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14. ABSTRACT

The purpose of this three-year study is to: 1) implement a computerized database to track the fatness and physical performance of Reservists assigned to the 94th RRC and 804th Medical Brigade, 2) provide the 94th RRC and 804th Medical Brigade with an environmental/internet-based intervention to increase health risk communication and promote healthy body weight/fatness and physical performance, 3) monitor the fatness and physical performance of the Reservists for two years following a one-year baseline period to evaluate the efficacy of the intervention, and 4) evaluate consumer satisfaction with the intervention.

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Nutrition, physical fitness, Soldiers, health, weight, body fat

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WEIGHT MEASUREMENTS AND STANDARDS FOR SOLDIERS

PENNINGTON BIOMEDICAL RESEARCH CENTER

Final Report August 1, 2008-July 31, 2009

Table of Contents

Abstract
Weight Measurements and Standards for Soldiers
(Contract # W81XWH-05-2-0082)

Keywords:
Readiness, performance, weight standards, fitness standards, internet intervention

Objective:
The purpose of this three-year study is to: 1) implement a computerized database to track the fatness and physical performance of Reservists assigned to the 94th RRC, 2) provide the 94th RRC with an environmental/internet-based intervention to increase health risk communication and promote healthy body weight/fatness and physical performance, 3) monitor the fatness and physical performance of the Reservists for two years following a one-year baseline period to evaluate the efficacy of the intervention, and 4) evaluate consumer satisfaction with the intervention. Hypothesis: It is hypothesized that implementation of the environmental/internet-based intervention will be associated with a significant increase in the percentage of Army Reservists who meet maximal body weight/fat and minimal fitness standards. Current plans are to complete the project by December 2010. Therefore this report describes progress made during that past year. A final report will be filed after completion of the study (December 2010).

Study Design:
This is a quasi-experimental study that utilizes a within-subjects or repeated measures design. Weight/fatness and physical performance data will be collected before and after the intervention is implemented.

Military Relevance:
The prevalence of overweight and obesity is increasing in the United States and Soldiers are not immune to this trend. At a significant cost to the military, 2705 Soldiers were discharged in FY03 for failure to meet body fat standards. Effective interventions to reduce body fat and increase physical performance among Soldiers will save the military financial and material resources and increase combat readiness. Unlike clinic-based interventions, the proposed intervention will target an entire population of Reservists.

Public Purpose:
The intervention proposed in this project can serve as a pilot study and prototype for general use in the general population to reduce/prevent overweight.

Introduction

The primary aim of this investigation, entitled "Weight Measurement and Standards for Soldiers" was to provide a non-clinical, environmental approach for weight gain prevention and modest weight loss for Soldiers of the 94th Regional Readiness Command in the New England Region. This program is called "Healthy Eating, Activity, Lifestyle Training Headquarters (H.E.A.L.T.H.)." It is the second of two pilot studies being used to evaluate the efficacy and efficiency of a novel internet based approach to weight maintenance and weight loss.

Soldiers who fail to meet Army requirements for body fat defined by AR 600-9, the Army Weight Control Program (AWCP), and fitness standards defined by FM 21-20, Physical Fitness Training, Army Physical Fitness Test (APFT) are the primary targets of the intervention. Soldiers with body weights that approach the maximal allowable weight as defined by AR 600-9 are also targets of the intervention.

In order to evaluate changes in body weight and body fat over time, the Military Services Fitness Database (MSFD) was developed. The MSFD records body weight, body composition, and APFT scores of Soldiers over long periods of time. The MSFD was intended to be initially implemented at Fort Bragg for the first of the two pilot studies. The MSFD was to be the database which measured the effectiveness of the environmental/Internet-based intervention (H.E.A.L.T.H.). Due to a series of decisions, the MSFD was not utilized for the purpose of measuring the outcome of the intervention. Nevertheless, the MSFD has been developed and tested in the field. The MSFD is one end product of the overall research project that remains available for delivery across all military services.

However, in regards to the 94th Regional Readiness Command, a similar database was in place that provided the necessary outcome data. The Regional Level Application Software (RLAS) contained the APFT and FM 21-20 data for each soldier. This data was used to evaluate the effectiveness of the H.E.A.L.T.H. intervention in the 94th Regional Readiness Command. Also, a health promotion program was developed to publicize the existence of the website and encourage utilization by Soldiers and Family members of the 94th Regional Readiness Command. The health promotion program was implemented prior to the launch of the H.E.A.L.T.H. website and has been a constant health marketing program over the duration of the Internet-based program. The promotion of the website began in January 2007, the website was launched in April 2007, and data collection began in June 2007. The research project was planned to end in December of 2009; however, a no-cost extension of the study was obtained in April 2009 (due to the War on Terror), and the project has been extended until December 2010. The following sections provide details about accomplishments that are directly related to the Statement of Work.

Statement of Work

Weight Measurements and Standards for Soldiers

FY 07-08

Statement of Work (September, 2005)

- Overarching scope of work: Pennington Biomedical Research Center (PBRC) will collaborate with the US Army Research Institute of Environmental Medicine (USARIEM) and the US Army Medical Research and Material Command (USAMRMC) to implement a computer database to record and track the body weight/fatness and physical performance of Reservists assigned to the 94th Regional Readiness Command (RRC). The research team will assist in further developing an intervention designed to help service personnel achieve compliance with military body composition and physical performance standards.

- PBRC personnel will work closely with the Executive Committee (Donald Williamson, Ph.D., COL Karl Friedl, Ph.D., COL Gaston Bathalon, Ph.D., MAJ Lori Sigrist, Ph.D., Andrew Young, Ph.D., CAPT Van Hubbard, M.D., Ph.D., and Donna Ryan, M.D.) formed to guide this project.

- In Year 1, the PBRC team will deliver the Military Services Fitness Database (MSFD) to the 94th RRC. This computer database records and stores Soldiers' height/weight (body fat) and Army Physical Fitness Test (APFT) data. It can be used for all military services and meets the mandate of Department of Defense Instruction (DoDI) 1308.3 (2002) as a standardized method of collecting and storing Soldiers' fatness and physical performance data.

- Following delivery of the MSFD, 94th RRC personnel will be trained in its use, i.e., how to enter data and obtain reports on Reservists' body weight/fatness and fitness. The MSFD provides an easy way to obtain these valuable real-time readiness data.

- During Year 1, the MSFD will be used to collect baseline data. These data will consist of height/weight (fatness) and physical performance data, including whether or not the Reservist passed or failed fatness and physical performance standards.

- In collaboration with the 94th RRC leadership and USARIEM personnel (COL Bathalon, MAJ Sigrist), the PBRC research team will evaluate the unique health risk communication, weight management, and fitness needs of the Reservists assigned to the 94th RRC. This information will be used to modify an environmental/internet-based intervention to meet the needs of the 94th RRC. The intervention is designed to help Reservists achieve and maintain body weight/fatness and physical performance standards. Its content will be regularly reviewed by the Executive Committee and the 94th RRC leadership.

- During Year 2, the environmental/internet intervention will be implemented in the 94th RRC. This will be a two-year intervention (Years 2 and 3), consisting of a website designed to promote health risk communication and healthy body weight/fatness through healthy nutrition and physical activity. The intervention will be promoted and continuously modified to meet the needs of the 94th RRC Reservists.

- During Years 2 and 3, body fat and physical performance data will be collected. These and Year 1 data will be used to test the efficacy of the intervention. It is hypothesized that implementation of the intervention will be associated with a significant increase in the percentage of Army Reservists who meet body fat and physical performance standards.

A summary of progress toward meeting these milestones and objectives is provided in the Addenda.

Project Deviations

1. The Regional Level Application Software (RLAS) is an internal tracking system utilized by the Army Reserve. This system contains APFT and soldier information that would be contained in the MSFD. Therefore, the MSFD was not required and we decided to extract information from RLAS in January and July of each year.

2. Due to the schedule of APFT testing that is captured by RLAS, we will not analyze data that are collected during the launch period of the intervention, i.e., January 2007 to July 2007. Also, the Executive Committee and the Contract Officer, Andrew Young, Ph.D. have approved an additional year of follow-up. During this period the H.E.A.L.T.H. website will continue to be accessible to Reserve Solders, but the active health promotion program will be discontinued. Data from the website regarding utilization and self reported weight and APFT results will continue to be gathered during the one year period. These modifications will extend the intervention period to December 2010.

3. Data analysis and writing manuscripts will begin in July 2009 and extend to December 31st, 2010.

4. The current study is a pilot study that is designed to provide preliminary data for planning a controlled outcome study to test the efficacy of the H.E.A.L.T.H. intervention for prevention of weight gain and reducing fatness and increasing fitness, as measured by the APFT. To accomplish this objective, a cluster (group) randomized trial has been developed. This will be conducted with the Louisiana Army National Guard.

5. Contact and permission for the proposed cluster (group) randomized trial has been made with the Louisiana Army National Guard. Major General Bennett C. Landreneau has pledged the participation of the Louisiana Army National Guard and has provided us with his support.

6. Currently, we are in collaboration with the Louisiana Army National Guard for the purposes of identifying the database (data system) that will be used to collect baseline information on the targeted population.

7. In previous research for the Department of Defense, Dr. Williamson's research team developed the digital photography method for measuring food intake and food selections. This line of research will be continued by developing and validating a semi-automated method for quantifying data derived from digital photography.

8. The official study period has been extended to December 31, 2010. This extension has been approved through a no-cost extension (NCE). The NCE period will allow the research team to complete the intervention (July, 2009) and provided an observation window to evaluate the importance of the H.E.A.L.T.H. promotion program. This NCE period will also be used to analyze data and prepare manuscripts (December, 2010).

9. The Base Realignment and Closure system closed the decommissioned the 94th RRC. The soldiers in this unit now fall under the command of the 302nd and 655th units.

Addenda

Progress Report (September 15, 2008 – September 14, 2009)

In terms of the statement of work, this progress report discusses the collection of RLAS data and promotion of the website. Our work in this last year has mainly focused on increasing utilization of the website and continuing to collect RLAS data from the 302nd and 655th units. Although this is the last year of funding for the study, the actual end date for the project is December 31, 2010. This extended period of study will be conducted with no additional cost to the Department of Defense (DoD).

Executive Advisory Committee

The Executive Committee (Donald Williamson, Ph.D., COL Karl Friedl, Ph.D., COL Gaston Bathalon, Ph.D., LTC LesLee Sanders, PhD., Andrew Young, Ph.D., ADM Van Hubbard, M.D., Ph.D., and Donna Ryan, M.D.) guides the conduct of the study. The committee meets once or twice per year. During the last year, the committee convened in December of 2008 and will meet again in December 2009. Dr. Williamson briefed the contract officer, Dr. Andrew Young on recent progress in July 2009.

Completed Travel Schedule (August, 2008-July, 2009)

Matt McGucken	Boston	11/1/08 - 11/4/08	nutrition presentation/web promotion
Shelly Duhe'	Boston	11/1/08 - 11/3/08	nutrition presentation
Alicia Sample	Boston	12/5/08 -12/8/08	nutrition presentation
Matt McGucken	Boston	12/4/08 -12/9/08	nutrition presentation/web promotion
Robert Newton	Boston	2/6/09 - 2/9/09	nutrition presentation/web promotion
Matt McGucken	Boston	2/6/09 - 2/9/09	nutrition presentation/web promotion
Laura Moran	Boston	2/6/09 - 2/9/09	nutrition presentation/web promotion
Shelly Duhe'	Manchester NH	2/27/09 - 3/1/09	nutrition presentation
Laura Moran	Boston	3/6/09 - 3/9/09	nutrition presentation
Matt McGucken	Boston	3/11/09 - 3/15/09	nutrition presentation/web promotion
Alicia Sample	Boston	3/13/09 - 3/15/09	nutrition presentation
Alicia Sample	Boston	4/3/09 - 4/6/09	nutrition presentation
Laura Moran	Providence, RI	4/17/09 - 4/19/09	nutrition presentation
Don Williamson	Baltimore, MD	5/20/09 - 5/22/09	meeting at CHPPM
Tiffany Stewart	Baltimore, MD	5/20/09 - 5/22/09	meeting at CHPPM
Don Williamson	Boston, MA	7/27/09 - 7/31/09	close out NE study
Matt McGucken	Boston, MA	7/27/09 - 7/31/09	close out NE study

RLAS and APFT data collection:

We have been able to obtain baseline data for two years (one more than specified in the Statement of Work) using the RLAS system. APFT data from these two years are summarized in Table 1. Data were collected on a total of 2686 Soldiers (2267 men and 419 women) with at least one APFT record in the RLAS system in 2005 or 2006. The average weight for men was just below the screening table weight, while the average weight for females was slightly above the weight standard. For the two-year period, 1016 (44.8%) men and 227 women (54.2%) failed the screening table weight at least once. An equal percentage of males (318, 14.0%) and females (62, 14.8%) failed the body fat standard at least once. The average APFT score for all Soldiers was 211.6, which is higher than the minimal APFT score (180). However, during this two-year period, 41% of Soldiers failed the APFT at least once.

RLAS data from July to December of 2008 was extracted in February of 2009. Data were collected on a total of 573 Soldiers (498 men and 75 women) with at least one APFT record in the RLAS system in the Fall of 2008 (See Table 2). The average weight for men was about 2 lbs. above the screening table weight, while the average weight for females was equal to the weight standard. In the Fall of 2008, 227 (45.6%) men and 34 women (45.3%) failed the screening table weight at least once. In addition, 59 (11.9%) men and 16 women (21.3%) failed the body fat standard at least once. The average APFT scores for Soldiers was 208.1 and 193.2 for males and females, respectively. These scores are higher than the minimal APFT score (180). It is important to note that the screening table weights and the body fat taping standards were altered for females in 2007. This change became effective April 2, 2007 with the release of the new AR 600-9 regulations.

We were also able to analyze the Fall of 2008 data. This data would have been included in the previous report though it had not been analyzed by the time of submission. The Fall 2008 data shows almost the exact same findings as the Spring 2008 data. For example, the average weight of men (187.9 vs. 187.4) and women (148.0 vs. 147.6) were almost identical in the Spring and Fall datasets, respectively. In addition, 45% of the men passed the screening table weight in both data sets, and the differences in women only differed by 5 percentage points (40% vs. 45%). Finally, the percentage of soldiers who were taped and failed was equal (13%) in both datasets.

Table 1. 94th RRC APFT data extracted from RLAS in 2005 & 2006.

Sex	Variable	N	Mean	Stddev	Minimum	Maximum
Male	Age	2267	30.6	10.0	17.0	61.0
	Weight	2267	183.4	29.3	109.5	336.0
	Weight Deviation	2267	-1.7	24.3	-61.5	128.0
	FatPct	947	22.1	3.8	9.0	37.0
	%Fat Deviation	947	-1.3	3.5	-15.0	15.0
	APFT Total Score	2059	212.4	46.0	53.0	300.0
Female	Age	419	29.8	10.3	18.0	58.0
	Weight	419	144.5	23.3	97.0	220.7
	Weight Deviation	419	4.4	18.8	-40.0	68.0
	FatPct	205	31.3	4.0	17.0	44.0
	%Fat Deviation	205	-1.7	3.6	-13.0	11.0
	APFT Total Score	361	215.2	49.4	55.0	300.0

Table Note. Age in years; Weight in pounds; Weight deviation refers to the number of pounds from the Army screening table weight; FatPct in percent body fat; % Fat Deviation from Army body fat standard is the deviation from the maximal allowable fat estimate; APFT Total Score refers to APFT score units.

Table 2. 94th RRC APFT data extracted from RLAS in Fall of 2008.

Sex	Variable	N	Mean	Stddev	Minimum	Maximum
Male	Age	498	31.2	8.7	20.0	58.0
	Weight	498	187.4	30.6	116.0	306.0
	Weight Deviation	498	2.1	26.3	-58.0	100.0
	FatPct	217	22.7	5.5	10.0	71.0
	%Fat Deviation	217	-0.8	5.5	-14.0	49.0
	APFT Total Score	450	208.1	44.4	70.0	300.0
Female	Age	75	28.8	8.2	21.0	56.0
	Weight	75	147.6	25.0	103.0	205.0
	Weight Deviation	75	0.0	21.4	-33.0	45.0
	FatPct	32	35.6	5.3	28.0	49.0
	%Fat Deviation	32	2.2	4.9	-6.0	15.0
	APFT Total Score	62	193.2	57.0	70.0	300.0

Table Note: Age in years; Weight in pounds; Weight deviation refers to the number of pounds from the Army screening table weight; FatPct in percent body fat; % Fat Deviation from Army body fat standard is the deviation from the maximal allowable fat estimate; APFT Total Score refers to APFT score units.

The 573 soldiers in the Fall of 2008 dataset were included in the 2005-2006 dataset. The overall percent of soldiers who are failing the standard table weight at least once and who fail the body fat taping is similar in both data sets. The percent of males failing the APFT is somewhat lower in the Fall 2008 data set, though the percent for women remained the same.

H.E.A.L.T.H. website.

The most recent adaptations to the website were designed to improve user friendliness and functionality. One of the ways this was accomplished was by reducing the time necessary to register on the website. We accomplished this task by streamlining the registration process. We improved the functionality of the website by making frequently used tool bars (workout planner, meal planner, calendar, etc.) accessible on every page. The website has been enhanced through a more visually appealing background, military action footage on each page, and making it easier to add and remove items from the fitness planner. The dashboard has been improved by providing a one week view, adding calorie requirements, including a weight and diet history, and displaying the number of days until the next APFT. This has essentially made the dashboard more complete.

We have indicated that adaptations to the website would be an ongoing process. The goal is to continually make the website more user-friendly. These changes have occurred over the study period (as annotated in previous reports) and are currently being carried out in order to prepare the H.E.A.L.T.H. website for the randomized controlled study that will be conducted with the Louisiana Army National Guard. The next sets of updates are currently scheduled to occur in late Fall 2009. Future plans for the randomized controlled study include improvements to the menu planner, as well as to the peripheral links that provide depth and substance to the website. Additionally, an APFT training feature has been developed, but is yet to be incorporated into the website.

H.E.A.L.T.H. promotion program.

The goal of the H.E.A.L.T.H. promotion program was to promote the use of the H.E.A.L.T.H. website to the Soldiers with in the 94th RRC (now the 655th and 302nd commands). In the past year, we have continued to work with both commands to inform and educate their soldiers about the website. These promotion activities have included professional briefings, as well as the continued promotional activities of unique URL web links, promotional items, and job focused motivational interviewing. We have also continued to communicate with the command staff of both the 302nd and 655th in order to continue a top down approach to website usage.

In addition to this strategy, we also developed and promoted the use of a "Leaders Guide to H.E.A.L.T.H." This guide provides instruction to military leaders on how to incorporate the H.E.A.L.T.H. website into existing military counseling measures, as well as motivational compliance techniques to assist in behavior change of those soldiers whom are either non-compliant or approaching non-compliance according to AR 600-9 and FM 20-21.

Over the past year, we have also utilized a promotional strategy that focused on nutritional education. This feature utilizes registered dietician staff at the Pennington Center. These registered dieticians have made regular trips to the units of the 302nd and 655th to discuss current dietetic and nutrition events. Among the topics discussed were fad diets, sport drinks, supplements, and nutrition myths. Soldiers were informed that more detailed information on these topics was provided on the H.E.A.L.T.H. website and they were encouraged to obtain this information. Soldiers viewed these discussions as beneficial. Given the positive response by the soldiers, this method of promotion is planned to be used in the randomized controlled study. In addition, it will be further expanded to include exercise specialist as well as specialists in behavior modification.

In August, 2009, Mr. John Lambert and Mr. Jeff Wiggins ended their employment with PBRC due to the ending of the active promotion program. As such, there will be no promotion of the H.E.A.L.T.H. website to soldiers during the final year of the program. However, Mr. John Lambert will be available to collect the final 2009 New England Data (non-promotional website

activity) in July 2010. In preparation for the randomized controlled study that will be executed within the Louisiana Army National Guard, our team is conducting a complete review/assessment of all the promotional activities that were conducted in the past 2 years in the New England study. From this comprehensive review, the activities, promotional items, and scheduling of events will be tailored to provide the greatest impact for the randomized controlled study.

Website utilization

As of September 31, 2009, 1473 soldiers have registered on the website. One hundred thirty-five soldiers have made 3 or more visits to the site, and 18 have made ten or more visits. From collected website data, the majority of the soldiers using H.E.A.L.T.H. are white (1082, 73%). A significant majority of the population have a High School Degree (411, 27%), while the remainder of the population is dispersed across various categories including Grade School, 2-Year College Degree, 4-Year College Degree, Vocational Technical School, and Graduate School. Most soldiers who have registered on the website are combat support services (478, 32%) and have more than 10 years experience in the military. About ¼ of the registered users are of the NCO rank. The majority of persons who registered are Enlisted (507, 34%), while Officers who registered made up a significantly smaller population (122, 8%). These statistics are indicative of the traditional ratio of Officer to Enlisted in today's military establishment. To date, only 125 civilians have registered on the website. The primary reason for this low number is the fact that our promotion efforts are geared more towards making contact with soldiers rather than families.

BRAC

The Base Realignment and Closure (BRAC) has been a significant issue for the H.E.A.L.T.H. study. After a year of transition, the 94th RRC was decommissioned in September, 2008. The majority of soldiers previously enlisted in the 94th now fall under the command of the 302nd and 655th units. Steps were taken to ensure minimal effects by the BRAC on the HEALTH promotion program. The Commanders of the newly formed 302nd (COL Waters) and 655th (COL Falcone) have continued to allow us a top-down approach to encourage their soldiers to use the website. We have been able to promote the website within both units with the cooperation of their respective staff. Furthermore, we have been able to obtain RLAS data from all units within the 655th and 302nd. Approximately 44% of the soldiers in the Fall 2007 RLAS extraction were from the 655th, 40% were derived from the 302nd, and 16% were derived from the 94th RRC. These numbers align closely with our previous estimates that 70% of the soldiers originally in the 94th RRC will become a part of either the 655th or 302nd commands. Thus, we have been able to communicate and track 94th soldiers whom matriculated to either the 302nd or 655th.

However, a central form of communication (ie: an Intranet) was never made available to the PBRC team once the BRAC occurred. This prevented us from being able to provide mass dissemination of H.E.A.L.T.H. information to all soldiers. Mass communication in this format is especially important because this is an internet-based program and because we were only able to meet face-to-face with soldiers one weekend per month. With only 2 staff members, reaching the majority of soldiers in the units on any given month was impossible.

Future Plans

We are currently in collaboration with the Louisiana Army National Guard to plan a randomized controlled study. We have received complete support from Major General Bennett C. Landreneau, The Adjutant General of the Louisiana Army National Guard (LAANG). In support of this proposed study, members of the LAANG and PBRC have created an executive

committee, which will convene annually to assess the progress and status of the HEALTH program within the LAANG units. This group will also meet/coordinate to resolve issues that may arise during the 4 year period of the study. Currently, we plan to begin the cluster randomized trial in January/February of 2010. The protocol for this study has been approved.

Additionally, we are also continuing our earlier DOD research related to developing reliable and valid measures of food intake and food selections of humans. We are currently focused on measuring the food intake of people while they reside in their natural environment. These methods build upon previous research that our group conducted for the DoD. Specifically, we developed the digital photography of foods method for use with Basic Combat Soldiers at Ft Jackson (1-3). Dr. Corby Martin has expanded on this technology and has developed the Remote Food Photography Method (RFPM) for use in free-living conditions. When using the RFPM, participants take photographs of their food selection and plate waste with a camera-enabled Smartphone and these images are sent to the research center for analysis in real-time. Dr. Martin recently published a paper describing the method and initial tests of its reliability and validity (4). Additionally, Dr. Martin has tested the reliability and validity of the RFPM over seven days in free-living conditions and these data are currently being prepared for publication. Lastly, the method is being used in an NIH-funded randomized controlled weight loss trail, and participants are using the method for 12 weeks to monitor their food intake.

Dr. Martin's work on the RFPM has included novel bioengineering projects to increase the efficiency and accuracy of the method. Specifically, a computer application was developed to mange Ecological Momentary Assessment (EMA) methodology. This methodology involves sending prompts to participants' Smartphones reminding them to take pictures of their food selection and plate waste. The application customizes these messages based on the participant's schedule, and it also sends daily reports to the experimenters. These reports provide a synopsis of the pictures collected to date, as well as participants' responses to the EMA messages. This methodology has resulted in exceptional data integrity and completeness. Lastly, a semi-automated computer application was developed that automatically identifies foods in pictures and estimates the amount of food represented in the pictures. The second version of this application is currently being beta tested and debugged, and it promises to increase our efficiency without compromising accuracy of food intake estimates. The final version of this application is anticipated to be online by spring 2010, and a paper describing the engineering aspects of the application is in press (5).

Summary

The primary tasks for the next year are to observe the use of the H.E.A.L.T.H. website by the New England study population when no promotion program is in place. We will also continue to revise the tools (website and promotional) that were used in the New England study for use in the proposed randomized controlled study in Louisiana. We will continue to be able to collect RLAS data and will be able to have reportable data in subsequent reports. For future reference, the final extraction of RLAS/APFT data from the New England study population will occur in the late Spring of 2010. Website adaptation will continue throughout the duration of the program. Improvements to functionality, user friendliness, and modification to address the needs of the Louisiana study population will be made.

The cluster randomization study to be conducted in Louisiana has been approved and is currently waiting to be funds. The Louisiana Army National Guard (LAANG) approved and consented to become the study population for the randomized controlled study. The beginning of the randomized controlled study in Louisiana will begin in January/February of 2010.

Additionally, continued funding of this project will continue to support the efforts of Dr.

Corby Martin and his advancements with RFPM assessment of food intake. Ultimately, we plan to test the validity of this method for measuring food intake of Soldiers.

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