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LIFE Program: Using Education and Behavioral Modification to Facilitate Weight Loss in Military Personnel Exceeding Weight Standards

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Abstract

The cost and time needed to bring new inductees to a reasonable level of expertise in all advanced levels of military vocation was a reasonable consideration and driving force in the Eisenhower Army Medical Center's (EAMC) decision to create a weight loss and wellness program specifically designed to retain officers and senior personnel. The LIFE program keys on education and positive lifestyle adjustment to facilitate ongoing weight maintenance and healthy living. Through education and behavior modification over an intensive one week period, and 1 year follow-up, the LIFE program was able to positively impact the health and well-being of the 50 soldiers to have volunteered for the program. First by helping them improve their weight to a satisfactory level, second by providing the behaviors that encourage improved well-being.

Introduction

There has been a steady increase in the overweight population of the United States with approximately one-third of the adult population being overweight (Kuczmarski, Flegal, Campbell & Johnson, 1994). While biological factors play a role in weight trends; body size, exercise and diet are probably factors for persons being overweight as well (Kuczmarski, et al., 1994). Four percent of the Army active duty population is obese and a substantial number of discharges are due to service members that do not meet Army weight standards.

In 1996, the LIFE Wellness Program was created. Research (Brownell & Rodin, 1994; Brownell & Fairburn, 1995; Davis, 1996; James, Folen, Bowles, Kellar, Supplee, 1996) have documented medical or psychological problems related to obesity. These problems have also been identified specifically in our military personnel (Trent & Stevens, 1993; Trent & Stevens, 1995; Davis, 1996; James et al., 1996). Past research has found that successful programs for weight reduction contain strategies for proper eating, exercise and behavior modification (Brownell & Kramer, 1989). Model weight reduction programs have been developed for out patient (Ornish, 1995; Gormel, 1996) and inpatient (Trent & Stevens, 1995; Davis, 1996 James et al., 1997) settings. Follow-up treatment has also been found to be critical component for participants to maintain weight loss and promote further weight reduction. Several researchers (Brownell, 1984; Jeffrey, 1987; Perr, Nezu, & Patti, 1989) point to the importance of a successful follow-up program in order to provide interpersonal support and maintain weight and lifestyle changes.

Background

Researchers (Brownell & Rodin, 1994; Brownell & Fairburn, 1995; Davis, 1996; James, Folen, Bowles, Kellar, & Supplee, 1997) have documented the relationship between medically related problems to obesity, while there have been mixed findings regarding psychological problems with this population (Bartlett, Wadden & Vogt, 1996; James, Folen, Page, Noce, Brown, & Britton, 1999; Wadden, Stunkard & Liebschultz, 1988). Medical problems have also been identified specifically in our military personnel (Trent & Stevens, 1993; Trent & Stevens, 1995; Davis, 1996; James et al., 1997). Past research has found that successful programs for weight reduction contain strategies for proper eating, exercise and behavior modification (Brownell & Kramer, 1989). Model weight reduction programs have been developed for outpatient (Brownell and Fairburn, 1995; Fairburn & Wilson, 1995; Ornish, 1995) and inpatient (Trent & Stevens, 1995; Davis, 1996 James et al., 1997) settings. Follow-up treatment is also provided and has been found to be a critical component for participants to maintain weight loss and promote further weight reduction. Several researchers (Brownell, 1984; Jeffrey, 1987; Perri, Nezu, Patti, & McCann, 1989) point to the importance of a successful follow-up program in order to provide interpersonal support and to maintain weight and lifestyle changes.

All branches have adopted a weight/height chart that provides a reasonable matrix by which to judge Body Fat Percentage. The weight/height chart is supported by actual tape measurement of specified body positions to define a member's Body Fat Percentage when said member falls outside of normally acceptable height/weight parameters.

	Army Ages 17 to 20	Army Ages 21to 27	Army Ages 28 to 39	Army Ages 40+	Air Force Ages 17 to 29	Air Force Ages 30+	Navy All Ages	Marines All Ages
Males	20%	21%	24%	26%	20%	24%	22%	18%
Females	30%	32%	34%	36%	28%	32%	33%	26%

US Military Body Fat Standards

	Army	Air Force	Navy	Marines
Weight Loss	3-8 lbs./month	Males- 5 lbs./month Females- 3 lbs./month	3-8 lbs./month	≤ 2lbs./week
Body Fat	Used to assess progress & final determination for meeting standard if overweight	1%/month	Used to assess progress	1% every 2 weeks

Weight Loss/Body Fat Loss Expectations

Program Overview

Military and Personal Readiness require Army personnel to maintain a healthy lifestyle and reasonable level of physical fitness. The goal of the LIFE program is to retrain the positive habits that support a healthy lifestyle. The members entering our program typically have Body Mass Index (BMI) at around **33**. Treatment approaches for this population have evolved through past programs research for the same or similar disorders (Trent et al., 1993**;** Brownell and Fairburn, 1995; Fairburn & Wilson, 1995; Davis, 1996; James et al., 1997). Group treatment was chosen for several reasons. Past research (James et al, 1997; James et al., 1999) has shown the cognitive-behavioral approach to be a useful approach for the obese military population. Group treatment is more cost effective than individual therapy and provides more varied perspectives. This modality can be very empowering, and offers socialization techniques that may help with social deficits that contribute to overeating.

Our group treatment program is conducted in an outpatient setting. Personnel that volunteered to participate in the LIFE program were referred through health care providers, commanders or are self-referred.

Candidates for the program go though a two stage screening process. An initial psychological screening is done through the Department of Psychology. First is a screening intake interview to assess for psychological issues. This program is designed to address behavioral/ lifestyle issues directly related to the participant's current weight situation, not deeper psychological issues. Participant's found to have marital problems, problematic personality disorders, bulimia, affective disorders or substance abuse are referred for individual treatment to address such issues prior to attending the program. Participants passing psychological evaluation are then referred for a medical exam. Prior to this, medical lab tests are ordered and reviewed by the psychologist and then provided to the physician.

Medical evaluations are conducted by the Department of Family Practice. There are few medical conditions that are disqualifying factors. The LIFE Program was designed to assist military personnel in weight reduction, which includes tailoring the program to reduce the effects of other medical conditions (e.g. hypertension, LBP, knee/ankle injury etc) impacting a participants' lifestyle change. It is important for program participants to come to the realization that their current weight issue is not the result of one, individualized factor, but rather a complete lifestyle pattern. For that reason, the program draws on staff expertise from: Family Practice, Internal Medicine, Nutrition Care, Occupational Therapy, Physical Therapy, Chaplainry, Substance Abuse, and Psychology.

Other members of the team are a master fitness trainer and an administrative support person.

To be able to positively alter participant's attitudes, the program is an intensive one-week, day program. The program utilizes cognitive-behavioral, psycho educational, exercise, and nutrition principles. The first phase, or day program (Phase I program outline below) consists of a well-managed schedule of classroom education, physical training and real-life situations. The program places an emphasis on real world application to lessons learned in the classroom. Phase two, or the follow-up phase in the LIFE Program begins immediately after day treatment.

LIFE Phase I Program Outline

Time	Monday	Tuesday	Wednesday	Thursday	Friday
0545-0700hrs	Physical Fitness	Physical Fitness	Physical Fitness	Physical Fitness	Physical Fitness
0700-0800hrs	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
0800-0900hrs	Director Meeting	Director Meeting	Director Meeting	Director Meeting	Director Meeting
0900-1000hrs	Introduction	Why diets don't work	Time management	Stress & Nutrition	What do I do when I go home?
1000-1100hrs	ABC's of Nutrition Exchange	" " " "	Gender, Culture, & Weight	" " "	Medical Issues & Eating
1100-1200hrs	Exercise Training/ Injury Prevention	Behavioral Chains/Cues	Self Monitoring	Homework	Homework
1200-1300hrs	Lunch	Lunch	Lunch	Lunch	Lunch
1300-1400hrs	Homework	Coping Skills	Relapse	Personality Stress & Communication	Stress & Work
1400-1500hrs	Homework	Stress Management	Stress Management	Stress Management	Exercise/ Homework
1500-	1545-	1500-	Commissary	1545-	1530-

1600hrs	1645hrs Swimming	1530hrs Homework 1545-1645hrs Exercise to Music	Tour	1645hrs Exercise to Music	1630hrs Preparation to go Home
1600-1700hrs			Food prep		
1700-1800hrs	Dinner	Dinner	Dining In	Dining Out	Dinner

Program Concept

The core areas the program focuses on are: **L**ifestyle Change, **I**ndividual Readiness, **F**itness Excellence, **E**ating Healthy.

The LIFE Wellness Program is a military weight reduction program that advocates healthy lifestyle change to assist participants who are overweight (and may also have medical conditions such as hypertension, cancer, hypothyroidism) and who want to maintain military weight standards (Bowles, Solursh, Davis & Davis, 1999). Chosen for its ability for its lessons to easily be translated into real-life, the day treatment program provides the education and tools for a variety of lifestyle changes. For example, participants walk ten flights of stairs daily during the initial week of treatment. Participants participate in muscle development and various exercise training at their own pace. Participants pre-plan their menu throughout the week prior to attending the dining facility. Participants also go on a grocery store tour examining food labels of their favorite foods and reporting back on this information. During the tour they select food for a dining-in later that day. Participants will then prepare their food in the Department of Occupational Therapy kitchen and then evaluate their eating process. These lifestyle changes are practices and skills that were unknown or not regularly practiced by

participants; however, they begin to become healthy habits when practiced regularly in the day treatment setting.

The program participants are trained in healthy eating skills, communication skills, and stress management skills to promote individual readiness. Patients learn to maintain a diet journal and other techniques that modify their eating behaviors. Through this program participants gain more self-awareness and change decision cycles that can be problematic for weight reduction. Developing realistic goals and abandoning "ideal" body weight preconceptions (Brownell & Rodin, 1994) is the approach taken in this program and similar to other programs (Fairburn, Marcus, Wilson, 1995; James et al., 1999) communication and interpersonal skills for on-the-job and away from work are discussed in the program. Time management techniques are reviewed to increase time and reduce stress on the job. Stress management and coping techniques are taught daily in phase I in a variety of classes that can promote stress resiliency.

Fitness excellence is a strong focus of the LIFE Program. A master fitness trainer provides patients with a variety of structured exercises to improve physical fitness in phase I of the program. Participants are then offered individual training from a master fitness trainer if they desire to practice on their own or continue in structured exercise throughout the program. To maintain their fitness, injury prevention is taught by the Department of Physical Therapy. Patients are encouraged to participate in a variety of exercises such as aquatic aerobics, stair walking, dance aerobics and stretching, as well as other exercise. The most important predictor of weight loss is physical activity, which is stressed in most lifestyle change programs (Brownell, 1998), including our program. From the program they receive a broad range of fitness training and are encouraged to

apply this training to their unit fitness program. Equally important as the exercise is the food participants eat.

A critical part of the program is providing participants with knowledge on proper nutrition. A licensed dietician provides five classes on nutrition and offers individual sessions to participants when they reach a plateau. Participants are given nutritional training on the FDA Food Pyramid and understanding the "food exchange" system. At the end of the day treatment portion of the program, patients are able to calculate their fat grams and caloric intake. With this knowledge, participants are able to successfully shop for food, develop healthy menus at home, and dine out with confidence.

LIFE Program Treatment Model

The treatment approach in the LIFE Program is a cognitive–behavioral model in which the psychologist teaches patients to identify dysfunctional thoughts and related emotions. Over time, the psychologist assists the patient in reframing their thoughts and in modifying their attitudes and beliefs. Additionally, coping strategies and cognitive techniques are provided to enhance lasting cognitive and behavioral change in this process. Past research (James et al., 1997; 1999) has successfully used a cognitive-behavioral approach on this population and assisted patients in lifestyle change. This view depicts the patients as active participants processing information and testing hypothesis. The initial phase of treatment is 5 days of day-treatment and provides the patient with an intensive "dose" effect of multi-faceted treatment. The one-year follow-up treatment is similar to other researched programs (James et al., 1997).

Problem Focused and Goal Oriented Approach

The LIFE Program employs problem solving to facilitate lifestyle changes and maintain healthy dietary intake, and exercise. Various programs (McNabb, Quinn, & Rosing, 1993; Stevens et al., 1993, Wilson, Fairborn, & Agras, 1997) have employed problem solving training for long-term dietary changes (e.g., McNabb et al., 1993; Stevens et al., 1993). Some of the patient situations that are reviewed are the work environment, home environment, shift work, social gatherings, dining out and family support. An important element of problem solving training is to encourage participants to use these skills whenever they encounter situations that threaten adherence to their goals. The LIFE Program assists patients in identifying reasonable goals for successful healthy behaviors and weight loss similar to other weight programs (Brownell, 1998; James et al., 1999).

Psycho-education Skill Training

Providing psycho-educational training is based on the assumption that lack of information maintains their maladaptive behavior. Providing information makes the patient responsible for their actions, and hopefully, this knowledge increases their motivation to change (Garner, 1997). Patients are provided with psycho-educational training as a component of cognitive-behavioral treatment. The psycho-educational material provided in the LIFE Program includes behavioral cues, self-esteem/body image, relapse prevention, interpersonal skill training, role play, social modeling (watching video tapes) homework and stress management. Patient's spouses, significant other or

friend are invited to attend the grocery store tour, relationship training, dining in or dining out. Patients with spousal support are more likely to attain their dietary goals than those with limited spousal support (Bovbjerg,, McCann, Brief, Follette, Retzlaff, Dowdy, Walden, & Knopp, 1995).

Behavioral Monitor Usage

Initially, self-monitoring of dietary intake and emotional states is an essential component of the LIFE Program promoting lifestyle change. A self-monitoring and implementation of a dietary record involves the recording of grams of fat (e.g., White, Shattuck, Kristal, Urban, Prentice, Henderson, Insull, Moskowitz, Goldman, & Woods, 1992), calories (e.g., Smith & Wing, 1991) or an exchange system, in which patients are given a recommended daily number of servings of various food groups, along with examples of serving sizes. The patient develops specific goals that are reviewed and modified by the dietician and the director of the program.

Stimulus and response control training are other behavioral interventions used early in treatment. Stimulus control training or mechanical eating (Garner, Vitousek, & Pike, 1997) refers to limiting exposure to settings or situations that are associated with eating inappropriate foods or inappropriate quantities. Several studies have used stimulus control techniques as part of treatment (James et al., 1999, McNabb et al., 1993). In phase I of the LIFE Program, stimulus control training is applied to patients by having them eat at a certain time and place. This limits exposure to settings or situations that are associated with eating inappropriate foods, or excessive amounts of foods, as has been implemented previously in other programs (McNabb et al., 1993). In addition, response

control training interventions (Rodin, 1978) are introduced to patients in which patients are asked to slow down their eating by chewing slower, taking pauses, savoring the flavor of food, drinking water, or interrupting their meal with conversation.

Nutrition/Exercise

The patients in the program are given general guidelines by the dietician for healthy foods to eat. Patients are asked to reduce their total fat intake to 30% or less of calories. When selecting meats they are educated to choose skinless fish, skinless poultry, and lean meats. They are also introduced to low or nonfat dairy products and limit the use of oils, fat, egg yolks, and fried or other fatty foods. Every day, patients are encouraged to eat five or more servings of a combination of vegetables and fruits. Also, they are encouraged to increase intake of starches and other complex carbohydrates by eating 6 or more daily servings of a combination of breads, cereal, and legumes.

Patients are encouraged to exercise 3 or more times a week for 20 or more minutes at a time (Jackic, 1995; James et al., 1997, 1999). A structured LIFE exercise program is available, but attendance is not required for group members.

Relapse Prevention

The relapse-prevention model states that maintenance of a new behavior is influenced by the individual's ability to cognitively and behaviorally cope with relapses and maintain healthier behavior (Marlatt & Gordon, 1980). According to the Relapse Prevention Model (Marlett & George, 1984), high-risk situations threaten perceived control and increase the risk of relapse. Patients may be given homework assignments to

test new skills, such as to order low fat food in a restaurant to increase confidence in developing and maintaining their lifestyle change. A tool participants design to prevent relapse in the program is the LIFE action card, which is similar to the cope card (Beck, 1995). Patients design a LIFE action card with written behavioral strategies to be used in problematic situations. This card has necessary and positive behaviors written on opposite sides of the card that patients can initiate when high-risk situations occur or prodromal signs of relapse are identified.

Additional research studies (Perri, Sears, & Clark, 1993; James et al. 1997) on weight loss maintenance in obese patients support the use of follow-up contact in maintaining weight loss and in preventing relapse, such as telephonic contact or weekly meetings. Completion of the week-long, intensive training period does not signify the completion of the program. Ongoing contact and follow-up provides the necessary means by which to ensure ongoing program and personal success.

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