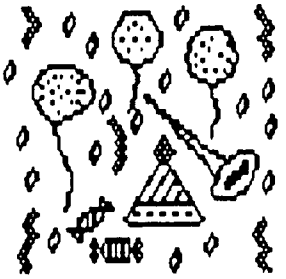


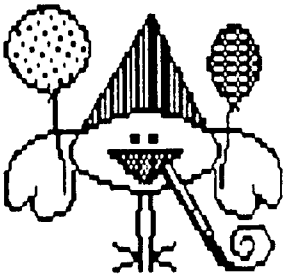
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Begin Risk Factor Screening & Diet Recalls	2	3	4 	5	6
7	8 Continue Risk Factor Screening & Diet Recalls	9	10	11	12	13
14	15 Continue Risk Factor Screening & Diet Recalls	16	17	18	19  Risk Factor Screening & Diet Recalls COMPLETED!	20
21	22	23	24	25	26	27
28	29	30	31			





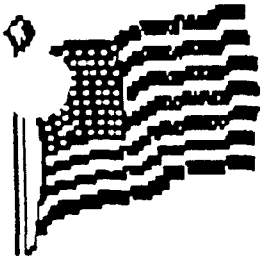




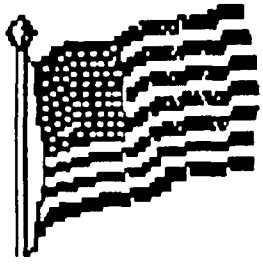



January, 1991
Welcome to Ft. Polk Heart Smart


Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22 6:30-8:00 pm Orientation Group A	23 Begin Risk Factor Screening and Diet Recalls	24 6:30-8:00 pm Orientation Group B	25	26
27	28 Continue Risk Factor Screening and Diet Recalls	29	30	31		



YOU AND YOUR FAMILY ARE ON THE WAY TO A MORE HEALTHFUL WAY OF LIVING
CONGRATULATIONS!!



February, 1991
Ft. Polk Heart Smart
Family Health Promotion

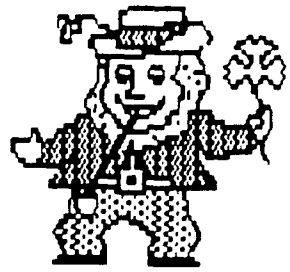



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 Continue Risk Factor Screening and Diet Recalls	5	6	7	8	9
10	11 Join us for a walk around the golf course	12 6:30-8:00 pm Label Reading Intro. to Walking Program Exercise/ Relaxation (Group A)	13 Join us for a walk around the golf course	14 6:30-8:00 pm Label Reading Intro. to Walking Program Exercise/ Relaxation (Group B)	15	16
17	18 Join us for a walk around the golf course	19 6:30-8:00 pm "Snacking" Why Diet & Exercise? Exercise/ Relaxation (Group A)	20 Join us for a walk around the golf course	21 6:30-8:00 pm "Snacking" Why Diet & Exercise? Exercise/ Relaxation (Group B)	22	23
24	25 Join us for a walk around the golf course	26 6:30-8:00 pm Food Purch. Exercise/ Relaxation (Group A)	27 Join us for a walk around the golf course	28 6:30-8:00 pm Food Purch. Exercise/ Relaxation (Group B)		

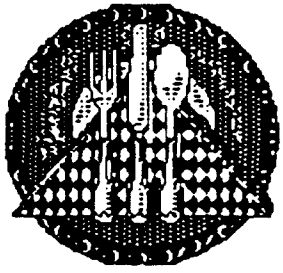
YOU'RE ON YOUR WAY

KEEP UP THE GOOD WORK!

March, 1991
Ft. Polk Heart Smart
Family Health Promotion



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 Join us for a walk around the golf course	5 6:30-8:00 pm Food Prep./ Recipe Mod. Exercise/ Relaxation (Group A)	6 Join us for a walk around the golf course	7 6:30-8:00 pm Food Prep./ Recipe Mod. Exercise/ Relaxation (Group B)	8	9
10	11 Join us for a walk around the golf course	12 6:30-8:00 pm Modified Recipes "Dining Out: Exercise/ Relaxation (Group A)	13 Join us for a walk around the golf course	14 6:30-8:00 pm Modified Recipes "Dining Out" Exercise/ Relaxation (Group B)	15	16
17	18 Join us for a walk around the golf course	19 6:30-8:00 pm "Maintaining Health" "Up in Smoke" Exercise/ Relaxation (Group A)	20 Join us for a walk around the golf course	21 6:30-8:00 pm "Maintaining Health" "Up in Smoke" Exercise/ Relaxation (Group B)	22 Begin Risk Factor Screening & Diet Recalls	23
24	25 Continue Risk Factor Screening & Diet Recalls	26	27	28	29	30
31						



NEWSLETTER

September, 1990

Welcome to Ft. Polk Heart Smart

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25 6:30-8:30 pm Pre-Orientation All Families	26 CV Risk Factor Screening	27 CV Risk Factor Screening	28 CV Risk Factor Screening	29
30						

YOU AND YOUR FAMILY ARE ON THE WAY TO A MORE HEALTHFUL WAY OF LIVING. CONGRATULATIONS!

October, 1990
Ft. Polk Heart Smart
Family Health Promotion

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 CV Risk Factor Screening	2 CV Risk Factor Screening	3 CV Risk Factor Screening	4 CV Risk Factor Screening	5 CV Risk Factor Screening	6
7	8	9 6:30-8:00 pm Family Health Promotion Orientation Group CV Screening Feedback	10	11 Walking Aerobics	12	13
14	15 Walking Aerobics	16	17 9:30-11:00 am Label Reading Intro. to Walking Program	18 6:30-8:00 pm Label Reading Activities Phys. Act. and Heart Disease	19	20
21	22 Walking Aerobics	23 6:30-8:00 pm "Snacking" Why Diet & Exercise? Exercise/ Relaxation	24	25 Walking Aerobics	26	27
28	29 Walking Aerobics	30	31 9:30-11:00 am Food Purch. Exercise/ Relaxation Healthy Halloween!			

YOU'RE ON YOUR WAY

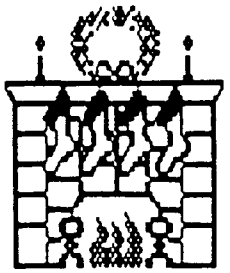
KEEP UP THE GOOD WORK!

November 1990
Ft. Polk Heart Smart Family Health Promotion

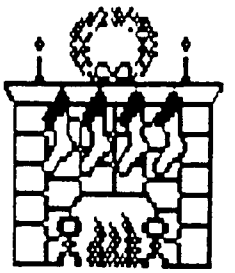
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Walking Aerobics	2	3
4	5 Walking Aerobics	6 6:30-8:00 pm Going up in SMOKE! Empowerment Exercise/ Relaxation	7	8 Walking Aerobics	9	10
11	12 Walking Aerobics	13	14 9:30-11:00 : Food Preparatio Recipe Modificatic Exercise/ Relaxatior	15 Walking Aerobics	16	17
18	19 Walking Aerobics	20 6:30-8:00 pm Modified Recipes "Dining Out" Exercise/ Relaxation	21	22 Walking Aerobics	23	24
25	26 Walking Aerobics	27	28 9:30-11:00 am "What Am I Thinking!" Maintaining Health Exercise/ Relaxation	29	30	

Heart Smart Team Is Really Great

Get That Fat Right Off Your Plate

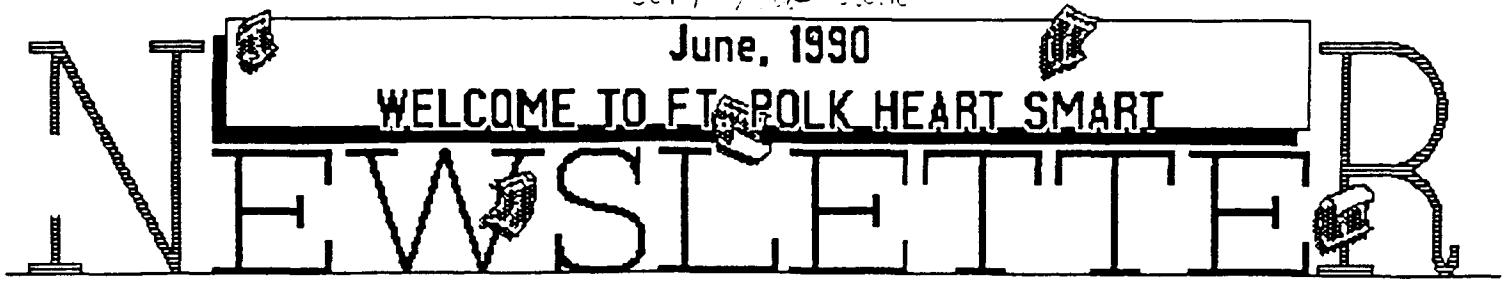


December, 1990
Ft. Polk Heart Smart
Family Health Promotion



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3 CV Risk Factor Screening	4 CV Risk Factor Screening	5 CV Risk Factor Screening	6 CV Risk Factor Screening	7 CV Risk Factor Screening	8
9	10 Counseling Recommendations/ Recruitment of Volunteers	11 Counseling Recommendations Recruitment of Volunteers	12 Counseling Recommendations Recruitment of Volunteers	13 Counseling Recommendations Recruitment of Volunteers	14 Counseling Recommendations Recruitment of Volunteers	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Your lifetime of healthful energy has begun.
We will welcome VOLUNTEERS to be
health ambassadors for the next program.
MERRY CHRISTMAS & HAPPY NEW YEAR!!



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 6:30-8:30 pm Orientation Exercise	6	7	8	9
10	11	12 Week of CV Risk Factor Screening By Appointment	13	14	15	16
17	18	19 Counseling: CV Screening Feedback Dietary Assessment	20	21	22	23
24	25	26 6:30-8:00 pm Why Diet & Exercise? Snacking Exercise Relaxation	27	28 Walking Aerobics Swimming	29	30 Walking Aerobics Swimming

YOU AND YOUR FAMILY ARE ON THE WAY TO A MORE

HEALTHFUL WAY OF LIVING.. CONGRATULATIONS!

July, 1990
Ft. Polk Heart Smart
Family Health Promotion

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 Walking Aerobics Swimming	3	4	5 Walking Aerobics Swimming	6	7
8	9 Walking Aerobics Swimming	10 10:30-12:00 N Label Reading Intro. to Walking Program	11	12 Walking Aerobics Swimming	13	14
15	16 Walking Aerobics Swimming	17 6:30-8:00 pm Label Reading/ Phys. Act. & Heart Dis.	18	19 Walking Aerobics Swimming	20	21
22	23 Walking Aerobics Swimming	24 10:30-12:00 N Food Purchasing Exercise/ Relaxation	25	26 Walking Aerobics Swimming	27	28
29	30	31 6:30-8:00 pm Going up in SMOKE! Empowerment Exercise/ Relaxation				

YOU'RE ON YOUR WAY.

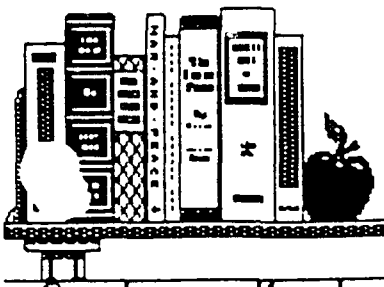
KEEP UP THE GOOD WORK!

August, 1990
Ft. Polk Heart Smart
Family Health Promotion Program

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 Walking Aerobics Swimming	3	4
5	6 Walking Aerobics Swimming	7 10:30-12:00 N Food Preparation/ Recipe Modification Exercise/ Relaxation	8	9 Walking Aerobics Swimming	10	11
12	13 Walking Aerobics Swimming	14 7:00-8:30 pm Modified Recipe "Dining Out" Exercise/ Relaxation	15	16 Walking Aerobics Swimming	17	18
19	20 Walking Aerobics Swimming	21 10:30-12:00 N "What Am I Thinking?" Maintaining Health Exercise/ Relaxation	22	23 Walking Aerobics Swimming	24	25
26	27 Walking Aerobics Swimming	28 Week of CV Risk Factor Screening By Appointment	29	30 Walking Aerobics Swimming	31	

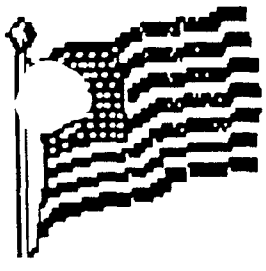
HEART SMART TEAM IS REALLY GREAT!

GET THAT FAT RIGHT OFF YOUR PLATE.

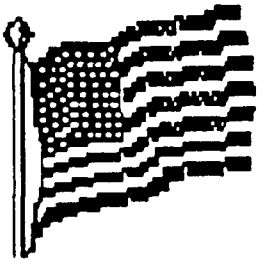


September, 1990
Ft. Polk Heart Smart
Family Health Promotion

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3 LABOR DAY	4	5	6 Walking Aerobics Swimming	7	8
9	10 Walking Aerobics Swimming	11 10:30-12:00 N Counseling Recommendations/ Recruitment of Volunteers	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						



Your lifetime of healthful energy has begun.
We will welcome any VOLUNTEERS
to work with us on the next
FAMILY HEALTH PROMOTION PROGRAM.



CARDIOVASCULAR SCREENING FEEDBACK

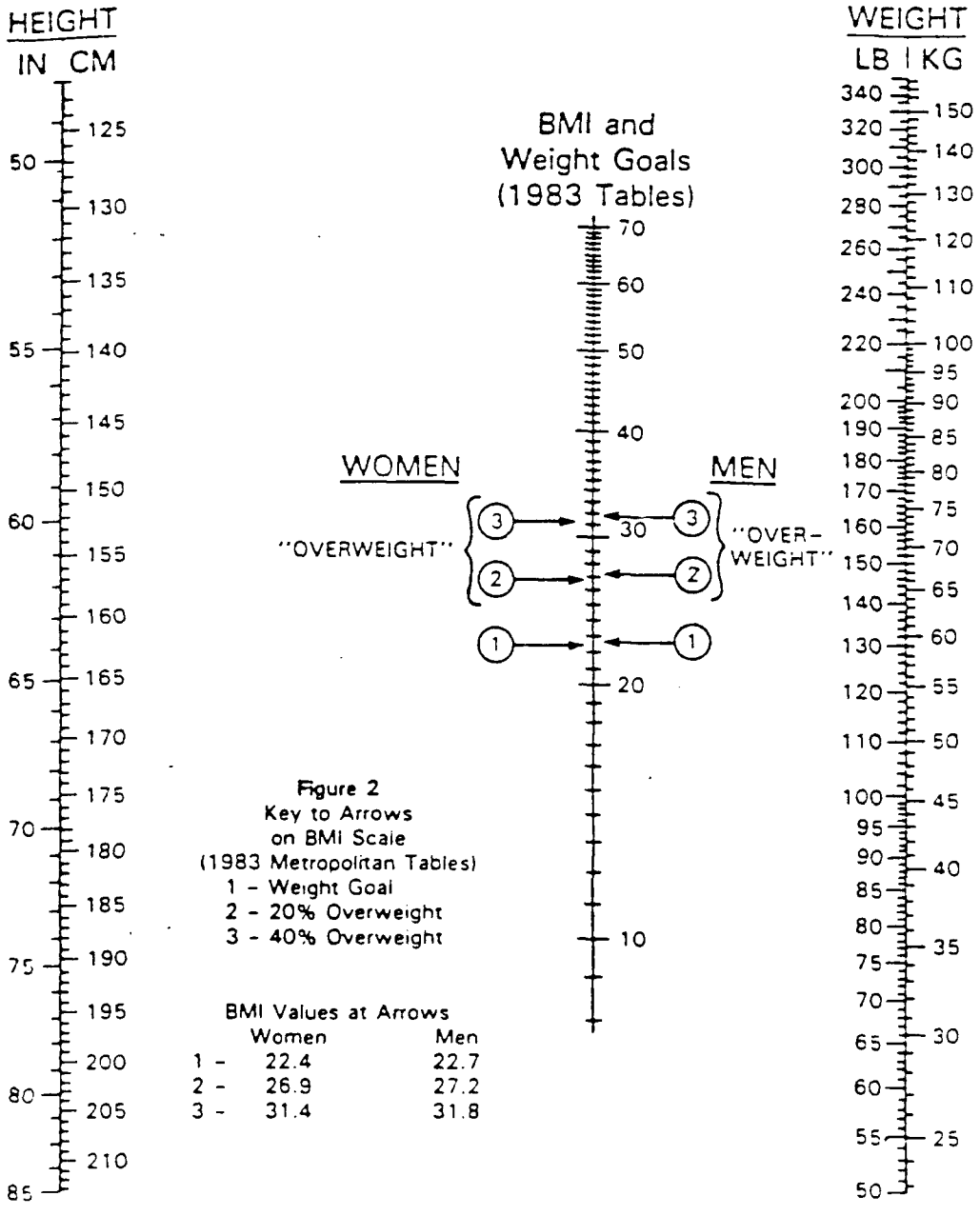
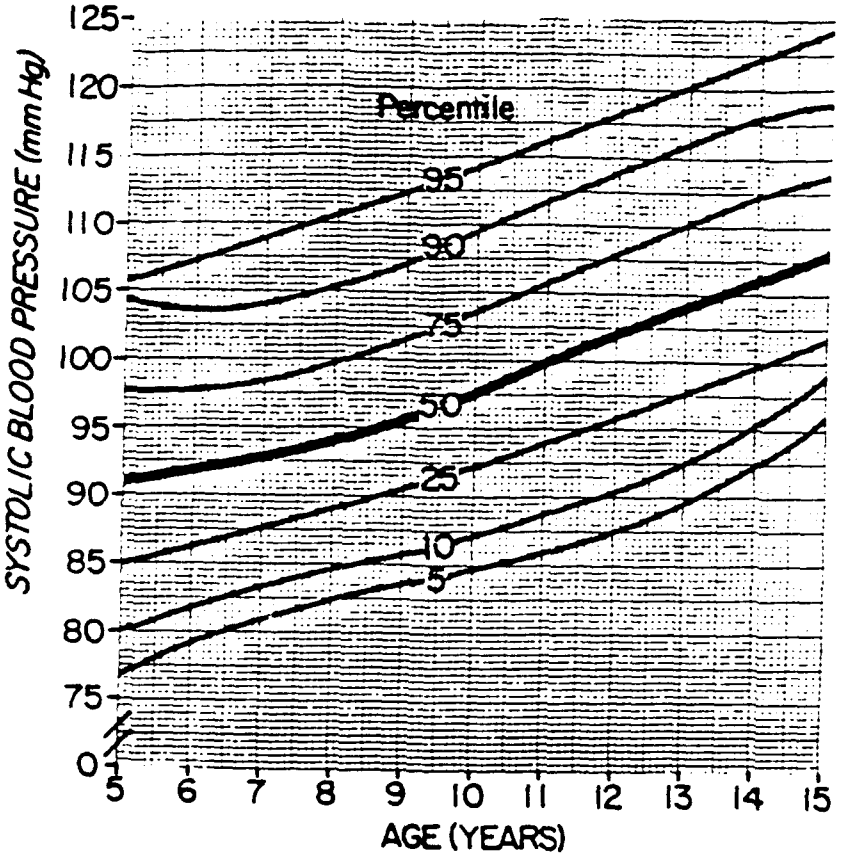
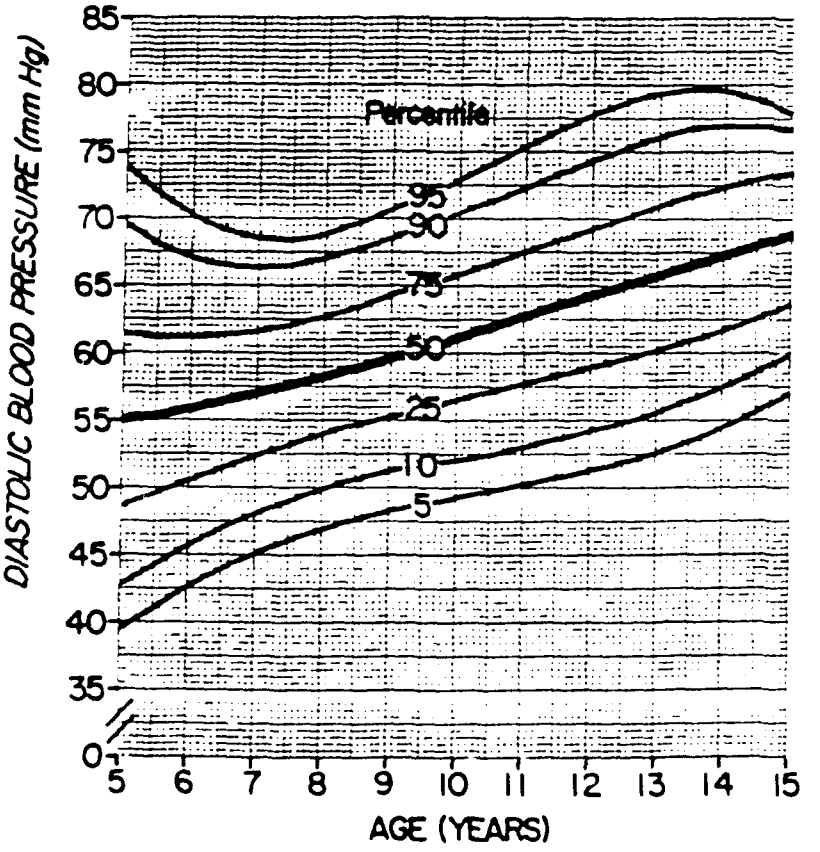


Fig. 2. *Nomograph for body mass index (kg/m²) BMI and weight goals (1983 Tables).* The ratio weight/height² (metric units) is read from the central scale after a straight edge is placed between height and body weight. Weights and heights are without clothing. With clothes, add 5 lb (2.3 kg) for men or 3 lb (1.4 kg) for women, and one inch (2.5 cm) in height for shoes.

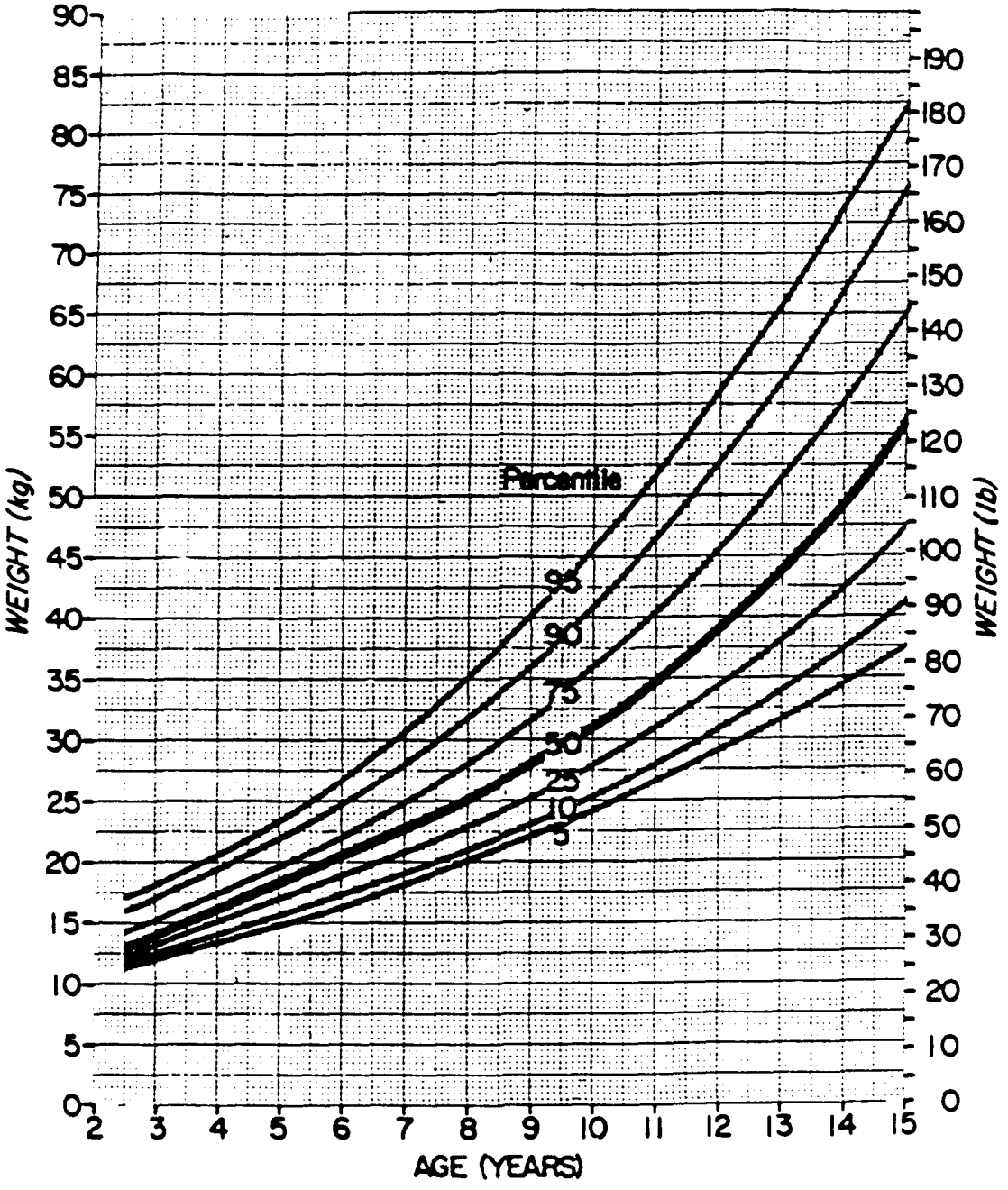
Grid 9 Systolic blood pressure by age



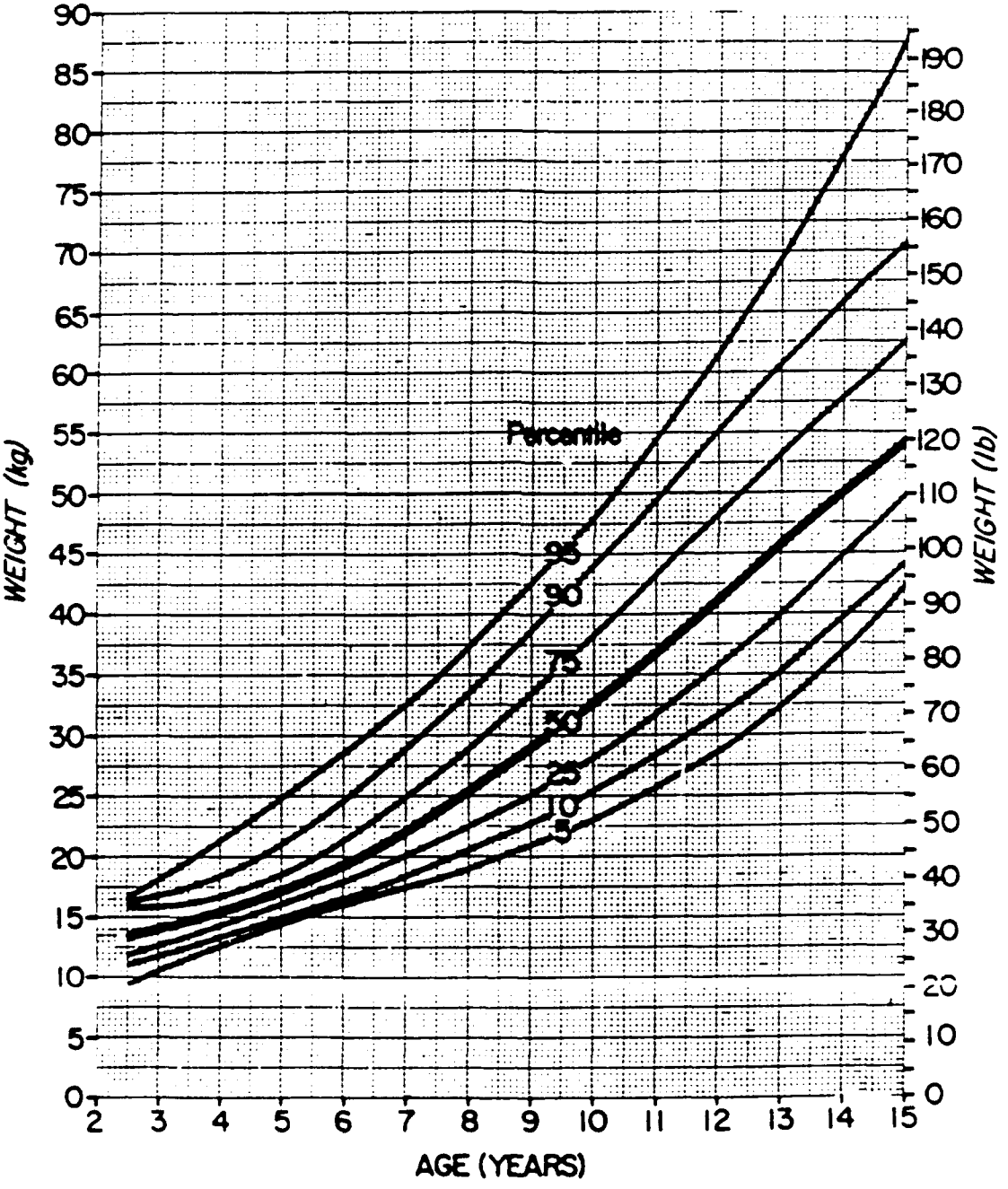
Grid 10 Diastolic (fourth phase) blood pressure by age



Grid 3 Weight by age (boys)



Grid 4 Weight by age (girls)



DEEP BREATHING

We want to teach you some exercises that will allow you to relax instantly. These techniques can be used anywhere, at anytime,and in any situation. We call them "Instant Relaxation" exercises, and we want you to begin using these exercises to relax thoughout the day, and especially in your stressful situations. The fist one, that we will be doing this evening, is deep breathing, and the second is mental imagery. They can be used either together or separately. Try them both and decide how you can best use them in your stress management program. So now prepare yourself and your environment for a period of relaxation.

To learn to relax by breathing deeply you can allow your eyes to close. Allow your attention to go to your body and notice any feelings of relaxation and any feelings of tension. Feel your chest rise and fall as you breathe,and with your next breath breathe out completely. Empty your stomach and chest of all the air you can. Blow it out through your mouth. Now, inhale through your nose, fill your stomach first, blowing it up like a balloon. Then fill your chest and let your chest expand. Hold it and feel the tension. (5 sec.) Now, slowly, exhale through your mouth and mentally tell yourself to "relax" as you empty your stomach, then empty your chest. Expel all the air, very slowly, and breathe normally. Notice the feelings of relaxation which go along with letting the air out. Just feel yourself breathe, and feel calmer. When you are ready again exhale all the air in your lungs. Just blow it out. Now inhale through your nose again, filling up your stomach, filling your chest,and feeling the tension of being blown up like a balloon.

Hold for 5 seconds and as slowly as your can, exhale through your mouth as you tell yourself to relax. Empty your stomach and feel it go soft. Empty your chest and let your arms and shoulders feel relaxed and go limp. Breathe normally, but let your facial muscles relax even more. The more slowly you breathe out, the more relaxed your become. Notice the growing feelings of relaxation and try the deep breathing once more. First, blow out all the air in your lungs. Second, inhale as much air as you possibly can, feeling the tension. Third, exhale very slowly, tell yourself to relax, and feel the warmth and peacefulness as all the muscles in your body relax--instantly. Now, enjoy the relaxed feeling. Notice any remaining tensions and allow the warm relaxation to go to those places. Just breathe comfortably and think about how you may successfully use insta . relaxation in stressful situations at work or at home. Please "take a breather" for practice several times during the day. If you stay in practice you will be able to relax with one breath and no one will know that you are even relaxing. Feel confident of your ability to use this valuable skill.

IMAGERY

You are going to allow your body to relax as I lead you through an exercise in relaxing imagery. You can use imagery to deepen relaxation after using other techniques, such as deep breathing, or you can use imagery by itself. With imagery you can calm your body, your thoughts, and your emotions.

Most people prefer to use one relaxing scene for their imagery practice. Think back to a real or fantasized time and place where you can feel totally at ease and completely relaxed and comfortable with yourself. To some people it is a meadow on a summer day with the sound of birds. To others it is walking through the woods and enjoying the fragrance of spring flowers in the clear air. The most relaxing scene for some is sitting in the back yard or recalling their special place as a child. You choose whatever relaxation scene that is just right for you, but I will describe how to use all of your senses to develop a scene of a day on the beach.

Picture yourself lying on a quiet, warm beach. Breathe deeply and smell the clean sea air. As you lie there, feeling the warmth of the sand pressing gently on your body, you can also see the vast bright blue sky above you. The blueness is speckled with billowy white clouds that float lazily by. The breeze that blows the clouds also sweeps gently over your face and through your hair. As you take another deep breath of sea air, you can hear the rhythmic rushing sound of the waves breaking near you and crashing off into the distance. You can look out and see the waves rolling in and beyond that the blueness of the vast ocean as it meets the blueness of the sky. But just to feel the warm glow of the sun makes your body want to just sink into the comfort of the sand. At times like this it is enough to just feel the tranquility and relaxation, to enjoy your inner experience, and to know that you can retire to the serene world of imagery for an instant break from a fast-paced world. Savor the feelings of relaxation a few moments more.

ABBREVIATED PROGRESSIVE MUSCLE RELAXATION

Just make yourself comfortable now and prepare yourself to experience a pleasant state of relaxation. Let your awareness of the sensations from your body increase, by closing your eyes, so you can easily identify areas of tension or enjoy the comfort of relaxation. Occasionally during the exercise, you may want to move some part of your body, maybe to swallow or clear your throat. That's fine, since this can be a sign of increased awareness: Just do whatever you need to do, while you let your body remain comfortably relaxed. Also, if you occasionally find your mind wandering, or daydreaming, that's fine, too,since you can bring back your attention to my voice at any time, follow the instructions, and continue to benefit form the state of relaxation. Throughout the exercise, let your breathing occur at its own natural rate. As you become more and more relaxed, you will find that you are breathing more slowly and evenly, without effort,mainly with your abdominal muscles; from time to time, maybe taking a deep breath, as if you wanted to sigh out any tension that you might still be keeping, and let yourself become even more relaxed.

In order to help you discover and develop your ability to relax, we will now proceed through a series of muscular tension-relaxation exercises, designed to let you experience the difference between tension and relaxation. All you need to do is follow the instructions. To begin with, focus your attention now on the lower part of your body, on your hips and legs. When I tell you to start, but not before, take in a deep breath, raise your legs up as you tighten them, and tense your hips, feeling the tension in your lower body and maintain the tension until I ask you to let go. Ready? START -- Feel the tightness (5 sec.) -- and let go. Slowly allow your legs to drop down as you

exhale deeply. Continue to let go of those muscles and just feel the relaxation as you become more and more relaxed. Notice the difference between tension and relaxation as you let the tension fade away. And, gradually, let the muscles there become even more relaxed, so you soon can begin to enjoy the feeling of comfort associated with relaxation ... That's right.

And just continue to let the muscles in your hips and legs remain comfortably relaxed, and shift your attention, now, to the trunk of your body. When I tell you to, take in a deep breath and tighten the muscles in your abdomen, your chest, and your back. Ready? START -- Notice the tightness (5 sec.) -- and let go. Slowly, allow your trunk muscles to relax as you exhale deeply. Let the muscles become more and more relaxed, and notice the difference between tension and relaxation there. Concentrate on the relaxation that is developing in your trunk. And you can gradually let the tension fade away even more, so you can begin to enjoy the comfortable feeling of relaxation also in this part of your body.

And just continue to let the muscles of your abdomen, chest and back remain comfortably relaxed, and turn your attention now to your arms and shoulders. When I tell you to, inhale deeply, lift up your arms, stretch out your hands, and raise your shoulders. Ready? START -- (5 sec.) -- concentrate on the tension throughout these muscles -- and let go. Let your arms and shoulders drop back to a resting position as you exhale deeply. Let the tension fade away more and more and notice the difference as you allow a comfortable and useful feeling of relaxation to develop there. Continue to enjoy the pleasant feelings of relaxation.

And, while you let the muscles of your arms and in and around your shoulders remain relaxed, turn your attention now to the muscles of the neck and head. When I ask you to, inhale deeply, and tighten all the muscles of your face -squint your eyes, wrinkle your forehead, press your lips together and tighten your jaw. At the same time, turn you head all the way to the left for a moment and then all the way to the right. Ready? START --keep the tightness (5 sec.) -- and let go. Now, allow all the muscles in your head and neck to relax as you exhale. Notice the relaxation. Let the muscles there become more and more relaxed, as you allow the tension to gradually drain away - notice the difference between tension and relaxation; become aware of and enjoy the pleasant feeling of relaxation also in this part of your body.

And while you let the muscles of your head and neck remain at this level of relaxation, or become even more relaxed. It is now time for you to take a few moments to review the other parts of your body so you can find out if there is any part that could benefit from becoming even more relaxed.

Mentally review the parts of your body and become even more aware of the pleasant feelings associated with relaxation. You may enjoy an experience of heaviness in your arms and legs and you may even discover more pleasant sensations other than these. While you continue to let yourself be aware of these feelings, let your attention also be calmly focused on the sensations from your breathing, which you can just continue to let occur by itself, at its own natural rate. Each time you exhale, you can allow your body, and your mind , to become more and more comfortably relaxed. Sometimes, mentally saying to your self the word "relax", each time you exhale, will help you to experience even deeper relaxation.

Relaxed ---- Enjoying the comfort of relaxation ----

Letting your body and mind become more and more relaxed each time you exhale ---- Relax ---- Relax.

In a moment, I will start counting from 5 to 1. At the count of 3, open your eyes, at the count of 2 just stretch your body as if you were going to yawn, and at the count of 1 you have completed the relaxation exercise and can feel well rested and refreshed and mentally alert.

Relaxation Training

A CV health promotion program, if it is to do a complete job in helping children and adults develop healthy lifestyles, should provide, not only necessary information on diet and exercise, but also methods to cope with detrimental aspects of the psychosocial pressures that are a part of everyday life. Today, most of our crises are psychologic, not physical, and stress comes as cognitively perceived threats. Stress symptoms can include muscle tension, irritability, and many physical and emotional disturbances, such as hypertension and anxiety. Inappropriate stress reactions are known to include excessive drinking, eating, and smoking practices detrimental to CV health. Relaxation techniques can help alleviate stress symptoms and obviate unhealthy stress reactions. Participants in the FHP practice deep breathing and imagery. They also learn a brief relaxation technique involving progressive muscle relaxation with four gross muscle groups. Relaxation techniques also aid memory and recall activities; therefore, they are especially useful in conjunction with remembering modeled experiences and recalling previous successful accomplishments. Relaxation training allows participants the opportunity to better understand and control body experiences and enhances correct interpretation of physiological feedback that may contribute to self-efficacious beliefs.

COUNSELING

Counseling

An important aspect of our program was behavioral counseling, in which individual coping, exercise, and eating problems and needs were determined and behavioral steps were implemented. The format included six individual/family counseling sessions, ~~and are summarized in Table 3~~.

The three eating behavior counseling sessions included the participating family and the behavioral counselor and nutritionist. The following protocol was followed in all sessions. (See Table 4)

The behavioral counselor explained the purpose of the session, which was to review the eating habits of the family and individual members and discuss and implement positive changes. The nutritionist summarized eating information obtained from baseline self-monitoring records and self-report questionnaires. The nutritionist initially reviewed the family's cardiovascular-healthy eating habits and offered verbal reinforcement for the continuation of these habits. Eating problems common to the family and to each individual were identified and discussed. Eating changes were then recommended (35). Both counselors encouraged input from each family member for negotiation and self-directed goal setting. An agreement was reached concerning which recommended changes would become the basis of a contract. Adherence, or contract performance, was validated through self-report, report of other family members in subsequent counseling sessions, and review of food monitoring records.

Verbal reinforcement was continually offered by the staff throughout the counseling sessions. Attention was also given to the nonverbal reinforcement cues, such as attentive listening, and a friendly and accepting attitude. The concept of intra-family social support was developed and used by urging each family member to encourage and support other family members to fulfill their contract terms.

The behavioral counselor explained the contingency contracting procedure, outlined below, and the incentives for contract performance. A formal contract (Figure 4) was written for each family member. Any problem that might negatively affect contract performance was discussed. Closure was effected by offering to be available by phone for any problems that might arise. Principles of **shaping, stimulus narrowing, food substitutions, alternative behaviors,** and **self-directed goal setting** guided the ccunselors in these sessions.

The same counseling/contracting guidelines were followed by the behavioral counselor and the exercise physiologist in the three exercise counseling sessions. In addition to other behavioral principles, **cue strengthening** (e.g., walk at the same time every evening after dinner) also guided the counselors in these sessions.

Contingency Contracting

When seeking to effect behavior change, the greater the number of behavioral techniques used, the more effective the outcome (42). Especially in the areas of dietary and exercise modification, implementation of change is usually difficult and maintenance even more so. The cultural, media, and social pressures are more often negative to healthy eating and exercise habits, especially in the traditionally food-oriented, fun-loving climate of a city like New Orleans. This particular program targeted cardiovascular-healthy dietary

modification in conjunction with at least an adequate exercise regimen. In order to effect changes, effective research-based behavioral techniques were applicable. One of the strongest of these techniques is the CONTINGENCY CONTRACT. Research has consistently shown the usefulness and positive effectiveness of contracting, for example, in problems relating to weight control (56, 57); the personal scheduling of work and recreation (42); and cholesterol reduction (41). Contingency contracting was defined by Rimm and Masters (42, pp.182) as, "a procedure of contingency management in which the contingencies are clearly spelled out in advance, and individuals, both those showing the problem behaviors, and others acting as contingency managers in the field, make formal agreements about the contingencies to be in effect." This simply means that a target behavior is defined, and an appropriate and valued reward is specified and given for performance.

The contingency contract in the Family Health Promotion ~~is~~ was completely voluntary and defined a target eating or exercise behavior (e.g., I agree to eat an apple instead of a candy bar when I come from school...), for a definite period of time (e.g., ...for two weeks), and specified a valued reward given contingent upon performance (...for which I will receive tickets to the skating rink). The formal contract was executed and signed by each family member during the family counseling sessions. Incentives were awarded at subsequent counseling sessions for contract performance. These incentives ~~are~~ were selected coupons for products and services donated by merchants in the community. A cumulative principle was used for contract goals. At each counseling session, a new behavior was added to the contract, in addition to the maintenance of previous behavior changes.

CONTINGENCY CONTRACTING EXERCISE

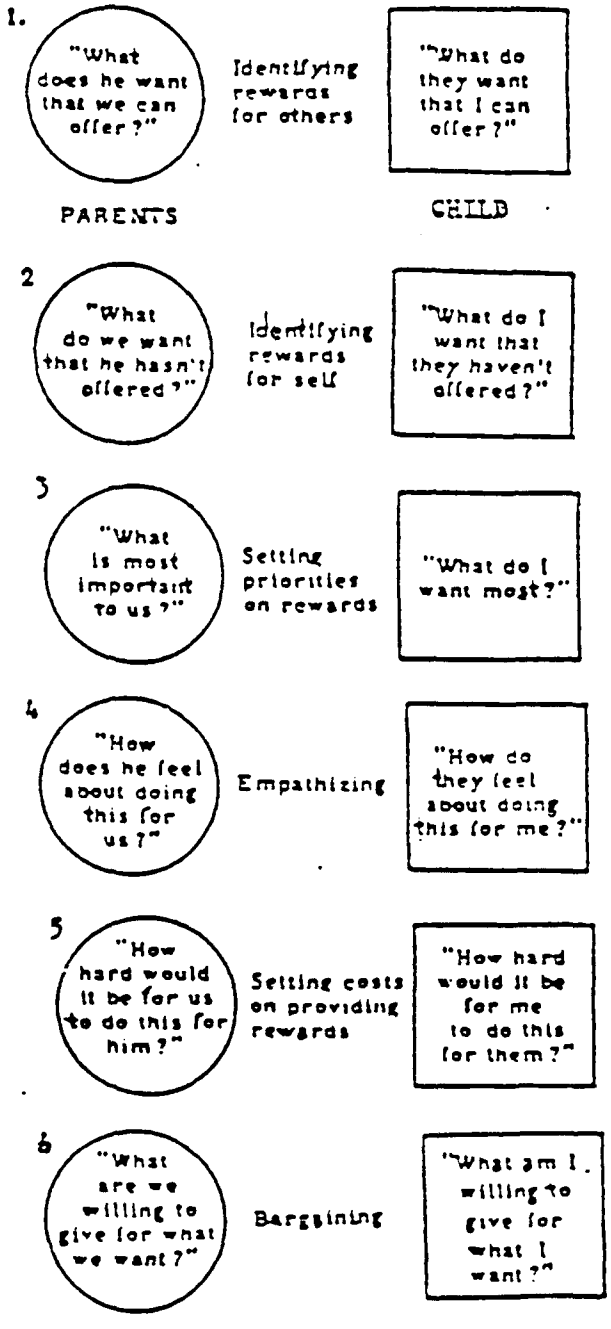


TABLE 4

Summary of Counseling Protocol

1. Establish the relationship:

   --state purpose; role expectations; confidentiality

2. Assess status using 24 hr recall, diaries, and interview

3. Identify problems and strengths

4. Help families identify healthier choices and alternative behaviors

5. Negotiate target changes by mutual agreement

6. Contract for behavior change:

   --contract is volunatary

   --contract identifies a specific behavior, over a limited time period, for an agreed upon reward for performance

7. Review behavioral strategies for implementation

8. Verbally reinforce and continuously encourage areas of strength

9. Subsequent sessions require follow-up and reinforcement

10. Initiate closure:

    --offer encouragement

    --confirm attendance at next session and counseling appointment

    --offer interim support and assistance

EXERCISE/FITNESS CONCEPTS

1) Fitness

   A. Cardiorespiratory Endurance - The capacity of the heart, vessels, and lungs to function efficiently during vigorous, sustained activity (running, swimming, cycling, etc.).

   B. Flexibility - The range of movement of a specific muscle joint and its corresponding muscle groups.

   C. Muscular Strength - The capacity of a muscle to exert a force against a resistance.

   D. Muscular Endurance - The capacity of a muscle to exert a force repeatedly or to hold a fixed or static contraction over a period of time.

2) Aerobic - Means "with oxygen"; refers to the out put of energy during muscular contraction when the oxygen supply is sufficient. Refers to activities of a sustained, vigorous nature.

3) Anaerobic - Means "without oxygen"; refers to the output of energy during muscular contraction when the oxygen supply is insufficient. Refers to activities of short duration.

4) Aerobic Capacity - The ability to do sustained, vigorous work. The ability to use large amounts of oxygen and deliver large volumes of blood to all parts of the body during work.

5) Heart Rate - The number of beats of the heart per unit time.

   A. Resting - The basal or lowest heart rate achieved.

   B. Training - The heart rate achieved during an aerobically conditioning bout of exercise.

   C. Peak - The maximum heart rate achievable.

   D. Cool Down - The heart rate range achieved during rest immediately after an exercise bout.

   E. Recovery - The heart rate achieved upon return to resting value, approximately 5-15 minutes after an exercise bout.

Unsupervised Walking Program

Exercise tolerance test information: A patient is stopped by 3+ angina (heart rate 130) after 2.5 minutes at 3 mph on a 10% upgrade on the treadmill. Angina and ST segment depression began at 2.5 mph at a heart rate of 120.

First Exercise Prescription

2.5 mph at 10% grade=6 METS=21 ml O_2/kg·min (Table 4). This is the angina threshold.

Train at 75% of 6 METS=4.5 METS=walking at 3.0 to 3.5 mph on level ground, daily.

Period	Intensity (METS)	Intensity (ml O_2/kg·min)	Equivalent Exercise
Warm-up	2-3	7-11	Walk ¼ mile in 7.5 min. (approx. 2 mph)
Training	4.5	14-18	Walk 1 mile in 20 min. (3 mph)
Cool-down	2-3	7-11	Walk ¼ mile in 7.5 min.

Subsequent Exercise Prescriptions

Using the same warm-up and cool-down patterns, alter the training period as follows:

1. Walk 2 miles in 40 minutes daily for 3 weeks (4.5 METS for twice the duration).

2. Walk 2 miles in 35 minutes daily for 3 weeks (approx. 7 METS for nearly the same duration).

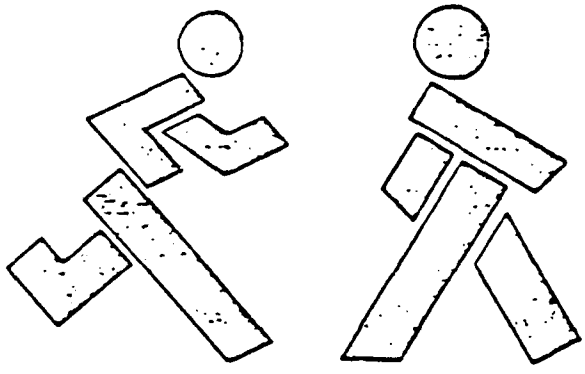
3. Retest. If the patient completes the 4 mph stage at 10% grade on the treadmill with 3 mm ST depression (28 ml O_2/kg·min, 8 METS) and develops 1+ angina at the 3.5 mph stage, he should then:

4. Walk 2 miles in 35 minutes, increasing to 3 miles in 51 minutes within 3 weeks.

5. Increase to 3 miles in 45 minutes for 3 weeks.

Figure 1. Double-progressive jog-walk program based on three workouts per week.

Jog-walk regimen



Days	Run	Walk	Number of sets*
1 → 6	50 steps	50 steps	5 → 10
7 → 12	50 steps	40 steps	5 → 10
13 → 18	50 steps	30 steps	5 → 10
19 → 24	50 steps	20 steps	5 → 10
25 → 30	50 steps	10 steps	5 → 10
31 → 36	75 steps	10 steps	5 → 10
37 → 42	100 steps	10 steps	5 → 10
43 → 48	125 steps	10 steps	5 → 10
49 → 54	150 steps	10 steps	5 → 10
55 → 60	175 steps	10 steps	5 → 10
61 → 66	200 steps	10 steps	5 → 10
67 →	Individualized program		

*Increase number of sets by one each day at each level of exercise.

ID __ __ __ __ __

EXERCISE ACTIVITY LOG

DATE: __ __/ __ __/ __ __

TIME	ACTIVITY BEFORE EXERCISE	EXERCISE ACTIVITY	LOCATION	MINUTES	HEART RATE	COMMENTS

OVERALL NUTRITION GOALS FOR PARTICIPANTS IN HEART SMART FAMILY HEALTH PROMOTION

Nutrition counseling will focus upon achieving AHA Phase 1 dietary recommendations:

1) Total Fat Intake less than 30% of calories.
2) Saturated Fat Intake (SFA) less than 10% of calories.
3) Polyunsaturated Fat Intake (PuFA) equal to 10% of calories.
4) Polyunsaturated: Saturated Fat (P/S) Ratio equal to or greater than 1.0.
4) Cholesterol Intake less than 300 mg (adults); 100 mg/1000 Kcal (children).
5) Sodium Intake less than 2000 mg per day; Na^+/K^+ ratio < 1.
6) Achieving Ideal Body Weight (gradual weight loss of one to two pounds per week via calorie deficit of 500 Kcal per day in combination with increase in physical activity).

If blood cholesterol remains elevated (exceeds 220 mg/day for adults; 180 mg/day for children), nutrition counseling will progress to AHA Phase 2 recommendations, and if this proves ineffective in lowering cholesterol, AHA Phase 3 recommendations will be instituted.

PLANNING FOR COUNSELING SESSIONS:

Dietary recommendations are identified via the aforementioned criteria. Based upon the participant's current eating pattern, as indicated by Food Preference and Food Frequency Questionnaires, specific food alternatives are identified.

GUIDELINES FOR RECOMMENDATIONS:

1) The modifications will be as similar to current eating pattern as possible. Low calorie, sodium and/or fat restricted alternatives of a non-CV healthy food are suggested.

2) The behavioral pattern of food intake will be noted, to identify certain times of day or environmental factors that trigger intake of undesirable foods or quantities of food in excess of recommended amounts.

3) Common food recommendations among family members will be given priority, to facilitate implementation.

Specific recommendations will be prepared prior to counseling sessions.

NUTRITION COUNSELING SESSIONS

Nutrition counseling will be provided to participants in the presence of family members, nutritionist and behaviorist.

The nutritionist will briefly discuss the physiological indications for the dietary recommendations and will offer a general guideline for desired changes in food eating behavior, i.e., if anthropometric values indicate obesity, a general need for weight reduction will be discussed. Participants will be advised of their current positive food selections which contribute to CV health. Food categories and alternatives will be mentioned, and the participant will be asked to suggest specific foods he/she could incorporate into his/her eating plan. the nutritionist will confirm the suggestions and add additional options that could be employed.

The participant will then be asked if he/she would like to make a contract for behavior change. If this is desired, the contract is made. The contract will be specific and deal with one small dietary change; additional modifications will be addressed in subsequent sessions.

Family members will be asked how they could be supportive of this new behavior and role-play such support behaviors. The participant will be asked to role-play assertive behavior in his/her food choice.

GENERAL NUTRITION INFORMATION RECORD

NRDC-A

LSU Medical Center

DATE:_____

NAME: _____SEX: MALE____ FEMALE____

MARITAL STATUS: _____OCCUPATION:_____

RELATIONSHIP TO CHILD: _____

EDUCATION (HIGHEST GRADE COMPLETED): _____

DO YOU WORK? YES: _____ NO: _____

DATE OF BIRTH:_____HEIGHT: _____ WEIGHT: _____

1. a) Have you had any significant weight change in the last six months?

   YES: _____ NO: _____

   If yes, please indicate amount: Gained: _____ Lost: _____

   b) Have you had any significant weight change in the last 30 days?

   YES: _____ NO: _____

   If yes, please indicate amount: Gained: _____ Lost: _____

2. Are you presently on a special diet? YES: _____ NO: _____

   If yes, please indicate type of diet:

   Have you ever been on a special diet? YES: _____ NO: _____

If yes, please describe:

Do you take any vitamin pills?

No _____ If yes, what kind? _____

Yes, daily _____

Yes, sometimes _____

Do you take non-prescription medicine?

No _____ If yes, what kind? _____

Yes, daily _____

Yes, sometimes _____

3. Who does the food shopping for the family: _____

Where: _____

If the respondent does not do the food shopping for the family, skip questions 3 to 11, then go to question 12.

4. Does your child go grocery shopping with you? YES: _____ NO: _____

If yes, does your child help select grocery items? YES: ____ NO:____

5. On the average, how often do you go to the grocery store per week?

_____/week

6. Do you go to the grocery store hungry? ALWAYS: _____

SOMETIMES: _____

NEVER: _____

7. Do you shop with a grocery list? YES: _____ NO: _____

8. Do you use food coupons? YES: _____ NO: _____

If yes, describe type of coupons (i.e., canned vegetables, mayonnaise, etc.) _____

9. Do you read labels on grocery items before purchasing them?

   ALWAYS: _____

   SOMETIMES: _____

   NEVER: _____

10. On the average, how much money do you spend on groceries per week (food only)?

    $_____/week

11. What fraction of your family's income is spent on groceries?

    _____/week/month

12. Who prepares most of your meals? _____

    If the respondent does not prepare the meals at all, skip questions 12-15, then go to question 15.

13. For how many persons are these meals prepared? _____

14. Do you usually add salt in cooking?

    Yes _____ No _____

15. On the average, does the family eat together? YES: _____ NO: _____

    If yes, indicate what meals? Breakfast _____

    Lunch _____

    Dinner _____

    Snacks _____

16. Which best describes how you add salt to your food at the table?

    Always _____ Usually _____

    Sometimes _____ Never _____

    Only on certain foods _____

17. When you add salt to your food do you...?

taste the food first _____

salt automatically before tasting _____

not use salt _____

18. Do you usually take second helpings at any of the meals?

YES: _____ NO: _____

If yes, indicate what meal

Breakfast _____

Lunch _____

Dinner _____

19. What are your eating habits? (Check appropriate size for each meal or snack.)

Breakfast	None	_____
	Small	_____
	Average	_____
	Large	_____
Noon Meal	None	_____
	Small	_____
	Average	_____
	Large	_____
Evening Meal	None	_____
	Small	_____
	Average	_____
	Large	_____

Snacks or Others None _____

Small _____

Average _____

Large _____

20. When do you usually snack? _____

21. Are meals and snacks on the weekend the same? YES: _____ NO: _____

If NO, please explain the differences.

_____

_____

22. Are there any foods you cannot eat because of dislike, religious reason, allergy, etc.? YES: _____ NO: _____

If YES, list the appropriate foods.

_____ _____ _____

_____ _____ _____

23. What foods or beverages would you find most difficult to give up?

_____ _____ _____

_____ _____ _____

24. Do you have any usual business trips or social activities which include meals or refreshments (including meetings, parties, etc.)?

YES: _____ NO: _____ NA: _____

IF YES, indicate type and how often: _____

EATING HABITS

25. Do you eat at regular times during the day? YES: ____ NO: ____

26. How many meals per day do you eat? _____

27. How many snacks (candy bars, potato chips pks., etc.) per day? _____

28. Which meals do you usually eat at home? _____

29. At what time do you eat the evening meal? _____

30. Do you snack before bed time? YES: _____ NO: ____

31. How often do you usually eat out in a restaurant (weekly)?

_____

Type of restuarant _____

32. What are your favorite foods? _____

What are your least favorite foods? _____

33. His/her appetite is?

_____ very good

_____ probably average

_____ selective (only a few meats and vegetables)

_____ mostly eats sweets and junk food

The following questions are to be asked of the child only.

34. What do you usually do at lunch time on school days?

(You may check more than one).

never eat lunch _____

bring lunch from home _____

buy drink and/or snack _____

other _____

35. How many days each week do you eat school lunches?

none _____ three _____

one _____ four _____

two _____ five _____

36. How often do you eat school breakfast?

always _____ sometimes _____

usually _____ never _____

37. If you could choose between a salad bar and a hot lunch at school, how many days a week would you choose the salad bar?

none _____ three _____

one _____ four _____

three _____ five _____

CONTINGENCY CONTRACTING

FORT POLK HEART SMART FAMILY HEALTH PROMOTION PROGRAM

Generic Instructions for Contingency Contracting

We've talked a lot about _____ this evening, but talking isn't enough. What we're really interested in is doing something about it. There's no better time than the present to begin putting into practice in your home some of the health ideas we've talked about this evening. To encourage you to do just that, we're going to ask you to sign a contract to make some changes in your home. The contract is voluntary, but we urge you to participate so that you can receive a nice gift, but most importantly, so that you can experience the benefits of practicing healthier habits.

This is how it works. First, I will give you a copy of the contract. You will write your name in the first blank space (point). Attached to the contract you will find a list of possible changes that you can make at home that are related to _____. You will choose one of these, and write it in the next space provided on the contract (point). The next space requires a time period -- how long will you do this? We are asking for ____ week(s). If, at the end of that period, you have fulfilled your contract, you will have your choice of several different coupons for free or discounted products. That's our part of the bargain. If anyone has difficulty making a choice for the contracting, we'll be glad to help.

CONTRACTING OPTIONS

Salad Bar

1. I will choose a lite or oil/vinegar dressing.
2. I will eliminate high-sodium foods, e.g., olives, pickles, marinated vegetables and bacon bits.
3. I will eliminate or reduce high-fat cheese (yellow cheese).

Sandwich and Entrees

1. I will choose a plain single hamburger.
2. I will choose broiled chicken (not fried) instead of a hamburger or hot dog.
3. I will remove skin from fried chicken or choose broiled, skinless chicken.
4. I will choose a baked potato instead of French fries.
5. I will choose pizza without extra cheese or meat.

Condiments

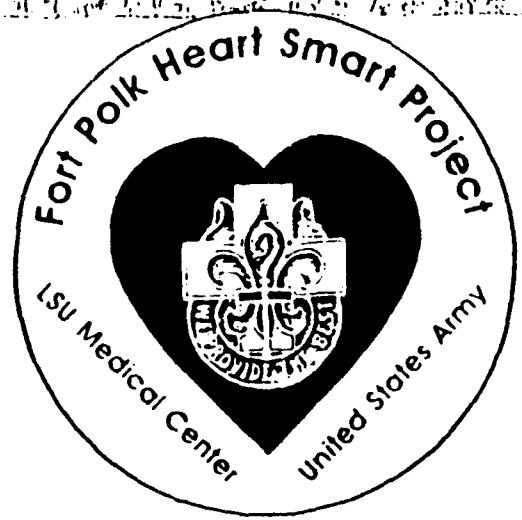
1. I will eliminate high-fat condiments, such as mayonnaise, sour cream, or butter.

Drinks

1. I will choose a diet drink, unsweetened iced tea, or water.
2. I will choose low-fat or skimmed milk over whole milk.

Desserts

1. I will eat fresh fruit or low-fat yogurt for dessert.



C O N T R A C T

I, _____, agree to the following:

_____

_____

_____

For the next _____ days. As reward for my contract performance,

_____ will _____

_____

_____

_____
Signature

_____
Signature

_____
Date

Pizza Hut®

Hwy. 171 S. 238-5201

PAY TO THE ORDER OF FAMILY SHOPPER GIFT BOOK BEARER **$2.99 Value**

FREE: ONE (1) ALL YOU CAN EAT SALAD BAR WITH THE PURCHASE OF ANOTHER ALL YOU CAN EAT SALAD BAR. One coupon per visit. Tax, tips & beverage extra.

Name _____

Address _____

Telephone _____

EXPIRATION DATE: December 31, 1990

CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Sub Dispatch

Tilley's Mini Mall, Hwy. 10, Across from Flora's • Sandy Hill 537-8990

PAY TO THE ORDER OF: FAMILY SHOPPER GIFT BOOK BEARER **up to $3.59 Value**

FREE: ONE (1) SALAD WITH THE PURCHASE OF ANOTHER SALAD OF EQUAL OR GREATER VALUE. Dine in or carry out only. Choice of: club, chef, roast beef, ham, turkey, tuna or garden salad. One coupon per visit. Not good with other promotions.

Name _____

Address _____

Telephone _____

EXPIRATION DATE: December 31, 1990

CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Holiday Inn Restaurant

Hwy 171

239-7571

PAY TO THE ORDER OF
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) LUNCHEON BUFFET WITH THE PURCHASE OF ANOTHER LUNCHEON BUFFET.
One coupon per visit.

($4.25 Value)

Holiday Inn Restaurant

EXPIRATION DATE:
December 31, 1990

CASH REDEMPTION VALUE (1) MILL

CUT HERE

Holiday Inn Restaurant

Hwy. 171

239-7571

PAY TO THE ORDER OF
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) LUNCHEON BUFFET WITH THE PURCHASE OF ANOTHER LUNCHEON BUFFET.
One coupon per visit.

($4.25 Value)

Holiday Inn Restaurant

EXPIRATION DATE:
December 31, 1990

CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Subway Sandwiches & Salads

Entrance Rd., Gateway Plaza Shopping Center • Fort Polk 537-8100

PAY TO THE ORDER OF FAMILY SHOPPER GIFT BOOK BEARER up to $5.79 Value

FREE: ONE (1) FOOT LONG SUB OR SALAD WITH THE PURCHASE OF A FOOT LONG SUB OR SALAD OF EQUAL OR GREATER VALUE.
One coupon per visit. Not valid with other promotions.

Name _____

Address _____

Telephone _____

SUBWAY Sandwiches & Salads

EXPIRATION DATE: December 31, 1990

CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

[redacted]

Skate Palace

Hwy. 171 So.

238-9569

PAY TO THE ORDER OF
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) ADMISSION TO ANY THURSDAY NIGHT OR SUNDAY NIGHT SESSION. **Not valid for Sunday afternoon session.**

(up to $3.00 Value)

Ask about Our Birthday Parties

EXPIRATION DATE:
December 31, 1990

CASH REDEMPTION
VALUE (1) MILL

CUT HERE

Skate Palace

Hwy. 171 So.

238-9569

PAY TO THE ORDER OF
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) ADMISSION TO ANY THURSDAY NIGHT OR SUNDAY NIGHT SESSION. **Not valid for Sunday afternoon session.**

(up to $3.00 Value)

Ask about Our Birthday Parties

EXPIRATION DATE:
December 31, 1990

CASH REDEMPTION
VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

[redacted]

Tropical Tan & Tone

109 W. Mechanic

238-2640

PAY TO THE ORDER OF
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) WEEK OF AEROBICS FOR YOU AND A FRIEND.

($7.50 Value)

Tropical Tan & Tone

EXPIRATION DATE:
December 31, 1990

CASH REDEMPTION
VALUE (1) MILL

CUT HERE

Tropical Tan & Tone

109 W. Mechanic

238-2640

PAY TO THE ORDER OF
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) WEEK OF AEROBICS FOR YOU AND A FRIEND.

($7.50 Value)

Tropical Tan & Tone

EXPIRATION DATE:
December 31, 1990

CASH REDEMPTION
VALUE (1) MILL

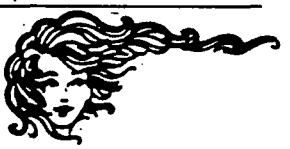
FAMILY SHOPPER GIFT BOOKS

Robin's Supercut

Hwy. 10, Next to Shady Oaks Rental Office 537-0617

PAY TO THE ORDER OF FAMILY SHOPPER GIFT BOOK BEARER **$8.00 Value**

FREE: HAIRCUT FOR MAN, WOMAN OR CHILD.
Call for appointment.
Or may be used as $5.00 off on a perm.



Name _____

Address _____

Telephone _____

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

The Art of Beauty College

1409 South 4th Street, Leesville

238-9845

PAY TO THE ORDER OF
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) HAIRCUT. All work done by students and supervised by instructors. Must be 12 yrs. or older. Call for appointment. One coupon per visit.

($4.00 Value)

The Art of Beauty College

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

CUT HERE

The Art of Beauty College

1409 South 4th Street, Leesville

238-9845

PAY TO THE ORDER OF
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) HAIRCUT. All work done by students and supervised by instructors. Must be 12 yrs. or older. Call for appointment. One coupon per visit.

($4.00 Value)

The Art of Beauty College

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Sandy Hill Family Styling Center

482 Pitkin Rd. • Next to Little Caesars 537-0630

PAY TO THE ORDER OF FAMILY SHOPPER GIFT BOOK BEARER **$5.00 Value**

FREE: ONE (1) CHILDS HAIRCUT, 12 YRS. OR UNDER. Or may be used as $5.00 discount on a perm for an adult. One coupon per visit. Not valid with other promotions. Special certificate for babys first haircut.

Name _____

Address _____

Telephone _____

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Linda John Hairstyling

900 S. 4th St. 238-0051

PAY TO THE ORDER OF FAMILY SHOPPER GIFT BOOK BEARER **up to $8.00 Value**

FREE: ONE (1) HAIRCUT FOR A MAN OR LADY.
Appointment required.

Name _____

Address _____

Telephone _____

LINDA
JOHN
HAIRSTYLING

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Radio Shack

Dealer Bill's Discount Furniture, 238-0503 Hwy. 171 N., Leesville, 239-6246

PAY TO THE ORDER OF FAMILY SHOPPER GIFT BOOK BEARER **$7.08 Value**

FREE: ONE (1) BATTERY EACH MONTH FOR TWELVE MONTHS.
Good for batteries 23-466, 23-467, 23-464, 23-468.

Name _____

Address _____

Telephone _____

Radio Shack

EXPIRATION DATE: December 3 , 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Royalty's Electronics

307 Pitkin Rd., Flora's Shopping Center • Sandy Hill 537-4340

PAY TO THE ORDER OF FAMILY SHOPPER GIFT BOOK BEARER **up to $1.50 Value**

FREE: ONE (1) OVERNIGHT RENTAL OF MOVIE OR NINTENDO GAME VIDEO. Security deposit may be required. One coupon per visit.
T.V. & VCR repairs available also.
VALID MON-THURS ONLY.

Name _____

Address _____

Telephone _____

ROYALTY'S ELECTRONICS

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

[redacted]

Midas

Hwy. 171 239-0230

PAY TO THE ORDER OF: FAMILY SHOPPER GIFT BOOK BEARER **$18.00 Value**

FREE: SUSPENSION INSPECTION, ALIGNMENT CHECK AND BRAKE SYSTEM INSPECTION FOR MOST CARS OR LIGHT PICK-UPS.
Call for appointment. One coupon per visit.

Name _____

Address _____

Telephone _____

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

[redacted]

Sears

Leesville Square 238-1371

PAY TO THE ORDER OF: FAMILY SHOPPER GIFT BOOK BEARER **$5.00 Value**

FREE: ONE (1) BATTERY & ALTERNATOR SYSTEM CHECK.
Parts & labor extra if needed.
Valid at Leesville Sears only.

Name _____

Address _____

Telephone _____

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

West Tire Repair

Hwy. 10 • Sandy Hill

PAY TO THE ORDER OF: FAMILY SHOPPER GIFT BOOK BEARER **$3.75 Value**

FREE: ONE (1) FLAT REPAIR.
One coupon per visit.

Name _____
Address _____
Telephone _____

WEST TIRE REPAIR

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Morris Tire Service

Hwy. 171 S. • Leesville 239-4348

PAY TO THE ORDER OF: FAMILY SHOPPER GIFT BOOK BEARER **$7.50 Value**

FREE: 4 TIRE ROTATION.

Name _____
Address _____
Telephone _____

MORRIS TIRE SERVICE

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Dave's Automotive

Hwy. 10 West, ½ mile from Fort Polk 537-1813

PAY TO THE ORDER OF: FAMILY SHOPPER GIFT BOOK BEARER **$18.00 Value**

FREE: FOUR TIRE ROTATION AND TWO WHEEL BALANCE.
One coupon per visit.
Not valid with other promotions. Call for appointment.

Name _____
Address _____
Telephone _____

DAVE'S AUTOMOTIVE

EXPIRATION DATE: December 31, 1990 CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

AAA Sales, Alterations & Dry Cleaning

1199 Entrance Rd. to Fort Polk • 537-3694

Gateway Plaza Shopping Center

PAY TO THE ORDER OF:
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) PAIR MENS' OR LADIES' DRESS SLACKS DRY CLEANED. One coupon per visit.

($2.50 Value)

AAA Sales, Alterations & Dry Cleaning

EXPIRATION DATE: December 31, 1999

CASH REDEMPTION VALUE (1) MILL

CUT HERE

AAA Sales, Alterations & Dry Cleaning

1199 Entrance Rd. to Fort Polk • 537-3694

Gateway Plaza Shopping Center

PAY TO THE ORDER OF:
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) PAIR MENS' OR LADIES' DRESS SLACKS DRY CLEANED. One coupon per visit.

($2.50 Value)

AAA Sales, Alterations & Dry Cleaning

EXPIRATION DATE: December 31, 1999

CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Reviere's Dry Cleaners & Laundry

Hwy. 10, Next to Mr. "T's" Pawn Shop

Sandy Hill • 537-0462

PAY TO THE ORDER OF:
FAMILY SHOPPER GIFT BOOK BEARER

FREE: PRESENT THIS COUPON WITH GARMENTS TO RECEIVE $2.50 IN FREE DRY CLEANING. One coupon per visit. Laundry service & shoe repair also available.

($2.50 Value)

Reviere's Dry Cleaners & Laundry

EXPIRATION DATE: December 31, 1999

CASH REDEMPTION VALUE (1) MILL

CUT HERE

Reviere's Dry Cleaners & Laundry

Hwy. 10, Next to Mr. "T's" Pawn Shop

Sandy Hill • 537-0462

PAY TO THE ORDER OF:
FAMILY SHOPPER GIFT BOOK BEARER

FREE: PRESENT THIS COUPON WITH GARMENTS TO RECEIVE $2.50 IN FREE DRY CLEANING. One coupon per visit. Laundry service & shoe repair also available.

($2.50 Value)

Reviere's Dry Cleaners & Laundry

EXPIRATION DATE: December 31, 1999

CASH REDEMPTION VALUE (1) MILL

FAMILY SHOPPER GIFT BOOKS

Deluxe Cleaners, Laundry & C.B. Sales

1101 S. 5th St. • Leesville • 239-3344

PAY TO THE ORDER OF:
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) PAIR MENS OR LADIES DRESS SLACKS DRY CLEANED.
One coupon per visit.

($2.50 Value)

Deluxe Cleaners, Laundry & C.B. Sales

EXPIRATION DATE:

CASH REDEMPTION

CUT HERE

Deluxe Cleaners, Laundry & C.B. Sales

1101 S. 5th St. • Leesville • 239-3344

PAY TO THE ORDER OF:
FAMILY SHOPPER GIFT BOOK BEARER

FREE: ONE (1) PAIR MENS OR LADIES DRESS SLACKS DRY CLEANED.
One coupon per visit.

($2.50 Value)

Deluxe Cleaners, Laundry & C.B. Sales

EXPIRATION DATE:

CASH REDEMPTION

TAKE-HOME PROJECTS

INSTRUCTIONS FOR LABEL READING TAKE-HOME PROJECT

The labeling take-home project will be done by individual families with the items in their pantries. Each participant will identify 3 food items in the pantry or refrigerator that list sodium, fat and/or sugar as one of the first 5 ingredients, making nine items. This helps develop awareness of products in their own kitchen that could be changed to a healthier alternative.

The second column is available for participants to demonstrate an understanding of how to select comparable food alternatives.

Example: **Fat** - Ritz Crackers - Melba Toast

Sodium - Canned Green Peas - Fresh Frozen Peas or Fresh Vegetables

Sugar - Preserves - Sugar-free Fruit Spread or Fresh Fruit

LABELING

TAKE HOME PROJECT

MAKE A LIST OF GROCERY STORE ITEMS THAT HAVE SODIUM, FAT OR SUGAR AS ONE OF THE FIRST FIVE INGREDIENTS.

	INGREDIENT	FOOD ITEM	BETTER FOOD CHOICE
Sodium			
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
Fat			
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
Sugar			
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____

RETURN INSTRUCTIONS

Ask participants to return project the following week for discussion and review.

Any participant who returns the project with all 9 items completed will be eligible for a pre-determined reward (e.g., Fat Finder Wheel, or discount coupon).

Please make sure that participants are given information concerning return of project and reward at distribution.

FOOD PURCHASING TAKE-HOME PROJECT

1st Column

Complete grocery list -- include all food items needed for the household during this shopping period.

(This is good behavioral practice for making a list each time for shopping.)

2nd Column

List a healthier alternative only when one is required. For example, low-sodium tomato soup for Campbell's tomato soup.

Example:

Bread	Whole Wheat Bread
Cheese	Low-fat Cheese, e.g., skim mozzarella or provolone
Cereal	Frosted Shredded Wheat
Fresh Fruit	_____

Ask each family to attach the grocery (commissary) receipt to the list, and return in two weeks.

FOOD PURCHASING TAKE-HOME PROJECT

GROCERY LIST:	HEALTHIER ALTERNATIVES (Where Appropriate)

RETURN INSTRUCTIONS

Ask participants to return project the following week for discussion and review.

Any participant who returns the project with at least 7 items completed will be eligible for a pre-determined reward (e.g., Fat Finder Wheel, or discount coupon).

Please make sure that participants are given information concerning return of project and reward at distribution.

INSTRUCTIONS FOR SNACKING TAKE HOME PROJECT

Snacking can be a source of extra calories. Sometimes snacking at certain times of the day, or while performing specific activities, can become so automatic that we're no longer aware of what we're doing. Snacking should be under conscious control just as much as eating the traditional three meals a day. This project puts into effect the A, B, C's discussed this evening. By identifying antecedents (triggers, cues) to snacking, we can begin to understand why and when we eat.

Ask each participant to record at least one snack each day for the following week, totaling minimum of 7 snacks.

1st col. Date (or day) and time actually ate.
(Example: Wednesday, 2 p.m.)

2nd col. Where the snacking took place.
(Example: home)

3rd col. Reason for snacking.
(Example: inactive)

4th col. How were you feeling?
(Example: bored)

5th col. Were you doing anything else at the same time that you were snacking?
(Example: Watching soap opera)

6th col. What did you eat?
(Example: Chocolate Chip Cookies)

7th col. How much did you eat?
(Example: 1/2 bag)

SNACK SHEET

Date/Time	Location	Reason for Eating	Mood	Simultaneous Activity	Food Eaten	Amount

RETURN INSTRUCTIONS

Ask participants to return project the following week for discussion and review.

Any participant who returns the project with at least 7 items completed will be eligible for a pre-determined reward (e.g., Fat Finder Wheel, or discount coupon).

Please make sure that participants are given information concerning return of project and reward at distribution.

AT HOME ACTIVITY: Food Preparation Module

The At Home Activity for the Food Preparation module is the same activity as found in the Recipe Modification module. These two modules overlap and will be conducted during one session together.

FAMILY RECIPES

Worksheet

Original Recipe

Modified Recipe

FORT POLK HEART SMART FAMILY HEALTH PROMOTION PROGRAM

Generic Instructions for Contingency Contracting

We've talked a lot about _____ this evening, but talking isn't enough. What we're really interested in is doing something about it. There's no better time than the present to begin putting into practice in your home some of the health ideas we've talked about this evening. To encourage you to do just that, we're going to ask you to sign a contract to make some changes in your home. The contract is voluntary, but we urge you to participate so that you can receive a nice gift, but most importantly, so that you can experience the benefits of practicing healthier habits.

This is how it works. First, I will give you a copy of the contract. You will write your name in the first blank space (point). Attached to the contract you will find a list of possible changes that you can make at home that are related to _____. You will choose one of these, and write it in the next space provided on the contract (point). The next space requires a time period -- how long will you do this? We are asking for ____ week(s). If, at the end of that period, you have fulfilled your contract, you will have your choice of several different coupons for free or discounted products. That's our part of the bargain. If anyone has difficulty making a choice for the contracting, we'll be glad to help.

CONTRACTING OPTIONS

Salad Bar

1. I will choose a lite or oil/vinegar dressing.
2. I will eliminate high-sodium foods, e.g., olives, pickles, marinated vegetables and bacon bits.
3. I will eliminate or reduce high-fat cheese (yellow cheese).

Sandwich and Entrees

1. I will choose a plain single hamburger.
2. I will choose broiled chicken (not fried) instead of a hamburger or hot dog.
3. I will remove skin from fried chicken or choose broiled, skinless chicken.
4. I will choose a baked potato instead of French fries.
5. I will choose pizza without extra cheese or meat.

Condiments

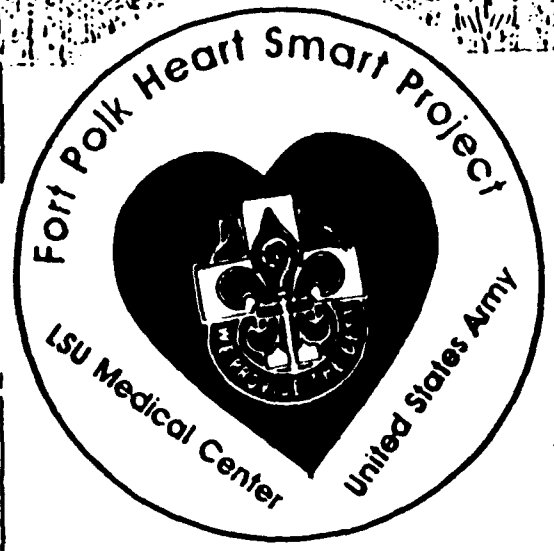
1. I will eliminate high-fat condiments, such as mayonnaise, sour cream, or butter.

Drinks

1. I will choose a diet drink, unsweetened iced tea, or water.
2. I will choose low-fat or skimmed milk over whole milk.

Desserts

1. I will eat fresh fruit or low-fat yogurt for dessert.



CONTRACT

I, _____, AGREE TO CHANGE MY EATING HABITS, AS FOLLOWS:

_____

_____

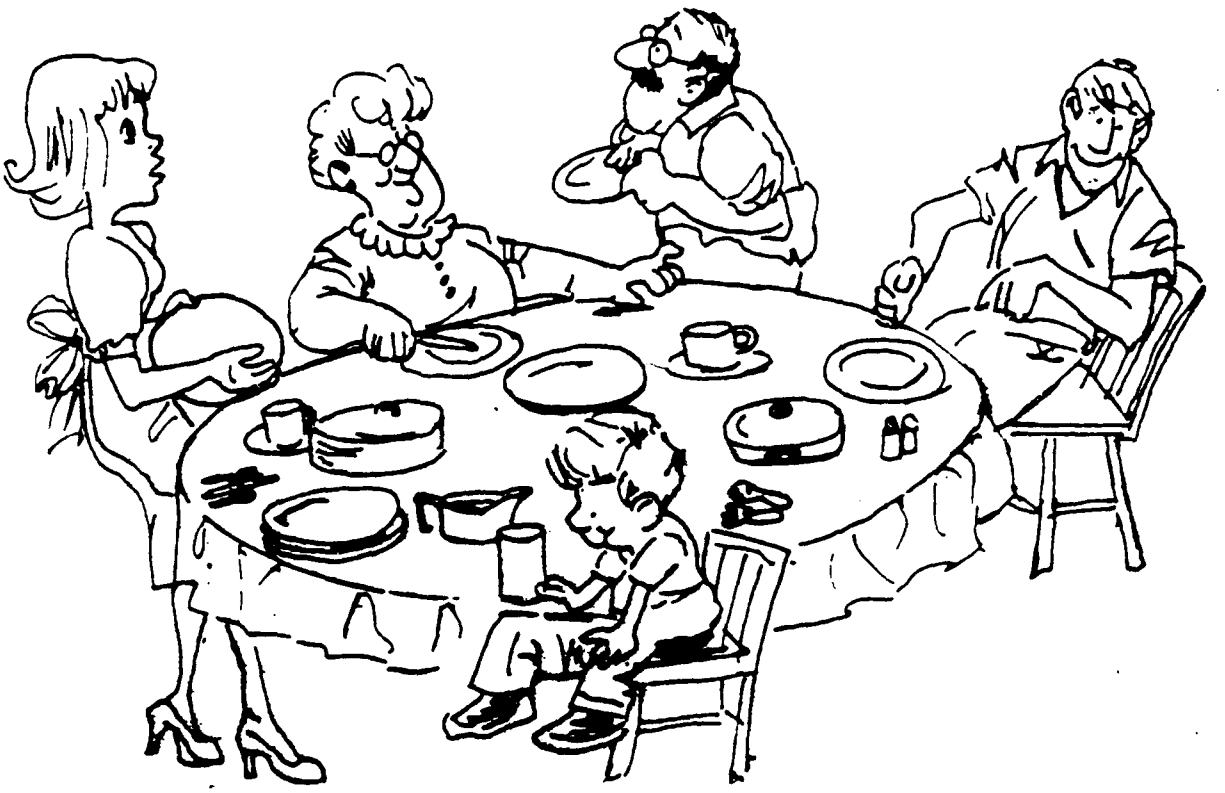
_____

I AGREE TO BEGIN _____ (DATE) AND MAINTAIN THIS EATING CHANGE FOR AT LEAST _____ WEEK(S). I WILL RECEIVE A REWARD OF MY CHOICE FOR COMPLETING THIS CONTRACT.

DATE: _____ SIGNATURE: _____

COUNSELOR: _____

"Help Your Heart Eating Plan"



identify the elements

of a CV healthy Eating Pattern

Low Saturated Fat
Low Cholesterol
Low Sodium
High Complex Carbohydrates

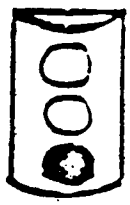
Heart Smart Heart Smart

CARDIOVASCULAR "STOP-GO" FOOD LIST

Foods are categorized as "Stop Foods" if they are high in fat, salt (sodium), or sugar (non-CV healthy). "Go Foods" are low in fat, salt (sodium), or sugar (CV healthy).

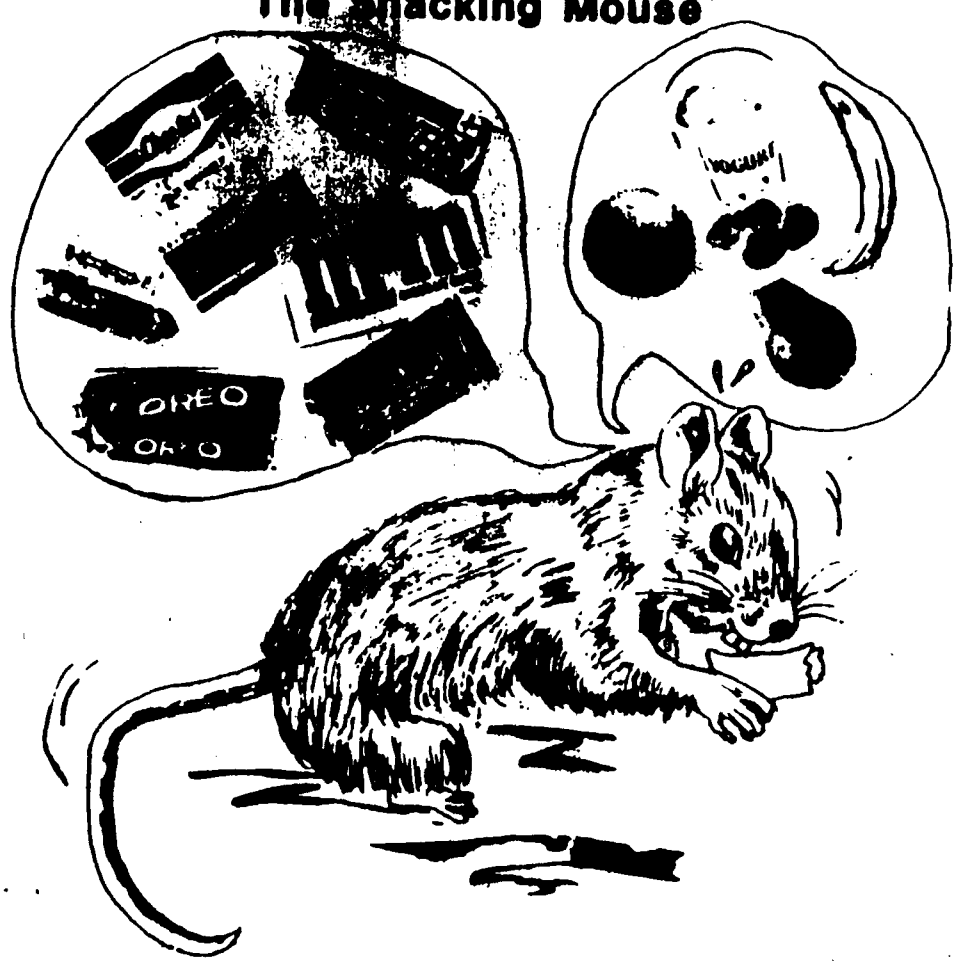
This listing was developed using the choices made by Family Health Promotion kids as they played the HEART SMART "Stop-Go Food Game."

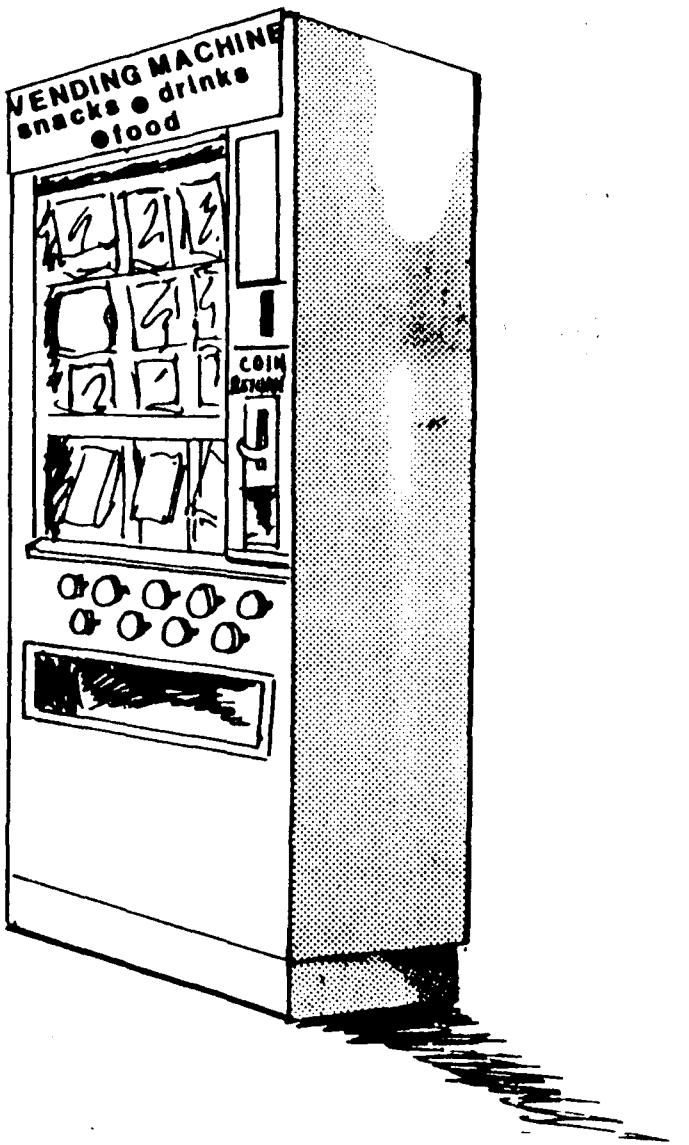
STOP FOODS (non-CV Healthy)	GO FOODS (CV Healthy)
↑ fat ↑ salt (sodium) ↑ sugar	↓ fat ↓ salt (sodium) ↓ sugar
Homogenized Milk	Skim Milk
Regular Cottage Cheese	Lowfat Cottage Cheese
Ice Cream	Frozen Yogurt, Sherbet
Fried Chicken	Baked, Broiled Chicken (no skin
Sausage	
Potato Chips, Corn Chips	Unsalted Potato Chips
Pickles	
Luncheon Meat	Turkey
Bacon	
Tuna (packed in oil)	Tuna (packed in water)
Popcorn with Butter and Salt	Plain Popcorn
Salted Peanuts	Unsalted Peanuts
Canned Vegetables	Fresh Vegetables, or "no-salt added" canned
Soft Drinks	Diet Soft Drinks
Pre-Sweetened Cereal (sugar added)	Cereal with no Added Sugar Cheerios Rice Krispies
Canned [illegible] in Heavy Syrup	Canned Fruit in its own Juice; Fresh Fruit
Chocolate [illegible]dy	Fresh Fruit; Sugar-Free Gum



Reading labels is very important: try not to eat foods that contain lard, animal fat, hydrogenated fat, or palm oil, coconut oil, or cocoa butter (saturated fats). Additionally, try not to eat foods that contain added salt or "sodium" in any form.

"The Snacking Mouse"





Identify

CV healthy snacks

Cathy

- **Do we expect too much ?**
- **Do we set goals too high ?**
- **Are we caught in the "rat race?"**
- **Do economic attitudes put stress on US ?**

When things pile up
Put one foot in front of the other
One step at a time

put Snack food out of sight

DID I MAKE A LIST OF FUN THINGS TO DO AND THEN USE THEM WHEN I FELT LIKE EATING UNHEALTHY FOODS?

SOME FUN THINGS TO DO:

TAKE A WALK
RIDE A BIKE
JUMP A ROPE
PHONE A FRIEND
SEE A MOVIE
READ A BOOK
WRITE A POEM
DRAW A PICTURE
SOLVE A PUZZLE
HIT A HOMERUN
THROW A BALL
PLAY UNDER THE HOSE
DRESS A DOLL
HIDE AND SEEK

"Shopping Wise"

Operation: labels

evaluate food labels

select CV healthy foods at a grocery store

"Cooking Tips and Recipe Modification"

modify home recipes

to a CV healthy food plan

FAMILY HEALTH PROMOTION
HEART SMART

A FAMILY PACKAGE FOR MODIFYING EATING AND EXERCISE BEHAVIOR

Behavioral Guidelines for Parent

A. Shop for Food from a List, No "Impulse" Buying

B. Shop for Food after Meals, Instead of When Hungry

C. Buy More Low-Calorie Food (Green Foods, Fresh Fruits and Vegetables)

D. If High-Calorie Foods are Bought, They are Bought in Small Portions

E. High Calorie Foods are Kept Out of Sight

F. Low Calorie Foods are Kept Where Child Has Easy Access to Them

G. Make Portion Size Smaller and Use Smaller Dishes and Glasses

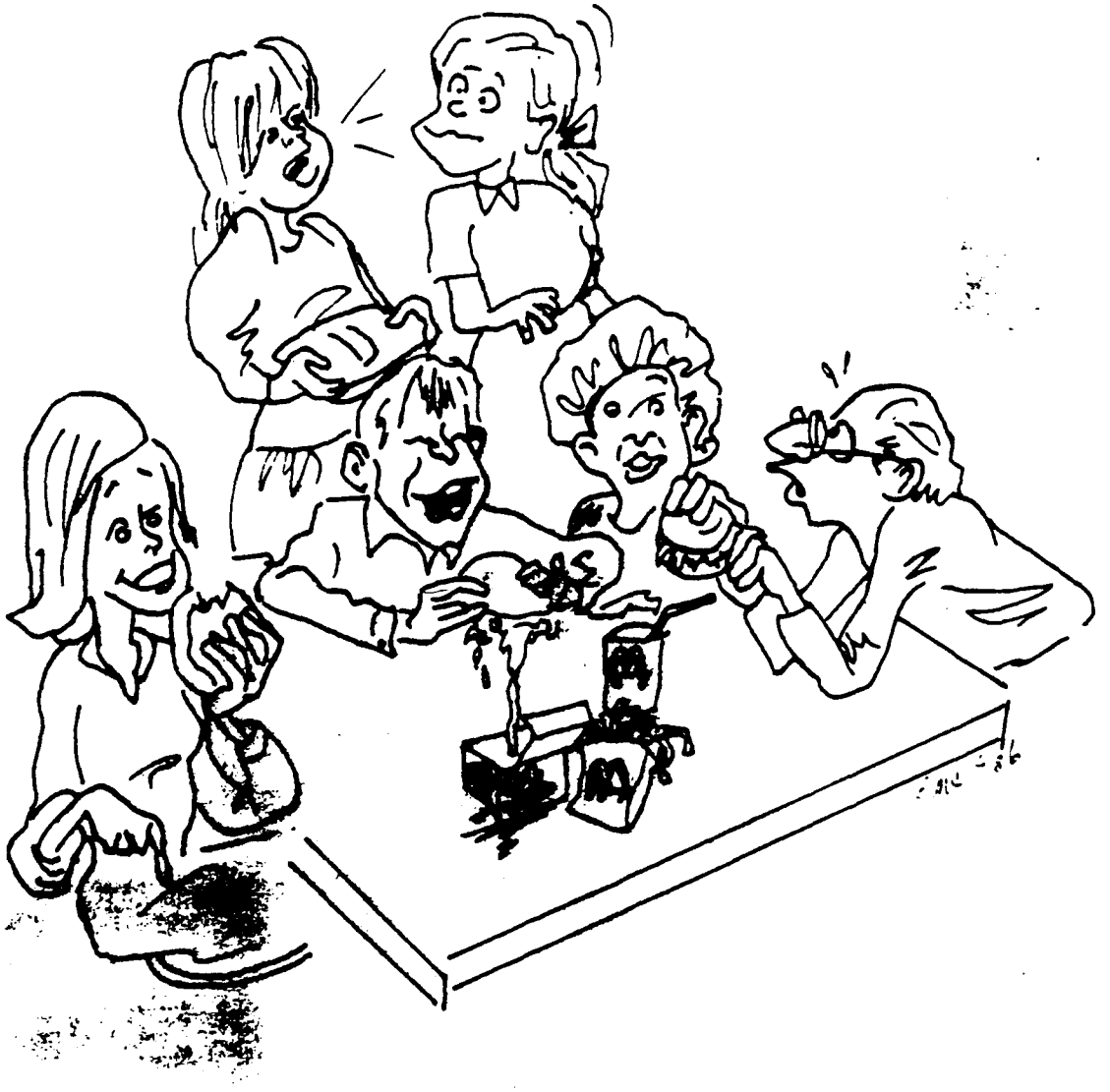
H. Child is not Encouraged to "Clean " Plate

I. Try Not to Use Food as a Reward or Punishment

J. Model the Behavior You Want to Change (Eat Healthier Food, Smaller Portions, etc.)

K. Use Praise and Other Reinforcements (e.g., Play Time, T.V. Time) to increase Desired Behaviors

"The Dining Out Experience"



order CV

healthy meals when dining out

EATING BEHAVIOR LOG

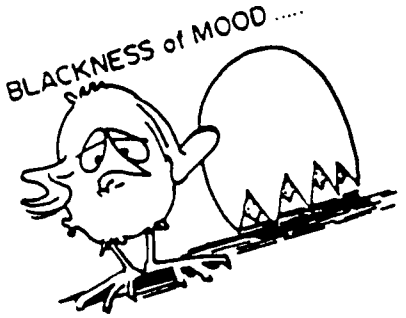
PERSONAL DATA

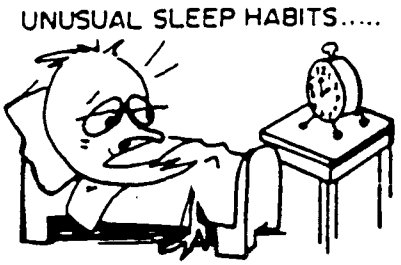
Gender: _____ Date: ___/___/___ Present Weight: _____

Male=1
Female=2

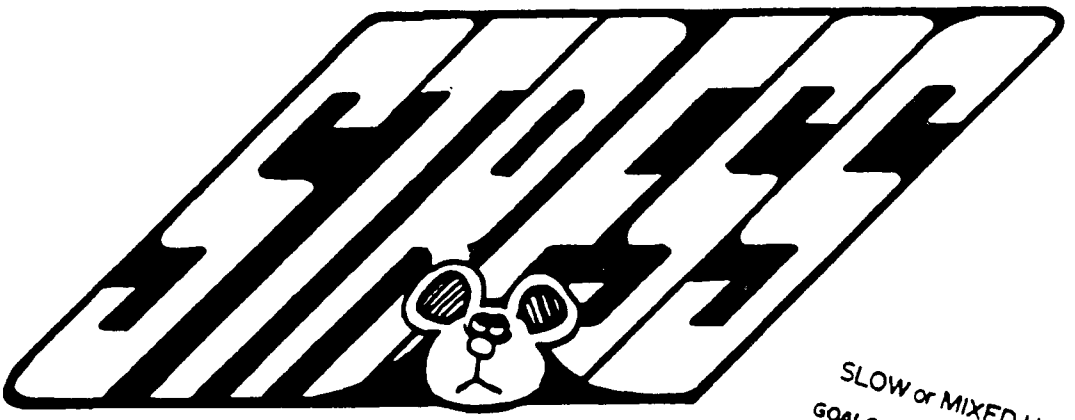
Mo. Day Year

Time	Place	Activity Before Eating	Activity During Eating	Comments How did you feel after eating?





Are You Under Stress?



PROBLEMS CAUSED BY TENSED MUSCLES

HEADACHE

BACKACHE

SPASMS OF ESOPHAGUS AND COLON

POSTURE PROBLEMS

ASTHMA PROBLEMS INCREASED

TIGHTNESS IN THROAT AND CHEST

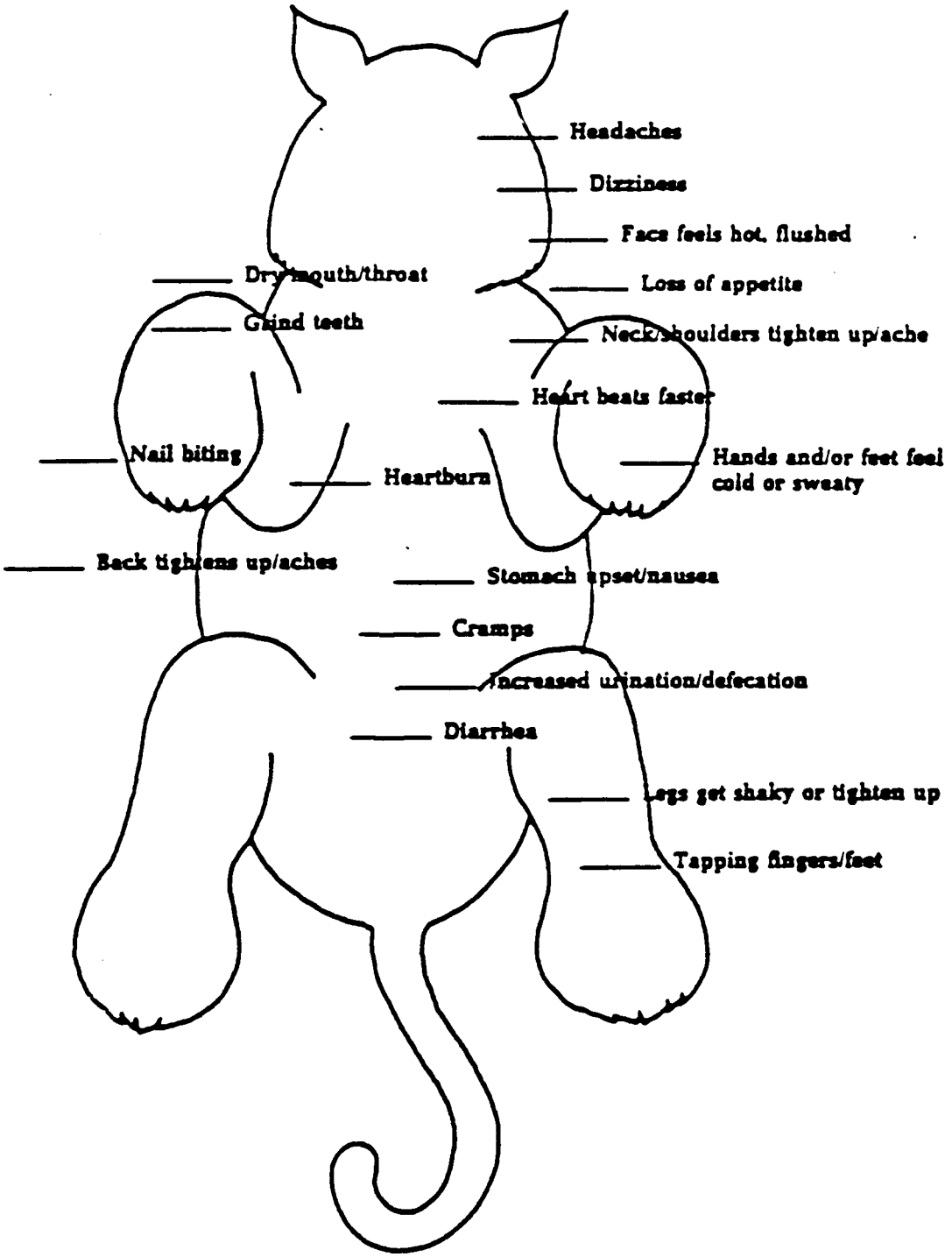
MUSCLE PULLS AND TEARS

AGGREVATES RHUMATOID ARTHRITIS AND OTHER ILLNESSES

Practice purposely
tensing & relaxing muscles

Practice stretching

MY PERSONAL STRESS SYMPTOMS

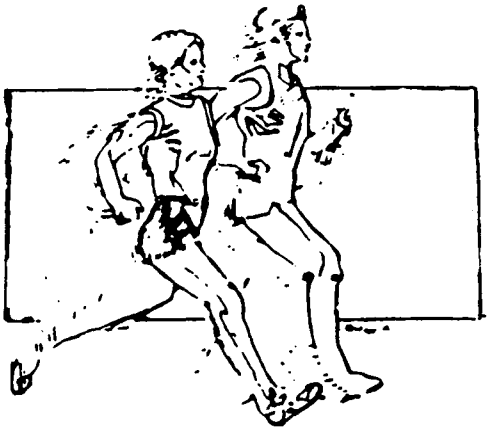


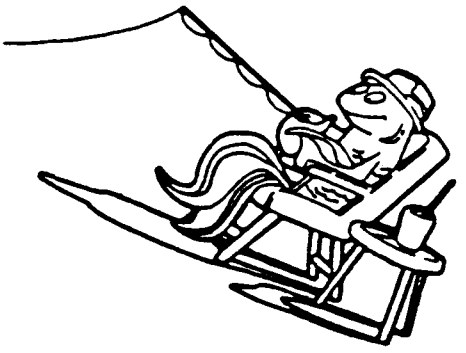
Take a Relaxation Break

If symptoms persist,

See a doctor

TAKE TIME FOR RELAXATION AND RECREATION





Stretching

Deep Breathing

Imaging - Lying on a Beach

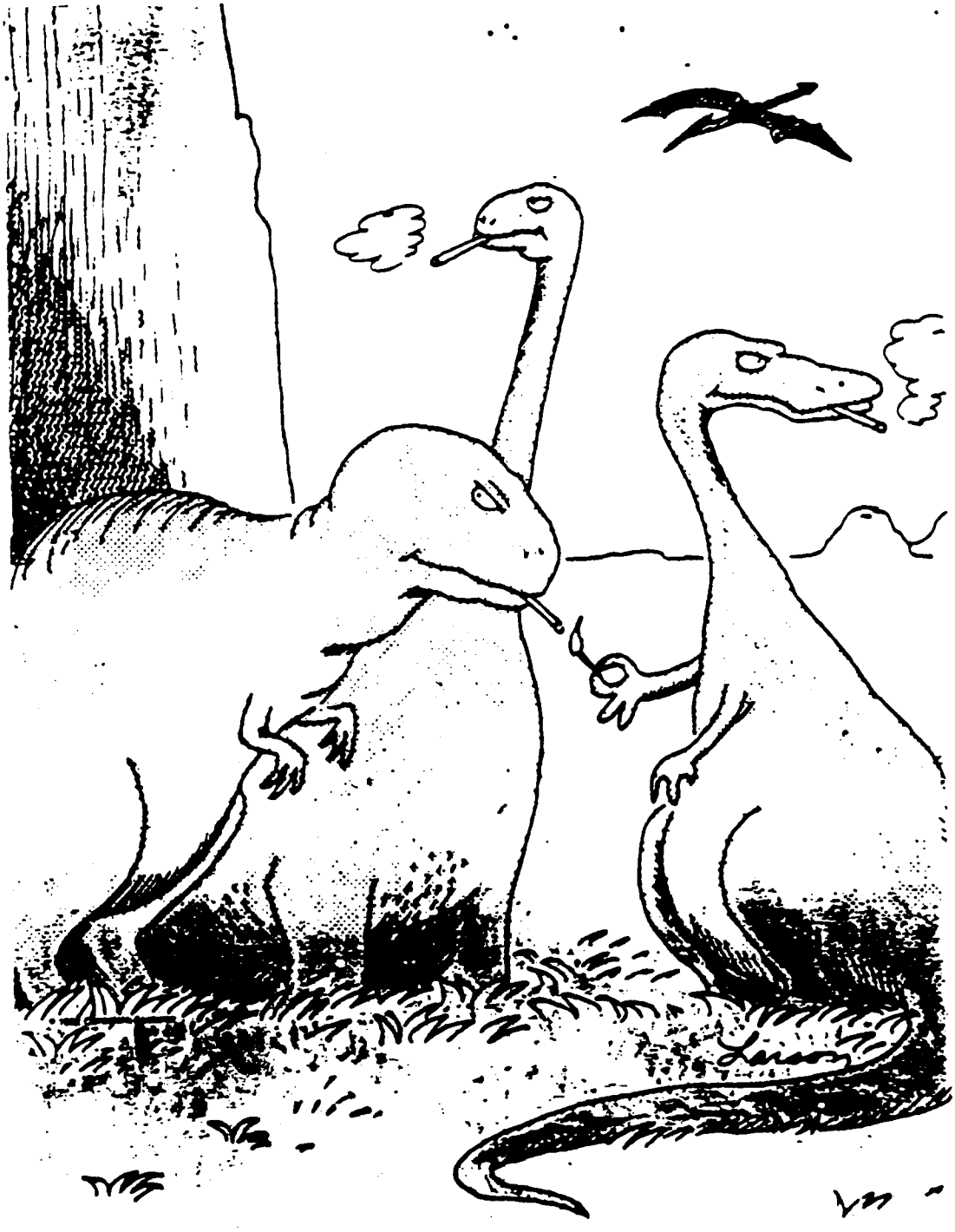
Lacking Peace of Mind? Some Thoughts to Ponder

THOUGHTS TO PONDER

Several years ago the sociology department of Duke University did a study on "Peace of Mind." Several factors were found to contribute greatly to emotional and mental stability. They are:

1. The absence of suspicion and resentment. Nursing a grudge was a major factor in unhappiness.
2. Not living in the past. An unwholesome preoccupation with old mistakes and failures leads to depression.
3. Not wasting time and energy fighting conditions you cannot change. Cooperate with life, instead of trying to run away from it.
4. Force yourself to stay involved with the living world. Resist the temptation to withdraw and become reclusive during periods of emotional stress.
5. Refuse to indulge in self-pity when life hands you a raw deal. Accept the fact that nobody gets through life without some sorrow and misfortune.
6. Cultivate the old-fashioned virtues — love, honor, compassion and loyalty.
7. Don't expect too much of yourself. When there is too wide a gap between self-expectation and your ability to meet the goals you have set, feelings of inadequacy are inevitable.
8. Find something bigger than yourself to believe in. Self-centered, egotistical people score lowest in any test for measuring happiness.

Distributed by Dr. Ruby H. Cox
Extension Program Coordinator-EFNEP
Clemson University Extension



The real reason dinosaurs became extinct.

If just two had said "NO"

THINK OF

YOUR MIND AS

A PLACEBO

THAT WORKS.

LEARNING TO

CONTROL HOW

YOU THINK

ABOUT YOUR

ACHES AND

PAINS MAY

DETERMINE

JUST HOW

MUCH YOU HURT.

FAMILY HEALTH PROMOTION
HEART SMART

A FAMILY PACKAGE FOR MODIFYING EATING AND EXERCISE BEHAVIOR

Behavioral Guidelines for Children

A. Separate Eating from Other Activities (e.g., Watching T. V.)

B. Eat Only in One Place at Home (e.g., Kitchen Table)

C. Meals and Snacks are Scheduled in Advance

D. Eat Smaller Portions

E. Try not to Take a Second Helping

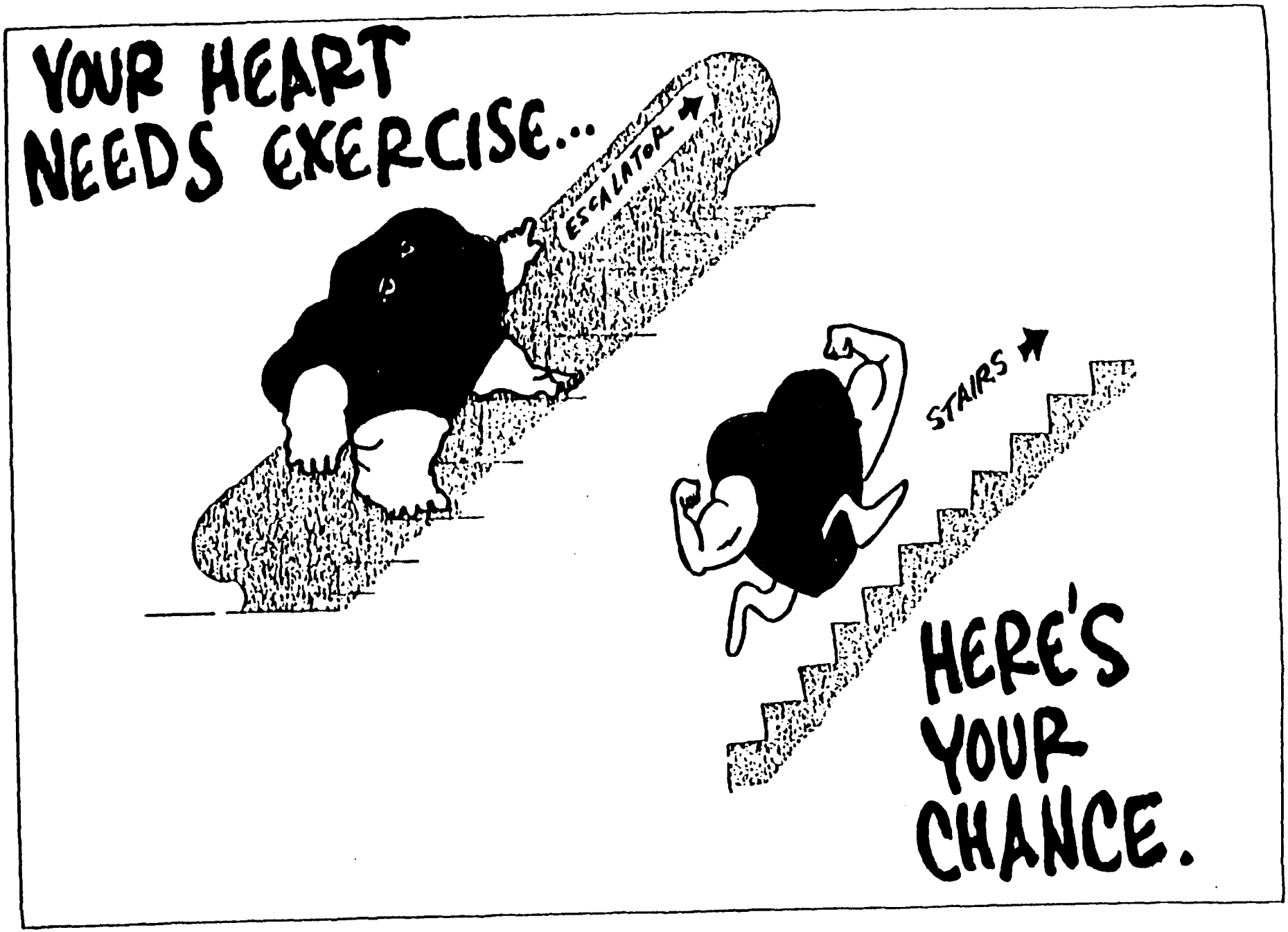
F. Put Down Utensils or Food Between Bites

G. Slow Down the Rate of Eating

H. Stop Eating When Planned Portion is Eaten

I. Reward Yourself for Reaching Your Goals (Success)

J. Participate in a Routine Exercise Program


YOUR HEART NEEDS EXERCISE...
ESCALATOR
STAIRS
HERE'S YOUR CHANCE.

FOR PHYSICAL ACTIVITY

EXERCISE HELPS!

IT HELPS:

Control appetite
Increase energy
Improves self-image
Helps counter anxiety and depression
Improves your ability to fall asleep
and sleep more soundly

IT HELPS FIGHT:

Heart Disease
Cancer
High Blood Pressure
High Blood Cholesterol
Diabetes
Obesity

An 11 year study published recently in the Journal of the American Medical Association showed that unfit individuals that do not exercise regularly have a mortality rate nearly four times as high as fit individuals who do.

Researchers at the University of North Carolina equates the risk of a sedentary life style to that of smoking a pack of cigarettes every day.


Exercise Away Stress
YOU CAN RUN AWAY FROM IT

FOR PHYSICAL ACTIVITY

EXERCISE REGULARLY

Experts recommend a minimum of 20 minutes sustained aerobic exercise three times per week, and that one should work to increase to 30 to 60 minutes per day.

Examples of Aerobic Exercise

Brisk Walking
Jogging
Running
Jumping Rope
Swimming
Aerobic Dancing
Bike Riding

If you are over 35 or markedly overweight, talk to your doctor before starting any fitness program. Research shows that changing a sedentary life style even slightly with improved exercising habits pays big health dividends.

Today would be a great day to start.

Here's to Health

Bless Your Heart!

HOW CAN I INCREASE MY EXERCISE

IN THE ROUTINE OF A NORMAL DAY?

WHEN I GO TO THE STORE,

DO I PARK AWAY FROM THE DOOR?

WHEN I RIDE THE BUS,

DO I GET OFF EARLY AND WALK?

WHEN I HAVE TO GO UP A LEVEL,

DO I USE THE STAIRS

INSTEAD OF THE ELEVATOR?

FORT POLK HEART SMART

Energy Expenditure in Recreational & Sport Activities

Calories per minute

	Body Weight (lbs)				
Activity	**110**	**130**	**150**	**170**	**190**
Cycling					
Leisure	5.9	6.9	8.0	9.0	10.1
5.5 mph	3.2	6.9	4.4	5.0	5.5
9.4 mph	5.0	5.9	6.8	7.7	8.6
Racing	8.5	10.0	11.5	13.0	14.5
Running					
5 mph	8	9	10	11	12
7.5 mph	12	13.5	15	16.5	18
10 mph	16	18	20	22	24
Swimming					
Crawl, fast	7.8	9.2	10.6	12.0	13.4
Backstroke	8.5	10.0	11.5	13.0	14.5
Walking					
3.5 mph	4.4	5	5.6	6.1	6.7

To determine mph divide the number of minutes it took to complete a mile into 60 minutes. For example, if it took 20 minutes to walk a mile 60/20 = 3 mph.

FORT POLK HEART SMART

TARGET WEIGHT RANGES: WOMEN

WEIGHT

HEIGHT (in shoes)	SMALL frame	MEDIUM frame	LARGE frame
4-10	102-111	109-121	118-131
4-11	103-113	111-123	120-134
5-0	104-115	113-126	122-137
5-1	106-118	115-129	125-140
5-2	108-121	118-132	128-143
5-3	111-124	121-135	131-147
5-4	114-127	124-138	134-151
5-5	117-130	127-141	137-155
5-6	120-133	130-144	140-159
5-7	123-136	133-147	143-163
5-8	126-139	136-150	146-167
5-9	129-142	139-153	149-170
5-10	132-145	142-156	152-173
5-11	135-148	145-159	155-176
6-0	138-151	148-162	158-179

Source: The Metropolitan Life Companies, 1983. These are not necessarily "ideal" weights, just statistical indicators

FORT POLK HEART SMART

TARGET WEIGHT RANGES: MEN

WEIGHT

HEIGHT (in shoes)	SMALL frame	MEDIUM frame	LARGE frame
5-2	128-134	131-141	138-150
5-3	130-136	133-143	140-153
5-4	132-138	135-145	142-156
5-5	134-140	137-148	144-160
5-6	136-142	139-151	146-164
5-7	138-145	142-154	149-168
5-8	140-148	145-157	152-172
5-9	142-151	148-160	155-176
5-10	144-154	151-163	158-180
5-11	146-157	154-166	161-184
6-0	149-160	157-170	164-188
6-1	152-164	160-174	168-192
6-2	155-168	164-178	172-197
6-3	158-172	167-182	176-202
6-4	162-176	171-187	181-207

Source: The Metropolitan Life Companies, 1983. These are not necessarily "ideal" weights, just statistical indicators.

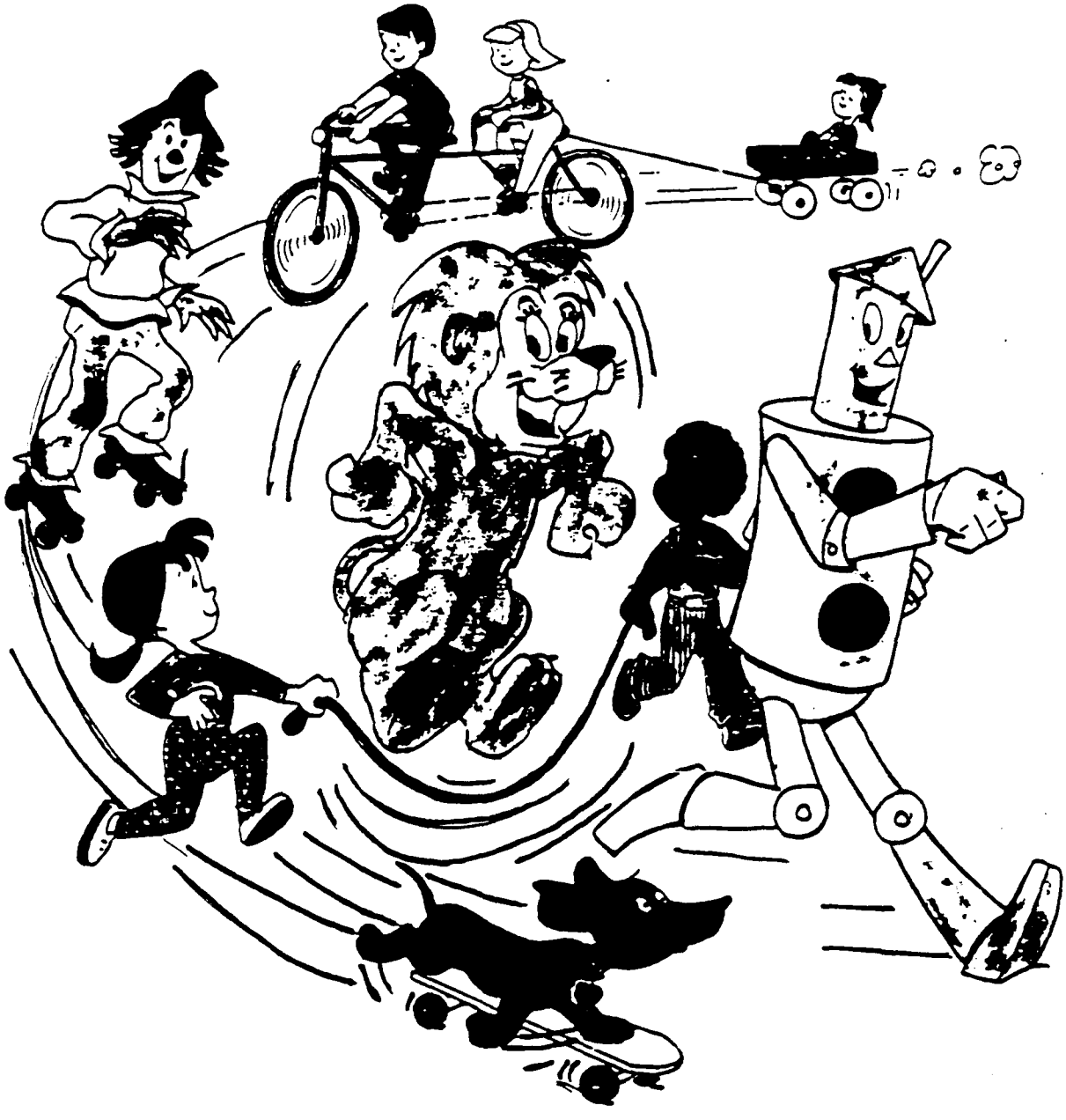
ID _ _ _ _ _ _

EXERCISE ACTIVITY LOG

DATE: _ _/ _ _/ _ _

TIME	ACTIVITY BEFORE EXERCISE	EXERCISE ACTIVITY	LOCATION	MINUTES	HEART RATE	COMMENTS

OUR FAMILY EATS NUTRITIOUS FOOD TOGETHER



MY FRIENDS AND I EXERCISE TOGETHER

When we can't be together, I feel lonely.

Take this time to think
Nice thoughts.

Ft. Polk Heart Smart

Family Health Promotion

Maintenance Protocol

The purpose of the last "Maintenance" session of the Family Health Promotion program is to **summarize** and **review** the concepts presented over the course of the program that center on: 1) risk factor assessment; 2) nutrition; 3) physical activity; and 4) stress management; and 5) behavioral and psychosocial components. A Maintenance Booklet is distributed to all families, and this booklet is used to guide the review session. Families should be encouraged to keep the booklet at home for reference and reminder about their past and future efforts toward more healthful living. The pages of the booklet are color-coded to define different sections. For example, risk factor pages are pink, nutrition pages are salmon, activity pages are blue, stress management are green, and behavioral and psychosocial pages are yellow and scattered throughout.

During the presentation, hold each new page up, so that participants can know exactly where you are, as you begin to discuss each page. Each new paragraph refers to a new page.

Risk Factors (Pages 2 and 3 - pink)

-- Remember not to let those unwanted relatives, high blood pressure, high blood cholesterol (atherosclerosis) or heart disease move into your house. Keep them away by continuing to live a more healthful life and by frequent monitoring of blood pressure and cholesterol.

Let's, however, keep our perspective, and not let fear of the cholesterol bugaboo take over our lives. Let's keep our children aware of healthy eating,

limiting dietary cholesterol and fats, but this should be as much a part of everyday living as learning good hygiene. Keep in mind what you've been taught about manufacturers' claims about cholesterol, and how they try to fool you. Vegetable products do not contain cholesterol AND HAVE NEVER CONTAINED CHOLESTEROL. Remember that it is the total amount of fat in your diet that you want to watch - not just cholesterol.

Psychosocial (Page 4 - buff)

Never forget that you are special - that you deserve health - and that your body deserves the best care that you can possibly give it. You can make mistakes, you will even experience some failures. That does not change who you really are - a very special person. Think positive thoughts.

General Behavioral Guidelines (Page 5 - yellow)

This page contains some general guidelines for you that can apply to all of your activities, personal, professional, etc. This is a great sheet to put on the refrigerator or a cork board at home - just as a reminder. Item I addresses a positive attitude - we just talked about that. Other items have to do with setting goals. It is very difficult to judge our progress if we have not set some specific goals for ourselves. For example, if I want to lose weight, I should set a series of small goals to progress toward the end goal. If if reach my goal, I can reward myself. If I do not, then I can do some re-appraising and try to understand what the problem is, or re-establish a goal that is more realistic and attainable. It is IMPORTANT to set goals. Please try it.

Nutrition (Pages 6-9 - salmon)

As you do your menu planning, keep reminding yourself about the key elements of a cardiovascular-healthy meal. Which are? Yes, that's right. A meal that is low in total fat and saturated fat, a meal that is low in dietary

cholesterol and salt (sodium), and a meal that is full of complex carbohydrates. What are some examples of complex carbohydrates?

This next page is another page that you can stick to the refrigerator. It gives you a brief rundown on some foods that we call "Stop" foods, these are foods that you want to try to eliminate from your diet, or at least eat only once in a while. Your healthier alternatives are listed as "Go" foods. These are the foods that you can eat a lot. Try making your own list with this one as a guide. Also remember to always read labels - try to locate those hidden fats.

We hope that the vending machine game that you played will always be a reminder to you that: 1) snacks have calories - don't forget to count them; 2) snacks can be wonderful sources of nutrition, such as fruits and whole grain cereals; 3) your children will eat a lot of snacks; make them healthy ones; and 4) very seldom will you find a healthy snack in a vending machine. Keep your money in your pocket, and plan your snacks from home.

One of the best ways to stay our of trouble with snacks, is to bring only healthy snacks into the house; that way neither you nor your children are tempted to eat high calorie, high sugar, high fat foods. The next best way, if you do buy some of these snacks occasionally, is to keep them out of sight. As they say, "out of sight, out of mind." Put the fruit in a bowl, where it can be seen. Hide the potato chips in a can in the pantry. Eventually the fruit will be the more popular choice. Try and be creative with snacks. Start looking for some easy recipes that you can make for your family that will provide them with nutritious snacks.

Fun Activities (Page 10 - yellow)

Whenever you are tempted to eat something that is less than healthy, or tempted to play "couch potato," remember that there are always alternatives.

Keep a list like this one handy as a reminder. Maybe I'm bored, or a little nervous, and don't have anything special scheduled. It's soooo easy to plop down on the sofa, turn on the TV, and open a bag of potato chips, because that's all I can think of to do. Take a look at some of these options, and develop a mental book shelf of items that you can use when you find yourself in a "what can I do?" situation.

Nutrition (Page 11 - salmon)

READ THE LABELS ON EVERY PRODUCT THAT YOU BUY. You've learned how - use your knowledge. Don't be an ostrich with your head buried in the sand, and don't let food manufacturers put one over on you. Be a wise consumer - it's your body, not theirs.

Shopping Guidelines (Page 12 - yellow)

Here are some shopping hints that will keep you out of trouble. Once you train yourself how to shop, eating healthier foods becomes so much easier. For instance, if you get used to shopping mostly from the outside perimeter of the store, you will be shopping for fresh fruits and vegetables, fresh meats, poultry and seafood, breads, and probably fresh frozen fruits and vegetables. Try not to get caught in the so-called convenient foods trap. These are always prepared products that are usually high in fat and sodium. Put one of these in the basket only after you have read the label and are satisfied with the ingredients. But, if you stay away from packaged food counters, you won't even be tempted. Always prepare your shopping list before going to the store. This is extremely important; and don't go in the store hungry. You know what will happen. Be a smart shopper; make shopping work for you; you have the control here - keep it.

Nutrition (Page 13 - salmon)

During this program you have learned numerous ways in which to prepare foods healthier at home and provide your family with nutritious meals. Remember to refer to these ideas and use them. It will become fun after a while to see how creative you can be in altering recipes that you are trying for the first time, or recipes that friends or relatives have shared with you. What a sense of wellbeing and control, when you have learned how to manipulate a recipe so that it still tastes great but becomes, under your guidance, a healthy food for your family to enjoy.

Parent Behavior Guidelines (Page 14 - yellow)

Parents, here's a review of some of the guidelines we demonstrated to you in an earlier presentation. Look at Item G. Remember how you can reduce portion sizes if weight is a problem in your family? Look at Item I. This may not have been mentioned before, but is an important thought for you. Please try to use something other than food as a reward for your children, especially for children whose weight could be a problem. When you look at Item K, you will realize that you want to reward your children, for example, for choosing to take a walk rather than watch TV, or eat an apple rather than a candy bar, but use rewards other than food. Unfortunately, even our pediatricians make this mistake. When you take your child to the doctor for a shot, what happens? Your child is offered some kind of candy. You can control even this, however, by politely refusing the candy, and having something else available in your pocket or purse for a reward. And what a great behavior to model (take a look at J) for your child at the same time. Remember that your child may hear what you say, but will copy what you do.

Nutrition (Pages 15-16 - salmon)

You have a Burger King on post, and both Leesville and DeRidder are overflowing with fast food restaurants. Use them wisely - you've learned how.

The next page is a guide for you to use if you begin to feel that your eating is getting out of hand, or if you have a specific eating habit that is bothersome to you and you don't know how to deal with it. Remember those A's, B's and C's. One way to help you identify them, is to keep a log, until you've identified what the problem is.

Stress Management (Pages 17-22 - green)

We have not talked a lot about stress in this program, but we know that everyone experiences "distress," that's the kind of stress that you don't feel you can handle, for whatever the reason. We have tried to teach you some relaxation strategies at the end of each of your sessions; these may or may not have worked well because of the environment here. The children are distracting and these kinds of relaxation techniques work best when everything is quiet and you are not disturbed. I would like to just run through a few things for you to remember, and you can use these pages as a reference. The first green page provides some little cartoons that will help you recognize some of the signs of distress - not sleeping, feeling tired, depressed, etc., but these are just a few.

This next page is very important. What happens when your goals are unrealistic (I'm going to lose 30 pounds next month), or we expect too much (I know Jamie always gets C's and D's in school, but if I work with him a little more he'll get straight A's). These kinds of attitudes can put undue pressure on you and result in great disappointment, and look what happened to Cathy when she put herself under too much pressure. That can happen to you too. So be careful. Remember, one step at a time, one foot in front of the other.

You can begin to feel distress in certain parts of your body. Tension can bring on backache, headache, etc. You've learned how good stretching can

feel, use this as a relaxer. You've practiced tensing and relaxing your muscles. This helps to alleviate these body symptoms.

A good idea is to be sensitive to your own body. It will tell you a lot. Sometimes you might start having distress symptoms without realizing that something or someone is "getting to you." Recognize the symptom, then try to identify the source. Step up your relaxation breaks. If this does not work, in other words if body symptoms persist, a visit to the doctor is in order.

Remember, none of us are Superhuman, we're just human. We need rest, we need to relax, we need recreation. Schedule these into your life.

The next page contains some good thoughts. Read these on your own, and reread them periodically, just to keep your perspective.

Smoking Prevention (Page 23 - gold)

When a cigarette looks tempting to you, remember this little cartoon.

Behavior Guidelines (Pages 24-25 - yellow)

Don't sell your mind short. Your mind is powerful. It can influence how much "distress" you may experience, how much you can relax, how hungry you can feel, or even how much something can hurt. The mind is probably more powerful than any computer yet devised, and you have one at your disposal, to do your bidding. Use it, in ways that you never even dreamed of before. You won't be disappointed.

Here are some guidelines for the children. You can help your children learn some of these habits that will help them in their eating practices later on in life. Remember to praise your child whenever they accomplish one of these little goals.

Exercise (Page 26-29 - blue)

If there's one thing that we've tried to impress you with during this program, it's that your heart needs exercise, regular exercise. You can make

the decision about which kind of heart you'd rather have, an escalator heart or a stairs heart. Make the right decision!

Here are the reasons why you want to keep physically active. These are good reasons - remember them. (If time permits, review some of the reasons.)

Remember that "distress" we talked about earlier? Being physically active is a great way to counteract those bad feelings we associate with stress. Psychologically you will feel better because you are doing something about your problem, but something also happens physically. There are certain substances that are released in the brain during physical activity that act like anti-depressants, and make us feel good. They are our body's own mood-altering substances, and they're legal, and we can release them any time we want to by being physically active.

You don't have to be a world-class athlete either. This is the minimum amount of exercise that you need to stay fit. You can do it.

Exercise Hints (Page 30 - yellow)

Can you increase your physical activity without putting on the tennis shoes and sweat clothes? Absolutely, this page will give you some ideas.

Exercise (Pages 31-34 - blue)

Here's a chart that will tell you how many calories you are burning when you exercise. I know this does not look like a lot, but remember, when you are exercising, you are in the process of changing your metabolism rate, and this helps you burn more calories when you are doing other things as well.

The next two pages provide a weight guideline for your frame. We understand that these weights have been adjusted recently, and the good news is that the new weights are about 5 to 10 pounds higher than what you see here. Keep this as a reminder.

Sometimes we thing we are exercising more than we actually are, or less than we actually are. Try to get an accurate estimate of your activity by keeping a log for a short time. This page is an example of the kind of log that you can keep. Also, keeping a log helps initially to remind that you activity is a part of your life now. Eventually, you will no longer need that reminder.

Support (Pages 35-37 - yellow)

Humans are social beings, and we all need support, especially when we are trying to change something in our lives. Modeling healthy habits for our children is an invaluable way to help them develop healthy habits, but also providing the support for them, doing things together as a family, is just as important. Until the time that your child becomes a teenager, the family is the most important influence in your child's life. Be a healthy influence; work together.

Children love to play with other children. Help your child provide for this social activity and you will find your child spending less time in front of the TV.

And, during those moments when we are alone, show your child how to make this time "me" time. Think nice thoughts, plan future activities, and relax.


Always
Ready
on the
Home
Front
The First Line of Defense
Fort Pulk Heart

Acknowledgments

Ft. Polk Heart Smart Staff, LSU, New Orleans:

Gerald S. Berenson, M.D., Principal Investigator
David W. Harsha, Ph.D., Co-Principal Investigator
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Brenda Prater, Phlebotomist

A special thanks to Lynn McStravick, Learning Resources, LSU, New Orleans, for many of the illustrations used in the Ft. Polk program.

Dear Heart Smart Graduate:

You have just completed a 14 - week training course in Cardiovascular Health, specifically:

1. Cardiovascular Risk Factors
2. Positive Thinking
3. Healthy Eating
4. Stress Management
5. Smoking Prevention
6. Aerobic Exercise
7. Family and Friend Support
8. Behavior Management

This booklet is a Summary and Reference to help you maintain the healthy habits you have learned. Good Luck on your road to heart health.

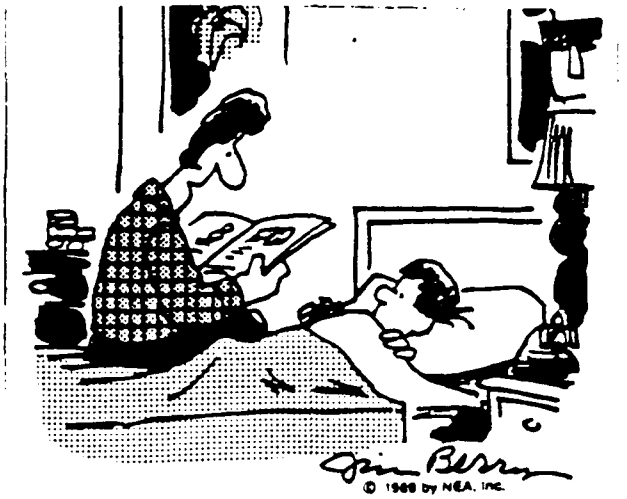
Howard "High Pressure"

Harry Heart Disease

Arthur Atherosclerosis

Don't let these unwanted relatives move in.

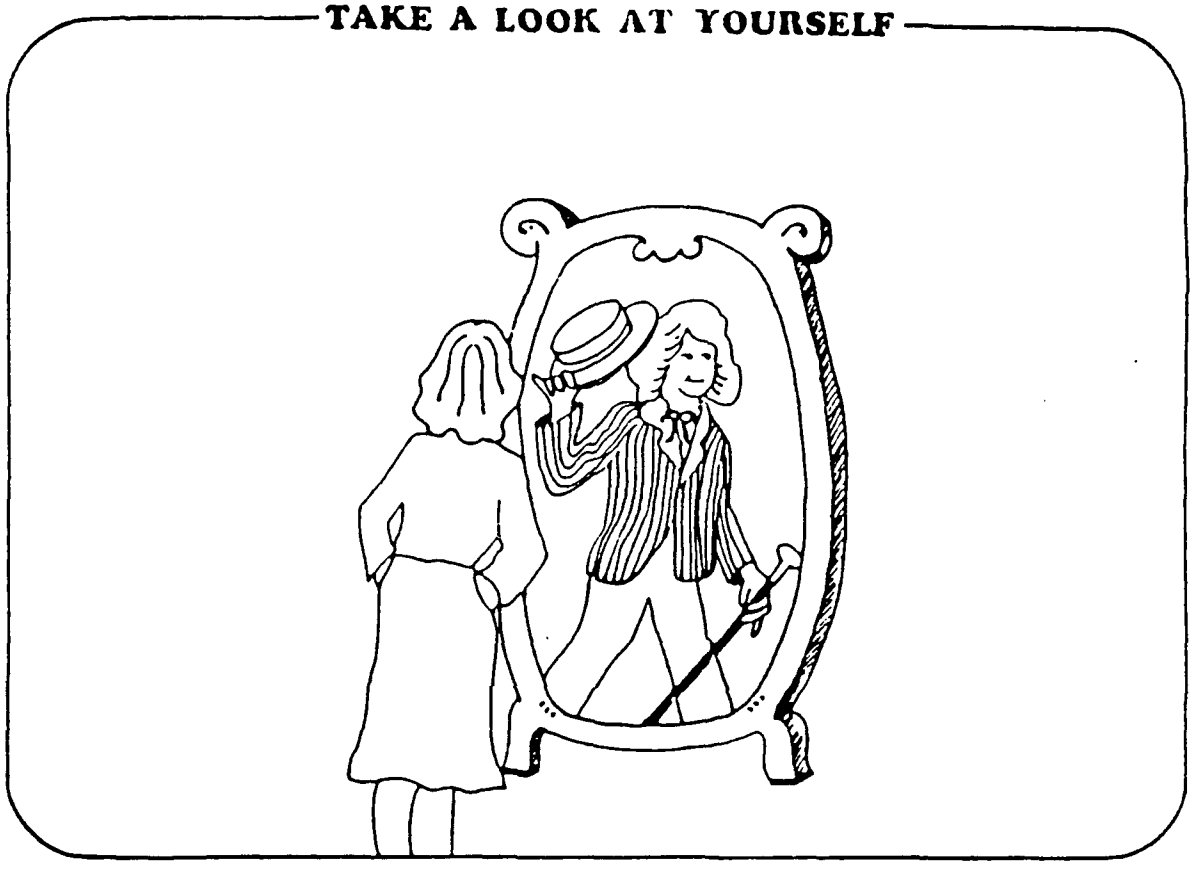
Have your blood pressure and cholesterol checked regularly.



"Once upon a time, there was GOOD cholesterol and there was BAD cholesterol...."

Herman

TAKE A LOOK AT YOURSELF



BE GOOD TO YOURSELF

YOU ARE A SPECIAL PERSON

FAMILY HEALTH PROMOTION
HEART SMART

A FAMILY PACKAGE FOR MODIFYING EATING AND EXERCISE BEHAVIOR

GENERAL GUIDELINES

A. Set Specific Attainable Goals

B. Keep Track of What You Eat and Drink

C. Reward Yourself for Reaching Your Goals

D. Change your Physical Environment, if Needed

E. Weigh Yourself Once a Week, at the Same Time of the Day

F. Set a Weight-Loss Goal

G. Get Your Family and Friends Involved

H. Use Exercise as Time to Get Together

I. Keep a Positive Attitude

J. Leave the Table Immediately after You Eat

K. Do Routine Exercise for at Least 30 Minutes Three or Four Times per Week

L. Record Your Exercise Progress

FORT POLK HEART SMART PROJECT - ATTACHMENT C

ANNUAL REPORT - August, 1990 TO JULY, 1991

FORT POLK HEART SMART

FAMILY HEALTH PROMOTION PROGRAM

Assessment and Evaluation

I. Standards and Normative Data

- A. National Cholesterol Education Program Guidelines
- B. Percentile Grids, Bogalusa Heart Study
- C. Descriptive Data, Fort Polk

II. Risk Factor Screening

- A. Flow Chart
- B. Brunch Instructions
- C. Risk Factor Screening Feedback Letters
- D. Data Pack
  1. Identification
  2. Health History
  3. Venipuncture
  4. Menstrual History
  5. Medication History
  6. Anthropometric Assessment
  7. Blood Pressure (1)
  8. Blood Pressure (2)

FORT POLK HEART SMART

FAMILY HEALTH PROMOTION PROGRAM

Assessment and Evaluation

(Continued)

E. Lifestyle Questionnaires

1. Physical Activity
2. Smoking
3. Alcohol
4. Eating Habits

F. Cognitive/Behavioral Questionnaires

1. Self-Efficacy for Healthy Eating and Exercise
2. State-Trait Anxiety
3. Cardiovascular Health Knowledge (Adults)

III. 24-Hour Recall

IV. Carter Center Health Risk Appraisal

V. Process Evaluation

A. Credibility

B. Program Evaluation

C. Taste Test

NATIONAL CHOLESTEROL EDUCATION PROGRAM GUIDELINES

Table 1

Current vs. Recommended Nutrient Intake in Children and Adolescents

	Current	Recommended
Saturated Fatty Acids	14% calories	< 10% calories
Total Fat	35-36%	Avg no more than 30%
Polyunsaturated	6%	Up to 10%
Monounsaturated	13-14%	10-15%
Cholesterol	193-296 mg/day	< 300 mg/day

Source: Preliminary data from USDA's 1987-1988 Nationwide Food Consumption Survey

Table 2

Other Risk Factors That May Contribute to Earlier Onset of Coronary Heart Disease (CHD)

- Family history of premature CHD, cerebrovascular or occlusive peripheral vascular disease (definite onset before the age of 55 years in a sibling, parent, or sibling of a parent)
- Cigarette smoking
- Elevated blood pressure
- Low HDL-cholesterol concentration (< 35 mg/dL)
- Severe obesity (≥95th percentile weight for height by National Center for Health Statistics growth charts)*
- Diabetes mellitus
- Physical inactivity

*This corresponds to ≥30% overweight.

Table 3

Classification of Total and LDL-Cholesterol Levels in Children and Adolescents From Families With Hypercholesterolemia or Premature Cardiovascular Disease

Category	Total Cholesterol	LDL-Cholesterol
Acceptable	< 170 mg/dL	< 110 mg/dL
Borderline	170-199 mg/dL	110-129 mg/dL
High	≥ 200 mg/dL	≥ 130 mg/dL

SPECIAL ARTICLE

Reducing High Blood Cholesterol Levels: Recommendations from the National Cholesterol Education Program

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Modification of risk factors is the major clinical and public health approach to the prevention of coronary heart disease (CHD). To coordinate national efforts to reduce the three major modifiable CHD risk factors of high blood pressure, cigarette smoking, and high blood cholesterol, the National Heart, Lung, and Blood Institute (NHLBI) has established three educational programs: the National High Blood Pressure Education Program, the NHLBI Smoking Education Program, and the National Cholesterol Education Program. This article focuses on the most recent of these efforts, the National Cholesterol Education Program (NCEP). A perspective of the concepts and basis of this effort is afforded by a brief description of the National Cholesterol Education Program's predecessor, the National High Blood Pressure Education Program (NHBPEP).

NATIONAL HIGH BLOOD PRESSURE EDUCATION PROGRAM

The NHBPEP, led and coordinated by the NHLBI since the program's inception in 1972, involves an extensive network of major health organizations and federal agencies. The initiation of the NHBPEP followed such successful intervention programs as the Veterans Administration Study (1, 2) and the High Blood Pressure Detection and Follow-Up Study (3), which established that controlling high blood pressure resulted in a decline in deaths from cardiovascular disease and stroke. A parallel approach is apparent in the plan and development of the National Cholesterol Education Program—first obtain a broad base of epidemiological and clinical evidence that lowering high blood cholesterol levels results in lower rates of CHD, and then emphasize national education efforts. The approach is to create awareness; increase knowledge; and provide guidelines on who should be treated, when treatment should be offered, and what treatments are successful.

0022-3182/88/2001-0023$02.00/0

A major educational activity of the NHBPEP has been the publication of national guidelines on the detection and treatment of high blood pressure. The early guidelines identified a stepped-care approach to prescribing antihypertensive medication (4, 5). Subsequent recommendations have reflected the publication of major clinical trial results, the introduction of new antihypertensive agents, the evidence concerning effectiveness of nonpharmacologic treatment, and further analysis of the epidemiologic database relating blood pressure levels to the risk of premature morbidity and mortality (5–7). The 1984 Report of the Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure will be updated in 1988.

In the early 1970s when the NHBPEP began, it was estimated that half of all hypertensive individuals were undetected, and furthermore, that half of those detected were not under treatment, and half of those being treated did not have adequate blood pressure control. Today, public awareness and knowledge of the risks and appropriate treatment of high blood pressure have greatly increased. In a 1985 survey 73% of respondents reported that their blood pressure had been checked within the last 6 months (8). Knowledge of the risk of high blood pressure is indicated by survey data showing that 77% of the public chose high blood pressure as the factor that most increases the risk of having a stroke. Finally, the proportion of hypertensive individuals who have their high blood pressure under control has more than doubled from the early 1970s to 1980 (6).

Although the earliest report mentioned the role of diet as a component of the nonpharmacologic treatment of high blood pressure, the major emphasis of the treatment approach was clearly on pharmacologic therapy. Today, the recognition of the high prevalence of high blood pressure and the cost and side effects of drugs has promoted increased interest and research into the role of diet in the management of high blood pressure—particularly mild hypertension in which diastolic blood pressures are in the range of 90 to 104 mm Hg. Thus, the 1986 Report of the Subcommittee on Nonpharmacologic Therapy of the 1984 Joint National Committee on De-

tection, Evaluation, and Treatment of High Blood Pressure (9) provides a review of dietary effects on high blood pressure control. Furthermore, the recommendations in that report call for achievement of recommended body weight as well as restriction of alcohol and sodium intake in the clinical management of high blood pressure. The Report recognizes the benefit of adjunct dietary therapy, which often permits lower doses of medication to be used, thus decreasing the cost as well as the side effects of antihypertensive drugs.

HIGH BLOOD CHOLESTEROL LEVELS AND CHD RISK

The scientific evidence implicating high levels of blood cholesterol as a major risk factor for CHD has been obtained in epidemiological, genetic, clinical, metabolic, experimental animal, pathological, and intervention studies. These areas have been recently reviewed (10–12). Animal, metabolic, and clinical studies all have shown that it is possible to increase or lower blood cholesterol levels depending on the dietary component changed. In 1982, Grundy et al. (13) reviewed more than a dozen diet and/or drug clinical trials that examined the effects of intervention to lower blood cholesterol and reported that all provided evidence of a positive relationship between lowering total blood cholesterol levels and reduced CHD rates.

Conclusive results were first provided in January 1984 when the Lipid Research Clinics Coronary Primary Prevention Trial (LRC CPPT) reported that lowering high blood cholesterol levels reduced the risk of CHD (14). The 3800 men participating in this double-blind trial had blood cholesterol levels greater than 265 mg/dl and received either cholestyramine (a bile acid sequestrant) or placebo. All were on a diet designed to lower blood cholesterol by about 4%. All were followed 7 to 10 years. The study indicated that in the drug-treated group, a 9% decrease in total cholesterol was associated with a 19% reduction in CHD death and/or nonfatal myocardial infarction. The results of this major trial provided the impetus for the NIH to convene a Consensus Development Conference on Lowering Blood Cholesterol to Prevent Heart Disease (15). The consensus panel provided broad guidance for health professionals and the public regarding cholesterol levels that constitute a risk for CHD and thus should be treated, goals for treatment, and the general use of diet and drugs to lower blood cholesterol levels. The most frequently reproduced (and apparently utilized) summary from the consensus panel's report was the table that identified moderate- and high-risk blood cholesterol levels by age.

Data from the 1987 Cholesterol Lowering Atherosclerosis Study (16) showed that drug and dietary intervention to lower blood cholesterol not only slowed the progression but also produced regression of coronary atherosclerosis in men with coronary bypass grafts. During the two years of the study 162 men, ages 40 to 59 years, received combined drug treatment with colestipol (a bile acid sequestrant) and niacin, and experienced a 43% reduction in LDL-cholesterol and a 37% elevation in high density lipoprotein (HDL)-cholesterol. In November 1987, yet another intervention study, the Helsinki Heart Study, reported a significant reduction in CHD risk associated with changes in blood cholesterol levels (17). The 2,051 study participants who were treated with the drug gemfibrozil (a fibric acid derivative) over a five-year period experienced mean reductions of 8% in both serum total cholesterol and LDL-cholesterol, and an increase of more than 10% in HDL-cholesterol.

Although it is too early to assess the influence of these latter two trials on the treatment of high blood cholesterol levels, some insight is available into the early influence of the LRC CPPT and the Consensus Development Conference. Survey data were obtained from physicians in 1983 just prior to the LRC CPPT results and in a follow-up survey conducted in 1986. In 1983, 39% of the physicians surveyed believed that lowering high blood cholesterol would have a large effect on prevention of CHD. By 1986, the proportion of physicians who held this view had grown to 64%. However, the 1986 survey indicated that many physicians were initiating dietary therapy only at relatively high cholesterol levels. Furthermore, 36% of physicians surveyed *never*, or *virtually never*, used drugs to treat high blood cholesterol. When asked further about dietary treatment, many physicians indicated that they felt unprepared to provide this therapy (Note 1).

The magnitude of the public health problem posed by CHD, the body of scientific evidence supporting the benefit of blood cholesterol reduction, the state of awareness of health professionals, and the perceived benefit of the blood pressure education program, all indicated to the NHLBI a clear need for a national program to provide information about the management of high blood cholesterol. The NCEP was thus initiated in 1985.

NATIONAL CHOLESTEROL EDUCATION PROGRAM

The National Cholesterol Education Program seeks consensus among and guidance from the program's coordinating committee which comprises representatives from more than 20 organizations representing major medical and health professional organizations, voluntary health organizations, and community programs. Both the American Dietetic Association and Society for Nutrition Education are represented, as are the American Heart Association, the American Medical Association, the American Academy of Pediatrics, and the American Public Health Association. Federal agencies with a role in

Table 1. Initial classification and recommended follow-up based on total cholesterol levels

Total Cholesterol Values for Risk Classification		*Total Cholesterol Values and Recommended Follow-up*	
200 mg/dl	Desirable blood cholesterol	Total cholesterol < 200 mg/dl	Recheck within 5 years
200–239 mg/dl[1]	Borderline-high blood cholesterol	Total cholesterol 200–239 mg/dl *Without* definite CHD or two other CHD risk factors (one of which can be male sex)	Provide dietary information and recheck annually
		With definite CHD or two other CHD risk factors (one of which can be male sex)	Lipoprotein analysis; further action based on LDL-cholesterol level
≥ 240 mg/dl[1]	High blood cholesterol	Total cholesterol ≥ 240 mg/dl	Lipoprotein analysis; further action based on LDL-cholesterol level

[1] Based on the average of two cholesterol measurements that have been made within 1 to 8 weeks of each other, and provided that the range between the two tests does not exceed 30 mg/dl.

cholesterol education have liaison representatives on the committee.

Two initital priorities of the NCEP were to convene a Laboratory Standardization Panel and an Adult Treatment Panel. Precise and accurate cholesterol measurements are required to identify and treat individuals with high blood cholesterol levels. However, the current state of reliability of blood cholesterol measurements made in the United States suggests that considerable inaccuracy in cholesterol testing exists. As part of the unified effort to identify and treat the one in four American adults at substantially higher risk for CHD, the National Cholesterol Education Program and its Laboratory Standardization Panel have developed recommendations for improving the accuracy of blood cholesterol measurements and for standardizing the reporting of blood cholesterol values (Note 2). These recommendations are expected to provide an important yardstick for the laboratories now engaged in measuring cholesterol levels. The Adult Treatment Panel's charge was to develop practical and detailed guidelines for clinicians to use in measuring, assessing, and treating high blood cholesterol level in adult patients.

Table 2. CHD risk factors

Risk Factor
• Male sex[1]
• Family history of premature CHD (definite myocardial infarction or sudden death before age 55 in a parent or sibling)
• Cigarette smoking (currently smokes more than 10 cigarettes per day)
• Hypertension
• Low HDL-cholesterol concentration (below 35 mg/dl confirmed by repeat measurement)
• Diabetes mellitus
• History of definite cerebrovascular or occlusive peripheral vascular disease
• Severe obesity (≥ 30% overweight)

[1] Male sex is considered a risk factor in this scheme because the rates of CHD are 3 to 4 times higher in men than in women in the middle decades of life and roughly 2 times higher in the elderly population. Hence, a man with one other CHD risk factor is considered to have a high-risk status, whereas a woman is not so considered unless she has two other CHD risk factors.

REPORT OF THE ADULT TREATMENT PANEL

The recommendations of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel [ATP]) were announced on October 5, 1987 (Note 3). The Adult Treatment Panel report, which focuses on the clinical management of high blood cholesterol levels in the individual high-risk patient, defines total and LDL-cholesterol cut-off points that target those persons who are candidates for medical intervention, and provides guidelines on how to detect, set goals for, treat, and monitor these patients over time.

DETECTION AND EVALUATION

Identification and follow-up of persons with high blood cholesterol. The Adult Treatment Panel recommends that total cholesterol levels be measured in all adults age 20 and over. Levels below 200 mg/dl are classified as desirable blood cholesterol, those 200 to 239 mg/dl as borderline-high blood cholesterol, and those 240 mg/dl and above as high blood cholesterol (Table 1).

The presence of a high cholesterol level—that is, 200 mg/dl or greater, is confirmed with a second test (Table 1). It is important to obtain more than one cholesterol measurement to accurately assess the blood cholesterol status, because cholesterol levels fluctuate considerably from day to day. The Adult Treatment Panel report notes that the standard deviation of repeated measurement in an individual over time is about 18 mg/dl. If the second measurement, obtained within 1 to 8 weeks, is within 30 mg/dl of the first measurement, then the average of the two values can be used. Otherwise, a third test should be obtained within 1 to 8 weeks and the average of the three tests should be used.

The major atherogenic cholesterol component in blood

Table 3. Classification and treatment decisions based on LDL-cholesterol levels

LDL-Cholesterol Values for Risk Classification		*LDL-Cholesterol Values to Initiate Treatment and Minimal Goal*		
		Risk Factor Status	*Initiation Level*	*Minimal Goal*
< 130 mg/dl	Desirable LDL-cholesterol	*Dietary Treatment*		
130–159 mg/dl	Borderline-high-risk LDL-cholesterol	*Without* CHD or two other risk factors[1]	≥ 160 mg/dl	< 160 mg/dl[2]
≥ 160 mg/dl	High-risk LDL-cholesterol	*With* CHD or two other risk factors[1]	≥ 130 mg/dl	< 130 mg/dl[3]
		Drug Treatment		
		Without CHD or two other risk factors[1]	≥ 190 mg/dl	< 160 mg/dl
		With CHD or two other risk factors[1]	≥ 160 mg/dl	< 130 mg/dl

[1] LDL initiation level and goal is lower in the presence of definite CHD, or any two CHD risk factors.
[2] Roughly equivalent to total cholesterol < 240 mg/dl.
[3] Roughly equivalent to total cholesterol < 200 mg/dl.

is LDL-cholesterol. Thus, patients with a high total blood cholesterol level should have lipoprotein analysis, and their LDL-cholesterol level should be determined. Those individuals who have a borderline-high blood cholesterol level and who have definite CHD or two other CHD risk factors, as listed in Table 2, should also have lipoprotein analysis and an LDL-cholesterol determination. Levels of LDL-cholesterol of 160 mg/dl or greater are classified as high-risk LDL-cholesterol, and those 130–159 mg/dl are classified as borderline-high-risk LDL-cholesterol (Table 3). Again, more than one LDL-cholesterol measurement should be obtained because of the day-to-day variability of the level. If the total cholesterol level is above 260 mg/dl, the first LDL-cholesterol measurement could be obtained on the same specimen that is used for the second test of total cholesterol. This will save time since the total cholesterol is likely to remain borderline to high even with repeated mesurements. Patients with high-risk LDL-cholesterol (≥ 160 mg/dl), and those with borderline-high-risk LDL-cholesterol (130–159 mg/dl) who also have CHD or two other CHD risk factors, should receive full clinical evaluation and then enter a program to lower blood cholesterol levels.

DIETARY TREATMENT

Clinical management is undertaken after a complete evaluation, including history, physical examination, and basic laboratory tests. Treatment begins with dietary therapy. This is the primary modality of therapy for high blood cholesterol levels. The minimal goals of therapy are to lower LDL-cholesterol to below 160 mg/dl if the patient has neither definite CHD nor two other risk factors, or to below 130 mg/dl if definite CHD or two other risk factors are present (Table 3).

The dietary modification is planned in two steps (Table 4). These steps are designed to progressively lower the saturated fat and cholesterol content of the diet. Weight reduction will be a primary goal for the overweight patient. The Step-One Diet includes an intake of total fat less than 30% of calories, saturated fatty acids less than 10% of calories, and cholesterol less than 300 mg/day. The serum cholesterol level should be measured at 4–6 weeks and at 3 months after the dietary plan has been initiated.

If an individual receives adequate assistance, and understands and adheres to the dietary modifications, substantial cholesterol lowering—perhaps 10 to 15% should be observed in 3 months. More change will be noted in some individuals than in others. Many patients will achieve the blood cholesterol goal with good adherence to the Step-One Diet. If a patient does not achieve adequate blood cholesterol lowering, then the Adult Treatment Panel recommends referring the patient to a registered dietitian. In this setting, the patient may reach the desired goal with the Step-One Diet. If not, the patient begins the Step-Two Diet. This diet stipulates further reduction in saturated fatty acid intake to less than 7% of calories and cholesterol intake to less than 200 mg/day.

Table 4. National Cholesterol Education Program (NCEP) dietary therapy for high blood cholesterol

Nutrient	*Recommended Intake*	
	Step-One Diet	*Step-Two Diet*
Total fat	– Less than 30% of total calories –	
Saturated fatty acids	Less than 10% of total calories	Less than 7% of total calories
Polyunsaturated fatty acids	– Up to 10% of total calories –	
Monounsaturated fatty acids	– 10 to 15% of total calories –	
Cholesterol	Less than 300 mg/day	Less than 200 mg/day
Total calories	– To achieve and maintain desirable weight –	

Before drug therapy is considered, most patients should continue diet therapy for at least 6 months. After 6 months, if LDL-cholesterol remains above goal levels (Table 3) despite adequate dietary therapy, lipid-lowering drugs should be considered along with continued dietary intervention.

MODIFICATION OF FAT INTAKE

Previous recommendations for more intensive dietary therapy of high blood cholesterol than the Step-One Diet—which corresponds to the Phase-One American Heart Association Diet (13)—have sometimes advocated a further reduction in fat intake to 20 or even 10% of calories. The major dietary influence on blood cholesterol levels is saturated fat intake. Thus, provided that saturated fatty acids are reduced and the remaining fat is mainly unsaturated, a marked reduction in dietary fat is not required. In other words, lowering the blood cholesterol level is achieved primarily by the reduction in saturated fat and to a lesser degree by substituting unsaturated fat and not by additional reduction in total fat intake per se. However, a further restriction in total fat intake may be targeted to facilitate weight loss or to accommodate the patient's eating habits.

When saturated fatty acids are reduced, they can be replaced, *in part, by polyunsaturated fatty acids.* The current diet of about 7% of calories as polyunsaturated fatty acids should be a minimum value for the Step-One Diet or Step-Two Diet. The maximum should be 10% of calories.

It is becoming increasingly common to discuss the two major categories of polyunsaturated fatty acids as omega–6 and omega–3. The major omega–6 fatty acid is linoleic acid. Substitution of linoleic acid for dietary saturated fatty acids results in a fall in blood cholesterol and LDL-cholesterol. Fish is the major source of omega–3 fatty acids in our diet. The omega–3 fatty acid content tends to parallel the fat content of the fish, e.g., high–fat fish such as salmon and mackerel are high in omega–3 fatty acids.

The omega–3 fatty acids primarily lower blood triglyceride levels. Although these fatty acids may also lower total blood cholesterol, this effect may not be desirable since omega–3 fatty acids reportedly lower the protective HDL-cholesterol fraction (18). Epidemiological data suggest that consumption of fish—whether high-fat or low-fat fish—is associated with a reduction in CHD risk, in part perhaps because all fish are low in saturated fatty acids. The Adult Treatment Panel report does not recommend the use of omega–3 supplements as a cholesterol-lowering measure.

In both the Step-One and Step-Two Diets, monounsaturated fatty acids, mainly oleic acid, should make up 10–15% of total calories. Oleic acid is the major fatty acid found in olive oil, rapeseed (canola oil), and high-oleic forms of safflower oil and sunflower seed oils. Recent evidence (19) indicates that oleic acid may cause as much of a decrease in LDL-cholesterol levels as linoleic acid when either is substituted for saturated fatty acids.

DIETARY CHOLESTEROL

The cholesterol intake in the Step-One Diet is less than 300 mg/day, and in the Step-Two Diet it is less than 200 mg/day. The blood cholesterol response to dietary cholesterol intake varies considerably among individuals. In practice, dietary counseling that focuses on lowering the saturated fat intake simultaneously lowers dietary cholesterol. Although an emphasis on reducing dietary cholesterol has the advantage of being a simple message, it creates a false impression that lowering blood cholesterol can be accomplished simply by eliminating the major sources of cholesterol, e.g., liver, shrimp, and egg yolks.

TOTAL CALORIES

It is important that overweight patients reduce their calorie intake to achieve recommended body weight. Obesity is associated with elevated LDL-cholesterol levels, and is also an independent risk factor for CHD. In many individuals, weight reduction will lower the LDL-cholesterol level, reduce plasma triglycerides, and raise HDL-cholesterol levels. It is possible for weight reduction and attainment of desirable body weight to reduce LDL-cholesterol to the desired level in those persons who are very sensitive to calorie intake and weight loss.

OTHER DIETARY COMPONENTS

Clinical studies have shown that soluble fibers such as pectin, guar gum, locust bean gum, oat gum, or psyllium mucilloid may reduce serum total cholesterol and LDL-cholesterol, with little effect on HDL-cholesterol levels. Insoluble fibers such as bran or cellulose have essentially no effect (20).

Alcohol intake does not affect LDL-cholesterol concentration, but it does increase triglyceride and HDL-cholesterol levels in many persons. Excessive alcohol intake is associated with high blood pressure levels and other undesirable effects on health. Of course, overall medical evidence warrants prudence with regard to alcohol consumption, but in light of the data on alcohol and blood cholesterol per se, moderate intake of alcohol is permissible. The Adult Treatment Panel report, however, does not recommend the use of alcohol in the prevention of CHD.

DRUG THERAPY

Drug therapy should be considered for adult patients who, despite good adherence to dietary therapy, have LDL-cholesterol levels exceeding the following cut-off points: ≥ 190 mg/dl if *neither* CHD *nor* two other CHD risk factors are present, or ≥ 160 mg/dl if CHD or two other CHD risk factors are present. The drugs of first choice are the bile acid sequestrants (cholestyramine and colestipol) and nicotinic acid. A new class of drugs to be considered after the bile acid sequestrants and nicotinic acid is the HMG-CoA reductase inhibitors, of which lovastatin was the first to be approved by the FDA for marketing. Other available drugs include probucol and the fibric acid derivatives, e.g., gemfibrozil and clofibrate. The fibrates are effective for lowering high triglyceride levels, but are not approved by the Food and Drug Admnistration for routine use in lowering cholesterol. A recent report from the *Helsinki Heart Study* showed gemfibrozil to be safe and effective for reducing CHD risk in appropriate patients. The indications for gemfibrozil use may well be expanded after further review and evaluation of the trial results.

Dietary therapy and drug therapy, if required, will have to become part of the patient's lifestyle. Dietary therapy, in contrast to drug therapy, can be implemented without expectations of additional cost or side effects. The Adult Treatment Panel report estimates the annual cost of cholesterol-lowering drugs to vary from $50 to $900. Regardless of the specific therapy details, successful management of high blood cholesterol levels requires an adequate support system from health professionals and from those individuals involved in personal and social interactions with the patient.

ADDITIONAL PANEL REPORTS OF THE NCEP

Two additional panels are planned. A Population-Based Panel will consider efforts to shift the distribution of blood cholesterol levels in the entire population to a lower range. A Treatment Panel on children and adolescents will address issues of diet and drug intervention in children with high blood cholesterol levels.

CONCLUSIONS

Data support a clear relationship between high blood cholesterol levels and risk of coronary heart disease. The recommendations of the NCEP-ATP report are intended to establish criteria that define adults with high blood cholesterol levels who will benefit from medical intervention and to provide guidelines on how to detect and establish goals for these individuals and how to treat and follow them over time. The Adult Treatment Panel guidelines and recommendations will be distributed to physicians and health-care and laboratory professionals across the country. The NCEP, working in partnership with members of the coordinating committee, can mobilize and coordinate resources to provide more effective education on the benefits of lowering high blood cholesterol levels as a means of preventing coronary heart disease. □

ACKNOWLEDGMENT

The assistance of Ms. Mary Beth Clark in the production of the manuscript is gratefully acknowledged.

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A NATIONAL SURVEY OF PEDIATRICIANS' PRACTICES AND ATTITUDES CONCERNING HEART DISEASE PREVENTION

With numerous recommendations being offered for early prevention practices relative to atherosclerotic disease in children, Nader and co-workers assessed the practices and attitudes of pediatricians through a nationwide mailed survey (*Pediatrics* 79:843–50, 1987). They received a 60% response rate. Two-thirds of the respondents were primary-care pediatricians. In addition, 79% were male, and 79% had office-based practices. About half of the respondents were over 45 years of age.

Nutritionists will be interested to note that approximately 50% of the pediatricians said they routinely give dietary advice and an additional 15–25% offer advice if the child is at high risk. Over 60% indicated that they take family histories. These physicians further indicated that they recommend exercise to 40% of children who are 2–5 years old and to 70% of children 13 years of age or older. Blood lipid levels are generally not assessed unless the patient is considered high risk, and even then lipid levels are assessed for only 30–60% of children—the percentage increases with the age of the child.

Of the respondents in our survey, 30–50% considered diet (decreased salt and saturated fat intake) "very important," and 15–65% considered exercise "very important." In addition, 20–30% of the respondents believed that they were "likely to be effective" in influencing patient practices in decreasing saturated fat and salt intake, maintaining ideal body weight, and getting regular exercise. With regard to the effectiveness of childhood habits in preventing cardiovascular disease, 67% of the pediatricians felt that maintaining ideal body weight was effective, 60% indicated that decreasing saturated fat intake was effective, and 48% believed that decreased salt intake was effective. Fifty percent considered regular exercise a childhood habit that could help prevent cardiovascular disease.

Interestingly, the older (over age 45) pediatricians were more likely to be involved in prevention practices. They were more likely to assess cardiovascular risk, provide health counseling, and perceive the benefits of changing a child's lifestyle, and were more confident in their own ability to promote changes. The authors speculated that the age-correlated difference may reflect personal awareness (older doctors being at increased risk themselves) and/or confidence in their own counseling skills.

The results of this study suggest that many pediatricians appear to be aware of cardiovascular risk factors, but they may lack the specific skills, time, or confidence to effectively address diet/nutrition issues. (This article contains 47 references.)

Public/Patient

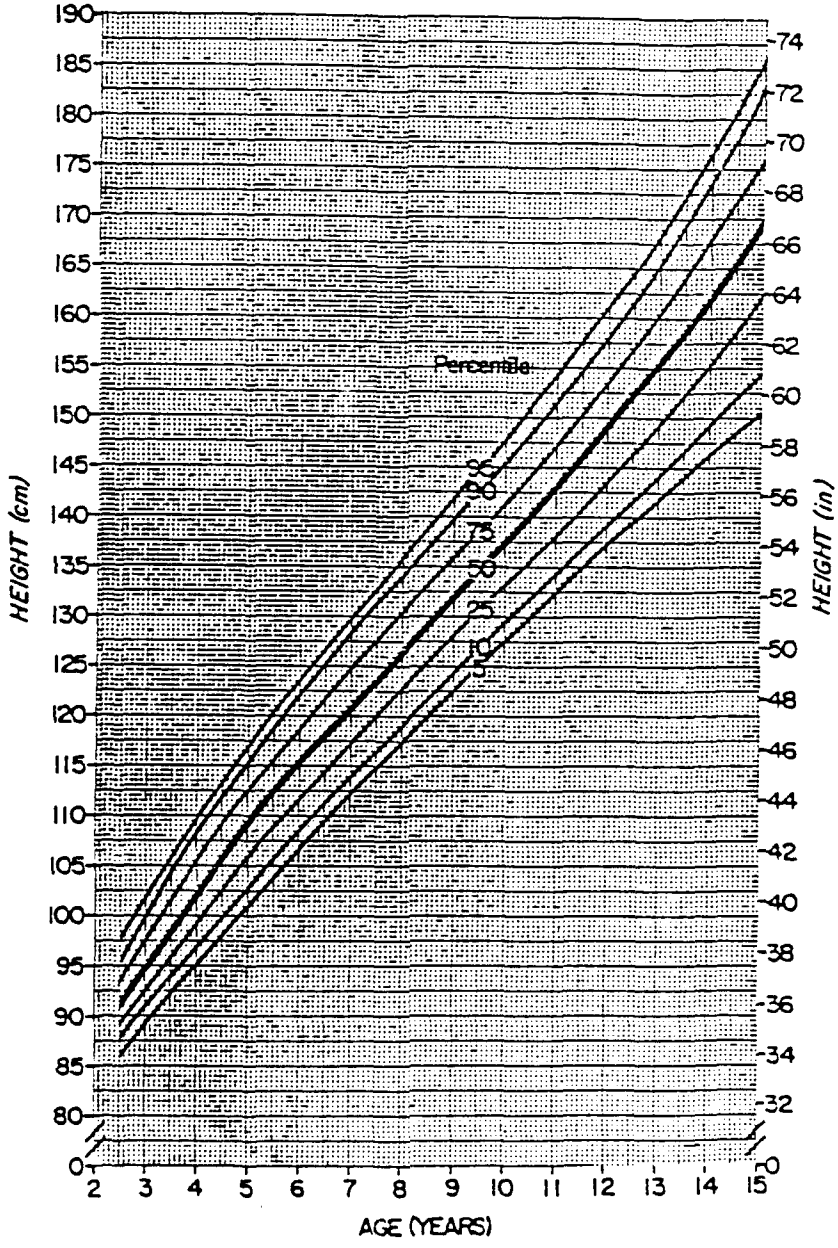
1. To increase awareness that elevated blood cholesterol is a cause of coronary heart disease, and that reducing elevated blood cholesterol levels will contribute to the reduction of coronary heart disease risk.
2. To increase the proportion of Americans who have reduced their dietary intake of total fat, saturated fat, and cholesterol as part of a nutritionally adequate diet.
3. To increase the proportion of Americans who have their blood cholesterol measured.
4. To increase the proportion of Americans who know their blood cholesterol level.
5. To encourage people identified as having high blood cholesterol to seek professional advice and follow-up.
6. To increase awareness that diet plays a major role in lowering high blood cholesterol, that weight control and exercise also play a role in the management of high blood cholesterol, and that, if necessary, drugs may be added to the regimen.
7. To increase public knowledge about the dietary principles for reducing blood cholesterol levels.
8. To increase the proportion of people with high blood cholesterol who adhere to their cholesterol-lowering regimen.

Community

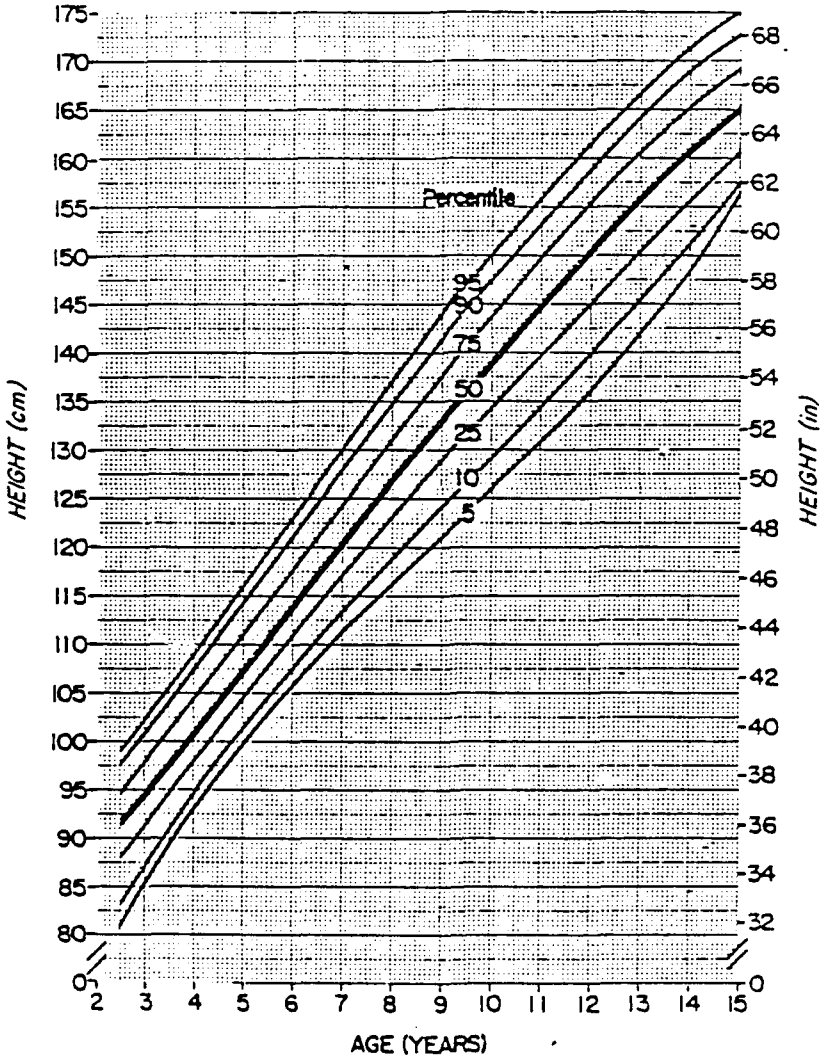
1. To increase activities for blood cholesterol control at the state and community level.
2. To increase coordination, communication, and collaboration in blood cholesterol control among community, professional, industry, and government organizations.
3. To increase awareness and knowledge among students, especially those in primary and secondary schools, with respect to blood cholesterol and cardiovascular risk factors in general.
4. To increase worksite activities to reduce elevated blood cholesterol levels.
5. To develop program activities and products that are appropriate to the needs of minorities and other special populations, and to actively involve health professionals and organizations that serve these populations.
6. To promote increased dissemination of scientifically accurate cholesterol-related information by the print and electronic media.

PERCENTILE GRIDS, BOGALUSA HEART STUDY

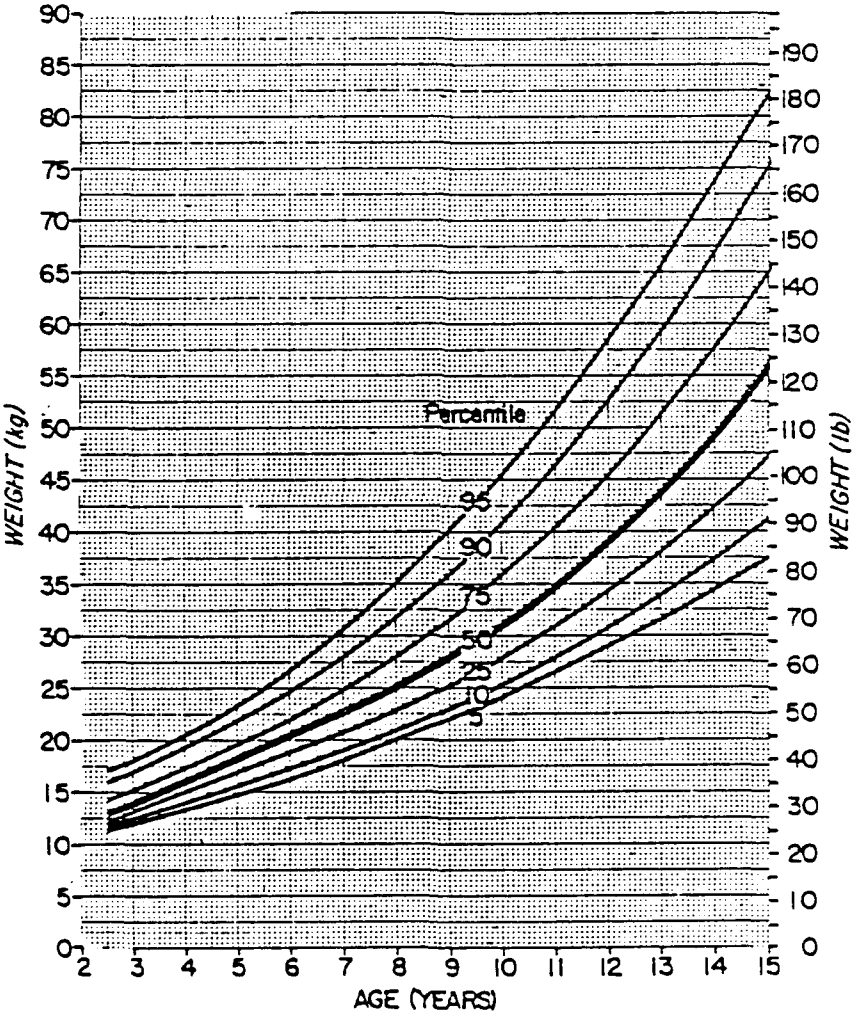
Grid 1 Height by age (boys)



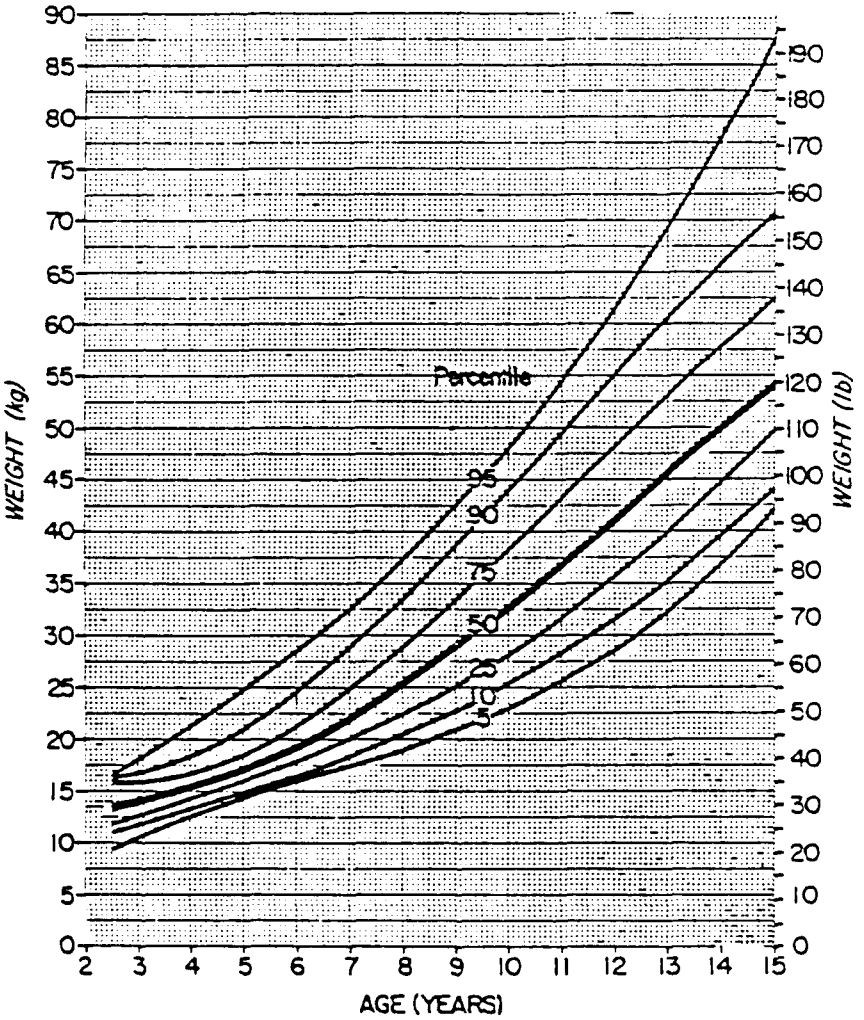
Grid 2 Height by age (girls)



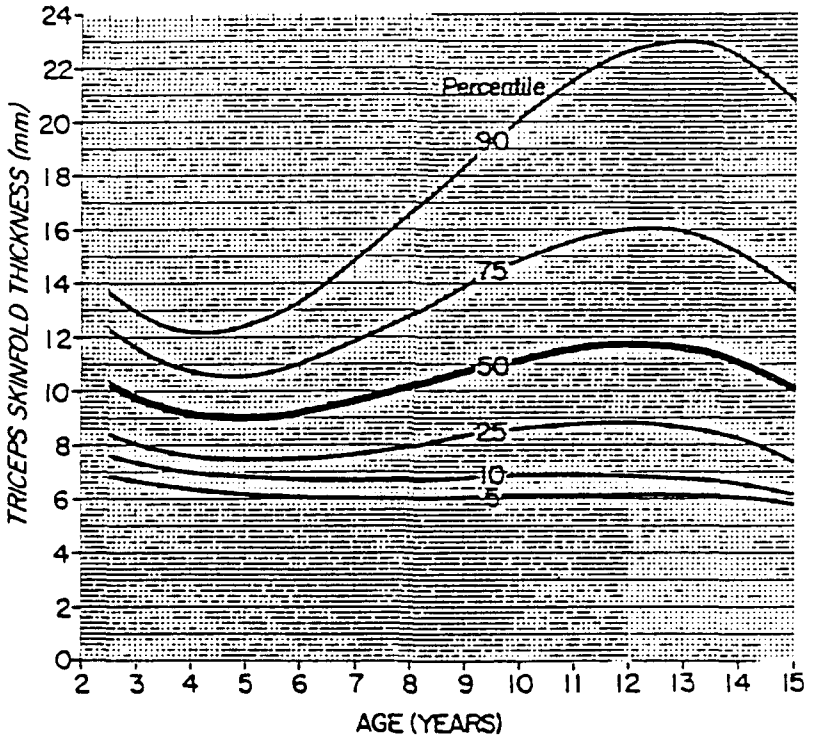
Grid 3 Weight by age (boys)



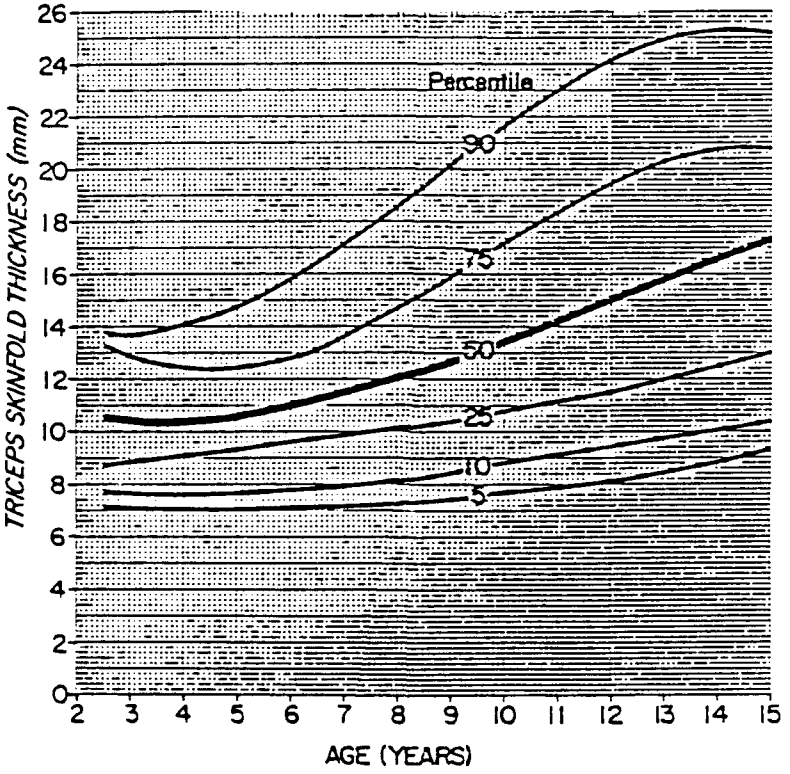
Grid 4 Weight by age (girls)



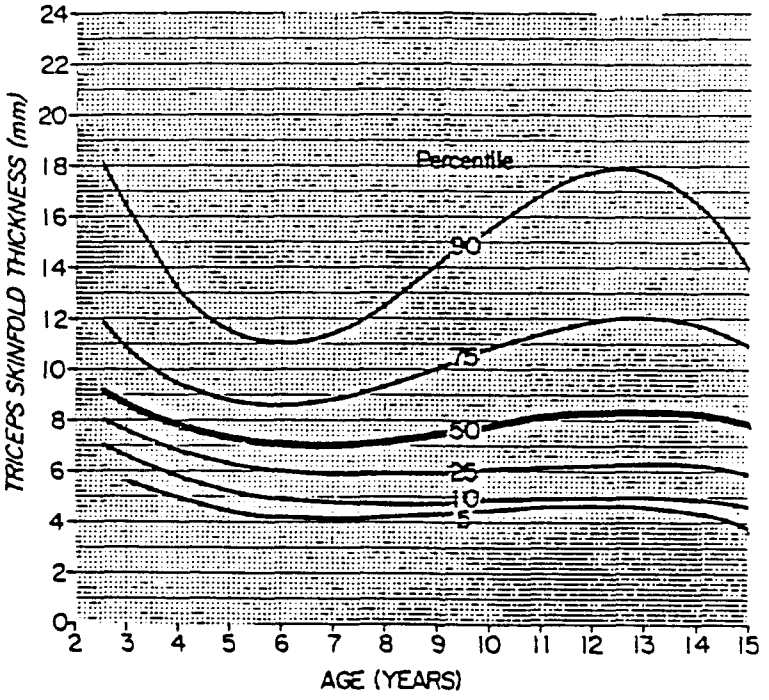
Grid 5 Triceps skinfold thickness by age (white boys)



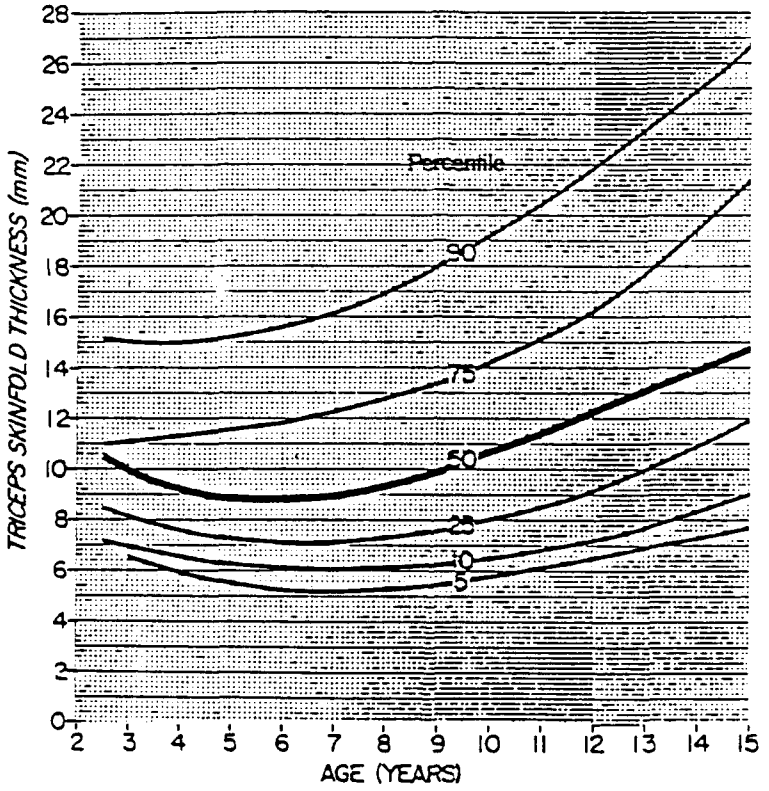
Grid 6 Triceps skinfold thickness by age (white girls)



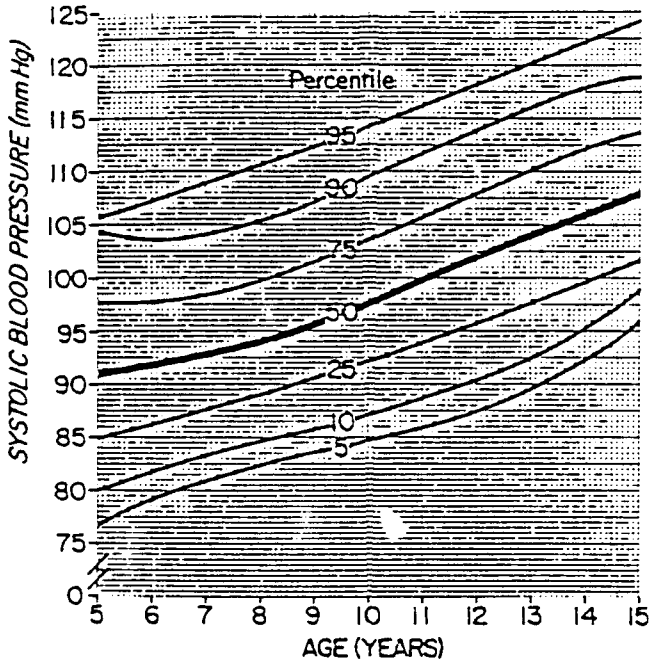
Grid 7 Triceps skinfold thickness by age (black boys)



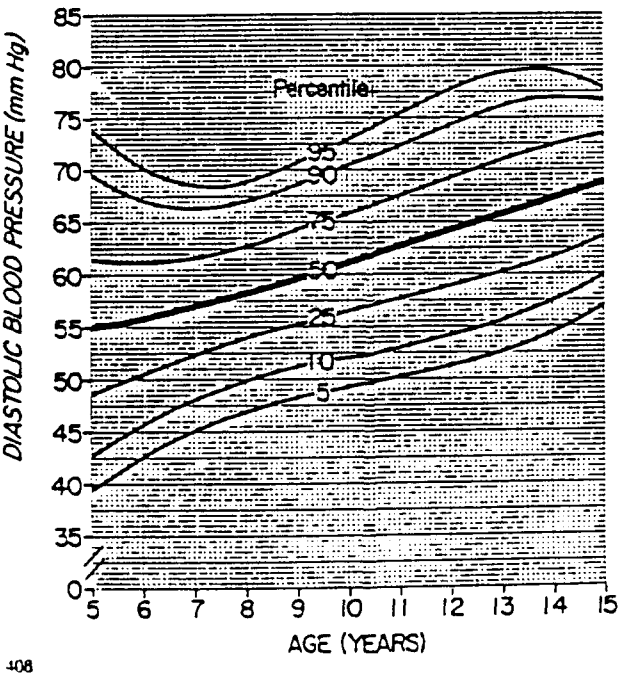
Grid 8 Triceps skinfold thickness by age (black girls)



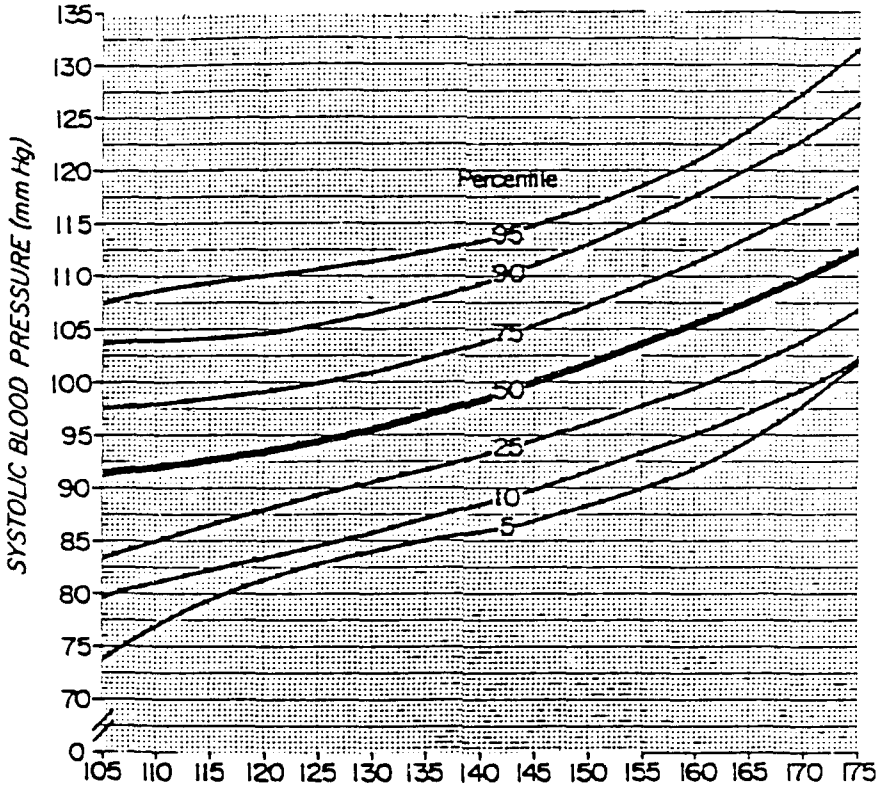
Grid 9 Systolic blood pressure by age



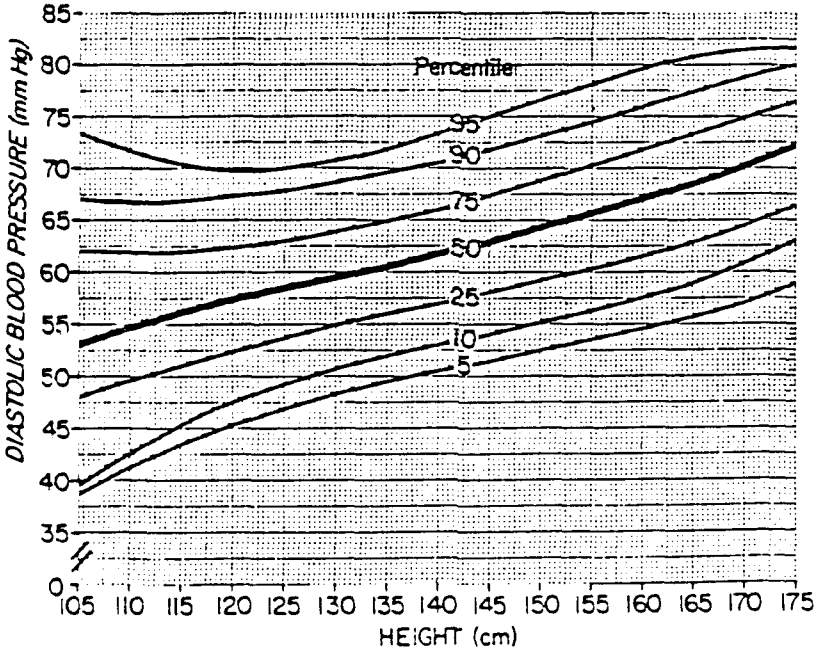
Grid 10 Diastolic (fourth phase) blood pressure by age



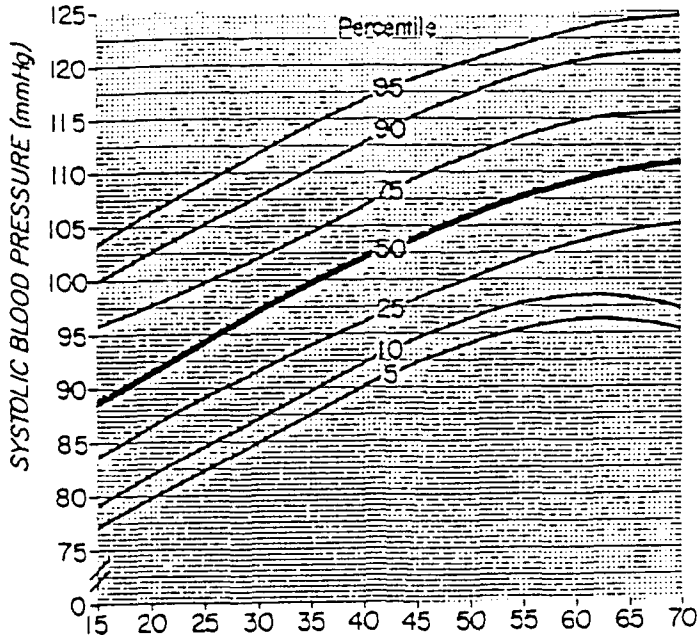
Grid 11 Systolic blood pressure by height



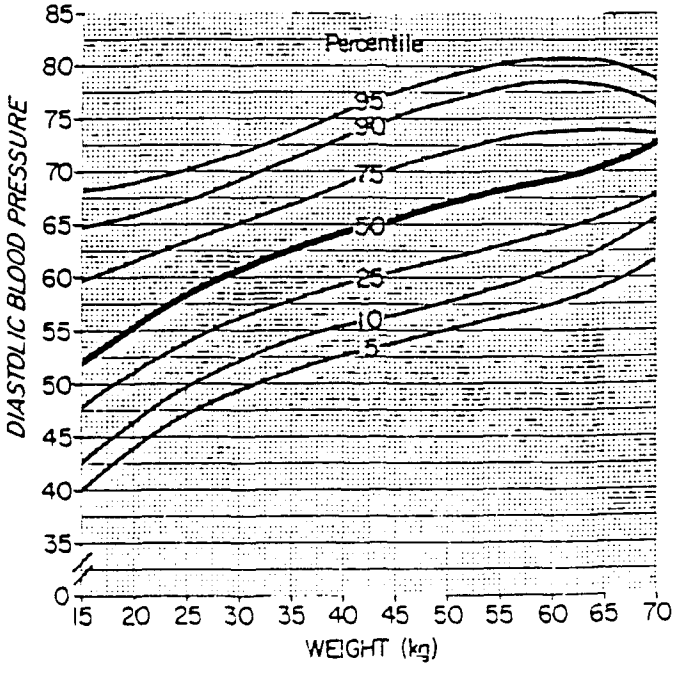
Grid 12 Diastolic (fourth phase) blood pressure by height



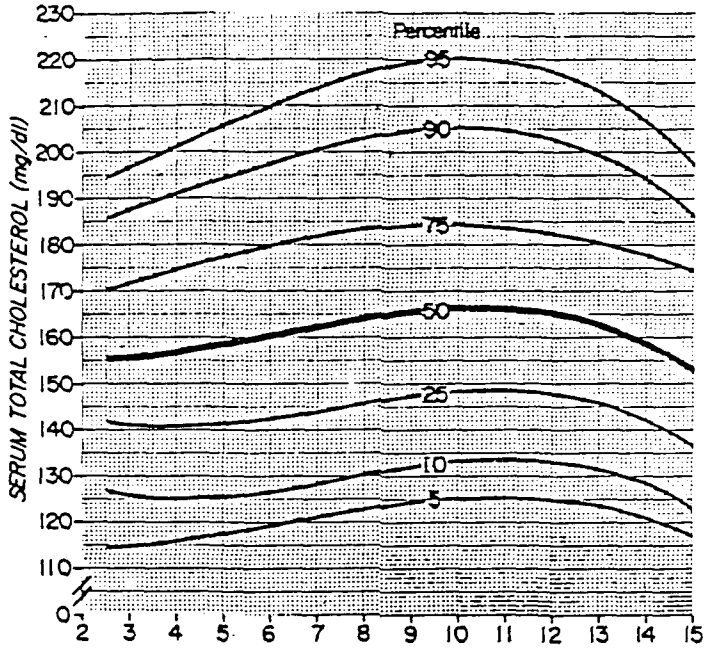
Grid 13 Systolic blood pressure by weight



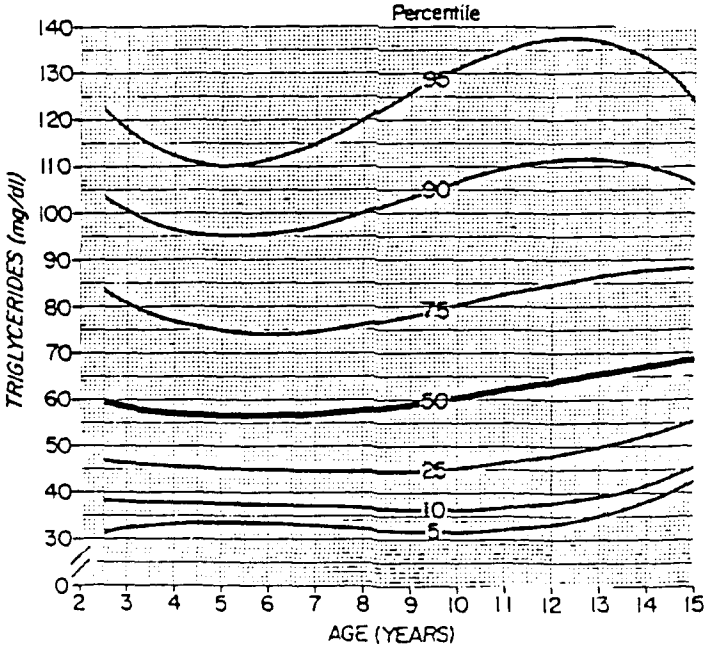
Grid 14 Diastolic (fourth phase) blood pressure by weight



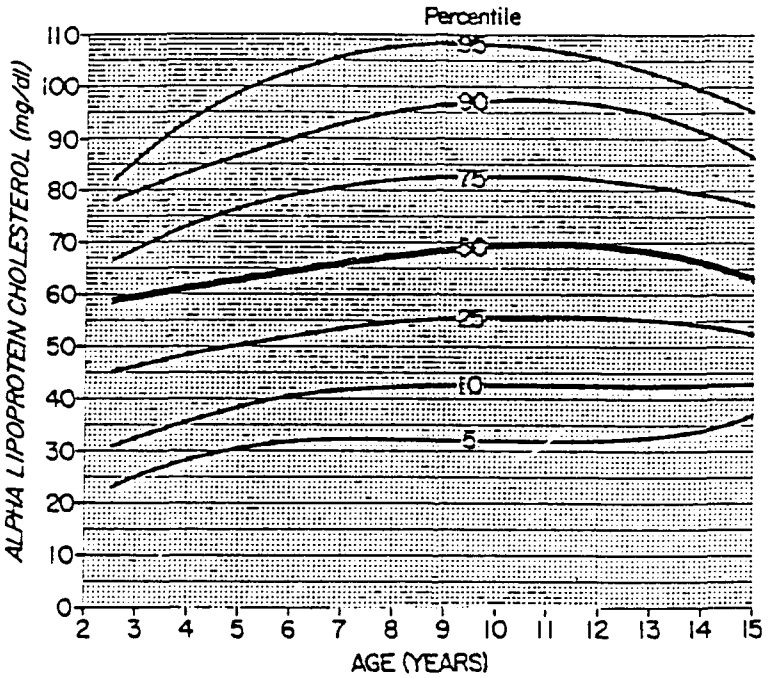
Grid 15 Serum total cholesterol by age



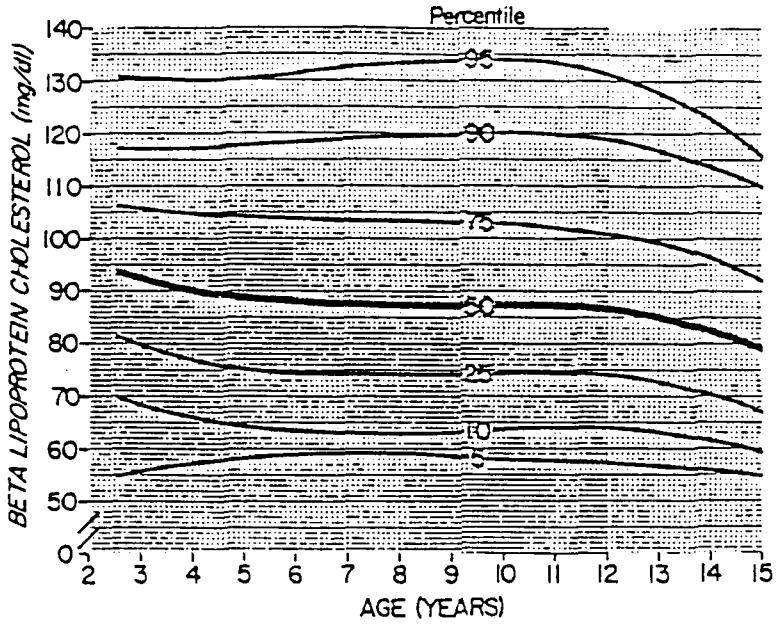
Grid 16 Serum triglycerides by age



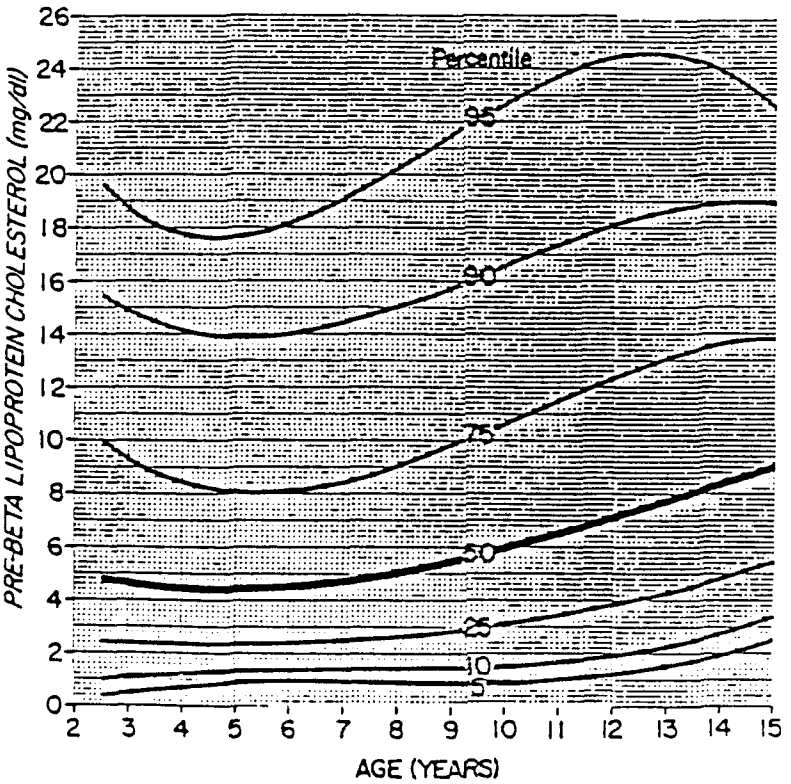
Grid 17 α-lipoprotein cholesterol by age



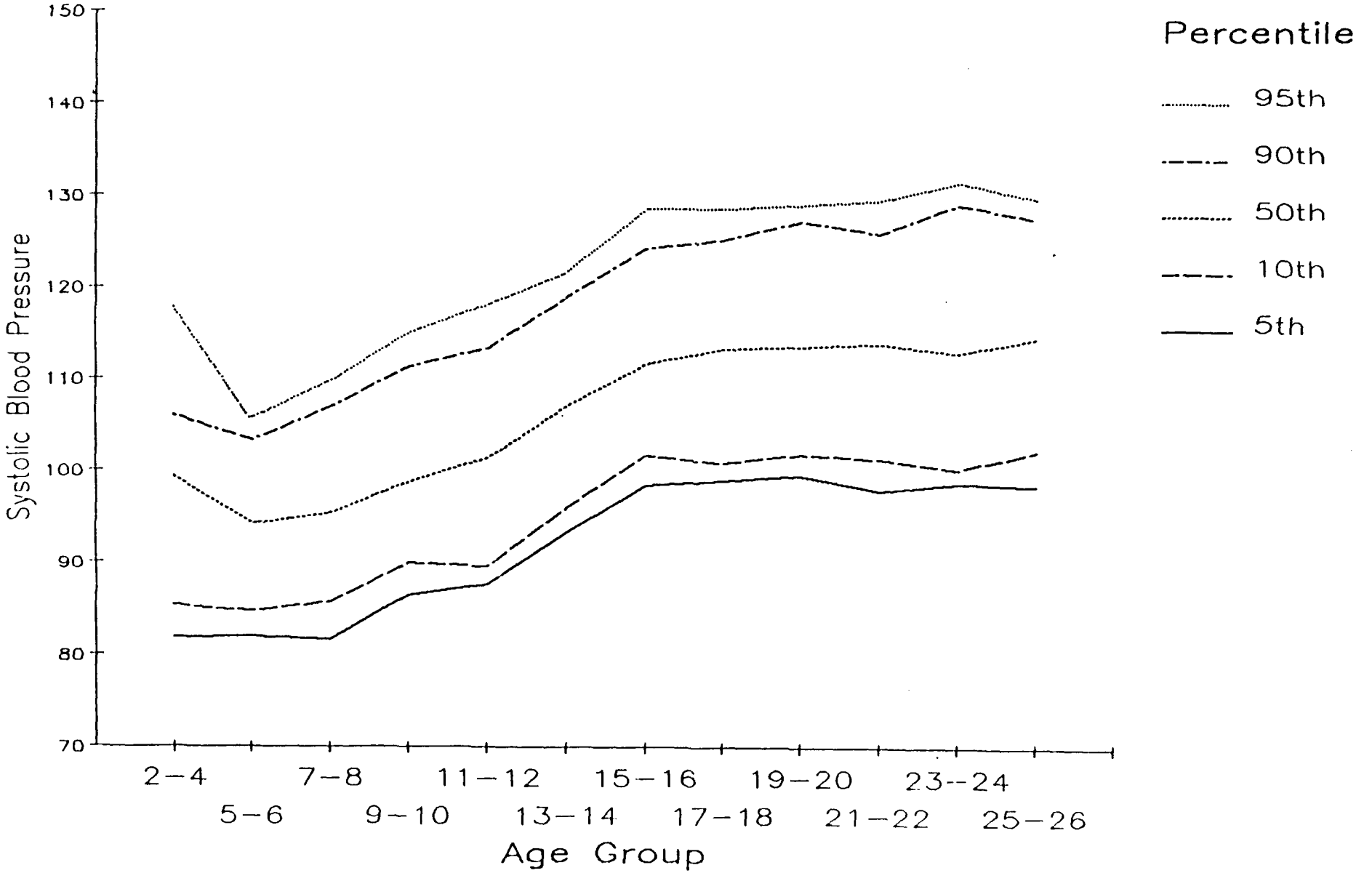
Grid 18 β-lipoprotein cholesterol by age



Grid 19 Pre-β-lipoprotein cholesterol by age

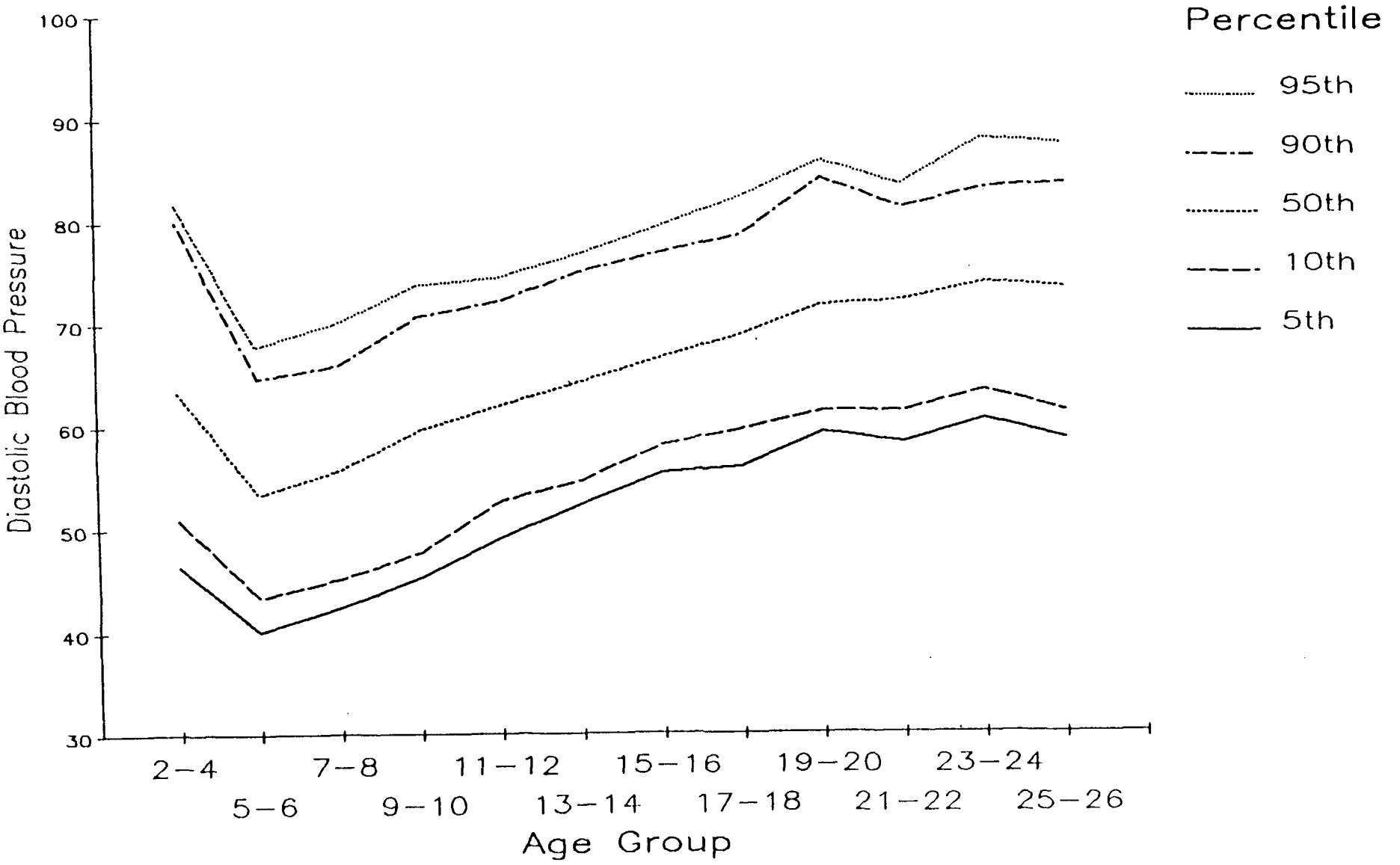


Selected Percentiles of Systolic Blood Pressure by Age Group
The Bogalusa Heart Study
WHITE MALES



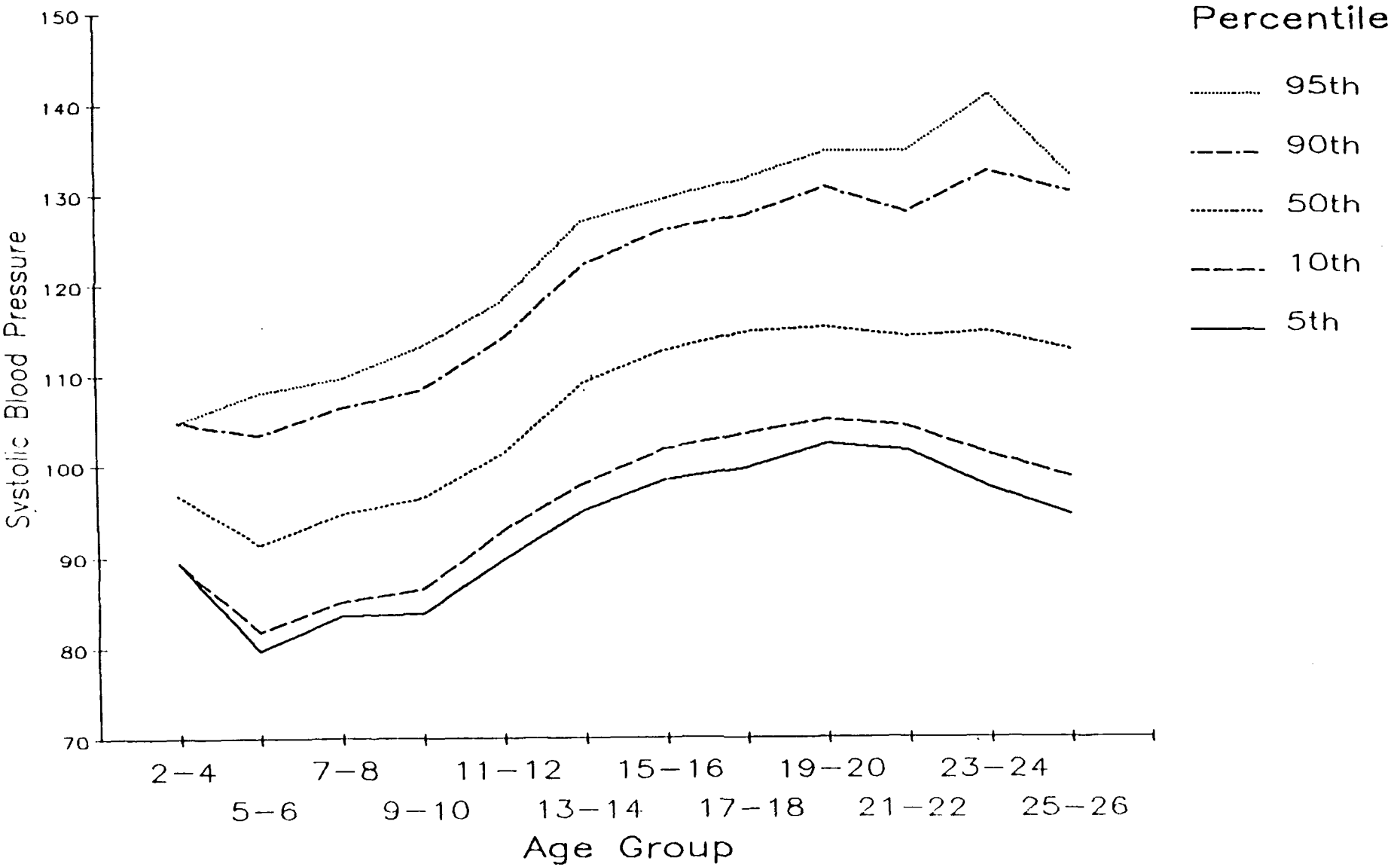
Selected Percentiles of Diastolic Blood Pressure by Age Group
The Bogalusa Heart Study

WHITE MALES



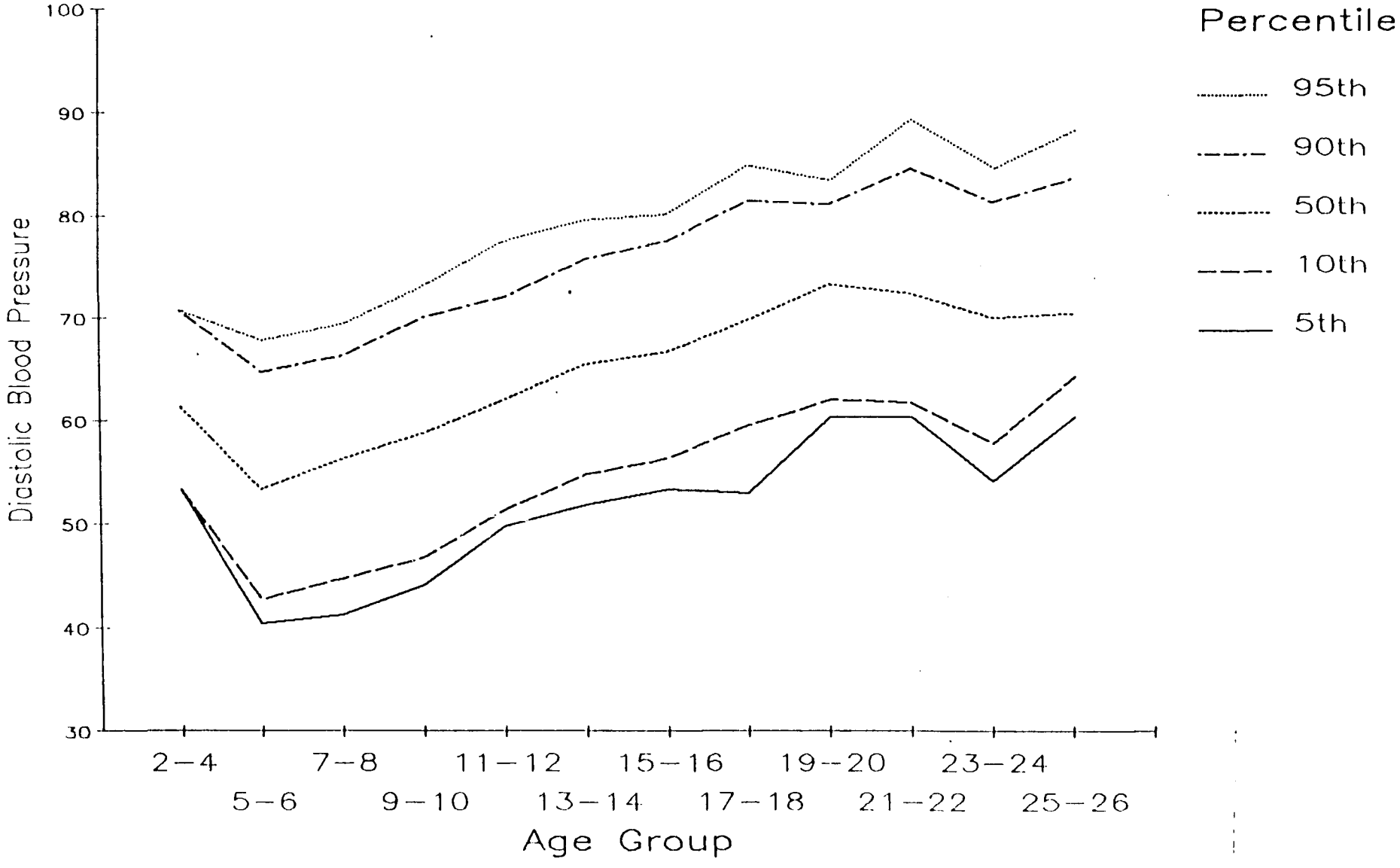
Selected Percentiles of Systolic Blood Pressure by Age Group
The Bogalusa Heart Study

BLACK MALES



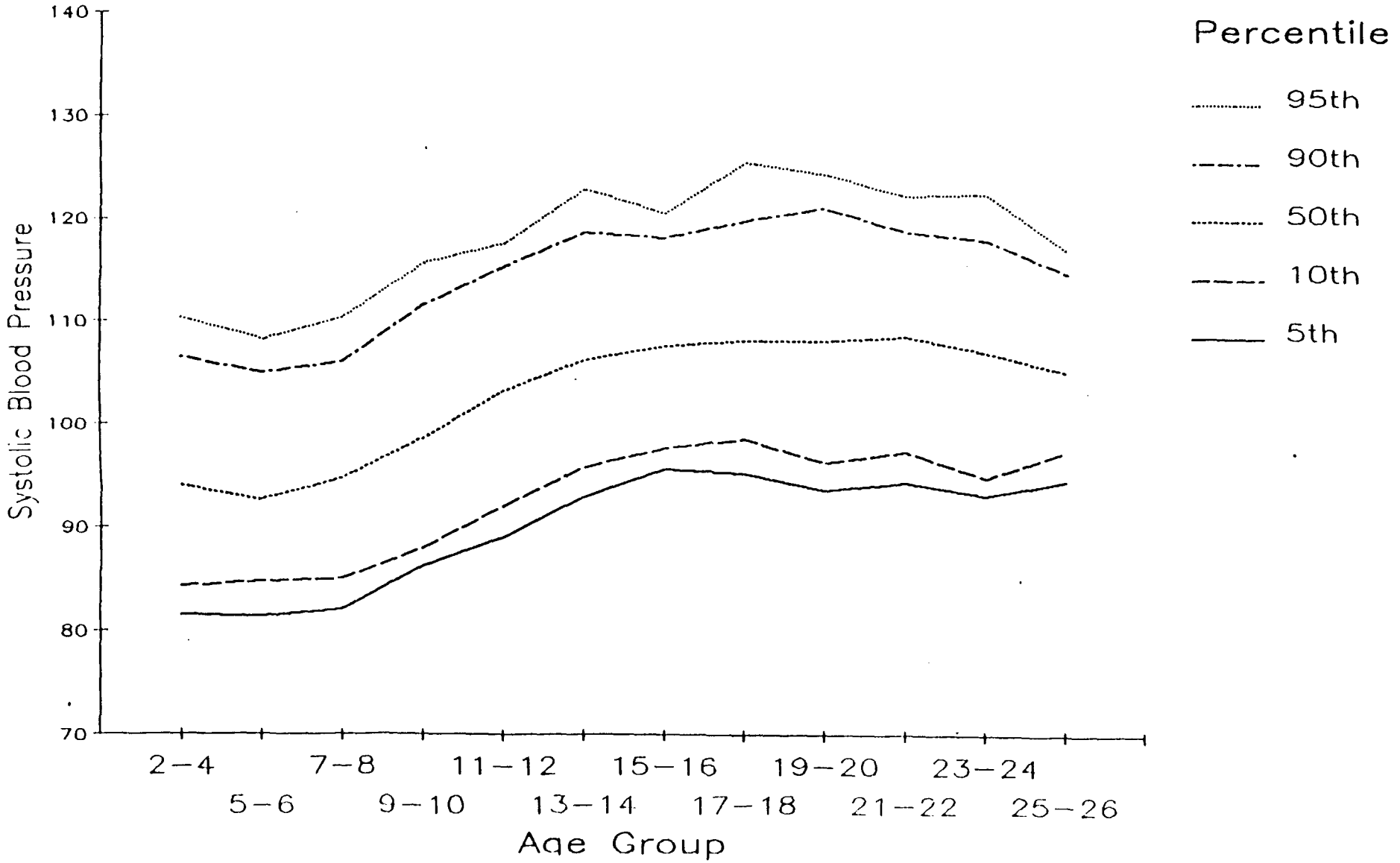
Selected Percentiles of Diastolic Blood Pressure by Age Group
The Bogalusa Heart Study

BLACK MALES



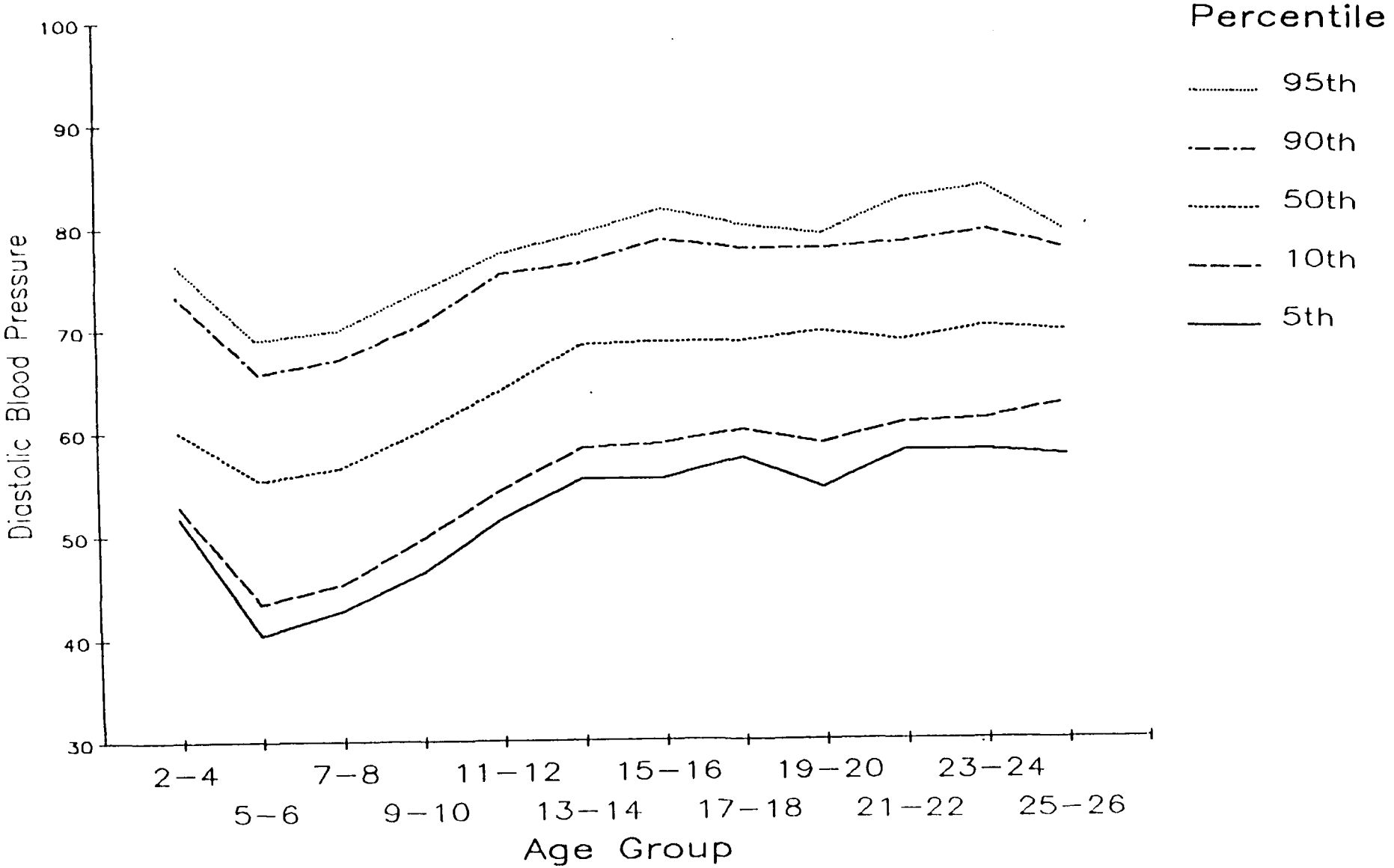
Selected Percentiles of Systolic Blood Pressure by Age Group
The Bogalusa Heart Study

WHITE FEMALES



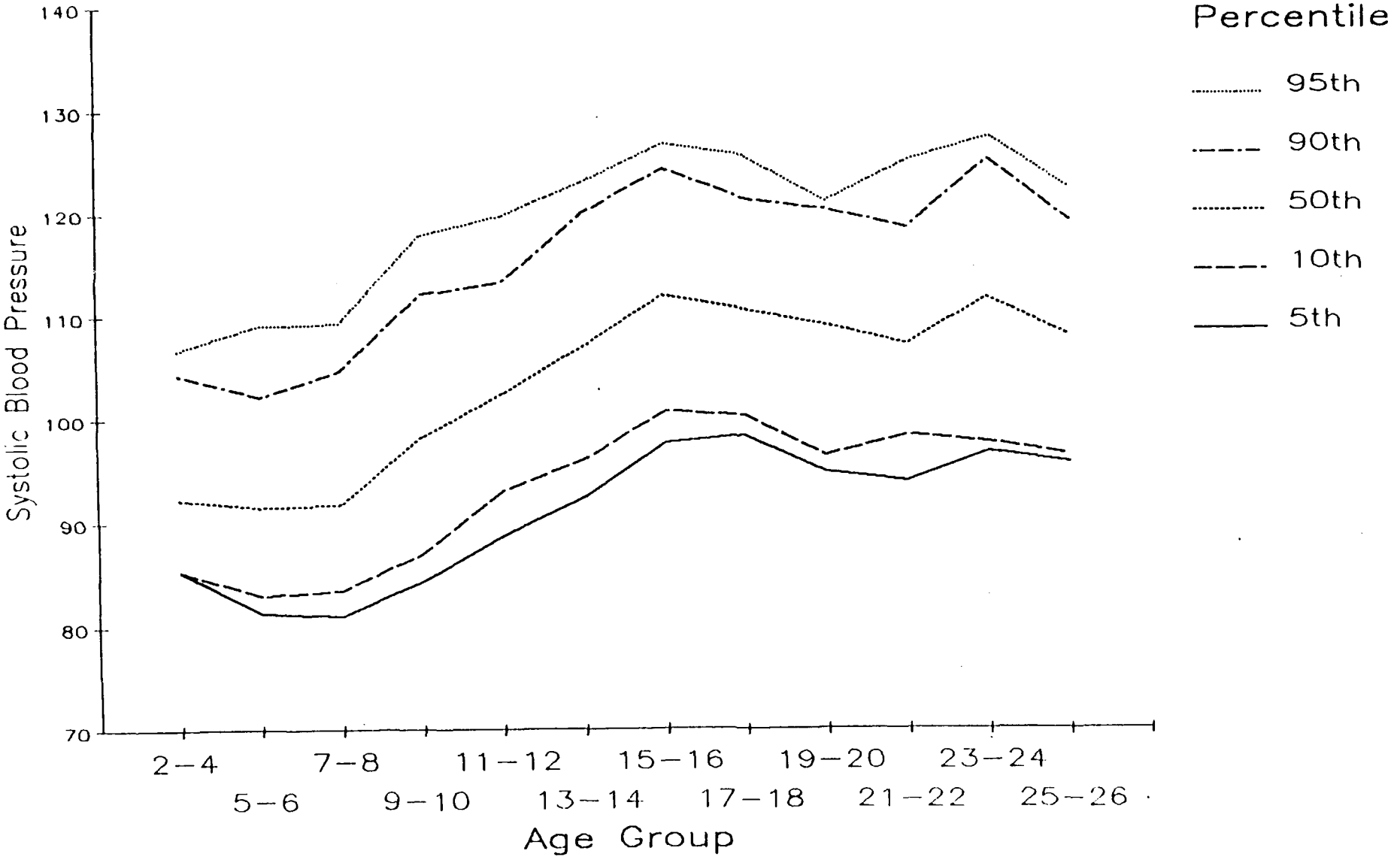
Selected Percentiles of Diastolic Blood Pressure by Age Group
The Bogalusa Heart Study

WHITE FEMALES



Selected Percentiles of Systolic Blood Pressure by Age Group
The Bogalusa Heart Study

BLACK FEMALES



Selected Percentiles of Diastolic Blood Pressure by Age Group
The Bogalusa Heart Study

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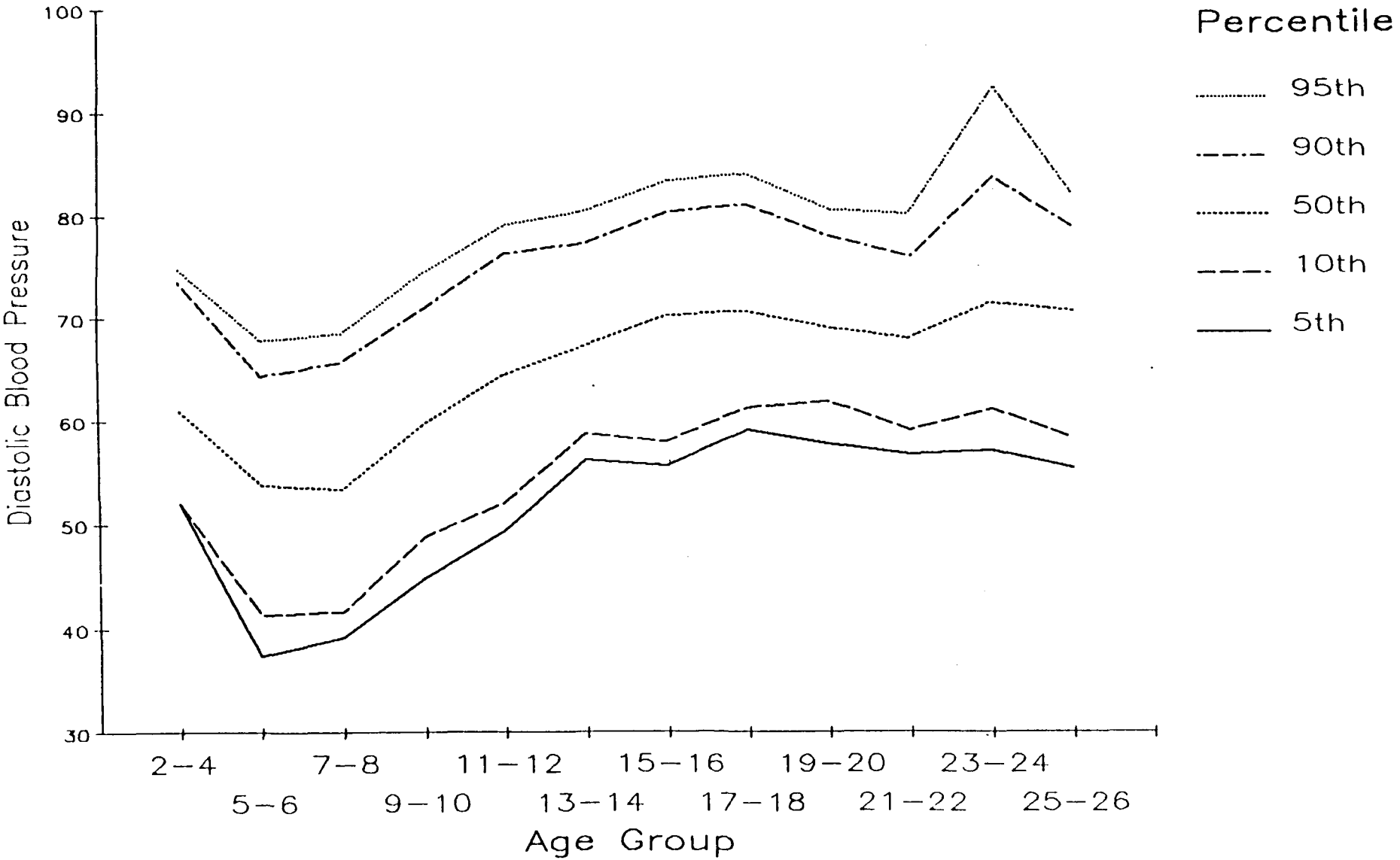
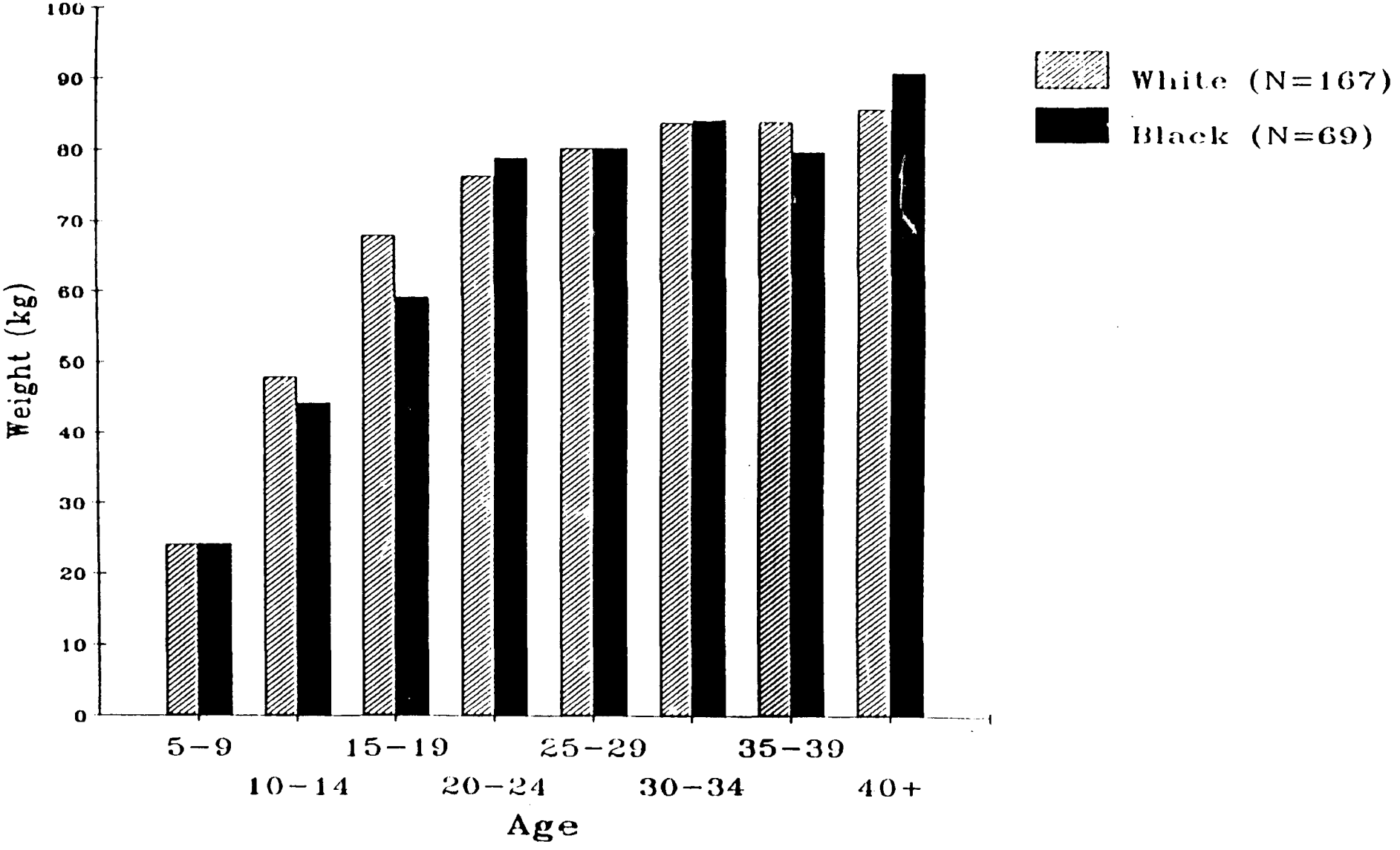
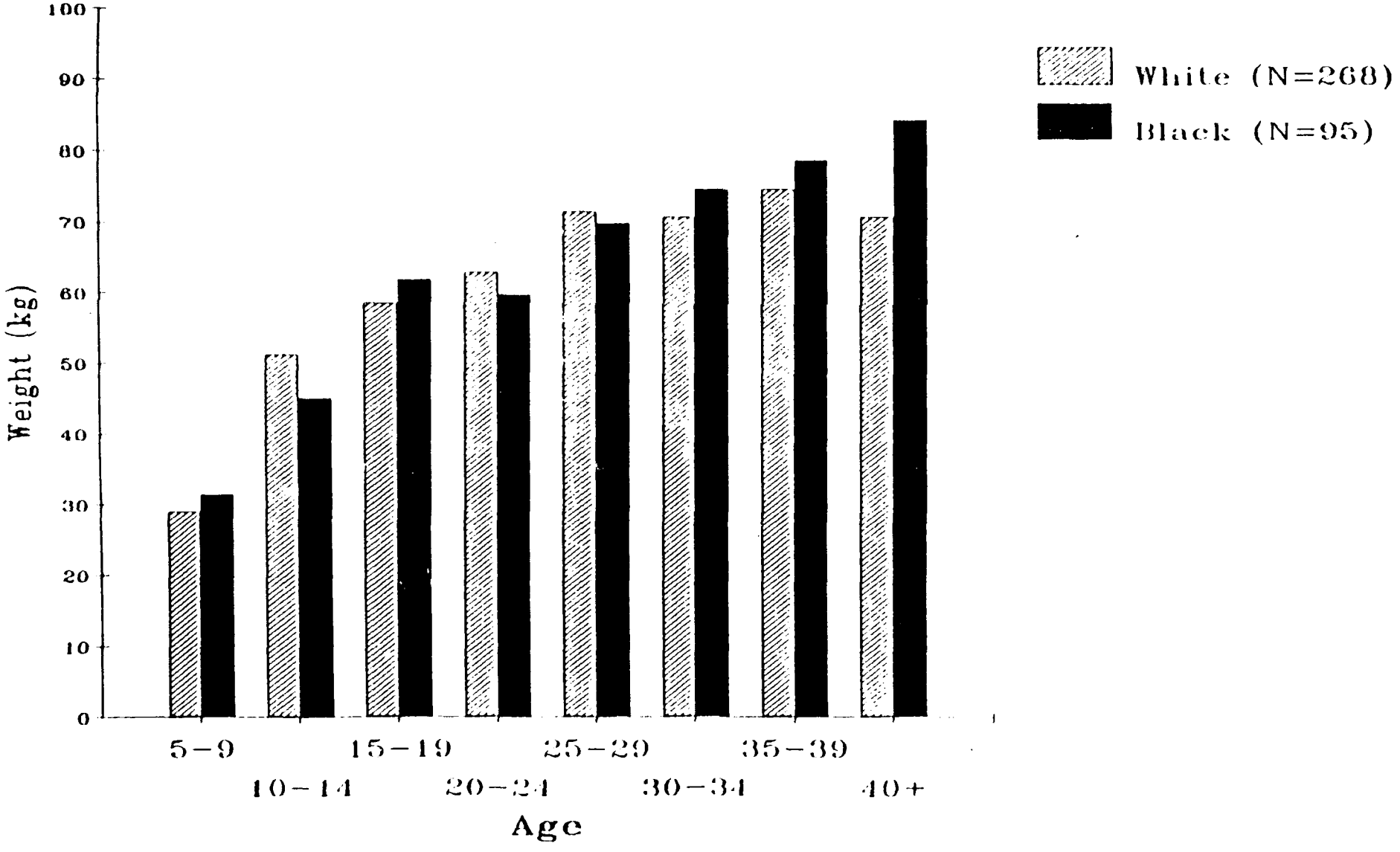


DESCRIPTIVE
~~NORMATIVE~~ DATA, FORT POLK

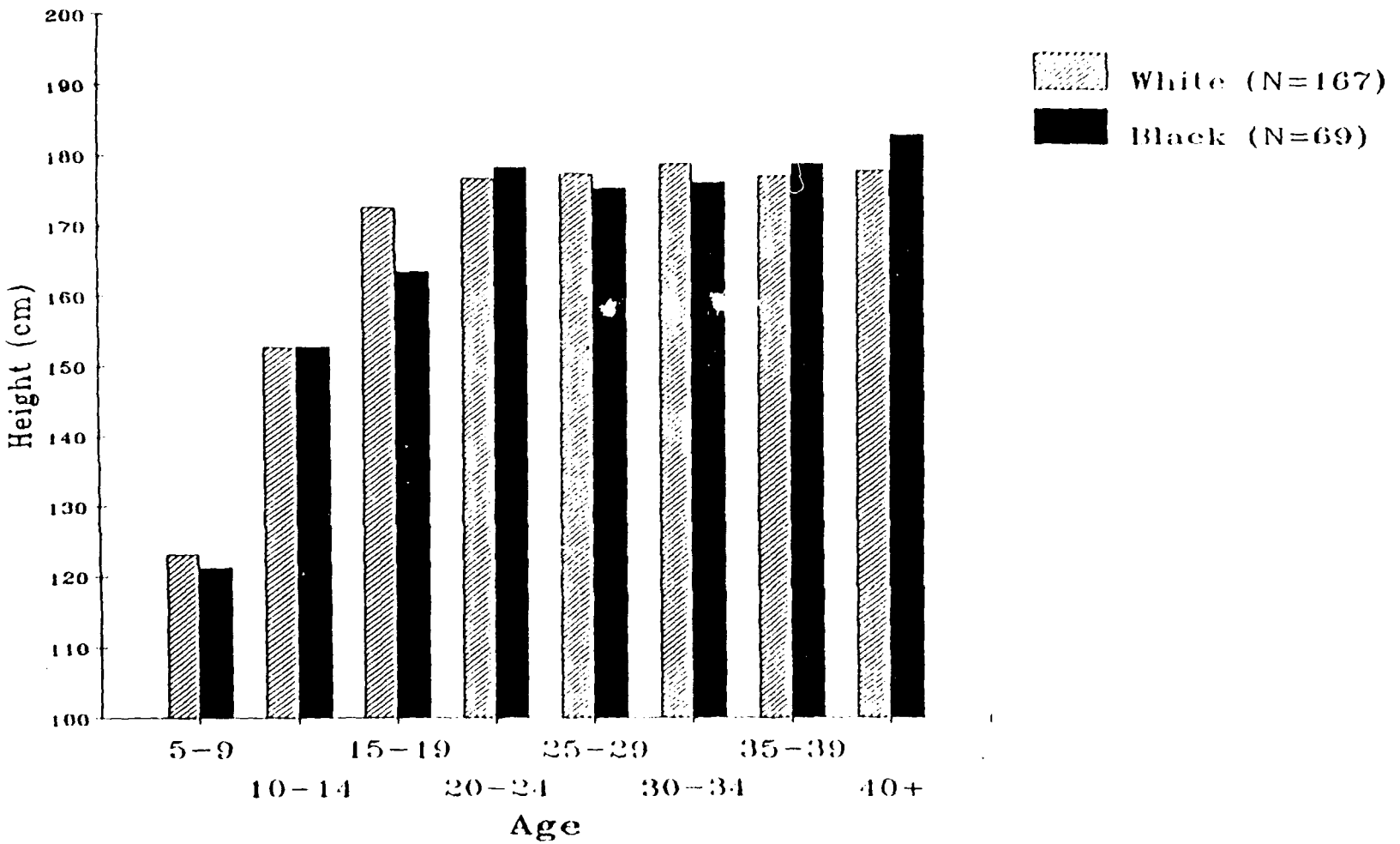
Weight by Age and Race
Fort Polk, Louisiana, 1989–1990
Males



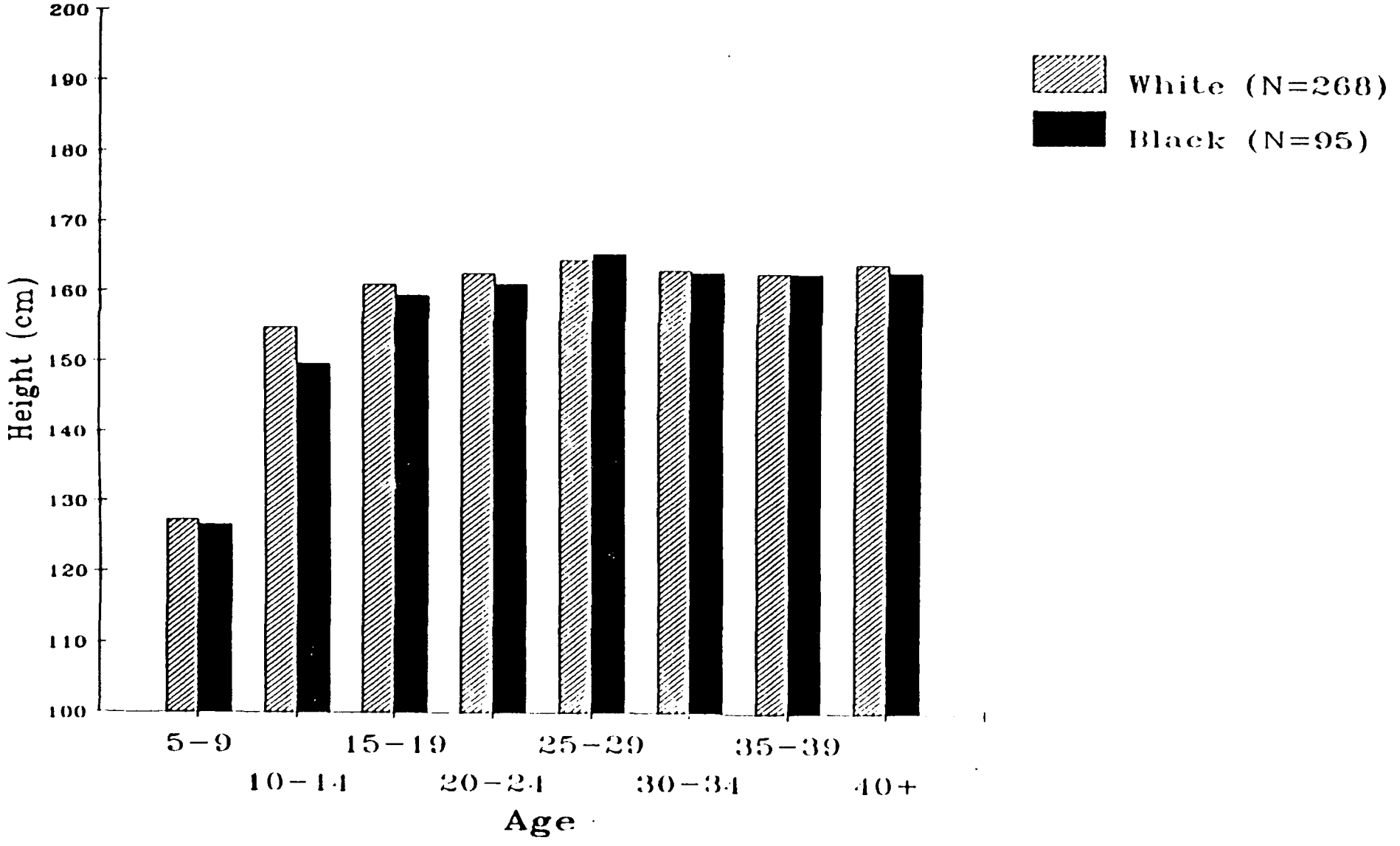
Weight by Age and Race
Fort Polk, Louisiana, 1989–1990
Females



Height by Age and Race
Fort Polk, Louisiana, 1989–1990
Males



Height by Age and Race
Fort Polk, Louisiana, 1989–1990
Females

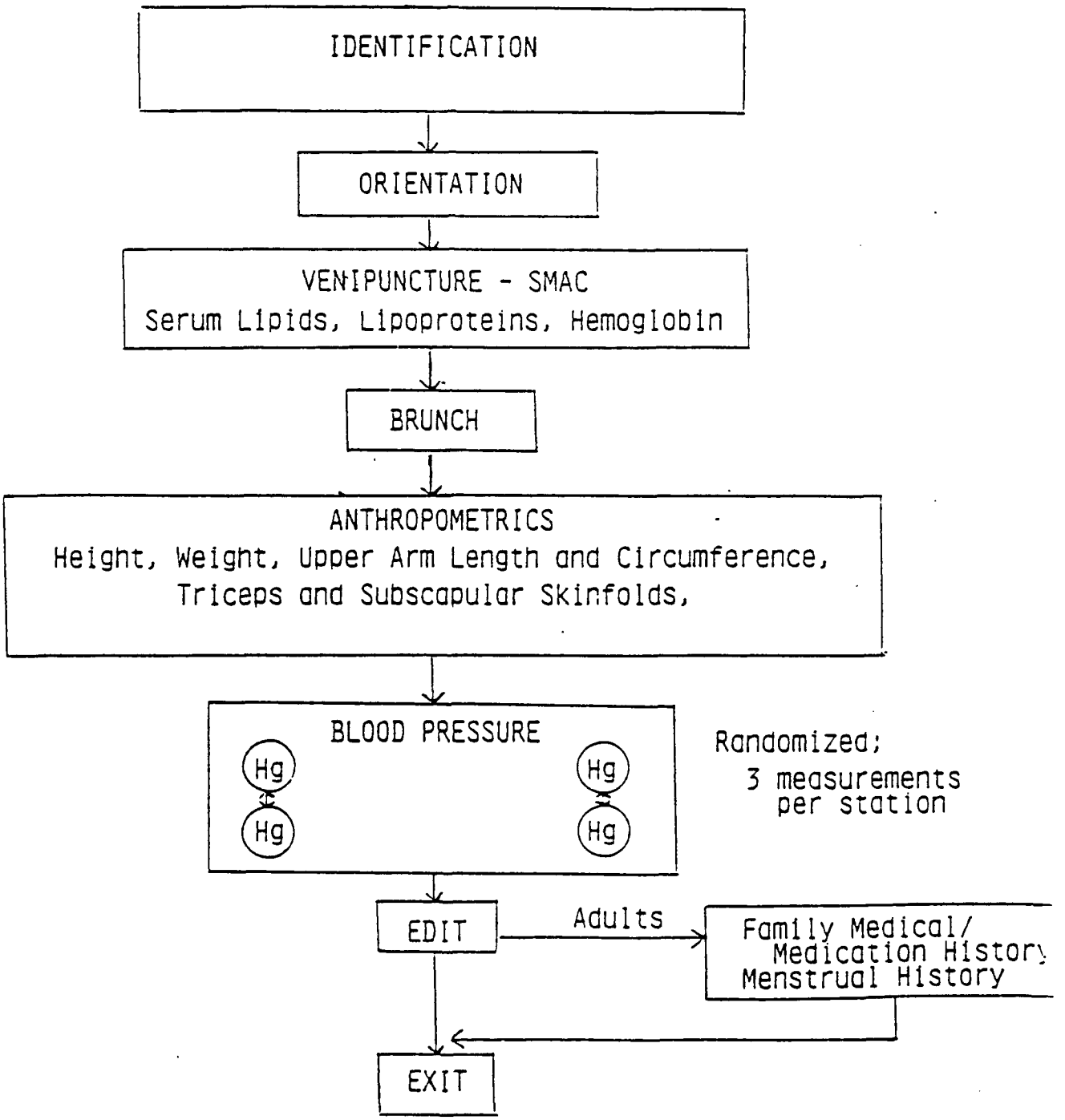


FLOW CHART

SCREENING FLOW FOR "HEART SMART" FAMILY HEALTH PROMOTION

NRDC-A

LSU Medical Center



BRUNCH INSTRUCTIONS

BRUNCH DISTRIBUTION

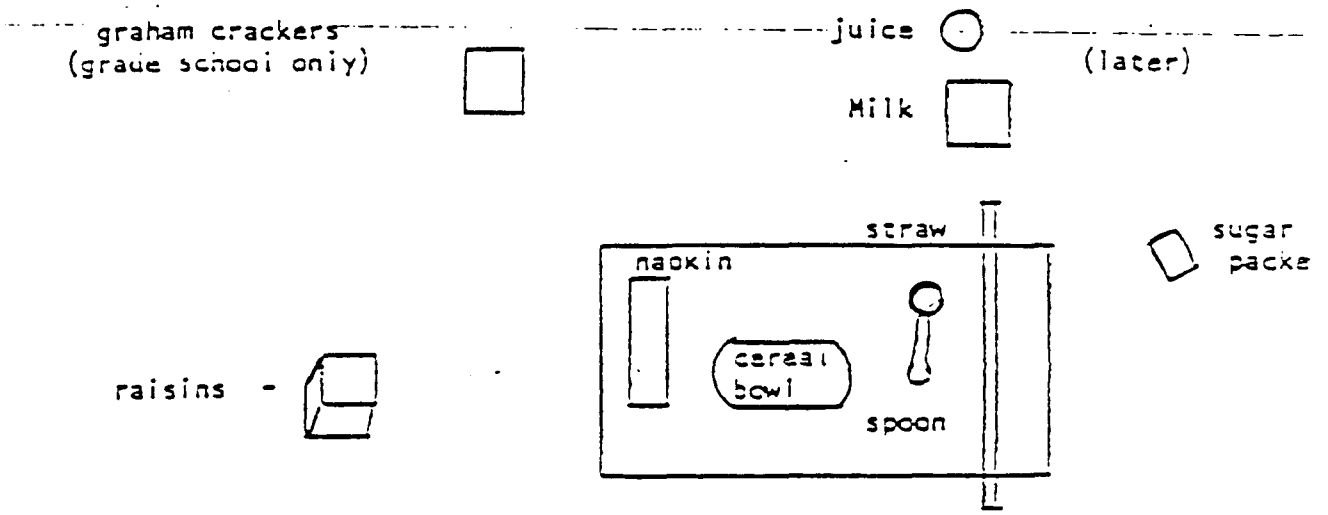
A. GENERAL INFORMATION

1. Milk will be delivered daily and stored in the refrigerator until distribution at brunch begins. If delivery for a particular screening day is not possible, the milk will be delivered the previous day and stored in the refrigerator. Milk can be kept there over the weekend if it can still be served before the expiration date. Milk remaining unused after the brunch on the last screening day each week is to be offered to the staff.
2. No fresh fruit will be served.
3. Milk, fruit juice cans, and cereal containers should not be opened until the screenee is seated and ready to eat. Milk should be stored in the ice chest until it is ready to serve. Fruit juice should be chilled.
4. A small bucket with a lid and a wet washcloth will be available at the brunch station in the event a screenee gets sick.
5. Always watch for screenee's facial color and signs of weakness. Be aware of the screenee's arm in case of excess bleeding after venipuncture. Alert the nurse in case there is a problem with bleeding.
6. At the end of each week a Nutritionist will monitor all brunch food and paper supplies. A perpetual inventory will be used as a guide to notify staff when supplies

must be re-ordered. Plan ahead so sufficient time is allowed to purchase supplies and transport them before they are needed. A minimum of two weeks should be allowed.

B. FLOW

1. All items except milk and juice can be arranged, for example.



2. Sugar, Sweet 'n Low, creamer and stir sticks should be placed in the middle of the table so screenees can use these items if desired. Find out what kind of fruit juice and cereal screenees prefer and serve appropriate items.

3. Second helpings of items allowed if requested.

1/4 pint, Grade A, lowfat milk
1 bowl, Corn flakes, Rice Krispies, or Special K
1 packet sugar
1 plastic spoon
1-1/2 oz. box of raisins
1 individually wrapped straw
6 fl. oz. juice (orange, apple, grape, or pineapple)
1 napkin, 1 placemat
1-2 graham crackers
1 packet Sweet 'n Low (optional)

C. GUIDELINES FOR BRUNCH SERVICE

1. Beverages

Offer a one-half pint carton of lowfat milk and/or fruit juice. Both are allowed. If a screenee becomes weak during venipuncture or when entering the brunch area, then offer juice immediately as a readily absorbed source of energy.

2. Graham Crackers

One package of graham crackers will be available for each screenee.

3. Fruit

Unsweetened orange, apple, grape, or pineapple juice and one box of raisins will serve as the fruit source.

4. Cereal

Offer individual boxes of cereal; three kinds are available.

5. Paper Goods

Straws, napkins, paper cups, spoons, and paper towels are available for use.

6. Coffee

Each morning prepare coffee for adults who are screened and staff members to drink during breaks. Set up supplies in the serving area consisting of coffee pot, styrofoam cups, sugar substitute, creamer, and 1/2 pint of milk to serve approximately 25 plus the number of screenees,

LSUMC
FORT FOLK HEART SMART
FORM FP1
BRUNCH SUPPLIES INVENTORY

Date	Amount in Stock	Amount to be Ordered	Date Order-Delivery	Amount Received	Price	Comments

RISK FACTOR SCREENING FEEDBACK LETTERS

FORT POLK HEART SMART PROJECT

EXAMINATION REPORT

Date of examination __ __/ __ __/ __ __
Mo. Day Yr.

LABEL

Age _____ years

Thank you for participating today in the Fort Polk Heart Smart screening for cardiovascular disease risk factors. Listed below are the results of your height, weight, skinfold and blood pressure measurements.

In New Orleans we will compare your measurements with medically accepted standards. As soon as your laboratory (blood) studies are ready (3-4 weeks), we will send you a copy of your results.

Once again, thank you for your cooperation.

MEASUREMENTS	YOUR VALUE
Height	_____ inches
Weight	_____ pounds
Triceps Skinfold	_____ mm
Systolic Blood Pressure	_____ mm Hg
Diastolic Blood Pressure	_____ mm Hg

The Clinical Chemistry tests are automatic laboratory analyses of blood. A very simple description of how these apply is included here.

For further discussion of your results, we suggest you contact your physician.

CALCIUM	a mineral, reflecting bone, kidney and hormone diseases
IN. PHOS. (inorganic phosphorus)	a salt, reflecting bone, kidney and hormone diseases.
GLUCOSE	diabetes mellitus
BUN (blood urea nitrogen)	kidney disease
URIC ACID	kidney disease and gout
CHOL (cholesterol)	blood lipid
T. PROTEIN (total protein)	nutrition and liver function
ALBUMIN	a protein, reflecting nutrition and liver function
ALK PHOS (alkaline phosphatase)	an enzyme, reflecting bone and liver disease
LDH	a blood enzyme, reflecting liver and heart disease
SGOT	a blood enzyme, reflecting liver and heart disease
SGPT	a blood enzyme, reflecting liver disease
GGT	a blood enzyme, reflecting liver disease
CREATININE	kidney disease
TRIG (triglycerides)	a blood lipid, reflecting diabetes and diet
SODIUM	a salt in blood and tissues
POTASSIUM	a salt in blood and tissues
CHLORIDE	a salt in blood and tissues
CO_2 (bicarbonate)	a blood gas, reflecting lung and metabolic diseases
GLOBULIN	a blood protein, reflecting immunologic diseases
A/G RATIO (albumin/ globulin ratio)	blood proteins, reflecting liver and kidney function
BUN/CREAT	kidney disease

FORT POLK HEART SMART PROJECT

Health Promotion
for Military Families

National Center for Cardiovascular Health
Louisiana State University
Medical Center
1542 Tulane Avenue
New Orleans, La. 70112-2822
Telephone: (504) 568-5845

United States Army
Fort Polk, Louisiana

Pennington Biomedical
Research Center

Louisiana State University
Medical Center

Dear

Thank you for participating in the Fort Polk Heart Smart Project. Enclosed are the results of your blood tests. We suggest that you keep this information with your other medical records and those that we gave you during screening (including blood pressure, height, weight, and skinfold measurements).

POSSIBLE ABNORMAL RISK FACTORS for which further study may be needed are:

We have notified your physician, _____, of any abnormalities and suggest you discuss them with your physician for a more detailed medical interpretation.

WE APPRECIATE YOUR PARTICIPATION AND HELP IN MAKING THE FORT POLK HEART SMART PROJECT A SUCCESS.

Sincerely,

Gerald S. Berenson, M.D.
Professor of Medicine

CSB/prc

FORT POLK HEART SMART PROJECT

Health Promotion
for Military Families

National Center for Cardiovascular Health
Louisiana State University
Medical Center
1542 Tulane Avenue
New Orleans, La. 70112-2822
Telephone: (504) 568-5845

United States Army
Fort Polk, Louisiana

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Research Center

Louisiana State University
Medical Center

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POSSIBLE ABNORMAL RISK FACTORS for which further study may be needed are:

Somewhat high level of LDL cholesterol subfraction. No physician's letter, but you may wish to be retested within a year.

We have notified your physician, _____, of any abnormalities and suggest you discuss them with your pnysician for a more detailed medical interpretation.

WE APPRECIATE YOUR PARTICIPATION AND HELP IN MAKING THE FORT POLK HEART SMART PROJECT A SUCCESS.

Sincerely,

Gerald S. Berenson, M.D.
Professor of Medicine

GSB/prc

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Dear

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POSSIBLE ABNORMAL RISK FACTORS for which further study may be needed are:

All tests within normal ranges.

We have notified your physician, _____, of any abnormalities and suggest you discuss them with your phnysician for a more detailed medical interpretation.

WE APPRECIATE YOUR PARTICIPATION AND HELP IN MAKING THE FORT POLK HEART SMART PROJECT A SUCCESS.

Sincerely,

Gerald S. Berenson, M.D.
Professor of Medicine

GSB/prc

DATA PACK

IDENTIFICATION

FORT POLK HEART SMART PROJECT

)R-A

SCHEDULE A - IDENTIFICATION

COLUMN	CODE	ITEM
1-4	LABEL	
5-9		
10-11	0 1	
12-39	_____/ _____/ _____ LAST / FIRST / MAIDEN (30-39)	NAME
40	[1] MALE [2] FEMALE	SEX
41	[1] WHITE [2] BLACK [3] HISPANIC [4] ASIAN [5] OTHER	RACE
42-47	__/__/__ MO / DAY / YR	DATE OF BIRTH
48-68	_____/ _____ ___ (48-52) NO. / (53-65) STREET OR BOX / (66-68) CITY CODE	CURRENT HOME ADDRESS, CITY CODE
10-12	0 2	CARD NUMBER
13-34	_____/ ____ ___/ _____ CITY (13-27) / ST. E (28-29) / ZIP CODE (30-34)	LOCATION
35	[1] ON POST [2] OFF POST	CURRENTLY LIVE ON POST OR OFF POST
36-42	___/____ [9999999] UNK	HOME TELEPHONE

HEALTH HISTORY

FORT POLK HEART SMART PROJECT

LABEL

SCOR-A
HEALTH HISTORY

CONFIDENTIAL: The following questions ask about the health history of you and your parents. Please answer carefully. Please answer ALL the questions. Thank you. Remember, all of this information will be kept strictly CONFIDENTIAL.

1. Are you now taking any of these medicines? (Please circle YES or NO)

	[3]	[1]	[9]
Insulin	YES	NO	DON'T KNOW
Penicillin or any 'Mycin'	YES	NO	DON'T KNOW
Heart (cardiac) medicine	YES	NO	DON'T KNOW
Medicine for convulsions (fits)	YES	NO	DON'T KNOW
Oral Contraceptives (birth control)	YES	NO	DON'T KNOW
Blood Pressure Medicine	YES	NO	DON'T KNOW

2. Please circle the illnesses below which your TRUE MOTHER has had in the past.

High Blood Pressure	YES	NO	DON'T KNOW
Heart Attack	YES	NO	DON'T KNOW
Stroke	YES	NO	DON'T KNOW
Sugar Diabetes	YES	NO	DON'T KNOW
Tumor or Cancer	YES	NO	DON'T KNOW

3. Is your TRUE MOTHER alive? (Please circle).

   a) YES--How old is she? __ __

   b) NO--How old was she when she died? __ __

      What was the cause of her death? _____

4. Please circle the illnesses below which your TRUE FATHER has had in the past.

High Blood Pressure	YES	NO	DON'T KNOW
Heart attack	YES	NO	DON'T KNOW
Stroke	YES	NO	DON'T KNOW
Sugar Diabetes	YES	NO	DON'T KNOW
Tumor or Cancer	YES	NO	DON'T KNOW

5. Is your TRUE FATHER alive? (Please circle).

   a) YES--How old is he? __ __

   b) NO--How old was he when he died? __ __

      What was the cause of his death? _____

VENIPUNCTURE

FORT POLK HEART SMART PROJECT

SCOR-A
SCHEDULE B - VENIPUNCTURE

COLUMN	CODE	ITEM
1-4	LABEL	
5-9		
10-11	0 4	CARD NUMBER
12-17	__/__/__ MO DAY YR	DATE OF EXAMINATION
18-22	__/__ __ __ [ ] AM [ ] PM HR MIN	TIME BLOOD SAMPLE DRAWN
23-27	__/__ __ __ [ ] AM [ ] PM HR MIN	HOUR OF LAST FOOD INTAKE
		Since 9 PM last night, did you drink any of the following liquids?
28	[1] NO [3] YES [9] UNK	MILK
29	[1] NO [3] YES [9] UNK	COFFEE OR TEA
30	[1] NO [3] YES [9] UNK	FRUIT JUICE
31	[1] NO [3] YES [9] UNK	SODA POP
32	[1] NO [3] YES [9] UNK	BEER OR ALCOHOL
33	[1] NO [3] YES [9] UNK	WATER
34	[1] NO [3] YES [9] UNK	FASTING SAMPLE?
35	[1] NO [3] YES [9] UNK	BLOOD SAMPLE DRAWN
		QUANTITY SUFFICIENT
36	[1] NO [3] YES [9] UNK	FIRST RED TOP TUBE
37	[1] NO [3] YES [9] UNK	SECOND RED TOP TUBE
38-40		EXAMINER'S CODE NUMBER

MENSTRUAL HISTORY

FORT POLK HEART SMART PROJECT

LSUMC

SCHEDULE C - MENSTRUAL HISTORY

ITEM	COLUMN	CODE
	1-4 5-9 10-11	LABEL 0 5
		NO YES
1. Have you ever had a menstrual period?	12	[1] [3]
2. When did you have your first period?	13-16	__/__ (MO / YR) (if data unknown code 9999 in data field)
3. Are you still having periods?	17	[1] NO [3] YES [9] UNCERTAIN OR UNKNOWN
4. If yes, give first day of your last menstrual period.	18-23	__/__/__ (MO / DAY / YR)
5. Are you now taking any pills to regulate your period or any kind of hormone or birth control pill?	24	[1] NO [3] YES [9] UNCERTAIN OR UNKNOWN
6. If yes, give brand name. _____	25-26	__
7. Have you had a hysterectomy?	27	[1] NO [3] YES [9] UNCERTAIN OR UNKNOWN
8. If yes, have you:	28	[1] Had uterus (womb) and both ovaries removed? [2] Had uterus (womb) only removed? [9] Unknown
9. Are you taking medication that stops your period?	29	[1] NO [3] YES [9] UNCERTAIN OR UNKNOWN
10. Are you now pregnant?	30	[1] NO [3] YES [9] UNCERTAIN OR UNKNOWN
11. If yes, how many months?	31-32	__ MONTHS
12. Are you breast feeding?	33	[1] NO [3] YES [9] UNCERTAIN OR UNKNOWN
13. If yes, are you	34	[1] giving only breast milk? [3] giving formula part of the time?
INTERVIEW CODE NUMBER	35-37	__ __ __

MEDICATION HISTORY

SCOR-A

SCHEDULE D - MEDICATION-1

ITEM	COLUMN	CODE
	1-4	
	5-9	LABEL
	10-11	0 6
1. Do you have diabetes?	12	[1] NO [3] YES [9] UNCERTAIN OR UNK
2. If yes, what medicine do you take?	13	[1] NONE [2] ORAL AGENT (e.g. Orinase, Diabinese, Phenformin) [3] INSULIN [4] BOTH INSULIN AND AN ORAL AGENT [5] UNCERTAIN OR UNKNOWN
3. Are you taking hormones (Premarin, Prednisone, etc.) other than oral contraceptives?	14	[1] NO [3] YES [9] UNCERTAIN OR UNK
4. If yes, what kind? _____	15-16	__ __ [99] UNCERTAIN OR UNKNOWN
5. Have you ever been treated for hypertension (high blood pressure)?	17	[1] NO [3] YES [9] UNCERTAIN OR UNK
6. If yes, how were you treated? (Mark as many as needed).	18	TRANQUILIZER PILLS [1] NO [3] YES
	19	HIGH BLOOD PRESSURE PILLS [1] NO [3] YES
	20	LOW SALT DIET [1] NO [3] YES
	21	WEIGHT REDUCTION [1] NO [3] YES
	22	EXERCISE [1] NO [3] YES
	23	OTHER TREATMENT, WHAT KIND? [1] NO [3] YES
7. Have you ever been treated for a thyroid disorder?	24	[1] NO [3] YES [9] UNCERTAIN OR UNK
8. If yes, were you treated for hypothyroidism (underactive thyroid) or hyperthyroidism (overactive thyroid)?	25	[1] HYPOTHYROID [2] HYPERTHYROID [3] BOTH 1 AND 2 [9] UNCERTAIN OR UNKNOWN

FORT POLK HEART SMART PROJECT

SCOR-A

SCHEDULE D - MEDICATION-2

ITEM	COLUMN	CODE
9. Are you presently on any medication for lowering your serum cholesterol?	26	[1] NO [3] YES [9] UNCERTAIN OR UNK
10. If yes, which ones? (Mark as many as needed).	27	QUESTRAN (Cholestyramine) [1] NO [3] YES
	28	COLESTID (Colestipol) [1] NO [3] YES
	29	LOPID (Gemfibrozil) [1] NO [3] YES
	30	ATROMID-S (Clofibrate) [1] NO [3] YES
	31	NICOBID, NICO-SPAN (Niacin) [1] NO [3] YES
	32	LORELCO (Probecol) [1] NO [3] YES
	33	MEVACOR (Lovastatin) [1] NO [3] YES
	34	OTHER CHOLESTEROL-LOWERING MEDICINE - [1] NO [3] YES [9] UNCERTAIN OR UNK WHAT KIND? _____
11. Have you taken any of the following in the past 30 days?		NO YES UNKNOWN
	35	1.....3.....9.....ANDROGENS, ANABOLIC AGENTS?
	36	1.....3.....9.....MEDICINE FOR THYROID DISORDERS?
	37	1.....3.....9.....CORTISONE, PREDNISONE ACTH, PREDNISOLONE, DECADRAN (Cortico-steroids)?
12. During the past year, have you been treated for any serious illness?	38	[1] NO [3] YES [9] UNCERTAIN OR UNK
13. If yes, what kind of illness? _____	39-40	__ __ [99] UNCERTAIN OR UNKNOWN
INTERVIEWER'S CODE	41-43	__ __ __

ANTHROPOMETRIC ASSESSMENT

FORT POLK HEART SMART PROJECT

SCOR-A
SCHEDULE E - ANTHROPOMETRIC

COLUMN	CODE	ITEM
1-4		
5-9	LABEL	
10-11	0 7	
		HEIGHT (Nearest 1/10 CM)
12-15	.	FIRST READING
16-19	.	SECOND READING
		WEIGHT (Nearest 1/10 KG)
20-25	+ .	FIRST READING
26-31	+ .	SECOND READING
32-34		HEIGHT EXAMINER'S CODE
35-37		WEIGHT EXAMINER'S CODE
	SUBSCAPULAR TRICEPS	SKINFOLD (Nearest MM)
	RT LT UNK RT LT UNK	SIDE MEASURED (Prefer Right)
38-39	[1] [2] [9] [1] [2] [9]	
40-43		FIRST READING
44-47		SECOND READING
48-51		THIRD READING
52-54		SKINFOLD EXAMINER

BLOOD PRESSURE (1)

SCOR-A

SCHEDULE H1 - BLOOD PRESSURE - 1

COLUMN	CODE	ITEM
1-4	LABEL	
5-9		
10-11	0 8	
12-14	.	RIGHT UPPER ARM LENGTH (CM)
15-17	.	RIGHT UPPER ARM CIRCUM. (CM)
18	L [1] A [2] M [3] T [4]	CUFF SIZE SELECTED (Circle One)
19	1 Calm, 2 Alert, 3 Crying, 4 Hypoactive, 5 Hyperactive, 6 Lethargic, 7 Irritable, 8 Excessively Frightened	PHYSICAL BEHAVIOR (Circle One Number)
X	. BLOOD PRESSURE (RIGHT UPPER ARM, NEAREST EVEN MM OF HG)	
20	L [1] A [2] M [3] T [4]	CUFF SIZE USED (Circle One)
X	1 4 5	PHASE
21-29	/ -	FIRST READING
30-38	/ -	SECOND READING
39-47	/ -	THIRD READING
48	1 2 3 4 5 6	STATION (Circle One Number)
49		AUTO. INSTR. NUMBER
50	Left 1, Right 2, Unk. 9	ARM USED (Circle One Number)
51-53		EXAMINER'S CODE NUMBER

BLOOD PRESSURE (2)

SCOR-A
SCHEDULE H2 - BLOOD PRESSURE - 2

COLUMN	CODE	ITEM
1-4	LABEL	
5-9		
10-11	0 9	
12-14	.	RIGHT UPPER ARM LENGTH (CM)
15-17	.	RIGHT UPPER ARM CIRCUM. (CM)
18	L [1] A [2] M [3] T [4]	CUFF SIZE SELECTED (Circle One)
19	1 Calm 2 Alert 3 Crying 4 Hypoactive 5 Hyperactive 6 Lethargic 7 Irritable 8 Excessively Frightened	PHYSICAL BEHAVIOR (Circle One Number)
	BLOOD PRESSURE (RIGHT UPPER ARM, NEAREST EVEN MM OF HG)	
20	L [1] A [2] M [3] T [4]	CUFF SIZE USED (Circle One)
	1 4 5	PHASE
21-29	/ -	FIRST READING
30-38	/ -	SECOND READING
39-47	/ -	THIRD READING
48	1 2 3 4 5 6	STATION (Circle One Number)
49		AUTO. INSTR. NUMBER
50	Left 1 Right 2 Unk. 9	ARM USED (Circle One Number)
51-53		EXAMINER'S CODE NUMBER

PHYSICAL ACTIVITY

LEISURE TIME PHYSICAL ACTIVITY

			1-4
			5-9
		1 1	10-11

In the past month, how often did you walk a mile or more at a time without stopping? 12-14

_____ times number per
1. ☐ day
2. ☐ week
3. ☐ month

☐ NEVER

The next questions are about your leisure time physical activity during the past month. We are interested in the following exercises, sports, or physically active hobbies that you might have done in the past month.

In the past month did you...		In the past month how often did you...	
1. jog or run?	1 ☐ YES if yes →	_____ times number per 1. ☐ day 2. ☐ week 3. ☐ month	15-18
	2 ☐ NO		
2. ride a bicycle or an exercise bike?	1 ☐ YES if yes →	_____ times number per 1. ☐ day 2. ☐ week 3. ☐ month	19-22
	2 ☐ NO		
3. swim?	1 ☐ YES if yes →	_____ times number per 1. ☐ day 2. ☐ week 3. ☐ month	23-26
	2 ☐ NO		
4. do aerobics or aerobic dancing?	1 ☐ YES if yes →	_____ times number per 1. ☐ day 2. ☐ week 3. ☐ month	27-30
	2 ☐ NO		
5. do other dancing?	1 ☐ YES if yes →	_____ times number per 1. ☐ day 2. ☐ week 3. ☐ month	31-34
	2 ☐ NO		

LEISURE TIME PHYSICAL ACTIVITY

In the past month did you...		In the past month how often did you...	
6. do calisthenics?	1 ☐ YES if yes → 2 ☐ NO	____ times number per 1. ☐ day 2. ☐ week 3. ☐ month	35-38
7. garden or do yard work?	1 ☐ YES if yes → 2 ☐ NO	____ times number per 1. ☐ day 2. ☐ week 3. ☐ month	39-42
8. lift weights?	1 ☐ YES if yes → 2 ☐ NO	____ times number per 1. ☐ day 2. ☐ week 3. ☐ month	43-46

How does the amount of activity that you reported for the past month compare with your physical activity for the past 12 months? During the past month, were you more active, less active, or about the same?	1 ☐ more active 2 ☐ less active 3 ☐ about the same 4 ☐ don't know	47
Compared with most people your age and sex, would you say that you are more active, less active, or about the same?	1 ☐ more active 2 ☐ less active 3 ☐ about the same 4 ☐ don't know	48
Compared with yourself 10 years ago, would you say that you are more active now, less active now, or about the same?	1 ☐ more active 2 ☐ less active 3 ☐ about the same 4 ☐ don't know	49

SMOKING

FORT POLK HEART SMART PROJECT

HEALTH HABITS QUESTIONNAIRE

	LABEL	1 4	1-4 5-9 10-11

An important health habit related to cardiovascular disease is cigarette smoking. We would like to ask you some questions about your cigarette smoking history.

DO NOT WRITE IN THIS SPACE

CIRCLE THE NUMBER NEXT TO THE STATEMENT THAT MOST CLOSELY DESCRIBES YOUR CIGARETTE SMOKING HISTORY. CIRCLE ONE NUMBER ONLY.

12

I SMOKE AT LEAST ONE CIGARETTE A WEEK. ---- 1 --- GO TO THE BLUE PAGE

I USED TO SMOKE AT LEAST ONE CIGARETTE A WEEK. ---------- 2 --- GO TO THE GREEN PAGE

I HAVE TRIED CIGARETTES A FEW TIMES, BUT I DO NOT SMOKE NOW. ---------- 3 --- GO TO THE YELLOW PAGE

I SMOKE LESS THAN ONE CIGARETTE A WEEK. ---------- 4 --- GO TO THE YELLOW PAGE

I HAVE NEVER SMOKED A CIGARETTE. ---------- 5 --- GO TO THE YELLOW PAGE

CONFIDENTIAL

IMPORTANT: MAKE SURE YOU HAVE CIRCLED THE NUMBER NEXT TO THE STATEMENT THAT BEST DESCRIBES YOUR CIGARETTE SMOKING HISTORY. CIRCLE ONE NUMBER ONLY.

FORT POLK HEART SMART PROJECT

HEALTH HABITS QUESTIONNAIRE

	DO NOT WRITE IN THIS SPACE
2. If you smoke <u>at least</u> one cigarette a week...	
Do you inhale the smoke? *Circle number.*	
1 YES	
2 SOMETIMES	13
3 NO	
4 I DON'T KNOW	
How old were you when you started to smoke at least once a week?	
_____AGE	14-15
How many years have you been smoking cigarettes?	
_____YEARS	16-17
How many cigarettes do you smoke in a week?	
_____NUMBER IN A WEEK	18-20
Do you smoke cigarettes every day? *Circle number.*	
1 YES	21
2 NO	
What brand of cigarettes do you usually smoke?	
_____ __ __	22-23
GO TO THE YELLOW PAGE	

CONFIDENTIAL

3. If you used to smoke at least one cigarette a week...

Did you inhale the smoke? *Circle number.*

1 YES
2 SOMETIMES
3 NO
4 I DON'T KNOW OR DON'T REMEMBER

DO NOT WRITE IN THIS SPACE

24

How old were you when you stopped smoking at least one cigarette a week?

_____AGE 25-26

How many years did you smoke cigarettes?

_____YEARS 27-28

How many cigarettes did you smoke in a week?

_____NUMBER IN A WEEK 29-31

Did you smoke cigarettes every day? *Circle number.*

1 YES
2 NO

32

How long ago did you quit smoking cigarettes? *Circle number.*

1 LESS THAN ONE WEEK AGO
2 1-4 WEEKS AGO
3 1-3 MONTHS AGO
4 4-12 MONTHS AGO
5 MORE THAN ONE YEAR AGO

33

GO TO THE YELLOW PAGE

FORT POLK HEART SMART PROJECT

HEALTH HABITS QUESTIONNAIRE

DO NOT WRITE IN THIS SPACE

4. Do you use any of the following? *Circle number.*

CIGARS

1 YES *if yes* → *circle correct number*
1. Once a week or less
2. Several times a week but not everyday
3. Everyday

2 NO

34
35

PIPES

1 YES *if yes* → *circle correct number*
1. Once a week or less
2. Several times a week but not everyday
3. Everyday

2 NO

36
37

CHEWING TOBACCO

1 YES *if yes* → *circle correct number*
1. Once a week or less
2. Several times a week but not everyday
3. Everyday

2 NO

38
39

SNUFF

1 YES *if yes* → *circle correct number*
1. Once a week or less
2. Several times a week but not everyday
3. Everyday

2 NO

40
41

CONFIDENTIAL

STOP

ALCOHOL

FORT POLK HEART SMART PROJECT

HEALTH HABITS QUESTIONNAIRE

	LABEL	1 5	1-4 5-9 10-11

It is also important for us to know about alcohol use.

DO NOT WRITE IN THIS SPACE

CIRCLE THE NUMBER NEXT TO THE STATEMENT THAT MOST CLOSELY APPLIES TO YOU. CIRCLE ONE NUMBER ONLY

12

I HAVE AT LEAST ONE DRINK OF BEER, WINE OR LIQUOR A WEEK. ---------- 1 ---- GO TO THE BLUE PAGE

I USED TO DRINK AT LEAST ONE BEER, ONE GLASS OF WINE OR ONE JIGGER OF LIQUOR A WEEK, BUT I DON'T DRINK NOW. ---------- 2 ---- GO TO THE GREEN PAGE

I HAVE SIPPED OR TASTED BEER, WINE OR LIQUOR, BUT I DO NOT DRINK NOW. ------- 3 ---- STOP

I HAVE LESS THAN ONE DRINK OF BEER, WINE OR LIQUOR A WEEK. ---------- 4 ---- STOP

I HAVE NEVER HAD A DRINK OF BEER, WINE OR LIQUOR. ---------- 5 ---- STOP

CONFIDENTIAL

IMPORTANT: MAKE SURE YOU HAVE CIRCLED THE NUMBER NEXT TO THE STATEMENT THAT BEST DESCRIBES YOU. CIRCLE ONE NUMBER ONLY

FORT POLK HEART SMART PROJECT

HEALTH HABITS QUESTIONNAIRE

	DO NOT WRITE IN THIS SPACE
If you have <u>at least</u> one drink of beer, wine or liquor a week, how often do you drink? (Circle number).	
1 DAILY OR ALMOST EVERY DAY	13
2 THREE OR FOUR TIMES A WEEK	
3 ONCE OR TWICE A WEEK	
How old were you when you started to drink at least once a week?	
_____ AGE	14-15
How many years have you been drinking beer, wine or liquor at least once a week?	
_____ YEARS	16-17
<u>DURING THE PAST WEEK</u>	
How many 10-12 ounce bottles or cans of beer did you drink? Use food models. (If you did not drink beer last week, write a "0").	
_____ BOTTLES OR CANS	18-19
During the past week, how many ounces of whiskey and/ or hard liquor did you drink? (1-1/2 ounces = 1 jigger or shot glass). (If you did not drink whiskey and/or hard liquor, write a "0").	
_____ OUNCES OF WHISKEY	20-21
How many 10-12 ounce bottles of wine cooler did you drink? Use food models. (If you did not drink wine cooler last week, write a "0").	
_____ BOTTLES	22-23
During the past week, how many glasses of wine did you drink? (If you did not drink wine last week, write a "0").	
_____ GLASSES OF WINE	24-25
STOP	

CONFIDENTIAL

EATING HABITS

EATING HABITS QUESTIONNAIRE

LABEL

This questionnaire asks about your choice and preparation of food in the past month. There are no right or wrong answers. For each question please check the food or food category which best describes your eating habits last month. Please check only one box per question.

If the question does not apply to the way you ate, check "not applicable" (N/A). See the example below. If you did not eat chicken last month, check the box for N/A.

turkey with skin [ ]	turkey without skin [ ]	N/A [X]	don't know [ ]

EATING HABITS QUESTIONNAIRE

Instructions

In the past month which DID YOU USE the most? (Check only one box per question.) (N/A = not applicable) Check N/A if none of the categories apply.

Meat, Fish, Poultry, and Eggs

1. fish, chicken, turkey [ ] | red meat, pork [ ] | N/A [ ] | don't know [ ]

2. egg beaters, or egg whites only [ ] | whole eggs [ ] | N/A [ ] | don't know [ ]

3. regular ground meat [ ] | lean, extra-lean ground meat [ ] | N/A [ ] | don't know [ ]

4. chicken without skin [ ] | chicken with skin [ ] | N/A [ ] | don't know [ ]

Meat, Fish, Poultry, and Eggs (Continued)

5.	high fat cut of meat (tenderloin, top loin, sirloin) [ ]	low fat cut of meat (top round, eye of round round tip) [ ]	N/A [ ]	don't know [ ]
6.	fried chicken (chicken nuggets, filets, patties, sticks) [ ]	baked, broiled chicken [ ]	N/A [ ]	don't know [ ]
7.	baked, broiled, boiled seafood [ ]	fried seafood [ ]	N/A [ ]	don't know [ ]
8.	turkey, chicken breast, turkey ham, turkey bologna 95% fat-free free ham [ ]	bologna, ham, roast beef [ ]	N/A [ ]	don't know [ ]

Meat, Fish, Poultry, and Eggs (Continued)

9.	beef/pork hot dogs, beef/pork sausage, bacon [ ]	turkey hot dogs, turkey sausage, 95% fat free/ low sodium bacon [ ]	N/A [ ]	don't know [ ]

In the past month which DID YOU USE the most? (Check only one box per question.) (N/A = not applicable)

Milk and Cheese

10.	whole milk [ ]	low fat, skim milk [ ]	N/A [ ]	don't know [ ]
11.	ice milk, sherbet, frozen yogurt [ ]	ice cream [ ]	N/A [ ]	don't know [ ]
12.	low fat cheeses (mozzarella, Parmesan, Ricotta) [ ]	regular cheese [ ]	N/A [ ]	don't know [ ]

In the past month which DID YOU USE the most? (Check only one box per question.) (N/A = not applicable)

Fruits, Vegetables, and Salads

13. hash browns, tator tots, French fries [ ] baked, boiled potatoes [ ] N/A [ ] don't know [ ]

14. fresh, frozen vegetables [ ] canned vegetables [ ] N/A [ ] don't know [ ]

In the past month which DID YOU USE the most? (Check only one box per question.) (N/A = not applicable)

Breads, Cereals, Crackers

15. whole wheat, rye, multi-grain bread [ ] white bread [ ] N/A [ ] don't know [ ]

16. plain cereal [ ] sugar-coated cereal [ ] N/A [ ] don't know [ ]

17. regular crackers [ ] low sodium or low fat crackers [ ] N/A [ ] don't know [ ]

In the past month which DID YOU USE the most? (Check only one box per question.) (N/A = not applicable)

Beverages

18. unsweetened Koolaid,
fruit juices, diet soft drinks [ ] sweetened Koolaid, soft drinks [ ] N/A [ ] don't know [ ]

In the past month which DID YOU USE the most? (Check only one box per question.) (N/A = not applicable)

Desserts

19. popcorn with salt,
butter or margarine [ ] plain popcorn [ ] N/A [ ] don't know [ ]

20. cakes, pies, cookies [ ] fresh fruit [ ] N/A [ ] don't know [ ]

In the past month which DID YOU USE the most? (Check only one box per question.) (N/A = not applicable)

Mixed Dishes

21. pizza with pepperoni, sausage, ground meat [ ] | plain or vegetarian pizza [ ] | N/A [ ] | don't know [ ]

22. low sodium soup [ ] | regular soup [ ] | N/A [ ] | don't know [ ]

In the past month which DID YOU USE the most? (Check only one box per question.) (N/A = not applicable)

Condiments, Sauces

23. regular yogurt [ ] | lowfat yogurt [ ] | N/A [ ] | don't know [ ]

24. regular sour cream [ ] | low fat sour cream [ ] | N/A [ ] | don't know [ ]

Condiments, Sauces (Continued)

25. regular gravy [ ]	gravy made without fat [ ]		N/A [ ]	don't know [ ]
26. regular mayonnaise [ ]	lite mayonnaise [ ]		N/A [ ]	don't know [ ]
27. low-calorie salad dressing [ ]	regular salad dressing [ ]		N/A [ ]	don't know [ ]

SECTION II: FOOD PREPARATION

In the past month which DID YOU USE the most? (Check only one box per question.) (N/A = not applicable) Check N/A if none of the categories apply.

Miscellaneous

28. added salt to food at table [ ] | did not add salt to food at table [ ] | N/A [ ] | don't know [ ]

29. did not add salt during cooking [ ] | added salt during cooking [ ] | N/A [ ] | don't know [ ]

30. butter, margarine, lard [ ] | low-cal margarine, vegetable oil [ ] | N/A [ ] | don't know [ ]

In the past month which of the following foods DID YOU ADD sauce, gravy, butter, margarine or oil to? (Check only one box per question.) (N/A = not applicable)

31. noodles, spaghetti, grits, rice, macaroni

yes [ ] no [ ] N/A [ ] don't know [ ]

Miscellaneous (Continued)

32. toast, biscuits, bagels, muffins

yes [ ] no [ ] N/A [ ] don't know [ ]

33. vegetables

yes [ ] no [ ] N/A [ ] don't know [ ]

34. beans (red, pinto, white)

yes [ ] no [ ] N/A [ ] don't know [ ]

35. potatoes (baked or mashed)

yes [ ] no [ ] N/A [ ] don't know [ ]

In the past month which of the following foods DID YOU ADD SALT to either at the table or during cooking? (Check only one box per question.) (N/A = not applicable)

36. spaghetti, rice, noodles, macaroni

yes [ ] no [ ] N/A [ ] don't know [ ]

37. vegetables

yes [ ] no [ ] N/A [ ] don't know [ ]

38. potatoes (baked or mashed)

yes [ ] no [ ] N/A [ ] don't know [ ]

Miscellaneous (Continued

39. eggs

yes [ ] no [ ] N/A [ ] don't know [ ]

40. beans (red, pinto, white)

yes [ ] no [ ] N/A [ ] don't know [ ]

In the past month did you add meats, such as bacon, ham hocks, pickled meat, sausage to season foods? (Check only one box per question.) (N/A = not applicable)

41. vegetables

yes [ ] no [ ] N/A [ ] don't know [ ]

42. beans (red, pinto, white)

yes [ ] no [ ] N/A [ ] don't know [ ]

43. soups

yes [ ] no [ ] N/A [ ] don't know [ ]

ID No. _____

PART 1

THIS SECTION ASKS ABOUT YOUR CHOICE AND PREPARATION OF FOOD IN THE PAST MONTH. PLEASE PLACE AN "X" IN THE SPACE WHICH BEST DESCRIBES YOUR DIET LAST MONTH.

FOR EXAMPLE:

	Usually or Always	Often	Sometimes	Rarely or Never
IN THE PAST MONTH, HOW OFTEN DID YOU:				
Drink wine with dinner.	___ 1	X 2	___ 3	___ 4

	Usually or Always	Often	Sometimes	Rarely or Never
IN THE PAST MONTH, HOW OFTEN DID YOU:				
2 Skip lunch or dinner	___ 1	___ 2	___ 3	___ 4
5 Use lemon juice or vinegar on your salad instead of salad dressing	___ 1	___ 2	___ 3	___ 4
4 Use low-calorie salad dressing	___ 1	___ 2	___ 3	___ 4
3 Trim fat from meats (Don't eat meat ___)	___ 1	___ 2	___ 3	___ 4

ID No. _____

		Usually or Always	Often	Sometimes	Rarely or Never
1	Broil or poach when preparing fish (Don't eat fish ____)	____ 1	____ 2	____ 3	____ 4
3	Take skin off chicken (Don't eat chicken ____)	____ 1	____ 2	____ 3	____ 4
2	Use a meatless tomato sauce on spaghetti or noodles	____ 1	____ 2	____ 3	____ 4
2	Avoid red meat (Don't eat meat ____)	____ 1	____ 2	____ 3	____ 4
1	Eat bread, rolls or muffins, without butter or margarine	____ 1	____ 2	____ 3	____ 4
5	Use yogurt instead of sour cream in cooking or on foods	____ 1	____ 2	____ 3	____ 4
	Buy special low-fat cuts of meat (Don't eat meat ____)	____ 1	____ 2	____ 3	____ 4
1	Put butter or margarine on cooked vegetables *	____ 1	____ 2	____ 3	____ 4
1	Eat boiled or baked potatoes without butter or margarine	____ 1.	____ 2	____ 3	____ 4
1	Put sour cream, cheese or other sauces on vegetables and potatoes *	____ 1	____ 2	____ 3	____ 4
4	Request food prepared without butter or margarine at restaurants	____ 1	____ 2	____ 3	____ 4
	Eat popcorn or pretzels for snacks	____ 1	____ 2	____ 3	____ 4
4	Use low-calorie, diet margarine	____ 1	____ 2	____ 3	____ 4
4	Use low-calorie, diet mayonnaise	____ 1	____ 2	____ 3	____ 4

ID No. _____

	Usually or Always	Often	Sometimes	Rarely or Never
4 Buy special, low-fat, diet cheeses	___ 1	___ 2	___ 3	___ 4
5 Have fruit for dessert	___ 1	___ 2	___ 3	___ 4
2 Have a vegetarian lunch or dinner	___ 1	___ 2	___ 3	___ 4
5 Use skim milk instead of whole milk or cream	___ 1	___ 2	___ 3	___ 4

* items reversed

SELF-EFFICACY FOR HEALTHY EATING AND EXERCISE

FORT POLK HEART SMART
FAMILY HEALTH PROMOTION

Confidence Survey

LABEL

1-4
5-9
10-11

DO NOT WRITE IN THIS SPACE

EATING HABITS CONFIDENCE SURVEY

DIRECTIONS: Below is a list of things people might do while trying to change their eating habits. We are mainly interested in salt and fat intake, rather than weight reduction.

Whether you are trying to change your eating habits or not, please rate how confident you are that you could really motivate yourself to do things like these consistently, for at least six months.

(Please write one number from the following rating scale in each space.)

I know I cannot		Maybe I can		I know I can	Does not apply
1	2	3	4	5	8

How sure are you that you can do these things?

1.	Stick to your low fat, low salt foods when you feel depressed, bored or tense.	_____	12
2.	Stick to your low fat, low salt foods when there is high fat, high salt foods readily available at a party.	_____	13
3.	Stick to your low fat, low salt foods when dining with friends or coworkers.	_____	14
4.	Stick to your low fat, low salt foods when the only snack close by is available from a vending machine.	_____	15
5.	Stick to your low fat, low salt foods when you are alone, and there is no one to watch you.	_____	16
6.	Eat smaller portions at dinner.	_____	17
7.	Cook smaller portions so there are no leftovers.	_____	18
8.	Eat lunch as your main meal of the day, rather than dinner.	_____	19
9.	Eat smaller portions of food at a party.	_____	20
10.	Eat salads for lunch.	_____	21
11.	Add less salt than the recipe calls for.	_____	22

			DO NOT WRITE IN THIS SPACE
12.	Eat unsalted peanuts, chips, crackers, and pretzels.	_____	23
13.	Avoid adding salt at the table.	_____	24
14.	Eat unsalted, unbuttered popcorn.	_____	25
15.	Keep the salt shaker off the kitchen table.	_____	26
16.	Eat meatless (vegetarian) entrees for dinner.	_____	27
17.	Substitute low or non-fat milk for whole milk at breakfast.	_____	29
18.	Cut down on gravies and cream sauces.	_____	30
19.	Eat poultry and fish instead of red meat at dinner.	_____	31
20.	Avoid ordering red meat at a restaurant.	_____	32

FORT POLK HEART SMART
FAMILY HEALTH PROMOTION

EXERCISE CONFIDENCE SURVEY

DO NOT WRITE IN THIS SPACE

DIRECTIONS: Below is a list of things people might do while trying to increase their exercise program. We are interested in exercises like running, swimming, brisk walking, bicycle riding, or aerobics classes.

Whether you exercise or not, please rate how confident you are that you could really motivate yourself to do things like these consistently for at least six months.

(Please write one number from the following rating scale in each space.)

I know I cannot	Maybe I can	I know I can	Does not apply
1 2	3 4	5	8

How sure are you that you can do these things?

21.	Get up early, even on weekends, to exercise.	_____	32
22.	Stick to your exercise program after a long, tiring day at work.	_____	33
23.	Exercise even though you are feeling depressed.	_____	34
24.	Set aside time for a physical activity program, that is walking, jogging, swimming, biking, or other continuous activities for at least 30 minutes 3 times per week.	_____	35
25.	Continue to exercise with others even though they seem too fast or too slow for you.	_____	36
26.	Stick to your exercise program when undergoing a stressful life change (e.g., divorce, death in the family, moving).	_____	37
27.	Attend a party only after exercising.	_____	38
28.	Stick to your exercise program when your family is demanding more time from you.	_____	39
29.	Stick to your exercise program when you have household chores to attend to.	_____	40
30.	Stick to your exercise program even when you have excessive demands at work.	_____	41
31.	Stick to your exercise program when social obligations are very time consuming.	_____	42
32.	Read or study less in order to exercise more.	_____	43

STATE-TRAIT ANXIETY

SELF-EVALUATION QUESTIONNAIRE

Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI FORM X-1

NAME _____ DATE _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *feel* right now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	①	②	③	④
2. I feel secure	①	②	③	④
3. I am tense	①	②	③	④
4. I am regretful	①	②	③	④
5. I feel at ease	①	②	③	④
6. I feel upset	①	②	③	④
7. I am presently worrying over possible misfortunes	①	②	③	④
8. I feel rested	①	②	③	④
9. I feel anxious	①	②	③	④
10. I feel comfortable	①	②	③	④
11. I feel self-confident	①	②	③	④
12. I feel nervous	①	②	③	④
13. I am jittery	①	②	③	④
14. I feel "high strung"	①	②	③	④
15. I am relaxed	①	②	③	④
16. I feel content	①	②	③	④
17. I am worried	①	②	③	④
18. I feel over-excited and rattled	①	②	③	④
19. I feel joyful	①	②	③	④
20. I feel pleasant	①	②	③	④

SELF-EVALUATION QUESTIONNAIRE

STAI FORM X-2

NAME _____ DATE _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	①	②	③	④
22. I tire quickly	①	②	③	④
23. I feel like crying	①	②	③	④
24. I wish I could be as happy as others seem to be	①	②	③	④
25. I am losing out on things because I can't make up my mind soon enough	①	②	③	④
26. I feel rested	①	②	③	④
27. I am "calm, cool, and collected"	①	②	③	④
28. I feel that difficulties are piling up so that I cannot overcome them	①	②	③	④
29. I worry too much over something that really doesn't matter	①	②	③	④
30. I am happy	①	②	③	④
31. I am inclined to take things hard	①	②	③	④
32. I lack self-confidence	①	②	③	④
33. I feel secure	①	②	③	④
34. I try to avoid facing a crisis or difficulty	①	②	③	④
35. I feel blue	①	②	③	④
36. I am content	①	②	③	④
37. Some unimportant thought runs through my mind and bothers me	①	②	③	④
38. I take disappointments so keenly that I can't put them out of my mind	①	②	③	④
39. I am a steady person	①	②	③	④
40. I become tense and upset when I think about my present concerns	①	②	③	④

CARDIOVASCULAR HEALTH KNOWLEDGE (ADULTS)

CONFIDENTIAL

FAMILY HEALTH PROMOTION

HEART SMART

DIRECTIONS:

This is an examination designed to find out what people know about cardiovascular disease and its prevention.

Please place all of your answers directly on the questionnaire. Your task is to choose one best answer for each question. Circle the correct letter for each question. All data will be kept confidential.

COLUMN
10-11 2 1

1. A person feels a squeezing or aching pain in the chest after exercise or physical exertion. The pain lasts at least one minute, but less than ten minutes and goes away with a few minutes of rest. The person is probably experiencing
   a. angina pectoris.
   b. heart attack.
12 c. emotional tension.
   d. stroke.

2. The first phase of an aerobic workout is
   a. cool down.
   b. the aerobic bout.
13 c. warm-up.
   d. running.

3. In an adult at rest, the normal number of heartbeats per minute is between
   a. 40-70.
   b. 60-90.
14 c. 90-100.
   d. 100-120.

4. If eaten in significant amounts, which of the following would probably be associated with increased levels of cholesterol in the blood?
   a. corn oil
   b. soybean oil
15 c. lard
   d. safflower oil

COLUMN

5. In order to have a training effect on your cardiovascular system

   a. you should do an aerobic activity for at least 20 minutes three times per week.
   b. you must jog every day.
16 c. you can play tennis once a week.
   d. you must run at least 4 miles every day.

6. Which of the following are warning signs of a stroke?

   a. weakness or numbness of face, arm or leg on one side of the body
   b. loss of speech, trouble speaking or understanding speech
17 c. dimness or loss of vision, especially in one eye
   d. all of the above

7. Cheddar cheese, sour cream and butter are not recommended for reducing cholesterol levels in the blood because

   a. these dairy products contain too much saturated fat.
   b. polyunsaturated fats increase as saturated fats decrease.
18 c. Americans have begun to eat more dairy products than meat.
   d you can eat more low-fat products without gaining weight.

8. A heart attack or stroke occurs when

   a. veins in the heart or brain break and release blood.
   b. arteries in or between the heart and brain become blocked.
19 c. the lungs do not receive enough oxygen.
   d. the heart pumps too slowly to move enough oxygen.

9. When you have completed an aerobic activity, it is important that you

   a. get a drink of water.
   b. sit down and relax.
20 c. cool-down.
   d. get a cold beer.

COLUMN

10. The major cause of death in adults in the United States is

    a. cancer.
    b. cardiovascular disease.
21 c. automobile accidents.
    d. infectious diseases.

11. Angina pectoris is a painful condition which is due to

    a. a heart attack.
    b. insufficient blood reaching the heart muscle.
22 c. too much blood flowing through the heart.
    d. indigestion.

12. Which of the following are major risk factors associated with cardiovascular disease?

    a. hypertension and diabetes
    b. high levels of cholesterol
23 c. cigarette smoking and excess stress
    d. all of the above

13. To reduce the level of cholesterol in the blood, which of the following would not be recommended?

    a. reduce total saturated fat intake
    b. use polyunsaturated fat in cooking
24 c. eat less cholesterol in the diet
    d. increase total fat intake

14. The aorta

    a. takes deoxygenated blood to the lungs from the heart.
    b. brings oxygenated blood to the heart from the lungs.
25 c. takes oxygenated blood to the body from the heart.
    d. brings deoxygenated blood to the heart from the body.

COLUMN

15. "Atherosclerosis" refers to the

    a. hardening of the inner layer of an artery due to buildup of fatty deposits.
    b. hardening of the outer layer of an artery due to buildup of fatty deposits.
26 c. process by which artery walls may weaken and burst, causing a stroke.
    d. hardening of the inner layer of veins due to buildup of fatty deposits.

16. Which type of dietary fat is associated with increased levels of cholesterol in the blood?

    a. monounsaturated
    b. polyunsaturated
27 c. saturated
    d. condensed

17. The process of atherosclerosis can start as early as

    a. 5-10 years.
    b. 11-15 years.
28 c. 16-25 years.
    d. 26-35 years.

18. To reduce the risk of high blood pressure, a person should

    a. increase salt intake.
    b. decrease salt intake.
29 c. increase saturated fat intake.
    d. decrease polyunsaturated fat intake.

19. The difficulty in dealing with hypertension is that

    a. it usually cannot be cured, but only controlled.
    b. its medication sometimes causes unpleasant side effects.
30 c. it may produce no symptoms.
    d. all of the above.

COLUMN

20. High blood pressure may cause

    a. damage to the retina of the eye.
    b. kidney failure.
31 c. the heart to enlarge dangerously.
    d. all of the above.

21. Which of the following foods are low in sodium?

    a. potato chips, sausage, ham
    b. pickles, hot dogs, canned peas
32 c. bacon, pretzel, catsup
    d. apple, carrot sticks, raisins

22. A major reason why it is not good to exercise strenuously after a large meal is because

    a. the blood needed by the muscles is also needed for digestion.
    b. circulation slows down during digestion.
33 c. heavy breathing inhibits proper digestion.
    d. there is simply more bulk to carry, making the heart work harder.

23. The term for each of the upper chambers of the heart is

    a. atrium.
    b. ventricle.
34 c. vena cava.
    d. septum.

24. The unhealthy aspects of smoking affect almost all parts of the

    a. body.
    b. respiratory system.
35 c. cardiovascular system.
    d. respiratory and cardiovascular systems.

25. The pulse

    a. is faster if one has hypertension.
    b. is caused by blood pressure in the veins.
36 c. is the same thing as the heartbeat.
    d. is the movement of blood after a heartbeat.

COLUMN

26. When the blood flows through the kidneys, they

a. eliminate carbon dioxide before the blood goes to the lungs.
b. exchange oxygen in the blood for carbon monoxide.
37 c. remove various waste products from the blood.
d. supply nutrients for the digestive tract.

27. Aerobic activities are those that involve

a. oxygen uptake.
b. strenuous exertion.
38 c. stretching.
d. increased muscle tone.

28. Which of the following is least likely to be prescribed to reduce essential hypertension?

a. reducing salt intake
b. medication
39 c. surgery
d. losing weight

29. The best method for long-term weight reduction

a. eat well-balanced meals with moderate exercise.
b. fasting and skipping meals.
40 c. short-term dieting followed by returning to normal habits.
d. eat only a specific type of food (grapefruit, popcorn).

LSUMC
FORT POLK
HEART SMART PROGRAM
FORM B14 FP01
24-HR. DIETARY RECALL

LABEL

1 2 3 4 ☐☐☐☐ STUDY NO.

5 6 7 8 9 ☐☐☐☐☐ RECORD NO.

10 11 ☐☐ RDA CODE

12 ☐ Take me

13 ☐ Tak

PERSON WHO PREPARES FOOD: ____________________

PHONE: ____________________

BIRTHDAY: ____________________

FOOD ID					FREQ			AMOUNT (gm.)					TYPE	NO. OF DAYS			C.F.	TIME OF EATING				SOURCE	NAME OF FOOD ITEM	FLAG		MODEL	QUANTIT			
								x	x	x	x.	x															x	x.	x	x
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38		39	40	41	42	43	44	45
							1									1														
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							1									1														

Is the way you ate yesterday the way you usually eat? 47 ☐ ____________________

What type? 49 ☐ ____________________ Which best describes how you usually add salt to

General salting procedure 52 ☐ What time do you usually get up? 53 54 55 56 ☐☐☐☐ What time do yc

Is your husband in the field? 61 ☐ If yes, when did he leave? 62 ☐ If yes, wher

Interviewer 65 66 ☐☐ Date form completed 67 68 69 70 71 72 ☐☐☐☐☐☐ # of food entries 73 74 ☐☐ Checking

1 of 2

4 ☐ STUDY NO.

8 9 ☐☐ RECORD NO.

12 ☐ Take medication?

CODE 13 ☐ Take yesterday or this morning?

RECALL STATUS:

Page 1 of ____

____ DUPLICATE
____ CALCULATED
____ CHECKED
____ RECHECKED
____ COMPLETED
____ HOLD
____ DELETE

	39 FLAG	40	41 MODEL	QUANTITY 42 x	43 x	44 x	45 x	46 x	CALCULATION	COMMENTS

Do you take a vitamin or mineral supplement? 48 ☐

ually add salt to your food at the table? 50 ☐ When you add salt do you... ___? 51 ☐

56 ☐ What time do you usually go to bed 57 58 59 60 ☐☐☐☐

If yes, when will he return? 63 ☐ Completion Code 64 ☐

s 73 74 ☐☐ Checking Nutritionist Code 75 76 ☐☐ brigade 77 78 ☐☐ Husband grade 79 80 ☐☐

5/89

2 of 2

LSUHSC
FORT POLK
HEART SMART PROGRAM
FORM 814 FP01
24 HR. DIETARY RECALL

LABEL

1 2 3 4

5 6 7 8

10 11

RDA C

FOOD ID	FREQ.	AMOUNT (gm.) x x x x x	TYPE	NO. OF DAYS	C.F.	TIME OF EATING	SOURCE	NAME OF FOOD ITEM	FLAG
16 17 18 19 20	21 22 23	24 25 26 27 28	29	30 31 32	33	34 35 36 37	38		39 40
	1			1					
	1			1					
	1			1					
	1			1					
	1			1					
	1			1					
	1			1					
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	1			1					
	1			1					
	1			1					
	1			1					
	1			1					

1 of 2

PAGE ____ OF ____

1 2 3 4 STUDY NO.

5 6 7 8 9 RECORD NO.

10 11 RDA CODE

EM	FLAG 39	MODEL 40	QUANTITY x x x x x x 41 42 43 44 45 46	CALCULATION	COMMENTS

2 of 2

FP01

THE
CARTER CENTER
OF EMORY UNIVERSITY

Healthier People
Health Risk Appraisal

№ 12327

Detach this coupon and put it in a safe place.
You will need it to claim your appraisal results.

Healthier People
Health Risk Appraisal
The Carter Center of Emory University

№ 12327

Health Risk Appraisal is an educational tool. It shows you choices you can make to keep good health and avoid the most common causes of death for a person your age and sex. This Health Risk Appraisal is not a substitute for a check-up or physical exam that you get from a doctor or nurse. It only gives you some ideas for lowering your risk of getting sick or injured in the future. It is NOT designed for people who already have HEART DISEASE, CANCER, KIDNEY DISEASE, OR OTHER SERIOUS CONDITIONS. If you have any of these problems and you want a Health Risk Appraisal anyway, ask your doctor or nurse to read the report with you.

DIRECTIONS: To keep your answers confidential DO NOT write your name or any identification on this form. Please keep the coupon with your participant number on it. You will need it to claim your computer report. To get the most accurate results answer as many questions as you can and as best you can. If you do not know the answer leave it blank. Questions with a ★ (star symbol) are important to your health, but are not used by the computer to calculate your risks. However, your answers may be helpful in planning your health and fitness program.

Please put your answers in the empty boxes. (Examples: [x] or [125])

1. SEX		1 ☐ Male 2 ☐ Female
2. AGE		[ ] Years
3. HEIGHT	(Without shoes) (No fractions)	[ ] Feet [ ] Inches
4. WEIGHT	(Without shoes) (No fractions)	[ ] Pounds
5. Body frame size		1 ☐ Small 2 ☐ Medium 3 ☐ Large
6. Have you ever been told that you have diabetes (or sugar diabetes)?		1 ☐ Yes 2 ☐ No
7. Are you now taking medicine for high blood pressure?		1 ☐ Yes 2 ☐ No
8. What is your blood pressure now?		[ ] / [ ] Systolic (High number) / Diastolic (Low number)
9. If you *do not* know the numbers, check the box that describes your blood pressure.		1 ☐ High 2 ☐ Normal or Low 3 ☐ Don't Know
10. What is your TOTAL cholesterol level (based on a blood test)?		[ ] mg/dl
11. What is your HDL cholesterol (based on a blood test)?		[ ] mg/dl
12. How many cigars do you usually smoke per day?		[ ] cigars per day
13. How many pipes of tobacco do you usually smoke per day?		[ ] pipes per day
14. How many times per day do you usually use smokeless tobacco? (Chewing tobacco, snuff, pouches, etc.)		[ ] times per day

Health Risk Appraisal is an educational tool. It shows you choices you can make to keep good health and avoid the most common causes of death for a person your age and sex. This Health Risk Appraisal is not a substitute for a check-up or physical exam that you get from a doctor or nurse. It only gives you some ideas for lowering your risk of getting sick or injured in the future. It is NOT designed for people who already have HEART DISEASE, CANCER, KIDNEY DISEASE, OR OTHER SERIOUS CONDITIONS. If you have any of these problems and you want a Health Risk Appraisal anyway, ask your doctor or nurse to read the report with you.

Your report may be picked up at _____ on _____.

15. CIGARETTE SMOKING

How would you describe your cigarette smoking habits?

1 ☐ Never smoked ☛ Go to 18
2 ☐ Used to smoke ☛ Go to 17
3 ☐ Still smoke ☛ Go to 16

16. STILL SMOKE

How many cigarettes a day do you smoke? ☐ cigarettes per day ☛ Go to 18

☛ GO TO QUESTION 18

17. USED TO SMOKE

a. How many years has it been since you smoked cigarettes fairly regularly? ☐ years

b. What was the average number of cigarettes per day that you smoked in the 2 years before you quit? ☐ cigarettes per day

18. In the next 12 months how many thousands of miles will you probably travel by each of the following? (NOTE: U.S. average = 10,000 miles)

a. Car, truck, or van: ☐,000 miles
b. Motorcycle: ☐,000 miles

19. On a typical day how do you USUALLY travel? (Check one only)

1 ☐ Walk
2 ☐ Bicycle
3 ☐ Motorcycle
4 ☐ Sub-compact or compact car
5 ☐ Mid-size or full-size car
6 ☐ Truck or van
7 ☐ Bus, subway, or train
8 ☐ Mostly stay home

20. What percent of the time do you usually buckle your safety belt when driving or riding? ☐ %

21. On the average, how close to the speed limit do you usually drive?

1 ☐ Within 5 mph of limit
2 ☐ 6-10 mph over limit
3 ☐ 11-15 mph over limit
4 ☐ More than 15 mph over limit

22. How many times in the last month did you drive or ride when the driver had perhaps too much alcohol to drink? ☐ times last month

23. How many drinks of alcoholic beverages do you have in a typical week? (Write the number of each type of drink)

☐ Bottles or cans of beer
☐ Glasses of wine
☐ Wine coolers
☐ Mixed drinks or shots of liquor

☛ *(MEN GO TO QUESTION 33)*

WOMEN

24. At what age did you have your first menstrual period? ☐ years old

25. How old were you when your first child was born? ☐ years old
(If no children write 0)

26. How long has it been since your last breast x-ray (mammogram)?

1 ❑ Less than 1 year ago
2 ❑ 1 year ago
3 ❑ 2 years ago
4 ❑ 3 or more years ago
5 ❑ Never

27. How many women in your natural family (mother and sisters only) have had breast cancer?

[ ] women

28. Have you had a hysterectomy operation?

1 ❑ Yes
2 ❑ No
3 ❑ Not sure

29. How long has it been since you had a pap smear test?

1 ❑ Less than 1 year ago
2 ❑ 1 year ago
3 ❑ 2 years ago
4 ❑ 3 or more years ago
5 ❑ Never

★ 30. How often do you examine your breasts for lumps?

1 ❑ Monthly
2 ❑ Once every few months
3 ❑ Rarely or never

★ 31. About how long has it been since you had your breasts examined by a physician or nurse?

1 ❑ Less than 1 year ago
2 ❑ 1 year ago
3 ❑ 2 years ago
4 ❑ 3 or more years ago
5 ❑ Never

★ 32. About how long has it been since you had a rectal exam?

1 ❑ Less than 1 year ago
2 ❑ 1 year ago
3 ❑ 2 years ago
4 ❑ 3 or more years ago
5 ❑ Never

☛ *(WOMEN GO TO QUESTION 34)*

MEN

★ 33. About how long has it been since you had a rectal or prostate exam?

1 ❑ Less than 1 year ago
2 ❑ 1 year ago
3 ❑ 2 years ago
4 ❑ 3 or more years ago
5 ❑ Never

★ 34. How many times in the last year did you witness or become involved in a violent fight or attack where there was a good chance of a serious injury to someone?

1 ❑ 4 or more times
2 ❑ 2 or 3 times
3 ❑ 1 time or never
4 ❑ Not sure

★ 35. Considering your age, how would you describe your overall physical health?

1 ❑ Excellent
2 ❑ Good
3 ❑ Fair
4 ❑ Poor

★ 36. In an average week, how many times do you engage in physical activity (exercise or work which lasts at least 20 minutes without stopping and which is hard enough to make you breathe heavier and your heart beat faster)?

1 ❑ Less than 1 time per week
2 ❑ 1 or 2 times per week
3 ❑ At least 3 times per week

★ 37. If you ride a motorcycle or all-terrain vehicle (ATV) what percent of the time do you wear a helmet?

1 ❑ 75% to 100%
2 ❑ 25% to 74%
3 ❑ Less than 25%
4 ❑ Does not apply to me

★ 38. Do you eat some food every day that is high in fiber, such as whole grain bread, cereal, fresh fruits or vegetables?	1 ❑ Yes 2 ❑ No
★ 39. Do you eat foods every day that are high in cholesterol or fat, such as fatty meat, cheese, fried foods, or eggs?	1 ❑ Yes 2 ❑ No
★ 40. In general, how satisfied are you with your life?	1 ❑ Mostly satisfied 2 ❑ Partly satisfied 3 ❑ Not satisfied
★ 41. Have you suffered a personal loss or misfortune in the past year that had a serious impact on your life? (For example, a job loss, disability, separation, jail term, or the death of someone close to you.)	1 ❑ Yes, 1 serious loss or misfortune 2 ❑ Yes, 2 or more 3 ❑ No
★ 42a. Race	1 ❑ Aleutian, Alaska native, Eskimo or American Indian 2 ❑ Asian 3 ❑ Black 4 ❑ Pacific Islander 5 ❑ White 6 ❑ Other 7 ❑ Don't know
★ 42b. Are you of Hispanic origin such as Mexican-American, Puerto Rican, or Cuban?	1 ❑ Yes 2 ❑ No
★ 43. What is the highest grade you completed in school?	1 ❑ Grade school or less 2 ❑ Some high school 3 ❑ High school graduate 4 ❑ Some college 5 ❑ College graduate 6 ❑ Post graduate or professional degree
★ 44. What is your job or occupation? (Check only one)	1 ❑ Health professional 2 ❑ Manager, educator, professional 3 ❑ Technical, sales or administrative support 4 ❑ Operator, fabricator, laborer 5 ❑ Student 6 ❑ Retired 7 ❑ Homemaker 8 ❑ Service 9 ❑ Skilled crafts 10 ❑ Unemployed 11 ❑ Other
★ 45. In what industry do you work (or did you last work)? (Check only one)	1 ❑ Electric, gas, sanitation 2 ❑ Transportation, communication 3 ❑ Agriculture, forestry, fishing 4 ❑ Wholesale or retail trade 5 ❑ Financial and service industries 6 ❑ Mining 7 ❑ Government 8 ❑ Manufacturing 9 ❑ Construction 10 ❑ Other

CREDIBILITY

FORT POLK HEART SMART

FAMILY HEALTH PROMOTION

	LABEL	__ __	1-4 5-9 10-11

DIRECTIONS: Below are some questions that ask what you think of our program as it is presented to you. Please answer each question according to your own present beliefs. Circle the number which indicates your choice.

DO NOT WRITE IN THIS SPACE

	1 Not at all	2 Somewhat	3 Very much	
1. I believe that the food I eat has an effect on my heart or cardiovascular system.	(1)	(2)	(3)	12
2. I believe that the program related to diet will help me change my eating habits.	(1)	(2)	(3)	13
3. I believe that exercising regularly can help my cardiovascular system become and stay healthy.	(1)	(2)	(3)	14
4. I believe that exercising affects my heart or cardiovascular system.	(1)	(2)	(3)	15
5. I believe that physical activities as presented to me in this program, will help me be more active.	(1)	(2)	(3)	16
6. I believe that, if I feel I do not have control over my life, my health can be affected.	(1)	(2)	(3)	17
7. I believe that this program will help me become more confident and have more control over my life.	(1)	(2)	(3)	18

PROGRAM EVALUATION

FORT POLK HEART SMART

FAMILY HEALTH PROMOTION

SUGGESTIONS FOR IMPROVEMENT

WHAT YOU WANTED THAT YOU DIDN'T GET

9/90

TASTE TEST

TASTE TEST EVALUATION

USING THE SCALE BELOW RATE THE FOOD ITEM YOU ARE TASTE TESTING FOR ACCEPTABILITY.

SCALE (Circle your answer)

5 - VERY DESIRABLE

4 - DESIRABLE

3 - ACCEPTABLE

2 - SLIGHTLY UNDESIRABLE

1 - UNDESIRABLE

NAME: _____ _____

FORT POLK HEART SMART

FAMILY HEALTH PROMOTION

	LABEL		1-4 5-9 10-11

INSTRUCTIONS:

LISTED BELOW ARE VARIOUS COMPONENTS OF THE FAMILY HEALTH PROMOTION PROGRAM. PLEASE RATE EACH ONE. THE RATING SCALE IS A 5-POINT SCALE, WITH #1 BEING "POOR" AND #5 BEING "EXCELLENT." PUT THE NUMBER FOR YOUR RESPONSE IN EACH BLANK. IF YOU MISSED ANY OF THE PRESENTATIONS LISTED BELOW, ANSWER WITH A "0".

ADDITIONAL PAGES ARE PROVIDED FOR "COMMENTS" - "SUGGESTIONS FOR IMPROVEMENT" - AND - "WHAT YOU WANTED THAT YOU DIDN'T GET."

POOR	BELOW AVERAGE	AVERAGE	ABOVE AVERAGE	EXCELLENT	MISSED
(1)	(2)	(3)	(4)	(5)	(0)

1. The exercise sessions every week were	_____	12
2. The presentation on ENERGY EXPENDITURE THROUGH EXERCISE was	_____	13
3. The presentation on HEALTHY EATING PATTERNS was	_____	14
4. The GAMES at the PICNIC were	_____	15
5. The exercise recording sheets were	_____	16
6. The presentation on CV RISK FACTORS was	_____	17
7. The information on NUTRITION provided in HANDOUTS was	_____	18
8. Personal results of CV SCREENING was	_____	19
9. The RELAXATION EXERCISES were	_____	20
10. The nutrition recording sheets were	_____	21

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FORT POLK HEART SMART

FAMILY HEALTH PROMOTION

11. The food demonstration on:		
Angel food cake and fruit was	_____	22
Popcorn and lemonade was	_____	23
_____	_____	24
_____	_____	25
_____	_____	26
12. The information on EXERCISE provided in HANDOUTS was	_____	27
13. The food products and coupons given for attendance each week were	_____	28
14. The "DINING OUT" presentation was	_____	29
15. The "SNACKING" presentation (vending machines) was	_____	30
16. The presentation about "PERSONAL POWER" was	_____	31
17. The table demonstration on eating change hings (i.e., eat at the same time every day), was	_____	32
18. The idea of a prize given for overall attendance was	_____	33
19. The nutrition contracting was	_____	34
20. The rewards given for CONTRACT PERFORMANCE were	_____	35
21. The exercise contracting was	_____	36
22. The information about how to change recipes to be CV-healthy was	_____	37
23. The presentation and Food Detective Activity on LABEL READING and GROCERY SHOPPING were	_____	38
24. The "Stop and Go" food game was	_____	39

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FORT POLK HEART SMART

FAMILY HEALTH PROMOTION

DIRECTIONS:
FOR THE ITEMS LISTED BELOW CIRCLE THE WORD THAT YOU THINK BEST DESCRIBES THE ITEM:

1.	The length of the weekly sessions was:	TOO SHORT (1)	TOO LONG (2)	ADEQUATE (3)	40
2.	The length of the counseling sessions was:	TOO SHORT (1)	TOO LONG (2)	ADEQUATE (3)	41
3.	The number of presentations was:	NOT ENOUGH (1)	TOO MANY (2)	ADEQUATE (3)	42
4.	The number of incentives given was:	NOT ENOUGH (1)	TOO MANY (2)	ADEQUATE (3)	43
5.	The number of exercise activity sessions was:	NOT ENOUGH (1)	TOO MANY (2)	ADEQUATE (3)	44
6.	The number of information handouts given was:	NOT ENOUGH (1)	TOO MANY (2)	ADEQUATE (3)	45
7.	The number of questionnaires requested was:	NOT ENOUGH (1)	TOO MANY (2)	ADEQUATE (3)	46

8. The overall program content was:

POOR	BELOW AVERAGE	AVERAGE	VERY GOOD	EXCELLENT	
(1)	(2)	(3)	(4)	(5)	47

9. The overall program activities were:

POOR	BELOW AVERAGE	AVERAGE	VERY GOOD	EXCELLENT	
(1)	(2)	(3)	(4)	(5)	48

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FORT POLK HEART SMART

FAMILY HEALTH PROMOTION

10. The staff involvement and helpfulness was: POOR (1) BELOW AVERAGE (2) AVERAGE (3) VERY GOOD (4) EXCELLENT (5)	49
11. The CV screening process was: POOR (1) BELOW AVERAGE (2) AVERAGE (3) VERY GOOD (4) EXCELLENT (5)	50

COMMENTS

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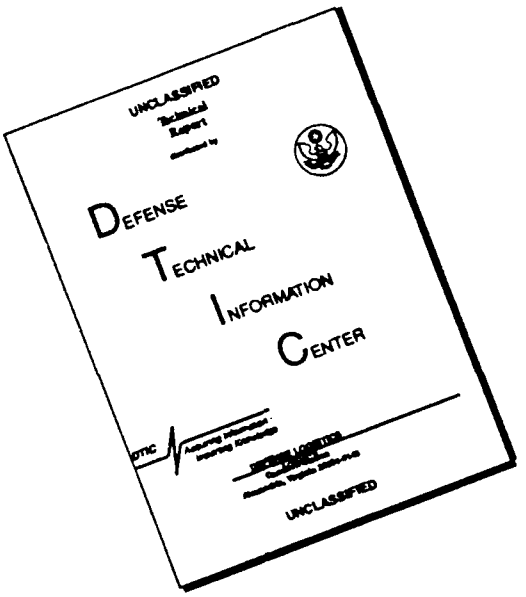

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