REPORT DOCUMENTATION PA

AD-A255 145

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	5 June 1992	Master's Thesis, 1 Aug 91-5 June 92

4. TITLE AND SUBTITLE
An Evaluation of the Fitness Knowledge of US Army Company and Battalion ~~Level~~ Commanders ~~in the US Army~~

5. FUNDING NUMBERS

6. AUTHOR(S)
MAJ Renard O. Barone, USA

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Army Command and General Staff College
Attn: ATZL-SWD-GD
Ft. Leavenworth, KS 66027-6900

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

The purpose of this study was to determine if the US Army's company and battalion commanders possess the fitness knowledge necessary to physically train their units. To obtain information concerning commander's fitness knowledge, a 75 item questionnaire-survey was administered to active duty officers attending Command and General Staff Officers College for academic year 91-92, lieutenant colonels instructing at Fort Leavenworth who had previously commanded a battalion, and to the lieutenant colonels attending a Spring 1992 Pre-Command Course.

The survey, focused on the five components of fitness (cardiorespiratory, muscular strength, muscular endurance, flexibility, and body composition/nutrition). Data produced helped to indicate the extent that US Army officers know and understand Army fitness.

The results of this study revealed that as a group, officers do not possess an understanding of the fitness concepts contained in US Army doctrine. Also, battalion commanders have a better understanding of cardiorespiratory fitness and general fitness than do company commanders.

14. SUBJECT TERMS	15. NUMBER OF PAGES
Physical Fitness, US Army; Components of Fitness	164
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	

AN EVALUATION OF THE FITNESS KNOWLEDGE OF US ARMY COMPANY AND BATTALION COMMANDERS

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

RENARD O. BARONE, MAJ, USA
M.Ed., Columbia University, New York, 1991

Fort Leavenworth, Kansas
1992

AN EVALUATION OF THE FITNESS KNOWLEDGE OF US ARMY COMPANY AND BATTALION COMMANDERS

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

RENARD O. BARONE, MAJ, USA
M.Ed., Columbia University, New York, 1991

Fort Leavenworth, Kansas
1992

MASTER OF MILITARY ART AND SCIENCE

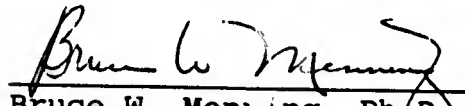
THESIS APPROVAL PAGE

Name of candidate: MAJ Renard O. Barone

Title of thesis: An Evaluation of the Fitness Knowledge of US Army Company and Battalion Commanders

Approved by:

David W. Kent, M.Ed., M.Div., Thesis Committee Chairman

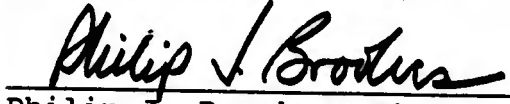


Bruce W. Menning, Ph.D., Member

LTC Alan W. Muench, M.D., Member

Accession For	
NTIS GRA&I	☑
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

Accepted this 5th day of June 1992 by:



Philip J. Brookes, Ph.D., Director, Graduate Degree Programs

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U. S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

AN EVALUATION OF THE FITNESS KNOWLEDGE OF U.S. ARMY COMPANY AND BATTALION COMMANDERS by MAJ Renard O. Barone, USA, 164 pages.

The purpose of this study was to determine if the US Army's company and battalion commanders possess the fitness knowledge necessary to physically train their units. To obtain information concerning commander's fitness knowledge, a 75 item questionnaire-survey was administered to active duty officers attending Command and General Staff Officers College for academic year 91-92, lieutenant colonels instructing at Fort Leavenworth who had previously commanded a battalion, and to the lieutenant colonels attending a Spring 1992 Pre-Command Course.

The survey, focused on the five components of fitness (cardiorespiratory, muscular strength, muscular endurance, flexibility, and body composition/nutrition). Data produced helped to indicate the extent that US Army officers know and understand Army fitness.

The results of this study revealed that as a group, officers do not possess an understanding of the fitness concepts contained in US Army doctrine. Also, battalion commanders have a better understanding of cardiorespiratory fitness and general fitness than do company commanders.

ACKNOWLEDGMENTS

I gratefully acknowledge the assistance of numerous individuals. This study could not have been completed without your support, patience, time, and understanding.

First, and foremost, I thank my wife, Julie; daughter, Kyra; and sons Kyle, and Clayton. If not for their unwavering love and encouragement, I would not have completed this project.

To the members of my committee: Dr. Bruce Menning and LTC Alan Muench (M.D.); thank-you for sharing my enthusiasm for this project. Your input contributed greatly to this study.

Dr. Wayne Osness, Chairman of the Department of Physical Education at Kansas University, for providing his professional expertise. To Major Richard ZAK for skillfully instructing Research Methodology II. To Carol Ramkey and her staff of librarians for helping me to obtain research materials. They are a great asset to all students.

To Dr. Philip Brookes and his professional staff, Helen Davis and Marilyn Harre for this outstanding program and for always being available to provide assistance.

Lastly, I want to give special recognition to my committee chair, Mr. Dave Kent. He gave his time willingly, skillfully oversaw my research efforts, and provided superb commentary. His professional guidance was instrumental in helping me make this study happen.

Renard O. Barone
May 1992

TABLE OF CONTENTS

Appendices

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

The US Army is one of four branches of service that was established by Congress to secure America's national interests by force should deterrence fail. It is imperative that the soldiers comprising the US Army be properly prepared/trained and ready to defend this nation on a moment's notice. Training during peace to be prepared for combat and combat in and of itself is physically demanding. For the US Army to be prepared and ready to withstand the physical hardships necessary to secure the national interests of our nation, its soldiers must be physically fit.

Commanders are responsible for everything their units do or fail to do.[1] This includes ensuring that their soldiers are physically fit to perform their assignment. Company commanders and battalion commanders receive instruction on the military skills necessary to train their units at the Officers Basic Course (OBC), the Officers Advance Course (OAC), Combined Arms and Service Staff School (CAS3), Command and General Staff Officers College (CGSOC), and the Pre-Command Course (PCC). This education process affords commanders the prerequisite knowledge to train their

subordinates to operate and to maintain their equipment and to execute military tasks. Commanders and subordinates collectively must be prepared to perform their combat mission.

Despite the rigor of the schooling system, some commentators argue that the curriculums at the service schools are not preparing commanders to maintain the Army's most precious asset--its people. If this is so, do company and battalion commanders possess the fitness knowledge necessary to maintain both themselves and their units? Do they know which Field Manual (FM) might assist them? The most recent change to Army Regulation (AR) 600-9 makes it clear that overweight soldiers will not be allowed to remain in the army. Do officers have a basic knowledge of nutrition? Can they counsel soldiers about weight control and the ramifications for not meeting the standard? US Army school curriculums teach officers common tasks and tasks that are branch specific. However, are officers being educated to be able to keep their units physically fit? If not, where should they receive fitness knowledge?

Field Manual 22-100, the basic military leadership document, states that military leaders must "Be, Know, and Do".[2] Most commanders "do" perform physical training and do set the proper example by "being fit." However, there is a possibility that many commanders do not "know" US Army fitness doctrine or "know" how to conduct effective physical fitness training.

Statement of the Problem

To assess commander's fitness knowledge, I proposed the following primary question and subordinate questions: Primary question: "To what extent do the US Army's company commanders and battalion commanders understand the fitness concepts enunciated in US Army doctrine?" Subordinate questions: (1) To what degree does their knowledge correspond with the doctrine as reflected in the literature? (2) If disparities exist, what are reasonable explanations for them? (3) What measures does the US Army take to educate its officers in the fitness domain?

The purpose of this study was to assess the fitness knowledge of US Army company and battalion level commanders using a written survey. The survey was a 75-question questionnaire. Specifically, the survey focused on the five areas of fitness (muscular strength, muscular endurance, flexibility, body composition\nutrition, and aerobic capacity) that Army doctrine states commanders should be aware of.[3]

Statement of Purpose

A thesis to determine the fitness knowledge of officers (lieutenants and captains) attending the Infantry, Signal Corps, Military Police and the Chemical Corps OBCs and OACs regarding the Army Physical Fitness Test (APFT) and weight control had previously been conducted by Captain Paul Vanderburgh at the University of Georgia. This study will

not focus on the knowledge of commanders regarding the APFT, as passing the APFT is an individual soldier's responsibility.[4]

This study investigates the fitness knowledge of the US Army's company and battalion level commanders regarding the maintenance/fitness of our force. Has the US Army prepared them to safely improve and sustain their soldiers' fitness?

Assumptions

The study was based on the following assumptions:

1. That soldiers are the Army's most valuable asset.

2. The curriculums at US Army schools for officers adequately address fitness.

3. Company and battalion commanders possess the fitness knowledge that US Army doctrine stipulates.

4. Company and battalion commanders can safely improve or maintain the fitness level of our Army's soldiers.

5. Respondents would understand the questions as the interviewer intended.

6. Respondents would provide data willingly.

7. Subjects' responses could be inferred for all officers in the domain of company and battalion level commanders.

8. That the fitness education provided by America's public school systems and undergraduate institutions may not fulfil the needs of company and battalion level commanders.

Definition of Terms

Terms pertinent to this study were defined as follows:

Aerobic. In the presence of oxygen. Aerobic metabolism utilizes oxygen.

Anaerobic. In the absence of oxygen; non-oxidation metabolism.

Army Physical Fitness Test (APFT). A three event (pushup, situp, 2 mile run) physical fitness test given to all active duty service members twice a year to assess their level of fitness.

Body Composition. The relative amounts of structural components of the body: muscle, bone and fat.

Cardiorespiratory endurance. The capacity of the heart, blood vessels, and lungs to function efficiently during vigorous, sustained activity such as running, swimming, and cycling. The efficiency with which ones's body can deliver to the cells the nutrients and oxygen essential for muscular activity and transport the waste products away from the cells.

Commissioned Officer. A service member who receives a commission from the President of the United States to carry out the orders of the President or of other service members of higher rank; also referred to as an officer.

Company Commander. A company grade officer that is responsible for the training of his unit; one company, comprised of approximately 80-120 soldiers.

Battalion Commander. A field grade officer that is responsible for the training of his unit; normally four companies, comprised of approximately 450-600 soldiers.

Flexibility. The range of movement of a specific joint and its corresponding muscle groups.

Heart Rate (HR). The number of times the heart beats per minute; pulse.

Maximum Heart Rate (MHR). The highest attainable heart rate for an individual; estimated as 220 less AGE.

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.

Muscular strength. The amount of weight that an individual can lift in one repetition (one RM).

Training Heart Rate (THR). A heart rate (pulse) per minute during exercise that will produce significant cardiorespiratory benefits.

Limitations

The study was limited by the following factors:

1. The accuracy of the questionnaire results was dependent upon the honesty/interest of the respondents who took the test.

2. Based on the needs of the Army, some branches have more officers and commands available to these officers than do others. For example, there are more Field Artillery company level and battalion level commands than there are Signal Corps company and battalion level commands. Hence, there might be two or three times as many Field Artillery officers surveyed as there were signal officers.

3. The instrument used to gather information did not provide for any personal contact or exchange between the researcher and the respondent.

4. Respondents who did not complete the questionnaire, or respondents who were not prompt in completing and returning the questionnaire.

Delimitations

The scope of the study was delimited to:

1. Company level commanders who had been selected to attend CGSOC. Not all officers who have commanded at the company level attend CGSOC.

2. Company and battalion level commanders. There are other levels of command in the military infrastructure, i.e., brigade and division level) that were not surveyed.

3. Data which were generated from CGSOC officers of academic year 91-92.

4. Data which were restricted to one class of academic year 1992 PCC officers.

5. Data which were restricted to those prior battalion commanders who were instructing at Fort Leavenworth.

6. The instrument used to gather the information.

7. Areas of fitness concerning aerobic capacity, muscular strength, muscular endurance, flexibility, and body composition. Other fitness related areas included in military doctrine such as muscle physiology, anatomy of human motion (biomechanics), and physical leadership training were not addressed.

Significance of the Study

To secure America's national interests and objectives via deterrence or force should deterrence fail, soldiers in the US Army must be as physically ready to withstand the hardships of war as they are technically prepared to operate and maintain the tools of their trade. Soldiers, doctrine, and equipment comprise the basic framework of the military force. These three elements must be successfully integrated in order to sustain the defense of this nation. A shortfall in any one of these could be detrimental to the ability of the US Army to perform its mission.

There is little doubt that American military technology ranks with the best in the world. Furthermore, commanders

and soldiers receive much training on the operation and tactical employment of this equipment. Is physical fitness a weak link in the military infrastructure? Can the American soldier physically keep pace with the requirements of sustained combat? This study is significant because it could identify a weakness in the educational development of US Army officers. Consequently, results of this assessment could cause a revision in the curriculums of OBC, OAC, CAS3, CGSOC, and the PCC regarding military fitness.

Hypothesis

This study was designed to test the following null hypothesis:

US Army company and battalion commanders do not possess the fitness knowledge that US Army doctrine purports they should as evidenced by a mean score of 38 or less, of a possible 54 (less than 70%), on a fitness questionnaire.

ENDNOTES, CHAPTER 1

[1]US Army, FM 22-103, Leadership and Command at Senior Levels (Washington: Department of the Army, 1987), 81.

[2]US Army, FM 22-100, Military Leadership (Washington: Department of the Army, 1990), 2.

[3]US Army, AR 350-15, The Army Physical Fitness Program (Washington: Department of the Army, 1989), 4.

[4]Ibid.

CHAPTER 2

REVIEW OF LITERATURE

There is a variety of materials available to Army officers within both the civilian and military sectors regarding fitness. Many fitness concepts in each sector overlap. Since this study is concerned with the fitness knowledge that an Army officer should possess in accordance with Army pamphlets, manuals, and doctrine, the literature review focused primarily upon Army fitness literature. However, to set the stage for the importance and the attainment of fitness knowledge, the review briefly surveyed literature on American youth fitness and fitness education. Today's school children will be tomorrow's soldiers charged with defending America's national security. The pertinent literature is organized according to the following topics: (a) an overview of the fitness of American youth--tomorrow's soldiers, (b) examples of fitness in American warfare, (c) fitness education at the United States Military Academy, (d) US Army fitness doctrine, and (e) US Army school curriculums.

An Overview of the Fitness of American Youth--Tomorrow's Soldiers

A longitudinal study performed by Dr. Wynn F. Updyke, Associate Dean of Academic Affairs, School of Health, Physical Education and Recreation, Indiana University, from 1980-1989 indicated that both boys and girls age 10-17 demonstrated a disturbing decline in stamina over the decade. He noted that the findings from his study were consistent with reports from other sources which indicated that American young people are becoming less fit (Appendix A, A-3 through A-4, Bad News A,B,C).

Major Bob Klein, the former Master Fitness Trainer (MFT) Course Director at West Point, observed that the decline in fitness among American youth has been exacerbated by modern technological advancements. For example, he noted that many people no longer push a lawn mower but they steer or ride it. Two consequences of improved technology are less daily exercise for routine matters that previously required exercise and more leisure time. Major Klein noted that many young people are not utilizing this additional leisure time in physically demanding ways.[1] Lieutenant Colonel Mark Saunders, Chief of Training and Doctrine for Army Fitness Programs echoed Major Klein's observations of American youth. He added that most soldiers once came from a rural environment, where hard work was part of their daily routine; whereas today, many soldiers come from an urban environment. He observed that many new recruits are more

comfortable at a video game than they are at doing physical work.[2]

Dr. William Anderson, Professor of Movement Sciences Division, Columbia University, noted that only three states (New York, New Jersey, Illinois) require students to participate in Physical Education in each of their four years of high school. Dr. Anderson emphasized that most public high schools do have Physical Education; however, this discipline is not a four year core requirement. Most importantly, Dr. Anderson commented that not all high school physical education programs make a concerted effort to teach fitness education.[3]

The purpose of the American public school system is to prepare our young people for their post secondary school vocations, whether that be to immediately enter the job market, continue their education at the university level, or join the armed services.[4] Based on the evidence presented, can we reasonably assume that our Army leaders are receiving fitness education as part of their preparation for post secondary vocations? To improve fitness among Americans, Dr. Updyke has recommended Fitness Literacy. One stipulation of Fitness Literacy is a strong foundation in fitness knowledge (Appendix A, A-6, Recommendations).

The researcher adamantly supports Dr. Updyke's recommendation for fitness literacy. However, in the light of Dr. Anderson's previously cited statements concerning high school Physical Education, is it reasonable to assume

that whatever fitness education occurs within the public school or undergraduate educational systems will be sufficient for future Army leaders? Or should the Army accept responsibility for educating its leaders in the fitness domain? Is providing the manuals, the pamphlets, and the doctrine and stating that commanders should know and understand these concepts enough? From the researcher's perspective, that is comparable to a school system providing history books and telling students to learn history.

Whether commanders need an indepth knowledge of exercise physiology to maintain their units' fitness is for the Training and Doctrine Command (TRADOC) to decide. Major Klein does not believe that an indepth knowledge is necessary. As an analogy, he notes that commanders do not need to understand the intricacies of how an engine functions to check maintenance. He commented that, "It is in the best interest of the soldier, the unit, and the US Army that commanders possess basic fitness knowledge based on the most current research and empirical evidence."[5]

The subsequent section provides historical examples of soldier fitness. Each demonstrates that soldier fitness is a dependent variable, which can be influenced by the commander's knowledge of training techniques. Moreover, the commander's knowledge of fitness may have been instrumental to his soldier's performance and survival.

Examples of Fitness in American Warfare

In the historical examples cited, the commanders predictably violated some of the fitness principles espoused in today's Army's doctrine. Yet they understood that doing certain exercises would increase their unit's fitness and better prepare it for the rigors of war. That preparation is an inherent responsibility of commanders. As with any discipline, the available body of Army doctrine concerning fitness continually evolves. General Lucian K. Truscott, known for the legendary "Truscott Trot" during World War II (addressed later in this thesis), noted that there was no greater mistake that military leadership could make than to cling to outmoded concepts and outmoded methods of training.[6]

During the Civil War, Stonewall Jackson's strategy was to secure the initiative via maneuver and to continually attack so as to give the enemy no rest. To achieve these ends, his soldiers had to be physically fit, or at least in better physical condition than their opponents. Speed marching was the method employed by Jackson to train his soldiers.[7]

Jackson never wasted a training opportunity to tax his unit's endurance to the utmost. He was a staunch believer that victories were won by sweat rather than his soldier's blood. To this end, he pushed his soldiers hard to improve their endurance and stamina. Seven hours of drill and training daily over the most challenging terrain in Virginia

taxed his men's enthusiasm. Yet these foot-sore soldiers became believers as they time and again surprised and defeated Federal soldiers on the battlefield.[8]

In his lectures on "War Fighting Fitness", Colonel James Anderson, Director of Physical Education at West Point, solemnly recalled how retreating American soldiers in the Pusan Valley in Korea grew so weary that they sat down on the side of the road and were executed by the passing North Koreans. "I could not imagine being so fatigued that I would lay at the side of the road and be shot in the head."[9] It was at this time that Colonel Anderson realized that commanders are responsible to ensure that their soldiers are physically able to win on the battlefield.[10]

General Truscott, a Divisional and Corps commander in Italy and France during WWII, believed that US Army infantry soldiers should equal the marching and endurance standards of Roman legions or Stonewall Jackson's "foot calvary" of Civil War fame.[11] His primary objectives were to attain the highest possible marching and physical standards. Furthermore, General Truscott came to realize that as men reached increasingly difficult standards, their self-confidence grew. That confidence is essential to success on the battlefield. Moreover, the weeding out of soldiers (both officers and enlisted) who could not meet the rigorous physical training standards resulted in a greater sense of pride in those who could.[12] General Truscott pointed out that Stonewall Jackson utilized the physical

pointed out that Stonewall Jackson utilized the physical condition of his soldiers to engage Union troops who did not believe that he was anywhere within miles of them.[13] General Truscott remarked that fitness was an essential element of his unit's successes in WWII[14].

In his monograph, "Physical Training for the modern Battlefield: Are We Tough Enough?", Major Mark Hertling stated that a unit's physical training is an important component of its preparation for war. Additionally, he observed that commanders who cared for their soldiers would physically train them for the uncertainties, hardships, and stresses of combat. An American soldier in Vietnam gratefully recalls how his company commander physically pushed their unit:

> He used to hump us 'till our bones ached: we would want to stop and eat, stop and rest, and he'd just hump us. But I give him thanks, man, because if it weren't for him driving us I'd be dead right now. Half the time I wanted to kill the bastard, and the rest of the time we loved him cause he was that good.[15]

This soldier's acknowledgement correlates with Stonewall Jackson's belief that it is better to sweat in training than it is to bleed in war.

According to Captain Joseph Anderson of the 75th Ranger Regiment at Fort Lewis, Washington, the injuries sustained by the Rangers while parachuting into Grenada or as a result of the heat in Panama were minimal due to their daily physical training regime.[16] In the next section, the

Fitness Education at the United States Military Academy

The United States Military Academy (USMA) at West Point has demonstrated a commitment of resources to instruction in physical fitness. The purpose of this synopsis is to determine how that institution, created to produce Army officers, has responded to the need to educate its graduates to keep their unit physically fit.

USMA was founded in 1802. Initially it was established to produce officers of unquestioned character to supervise the American Army.[17] When the Academy was inaugurated, physical education was not included in the school's curriculum.[18]

The Physical Education curriculum and program at West Point has evolved from non-existence at the academy's inception to its present stature as a mandatory four-year program.[19] It is one of three developmental pathways that each cadet must successfully complete to graduate and to be commissioned as an officer in the United States Army.[20]

It was not until Captain Alden Partridge became the third Superintendent of USMA in 1815 that physical education became firmly fixed as a component of the curriculum. Captain Partridge was intensely interested in the physical development and physical education of cadets. He perceived the neglect of fitness to be a primary defect in the development of an officer.[21]

Many of the physical activities present in today's physical education curriculum reflect the program formulated

by Colonel Herman Koehler (1885-1923).[22] The fitness education depicted in the current program was instituted by Colonel James A. Anderson.[23] Both Colonel Koehler and Colonel Anderson utilized their war experiences and formal schooling to develop their respective training philosophies. Colonel Koehler reorganized the physical education program into a rational system of physical training.[24] Colonel Anderson implemented the Master Fitness Trainer (MFT) and the War Fighting Fitness concepts into the curriculum in 1988 and 1990 respectively. Master Fitness Trainer is a required series of fitness lectures and activity classes that prepares cadets to supervise their own fitness as well as the fitness of their soldiers upon commissioning. War Fighting Fitness was designed to prepare future US Army officers and their units for the physical and mental rigors of war.[25]

Fitness education did not become a part of the USMA curriculum until the 1980s. Hence, a former graduate such as Stonewall Jackson must have obtained his inclination for unit fitness via speed marches from another source. Next the researcher addresses current military doctrine and fitness.

Current US Army Fitness Doctrine

"Wars are fought and won by men, not by machines."[26]

In this section the researcher reviews US Army doctrine that addresses commanders' responsibilities regarding

In this section the researcher reviews US Army doctrine that addresses commanders' responsibilities regarding physical fitness. Note that the focus of this section is not methods, techniques, or programs for fitness.

In 1982, Colonel Frank A. Partlow Jr., the commander of a Basic Training Brigade, was one of a handful of military leaders who saw the need to provide fitness instruction to the Army's officers corps so that they might better maintain the force. He noted that:

> The rationale for PRT (Physical Readiness Training) is essentially an intellectual one which the mind must first comprehend before the body can respond. More simply stated, we must first know, then carefully explain why it is important that the human animal maintain a certain level of physical fitness.[27]

In December 1982, President Ronald Reagan stated that it was necessary to reaffirm the importance of physical fitness to the military. He noted that our armed forces had to be mentally and physically prepared at all times. Moreover, he noted that even with our modern weapon systems, it is the soldiers that are physically, mentally, and spiritually ready to serve their country that will make a difference in any conflict. Finally, as Commander-in-Chief, he challenged the members of the United States Army to maintain a high level of physical strength and endurance.[28]

In response to the Commander-in-Chief's challenge to meet this goal of a physically fit Army, the Soldier Fitness School was established at Fort Benjamin Harrison, Indiana, in 1982 to manage the US Army's fitness programs.[29] (The

which prescribes policies, procedures, and responsibilities for the Army Physical Fitness Program, reemphasized that the objective of the Army fitness program was to enhance our force's combat readiness by developing and sustaining a high level of physical fitness in soldiers.

AR 350-15, and Field Manual (FM) 21-20, the US Army Physical Fitness Training manual, make it clear that commanders and supervisors are responsible for ensuring that all soldiers in their units are physically ready to perform their combat mission.[30] These doctrinal manuals promulgate that physical fitness is the foundation of combat readiness, and that it must be an integral part of every soldier's life. The Military Qualification Standards II Manual of Common Tasks For Lieutenants and Captains, states that these officers must use their fitness knowledge to assess the general fitness of their units and then develop training sessions for them. Their assessment and training must be based on the unit's mission essential task list (METL), the five components of fitness, commander's guidance, and US Army doctrine.[31] The Military Qualification Standards III Leader Development Manual For Majors and Lieutenant Colonels will not be published until the first quarter of US Army fiscal year 1993. According to Major Jerry Reyes, Center for Army Leadership (CAL), this manual will focus upon broad areas of knowledge and not specific tasks.[32]

Army Regulation 350-15 maintains that all officers responsible for planning, conducting and evaluating physical

training and testing will be familiar with the principles, procedures, and guidelines set forth in FM 21-20. It states that commanders will establish and conduct physical fitness programs consistent with Army regulations, manuals, and unit missions. Most importantly it states that exercise periods will be performed with sufficient intensity, frequency, and duration to maintain adequate cardiorespiratory endurance, muscular strength, muscular endurance, flexibility, and body composition.[33]

Dr. Todd Crowder, an exercise physiologist and the course director for basic fitness at the Department of Physical Education, West Point, observed that there are a significant number of aspects to this process that need to be understood and taught as in any other academic discipline. He remarked that physical training cannot be applied routinely; it requires study and analysis prior to application. Specifically Dr. Crowder continued that this involved: (a) an understanding of the merits of aerobic and anaerobic type exercises, (b) procedures to identify training heart rate, (c) an understanding of the principles of exercise, (d) a working knowledge of the components of fitness, (e) application of the FITT principle (frequency, intensity, time, type), (f) injury prevention, (g) proper rest, (h) the relationship of exercise and nutrition, and much more.[34]

AR 350-15 further states that soldiers are expected to meet the standards set forth in Army doctrine. Moreover, it

stipulates that commanders as a first priority will conduct physical fitness programs that enhance the soldier's ability to complete essential individual combat tasks. Those soldiers who are unable to meet the physical fitness test standards or the required mission-related physical fitness standards established for their units may be subjected to the same administrative actions as apply to the inability to perform any other mission-essential individual task.[35]

During peacetime, soldiers that cannot physically meet the standard can be handled administratively (this may include discharge). However, in combat situations, where US Airland Battle doctrine is offensively oriented, commanders are told that they must press the fight tenaciously and aggressively. They must drive soldiers and systems to the limits of endurance for as long as necessary.[36] This can be achieved as long as soldiers are physically prepared to meet these challenges. Major Klein noted that, "just doing the 'daily dozen' will not prepare soldiers for this war fighting task."[37] Furthermore, Major Klein pointed out that Airland Battle doctrine warns that soldiers tend to become physically exhausted and morally less committed as the attack progresses.[38] However, FM 22-100, the US Army Military Leadership manual, states that physical strength and endurance improves the ability of the soldier to "bounce back" from exhaustion.[39] Moreover, FM 21-20 supports this concept by stating that fit soldiers can call upon their minds and bodies to perform strenuous activity for extended

periods and return to normal effectiveness after a relatively short period of rest.[40]

General Sherman noted that "War is hell."[41] Field Manual 100-5 points out that as in the past, the chaos of combat will place a premium on the initiative, spirit, cohesion, and mental and physical preparedness of soldiers and their units.[42] Those units likewise must be physically and psychologically capable of responding rapidly to changing requirements.[43] FM 22-103, Leadership and Command at Senior Levels, appendix B, states about fitness:

> Leaders, regardless of their rank or position, are soldiers. Effective performance on the battlefield will not happen unless one is physically fit. Physical fitness helps soldiers to endure the hardships of the battlefield. In addition, it enhances one's resistance to disease and minimizes the effects of stress.[44]

Having established by Army doctrine the importance of physical fitness and the responsibility of commanders in maintaining that fitness, the researcher will now focus on how the Army prepares and educates its commanders to physically train their units.

US Army School Curriculums

There is little doubt that physical training does occur at least three to five times per week at most Army installations as directed by AR 350-15.[45] However, AR 350-15 also stipulates that the programs of instruction (POIs) for the pre-commissioning and the initial training of officers must include carefully structured, progressive, and

challenging physical training programs that focus on the latest Army fitness doctrine.[46] Is the Army complying with this policy?

In 1988, Captain Vanderburgh concluded that although the officer basic and advanced courses included participation in physical training programs in preparation for the APFT, there was no evidence that fitness concepts were being taught.[47] Since Captain Vanderburgh's 1988 study, decisions by successive TRADOC commanders and budget constraints have led to changes at the Master Fitness Trainers School and the basic and advance course curriculums of all the Army service schools. Those changes are interrelated and will be addressed next.

According to Major Jim Baily, TRADOC Plans and Operations Division, the results of the 1988 US Army Physical Fitness Test (APFT) Survey conducted by personnel from the MFT School which indicated that young soldiers, both male and female, ages 17-21, did not possess sufficient levels of physical fitness, (Appendix B, B-2), greatly perturbed General Maxwell R. Thurman, Commander TRADOC at that time. As a countermeasure, in August 1989 General Thurman directed that all company grade officers receive the 135 hours of Master Fitness Trainer (MFT) instruction through their officer development courses. To achieve this training strategy, General Thurman directed the Fitness School to develop a plan to sequentially and progressively organize the MFT course of instruction so that it could be

integrated into the curriculums of Reserve Officers Training Course (ROTC) cadets, Officer Candidate School (OCS) selectees, and officer basic and advanced courses (Appendix C, para. 1&2). It was not necessary to implement this program at West Point, as much of it had already been emplaced. Prior to this policy coming into effect, General John Foss assumed the position of Commander TRADOC.

In October 1989 General Foss decided that General Thurman's total MFT certification plan was not necessary. He believed that a training strategy that ensured that the MFT principles and fundamentals were embedded in the force was sufficient. General Foss contended that to achieve this objective, officer MFT certification was not essential. He maintained however, that some officers may go on for certification (Appendix D).[48]

Dr. Louis Tomasi of the MFT School noted that the MFT School revised the original training support package (TSP) plan that integrated the MFT curriculum into ROTC, OCS, and officer basic and advanced courses to meet General Foss's guidance.[49] Under the new TSP, the cumulative number of fitness hours allotted for instruction was reduced from 135 to 40, of which 31 were academic. Ten of the 40 hours are taught in ROTC, 19 in OBC, and 11 in OAC (Appendix E, E-1 through E-3). Dr. Tomasi and Major Baily both stated that these curricular revisions were implemented as of June 1991.[50]

The programs of instruction (POIs) for CAS3 and CGSOC do not include any fitness training instruction. A graduate of CAS3 stated that fitness is an acceptable subject area from which a briefing may be formulated to satisfy a requirement.[51] The PCC contains .5 hours of fitness instruction in the core curriculum. The session includes a discussion for commanders on considerations for developing and managing a "Battle Focused" physical training program.[52]

The Soldier Fitness School (MFT School) was founded in 1982 at the direction of the Honorable John Marsh, then Secretary of the Army. The primary purpose of the school was to train soldiers to assist commanders in developing good physical training programs.[53] Captain Vanderburgh (1988) questioned the usefulness of having a single MFT-qualified soldier serve as a battalion's primary fitness resource. He pointed out that this is often an additional rather than a primary duty for the soldier. More importantly, having a MFT-qualified soldier in the battalion does not alleviate commanders' responsibility for physically training their units.[54]

This concludes the review of Army fitness literature. The researcher believes that it is necessary to note that the Fitness School was partially closed as a result of the Army's Vanguard initiative to cut back the budget (Appendix F, F-1, para. 1&2). A note from the President of the President's Council for Physical Fitness to the Chairman of the Joint Chiefs of Staff helped to keep the school from

being totally closed. The Fitness School will be reduced from a staff of 35 military and civilians to 15, and will be moved from Fort Benjamin Harrison, Indiana to Fort Benning Georgia (Appendix F, F-1, para. 1a). In the subsequent section, the researcher presents the methodology used in this study.

ENDNOTES, CHAPTER 2

[1]Robert Klein, interview by author, 22 November, 1991.

[2]"Fitness in the Military Taking a New Look," Athletic Business, (June 1984): 28.

[3]William G. Anderson, interview by author, 18 September 1991.

[4]Daryl Siedentop, Developing Teaching Skills in Physical Education (California: Mayfield Publishing Co.), 35.

[5]Klein, interview, 22 November 1991.

[6]Lucian Truscott, Command Missions: A Personal Story (New York: E.P. Dutton and Company, 1954), 533.

[7]George F. R.Henderson, Stonewall Jackson and the American Civil War (Massachusetts: Fawcett Publications, 1962), 549.

[8]Ibid., 551.

[9]James A. Anderson, "War Fighting Fitness," Lecture Delivered at the United States Military Academy, West Point, 9 January 1991.

[10]Ibid.

[11]Truscott, 533.

[12]Ibid., 540.

[13]Will Lang, "Lucian Truscott," Life, (12 October 1944), 107.

[14]Truscott, 185.

[15]Mark P. Hertling, "Physical Training for the Modern Battlefield: Are We Tough Enough?" (Mongram School of Advanced Military Studies US Army Command and General Staff College Fort Leavenworth, Kansas, 1987), 16.

[16]William H. McMichael, "Fit to Fight," Soldiers, (December 1990), 46.

[17]United States Military Academy, "2002: A Road Map to Our Third Century," (West Point, 1988), 1.

[18]United States Military Academy, Department of Physical Education Syllabus, (West Point, 1984).

[19]United States Military Academy, "Institutional Self-Study," (West Point, 1988-1989).

[20]United States Military Academy, "2002", 4.

[21]R. Degan "The Evolution of Physical Education at the United States Military Academy," (Master of Science Thesis, University of Illinois, 1968).

[22]United States Military Academy, Department of Physical Education Syllabus, (West Point, 1952-53).

[23]Author's Institutional Knowledge.

[24]United States Military Academy, Department of Physical Education Syllabus, (West Point, 1952-53).

[25]Author's Institutional Knowledge.

[26]US Army, FM 100-5, Operations (Washington: Department of the Army, 1986), 5.

[27]Frank A. Partlow, Jr., "The 'Daily Dozen' Won't Do IT," Army (February 1982): 47.

[28]US Army, DA Pam 350-18, The Individual's Handbook on Physical Fitness (Washington: Department of the Army, 1983), i.

[29]"Fitness in the Military Taking a New Look,"Athletic Business, (June 1984): 28.

[30]US Army, FM 21-20, Physical Fitness Training (Washington: Department of the Army, 1985), 1-1.

[31]US Army, STP 21-II-MOS, Manual of Common Tasks (Washington: Department of the Army, 1991), 3-90.

[32]Jerry Reyes, telephone interview by author, 8 April 1992.

[33]US Army, Army Regulation 350-15, The Army Physical Fitness Program (Washington: Department of the Army, 1989), 4.

[34]Todd Crowder, telephone interview by author, 16 January 1992.

[35]AR-350-15 (1989), 4.

[36]FM 100-5 (1986), 24.

[37]Klein, interview, 22 November 1991.

[38]FM 100-5 (1986), 181.

[39]FM 100-22, 63.

[40]FM 21-20, 8.

[41]FM 100-22, 61.

[42]FM 100-5 (1986), 2.

[43]FM 100-5 (1986), 16.

[44]FM 22-103, (1987), 84.

[45]AR-350-15 (1989), 4.

[46]AR-350-15 (1989), 4.

[47]Vanderburgh, 52-53.

[48]Jim Baily, telephone interview by author, 16 January 1992.

[49]Louis Tomasi, telephone interview by author, 14 October 1991.

[50]Tomasi, telephone interview, 14 October 1991; Baily, telephone interview, 25 October, 1991.

[51]Matthew McCarville, interview, 16 January 1992.

[52]Brigade and Battalion Pre-Command Course Program of Instruction (Fort Leavenworth, KS, 1991), 7.

[53]US Army, US Army Physical Fitness School, "Master Fitness Trainer Course," MFT Course Manual (Fort Benjamin Harrison, Indiana, 1989), 2.

[54]Vanderburgh, 3-4.

CHAPTER 3

METHODS AND PROCEDURES

Research Design/Procedures for Collecting Data

A 75-question fitness knowledge questionnaire was administered to: (a) active duty officers attending CGSOC for academic year 1991-1992, (b) lieutenant colonels instructing at Fort Leavenworth who had previously commanded at the battalion level, and (c) lieutenant colonels attending the early March PCC. Subjects from the three categories were randomly selected from the combat arms, combat support, and the combat service support branches of service.

The survey-questionnaire (Appendix G) was constructed by the researcher. It dealt with the five components of fitness as addressed in Army doctrine and was designed to assess the level of fitness knowledge of company and battalion level commanders. The dependent variable was fitness knowledge survey score (survey questions 15-70). The independent variables were officers completing the survey, level of command, and others as identified in the demographic or the general fitness information sections of the questionnaire such as: civilian physical education, age, sex, and the importance of fitness in the Army.

Seventy percent was selected as the level of proficiency on the survey-questionnaire because:

1. The previously cited study concerning officer fitness knowledge conducted by Captain Vanderburgh (1988) at the University of Georgia used this criteria.

2. The Fitness School and the Department of Physical Education, West Point, have established 70% as their standard.

3. The military Skill Qualification Test (SQT) used 70% as its qualifying score.

4. This score would adequately demonstrate fitness knowledge as opposed to guessing.

PCC student officers were preparing to command at the battalion level. Instructors surveyed had completed battalion command. Data was analyzed demographically, by total group test scores on individual items, by level of command (company vs battalion), and by fitness area. For the purpose of discussion, this chapter is organized as follows: (a) selection of subjects, (b) development of instrumentation, (c) administrative methodology, (d) design of the study, and (e) treatment of data.

Selection of Subjects

The population of subjects for the study were randomly selected without replacement. It consisted of:

1. 240 of the 969 active duty officers ranging in rank from captain to major attending CGSOC for academic year 91-92. The same percentage of officers by branch group (combat arms, combat support, combat service support) and branch (infantry, field artillery, military police, etc.) comprising the 969 CGSOC students was utilized to designate the percentage of the 240 officers to survey. For example, 54% of the 969 active duty officers attending CGSOC were combat arms; therefore, 54% of the 240 officers surveyed were combat arms. Also, 14% of the 969 officers attending CGSOC were infantry branch; therefore, 14% of the 240 officers surveyed were infantry branch. Table 1 illustrates the number of branch group and branch specific officers surveyed from the CGSOC class.

2. All sixty-six lieutenant colonels instructing at Fort Leavenworth that had previously commanded at the battalion level. Table 2 illustrates the branch group of those officers surveyed.

3. Forty-nine lieutenant colonels attending the March 1992 PCC. Table 3 illustrates the branch group of those officers surveyed. Since the total number of lieutenant colonels with command experience and PCC officers was nominal, specific branch designations were not determined.

Table 1.

Distribution of CGSOC Officers Surveyed By Branch

Branch	%	#
Combat Arms	54%	130
Infantry	14	34
Field Artillery	12	29
Armor	09	22
Air Defense	06	14
Special Forces	03	7
Aviation	10	24
Combat Support	24%	58
Military Intelligence	06	14
Engineer	06	14
Signal	06	14
Military Police	05	12
Chemical	02	05
Combat Service Support	22%	52
Quarter Master	05	12
Ordinance	05	12
Adjutant General	05	12
Transportation	03	07
Finance	02	05
Medical Services	02	05
TOTAL	100%	240

Table 2.

Distribution of Lieutenant Colonels Surveyed Who Have Battalion Command Experience Teaching at Fort Leavenworth

Branch	%	#
Combat Arms	67	44
Combat Support	12	08
Combat Service Support	21	14
TOTAL	100	66

Table 3.

Branch Distribution of PCC Officers Surveyed

Branch	%	#
Combat Arms	51	26
Combat Support	24	12
Combat Service Support	25	13
TOTAL	100	51

The data producing subjects consisted of those who answered and returned the questionnaire to the researcher prior to the deadline.

Permission to survey the CGSOC officers was obtained from the CGSOC Class Director (Appendix H). Approval to poll the PCC officers for the purpose of research was obtained from the Director of the School for Command Preparation (SCP) (Appendix I). Approval to survey prior battalion commanders instructing at Fort Leavenworth was not required.

Development of the Instrumentation

To obtain data for this study the researcher devised a survey instrument. This section addresses the methodology and reasoning for survey question selection, the review of the questionnaire by a panel of experts for content validity, and the conduct of the pilot study for construct validity.

The fitness questionnaire (Appendix G) was developed to provide data in the following domains: (a) demographic: personnel and background data on the officers completing the questionnaire, (b) the five components of fitness (cardiorespiratory fitness, muscular strength, muscular endurance, flexibility, and body composition), (c) general fitness knowledge, and (d) general fitness information concerning US Army fitness. Questions incorporated in the

survey were validated in the literature and derived from US Army doctrine only.

Demographic/Personal Data

When performing a questionnaire study, it is necessary to assemble a profile on the respondents. This study involved: (a) US Army officers attending CGSOC who had commanded at the company level, (b) US Army officers attending the PCC who would command at the battalion level, and (c) former battalion commanders instructing at Fort Leavenworth.

Rank is the basis of the military infrastructure. Responsibility, level of schooling, and duty position of officers is often determined by their rank. It was therefore necessary to know the rank of the officer that was being surveyed.

Age and sex are common variables on a questionnaire used to make comparisons and to develop a profile. In the military, the rank and the age of an officer are closely correlated. Also, their branch of service may be predetermined by their sex.

The mission of each branch of service is different. Since the combat arms is the largest branch group, it has more commands. Furthermore, more officers are selected to attend CGSOC and the PCC from this group than from the combat support or combat service support branches. Finally, the combat arms branches tend to be more physically

demanding than the other branches. Because the researcher needed to apportion the surveys by branch and to analyze the data produced by rank, it was necessary to include questions concerning the target population's rank and branch.

It was essential to know if the CGSOC student officers had commanded at the company level, because the focus of this thesis was the level of fitness knowledge of company and battalion level commanders.

The final six questions centered on the officers' physical education preparation. Because this instrument measured fitness knowledge, it was critical to determine the target population's fitness educational background.

Military Components of Fitness

The next section of the survey focused upon the five components of fitness (cardiorespiratory, muscular strength, muscular endurance, body composition\nutrition, and flexibility) espoused in US Army doctrine. Its purpose was to provide data that would permit the researcher to determine the level of fitness knowledge of the target population. Physical fitness is comprised of factors that permit soldiers to function effectively in physical activities, mental activities, training, recreation, and emergencies.[1] Subsequently, each area of this section is summarized.

Cardiorespiratory Fitness. Questions 15-24 addressed cardiorespiratory fitness. Specifically, they embraced the

techniques, methods, and reasoning for performing cardiorespiratory exercise. Questions such as how to and where to measure pulse, running in ability groups, and the benefits associated with aerobic type exercises were surveyed.

Muscular Strength and Muscular Endurance. These two areas were grouped together and were addressed in questions 25-38. Questions concerned with assessing and improving soldiers' muscular strength and\or endurance such as "What is a method for determining a soldier's leg muscular strength?" were asked.

Flexibility. Questions 38-46 assessed the officers' knowledge of flexibility. Basic concepts such as how, when, duration, methods, and benefits of performing stretching exercises were addressed.

Body Composition/Nutrition. Questions 47-58 pertained to this component of fitness. This section was designed to determine the samples' basic knowledge in assisting soldiers to meet the Army's weight standards as prescribed in AR 600-9. Questions such as "What is the prescribed method for reducing weight?" comprised this area.

General Fitness Knowledge. General fitness knowledge comprised questions 59-70. These were generic fitness questions designed to assess general fitness knowledge prescribed in Army doctrine, manuals, and pamphlets.

General Fitness Information (questions 71-75). This section was designed to provide some general information concerning

the target population's personal beliefs on fitness in the Army. Questions such as "Do you feel physical fitness is an important aspect of the Army?" were included.

Summary of Fitness Survey-Questionnaire Development

This questionnaire consisted of three areas. Demographic/background data was addressed in questions 1-14. Officer fitness knowledge which comprised the subsequent section was subdivided into five areas (cardiorespiratory, muscular strength/muscular endurance, flexibility, body composition/nutrition, and general fitness knowledge) and was addressed in questions 15-70. The final area (questions 71-75) concerned general fitness information.

Questions comprising the first two sections were researched in the literature. The results of this questionnaire should indicate the level of fitness knowledge of former company commanders selected to attend CGSOC for academic year 91-92, future battalion commanders attending the PCC, and lieutenant colonels teaching at Fort Leavenworth who have commanded a battalion. It should be noted that for the purpose of data analysis, future battalion commanders (PCC officers) and past battalion commanders were grouped together. Having described the questionnaire's content, its administration needs to be addressed.

Administration/Methodology

The target population for this survey was former company commanders who attended CGSOC for Academic Year 91-92, future battalion level commanders attending PCC during the spring of 1992, and instructors at Fort Leavenworth who have commanded at the battalion level. The researcher believed that prior company commanders would provide a representative sample of all Army company commanders, including those not selected to attend CGSOC. Their competitive selection to attend CGSOC indicates that they are in at least the upper 50% of all company level commanders throughout the Army.[2] The method utilized to select officers to attend CGSOC is relatively consistent from year to year. The sample included 240 of the 969 active duty officers.

Prior battalion commanders instructing at Fort Leavenworth (LTCs only) and PCC officers (promotable Majors and LTCs) from one Pre-Command Course in Fiscal Year 92 were selected for this survey, because it was believed that they would provide a representative sample of all currently serving Army battalion level commanders. Their competitive selection to attend the PCC and to command a battalion indicates that they are in at least the upper 10% of all officers of their rank throughout the Army.[3] The methods used to select officers to attend the PCC are relatively consistent from year to year. The sample included 49 PCC and 66 prior battalion commanders respectively.

Having identified the research question and the target population, the researcher next analyzed the various research methodologies (descriptive, comparative, historical, case study etc.) to gather data. The survey method of collecting data was selected, as it is perhaps the most frequently used mode of observation in the social sciences.[4] A survey was developed to obtain data concerning the following primary and subordinate research questions, which were:

1. Primary question:
   To what extent do the US Army's company and battalion commanders understand the fitness concepts enunciated in US Army doctrine?

2. Subordinate questions:

   To what degree does their knowledge correspond with the doctrine as reflected in the literature?

   If disparities exist, what are reasonable explanations for them?

   What measures does the US Army take to educate its officers in the fitness domain?

To produce an appropriate questionnaire to collect data, the researcher continually solicited recommendations for the instrument's substance, development, and administration from the literature and his committee. Gathering data by means of a questionnaire normally involves: (a) identifying and researching the content of the questionnaire, (b) making the instrument, (c) administering the instrument, (d) arraying the data, and (e) analyzing the information.

Due to the restrictions of a questionnaire, options concerning the wording and the most appropriate questions to incorporate had to be determined in order to generate reliable responses. An analyst from the Evaluation and Standardization office at CGSOC assessed all drafts of the fitness questionnaire for format and substance. His analysis was used in conjunction with the results of the pilot study to refine the instrument (Appendix G).

Validity and Reliability

A panel of experts ascertained the survey's content validity. The panel consisted of a military medical surgeon, an Army officer with a masters degree in Exercise Science, an Army officer with a masters degree in Exercise Physiology, an instructor with a masters degree in Research Methodology, and an analyst from the Evaluation and Standardization office at CGSOC. They determined the test to be unbiased, comprehensible, and valid. Construct validity was determined from the pilot study which surveyed seven CGSOC officers. The Split-Half Coefficient Test on the SPSS program was used to estimate the questionnaire's reliability.

Pilot Study

Seven CGSOC students for academic year 91-92 were randomly selected to complete the pilot study. These officers were briefed by the researcher on the survey's

purpose and procedures. They took the fitness questionnaire for comprehension and clarity. Upon completing the pilot test, each officer was interviewed by the researcher. Their suggestions for improvement and/or to clarify any ambiguities in the questions were embodied into the questionnaire survey (Appendix G). Times ranged from 12-18 minutes to complete the pilot study. This data was important as it was used to obtain clearance to administer the survey to the target population. Also it was included in the survey's instructions to provide the target population an estimate of the time required to complete this survey.

Survey Administration

Since this survey was to solicit data from officers attending CGSOC for academic year 91-92, PCC officers attending an early session of the fiscal year 92 Pre-Command Course, and prior battalion commanders teaching at Fort Leavenworth, it was necessary to obtain the approval from the CGSOC and the Pre-Command Course Class Directors to administer this instrument. Separate letters and surveys were sent to each director stating the purpose of this research and the benefits that its results could have for the military (Appendices H and I). Once the survey was approved by the appropriate directors, the Chief Evaluation and Standardization Division, CGSOC, provided a survey

control number. This number was placed on surveys distributed to the target population.

Nine-hundred and sixty nine active duty officers attended CGSOC for academic year 91-92. Students were equally divided into 20 groups. In order to obtain the target survey response of 200, 12 surveys were sent to each of the 20 groups for a total of 240 surveys. Table 1 shows the distribution of surveys by branch group and by branch. Officers randomly selected to participate in the survey were personally solicited with a form letter signed by the researcher. The form letter, which served as the cover letter to the survey, explained the purpose of this survey and requested the targeted officer's assistance (Appendix J, J-1). The researcher gave each section survey officer 12 surveys to distribute to the officers selected from their section. A note addressed to the section survey officers from a representative of the Department of Academic Operation (DAO), CGSOC, requesting that they distribute and return their sections' completed surveys to the DAO within 48 hours was attached (Appendix K).

The personalized cover letter method was also used to distribute surveys to officers attending a Pre-Command Course in fiscal year 92 and to instructors at Fort Leavenworth with prior command experience. Minor adjustments to each cover letter were made (Appendix L, L-1; Appendix M, M-1). Officers in the PCC returned their completed surveys to the School for Command Preparation

(SCP) Personnel Center. The prior commanders returned their surveys to the researcher via distribution.

Data Receipt. Since the military is a very structured organization, it was expected that the rate of return would exceed 65% for the populations surveyed. The actual rate of return was 66% for CGSOC Officers, 45% for the PCC officers, and 64% for previous battalion commanders instructing at Fort Leavenworth.

Collection Technique. A mark sense form was used to record questionnaire responses (Appendix N). This greatly facilitated scanning and placing the data into the computer to be analyzed.

Treatment of Data

Survey responses were recorded on a computer mark sense form. Computer equipment in the Department of Academic Operations read and loaded the data onto a floppy disk. To test the null hypothesis, the researcher and an analyst from the DAO used the Statistical Package for the Social Sciences (SPSS) software to determine the entire group's means, standard deviations, and frequencies. Next, CGSOC officers were place in a group defined as company commanders, and PCC officers and prior battalion commanders were placed in a group defined as battalion commanders. A Pooled Estimate T-Test with an alpha of .05 was then run to determine significant differences in fitness knowledge between company commanders and battalion commanders.

Statistical significance is the degree to which a study's independent variable--level of command (company level and battalion level)--affected the dependent variable--responses to fitness knowledge survey questions 15-70.[5] By selecting an alpha or level of significance of .05, I was 95% sure that any differences among survey responses (dependent variables) were due to level of command (independent variable).

The researcher desired to assess what the surveyed officers positively knew about fitness. Hence, survey instructions requested that the target population not guess; that the response "unknown" be annotated if the participant did not know the answer. "Unknown" responses were treated the same as incorrect answers.

Due to an administrative error, one fitness question was deleted. Therefore, the dependent variables consisted of the target population's responses to questions 16-70 rather than 15-70.

ENDNOTES, CHAPTER 3

[1]FM 21-20 (1985), 1-1.

[2]Gordan Sullivan, Lecture to CGSOC class Academic Year 91-92, Fort Leavenworth, KS, October 1991.

[3]Field Artillery Branch Chief, Lecture to Field Artillery CGSOC officers of Academic Year 91-92, Fort Leavenworth, KS, August 1991.

[4]Earl Babbie, The Practice of Social Research (California: Wadsworth Publishing Company, 1986), 202.

[5]Kenneth D. Hopkins and Gene V. Glass, Basic Statistics for the Behavioral Sciences (New Jersey: Prentice-Hall, Inc, 1978), 9-10.

CHAPTER 4

ANALYSIS OF DATA

The purpose of this study was to assess by survey-questionnaire the fitness knowledge of company and battalion level commanders in the US Army. Questions comprising the fitness questionnaire were derived from the five components of fitness (cardiorespiratory, muscular strength, muscular endurance, flexibility, and body composition/nutrition) as espoused in US Army regulations, manuals, and pamphlets.

Despite general instructions to the contrary, not every subject properly annotated every response on the mark sense form. Hence, not every question had 219 responses. For the purpose of discussion, survey results are reported as follows: (a) profile of the subjects, (b) analysis of total group survey scores, (c) analysis of survey scores by level of command (company vs battalion), (d) analysis of the entire group's performance in each component of fitness, (e) general fitness knowledge, (f) reliability, and (g) results and summary.

Profile of Subjects

Descriptive data for the target population appears in Appendix O.

General. Two-hundred nineteen US Army officers were randomly selected as the subjects for this study. One-hundred fifty-nine of these officers were academic year 1991-1992 CGSOC students, 23 were PCC attendees, and 37 were prior battalion commanders instructing at Fort Leavenworth. The majority of subjects attending CGSOC were majors, and all attending the PCC or having previously commanded at battalion level were lieutenant colonels. The vast majority of the subjects were males, age 36-40, of a combat arms branch, with company command experience.

Fitness education. Although 92.7 percent of the target population had participated in physical education in high school, only 2.7 percent had an undergraduate degree in this discipline, and only 3.7 percent had a graduate degree. A little more than one-half (52.4 percent) of the subjects had some undergraduate phyiscal education credits, while just two percent had completed any hours at the graduate level. The majority of the subjects had not received fitness instruction as part of their development in any US Army school (Appendix C, questions 10-13).

Analysis. Although the majority of officers had participated in physical education in high school, the evidence in this study would not support a finding that fitness education was part of their high school physical education curriculums. Note however, questions for this study were derived from the five components of fitness (cardiorespiratory, muscular strength and muscular

endurance, flexibility, body composition/nutrition) which had not been identified in fitness literature when these subjects attended high school. The fact that fewer than three percent of the target population had an undergraduate degree in physical education, but over 50 percent had some undergraduate physical education credits could be explained by the curriculums at military undergraduate colleges, such as West Point, which require cadets to participate in physical education.

Analysis of Total Group Survey Scores

An examination of Table 4 reveals that the mean score for the entire group of 219 officers surveyed was 31.9 out of a possible 54. This equated to a group average of 59 percent. Thus, the group did not meet the expected criterion standard of fitness knowledge proficiency of 70% (38 out of 54). The standard deviation was 6.6, and the scores on the test ranged from a low of 5 to a high of 45.

Table 4: Results of the Total Group's Fitness Survey Scores

Variable	Mean	Std Dev	Minimum	Maximum	N
CARDIO	6.48	1.68	2	10	219
MUSCLE	7.84	2.74	0	13	219
FLEX	5.01	1.79	0	9	219
WEIGHT	6.74	2.41	1	12	219
FITKNOW	5.83	2.58	0	11	219
TSCORE	31.91	6.60	5.00	45.00	219

Analysis by Level of Command

A Pooled Variance Estimate T-Test was conducted to compare means between CGSOC students and battalion commanders on each portion of the fitness survey (Table 5). Before performing this analysis, PCC officers and prior battalion commanders were grouped together. Significant differences were found on two portions.

The cardiorespiratory fitness and the general fitness sections reveal that PCC officers and prior battalion commanders performed significantly better than CGSOC students ($p < .05$ level). Though not supported by the evidence in this study, there may be several plausible explanations for this. Foremost, command at the battalion level is more competitive. Of the officers available to command a battalion, only about 10% are selected, whereas, approximately 50% of the officers who have commanded at the company level are selected to attend CGSOC. Therefore, it is not unreasonable to assume that battalion commanders or battalion commander selectees are better informed about their responsibilities.

Since the age difference between the two groups may be as high as eight years, another possible reason could be maturation and concern for heart disease. Studies indicate that: (a) a subject's chances of being afflicted with heart disease tends to increase with age, and (b) cardio-respiratory fitness has been shown to reduce the chances of heart disease.

Table 5: Pooled Variance T-Test Results by Level of Command For Each Fitness Section of the Survey-Questionnaire.

Cardiorespiratory:

F Value	2-Tail Prob.	t Value	Degrees of Freedom	2-Tail Prob.
1.39	.144	-7.43	217	.000

Muscular Strength and Endurance:

F Value	2-Tail Prob.	t Value	Degrees of Freedom	2-Tail Prob.
1.65	.028	1.79	217	.075

Flexibility Section:

F Value	2-Tail Prob.	t Value	Degrees of Freedom	2-Tail Prob.
1.04	.880	-.69	217	.490

Body Composition\Nutrition:

F Value	2-Tail Prob.	t Value	Degrees of Freedom	2-Tail Prob.
1.45	.104	-1.34	217	.180

General Fitness Knowledge:

F Value	2-Tail Prob.	t Value	Degrees of Freedom	2-Tail Prob.
1.21	.399	-2.44	217	.015

Therefore, it is conceivable that the older group of officers may be more concerned with measures to combat heart disease.

The T-Test did not show any significant differences in the level of fitness knowledge between CGSOC students and battalion commanders for the muscular strength and muscular endurance, flexibility, and body composition/nutrition sections of the table ($p > .05$).

The T-Test for the general fitness knowledge section of the survey revealed that PCC officers and prior battalion commanders performed significantly better than CGSOC students ($p < .05$). A possible reason for this might be that the general fitness knowledge area consisted of 12 questions, of which 6 were related to cardiorespiratory fitness. It has been previously established that there was a significant difference between the two groups on the cardiorespiratory portion of the survey.

Reliability

The Split-Half Reliability Analysis (A technique for estimating reliability by correlating the odd and even scores on a test given to a large sample of people.) was used to determine the reliability of the fitness portion (questions 16-70) of this survey (see Figure 1). To determine reliability, the questions were subdivided into two sections. Part 1 consisted of questions 16-42; part 2 consisted of questions 43-70. The alpha coefficient of

reliability for part 1 and part 2 was .7666 and .6997 respectively. Application of a variety of checks (Correlation Between Forms = .6410, Equal Length Spearman-Brown = .7812, Guttman Split-Half = .7758, and the Unequal-Length Spearman-Brown = .7812), that ranged from .6410 to .7812, determined that these coefficients of reliability fell within the range of .6 to .8.

Figure 1: Reliability Analysis--Scale (Split)

Fitness Survey-Questionnaire Items
Items in Part 1 = 27
Items in Part 2 = 27
Total Items = 54

RELIABILITY COEFFICIENTS

Correlation Between Forms	=	.6449
Equal Length Spearman-Brown	=	.7841
Guttman Split-Half	=	.7781
Unequal-Length Spearman-Brown	=	.7842

Alpha
Alpha For Part 1 = .7654
Alpha For Part 2 = .6997

The Split-Half Analysis determined this range as strong for internal consistency.[1] Reliability of the fitness-survey questionnaire rested on the following criteria:

1. The literature justified each question.

2. A panel of experts established content validity.

3. A pilot test by seven CGSOC students established construct validity.

Analysis of Results by Fitness Component

Subject responses were analyzed by fitness component (cardiorespiratory, muscular strength and muscular endurance, flexibility, and body composition/nutrition) and a general fitness areas. An assumption was made that conclusions about trends could be inferred from the total sample size (n=219) and the number of questions per fitness area. The entire target population's response analysis is depicted in Appendix P.

Cardiorespiratory. Nine questions addressed cardiorespiratory knowledge. In question 15, 90% of the respondents knew that heart rate is measured at the carotid artery of the neck or the radial artery on the wrist. This question was important because pulse rate is an essential factor when determining aerobic intensity. In question 17, 67.1 percent of the subjects did not know that men have a larger heart and more red blood cells than women. This physiological difference indicates that women have to work harder when doing the same amount of aerobic work as men. In mixed gender units, this supports the need for ability groups. More importantly, commanders with knowledge of these physiological differences between sexes would better understand why some women may fatigue more quickly or have trouble "keeping up" with men.

In question 18, 58 percent of the officers knew that a soldier must perform aerobic activity for a minimum of 20

minutes to get a training effect. This is surprising since US Army units have historically emphasized aerobic training. This evidence indicates that officers may not be training themselves or their units properly.

In question 24, 96.3 percent of the subjects knew that running in ability groups rather than in formation accommodates the various levels of soldier fitness. This is significant as it indicates that commanders are moving away from unit runs in formation where "we start as a unit, run as fast as the slowest service member, and finish as a unit". Running in formation provides the less fit service members with a training effect, but does little for better conditioned soldiers. Ability groups provide a training effect for all service members.

Muscular Strength/Muscular Endurance. Twelve questions addressed the fitness concepts of muscular strength and muscular endurance. In questions 25 and 33, 70.3 and 62.6 percent of the officers respectively did not know that the amount of weight that can be lifted in one repetition maximum is used to determine a soldier's maximum muscular strength. This is alarming because that amount (one repetition maximum or RPM) is the basis for strength training.

In question 37, 84.5 percent of the sample population knew that muscular endurance is the ability of a muscle group to perform repeated movements against moderate resistance. Nevertheless, in question 27, 51.6 percent of

the subjects did not know that 2 minutes of sit-ups--a repeated movement against moderate resistance--measures muscular endurance. This indicates that although the majority of commanders understood the definition of muscular endurance, they did not fully comprehend its application to fitness exercise.

Flexibility. Nine questions focused upon flexibility and stretching exercises. In question 42, 73.5 percent of the target population did not know that flexibility was a component of fitness.

In question 45, 90.4 percent of the subjects understood that flexibility exercises should be performed as part of both the warm-up and the cool-down phases of a workout. However, in question 43, 84.5 percent incorrectly identified stretching as the first exercise to be performed in the warm-up. In question 44, 46.1 percent of the subjects did not know that the stretch in a warm-up should be sustained for 10-15 seconds. In question 46, 82.6 percent of the subjects did not know that stretching to improve flexibility should be held for 30 plus seconds. In short, responses to these questions indicate that commanders know when to perform stretching exercises, but are not as knowledgeable as to their execution.

Body Composition/Nutrition. Questions 47-58 dealt with body composition/nutrtion. In question 47, 46.6 percent of the subjects did not know that the recommended method to eliminate fat from the waist was to run at a slow pace for

30 minutes. The key concept here is that fat cannot be spot reduced. The notion that doing many sit-ups will burn fat off the waist is not correct.

In question 49, 96.3 percent of the subjects knew that diet and exercise are the best methods for achieving ideal body weight. In question 52, 96.3 percent of the subjects knew that overeating, poor nutrition, and lack of exercise can cause obesity, and in question 54, 90.9 percent of the subjects knew that to reduce body fat, soldiers need to expend more calories than they consume. However, in question 50, 85.4 percent of the target population did not know what a good diet consisted of, and as previously noted in question 47, just 53.4 percent knew that running at a moderate pace every other day for 30 minutes was a method for reducing body fat. Overall analysis of responses in this area reveal that officers better understand what is required, i.e., diet and exercise, to control weight than procedures involved, i.e., eating appropriate levels of fats, proteins, and carbohydrates; or performing aerobic type exercises (running) for 30 minutes.

General Fitness Knowledge. Eleven of the survey questions focused on this area. Sixty percent of the target population did not recognize the muscles of the upper torso. This is significant because in order for commanders to develop physical training programs to improve the muscular strength and muscular endurance of their soldiers so that

they can better perform their combat mission, they need to be able to identify the muscles to train.

In question 62, 58 percent of the subjects did not know that it would take a soldier approximately 8-14 days of repeated exposure to become acclimatized to the weather in Saudi Arabia. Acclimatization is an extremely important concept because the majority of US Army forces are stationed in the continental United States with contingency missions to deploy to various types of climates (hot, cold, etc.) throughout the world.

In question 63, 61.2 percent of the subjects did not know how to determine maximum heart rate. Important here is the fact that maximum heart rate (like pulse in question 16) is an integral part of determining training heart rate to conduct aerobic exercise.

Seventy-five percent of the subjects responding to question 66 did not know the five components of fitness as published in US Army fitness doctrine. This question was critical because AR 350-15 states that commanders are responsible for physically training their units in accordance with these components.

In question 68, 74.4 percent of the target population did not know that the primary concern when developing the unit fitness program is physically training soldiers to perform tasks specific to the unit's mission. Important here is the fact that commanders understand that the purpose of a unit's physical training program is to prepare the unit

to perform its combat mission, and not just to fulfill a requirement. For example, a portion of the physical training for a light infantry unit might be anaerobic type exercises such as short sprints to prepare its soldiers for an attack, whereas, an artillery unit might focus on lower back flexibility and muscular endurance to prepare their soldiers to move large quantities of ammunition.

General Fitness Information

Questions 71-75 (Figure 2) addressed general fitness information. Two-hundred fourteen of the subjects responded that fitness is important to a soldier's ability to accomplish the mission. Although 58% of the target population felt that they possessed adequate fitness knowledge as a commander, only 40% believed that the Army provided them with this knowledge, while 59% believed that the military did not. The vast majority of the subjects stated that they would have liked more fitness instruction in OBC, OAC, CAS3, CGSOC, or the PCC. Ninety-six percent indicated that it would be best to have this instruction in OBC (57%) and OAC (39%).

Results Summary

Two-hundred nineteen US Army officers were the subjects for this study, of which the majority were males, age 36-40, serving in a combat arms branch, and having company command experience.

Figure 2: General Fitness Information

Question 71 Do you feel that fitness is important to a soldier's ability to accomplish the mission?

Value Label	Frequency	Percent
yes	214	97.7
no	5	2.3
TOTAL	219	100.0

Question 72 Did you feel that your fitness knowledge was sufficient when you commanded at the company?

Value Label	Frequency	Percent
yes	126	57.5
no	85	38.8
missing	8	3.2
TOTAL	219	100.0

Question 73 Do you feel that your military education provided you with the knowledge to keep your unit fit?

Value Label	Frequency	Percent
yes	87	39.7
no	129	58.9
missing	3	1.4
TOTAL	219	100.0

Question 74 Would you have liked to be given some fitness instruction in OBC, OAC, CAS^3, CGSOC, or the PCC?

Value Label	Frequency	Percent
yes	190	86.8
no	22	10.0
missing	7	3.2
TOTAL	219	100.0

Question 75 In which Army officer school would fitness instruction be the most valuable?

Value Label	Frequency	Percent
OBC	115	52.5
OAC	79	36.1
CAS3	1	.5
CGSOC	5	2.3
PCC	3	1.4
missing	16	7.3
TOTAL	219	100.0

Over one-half had not received any fitness instruction as part of their professional development at US Army schools.

The mean score for all 219 officers was 31.9 out of a possible 54, or 59 percent. This was below the criterion standard of 70% (38 out of 54) established by the researcher as satisfactory.

An analysis of the results of each fitness section of the survey by level of command (CGSOC versus PCC and prior battalion commanders combined) revealed that PCC officers and prior battalion commanders performed significantly better than CGSOC students on cardiorespiratory fitness and general fitness knowledge ($p > .05$). There was not a significant difference between the levels of command on the muscular strength and muscular endurance, flexibility, and body composition/nutrition sections of the survey.

In terms of the specific subject areas, the following observations were made for the entire target population:

1. Two-thirds of the subjects did not know that generally men should have greater cardiorespiratory endurance than women because of physiological differences.

2. Only one-half of the target population knew that soldiers must perform aerobic type activities for at least 20 minutes to get a training effect.

3. Over 90 percent of the subjects knew that ability group runs accommodate the various levels of soldier fitness.

4. Two-thirds of the commanders had troubles discerning between muscular strength and muscular endurance.

5. Although over three-quarters of the officers understood the definition of muscular endurance, over one-half did not comprehend its application when exercising.

6. Ninety percent of the subjects understood when to perform flexibility exercises; however, over three-quarters did not understand method.

7. The misconception that fat can be spot reduced was accepted by almost 50 percent of the subjects.

8. Officers better understand what is required to maintain ideal body weight (diet and exercise) rather than the procedures involved (doing an aerobic exercise for 30 plus minutes).

9. Almost two-thirds of the target population did not know the time required for soldiers to become acclimatized to a new environment.

10. Seventy-five percent of the target population did not identify the five components of fitness.

11. Almost two-thirds of the subjects did not think that the US Army physically educated them to maintain the fitness of their units.

12. Approximately 90 percent of the subjects indicated that they would have liked some fitness instruction in OBC, OAC, CAS^3, CGSOC, or the PCC.

ENDNOTES, CHAPTER 4

[1]Albert E. Bartz, Basic Statistical Concepts in Education and the Behavioral Sciences (USA: Burgess Publishing Company, 1976), 205.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATION

The purpose of this study was to devise and administer a fitness survey-questionnaire for a sample of US Army company and battalion-level commanders to determine their knowledge of specific US Army doctrinal fitness concepts. Concluding commentary falls into the following categories: (a) Summary, (b) Findings, (c) Conclusions, and (d) Recommendations.

Summary

A fitness survey-questionnaire was administered to a selection of officers, including academic year 1991-1992 CGSOC students, a Spring class of PCC officers, and prior battalion commanders instructing at Fort Leavenworth. The researcher devised the survey in accordance with accepted research methodology. Questions comprising the survey-questionnaire were derived from the five components of fitness (cardiorespiratory, muscular strength, muscular endurance, flexibility, and body composition/nutrition) as identified in US Army doctrine. A panel of experts determined the instrument to be unbiased, comprehensible, and valid. Construct validity was determined from a pilot

study. One primary and three subordinate questions were formulated to guide the study and to organize the data:

Primary question:

> To what extent do the US Army's company and battalion commanders understand the fitness concepts enunciated in US Army doctrine?

Subordinate questions:

> To what degree does their knowledge correspond with the doctrine as reflected in the literature?
>
> If disparities exist, what are reasonable explanations for them?
>
> What measures does the US Army take to educate its officers in the fitness domain?

One-hundred fifty-nine CGSOC students, twenty-three PCC officers, and thirty-seven prior battalion commanders were the subjects of this study. The target population was randomly selected without replacement. Subject participation was voluntary. Responses were recorded on a mark sense form and scored by a computer. The SPSS program at the office of the Department of Academic Operations was used to compute data.

Means, standard deviations, and frequencies were used to determine the entire group's (both company and battalion level commander's) results on the fitness survey-questionnaire. A Pooled Variance Estimate T-Test at an alpha of .05 was used to determine significant differences in mean test scores among levels of command

(company level versus battalion level). The Split-Half Coefficient Test indicated that the fitness survey-questionnaire was reliable.

Findings

The results of the analysis of the data from this study revealed the following:

1. The tested hypothesis was verified. Commanders did not demonstrate a 70 percent mastery of the key fitness concepts published in US Army regulations, manuals, and pamphlets. The total group mean, 31.9/54 (59 percent) was below the established criteria of 38/54 (70 percent).

2. Battalion commanders knew significantly more about cardiorespiratory fitness and general fitness than did CGSOC officers. In fact, the battalion commanders exceeded the established standard on the cardiorespiratory section of the fitness-survey by scoring 77 percent. Their score of 65 percent on the general fitness section did not exceed the criterion standard.

3. There was no significant difference in the level of knowledge between battalion commanders and CGSOC students in the areas of muscular strength and muscular endurance, flexibility, and body composition/nutrition.

Conclusions

1. Company and battalion level commanders are not sufficiently knowledgeable in the basic fitness concepts

espoused in US Army doctrine so as to be expected to properly assess, plan, and effectively implement fitness training programs for soldiers in their commands.

2. Commanders surveyed believe that fitness is an integral part of the ability of soldiers to perform their mission, and they would have liked some fitness instruction during their military education.

3. Survey data, which indicated that 59 percent of the sample population received no fitness instruction, in formal military education, and the minimal number of hours of fitness instruction recently mandated for ROTC, OCS, OBC, and OAC, strongly suggests that the philosophies, goals, and objectives of US Army schools as reflected by their curriculums have not established fitness knowledge as a learning domain for officers.

4. American public school systems and institutions of higher education do not systematically impart fitness knowledge concepts, and more specifically US Army fitness knowledge concepts, to commanders during their pre-military education.

5. Regarding fitness, commanders tend to be more "do" oriented, i.e., getting their soldiers to perform physical training so as to pass the APFT or for the sake of meeting an Army requirement, rather than process-oriented, i.e., utilizing fitness concepts prescribed by US Army doctrine to physically train and enhance their units.

6. Many untruths or misconceptions concerning fitness concepts are accepted by commanders. For example, a number of commanders thought that Gatorade was better to replace body fluids than cool water. Regarding the warm-up phase of exercise, many thought that stretching exercises should be performed first.

Recommendations

1. Budget reductions should not impact the MFT school. Preferably, the Fitness School's budget should be increased so that more soldiers (especially officers) can be educated in the fitness domain. This would better prepare US Army commanders to physically train their units to perform their peacetime and wartime missions.

2. Revisions should be made to the CAS3 and CGSOC curriculums to include fitness education. The PCC curriculum should be revised to include more than the .5 hours of fitness instruction.

3. An evaluation of the curriculums, lesson plans, instructor training and preparation, and the conduct of fitness classes at ROTC, OCS, OBC, and OAC should be conducted at randomly selected schools to ensure that fitness instruction is being performed to an acceptable standard.

4. A study similar to this one should be conducted by the end of fiscal year 1995 to determine if the 40 hours of fitness instruction integrated into the curriculums of ROTC,

OCS, OBC, and OAC in fiscal year 1992 are sufficient to prepare future commanders to physically train their units.

5. The senior leadership of the US Army should take an active role in promoting fitness education for all soldiers as did the Honorable John O. Marsh, Secretary of the Army in 1982, and General Maxwell R. Thurman, TRADOC CG in 1989. This would greatly enhance soldier training in this integral area of soldier development.

6. A further study that focuses upon commanders' fitness knowledge according to their branch group (combat arms, combat support, or combat service support) or branch (infantry, signal, or ordnance) should be conducted to determine if there are any disparities in fitness knowledge within US Army branches.

APPENDIX A

DR. UPDYKE'S STUDY: "PHYSICAL FITNESS TRENDS IN AMERICAN YOUTH

(REPORT SUMMARY)

PHYSICAL FITNESS TRENDS IN AMERICAN YOUTH

1980 - 1989

A STUDY CONDUCTED BY THE CHRYSLER-AAU PHYSICAL FITNESS PROGRAM

Wynn F. Updyke, Ph.D., Program Director
Associate Dean for Academic Affairs
School of Health, Physical Education & Recreation
Indiana University
Bloomington, Indiana

Michael S. Willett, M.S., Program Manager

For Further Information Contact:

Chrysler Fund-AAU Physical Fitness Program
Poplars Building
Bloomington, Indiana 47405
(812) 855-2227

1989 PRESS CONFERENCE - WASHINGTON, D.C. - SEPTEMBER 14, 1989

CHRYSLER-AAU PHYSICAL FITNESS PROGRAM
PRESS CONFERENCE
September 14, 1989

Willard Intercontinental, Washington, D.C.

REPORT SUMMARY
Physical Fitness Trends In American Youth
1980 - 1989

Wynn F. Updyke, Ph.D.
Indiana University
Director, Chrysler-AAU Physical Fitness Program

Background.

The Fitness Profile of American Youth (Press Kit) contains information relating to the history of the test, first introduced in 1943.

Purpose of the Program: To enhance the FITNESS LITERACY of young Americans. Fitness Literacy consists of two components: 1) Knowledge and 2) Experience.

> Knowledge: What physical fitness is; its benefits, its limitations; how it is acquired; how it is maintained; its relationships to disease prevention, mental health, physical and mental efficiency and productivity.
>
> Experience: The personal experience of having acquired an enhanced state of physical fitness. Physiological adaptation to the stimulus of vigorous exercise.

Goal of the Program: To empower young people to take greater responsibility for their own well-being.

Means of Goal Achievement: 1) Reduction of the risk factors associated with degenerative disease (heart disease, obesity, hypertension, osteoporosis, low back syndrome, etc.) 2) Improved physiological efficiency 3) Enhanced self esteem (through self discipline, sense of achievement, sense of greater control of one's life) 4) Enrichment of Life (through increased energy, reduced stress, enhanced capacity to pursue opportunities).

Primary Tools: Motivational Incentives
Students: Certificates of Achievement
Teachers: Free student awards; motivational posters; motivational/instructional video; teacher-tested curriculum modules ("Developmental Physical Fitness," "Nutrition for Fitness and Performance"), Family Fitness Program, computer software (record keeping, award ordering, report generation for parents, school boards, etc.), special program adaptations for handicapable students; teacher certificates, school certificates, incentive gifts (caps, key fobs, etc.).

Data source.

Each year a sample consisting of at least 12,000 subjects (500 of each sex in each of 12 age groups) is randomly drawn from the population of students taking the AAU test. (Actual sample size for any given year has reached as high as 18,000.) All fifty states are represented in the sample.

In addition, questionnaires are distributed to all participating teachers requesting information on several variables. Questionnaires are coded so that responses can be correlated with test performances of particular subpopulations.

Test Battery

Required Events	Optional Events
Endurance Run	Long Jump
Pullup OR	Sprint
Flexed Arm Hang	Shuttle Run
Sit and Reach	Modified Pushup
Situp	Isometric Pushup
	Isometric Squat

Participants must perform ALL **Required** events plus ONE **Optional** event.

All composite scores (T Scores) or averages of fitness levels are calculated using REQUIRED EVENTS ONLY.

Components of Physical Fitness:

1. Strength
2. Muscular Endurance
3. Flexibility
4. Circulo-respiratory Endurance

In order to enhance interest in taking the test, several tests of Motor Ability (skill) are included as OPTIONAL events.

Because of field testing constraints, no test item is included for the unique measurement of strength. Several test items provide estimates of strength and muscular endurance in combination.

Interpreting Test Scores

Because the components of physical fitness are independent (not correlated with each other), it is not possible to construct a meaningful SINGLE index of physical fitness. It is most instructive to study trends by examination of annual mean scores for <u>each</u> of the test items.

For certain purposes (such as ranking states) a statistical means of converting test scores to a common scale has been used (T Scores). This procedure permits the averaging of scores but must be interpreted with caution. (Very much like averaging oranges and apples.) It should be remembered that an abundance of flexibility, for example, cannot offset a deficiency in circulo-respiratory endurance, etc.

Findings

1. The Good News

   A. Situps. (Strength and Endurance of abdominal muscles and hip flexors) (Figures 1 & 2)
   Definite improvement over the decade for all age groups and both sexes. Special emphasis on this test item resulting from criticism of weaknesses in this measure in previous studies may have had some bearing on improvement.

   B. Flexed Arm Hang -- Girls. (Strength and endurance of arms and shoulder girdle) (Figure 3)
   Scores on this event have been very erratic until 1985 when a sharp upward trend emerged. It should be noted that these scores are still relatively poor, and appear to have leveled off over the past three years. This test is given because so many girls are unable to perform even a single pullup. The improvement is encouraging but goals should not be set too low. Improvement may reflect, in part, changed attitudes toward strength developing activities for girls.

   C. Pullups -- Boys. (Strength and endurance of arms and shoulder girdle.) (Figure 4)
   A mixed bag. After several years of gradual decline there appears to be a significant recovery in the older age groups, but not in those below age 14. The reasons for the decline (and recovery) are not apparent. Increased body weight may be a factor but cannot be the total explanation.

   D. Sit and Reach. (Flexibility of back and hamstrings) (Figures 5 & 6)
   This item is a recent addition to the AAU test battery (1986).
   Dramatic initial improvement may reflect increasing familiarity with the test and required technique. Girls scores reflect typical superiority over boys in this component.

The Bad News

   A. Endurance Run. (Circulo-respiratory Endurance)
   (Graphs: Recall that higher numbers indicate slower performances.) (Figures 7 & 8)
   Despite occasional temporary recoveries, age groups from 10 and up (both boys and girls) demonstrated a disturbing decline in stamina over the decade.

   Aerobic capacity is of great importance because of its relationship to the risk of heart disease. Its improvement requires rhythmic exercise sufficient to keep the heart rate elevated moderately for at least 20 minutes at least three times per week. Teachers find it difficult to devote sufficient in-class time to aerobic activities year round. Many schools devote far less than three periods per week to physical education. Teachers, who are obligated to teach motor skills as well as develop fitness, find themselves in a very difficult situation.

B. Body Weight. (Figures 9 & 10)
Any test that requires the support of one's own body weight for extended periods of time is certain to be negatively affected if body weight is excessive. The significant increases in mean body weights of all older age groups, both boys and girls, may partially account for the observed decline in endurance run performance. It should be noted that this weight increase cannot be explained on the basis of any commensurate increase in height.

In the absence of direct measurements it is not certain that the weight gain resulted from an increase in body fat. However, evidence from recent related studies tends to support such an assumption.

An increase in muscle mass would also create an increase in body weight, of course. The fact that scores on the flexed arm hang and pullups have shown some improvement might be consistent with an hypothesis of increased muscle mass. However, this is the only bit of evidence that provides any support for such a possibility. Both fat and muscle may have increased.

The observed creeping weight gain is considered ominous, and appears to be consistent with reports of increasingly sedentary lifestyles and unbalanced nutritional habits of American youngsters.

C. Achievement of Standards. (Figure 11)
Examination of the distribution patterns of awards reveals that the proportion of participants reaching or exceeding minimal standards on <u>all four</u> required tests declined over the decade from 43% to 32%. This decline appears to be due primarily to poorer performances on the endurance run.

The percentage of those attaining <u>outstanding</u> levels has remained relatively constant at about 6% with a high of 8% (1981, '82, '83) and a low of 5% ('84 and '85).

Questionnaire Information

1. Teacher's Primary Objectives (Figure 12)

It is important to remember that the improvement of physical fitness is only <u>one</u> of many objectives pursued by physical education teachers. Even in this sample of teachers who are clearly very interested in physical fitness (recording and sending in all their data is a great deal of work), only 46% listed fitness improvement as their primary objective.

Obviously very little fitness development occurs by accident. Real progress will require establishment of clearly formulated, positive objectives.

2. Perceptions of Outcomes (Figure 13)

Although little research has been reported on the relationship between fitness and self esteem in youngsters, almost 60% of our teachers considered the enhancement of self esteem to be the primary benefit of physical fitness development. Thirty-four percent regarded the prevention of disease as primary outcome.

It seems logical to conclude that these teachers' choices reflect the more immediate concerns of their students. It might be speculated that under these conditions aerobic activity might tend to be slighted in favor of anaerobic sports and games which tend to involve more extensive social interaction.

3. Type of School (Figures 14 & 15)

In 1984 private schools enjoyed a clear superiority in several of the test items. Since that time, however, public schools have narrowed the gap and, in some events, surpassed the private schools. The reason for this trend is not apparent.

4. Teachers as Role Models (Figures 16 & 17)

Do students whose teachers consider themselves to be good role models produce higher fitness scores than others? In general, yes, but it varies greatly with events and age groups. However, the effect seems to be much stronger with older youngsters and more important for girls than for boys.
It doesn't seem to make any difference, in terms of mean scores, whether or not the teacher customarily exercises with the students.

5. Gender of the Teacher (Figures 18 & 19)

Does it make any difference whether the teacher is male or female? Yes, if no other factors are considered. However, it seems that "fitness credibility" may be the real issue. Among teachers who were also coaches, scores were actually slightly higher for students of females.

State Rankings (Figures 20, 21, 22)

Which states seem to be doing the best job in promoting physical fitness?

CAUTION ! Ranking is a precarious business. There is great variability from year to year, partly because there is very little difference between adjacent scores. While there may be very little difference among the top ten, there is substantial difference between the top ten and the bottom ten.

Rankings are based upon scores on the four required events only. Rankings vary greatly when different ages and sexes are considered separately. States ranking high on elementary school age performance may not do so with respect to high school, etc. (See lists provided in the press kit.)

In the interests of positive reinforcement, rankings are limited to the top ten for 1988. (Full 1989 data not yet available.) Two lists are provided: 1) Ages 6-13; 2) Ages 14-17.

A third list contains those states achieving top ten status with respect to both groups of students (6-13 and 14-17) in the same year over the last five years.

Conclusions

1. A major problem appears to exist with respect to circulo-respiratory endurance. New ways need to be found to emphasize aerobic activities since time constraints are so acute in most schools.

2. Steadily increasing body weight (in the absence of height increases) confirms the need for greater attention to appropriate diet and physical activity.

3. Further enhancement of fitness levels will require a re-examination of objectives at the local level. The development of fitness literacy cannot be achieved without conscious planning and direction of effort.

4. Of all the variables affecting fitness levels, the teacher is the most important. They control the curriculum and are in position to provide the necessary motivation and information.

5. Evidence from this study is consistent with reports from other sources indicating that young people in America are gradually becoming more sedentary.

Recommendations

1. The best investment parents can make in the physical fitness of their children is to insist on high quality physical education programs in their schools.

2. Fitness literacy, (the personal experience of becoming fit, for the short term, and the acquisition of knowledge about fitness and its maintenance for the long term) is the right of every child. Merely forcing children to exercise is neither adequate nor appropriate. The development of the desired understanding, attitudes and behaviors can only be achieved through a consistent, well-conceived educational program under the direction of qualified, dedicated teachers.

APPENDIX B

FITNESS SCHOOL'S SURVEY

PHYSICAL FITNESS STATUS OF U.S. ARMY ACTIVE DUTY PERSONNEL: RESULTS OF THE 1988 U.S. ARMY PHYSICAL FITNESS TEST (APFT) SURVEY

John S. O'Connor, Michael S. Bahrke, and Robert G. Tetu

ABSTRACT

The U.S. Army Physical Fitness School (USAPFS) at Ft. Benjamin Harrison, IN was tasked with measuring the physical fitness level of the Active Army using a sample of male and female soldiers. The data was collected at 14 U.S. Army installations CONUS-wide between 1 October and 30 November, 1988. 5,346 male and 676 female Active Army soldiers (N=6,022) between the ages of 17-52 and in 60 military occupational specialties (MOSs) participated in the study. Performance on the U.S. Army Physical Fitness Test (APFT) was used to determine fitness levels. The APFT includes measures of upper body muscular strength and endurance (number of push-ups in two minutes), abdominal strength and endurance (number of sit-ups in two minutes), and cardiorespiratory endurance (two-mile run time). Generally, the results were favorable. Senior age groups performed well overall, especially females. Improvement in muscular strength and endurance conditioning since 1984 was also observed as demonstrated by the increased number of push-ups and sit-ups done by both sexes. However, concern was raised about poor performance in the youngest age group (17-21), where 16.6% of the males failed the two-mile run event and 29.0% failed overall. Likewise, for females in the 17-21 year age group, 28.8% failed the 2-mile run and 36.0% failed overall. These are alarmingly high failure rates since it was expected that the youngest soldiers would be the most physically fit. Several reasons are suggested for the poor performance of the younger age groups, including inadequate leadership in fitness training and low levels of self-motivation. This study suggests that many soldiers, especially young soldiers, may not possess sufficient levels of physical fitness. To assist in raising fitness levels the following recommendations are offered: (1) initiating greater command interest in proper physical fitness training, (2) greater emphasis on leadership education in physical fitness training, and (3) improved development and execution of physical fitness programs by units.

Pages: 25

Tables: 12

References: 25

Words: 2575

PHYSICAL FITNESS STATUS OF U.S. ARMY ACTIVE DUTY PERSONNEL: RESULTS OF THE 1988 U.S. ARMY PHYSICAL FITNESS TEST (APFT) SURVEY

LTC JOHN S. O'CONNOR, Ph.D., DR. MICHAEL S. BAHRKE, Ph.D.,
and COL ROBERT G. TETU, M.S., M.B.A.

U.S. ARMY PHYSICAL FITNESS SCHOOL
FT. BENJAMIN HARRISON, INDIANA 46216-5690

Key words: APFT, physical fitness, soldiers, U.S. Army.

Address correspondence to: LTC John S. O'Connor, Ph.D.
U.S. Army Physical Fitness School
Attn: ATSG-PF Bldg. 529
Ft. Benjamin Harrison, IN 46216-5690
317-542-4948

The views of the authors do not necessarily reflect the position of the Department of the Army or Department of Defense.

APPENDIX C

GENERAL THURMAN'S POLICY MEMORANDUM

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 23651-5000

REPLY TO ATTENTION OF

ATSG-PF (350)

Policy Memo 89-

1 August 1989

MEMORANDUM FOR

Commanders, TRADOC Installations
Commandants, TRADOC Service Schools

SUBJECT: Physical Fitness Education in TRADOC Professional Development Schools

1. The Physical Fitness School developed a plan to sequentially and progressively integrate their MFT course into all officer and NCO professional development schools, so that qualified Officer Advanced Course (OAC) and Advanced Noncommissioned Officer Course (ANCOC) graduates can become certified MFTs. The time required to do this will come from "PT" hours that have traditionally been used for locally tailored training programs.

2. Current MFTs, augmented by graduates of a special instructor training course (ITC) to be on line by 1 Oct 90, will teach the program. We will eventually need two MFTs and two ITC graduates per school to do the training (ROTC requirements will be two MFTs per host, one per extension school.)

3. We must implement this program as soon as possible. Primary Leadership Development Course (PLDC) and ROTC training support packages (TSP) will be ready by 1 Oct 89. The plan is to teach 25 hours in ROTC/PLDC/Officer Candidate School, 65 hours in Basic Noncommissioned Officer Course(BNCOC)/Officer Basic Course (OBC) and 45 hours in OAC/ANCOC.

4. As a transition vehicle, the Physical Fitness School has developed a 1-week, 40-hour "Exercise Leader Course," which will be implemented by BNCOC/OBCs and OAC/ANCOCs upon receipt of the TSPs in Sep 89. This hands-on course is designed to be taught by MFTs and will fill the gap until the full program is on line by Dec 90.

5. Officers and NCOs have an individual responsibility to stay fit. Our schools have the responsibility to teach them so they can educate, train, and properly lead others. That is the thrust of this entire exercise. I expect your full support.

M. R. THURMAN
General, USA
Commanding

APPENDIX D

GENERAL FOSS'S FITNESS GUIDANCE
(Retyped From Memorandum dated 10 October 1989)

VIEW THE NOTE

FROM: MG DOWNING
SUBJECT: GO MEETING, 10 OCTOBER 89

7. MFT Guidance. CG ENVISIONS THE FUNDAMENTALS OF MFT TAUGHT IN NCOES AND OBC/OAC; SGI LEADERS CAPABLE OF TEACHING SMALL 20-30 MINUTE BLOCKS DURING THE COURSES; NOT ALL THIS PT TIME NEED BE RESOURCED--PERHAPS 50%. SGI LEADERS MAY NOT ALL BE CERTIFIED MF TRAINERS. STUDENT CERTIFICATION AS AN MFT NOT ESSENTIAL UPON COMPLETION OF LAST COURSE (ANCOC/OAC)--SOME MAY GO ON TO A CERTIFICATION BLOCK AS APPROPRIATE. GOAL IS TO GET THE PRINCIPLES TO THE FIELD AND EMBEDDED IN THE FORCE.

APPENDIX E

FITNESS SCHOOL'S TRAINING SUPPORT PACKAGE FOR CADETS, OFFICER CANDIDATES AND OFFICERS

COURSE: OCS/ROTC

TOTAL HOURS: 10

TRAINING EMPHASIS: Teaches prospective officers the individual basic skills and responsibilities of leading a group of soldiers in physical training with an emphasis on leadership, fitness techniques and junior officer responsibilities. Graduates will be able to train soldiers on individual fitness tasks and apply leadership skills when required.

COURSE BREAKOUT:

	HOURS:	
	ACADEMIC	PHYSICAL TRAINING
Introduction to Fitness	1	
Push-up/Sit-up Improvement		1
Administration of the APFT	1	
Army Fitness Literature	1	
Warm-up/Cool-down		1
Flexibility Overview	1	
Cardiorespiratory Overview	1	
Strength Training	1	
Ability Group Run		1
Test	1	
	7	3
TOTAL:		10

*APFT - Considered required training of all soldiers and, therefore, not in proposed training scheme.

**The above classes are listed by priority of instruction. Teaching the classes in this order will enhance learning in the opinion of the USAPFS.

COURSE: OBC
TOTAL HOURS: 19
TRAINING EMPHASIS: To teach officers the necessary physical training knowledges and skills needed by a leader of platoon size elements. As an officer you will have the ability to effectively plan physical training and supervise soldiers in the proper manner.

CLASS BREAKOUT:

	HOURS: ACADEMIC	PHYSICAL TRAINING
Review Previous Training	2	
Benefits of Physical Training	1	
Administration of the APFT	1	
Physical Assessments	1	
Running Techniques		1
Circuit Training Lec/Design	1	
Cardio Circuit Demo/PE	1	1
Platoon Circuit #1		1
Sandbag Circuit		1
Road Marches	1	
PRE/Lab		1
Special Populations	2	
Environmental Considerations	1	
Army Weight Control Program	2	
Test	1	
	14	5
TOTAL		19

*APFT - Considered required training of all soldiers and, therefore, not in proposed training scheme.

**The above classes are listed by priority of instruction. Teaching the classes in this order will enhance learning in the opinion of the USAPFS.

COURSE: OAC
TOTAL HOURS: 11
TRAINING EMPHASIS: To teach the officer the knowledge and skills which will enhance his/her ability to design and develop an effective physical training program. This will improve overall job performance by the company/platoon/section in both a peactime and/or wartime environment.

CLASS BREAKOUT:

	HOURS: ACADEMIC	PHYSICAL TRAINING
Review Previous Training	2	
Administration of the APFT	1	
Unit Assessments	1	
Unit Program Principles	1	
Unit Program AAR	1	
Nutrition & Body Composition	1	
Stress/Sleep & Performance	1	
Physiological Differences	1	
Exercise to Music		1
Test	1	
	10	1
	TOTAL	11

*APFT - Considered required training of all soldiers and, therefore, not in proposed training scheme.

**The above classes are listed by priority of instruction. Teaching the classes in this order will enhance learning in the opinion of the USAFFS.

APPENDIX F

DEPARTMENT OF THE ARMY MEMORANDUM

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 23651-5000

REPLY TO ATTENTION OF

ATTG-IS

09 JUL 1991

MEMORANDUM FOR

Commander, U.S. Army Infantry Center and Fort Benning,
Fort Benning, GA 31905-5000
Commander, U.S. Army Soldier Support Center,
Fort Benjamin Harrison, IN 46216-5000
Commandant, U.S. Army Physical Fitness School,
Fort Benjamin Harrison, IN 46216-5000

SUBJECT: Relocation of the Physical Fitness School

1. A CSA-approved Vanguard Initiative (TNA 15) directed the Army Physical Fitness School be eliminated during FY 92.

a. As a result of subsequent negotiations between HQ TRADOC and DA, the Physical Fitness School will be functionally realigned and relocated to Fort Benning beginning in October 1991 with completion no later than June 1992.

b. The Physical Fitness School will come under the U.S. Army Infantry Center (USAIC) on 1 October 1991. The Physical Fitness School will be placed on the TDA of the USAIC and Fort Benning, UIC: WOU2AA. Commandant, Physical Fitness School, will be rated by Commander, USAIC, and senior rated by TRADOC Deputy Commanding General for Combined Arms.

2. The mission of the Physical Fitness School will include:

a. Fitness doctrine preparation and writing.

b. Research of the fitness needs of the Army.

c. Standardization of fitness requirements within the Army.

d. Fitness policy development.

e. Training assistance to the Army.

The Master Fitness Trainer course will no longer be conducted after October 1991. DCST TOMA has deleted this course from ATRRS.

ATTG-IS
SUBJECT: Relocation of the Physical Fitness School

3. The U.S. Army Soldier Support Center (USASSC) and USAIC will establish a coordinated plan to include events, action offices, POC, and milestones necessary to execute this action.

a. The USASSC will be lead for the closure of the School and be responsible for the relocation/closure of facilities, transfer of equipment and the transfer/release of personnel. Should the civilian transfer of function and/or RIF occur, civilian employees must be afforded the applicable rights under the Federal Personnel Manual (FPM).

b. The USAIC will be lead for establishing the Physical Fitness School at Fort Benning and be responsible for the hiring of personnel (those not transferred from Fort Benjamin Harrison), providing facilities and equipment, and providing support.

4. Required resource actions.

a. Manpower. Initial manpower adjustments were accomplished by this headquarters (ATRM-F). The Organization and Functions manual will be updated to reflect changes.

b. Funds. The realignment plans should include all one-time and recurring funding required to implement and sustain relocation of the School. Funding provided Fort Benjamin Harrison in MDEP TAPT in the initial FY 92 BMG will be reserved exclusively for use in the relocation. Required funding adjustments will be made in the August BMG update.

5. USAIC and USASSC, including the Physical Fitness School, will brief their coordinated plans to DCST during the last week of July 1991.

a. DCSBOS and DCSRM will have appropriate action officers present for coordination.

b. Coordinated actions may take place prior to this briefing in order to expedite the relocation.

ATTG-IS
SUBJECT: Relocation of the Physical Fitness School

6. Coordination between U.S. Army Soldier Support Center and the U.S. Army Infantry Center is authorized and essential.

7. TRADOC POC is MAJ Bennett, AUTOVON 680-5602.

FOR THE COMMANDER:

JAMES W. VAN LOBEN SELS
Major General, GS
Chief of Staff

CF:
CDR, TRADOC, ATTN: ATRM, ATBO, ATJA

APPENDIX G

FITNESS SURVEY-QUESTIONNAIRE

Survey control no. 9236-006

FITNESS QUESTIONNAIRE FOR AY 91-92 CLASS OF CGSOC

GENERAL INSTRUCTIONS

This is an anonymous questionnaire. Do not place your name anywhere on its contents. Use a #2 pencil to record your answers on the mark sense answer sheet. Annotate the two letters corresponding to your branch on the mark sense form answer sheet in the blocks and the columns labeled first initial and second initial (highlighted in yellow). For example, an ADA officer would place an A in the block under the first initial and a D under the block for the second initial. Next, s/he would blacken the space corresponding to the same letters in the columns under these blocks. Record only one answer per question. *Please do not guess.* If your are not sure of an answer, annotate "unknown". The last page of the survey questionnaire (titled comments) is for you to comment on or to qualify any of your responses (optional). Your frankness and prompt responses are greatly appreciated. Please respond to all questions.

Section I: Background Data

The purpose of background data is to develop a profile of survey participants.

1. What is your rank?
   a. Captain
   b. Major
   c. LTC

2. What is your age?
   a. 30-35 years old
   b. 36-40 years old
   c. 41-45 years old
   d. 45 plus years old

3. What is your sex?
   a. male
   b. female

4. Did you command at the company/battery level?
   a. yes
   b. no (if no, stop here and return the survey.)

5. Do you have an undergraduate degree in physical education?
   a. yes
   b. no

6. Do you have a Master's degree in physical education?
   a. yes
   b. no

7. Do you have any physical education undergraduate credits?
   (If you answered yes to either question 5 or 6, skip this question.)
   a. yes, I have undergraduate physical education credits.
   b. no

(go to top of next column)

8. Have you any graduate level physical education credits?
   (If you answered yes to question 6, skip this question.)
   a. yes, I have graduate level physical education credits.
   b. no

9. Did you take physical education in high school?
   a. yes
   b. no

10. Did you receive any class room instruction on fitness in OBC?
    a. yes
    b. no

11. Did you receive any class room instruction on fitness in OAC?
    a. yes
    b. no

12. Did you receive any class room instruction on fitness in CAS^3?
    a. yes
    b. no

13. Did you receive any class room instruction on fitness in CGSOC (PCC officers only)?
    a. yes
    b. no

14. What is your branch of service?
    a. combat arms
    b. combat support
    c. combat service support

(go to Section II, Fitness Knowledge, top of next page)

Section II: Fitness Knowledge

The purpose of this section is to gather data on your knowledge of fitness concepts. Questions were assimilated from material found in military pamphlets, manuals, and doctrine.

Cardiorespiratory.

15. Cardiorespiratory fitness is best developed by:
   a. doing aerobic type exercises
   b. doing anaerobic exercises (100 meter dash)
   c. lifting weights
   d. eating properly
   e. unknown

16. Heart rate (pulse) can be taken by hand at the:
   a. tip of the lobe of the ear
   b. carotid artery at the side of the neck
   c. radial artery on the wrist.
   d. both b and c
   e. unknown

17. Generally, men should have greater cardiorespiratory endurance than women, because:
   a. a man's heart tends to be larger than a woman's
   b. men have approximately 6% more red blood cells and approximately 15% more hemoglobin (oxygen transport section of a red blood cell) than women
   c. men have greater muscular strength
   d. a and b
   e. unknown

18. To get a training effect, aerobic training should be performed for a minimum of:
   a. 15 minutes
   b. 20 minutes
   c. 25 minutes
   d. 30 minutes
   e. unknown

19. After training aerobically for 10-12 weeks, a soldier could expect to experience which change(s):
   a. muscles that would be more efficient at using oxygen
   b. a lower resting heart rate
   c. sub-maximal (less than maximal) work loads would be less stressful
   d. all of the above
   e. unknown

20. When soldiers exercise, their blood flow to:
   a. the lungs decreases
   b. the brain greatly increases
   c. the non-working muscles increase
   d. the working muscles increases
   e. unknown

(go to the top of the next column)

21. A unit that consistently runs three times a week at a 10 minute pace per mile, is not adhering to which principle of exercise:
   a. flexibility
   b. regularity
   c. recovery
   d. overload
   e. unknown

22. Road marching:
   a. helps overweight soldiers burn excess calories
   b. is a good workout to develop muscular strength
   c. causes the blood to pool in the legs
   d. often causes heat exhaustion in soldiers
   e. unknown

23. Running as a company in formation:
   a. should be conducted every other cardiorespiratory workout
   b. provides the optimal training effect for the largest number of soldiers
   c. develops cardiorespiratory fitness more effectively than ability group runs
   d. none of the above
   e. unknown

24. A method of accommodating the various physical fitness levels of the soldiers within a unit is to have the unit:
   a. run in one formation (the unit starts together and finishes together)
   b. run in place at the same cadence
   c. go on extended road marches in step
   d. run in ability groups (no formation, soldiers of the same ability, run together)
   e. unknown

Muscular Strength and Muscular Endurance

25. The best way to measure a soldier's pectoral (chest) muscular strength is by:
   a. a two-minute push-up test
   b. a one-minute pull-up test
   c. a maximum bench press lift
   d. both a and b
   e. I do not know.

(go to the top of the next page)

Muscular Strength and Muscular Endurance (cont.)

26. A soldier who fails to gain strength, despite performing regular, intense strength workouts, normally needs:
   a. longer workouts
   b. more rest and recovery and the integration of some low intensity workouts
   c. more sets with lower reps
   d. more frequent workouts
   e. unknown

27. One method to measure a soldier's muscular endurance is by a:
   a. maximum leg press on nautilus
   b. 100 meter dash
   c. two-minute sit-up test
   d. 50 meter swim sprint
   e. unknown

28. When exercising with weights, nautilus, or the universal, one should:
   a. Exercise each muscle group to the maximum intensity each day.
   b. Begin with the maximum resistance possible.
   c. Lift using larger muscles first and progressing to the smallest muscles.
   d. all of the above
   e. unknown

29. When weight training, the minimum recovery time required for specific muscles exercised is:
   a. 24 hours
   b. 36 hours
   c. 96 hours
   d. 48 hours
   e. unknown

30. When lifting weights, intensity in training:
   a. is the most important factor in developing strength
   b. should be cycled into hard and light workouts to facilitate recuperation
   c. both a and b
   d. none of the above
   e. unknown

31. When lifting a weight, it is best to :
   a. hold your breath
   b. exhale
   c. close your eyes
   d. inhale
   e. unknown

(go to the top of the next column)

32. The minimum number of workouts a week that are ideal for maximum strength gains are:
   a. 1
   b. 5
   c. 4
   d. 3
   e. unknown

33. A good assessment of a soldier's leg strength would be:
   a. one repetition maximum leg press
   b. a bench step test
   c. a two mile run test
   d. all of the above
   e. unknown

34. The optimal method for a soldier to develop both muscular strength and muscular endurance while lifting weights is to train with a weight or resistance that causes the soldier to reach muscular failure between the ___ repetitions.
   a. 8th and 12th
   b. 5th and 6th
   c. 13th and 20th
   d. The number of repetitions does not matter.
   e. unknown

35. Circuit training can best be described as:
   a. exercise stations designed to cause training pain
   b. exercise conducted by a leader in formation
   c. a series of sequenced exercise stations designed for a specific fitness goal
   d. exercise stations to improve muscular strength
   e. unknown

36. Two minute periods of pushups and sit-ups primarily develop a soldier's:
   a. target heart rate
   b. muscular strength
   c. flexibility
   d. muscular endurance
   e. unknown

37. The ability of a muscle group to perform repeated movements against light to moderate weight resistance is called:
   a. muscular strength
   b. frequency
   c. overload
   d. muscular endurance
   e. unknown

(go to the top of the next page)

Flexibility

38. Flexibility does not:
   a. improve physical performance
   b. improve range of motion in a body joint
   c. decrease risk of injury
   d. improve muscular endurance
   e. unknown

39. Static stretching involves:
   a. fast, forceful stretches
   b. slow jerky stretches
   c. use of a piece of equipment or a partner
   d. slow, sustained stretches
   e. unknown

40. Because it can cause injuries, which method of stretching is the least recommended:
   a. ballistic
   b. static
   c. partner assisted
   d. equipment assisted
   e. unknown

41. If a soldier is unable to touch the floor, this indicates a lack of flexibility in the:
   a. quadricep and abdominal muscles
   b. abdominal and calf muscles
   c. shoulders and upper back
   d. lower back and hamstring muscles
   e. unknown

42. Flexibility is:
   a. one of the components of exercise
   b. one of the principles of exercise
   c. the first word in the FITT acronym
   d. none of the above
   e. unknown

43. Flexibility (stretching) is the first exercise to be performed in the warm-up sequence:
   a. yes
   b. no
   c. unknown

44. Stretch positions during warm-up should be held for:
   a. 1-4 seconds
   b. 5-8 seconds
   c. 10-15 seconds
   d. none of the above
   e. unknown

(go to the top of the next column)

45. Flexibility exercises:
   a. should be performed as part of the warm-up phase of exercise
   b. should be performed as part of the cooldown phase of exercise
   c. are not a part of either the warm-up or cooldown phases of exercise
   d. both a and b
   e. unknown

46. Developmental stretching for flexibility improvement should be held for at least:
   a. 1-10 seconds
   b. 11-20 seconds
   c. 21-29 seconds
   d. 30+ seconds
   e. unknown

Body Weight/Composition and Nutrition

47. The recommended method for a soldier to eliminate excess fat from around the waist is:
   a. to do sit-ups daily:
   b. to run 40 meter sprints daily
   c. to use the nautilus abdominal machine every other day
   d. to run at a slow to moderate pace every other day for at least 30 minutes
   e. unknown

48. Exercise helps to control:
   a. body weight
   b. appetite
   c. body odor
   d. both a and b
   e. unknown

49. A soldier's ideal body weight is best achieved by:
   a. dieting only
   b. exercising only
   c. dieting and exercising
   d. fasting
   e. unknown

50. Generally, a good diet is:
   a. high in protein, moderate in carbohydrates and low in fat.
   b. equally high in carbohydrates and protein and low in fat
   c. high in protein, moderate in fat, low in carbohydrates
   d. high in carbohydrates, moderate in fat, moderate in protein
   e. I do not know.

(go to the top of the next page)

51. A safe and realistic weight loss goal per week is:
   a. three pounds per week for men and two pounds for women
   b. three pounds per week for both men and women
   c. two pounds for men and three pounds for women
   d. one to two pounds per week for both men and women
   e. unknown

52. Which can cause obesity:
   a. overeating
   b. poor nutrition
   c. lack of exercise
   d. all of the above
   e. unknown

53. The label on food "X" states:
   Total calories per serving = 281
   Grams of protein = 20
   Grams of fat = 9
   Grams of carbohydrates = 30
   The number of calories from fat by consuming one serving is:
   a. 54 calories
   b. 72 calories
   c. 81 calories
   d. none of the above
   e. unknown

54. To reduce body fat, soldiers should:
   a. eat more protein and less carbohydrates
   b. consume meals at a faster pace
   c. eliminate at least one meal per day
   d. expend more calories than they consume
   e. unknown

55. The 4 basic food groups are:
   a. protein, carbohydrates, dairy, fruits and vegetables
   b. minerals, dairy, breads and cereal, fruits and vegetables
   c. minerals, dairy, carbohydrates, fruits and vegetables
   d. protein, dairy, fruits and vegetables, breads and cereals
   e. unknown

56. One pound of fat equals:
   a. 3500 calories
   b. 1500 calories
   c. 2000 calories
   d. 2500 calories
   e. unknown

(go to the top of the next column)

57. The primary food source used by the body is:
   a. fats
   b. proteins
   c. carbohydrates
   d. minerals
   e. unknown

58. Dietary cholesterol is found:
   a. primarily in animal food products
   b. primarily in plant food products
   c. neither a nor b
   d. both a and b
   e. unknown

<u>General Fitness Knowledge</u>

59. Muscles of the upper torso include:
   a. pectorals, trapezieus, quadriceps, deltoids
   b. latissimus dorsi, deltoids, gluteus maximus, pectorals
   c. trapezieus, deltoids, pectorals, latissimus dorsi
   d. pectorals, latissimus dorsi, trapezieus, gastronimieus
   e. unknown

60. An important aspect of the cooldown is that it:
   a. incorporates stretching
   b. slowly decreases heart rate
   c. prevents blood pooling
   d. all of the above
   e. unknown

61. A good warm-up might consist of:
   a. two minutes of push-ups and sit-ups followed by stretching
   b. wind sprints followed by static stretching and then calisthenics
   c. a slow run in place, followed by static stretching and then calisthenics
   d. stretching followed by calisthenics
   e. unknown

62. It would take a soldier sent to Saudi Arabia in the summer approximately ___ days of repeated exposure to become acclimatized to the weather:
   a. 2-3
   b. 4-5
   c. 8-14
   d. 21
   e. unknown

(go to the top of the next page)

General Fitness Knowledge (cont.)

63. A formula to project a soldier's maximum heart rate is:
   a. 200 plus your age
   b. 220 minus your age
   c. 200 minus your age
   d. pulse rate before running plus age
   e. unknown

64. The body's primary method of cooling itself is:
   a. decreasing its heart rate
   b. increasing its blood pressure
   c. sweating
   d. all of the above
   e. unknown

65. The Principles of Exercise are:
   a. progression, regularity, overload, variety, recovery, balance, and specificity.
   b. muscular strength, flexibility, and body composition
   c. agility, endurance, mobility, speed, and strength
   d. dieting, overload, progression, and muscular strength
   e. unknown

66. The five components of physical fitness are:
   a. Muscular strength, muscular endurance, cardiorespiratory, coordination, flexibility
   b. Flexibility, cardiorespiratory, endurance, body composition, agility
   c. Cardiorespiratory, muscular strength, flexibility, muscular endurance, body composition
   d. Body composition, cardiorespiratory, muscular endurance, agility, flexibility
   e. unknown

(go to question #67 at the top of the next column)

67. Physiological change(s) associated with increased stress are:
   a. increased blood pressure
   b. increased heart rate
   c. decreased blood pressure
   d. both a and b
   e. unknown

68. The primary concern when developing the unit fitness program must be:
   a. improving the unit's Esprit de Corps
   b. equally training all of the components of fitness
   c. improved performance on the APFT
   d. allow the soldier to perform tasks specific to the unit's mission
   e. unknown

69. A good cooldown after completing a run is:
   a. to stretch and then conduct unit sprints
   b. walking for 1 to 2 minutes and then perform stretching exercises
   c. immediately perform 2 minutes of push-ups and sit-ups
   d. any one of the above is correct
   e. unknown

70. Body fluids lost from sweating are best replaced by drinking:
   a. Gatorade
   b. Pepsi-cola
   c. cool water
   d. warm water
   e. unknown

(go to Section III, General Fitness Information, below)

Section III: General Fitness Information

This section will provide some general information concerning your beliefs on fitness in the military.

71. Do you feel that fitness is important to a soldier's ability to accomplish the mission?
   a. yes
   b. no

72. Do you feel that your fitness knowledge was sufficient when you commanded at the company level?
   a. yes
   b. no

73. Do you feel that your military education provided you with the knowledge to keep your unit fit?
   a. yes
   b. no

(go to question #74)

74. Would you have liked to be given some fitness instruction in OBC, OAC, CAS^3, CGSOC, or the PCC?
   a. yes (if yes, answer question 75)
   b. no

75. In which of the following Army officer school curriculums could fitness instruction be the most valuable (select one):
   a. OBC
   b. OAC
   c. CAS^3
   d. CGSOC
   e. PCC

(Thank-you)

If you would like to receive a copy of the results of this study, place your name on the attached comment sheet.

COMMENTS

APPENDIX H

REQUEST TO SURVEY CGSOC CLASS

MEMORANDUM THRU

Mr. Dave Kent, DAO 24 Feb92

DGDP 24 Feb92

Class Director KWT 25 Feb 92

FOR DAO, Attn: ~~ESD~~ approved by DLKent 25 Feb92 Ernest G. Lauden, Ed.D.

SUBJECT: Request for Approval of CGSOC Student Survey

1. Request approval to survey CGSOC students of AY 91-92 with the attached questionnaire. Also enclosed is the survey instruction memorandum for your review.

2. The survey results will provide data for my research project regarding the level of fitness knowledge of Army officers who have commanded at the company level. Specifically, this data might be used to determine if there is a need to incorporate fitness education into Army officer school curriculums.

3. The survey is constructed to protect the anonymity of the participants. Participants are afforded the opportunity to receive a copy of the survey results.

Enclosures

Renard O. Barone
MAJ, FA
CGSOC AY 91-92

24 February 1992

MEMORANDUM FOR AY 91-92 CGSOC OFFICERS

SUBJECT: Student Survey

In December 1982, President Reagan stated that it was necessary to reaffirm the importance of physical fitness to the military. He noted that even with our modern weapon systems, it is the soldiers who are physically, mentally, and spiritually ready to serve their country that will make the difference in any conflict. Finally, as Commander-in-Chief, he challenged the members of the United States Army to maintain a high level of physical Strength and endurance (DA PAM 350-18, p. i).

The purpose of this study is to determine if the US Army's company commanders and battalion commanders possess the fitness knowledge that military manuals, pamphlets, and doctrine states that they should have to physically train their units. Military schools educate Army leaders to be tactically and technically proficient in the employment and maintenance of equipment and weapon systems. This survey will help to determine if the curriculums at OBC, OAC, CAS^3, and CGSOC have prepared commanders to improve or sustain a decisive combat asset--their soldiers' fitness.

Please complete the attached survey and return it to your section's survey representative by __ February 1992. Your responses are confidential; do not put your name or student number on your survey or the answer sheet. Your completion and return of the questionnaire signifies your consent to participate in this study.

Use a #2 pencil to place your answers to the questionnaire on the answer sheet (mark sense form). The last page of the questionnaire (titled comments) is for you to comment on or to qualify any of your responses; this is optional. Please do not guess. If you do not know the answer, mark response "unknown".

Thank-you for your assistance. Check the box at the end of the questionnaire if you would like to receive a summary.

Renard O. Barone
MAJ, FA
CGSOC AY 91-92

Survey control no. 9236-006

FITNESS QUESTIONNAIRE FOR AY 91-92 CLASS OF CGSOC

GENERAL INSTRUCTIONS

This is an anonymous questionnaire. Do not place your name anywhere on its contents. Use a #2 pencil to record your answers on the mark sense answer sheet. Annotate the two letters corresponding to your branch on the mark sense form answer sheet in the blocks and the columns labeled first initial and second initial (highlighted in yellow). For example, an ADA officer would place an A in the block under the first initial and a D under the block for the second initial. Next, s/he would blacken the space corresponding to the same letters in the columns under these blocks. Record only one answer per question. *Please do not guess.* If your are not sure of an answer, annotate "unknown". The last page of the survey questionnaire (titled comments) is for you to comment on or to qualify any of your responses (optional). Your frankness and prompt responses are greatly appreciated. Please respond to all questions.

Section I: Background Data

The purpose of background data is to develop a profile of survey participants.

1. What is your rank?
   a. Captain
   b. Major
   c. LTC

2. What is your age?
   a. 30-35 years old
   b. 36-40 years old
   c. 41-45 years old
   d. 45 plus years old

3. What is your sex?
   a. male
   b. female

4. Did you command at the company/battery level?
   a. yes
   b. no (if no, stop here and return the survey.)

5. Do you have an undergraduate degree in physical education?
   a. yes
   b. no

6. Do you have a Master's degree in physical education?
   a. yes
   b. no

7. Do you have any physical education undergraduate credits?
   (If you answered yes to either question 5 or 6, skip this question.)
   a. yes, I have undergraduate physical education credits.
   b. no

(go to top of next column)

8. Have you any graduate level physical education credits?
   (If you answered yes to question 6, skip this question.)
   a. yes, I have graduate level physical education credits.
   b. no

9. Did you take physical education in high school?
   a. yes
   b. no

10. Did you receive any class room instruction on fitness in OBC?
    a. yes
    b. no

11. Did you receive any class room instruction on fitness in OAC?
    a. yes
    b. no

12. Did you receive any class room instruction on fitness in CAS3?
    a. yes
    b. no

13. Did you receive any class room instruction on fitness in CGSOC (PCC officers only)?
    a. yes
    b. no

14. What is your branch of service?
    a. combat arms
    b. combat support
    c. combat service support

(go to Section II, Fitness Knowledge, top of next page)

Section II: Fitness Knowledge

The purpose of this section is to gather data on your knowledge of fitness concepts. Questions were assimilated from material found in military pamphlets, manuals, and doctrine.

Cardiorespiratory.

15. Cardiorespiratory fitness is best developed by:
   a. doing aerobic type exercises
   b. doing anaerobic exercises (100 meter dash)
   c. lifting weights
   d. eating properly
   e. unknown

16. Heart rate (pulse) can be taken by hand at the:
   a. tip of the lobe of the ear
   b. carotid artery at the side of the neck
   c. radial artery on the wrist.
   d. both b and c
   e. unknown

17. Generally, men should have greater cardiorespiratory endurance than women, because:
   a. a man's heart tends to be larger than a woman's
   b. men have approximately 6% more red blood cells and approximately 15% more hemoglobin (oxygen transport section of a red blood cell) than women
   c. men have greater muscular strength
   d. a and b
   e. unknown

18. To get a training effect, aerobic training should be performed for a minimum of:
   a. 15 minutes
   b. 20 minutes
   c. 25 minutes
   d. 30 minutes
   e. unknown

19. After training aerobically for 10-12 weeks, a soldier could expect to experience which change(s):
   a. muscles that would be more efficient at using oxygen
   b. a lower resting heart rate
   c. sub-maximal (less than maximal) work loads would be less stressful
   d. all of the above
   e. unknown

20. When soldiers exercise, their blood flow to:
   a. the lungs decreases
   b. the brain greatly increases
   c. the non-working muscles increase
   d. the working muscles increases
   e. unknown

(go to the top of the next column)

21. A unit that consistently runs three times a week at a 10 minute pace per mile, is not adhering to which principle of exercise:
   a. flexibility
   b. regularity
   c. recovery
   d. overload
   e. unknown

22. Road marching:
   a. helps overweight soldiers burn excess calories
   b. is a good workout to develop muscular strength
   c. causes the blood to pool in the legs
   d. often causes heat exhaustion in soldiers
   e. unknown

23. Running as a company in formation:
   a. should be conducted every other cardiorespiratory workout
   b. provides the optimal training effect for the largest number of soldiers
   c. develops cardiorespiratory fitness more effectively than ability group runs
   d. none of the above
   e. unknown

24. A method of accommodating the various physical fitness levels of the soldiers within a unit is to have the unit:
   a. run in one formation (the unit starts together and finishes together)
   b. run in place at the same cadence
   c. go on extended road marches in step
   d. run in ability groups (no formation, soldiers of the same ability, run together)
   e. unknown

Muscular Strength and Muscular Endurance

25. The best way to measure a soldier's pectoral (chest) muscular strength is by:
   a. a two-minute push-up test
   b. a one-minute pull-up test
   c. a maximum bench press lift
   d. both a and b
   e. I do not know.

(go to the top of the next page)

Muscular Strength and Muscular Endurance (cont.)

26. A soldier who fails to gain strength, despite performing regular, intense strength workouts, normally needs:
   a. longer workouts
   b. more rest and recovery and the integration of some low intensity workouts
   c. more sets with lower reps
   d. more frequent workouts
   e. unknown

27. One method to measure a soldier's muscular endurance is by a:
   a. maximum leg press on nautilus
   b. 100 meter dash
   c. two-minute sit-up test
   d. 50 meter swim sprint
   e. unknown

28. When exercising with weights, nautilus, or the universal, one should:
   a. Exercise each muscle group to the maximum intensity each day.
   b. Begin with the maximum resistance possible.
   c. Lift using larger muscles first and progressing to the smallest muscles.
   d. all of the above
   e. unknown

29. When weight training, the minimum recovery time required for specific muscles exercised is:
   a. 24 hours
   b. 36 hours
   c. 96 hours
   d. 48 hours
   e. unknown

30. When lifting weights, intensity in training:
   a. is the most important factor in developing strength
   b. should be cycled into hard and light workouts to facilitate recuperation
   c. both a and b
   d. none of the above
   e. unknown

31. When lifting a weight, it is best to :
   a. hold your breath
   b. exhale
   c. close your eyes
   d. inhale
   e. unknown

(go to the top of the next column)

32. The minimum number of workouts a week that are ideal for maximum strength gains are:
   a. 1
   b. 5
   c. 4
   d. 3
   e. unknown

33. A good assessment of a soldier's leg strength would be:
   a. one repetition maximum leg press
   b. a bench step test
   c. a two mile run test
   d. all of the above
   e. unknown

34. The optimal method for a soldier to develop both muscular strength and muscular endurance while lifting weights is to train with a weight or resistance that causes the soldier to reach muscular failure between the ___ repetitions.
   a. 8th and 12th
   b. 5th and 6th
   c. 13th and 20th
   d. The number of repetitions does not matter.
   e. unknown

35. Circuit training can best be described as: .
   a. exercise stations designed to cause training pain
   b. exercise conducted by a leader in formation
   c. a series of sequenced exercise stations designed for a specific fitness goal
   d. exercise stations to improve muscular strength
   e. unknown

36. Two minute periods of pushups and sit-ups primarily develop a soldier's:
   a. target heart rate
   b. muscular strength
   c. flexibility
   d. muscular endurance
   e. unknown

37. The ability of a muscle group to perform repeated movements against light to moderate weight resistance is called:
   a. muscular strength
   b. frequency
   c. overload
   d. muscular endurance
   e. unknown

(go to the top of the next page)

Flexibility

38. Flexibility does not:
   a. improve physical performance
   b. improve range of motion in a body joint
   c. decrease risk of injury
   d. improve muscular endurance
   e. unknown

39. Static stretching involves:
   a. fast, forceful stretches
   b. slow jerky stretches
   c. use of a piece of equipment or a partner
   d. slow, sustained stretches
   e. unknown

40. Because it can cause injuries, which method of stretching is the least recommended:
   a. ballistic
   b. static
   c. partner assisted
   d. equipment assisted
   e. unknown

41. If a soldier is unable to touch the floor, this indicates a lack of flexibility in the:
   a. quadricep and abdominal muscles
   b. abdominal and calf muscles
   c. shoulders and upper back
   d. lower back and hamstring muscles
   e. unknown

42. Flexibility is:
   a. one of the components of exercise
   b. one of the principles of exercise
   c. the first word in the FITT acronym
   d. none of the above
   e. unknown

43. Flexibility (stretching) is the first exercise to be performed in the warm-up sequence:
   a. yes
   b. no
   c. unknown

44. Stretch positions during warm-up should be held for:
   a. 1-4 seconds
   b. 5-8 seconds
   c. 10-15 seconds
   d. none of the above
   e. unknown

(go to the top of the next column)

45. Flexibility exercises:
   a. should be performed as part of the warm-up phase of exercise
   b. should be performed as part of the cooldown phase of exercise
   c. are not a part of either the warm-up or cooldown phases of exercise
   d. both a and b
   e. unknown

46. Developmental stretching for flexibility improvement should be held for at least:
   a. 1-10 seconds
   b. 11-20 seconds
   c. 21-29 seconds
   d. 30+ seconds
   e. unknown

Body Weight/Composition and Nutrition

47. The recommended method for a soldier to eliminate excess fat from around the waist is:
   a. to do sit-ups daily:
   b. to run 40 meter sprints daily
   c. to use the nautilus abdominal machine every other day
   d. to run at a slow to moderate pace every other day for at least 30 minutes
   e. unknown

48. Exercise helps to control:
   a. body weight
   b. appetite
   c. body odor
   d. both a and b
   e. unknown

49. A soldier's ideal body weight is best achieved by:
   a. dieting only
   b. exercising only
   c. dieting and exercising
   d. fasting
   e. unknown

50. Generally, a good diet is:
   a. high in protein, moderate in carbohydrates and low in fat.
   b. equally high in carbohydrates and protein and low in fat
   c. high in protein, moderate in fat, low in carbohydrates
   d. high in carbohydrates, moderate in fat, moderate in protein
   e. I do not know.

(go to the top of the next page)

51. A safe and realistic weight loss goal per week is:
   a. three pounds per week for men and two pounds for women
   b. three pounds per week for both men and women
   c. two pounds for men and three pounds for women
   d. one to two pounds per week for both men and women
   e. unknown

52. Which can cause obesity:
   a. overeating
   b. poor nutrition
   c. lack of exercise
   d. all of the above
   e. unknown

53. The label on food "X" states:
   Total calories per serving = 281
   Grams of protein = 20
   Grams of fat = 9
   Grams of carbohydrates = 30
   The number of calories from fat by consuming one serving is:
   a. 54 calories
   b. 72 calories
   c. 81 calories
   d. none of the above
   e. unknown

54. To reduce body fat, soldiers should:
   a. eat more protein and less carbohydrates
   b. consume meals at a faster pace
   c. eliminate at least one meal per day
   d. expend more calories than they consume
   e. unknown

55. The 4 basic food groups are:
   a. protein, carbohydrates, dairy, fruits and vegetables
   b. minerals, dairy, breads and cereal, fruits and vegetables
   c. minerals, dairy, carbohydrates, fruits and vegetables
   d. protein, dairy, fruits and vegetables, breads and cereals
   e. unknown

56. One pound of fat equals:
   a. 3500 calories
   b. 1500 calories
   c. 2000 calories
   d. 2500 calories
   e. unknown

(go to the top of the next column)

57. The primary food source used by the body is:
   a. fats
   b. proteins
   c. carbohydrates
   d. minerals
   e. unknown

58. Dietary cholesterol is found:
   a. primarily in animal food products
   b. primarily in plant food products
   c. neither a nor b
   d. both a and b
   e. unknown

<u>General Fitness Knowledge</u>

59. Muscles of the upper torso include:
   a. pectorals, trapezieus, quadriceps, deltoids
   b. latissimus dorsi, deltoids, gluteus maximus, pectorals
   c. trapezieus, deltoids, pectorals, latissimus dorsi
   d. pectorals, latissimus dorsi, trapezieus, gastronimieus
   e. unknown

60. An important aspect of the cooldown is that it:
   a. incorporates stretching
   b. slowly decreases heart rate
   c. prevents blood pooling
   d. all of the above
   e. unknown

61. A good warm-up might consist of:
   a. two minutes of push-ups and sit-ups followed by stretching
   b. wind sprints followed by static stretching and then calisthenics
   c. a slow run in place, followed by static stretching and then calisthenics
   d. stretching followed by calisthenics
   e. unknown

62. It would take a soldier sent to Saudi Arabia in the summer approximately ___ days of repeated exposure to become acclimatized to the weather:
   a. 2-3
   b. 4-5
   c. 8-14
   d. 21
   e. unknown

(go to the top of the next page)

General Fitness Knowledge (cont.)

63. A formula to project a soldier's maximum heart rate is:
   a. 200 plus your age
   b. 220 minus your age
   c. 200 minus your age
   d. pulse rate before running plus age
   e. unknown

64. The body's primary method of cooling itself is:
   a. decreasing its heart rate
   b. increasing its blood pressure
   c. sweating
   d. all of the above
   e. unknown

65. The Principles of Exercise are:
   a. progression, regularity, overload, variety, recovery, balance, and specificity.
   b. muscular strength, flexibility, and body composition
   c. agility, endurance, mobility, speed, and strength
   d. dieting, overload, progression, and muscular strength
   e. unknown

66. The five components of physical fitness are:
   a. Muscular strength, muscular endurance, cardiorespiratory, coordination, flexibility
   b. Flexibility, cardiorespiratory, endurance, body composition, agility
   c. Cardiorespiratory, muscular strength, flexibility, muscular endurance, body composition
   d. Body composition, cardiorespiratory, muscular endurance, agility, flexibility
   e. unknown

(go to question #67 at the top of the next column)

67. Physiological change(s) associated with increased stress are:
   a. increased blood pressure
   b. increased heart rate
   c. decreased blood pressure
   d. both a and b
   e. unknown

68. The primary concern when developing the unit fitness program must be:
   a. improving the unit's Esprit de Corps
   b. equally training all of the components of fitness
   c. improved performance on the APFT
   d. allow the soldier to perform tasks specific to the unit's mission
   e. unknown

69. A good cooldown after completing a run is:
   a. to stretch and then conduct unit sprints
   b. walking for 1 to 2 minutes and then perform stretching exercises
   c. immediately perform 2 minutes of push-ups and sit-ups
   d. any one of the above is correct
   e. unknown

70. Body fluids lost from sweating are best replaced by drinking:
   a. Gatorade
   b. Pepsi-cola
   c. cool water
   d. warm water
   e. unknown

(go to Section III, General Fitness Information, below)

Section III: General Fitness Information

This section will provide some general information concerning your beliefs on fitness in the military.

71. Do you feel that fitness is important to a soldier's ability to accomplish the mission?
   a. yes
   b. no

72. Do you feel that your fitness knowledge was sufficient when you commanded at the company level?
   a. yes
   b. no

73. Do you feel that your military education provided you with the knowledge to keep your unit fit?
   a. yes
   b. no

(go to question #74)

74. Would you have liked to be given some fitness instruction in OBC, OAC, CAS^3, CGSOC, or the PCC?
   a. yes (if yes, answer question 75)
   b. no

75. In which of the following Army officer school curriculums could fitness instruction be the most valuable (select one):
   a. OBC
   b. OAC
   c. CAS^3
   d. CGSOC
   e. PCC

(Thank-you)

If you would like to receive a copy of the results of this study, place your name on the attached comment sheet.

COMMENTS

APPENDIX I

REQUEST TO SURVEY PRE-COMMAND
COURSE OFFICERS

24 February 92

MEMORANDUM FOR: COLONEL BUTLER, Director SCP

SUBJECT: PCC FITNESS SURVEY

1. Sir, I am a CGSOC student conducting a study on military fitness. Since company commanders and battalion commanders are the focus of this project, I would like permission to survey the Pre-Command Course (PCC) officers scheduled to report 1 March 92.

2. Attached is a cover letter explaining the survey-questionnaire and a copy of the survey. A pilot study with CGSOC students indicates 12-18 minutes to complete the survey.

2 Encls

Renard O. Barone
MAJ, FA
CGSOC AY 91-92

ATZL-SWD-GD

MEMORANDUM FOR _____

SUBJECT: Fitness Survey for Pre-Command Course Officers

1. Thank-you for supporting my MMAS. You were randomly selected to represent your branch to take the attached survey. As one of your branch representatives, your input could prove invaluable to future Army officer school curriculums.

2. In December 1982, President Reagan stated that it was necessary to reaffirm the importance of physical fitness to the military. He noted that even with our modern weapon systems, it is the soldiers who are physically, mentally, and spiritually ready to serve their country that will make the difference in any conflict. Finally, as Commander-in-Chief, he challenged the members of the United States Army to maintain a high level of physical strength and endurance.

3. The purpose of this study is to determine if the US Army's company commanders and battalion commanders possess the fitness knowledge that military manuals, pamphlets, and doctrine states that they should have to physically train their units.

4. Please complete the attached survey and turn it into the PCC support personal. Pilot studies indicate that the survey will take 12-18 minutes to complete. Do not labor over it. Either you will recognize the answer or you won't.

5. Participation in this survey is strictly voluntary. The School for Command Preparation is not responsible for the conduct of the survey or its administration.

6. Again, thank-you for your cooperation. Your completion and return of the questionnaire signifies your consent to participate in this study. The last page of the questionnaire (titled Comments) is for you to comment on or to qualify your answers. Also, if you would like a copy of the results, place your name and forwarding address on the comment sheet.

2 Encls

Ray Barone
MAJ, FA
CGSOC AY 91-92

FITNESS QUESTIONNAIRE FOR PRE-COMMAND COURSE ATTENDEES

GENERAL INSTRUCTIONS

This is an anonymous questionnaire. Do not place your name anywhere on its contents. Use a #2 pencil to record your answers on the mark sense answer sheet. Annotate the two letters corresponding to your branch on the mark sense form answer sheet in the blocks and the columns labeled first initial and second initial (highlighted in yellow). For example, an ADA officer would place an A in the block under the first initial and a D under the block for the second initial. Next, s/he would blacken the space corresponding to the same letters in the columns under these blocks. Record only one answer per question. *Please do not guess.* If your are not sure of an answer, annotate "unknown". The last page of the survey questionnaire (titled comments) is for you to comment on or to qualify any of your responses (optional). Your frankness and prompt responses are greatly appreciated. Please respond to all questions.

Section I: Background Data

The purpose of background data is to develop a profile of survey participants.

1. What is your rank?
   a. Captain
   b. Major
   c. LTC

2. What is your age?
   a. 30-35 years old
   b. 36-40 years old
   c. 41-45 years old
   d. 45 plus years old

3. What is your sex?
   a. male
   b. female

4. Did you command at the company/battery level?
   a. yes
   b. no (if no, stop here and return the survey.)

5. Do you have an undergraduate degree in physical education?
   a. yes
   b. no

6. Do you have a Master's degree in physical education?
   a. yes
   b. no

7. Do you have any physical education undergraduate credits?
   (If you answered yes to either question 5 or 6, skip this question.)
   a. yes, I have undergraduate physical education credits.
   b. no

(go to top of next column)

8. Have you any graduate level physical education credits?
   (If you answered yes to question 6, skip this question.)
   a. yes, I have graduate level physical education credits.
   b. no

9. Did you take physical education in high school?
   a. yes
   b. no

10. Did you receive any class room instruction on fitness in OBC?
    a. yes
    b. no

11. Did you receive any class room instruction on fitness in OAC?
    a. yes
    b. no

12. Did you receive any class room instruction on fitness in CAS^3?
    a. yes
    b. no

13. Did you receive any class room instruction on fitness in CGSOC (PCC officers only)?
    a. yes
    b. no

14. What is your branch of service?
    a. combat arms
    b. combat support
    c. combat service support

(go to Section II, Fitness Knowledge, top of next page)

Section II: Fitness Knowledge

The purpose of this section is to gather data on your knowledge of fitness concepts. Questions were assimilated from material found in military pamphlets, manuals, and doctrine.

Cardiorespiratory.

15. Cardiorespiratory fitness is best developed by:
   a. doing aerobic type exercises
   b. doing anaerobic exercises (100 meter dash)
   c. lifting weights
   d. eating properly
   e. unknown

16. Heart rate (pulse) can be taken by hand at the:
   a. tip of the lobe of the ear
   b. carotid artery at the side of the neck
   c. radial artery on the wrist.
   d. both b and c
   e. unknown

17. Generally, men should have greater cardiorespiratory endurance than women, because:
   a. a man's heart tends to be larger than a woman's
   b. men have approximately 6% more red blood cells and approximately 15% more hemoglobin (oxygen transport section of a red blood cell) than women
   c. men have greater muscular strength
   d. a and b
   e. unknown

18. To get a training effect, aerobic training should be performed for a minimum of:
   a. 15 minutes
   b. 20 minutes
   c. 25 minutes
   d. 30 minutes
   e. unknown

19. After training aerobically for 10-12 weeks, a soldier could expect to experience which change(s):
   a. muscles that would be more efficient at using oxygen
   b. a lower resting heart rate
   c. sub-maximal (less than maximal) work loads would be less stressful
   d. all of the above
   e. unknown

20. When soldiers exercise, their blood flow to:
   a. the lungs decreases
   b. the brain greatly increases
   c. the non-working muscles increase
   d. the working muscles increases
   e. unknown

(go to the top of the next column)

21. A unit that consistently runs three times a week at a 10 minute pace per mile, is not adhering to which principle of exercise:
   a. flexibility
   b. regularity
   c. recovery
   d. overload
   e. unknown

22. Road marching:
   a. helps overweight soldiers burn excess calories
   b. is a good workout to develop muscular strength
   c. causes the blood to pool in the legs
   d. often causes heat exhaustion in soldiers
   e. unknown

23. Running as a company in formation:
   a. should be conducted every other cardiorespiratory workout
   b. provides the optimal training effect for the largest number of soldiers
   c. develops cardiorespiratory fitness more effectively than ability group runs
   d. none of the above
   e. unknown

24. A method of accommodating the various physical fitness levels of the soldiers within a unit is to have the unit:
   a. run in one formation (the unit starts together and finishes together)
   b. run in place at the same cadence
   c. go on extended road marches in step
   d. run in ability groups (no formation, soldiers of the same ability, run together)
   e. unknown

Muscular Strength and Muscular Endurance

25. The best way to measure a soldier's pectoral (chest) muscular strength is by:
   a. a two-minute push-up test
   b. a one-minute pull-up test
   c. a maximum bench press lift
   d. both a and b
   e. I do not know.

(go to the top of the next page)

Muscular Strength and Muscular Endurance (cont.)

26. A soldier who fails to gain strength, despite performing regular, intense strength workouts, normally needs:
a. longer workouts
b. more rest and recovery and the integration of some low intensity workouts
c. more sets with lower reps
d. more frequent workouts
e. unknown

27. One method to measure a soldier's muscular endurance is by a:
a. maximum leg press on nautilus
b. 100 meter dash
c. two-minute sit-up test
d. 50 meter swim sprint
e. unknown

28. When exercising with weights, nautilus, or the universal, one should:
a. Exercise each muscle group to the maximum intensity each day.
b. Begin with the maximum resistance possible.
c. Lift using larger muscles first and progressing to the smallest muscles.
d. all of the above
e. unknown

29. When weight training, the minimum recovery time required for specific muscles exercised is:
a. 24 hours
b. 36 hours
c. 96 hours
d. 48 hours
e. unknown

30. When lifting weights, intensity in training:
a. is the most important factor in developing strength
b. should be cycled into hard and light workouts to facilitate recuperation
c. both a and b
d. none of the above
e. unknown

31. When lifting a weight, it is best to :
a. hold your breath
b. exhale
c. close your eyes
d. inhale
e. unknown

(go to the top of the next column)

32. The minimum number of workouts a week that are ideal for maximum strength gains are:
a. 1
b. 5
c. 4
d. 3
e. unknown

33. A good assessment of a soldier's leg strength would be:
a. one repetition maximum leg press
b. a bench step test
c. a two mile run test
d. all of the above
e. unknown

34. The optimal method for a soldier to develop both muscular strength and muscular endurance while lifting weights is to train with a weight or resistance that causes the soldier to reach muscular failure between the ___ repetitions.
a. 8th and 12th
b. 5th and 6th
c. 13th and 20th
d. The number of repetitions does not matter.
e. unknown

35. Circuit training can best be described as:
a. exercise stations designed to cause training pain
b. exercise conducted by a leader in formation
c. a series of sequenced exercise stations designed for a specific fitness goal
d. exercise stations to improve muscular strength
e. unknown

36. Two minute periods of pushups and sit-ups primarily develop a soldier's:
a. target heart rate
b. muscular strength
c. flexibility
d. muscular endurance
e. unknown

37. The ability of a muscle group to perform repeated movements against light to moderate weight resistance is called:
a. muscular strength
b. frequency
c. overload
d. muscular endurance
e. unknown

(go to the top of the next page)

Flexibility

38. Flexibility does not:
   a. improve physical performance
   b. improve range of motion in a body joint
   c. decrease risk of injury
   d. improve muscular endurance
   e. unknown

39. Static stretching involves:
   a. fast, forceful stretches
   b. slow jerky stretches
   c. use of a piece of equipment or a partner
   d. slow, sustained stretches
   e. unknown

40. Because it can cause injuries, which method of stretching is the least recommended:
   a. ballistic
   b. static
   c. partner assisted
   d. equipment assisted
   e. unknown

41. If a soldier is unable to touch the floor, this indicates a lack of flexibility in the:
   a. quadricep and abdominal muscles
   b. abdominal and calf muscles
   c. shoulders and upper back
   d. lower back and hamstring muscles
   e. unknown

42. Flexibility is:
   a. one of the components of exercise
   b. one of the principles of exercise
   c. the first word in the FITT acronym
   d. none of the above
   e. unknown

43. Flexibility (stretching) is the first exercise to be performed in the warm-up sequence:
   a. yes
   b. no
   c. unknown

44. Stretch positions during warm-up should be held for:
   a. 1-4 seconds
   b. 5-8 seconds
   c. 10-15 seconds
   d. none of the above
   e. unknown

(go to the top of the next column)

45. Flexibility exercises:
   a. should be performed as part of the warm-up phase of exercise
   b. should be performed as part of the cooldown phase of exercise
   c. are not a part of either the warm-up or cooldown phases of exercise
   d. both a and b
   e. unknown

46. Developmental stretching for flexibility improvement should be held for at least:
   a. 1-10 seconds
   b. 11-20 seconds
   c. 21-29 seconds
   d. 30+ seconds
   e. unknown

Body Weight/Composition and Nutrition

47. The recommended method for a soldier to eliminate excess fat from around the waist is:
   a. to do sit-ups daily:
   b. to run 40 meter sprints daily
   c. to use the nautilus abdominal machine every other day
   d. to run at a slow to moderate pace every other day for at least 30 minutes
   e. unknown

48. Exercise helps to control:
   a. body weight
   b. appetite
   c. body odor
   d. both a and b
   e. unknown

49. A soldier's ideal body weight is best achieved by:
   a. dieting only
   b. exercising only
   c. dieting and exercising
   d. fasting
   e. unknown

50. Generally, a good diet is:
   a. high in protein, moderate in carbohydrates and low in fat.
   b. equally high in carbohydrates and protein and low in fat
   c. high in protein, moderate in fat, low in carbohydrates
   d. high in carbohydrates, moderate in fat, moderate in protein
   e. I do not know.

(go to the top of the next page)

51. A safe and realistic weight loss goal per week is:
   a. three pounds per week for men and two pounds for women
   b. three pounds per week for both men and women
   c. two pounds for men and three pounds for women
   d. one to two pounds per week for both men and women
   e. unknown

52. Which can cause obesity:
   a. overeating
   b. poor nutrition
   c. lack of exercise
   d. all of the above
   e. unknown

53. The label on food "X" states:
   Total calories per serving = 281
   Grams of protein = 20
   Grams of fat = 7
   Grams of carbohydrates = 30
   The number of calories from fat by consuming one serving is:
   a. 54 calories
   b. 72 calories
   c. 81 calories
   d. none of the above
   e. unknown

54. To reduce body fat, soldiers should:
   a. eat more protein and less carbohydrates
   b. consume meals at a faster pace
   c. eliminate at least one meal per day
   d. expend more calories than they consume
   e. unknown

55. The 4 basic food groups are:
   a. protein, carbohydrates, dairy, fruits and vegetables
   b. minerals, dairy, breads and cereal, fruits and vegetables
   c. minerals, dairy, carbohydrates, fruits and vegetables
   d. protein, dairy, fruits and vegetables, breads and cereals
   e. unknown

56. One pound of fat equals:
   a. 3500 calories
   b. 1500 calories
   c. 2000 calories
   d. 2500 calories
   e. unknown

(go to the top of the next column)

57. The primary food source used by the body is:
   a. fats
   b. proteins
   c. carbohydrates
   d. minerals
   e. unknown

58. Dietary cholesterol is found:
   a. primarily in animal food products
   b. primarily in plant food products
   c. neither a nor b
   d. both a and b
   e. unknown

<u>General Fitness Knowledge</u>

59. Muscles of the upper torso include:
   a. pectorals, trapezieus, quadriceps, deltoids
   b. latissimus dorsi, deltoids, gluteus maximus, pectorals
   c. trapezieus, deltoids, pectorals, latissimus dorsi
   d. pectorals, latissimus dorsi, trapezieus, gastronimieus
   e. unknown

60. An important aspect of the cooldown is that it:
   a. incorporates stretching
   b. slowly decreases heart rate
   c. prevents blood pooling
   d. all of the above
   e. unknown

61. A good warm-up might consist of:
   a. two minutes of push-ups and sit-ups followed by stretching
   b. wind sprints followed by static stretching and then calisthenics
   c. a slow run in place, followed by static stretching and then calisthenics
   d. stretching followed by calisthenics
   e. unknown

62. It would take a soldier sent to Saudi Arabia in the summer approximately ___ days of repeated exposure to become acclimatized to the weather:
   a. 2-3
   b. 4-5
   c. 8-14
   d. 21
   e. unknown

(go to the top of the next page)

General Fitness Knowledge (cont.)

63. A formula to project a soldier's maximum heart rate is:
   a. 200 plus your age
   b. 220 minus your age
   c. 200 minus your age
   d. pulse rate before running plus age
   e. unknown

64. The body's primary method of cooling itself is:
   a. decreasing its heart rate
   b. increasing its blood pressure
   c. sweating
   d. all of the above
   e. unknown

65. The Principles of Exercise are:
   a. progression, regularity, overload, variety, recovery, balance, and specificity.
   b. muscular strength, flexibility, and body composition
   c. agility, endurance, mobility, speed, and strength
   d. dieting, overload, progression, and muscular strength
   e. unknown

66. The five components of physical fitness are:
   a. Muscular strength, muscular endurance, cardiorespiratory, coordination, flexibility
   b. Flexibility, cardiorespiratory, endurance, body composition, agility
   c. Cardiorespiratory, muscular strength, flexibility, muscular endurance, body composition
   d. Body composition, cardiorespiratory, muscular endurance, agility, flexibility
   e. unknown

(go to question #67 at the top of the next column)

67. Physiological change(s) associated with increased stress are:
   a. increased blood pressure
   b. increased heart rate
   c. decreased blood pressure
   d. both a and b
   e. unknown

68. The primary concern when developing the unit fitness program must be:
   a. improving the unit's Esprit de Corps
   b. equally training all of the components of fitness
   c. improved performance on the APFT
   d. allow the soldier to perform tasks specific to the unit's mission
   e. unknown

69. A good cooldown after completing a run is:
   a. to stretch and then conduct unit sprints
   b. walking for 1 to 2 minutes and then perform stretching exercises
   c. immediately perform 2 minutes of push-ups and sit-ups
   d. any one of the above is correct
   e. unknown

70. Body fluids lost from sweating are best replaced by drinking:
   a. Gatorade
   b. Pepsi-cola
   c. cool water
   d. warm water
   e. unknown

(go to Section III, General Fitness Information, below)

Section III: General Fitness Information

This section will provide some general information concerning your beliefs on fitness in the military.

71. Do you feel that fitness is important to a soldier's ability to accomplish the mission?
   a. yes
   b. no

72. Do you feel that your fitness knowledge was sufficient when you commanded at the company level?
   a. yes
   b. no

73. Do you feel that your military education provided you with the knowledge to keep your unit fit?
   a. yes
   b. no

(go to question #74)

74. Would you have liked to be given some fitness instruction in OBC, OAC, CAS^3, CGSOC, or the PCC?
   a. yes (if yes, answer question 75)
   b. no

75. In which of the following Army officer school curriculums could fitness instruction be the most valuable (select one):
   a. OBC
   b. OAC
   c. CAS^3
   d. CGSOC
   e. PCC

(Thank-you)

If you would like to receive a copy of the results of this study, place your name and forwarding address on the attached comment sheet.

COMMENTS

APPENDIX J

SURVEY PACKET GIVEN TO
CGSOC STUDENTS

ATZL-SWD-GD

MEMORANDUM FOR _____

SUBJECT: Fitness Survey

1. Thank-you for supporting my MMAS. You were randomly selected to represent your branch to take the attached survey. As one of your branch representatives, your input could prove invaluable to future Army officer school curriculums.

2. In December 1982, President Reagan stated that it was necessary to reaffirm the importance of physical fitness to the military. He noted that even with our modern weapon systems, it is the soldiers who are physically, mentally, and spiritually ready to serve their country that will make the difference in any conflict. Finally, as Commander-in-Chief, he challenged the members of the United States Army to maintain a high level of physical strength and endurance.

3. The purpose of this study is to determine if the US Army's company commanders and battalion commanders possess the fitness knowledge that military manuals, pamphlets, and doctrine states that they should have to physically train their units.

4. Please complete the attached survey and return it to your section's survey representative within 48 hours. Your survey officer will return all surveys to the Department of Academic Operations (DAO), room 124. Pilot studies indicate that the survey will take 12-18 minutes to complete. Do not labor over it. Either you will recognize the answer or you won't.

5. Again, thank-you for your cooperation. Your completion and return of the questionnaire signifies your consent to participate in this study. Contact me in section 2B if you would like to receive a summary.

2 Encls

Ray Barone
MAJ, FA
CGSOC AY 91-92

FITNESS QUESTIONNAIRE FOR AY 91-92 CLASS OF CGSOC

GENERAL INSTRUCTIONS

This is an anonymous questionnaire. Do not place your name anywhere on its contents. Use a #2 pencil to record your answers on the mark sense answer sheet. Annotate the two letters corresponding to your branch on the mark sense form answer sheet in the blocks and the columns labeled first initial and second initial (highlighted in yellow). For example, an ADA officer would place an A in the block under the first initial and a D under the block for the second initial. Next, s/he would blacken the space corresponding to the same letters in the columns under these blocks. Record only one answer per question. *Please do not guess.* If your are not sure of an answer, annotate "unk own". The last page of the survey questionnaire (titled comments) is for you to comment on or to qualify any of your responses (optional). Your frankness and prompt responses are greatly appreciated. Please respond to all questions.

Section I: Background Data

The purpose of background data is to develop a profile of survey participants.

1. What is your rank?
   a. Captain
   b. Major
   c. LTC

2. What is your age?
   a. 30-35 years old
   b. 36-40 years old
   c. 41-45 years old
   d. 45 plus years old

3. What is your sex?
   a. male
   b. female

4. Did you command at the company/battery level?
   a. yes
   b. no (if no, stop here and return the survey.)

5. Do you have an undergraduate degree in physical education?
   a. yes
   b. no

6. Do you have a Master's degree in physical education?
   a. yes
   b. no

7. Do you have any physical education undergraduate credits?
   (If you answered yes to either question 5 or 6, skip this question.)
   a. yes, I have undergraduate physical education credits
   b. no

(go to top of next column)

8. Have you any graduate level physical education credits?
   (If you answered yes to question 6, skip this question.)
   a. yes, I have graduate level physical education credits.
   b. no

9. Did you take physical education in high school?
   a. yes
   b. no

10. Did you receive any class room instruction on fitness in OBC?
    a. yes
    b. no

11. Did you receive any class room instruction on fitness in OAC?
    a. yes
    b. no

12. Did you receive any class room instruction on fitness in CAS^3?
    a. yes
    b. no

13. Did you receive any class room instruction on fitness in CGSOC (PCC officers only)?
    a. yes
    b. no

14. What is your branch of service?
    a. combat arms
    b. combat support
    c. combat service support

(go to Section II, Fitness Knowledge, top of next page)

Section II: Fitness Knowledge

The purpose of this section is to gather data on your knowledge of fitness concepts. Questions were assimilated from material found in military pamphlets, manuals, and doctrine.

Cardiorespiratory.

15. Cardiorespiratory fitness is best developed by:
   a. doing aerobic type exercises
   b. doing anaerobic exercises (100 meter dash)
   c. lifting weights
   d. eating properly
   e. unknown

16. Heart rate (pulse) can be taken by hand at the:
   a. tip of the lobe of the ear
   b. carotid artery at the side of the neck
   c. radial artery on the wrist.
   d. both b and c
   e. unknown

17. Generally, men should have greater cardiorespiratory endurance than women, because:
   a. a man's heart tends to be larger than a woman's
   b. men have approximately 6% more red blood cells and approximately 15% more hemoglobin (oxygen transport section of a red blood cell) than women
   c. men have greater muscular strength
   d. a and b
   e. unknown

18. To get a training effect, aerobic training should be performed for a minimum of:
   a. 15 minutes
   b. 20 minutes
   c. 25 minutes
   d. 30 minutes
   e. unknown

19. After training aerobically for 10-12 weeks, a soldier could expect to experience which change(s):
   a. muscles that would be more efficient at using oxygen
   b. a lower resting heart rate
   c. sub-maximal (less than maximal) work loads would be less stressful
   d. all of the above
   e. unknown

20. When soldiers exercise, their blood flow to:
   a. the lungs decreases
   b. the brain greatly increases
   c. the non-working muscles increase
   d. the working muscles increases
   e. unknown

(go to the top of the next column)

21. A unit that consistently runs three times a week at a 10 minute pace per mile, is not adhering to which principle of exercise:
   a. flexibility
   b. regularity
   c. recovery
   d. overload
   e. unknown

22. Road marching:
   a. helps overweight soldiers burn excess calories
   b. is a good workout to develop muscular strength
   c. causes the blood to pool in the legs
   d. often causes heat exhaustion in soldiers
   e. unknown

23. Running as a company in formation:
   a. should be conducted every other cardiorespiratory workout
   b. provides the optimal training effect for the largest number of soldiers
   c. develops cardiorespiratory fitness more effectively than ability group runs
   d. none of the above
   e. unknown

24. A method of accommodating the various physical fitness levels of the soldiers within a unit is to have the unit:
   a. run in one formation (the unit starts together and finishes together)
   b. run in place at the same cadence
   c. go on extended road marches in step
   d. run in ability groups (no formation, soldiers of the same ability, run together)
   e. unknown

Muscular Strength and Muscular Endurance

25. The best way to measure a soldier's pectoral (chest) muscular strength is by:
   a. a two-minute push-up test
   b. a one-minute pull-up test
   c. a maximum bench press lift
   d. both a and b
   e. I do not know.

(go to the top of the next page)

Muscular Strength and Muscular Endurance (cont.)

26. A soldier who fails to gain strength, despite performing regular, intense strength workouts, normally needs:
    a. longer workouts
    b. more rest and recovery and the integration of some low intensity workouts
    c. more sets with lower reps
    d. more frequent workouts
    e. unknown

27. One method to measure a soldier's muscular endurance is by a:
    a. maximum leg press on nautilus
    b. 100 meter dash
    c. two-minute sit-up test
    d. 50 meter swim sprint
    e. unknown

28. When exercising with weights, nautilus, or the universal, one should:
    a. Exercise each muscle group to the maximum intensity each day.
    b. Begin with the maximum resistance possible.
    c. Lift using larger muscles first and progressing to the smallest muscles.
    d. all of the above
    e. unknown

29. When weight training, the minimum recovery time required for specific muscles exercised is:
    a. 24 hours
    b. 36 hours
    c. 96 hours
    d. 48 hours
    e. unknown

30. When lifting weights, intensity in training:
    a. is the most important factor in developing strength
    b. should be cycled into hard and light workouts to facilitate recuperation
    c. both a and b
    d. none of the above
    e. unknown

31. When lifting a weight, it is best to :
    a. hold your breath
    b. exhale
    c. close your eyes
    d. inhale
    e. unknown

(go to the top of the next column)

32. The minimum number of workouts a week that are ideal for maximum strength gains are:
    a. 1
    b. 5
    c. 4
    d. 3
    e. unknown

33. A good assessment of a soldier's leg strength would be:
    a. one repetition maximum leg press
    b. a bench step test
    c. a two mile run test
    d. all of the above
    e. unknown

34. The optimal method for a soldier to develop both muscular strength and muscular endurance while lifting weights is to train with a weight or resistance that causes the soldier to reach muscular failure between the ___ repetitions.
    a. 8th and 12th
    b. 5th and 6th
    c. 13th and 20th
    d. The number of repetitions does not matter.
    e. unknown

35. Circuit training can best be described as:
    a. exercise stations designed to cause training pain
    b. exercise conducted by a leader in formation
    c. a series of sequenced exercise stations designed for a specific fitness goal
    d. exercise stations to improve muscular strength
    e. unknown

36. Two minute periods of pushups and sit-ups primarily develop a soldier's:
    a. target heart rate
    b. muscular strength
    c. flexibility
    d. muscular endurance
    e. unknown

37. The ability of a muscle group to perform repeated movements against light to moderate weight resistance is called:
    a. muscular strength
    b. frequency
    c. overload
    d. muscular endurance
    e. unknown

(go to the top of the next page)

Flexibility

38. Flexibility does not:
   a. improve physical performance
   b. improve range of motion in a body joint
   c. decrease risk of injury
   d. improve muscular endurance
   e. unknown

39. Static stretching involves:
   a. fast, forceful stretches
   b. slow jerky stretches
   c. use of a piece of equipment or a partner
   d. slow, sustained stretches
   e. unknown

40. Because it can cause injuries, which method of stretching is the least recommended:
   a. ballistic
   b. static
   c. partner assisted
   d. equipment assisted
   e. unknown

41. If a soldier is unable to touch the floor, this indicates a lack of flexibility in the:
   a. quadricep and abdominal muscles
   b. abdominal and calf muscles
   c. shoulders and upper back
   d. lower back and hamstring muscles
   e. unknown

42. Flexibility is:
   a. one of the components of exercise
   b. one of the principles of exercise
   c. the first word in the FITT acronym
   d. none of the above
   e. unknown

43. Flexibility (stretching) is the first exercise to be performed in the warm-up sequence:
   a. yes
   b. no
   c. unknown

44. Stretch positions during warm-up should be held for:
   a. 1-4 seconds
   b. 5-8 seconds
   c. 10-15 seconds
   d. none of the above
   e. unknown

(go to the top of the next column)

45. Flexibility exercises:
   a. should be performed as part of the warm-up phase of exercise
   b. should be performed as part of the cooldown phase of exercise
   c. are not a part of either the warm-up or cooldown phases of exercise
   d. both a and b
   e. unknown

46. Developmental stretching for flexibility improvement should be held for at least:
   a. 1-10 seconds
   b. 11-20 seconds
   c. 21-29 seconds
   d. 30+ seconds
   e. unknown

Body Weight/Composition and Nutrition

47. The recommended method for a soldier to eliminate excess fat from around the waist is:
   a. to do sit-ups daily:
   b. to run 40 meter sprints daily
   c. to use the nautilus abdominal machine every other day
   d. to run at a slow to moderate pace every other day for at least 30 minutes
   e. unknown

48. Exercise helps to control:
   a. body weight
   b. appetite
   c. body odor
   d. both a and b
   e. unknown

49. A soldier's ideal body weight is best achieved by:
   a. dieting only
   b. exercising only
   c. dieting and exercising
   d. fasting
   e. unknown

50. Generally, a good diet is:
   a. high in protein, moderate in carbohydrates and low in fat.
   b. equally high in carbohydrates and protein and low in fat
   c. high in protein, moderate in fat, low in carbohydrates
   d. high in carbohydrates, moderate in fat, moderate in protein
   e. I do not know.

(go to the top of the next page)

51. A safe and realistic weight loss goal per week is:
   a. three pounds per week for men and two pounds for women
   b. three pounds per week for both men and women
   c. two pounds for men and three pounds for women
   d. one to two pounds per week for both men and women
   e. unknown

52. Which can cause obesity:
   a. overeating
   b. poor nutrition
   c. lack of exercise
   d. all of the above
   e. unknown

53. The label on food "X" states:
   Total calories per serving = 281
   Grams of protein = 20
   Grams of fat = 9
   Grams of carbohydrates = 30
   The number of calories from fat by consuming one serving is:
   a. 54 calories
   b. 72 calories
   c. 81 calories
   d. none of the above
   e. unknown

54. To reduce body fat, soldiers should:
   a. eat more protein and less carbohydrates
   b. consume meals at a faster pace
   c. eliminate at least one meal per day
   d. expend more calories than they consume
   e. unknown

55. The 4 basic food groups are:
   a. protein, carbohydrates, dairy, fruits and vegetables
   b. minerals, dairy, breads and cereal, fruits and vegetables
   c. minerals, dairy, carbohydrates, fruits and vegetables
   d. protein, dairy, fruits and vegetables, breads and cereals
   e. unknown

56. One pound of fat equals:
   a. 3500 calories
   b. 1500 calories
   c. 2000 calories
   d. 2500 calories
   e. unknown

(go to the top of the next column)

57. The primary food source used by the body is:
   a. fats
   b. proteins
   c. carbohydrates
   d. minerals
   e. unknown

58. Dietary cholesterol is found:
   a. primarily in animal food products
   b. primarily in plant food products
   c. neither a nor b
   d. both a and b
   e. unknown

<u>General Fitness Knowledge</u>

59. Muscles of the upper torso include:
   a. pectorals, trapezieus, quadriceps, deltoids
   b. latissimus dorsi, deltoids, gluteus maximus, pectorals
   c. trapezieus, deltoids, pectorals, latissimus dorsi
   d. pectorals, latissimus dorsi, trapezieus, gastronimieus
   e. unknown

60. An important aspect of the cooldown is that it:
   a. incorporates stretching
   b. slowly decreases heart rate
   c. prevents blood pooling
   d. all of the above
   e. unknown

61. A good warm-up might consist of:
   a. two minutes of push-ups and sit-ups followed by stretching
   b. wind sprints followed by static stretching and then calisthenics
   c. a slow run in place, followed by static stretching and then calisthenics
   d. stretching followed by calisthenics
   e. unknown

62. It would take a soldier sent to Saudi Arabia in the summer approximately ___ days of repeated exposure to become acclimatized to the weather:
   a. 2-3
   b. 4-5
   c. 8-14
   d. 21
   e. unknown

(go to the top of the next page)

General Fitness Knowledge (cont.)

63. A formula to project a soldier's maximum heart rate is:
   a. 200 plus your age
   b. 220 minus your age
   c. 200 minus your age
   d. pulse rate before running plus age
   e. unknown

64. The body's primary method of cooling itself is:
   a. decreasing its heart rate
   b. increasing its blood pressure
   c. sweating
   d. all of the above
   e. unknown

65. The Principles of Exercise are:
   a. progression, regularity, overload, variety, recovery, balance, and specificity.
   b. muscular strength, flexibility, and body composition
   c. agility, endurance, mobility, speed, and strength
   d. dieting, overload, progression, and muscular strength
   e. unknown

66. The five components of physical fitness are:
   a. Muscular strength, muscular endurance, cardiorespiratory, coordination, flexibility
   b. Flexibility, cardiorespiratory, endurance, body composition, agility
   c. Cardiorespiratory, muscular strength, flexibility, muscular endurance, body composition
   d. Body composition, cardiorespiratory, muscular endurance, agility, flexibility
   e. unknown

(go to question #67 at the top of the next column)

67. Physiological change(s) associated with increased stress are:
   a. increased blood pressure
   b. increased heart rate
   c. decreased blood pressure
   d. both a and b
   e. unknown

68. The primary concern when developing the unit fitness program must be:
   a. improving the unit's Esprit de Corps
   b. equally training all of the components of fitness
   c. improved performance on the APFT
   d. allow the soldier to perform tasks specific to the unit's mission.
   e. unknown

69. A good cooldown after completing a run is:
   a. to stretch and then conduct unit sprints
   b. walking for 1 to 2 minutes and then perform stretching exercises
   c. immediately perform 2 minutes of push-ups and sit-ups
   d. any one of the above is correct
   e. unknown

70. Body fluids lost from sweating are best replaced by drinking:
   a. Gatorade
   b. Pepsi-cola
   c. cool water
   d. warm water
   e. unknown

(go to Section III, General Fitness Information, below)

Section III: General Fitness Information

This section will provide some general information concerning your beliefs on fitness in the military.

71. Do you feel that fitness is important to a soldier's ability to accomplish the mission?
   a. yes
   b. no

72. Do you feel that your fitness knowledge was sufficient when you commanded at the company level?
   a. yes
   b. no

73. Do you feel that your military education provided you with the knowledge to keep your unit fit?
   a. yes
   b. no

(go to question #74)

74. Would you have liked to be given some fitness instruction in OBC, OAC, CAS^3, CGSOC, or the PCC?
   a. yes (if yes, answer question 75)
   b. no

75. In which of the following Army officer school curriculums could fitness instruction be the most valuable (select one):
   a. OBC
   b. OAC
   c. CAS^3
   d. CGSOC
   e. PCC

(Thank-you)

If you would like to receive a copy of the results of this study, place your name on the attached comment sheet.

COMMENTS

APPENDIX K

MEMORANDUM FROM DEPARTMENT OF ACADEMIC
OPERATION'S ANALYST TO SECTION
SURVEY REPRESENTATIVES

ATZL-SWD-GD

MEMORANDUM FOR SURVEY OFFICER SECTION _____

1. Attached are some surveys for your section. Please distribute them to the appropriate officers. In order to provide us with timely data, we request that you collect the completed surveys and return them to room 124, DAO within 48 hours.

2. Thank-you for your cooperation.

Dave Kent
Department of Academic Operations
Room 124

APPENDIX L

SURVEY PACKET GIVEN TO PRE-COMMAND
COURSE OFFICERS

ATZL-SWD-GD

MEMORANDUM FOR _____

SUBJECT: Fitness Survey for Pre-Command Course Officers

1. Thank-you for supporting my MMAS. You were randomly selected to represent your branch to take the attached survey. As one of your branch representatives, your input could prove invaluable to future Army officer school curriculums.

2. In December 1982, President Reagan stated that it was necessary to reaffirm the importance of physical fitness to the military. He noted that even with our modern weapon systems, it is the soldiers who are physically, mentally, and spiritually ready to serve their country that will make the difference in any conflict. Finally, as Commander-in-Chief, he challenged the members of the United States Army to maintain a high level of physical strength and endurance.

3. The purpose of this study is to determine if the US Army's company commanders and battalion commanders possess the fitness knowledge that military manuals, pamphlets, and doctrine states that they should have to physically train their units.

4. Please complete the attached survey and turn it into the PCC support personal. Pilot studies indicate that the survey will take 12-18 minutes to complete. Do not labor over it. Either you will recognize the answer or you won't.

5. Participation in this survey is strictly voluntary. The School for Command Preparation is not responsible for the conduct of the survey or its administration.

6. Again, thank-you for your cooperation. Your completion and return of the questionnaire signifies your consent to participate in this study. The last page of the questionnaire (titled Comments) is for you to comment on or to qualify your answers. Also, if you would like a copy of the results, place your name and forwarding address on the comment sheet.

2 Encls

Ray Barone
MAJ, FA
CGSOC AY 91-92

Survey control no. 9236-006

FITNESS QUESTIONNAIRE FOR PRE-COMMAND COURSE ATTENDEES

GENERAL INSTRUCTIONS

This is an anonymous questionnaire. Do not place your name anywhere on its contents. Use a #2 pencil to record your answers on the mark sense answer sheet. Annotate the two letters corresponding to your branch on the mark sense form answer sheet in the blocks and the columns labeled first initial and second initial (highlighted in yellow). For example, an ADA officer would place an A in the block under the first initial and a D under the block for the second initial. Next, s/he would blacken the space corresponding to the same letters in the columns under these blocks. Record only one answer per question. *Please do not guess.* If your are not sure of an answer, annotate "unknown". The last page of the survey questionnaire (titled comments) is for you to comment on or to qualify any of your responses (optional). Your frankness and prompt responses are greatly appreciated. Please respond to all questions.

Section I: Background Data

The purpose of background data is to develop a profile of survey participants.

1. What is your rank?
   a. Captain
   b. Major
   c. LTC

2. What is your age?
   a. 30-35 years old
   b. 36-40 years old
   c. 41-45 years old
   d. 45 plus years old

3. What is your sex?
   a. male
   b. female

4. Did you command at the company/battery level?
   a. yes
   b. no (if no, stop here and return the survey.)

5. Do you have an undergraduate degree in physical education?
   a. yes
   b. no

6. Do you have a Master's degree in physical education?
   a. yes
   b. no

7. Do you have any physical education undergraduate credits?
   (If you answered yes to either question 5 or 6, skip this question.)
   a. yes, I have undergraduate physical education credits.
   b. no

(go to top of next column)

8. Have you any graduate level physical education credits?
   (If you answered yes to question 6, skip this question.)
   a. yes, I have graduate level physical education credits.
   b. no

9. Did you take physical education in high school?
   a. yes
   b. no

10. Did you receive any class room instruction on fitness in OBC?
    a. yes
    b. no

11. Did you receive any class room instruction on fitness in OAC?
    a. yes
    b. no

12. Did you receive any class room instruction on fitness in CAS^3?
    a. yes
    b. no

13. Did you receive any class room instruction on fitness in CGSOC (PCC officers only)?
    a. yes
    b. no

14. What is your branch of service?
    a. combat arms
    b. combat support
    c. combat service support

(go to Section II, Fitness Knowledge, top of next page)

Section II: Fitness Knowledge

The purpose of this section is to gather data on your knowledge of fitness concepts. Questions were assimilated from material found in military pamphlets, manuals, and doctrine.

Cardiorespiratory.

15. Cardiorespiratory fitness is best developed by:
   a. doing aerobic type exercises
   b. doing anaerobic exercises (100 meter dash)
   c. lifting weights
   d. eating properly
   e. unknown

16. Heart rate (pulse) can be taken by hand at the:
   a. tip of the lobe of the ear
   b. carotid artery at the side of the neck
   c. radial artery on the wrist.
   d. both b and c
   e. unknown

17. Generally, men should have greater cardiorespiratory endurance than women, because:
   a. a man's heart tends to be larger than a woman's
   b. men have approximately 6% more red blood cells and approximately 15% more hemoglobin (oxygen transport section of a red blood cell) than women
   c. men have greater muscular strength
   d. a and b
   e. unknown

18. To get a training effect, aerobic training should be performed for a minimum of:
   a. 15 minutes
   b. 20 minutes
   c. 25 minutes
   d. 30 minutes
   e. unknown

19. After training aerobically for 10-12 weeks, a soldier could expect to experience which change(s):
   a. muscles that would be more efficient at using oxygen
   b. a lower resting heart rate
   c. sub-maximal (less than maximal) work loads would be less stressful
   d. all of the above
   e. unknown

20. When soldiers exercise, their blood flow to:
   a. the lungs decreases
   b. the brain greatly increases
   c. the non-working muscles increase
   d. the working muscles increases
   e. unknown

(go to the top of the next column)

21. A unit that consistently runs three times a week at a 10 minute pace per mile, is not adhering to which principle of exercise:
   a. flexibility
   b. regularity
   c. recovery
   d. overload
   e. unknown

22. Road marching:
   a. helps overweight soldiers burn excess calories
   b. is a good workout to develop muscular strength
   c. causes the blood to pool in the legs
   d. often causes heat exhaustion in soldiers
   e. unknown

23. Running as a company in formation:
   a. should be conducted every other cardiorespiratory workout
   b. provides the optimal training effect for the largest number of soldiers
   c. develops cardiorespiratory fitness more effectively than ability group runs
   d. none of the above
   e. unknown

24. A method of accommodating the various physical fitness levels of the soldiers within a unit is to have the unit:
   a. run in one formation (the unit starts together and finishes together)
   b. run in place at the same cadence
   c. go on extended road marches in step
   d. run in ability groups (no formation, soldiers of the same ability, run together)
   e. unknown

Muscular Strength and Muscular Endurance

25. The best way to measure a soldier's pectoral (chest) muscular strength is by:
   a. a two-minute push-up test
   b. a one-minute pull-up test
   c. a maximum bench press lift
   d. both a and b
   e. I do not know.

(go to the top of the next page)

Muscular Strength and Muscular Endurance (cont.)

26. A soldier who fails to gain strength, despite performing regular, intense strength workouts, normally needs:
    a. longer workouts
    b. more rest and recovery and the integration of some low intensity workouts
    c. more sets with lower reps
    d. more frequent workouts
    e. unknown

27. One method to measure a soldier's muscular endurance is by a:
    a. maximum leg press on nautilus
    b. 100 meter dash
    c. two minute sit-up test
    d. 50 meter swim sprint
    e. unknown

28. When exercising with weights, nautilus, or the universal, one should:
    a. Exercise each muscle group to the maximum intensity each day.
    b. Begin with the maximum resistance possible.
    c. Lift using larger muscles first and progressing to the smaller muscles.
    d. all of the above
    e. unknown

29. When weight training, the minimum recovery time required for specific muscles exercised is:
    a. 24 hours
    b. 36 hours
    c. 96 hours
    d. 48 hours
    e. unknown

30. When lifting weights, intensity in training:
    a. is the most important factor in developing strength
    b. should be cycled into hard and light workouts to facilitate recuperation
    c. both a and b
    d. none of the above
    e. unknown

31. When lifting a weight, it is best to :
    a. hold your breath
    b. exhale
    c. close your eyes
    d. inhale
    e. unknown

(go to the top of the next column)

32. The minimum number of workouts a week that are ideal for maximum strength gains are:
    a. 1
    b. 5
    c. 4
    d. 3
    e. unknown

33. A good assessment of a soldier's leg strength would be:
    a. one repetition maximum leg press
    b. a bench step test
    c. a two mile run test
    d. all of the above
    e. unknown

34. The optimal method for a soldier to develop both muscular strength and muscular endurance while lifting weights is to train with a weight or resistance that causes the soldier to reach muscular failure between the ___ repetitions.
    a. 8th and 12th
    b. 5th and 6th
    c. 13th and 20th
    d. The number of repetitions does not matter.
    e. unknown

35. Circuit training can best be described as:
    a. exercise stations designed to cause training pain
    b. exercise conducted by a leader in formation
    c. a series of sequenced exercise stations designed for a specific fitness goal
    d. exercise stations to improve muscular strength
    e. unknown

36. Two minute periods of pushups and sit-ups primarily develop a soldier's:
    a. target heart rate
    b. muscular strength
    c. flexibility
    d. muscular endurance
    e. unknown

37. The ability of a muscle group to perform repeated movements against light to moderate weight resistance is called:
    a. muscular strength
    b. frequency
    c. overload
    d. muscular endurance
    e. unknown

(go to the top of the next page)

Flexibility

38. Flexibility does not:
   a. improve physical performance
   b. improve range of motion in a body joint
   c. decrease risk of injury
   d. improve muscular endurance
   e. unknown

39. Static stretching involves:
   a. fast, forceful stretches
   b. slow jerky stretches
   c. use of a piece of equipment or a partner
   d. slow, sustained stretches
   e. unknown

40. Because it can cause injuries, which method of stretching is the least recommended:
   a. ballistic
   b. static
   c. partner assisted
   d. equipment assisted
   e. unknown

41. If a soldier is unable to touch the floor, this indicates a lack of flexibility in the:
   a. quadricep and abdommal muscles
   b. abdominal and calf muscles
   c. shoulders and upper back
   d. lower back and hamstring muscles
   e. unknown

42. Flexibility is:
   a. one of the components of exercise
   b. one of the principles of exercise
   c. the first word in the FITT acronym
   d. none of the above
   e. unknown

43. Flexibility (stretching) is the first exercise to be performed in the warm-up sequence:
   a. yes
   b. no
   c. unknown

44. Stretch positions during warm-up should be held for:
   a. 1-4 seconds
   b. 5-8 seconds
   c. 10-15 seconds
   d. none of the above
   e. unknown

(go to the top of the next column)

45. Flexibility exercises:
   a. should be performed as part of the warm-up phase of exercise
   b. should be performed as part of the cooldown phase of exercise
   c. are not a part of either the warm-up or cooldown phases of exercise
   d. both a and b
   e. unknown

46. Developmental stretching for flexibility improvement should be held for at least:
   a. 1-10 seconds
   b. 11-20 seconds
   c. 21-29 seconds
   d. 30+ seconds
   e. unknown

Body Weight/Composition and Nutrition

47. The recommended method for a soldier to eliminate excess fat from around the waist is:
   a. to do sit-ups daily:
   b. to run 40 meter sprints daily
   c. to use the nautilus abdominal machine every other day
   d. to run at a slow to moderate pace every other day for at least 30 minutes
   e. unknown

48. Exercise helps to control:
   a. body weight
   b. appetite
   c. body odor
   d. both a and b
   e. unknown

49. A soldier's ideal body weight is best achieved by:
   a. dieting only
   b. exercising only
   c. dieting and exercising
   d. fasting
   e. unknown

50. Generally, a good diet is:
   a. high in protein, moderate in carbohydrates and low in fat.
   b. equally high in carbohydrates and protein and low in fat
   c. high in protein, moderate in fat, low in carbohydrates
   d. high in carbohydrates, moderate in fat, moderate in protein
   e. I do not know.

(go to the top of the next page)

51. A safe and realistic weight loss goal per week is:
   a. three pounds per week for men and two pounds for women
   b. three pounds per week for both men and women
   c. two pounds for men and three pounds for women
   d. one to two pounds per week for both men and women
   e. unknown

52. Which can cause obesity:
   a. overeating
   b. poor nutrition
   c. lack of exercise
   d. all of the above
   e. unknown

53. The label on food "X" states:
   Total calories per serving = 281
   Grams of protein = 20
   Grams of fat = 9
   Grams of carbohydrates = 30
   The number of calories from fat by consuming one serving is:
   a. 54 calories
   b. 72 calories
   c. 81 calories
   d. none of the above
   e. unknown

54. To reduce body fat, soldiers should:
   a. eat more protein and less carbohydrates
   b. consume meals at a faster pace
   c. eliminate at least one meal per day
   d. expend more calories than they consume
   e. unknown

55. The 4 basic food groups are:
   a. protein, carbohydrates, dairy, fruits and vegetables
   b. minerals, dairy, breads and cereal, fruits and vegetables
   c. minerals, dairy, carbohydrates, fruits and vegetables
   d. protein, dairy, fruits and vegetables, breads and cereals
   e. unknown

56. One pound of fat equals:
   a. 3500 calories
   b. 1500 calories
   c. 2000 calories
   d. 2500 calories
   e. unknown

(go to the top of the next column)

57. The primary food source used by the body is:
   a. fats
   b. proteins
   c. carbohydrates
   d. minerals
   e. unknown

58. Dietary cholesterol is found:
   a. primarily in animal food products
   b. primarily in plant food products
   c. neither a nor b
   d. both a and b
   e. unknown

General Fitness Knowledge

59. Muscles of the upper torso include:
   a. pectorals, trapezieus, quadriceps, deltoids
   b. latissimus dorsi, deltoids, gluteus maximus, pectorals
   c. trapezieus, deltoids, pectorals, latissimus dorsi
   d. pectorals, latissimus dorsi, trapezieus, gastronimieus
   e. unknown

60. An important aspect of the cooldown is that it:
   a. incorporates stretching
   b. slowly decreases heart rate
   c. prevents blood pooling
   d. all of the above
   e. unknown

61. A good warm-up might consist of:
   a. two minutes of push-ups and sit-ups followed by stretching
   b. wind sprints followed by static stretching and then calisthenics
   c. a slow run in place, followed by static stretching and then calisthenics
   d. stretching followed by calisthenics
   e. unknown

62. It would take a soldier sent to Saudi Arabia in the summer approximately ___ days of repeated exposure to become acclimatized to the weather:
   a. 2-3
   b. 4-5
   c. 8-14
   d. 21
   e. unknown

(go to the top of the next page)

General Fitness Knowledge (cont.)

63. A formula to project a soldier's maximum heart rate is:
   a. 200 plus your age
   b. 220 minus your age
   c. 200 minus your age
   d. pulse rate before running plus age
   e. unknown

64. The body's primary method of cooling itself is:
   a. decreasing its heart rate
   b. increasing its blood pressure
   c. sweating
   d. all of the above
   e. unknown

65. The Principles of Exercise are:
   a. progression, regularity, overload, variety, recovery, balance, and specificity.
   b. muscular strength, flexibility, and body composition
   c. agility, endurance, mobility, speed, and strength
   d. dieting, overload, progression, and muscular strength
   e. unknown

66. The five components of physical fitness are:
   a. Muscular strength, muscular endurance, cardiorespiratory, coordination, flexibility
   b. Flexibility, cardiorespiratory, endurance, body composition, agility
   c. Cardiorespiratory, muscular strength, flexibility, muscular endurance, body composition
   d. Body composition, cardiorespiratory, muscular endurance, agility, flexibility
   e. unknown

(go to question #67 at the top of the next column)

67. Physiological change(s) associated with increased stress are:
   a. increased blood pressure
   b. increased heart rate
   c. decreased blood pressure
   d. both a and b
   e. unknown

68. The primary concern when developing the unit fitness program must be:
   a. improving the unit's Esprit de Corps
   b. equally training all of the components of fitness
   c. improved performance on the APFT
   d. allow the soldier to perform tasks specific to the unit's mission
   e. unknown

69. A good cooldown after completing a run is:
   a. to stretch and then conduct unit sprints
   b. walking for 1 to 2 minutes and then perform stretching exercises
   c. immediately perform 2 minutes of push-ups and sit-ups
   d. any one of the above is correct
   e. unknown

70. Body fluids lost from sweating are best replaced by drinking:
   a. Gatorade
   b. Pepsi-cola
   c. cool water
   d. warm water
   e. unknown

(go to Section III, General Fitness Information, below)

Section III: General Fitness Information

This section will provide some general information concerning your beliefs on fitness in the military.

71. Do you feel that fitness is important to a soldier's ability to accomplish the mission?
   a. yes
   b. no

72. Do you feel that your fitness knowledge was sufficient when you commanded at the company level?
   a. yes
   b. no

73. Do you feel that your military education provided you with the knowledge to keep your unit fit?
   a. yes
   b. no

(go to question #74)

74. Would you have liked to be given some fitness instruction in OBC, OAC, CAS^3, CGSOC, or the PCC?
   a. yes (if yes, answer question 75)
   b. no

75. In which of the following Army officer school curriculums could fitness instruction be the most valuable (select one):
   a. OBC
   b. OAC
   c. CAS^3
   d. CGSOC
   e. PCC

(Thank-you)

If you would like to receive a copy of the results of this study, place your name and forwarding address on the attached comment sheet.

COMMENTS

APPENDIX M

SURVEY PACKET GIVEN TO PRIOR
BATTALION COMMANDERS

ATZL-SWD-GD

MEMORANDUM FOR _____

SUBJECT: Fitness Survey for Prior Battalion Commanders

1. Thank-you for supporting my MMAS. You were randomly selected to represent your branch to take the attached survey. As one of your branch representatives, your input could prove invaluable to future Army officer school curriculums.

2. In December 1982, President Reagan stated that it was necessary to reaffirm the importance of physical fitness to the military. He noted that even with our modern weapon systems, it is the soldiers who are physically, mentally, and spiritually ready to serve their country that will make the difference in any conflict. Finally, as Commander-in-Chief, he challenged the members of the United States Army to maintain a high level of physical strength and endurance.

3. The purpose of this study is to determine if the US Army's company commanders and battalion commanders possess the fitness knowledge that military manuals, pamphlets, and doctrine states that they should have to physically train their units.

4. Please complete the attached survey by Wednesday 4 March. Return it to Major Barone by placing it back in the shot-gun envelope, fixing the enclosed white label (with my name on it), and placing it in distribution. Pilot studies indicate that the survey will take 12-18 minutes to complete. Do not labor over it. Either you will recognize the answer or you won't.

5. Again, thank-you for your cooperation. Your completion and return of the questionnaire signifies your consent to participate in this study. The last page of the questionnaire (titled Comments) is for you to comment on or to qualify your answers (optional). Also, if you would like a copy of the results, place your name on the comment sheet.

2 Encls

Ray Barone
MAJ, FA
CGSOC AY 91-92

Survey control no. 9236-006

FITNESS QUESTIONNAIRE PREVIOUS BATTALION COMMANDERS INSTRUCTING AT FORT LEAVENWORTH

GENERAL INSTRUCTIONS

This is an anonymous questionnaire. Do not place your name anywhere on its contents. Use a #2 pencil to record your answers on the mark sense answer sheet. Annotate the two letters corresponding to your branch on the mark sense form answer sheet in the blocks and the columns labeled first initial and second initial (highlighted in yellow). For example, an ADA officer would place an A in the block under the first initial and a D under the block for the second initial. Next, s/he would blacken the space corresponding to the same letters in the columns under these blocks. Record only one answer per question. *Please do not guess.* If your are not sure of an answer, annotate "unknown". The last page of the survey questionnaire (titled comments) is for you to comment on or to qualify any of your responses (optional). Your frankness and prompt responses are greatly appreciated. Please respond to all questions.

Section I: Background Data

The purpose of background data is to develop a profile of survey participants.

1. What is your rank?
   a. Captain
   b. Major
   c. LTC

2. What is your age?
   a. 30-35 years old
   b. 36-40 years old
   c. 41-45 years old
   d. 45 plus years old

3. What is your sex?
   a. male
   b. female

4. Did you command at the company/battery level?
   a. yes
   b. no (if no, stop here and return the survey.)

5. Do you have an undergraduate degree in physical education?
   a. yes
   b. no

6. Do you have a Master's degree in physical education?
   a. yes
   b. no

7. Do you have any physical education undergraduate credits?
   (If you answered yes to either question 5 or 6, skip this question.)
   a. yes, I have undergraduate physical education credits.
   b. no

(go to top of next column)

8. Have you any graduate level physical education credits?
   (If you answered yes to question 6, skip this question.)
   a. yes, I have graduate level physical education credits.
   b. no

9. Did you take physical education in high school?
   a. yes
   b. no

10. Did you receive any class room instruction on fitness in OBC?
    a. yes
    b. no

11. Did you receive any class room instruction on fitness in OAC?
    a. yes
    b. no

12. Did you receive any class room instruction on fitness in CAS^3?
    a. yes
    b. no

13. Did you receive any class room instruction on fitness in CGSOC (PCC officers only)?
    a. yes
    b. no

14. What is your branch of service?
    a. combat arms
    b. combat support
    c. combat service support

(go to Section II, Fitness Knowledge, top of next page)

Section II: Fitness Knowledge

The purpose of this section is to gather data on your knowledge of fitness concepts. Questions were assimilated from material found in military pamphlets, manuals, and doctrine.

Cardiorespiratory.

15. Cardiorespiratory fitness is best developed by:
   a. doing aerobic type exercises
   b. doing anaerobic exercises (100 meter dash)
   c. lifting weights
   d. eating properly
   e. unknown

16. Heart rate (pulse) can be taken by hand at the:
   a. tip of the lobe of the ear
   b. carotid artery at the side of the neck
   c. radial artery on the wrist.
   d. both b and c
   e. unknown

17. Generally, men should have greater cardiorespiratory endurance than women, because:
   a. a man's heart tends to be larger than a woman's
   b. men have approximately 6% more red blood cells and approximately 15% more hemoglobin (oxygen transport section of a red blood cell) than women
   c. men have greater muscular strength
   d. a and b
   e. unknown

18. To get a training effect, aerobic training should be performed for a minimum of:
   a. 15 minutes
   b. 20 minutes
   c. 25 minutes
   d. 30 minutes
   e. unknown

19. After training aerobically for 10-12 weeks, a soldier could expect to experience which change(s):
   a. muscles that would be more efficient at using oxygen
   b. a lower resting heart rate
   c. sub-maximal (less than maximal) work loads would be less stressful
   d. all of the above
   e. unknown

20. When soldiers exercise, their blood flow to:
   a. the lungs decreases
   b. the brain greatly increases
   c. the non-working muscles increase
   d. the working muscles increases
   e. unknown

(go to the top of the next column)

21. A unit that consistently runs three times a week at a 10 minute pace per mile, is not adhering to which principle of exercise:
   a. flexibility
   b. regularity
   c. recovery
   d. overload
   e. unknown

22. Road marching:
   a. helps overweight soldiers burn excess calories
   b. is a good workout to develop muscular strength
   c. causes the blood to pool in the legs
   d. often causes heat exhaustion in soldiers
   e. unknown

23. Running as a company in formation:
   a. should be conducted every other cardiorespiratory workout
   b. provides the optimal training effect for the largest number of soldiers
   c. develops cardiorespiratory fitness more effectively than ability group runs
   d. none of the above
   e. unknown

24. A method of accommodating the various physical fitness levels of the soldiers within a unit is to have the unit:
   a. run in one formation (the unit starts together and finishes together)
   b. run in place at the same cadence
   c. go on extended road marches in step
   d. run in ability groups (no formation, soldiers of the same ability, run together)
   e. unknown

Muscular Strength and Muscular Endurance

25. The best way to measure a soldier's pectoral (chest) muscular strength is by:
   a. a two-minute push-up test
   b. a one-minute pull-up test
   c. a maximum bench press lift
   d. both a and b
   e. I do not know.

(go to the top of the next page)

Muscular Strength and Muscular Endurance (cont.)

26. A soldier who fails to gain strength, despite performing regular, intense strength workouts, normally needs:
    a. longer workouts
    b. more rest and recovery and the integration of some low intensity workouts
    c. more sets with lower reps
    d. more frequent workouts
    e. unknown

27. One method to measure a soldier's muscular endurance is by a:
    a. maximum leg press on nautilus
    b. 100 meter dash
    c. two-minute sit-up test
    d. 50 meter swim sprint
    e. unknown

28. When exercising with weights, nautilus, or the universal, one should:
    a. Exercise each muscle group to the maximum intensity each day.
    b. Begin with the maximum resistance possible.
    c. Lift using larger muscles first and progressing to the smallest muscles.
    d. all of the above
    e. unknown

29. When weight training, the minimum recovery time required for specific muscles exercised is:
    a. 24 hours
    b. 36 hours
    c. 96 hours
    d. 48 hours
    e. unknown

30. When lifting weights, intensity in training:
    a. is the most important factor in developing strength
    b. should be cycled into hard and light workouts to facilitate recuperation
    c. both a and b
    d. none of the above
    e. unknown

31. When lifting a weight, it is best to :
    a. hold your breath
    b. exhale
    c. close your eyes
    d. inhale
    e. unknown

(go to the top of the next column)

32. The minimum number of workouts a week that are ideal for maximum strength gains are:
    a. 1
    b. 5
    c. 4
    d. 3
    e. unknown

33. A good assessment of a soldier's leg strength would be:
    a. one repetition maximum leg press
    b. a bench step test
    c. a two mile run test
    d. all of the above
    e. unknown

34. The optimal method for a soldier to develop both muscular strength and muscular endurance while lifting weights is to train with a weight or resistance that causes the soldier to reach muscular failure between the ___ repetitions.
    a. 8th and 12th
    b. 5th and 6th
    c. 13th and 20th
    d. The number of repetitions does not matter.
    e. unknown

35. Circuit training can best be described as:
    a. exercise stations designed to cause training pain
    b. exercise conducted by a leader in formation
    c. a series of sequenced exercise stations designed for a specific fitness goal
    d. exercise stations to improve muscular strength
    e. unknown

36. Two minute periods of pushups and sit-ups primarily develop a soldier's:
    a. target heart rate
    b. muscular strength
    c. flexibility
    d. muscular endurance
    e. unknown

37. The ability of a muscle group to perform repeated movements against light to moderate weight resistance is called:
    a. muscular strength
    b. frequency
    c. overload
    d. muscular endurance
    e. unknown

(go to the top of the next page)

Flexibility

38. Flexibility does not:
   a. improve physical performance
   b. improve range of motion in a body joint
   c. decrease risk of injury
   d. improve muscular endurance
   e. unknown

39. Static stretching involves:
   a. fast, forceful stretches
   b. slow jerky stretches
   c. use of a piece of equipment or a partner
   d. slow, sustained stretches
   e. unknown

40. Because it can cause injuries, which method of stretching is the least recommended:
   a. ballistic
   b. static
   c. partner assisted
   d. equipment assisted
   e. unknown

41. If a soldier is unable to touch the floor, this indicates a lack of flexibility in the:
   a. quadricep and abdominal muscles
   b. abdominal and calf muscles
   c. shoulders and upper back
   d. lower back and hamstring muscles
   e. unknown

42. Flexibility is:
   a. one of the components of exercise
   b. one of the principles of exercise
   c. the first word in the FITT acronym
   d. none of the above
   e. unknown

43. Flexibility (stretching) is the first exercise to be performed in the warm-up sequence:
   a. yes
   b. no
   c. unknown

44. Stretch positions during warm-up should be held for:
   a. 1-4 seconds
   b. 5-8 seconds
   c. 10-15 seconds
   d. none of the above
   e. unknown

(go to the top of the next column)

45. Flexibility exercises:
   a. should be performed as part of the warm-up phase of exercise
   b. should be performed as part of the cooldown phase of exercise
   c. are not a part of either the warm-up or cooldown phases of exercise
   d. both a and b
   e. unknown

46. Developmental stretching for flexibility improvement should be held for at least:
   a. 1-10 seconds
   b. 11-20 seconds
   c. 21-29 seconds
   d. 30+ seconds
   e. unknown

Body Weight/Composition and Nutrition

47. The recommended method for a soldier to eliminate excess fat from around the waist is:
   a. to do sit-ups daily:
   b. to run 40 meter sprints daily
   c. to use the nautilus abdominal machine every other day
   d. to run at a slow to moderate pace every other day for at least 30 minutes
   e. unknown

48. Exercise helps to control:
   a. body weight
   b. appetite
   c. body odor
   d. both a and b
   e. unknown

49. A soldier's ideal body weight is best achieved by:
   a. dieting only
   b. exercising only
   c. dieting and exercising
   d. fasting
   e. unknown

50. Generally, a good diet is:
   a. high in protein, moderate in carbohydrates and low in fat.
   b. equally high in carbohydrates and protein and low in fat
   c. high in protein, moderate in fat, low in carbohydrates
   d. high in carbohydrates, moderate in fat, moderate in protein
   e. I do not know.

(go to the top of the next page)

51. A safe and realistic weight loss goal per week is:
   a. three pounds per week for men and two pounds for women
   b. three pounds per week for both men and women
   c. two pounds for men and three pounds for women
   d. one to two pounds per week for both men and women
   e. unknown

52. Which can cause obesity:
   a. overeating
   b. poor nutrition
   c. lack of exercise
   d. all of the above
   e. unknown

53. The label on food "X" states:
   Total calories per serving = 281
   Grams of protein = 20
   Grams of fat = 9
   Grams of carbohydrates = 30
   The number of calories from fat by consuming one serving is:
   a. 54 calories
   b. 72 calories
   c. 81 calories
   d. none of the above
   e. unknown

54. To reduce body fat, soldiers should:
   a. eat more protein and less carbohydrates
   b. consume meals at a faster pace
   c. eliminate at least one meal per day
   d. expend more calories than they consume
   e. unknown

55. The 4 basic food groups are:
   a. protein, carbohydrates, dairy, fruits and vegetables
   b. minerals, dairy, breads and cereal, fruits and vegetables
   c. minerals, dairy, carbohydrates, fruits and vegetables
   d. protein, dairy, fruits and vegetables, breads and cereals
   e. unknown

56. One pound of fat equals:
   a. 3500 calories
   b. 1500 calories
   c. 2000 calories
   d. 2500 calories
   e. unknown

(go to the top of the next column)

57. The primary food source used by the body is:
   a. fats
   b. proteins
   c. carbohydrates
   d. minerals
   e. unknown

58. Dietary cholesterol is found:
   a. primarily in animal food products
   b. primarily in plant food products
   c. neither a nor b
   d. both a and b
   e. unknown

General Fitness Knowledge

59. Muscles of the upper torso include:
   a. pectorals, trapezieus, quadriceps, deltoids
   b. latissimus dorsi, deltoids, gluteus maximus, pectorals
   c. trapezieus, deltoids, pectorals, latissimus dorsi
   d. pectorals, latissimus dorsi, trapezieus, gastronimieus
   e. unknown

60. An important aspect of the cooldown is that it:
   a. incorporates stretching
   b. slowly decreases heart rate
   c. prevents blood pooling
   d. all of the above
   e. unknown

61. A good warm-up might consist of:
   a. two minutes of push-ups and sit-ups followed by stretching
   b. wind sprints followed by static stretching and then calisthenics
   c. a slow run in place, followed by static stretching and then calisthenics
   d. stretching followed by calisthenics
   e. unknown

62. It would take a soldier sent to Saudi Arabia in the summer approximately ___ days of repeated exposure to become acclimatized to the weather:
   a. 2-3
   b. 4-5
   c. 8-14
   d. 21
   e. unknown

(go to the top of the next page)

General Fitness Knowledge (cont.)

63. A formula to project a soldier's maximum heart rate is:
   a. 200 plus your age
   b. 220 minus your age
   c. 200 minus your age
   d. pulse rate before running plus age
   e. unknown

64. The body's primary method of cooling itself is:
   a. decreasing its heart rate
   b. increasing its blood pressure
   c. sweating
   d. all of the above
   e. unknown

65. The Principles of Exercise are:
   a. progression, regularity, overload, variety, recovery, balance, and specificity.
   b. muscular strength, flexibility, and body composition
   c. agility, endurance, mobility, speed, and strength
   d. dieting, overload, progression, and muscular strength
   e. unknown

66. The five components of physical fitness are:
   a. Muscular strength, muscular endurance, cardiorespiratory, coordination, flexibility
   b. Flexibility, cardiorespiratory, endurance, body composition, agility
   c. Cardiorespiratory, muscular strength, flexibility, muscular endurance, body composition
   d. Body composition, cardiorespiratory, muscular endurance, agility, flexibility
   e. unknown

(go to question #67 at the top of the next column)

67. Physiological change(s) associated with increased stress are:
   a. increased blood pressure
   b. increased heart rate
   c. decreased blood pressure
   d. both a and b
   e. unknown

68. The primary concern when developing the unit fitness program must be:
   a. improving the unit's Esprit de Corps
   b. equally training all of the components of fitness
   c. improved performance on the APFT
   d. allow the soldier to perform tasks specific to the unit's mission
   e. unknown

69. A good cooldown after completing a run is:
   a. to stretch and then conduct unit sprints
   b. walking for 1 to 2 minutes and then perform stretching exercises
   c. immediately perform 2 minutes of push-ups and sit-ups
   d. any one of the above is correct
   e. unknown

70. Body fluids lost from sweating are best replaced by drinking:
   a. Gatorade
   b. Pepsi-cola
   c. cool water
   d. warm water
   e. unknown

(go to Section III, General Fitness Information, below)

Section III: General Fitness Information

This section will provide some general information concerning your beliefs on fitness in the military.

71. Do you feel that fitness is important to a soldier's ability to accomplish the mission?
   a. yes
   b. no

72. Do you feel that your fitness knowledge was sufficient when you commanded at the company level?
   a. yes
   b. no

73. Do you feel that your military education provided you with the knowledge to keep your unit fit?
   a. yes
   b. no

(go to question #74)

74. Would you have liked to be given some fitness instruction in OBC, OAC, CAS^3, CGSOC, or the PCC?
   a. yes (if yes, answer question 75)
   b. no

75. In which of the following Army officer school curriculums could fitness instruction be the most valuable (select one):
   a. OBC
   b. OAC
   c. CAS^3
   d. CGSOC
   e. PCC

(Thank-you)

If you would like to receive a copy of the results of this study, place your name and forwarding address on the attached comment sheet.

COMMENTS

APPENDIX N

MARK SENSE FORM USED TO RECORD
SURVEY RESPONSES

ANSWER SHEET

A. NAME OF TEST	B. CLASS SECTION

C. SPACES FOR STUDENT NO

D. SPACES FOR STUDENT NAME

LAST NAME

FIRST INITIAL

SECOND INITIAL

DATA REQUIRED BY THE PRIVACY ACT OF 1974

AUTHORITY: TITLE 10, US CODE, SECTION 3012.

PRINCIPAL PURPOSE: TO RECORD TEST ANSWERS OR SURVEY RESPONSES

ROUTINE USE: INFORMATION COLLECTED WILL BE USED TO IDENTIFY THE STUDENT TESTED.

DISCLOSURE AND EFFECT—VOLUNTARY: WITHOUT THIS DATA, CREDIT WILL NOT BE AWARDED TO STUDENTS FOR COURSE COMPLETION.

⟸ MAKE NO MARKS BEYOND THIS LINE

MARKING INSTRUCTIONS: WHEN YOU HAVE DECIDED WHICH ANSWER IS CORRECT, BLACKEN THE CORRESPONDING SPACE ON THIS SHEET WITH A NO. 2 PENCIL ONLY. MAKE NO STRAY MARKS–THEY MAY COUNT AGAINST YOU.

	T	F		T	F		T	F		T	F		T	F		T	F
1			31			61			91			121			151		
2			32			62			92			122			152		
3			33			63			93			123			153		
4			34			64			94			124			154		
5			35			65			95			125			155		
6			36			66			96			126			156		
7			37			67			97			127			157		
8			38			68			98			128			158		
9			39			69			99			129			159		
10			40			70			100			130			160		
11			41			71			101			131			161		
12			42			72			102			132			162		
13			43			73			103			133			163		
14			44			74			104			134			164		
15			45			75			105			135			165		
16			46			76			106			136			166		
17			47			77			107			137			167		
18			48			78			108			138			168		
19			49			79			109			139			169		
20			50			80			110			140			170		
21			51			81			111			141			171		
22			52			82			112			142			172		
23			53			83			113			143			173		
24			54			84			114			144			174		
25			55			85			115			145			175		
26			56			86			116			146			176		
27			57			87			117			147			177		
28			58			88			118			148			178		
29			59			89			119			149			179		
30			60			90			120			150			180		

CGSC Form 96
1 Aug 1987

EDITION OF 1 OCT 1984 IS OBSOLETE

EB20424 321

US GOVERNMENT PRINTING OFFICE: 1991—556-419

APPENDIX O

TARGET POPULATION'S DEMOGRAPHIC DATA

Question 1 What is your rank?

Value Label	Frequency	Percent
Captain	19	8.7
Major	140	63.9
LTC	60	27.4
TOTAL	219	100.0

Question 2 What is your age?

Value Label	Frequency	Percent
30-35 years old	78	35.6
36-40 years old	88	40.2
41-45 yrs old	51	23.3
	2	.9
TOTAL	219	100.0

Question 3 What is your sex?

Value Label	Frequency	Percent
male	200	91.3
female	19	8.2
TOTAL	219	100.0

Question 4 Did you command at company/battery level?

Value Label	Frequency	Percent
yes	219	100.0
no	0	0.0
TOTAL	219	100.0

Question 5 Do you have an undergraduate degree in Physical Education?

Value Label	Frequency	Percent
yes	6	2.7
no	213	97.3
TOTAL	219	100.0

Question 6 Do you have a masters degree in Physical Education?

Value Label	Frequency	Percent
yes	8	3.7
no	211	96.3
TOTAL	219	100.0

Question 7 Do you have any undergraduate Physical Education credits?

Value Label	Frequency	Percent
yes	109	49.8
no	99	45.2
missing	11	5.0
TOTAL	219	100.0

Question 8 Do you have any graduate level credits Physical Education?

Value Label	Frequency	Percent
yes	4	1.8
no	201	91.8
missing	14	6.4
TOTAL	219	100.0

Question 9 Did you take Physical Education in High School?

Value Label	Frequency	Percent
yes	203	92.7
no	16	7.3
TOTAL	219	100.0

Question 10 Did you receive any classroom fitness instruction in OBC?

Value Label	Frequency	Percent
yes	94	42.9
no	122	55.7
missing	3	1.4
TOTAL	219	100.0

Question 11 Did you receive any classroom fitness instruction in OAC?

Value Label	Frequency	Percent
yes	95	43.4
no	119	54.3
missing	5	2.3
TOTAL	219	100.0

Question 12 Did you receive any classroom fitness instruction in CAS[3]?

Value Label	Frequency	Percent
yes	66	30.1
no	129	58.9
missing	24	11.0
TOTAL	219	100.0

Question 13 Did you receive any classroom fitness instruction in CGSOC?

Value Label	Frequency	Percent
yes	45	20.5
no	110	50.2
missing	63	28.8
TOTAL	219	100.0

Question 14 What is your branch of service?

Value Label	Frequency	Percent
combat arms	116	53.0
combat support	61	27.9
combat service support	42	19.2
TOTAL	219	100.0

APPENDIX P

ANALYSIS OF RESULTS BY FITNESS COMPONENT

Responses to Cardiorespiratory Section

	Your present status		Total
	CGSOC Student	Battalion Commander	Column Percent
	Column Percent	Column Percent	
Heart rate can be taken by hand at:			
Percent Wrong	13.2%	1.7%	10.0%
Percent Correct	86.8%	98.3%	90.0%
Men shld have greater cardioresp endurance than women			
Percent Wrong	67.3%	66.7%	67.1%
Percent Correct	32.7%	33.3%	32.9%
Minimum length of aerobic trng for training effect			
Percent Wrong	45.3%	33.3%	42.0%
Percent Correct	54.7%	66.7%	58.0%
Changes produced by 10-12 wks of aerobic training			
Percent Wrong	10.7%	3.3%	8.7%
Percent Correct	89.3%	96.7%	91.3%
Effect of exercise on blood flow			
Percent Wrong	20.8%	23.3%	21.5%
Percent Correct	79.2%	76.7%	78.5%
Effect of consistent exercise			
Percent Wrong	44.7%	30.0%	40.6%
Percent Correct	55.3%	70.0%	59.4%
Effects of road marching			
Percent Wrong	79.9%	70.0%	77.2%
Percent Correct	20.1%	30.0%	22.8%
Frequency of running in unit formation			
Percent Wrong	28.9%	10.0%	23.7%
Percent Correct	71.1%	90.0%	76.3%
Methods to accommodate varying fitness levels			
Percent Wrong	5.0%		3.7%
Percent Correct	95.0%	100.0%	96.3%

Responses to Muscular Strength and Endurance Section

	Your present status		Total
	CGSOC Student	Battalion Commander	Column Percent
	Column Percent	Column Percent	
Best way to measure SM's chest muscle strength			
Percent Wrong	68.6%	75.0%	70.3%
Percent Correct	31.4%	25.0%	29.7%
SM not gaining strength from intense workout needs			
Percent Wrong	42.1%	43.3%	42.5%
Percent Correct	57.9%	56.7%	57.5%
Method to measure SM's muscular endurance			
Percent Wrong	48.4%	60.0%	51.6%
Percent Correct	51.6%	40.0%	48.4%
Method for exercising with weights			
Percent Wrong	35.2%	35.0%	35.2%
Percent Correct	64.8%	65.0%	64.8%
Minimum recovery time when weight training			
Percent Wrong	52.8%	50.0%	52.1%
Percent Correct	47.2%	50.0%	47.9%
Importance of intensity in weight lifting			
Percent Wrong	47.2%	41.7%	45.7%
Percent Correct	52.8%	58.3%	54.3%
Best way to lift weights			
Percent Wrong	22.0%	38.3%	26.5%
Percent Correct	78.0%	61.7%	73.5%
Min workouts per week for max strength gain			
Percent Wrong	25.2%	18.3%	23.3%
Percent Correct	74.8%	81.7%	76.7%
Method to assess SM's leg strength			
Percent Wrong	61.0%	66.7%	62.6%
Percent Correct	39.0%	33.3%	37.4%

(continued)

Responses to Muscular Strength and Endurance Section

	Your present status		Total
	CGSOC Student	Battalion Commander	Column Percent
	Column Percent	Column Percent	
Optimal way to develop muscle strength and endurance			
Percent Wrong	23.3%	28.3%	24.7%
Percent Correct	76.7%	71.7%	75.3%
Best description of circuit training			
Percent Wrong	13.8%	6.7%	11.9%
Percent Correct	86.2%	93.3%	88.1%
Effect of two minutes' pushups and situps			
Percent Wrong	28.3%	20.0%	26.0%
Percent Correct	71.7%	80.0%	74.0%
Muscle group performing repeated movements is known as			
Percent Wrong	16.4%	13.3%	15.5%
Percent Correct	83.6%	86.7%	84.5%

Responses to Flexibility Section

	Your present status		Total
	CGSOC Student	Battalion Commander	Column Percent
	Column Percent	Column Percent	
What flexibility doesn't provide			
Percent Wrong	39.6%	38.3%	39.3%
Percent Correct	60.4%	61.7%	60.7%
What static stretching involves			
Percent Wrong	14.5%	13.3%	14.2%
Percent Correct	85.5%	86.7%	85.8%
Method of stretching which is least recommended			
Percent Wrong	36.5%	36.7%	36.5%
Percent Correct	63.5%	63.3%	63.5%
What inability of SM to touch floor indicates			
Percent Wrong	15.7%	8.3%	13.7%
Percent Correct	84.3%	91.7%	86.3%
Define flexibility as component of exercise			
Percent Wrong	71.7%	78.3%	73.5%
Percent Correct	28.3%	21.7%	26.5%
Is flexibility first exercise of warm-up?			
Percent Wrong	85.5%	81.7%	84.5%
Percent Correct	14.5%	18.3%	15.5%
Length of warm-up stretch positions			
Percent Wrong	47.8%	41.7%	46.1%
Percent Correct	52.2%	58.3%	53.9%
Which phase of exercise includes flexibility exercises			
Percent Wrong	10.7%	6.7%	9.6%
Percent Correct	89.3%	93.3%	90.4%
Length of developmental stretching for flexibility			
Percent Wrong	81.8%	85.0%	82.6%
Percent Correct	18.2%	15.0%	17.4%

Responses to Body Weight/Composition Section

	Your present status		Total
	CGSOC Student	Battalion Commander	Column Percent
	Column Percent	Column Percent	
Best way for SM to reduce excess fat at waist			
Percent Wrong	40.3%	63.3%	46.6%
Percent Correct	59.7%	36.7%	53.4%
What does exercise help to control?			
Percent Wrong	23.3%	15.0%	21.0%
Percent Correct	76.7%	85.0%	79.0%
Best method to achieve ideal body weight			
Percent Wrong	5.0%		3.7%
Percent Correct	95.0%	100.0%	96.3%
Components of a good diet			
Percent Wrong	83.0%	91.7%	85.4%
Percent Correct	17.0%	8.3%	14.6%
Definition of safe weight loss goal per week			
Percent Wrong	30.2%	23.3%	28.3%
Percent Correct	69.8%	76.7%	71.7%
Causes of obesity			
Percent Wrong	5.0%		3.7%
Percent Correct	95.0%	100.0%	96.3%
Determining the number of calories from fat			
Percent Wrong	84.9%	83.3%	84.5%
Percent Correct	15.1%	16.7%	15.5%
Method to reduce body fat			
Percent Wrong	11.3%	3.3%	9.1%
Percent Correct	88.7%	96.7%	90.9%
Define the four basic food groups			
Percent Wrong	34.0%	35.0%	34.2%
Percent Correct	66.0%	65.0%	65.8%
One pound of fat equals			
Percent Wrong	66.7%	58.3%	64.4%
Percent Correct	33.3%	41.7%	35.6%

(continued)

Responses to Body Weight/Composition Section

	Your present status		Total
	CGSOC Student	Battalion Commander	Column Percent
	Column Percent	Column Percent	
Body's primary food source			
Percent Wrong	39.0%	33.3%	37.4%
Percent Correct	61.0%	66.7%	62.6%
Where dietary cholesterol is found			
Percent Wrong	34.0%	33.3%	33.8%
Percent Correct	66.0%	66.7%	66.2%

Responses to General Fitness Knowledge Section

	Your present status		Total
	CGSOC Student	Battalion Commander	Column Percent
	Column Percent	Column Percent	
Identify muscles of the upper torso			
Percent Wrong	59.7%	61.7%	60.3%
Percent Correct	40.3%	38.3%	39.7%
Identify an important aspect of the cooldown			
Percent Wrong	18.2%	10.0%	16.0%
Percent Correct	81.8%	90.0%	84.0%
Components of a good warm-up			
Percent Wrong	71.7%	55.0%	67.1%
Percent Correct	28.3%	45.0%	32.9%
Time needed to acclimatize SM in Saudi Arabia			
Percent Wrong	60.4%	51.7%	58.0%
Percent Correct	39.6%	48.3%	42.0%
Formula to project SM's maximum heart rate			
Percent Wrong	61.6%	60.0%	61.2%
Percent Correct	38.4%	40.0%	38.8%
What is body's primary method to cool itself?			
Percent Wrong	12.6%	11.7%	12.3%
Percent Correct	87.4%	88.3%	87.7%
Identify the principles of exercise			
Percent Wrong	42.8%	28.3%	38.8%
Percent Correct	57.2%	71.7%	61.2%
Identify the five components of fitness			
Percent Wrong	76.1%	73.3%	75.3%
Percent Correct	23.9%	26.7%	24.7%
What changes are associated with increased stress?			
Percent Wrong	17.6%	6.7%	14.6%
Percent Correct	82.4%	93.3%	85.4%

(continued)

Responses to General Fitness Knowledge Section

	Your present status		Total
	CGSOC Student	Battalion Commander	Column Percent
	Column Percent	Column Percent	
Primary concern when develop unit fitness program			
Percent Wrong	73.6%	76.7%	74.4%
Percent Correct	26.4%	23.3%	25.6%
Define a good cooldown after a run			
Percent Wrong	6.9%	1.7%	5.5%
Percent Correct	93.1%	98.3%	94.5%
Best way to replace body fluid lost by sweating			
Percent Wrong	45.3%	35.0%	42.5%
Percent Correct	54.7%	65.0%	57.5%

BIBLIOGRAPHY

Manuscripts

Department of Physical Education Syllabus, Unpublished Manuscript, West Point, New York (1952-1953).

Department of Physical Education Syllabus, Unpublished Manuscript, West Point, New York (1984).

Institutional Self-Study, Unpublished Manuscript, West Point, New York (1988-1989).

2002: A Road Map to Our Third Century, Unpublished Manuscript, West Point, New York (1988).

Master Fitness Trainer Course, Unpublished Manuscript, US Army Soldier Support Institute, Fort Benjamin Harrison, Indiana.

Brigade and Battalion Pre-Command Course (PCC), Unpublished Program of Instruction (POI) 2G-F22, Fort Leavenworth, KS (1991).

Interviews and Oral Histories

United States Military Academy, West Point, New York.
War Fighting Fitness Presentation
Colonel James Anderson

Author's Telephonic Interviews.
Major Robert Klein
Major Jim Baily
Major Jerry Reyes
Captain Matthew McCarville
Dr. Todd Crowder
Dr. Wayne Osness

Newspapers and Magazines

The Army Times (Springfield, Virginia), 1980-1992.

Athletic Business (Madison, Wisconsin), June 1984.

The Mac Flyer (Scott Airforce Base, Illinois), July 1981.

Army (Arlington, Virginia), February 1982.

Infantry (Fort Benning, Georgia), September-October 1981, January-February 1983, March-April 1983, March-April 1987, July-August 1987, July-August 1990.

Soldier (Alexandria, Virginia), March 1983, October 1984, January 1985, January 1987, May 1987, July 1990.

Life (New York, New York), October 1944.

Military Review (Fort Leavenworth, Kansas), November 1982.

Government Publications

US Army. FM 100-5, Operations. Washington, DC: Department of the Army, 1986.

US Army. FM 22-100, Military Leadership. Washington, DC: Department of the Army, 1990.

US Army. FM 22-103, Leadership and Command at Senior Levels. Washington, DC: Department of the Army, 1987.

US Army. FM 101-5, Staff Organizations and Operations. Washington, DC: Department of the Army, 1984.

US Army. FM 71-100, Division Operations. Washington, DC: Department of the Army, 1990.

US Army. STP 21-II-MOS, Manual of Common Tasks. Washington, DC: Department of the Army, 1991.

US Army. FM 21-20, Physical Fitness Training. Washington, DC: Department of the Army, 1985.

US Army. FM 21-18, Foot Marches. Washington, DC: Department of the Army, 1990.

US Army. DA Pam 350-18, The Individual's Handbook on Physical Fitness. Washington, DC: Department of the Army, 1983.

US Army. DA Pam 350-22, You and the APFT. Washington, DC: Department of the Army, 1987.

US Army. DA Pam 350-15, The Commander's Handbook on Physical Fitness. Washington, DC: Department of the Army, 1983.

US Army. DA Pam 600-63-5, Physical Conditioning. Washington, DC: Department of the Army, 1987.

US Army. DA Pam 600-63-6, Nutrition and Weight Control. Washington, DC: Department of the Army, 1987.

US Army. DA Pam 600-63-10, Stress Management. Washington, DC: Department of the Army, 1987.

US Army. Army Regulation 350-15, The Army Physical Fitness Program. Washington, DC: Department of the Army, 1989.

US Army. Army Regulation 40-25, Nutrition Allowances, Standards, and Education. Washington, DC: Department of the Army, 1989.

US Army. All Ranks Personnel. Washington, DC: Department of the Army, 1991.

US Secretary of Defense. Annual Report to the President and the Congress. Washington, DC: Department of Defense, 1991.

US Army. Prevention, Treatment, and Control of Heat Injury. Washington, DC: Department of the Army, 1980.

US Forest Service. Fitness and Work Capacity. Washington, DC: Department of Agriculture, 1977.

Books

Babbie, Earl. The Practice of Social Research. California: Wadsworth Publishing Company, 1986.

Bartz, Albert E. Basic Statistical Concepts in Education and the Behavioral Sciences. USA: Burgess Publishing Company, 1976.

Henderson, George F. R. Stonewall Jackson and the American Civil War. Massachusetts: Fawcett Publications, 1962.

Hopkins, Kenneth, D., and Gene V. Glass. Basic Statistics for the Behavioral Sciences. New Jersey: Prentice-Hall, 1978.

Siedentop, Daryl.

Truscott, Lucian. Command Missions: A Personal Story. New York: E.P. Dutton and Compary, 1954.

Webb, L.A. Captain Alden Partridge and the United States Military Academy. Alabama: American Southern, 1965.

Articles

Drew, Gwendolyn. "A Historical Study of the Concern of the Federal Government for the Physical Fitness of Non-Age Youth with Reference to the Schools, 1790-1941," Research Quarterly (October 1945): 198-205.

Drews, Fred R. "The Army's High Priority Physical Fitness Program," Journal of Physical Education Recreation and Dance (November/December 1984): 47-50.

Unpublished Dissertations, Theses, and Papers

Degan, R. "The Evolution of Physical Education at the United States Military Academy." Master of Science Thesis, University of Illinois, 1968.

Hertling, Mark P. "Physical Training for the Modern Battlefield: Are We Tough Enough?" School of Advanced Military Studies US Army Command and General Staff College Fort Leavenworth, Kansas, 1987.

Vanderburgh, Paul. "Assessment of Fitness Knowledge Concepts of Military Officers." Master of Science Thesis, University of Georgia, 1988.

INITIAL DISTRIBUTION LIST

1. Combined Arms Research Library
   U.S. Army Command and General Staff College
   Fort Leavenworth, Kansas 66027-6900

2. Defense Technical Information Center
   Cameron Station
   Alexandria, Virginia 22314

7. David W. Kent
   Department of Academic Operations
   USACGSOC
   Fort Leavenworth, KS 66027-6900

8. Dr. Bruce W. Menning
   USACGSOC
   Fort Leavenworth, KS 66027-6900

9. LTC. Alan W. Muench
   Department of Joint and Combined Operations
   USACGSOC
   Fort Leavenworth, KS 66027-6900