
Pilot Study of Online Nutrition Program shows Potential to Positively Influence Lifestyle Behaviors that Affect Obesity

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ABSTRACT

Background

More than one-third of U.S adults are considered obese (35.7%). Obesity, and its associated chronic diseases, diabetes and cardiovascular disease (CVD) are among the leading causes of death in the United States. Current diet plans are proving to be failures as many are promising quick fixes for a long-term problem. Dietary intervention through online programs can be an effective strategy in promoting behavior changes to combat the obesity epidemic.

Objective

The purpose of this pilot study was to evaluate the effects of an online nutrition program, FOOD FITNESS FIRST, Inc.[®], and its impact on weight loss, increased physical activity, and lifestyle modification to reduce medical costs and increase health among adults ≥ 19 years old, considered overweight or obese.

Design/Participants

The FOOD FITNESS FIRST, Inc.[®], Pilot Study is a longitudinal study conducted over a 5 month period with employees of a hospital and nursing facility setting in Wheeler County, GA. Thirty individuals began the program and nine participants completed the program. Prior to beginning the study, participants took an initial pre-test on the FOOD FITNESS FIRST, Inc.[®], website to ascertain health behaviors that needed improvement and then received nutrition education in those areas. Nutrition education was provided by registered dietitians in a classroom setting and also made available online. At the end of the study, participants took the test again, and were evaluated based upon the change in the initial score versus the final score for each component. They were also assessed on pre and post values of designated lab tests

Results

Showed an increase in health scores as well as better food choices, weight loss, increased physical activity and improved laboratory data. The mean initial health score was 60%. The final score increased by 12% leading to a score of 72% out of a possible score of 100%.

Conclusions

The FOOD FITNESS FIRST, Inc.[®] Pilot Program clearly reached its goal of improving lifestyle behaviors that affect obesity.

Clinical trials with larger groups of participants are needed to confirm the efficacy of internet-programs on obesity.

INTRODUCTION

More than one-third of adults in the United States are considered obese.¹ Obesity is defined as the "excessive subcutaneous fat in proportion to lean body mass."² Clinically, obesity is defined as a Body Mass Index (BMI) over 29.9 and overweight as 25.0-29.9.³ Obesity was termed a chronic disease in 1985 and obesity rates have increased dramatically in the last two decades.¹² Approximately 35%, or seventy-eight million Americans over the age of twenty years old are obese or overweight. Gender shows no significant differences, obesity rates were 35.5% for males and 35.8% for females in 2009-2010.²⁰ The rate of obesity among males over 20 increased significantly in the last decade, from 27.5% in 1999-2000 to 35.5% in 2009-2010. The largest group of obese Americans is found within the African American group at forty-four percent but the other ethnicities are not very far behind, with obesity rates for Hispanics at 37.9%.¹⁵ The youth population is also affected, with almost 17% of Americans ages 2-19 considered obese. Male youth have a higher rate of obesity, 18.6% of boys and 15.0% of girls were obese in 2010. The impact of childhood obesity has far-reaching implications for healthcare costs and the economy when poor eating habits are carried into adulthood.⁶

Obesity has devastating effects on the body, and is directly related to over thirty medical conditions.¹ Some of these conditions include but are not limited to: Cancer, Hypertension/Stroke, Cardiovascular Disease, Type II Diabetes Mellitus, Gallbladder Disease, and Osteoarthritis. Obesity can become a co-morbidity to other diseases as well. Some of these diseases include abdominal hernias, endocrine problems and edema in the lower extremities.^{1,7} Three hundred thousand deaths are linked to obesity every year.^{1,5,8} Data shows that as little as a 5% weight loss can reduce the risk of hypertension and diabetes by as much as half.⁸

The obesity epidemic also poses a financial burden on the American economy. Seventy-five billion dollars were spent on obesity and obesity related diseases in 2003.

By 2008, medical costs associated with obesity were estimated at \$147 billion; half of this money was paid through Medicaid or Medicare- a direct payment from the American taxpayer's pocket.^{1,3} People that are obese spend approximately \$1,500 more each year on health care -- about 41 percent more than an average-weight person. In efforts to lose weight, Americans spend about thirty three billion dollars per year on weight loss programs, drugs, supplements, products, etc.^{3,9} Many of these diet plans are nothing more than fad diets. They promote quick fixes and cure-alls with no lasting value. Successful programs involve lifestyle modification.^{4,10,11} This allows for realistic goals and nutrition education.

One of the new and up-coming ways to endorse lifestyle and behavior changes to a large audience is through Internet-based programs. These programs are relatively inexpensive to the user and have a higher success rate than many current diet strategies.¹⁰ There is limited research on internet-based nutrition programs and their impact on healthy lifestyle changes in the obese population. Therefore, we conducted a pilot study program to understand how these programs can impact obesity and all the components that contribute to a healthy lifestyle.

The FOOD FITNESS FIRST, Inc.[®] Pilot Study Program is a longitudinal study evaluation over a five-month period. Independent variables studied were: weight, body circumference, exercise levels, and diet. Dependant variables included laboratory values, medications taken and disease states. All subjects signed a confidentiality form before beginning the program and all procedures were performed in an ethical and appropriate manner.

METHODS

Our goal in this study was to identify the correlation between the FOOD FITNESS FIRST, Inc.[®] Program internet-based program and weight loss, increased physical activity, regulated laboratory values, decreased use of medication and lifestyle modification to reduce medical costs and increase health.

Participants were chosen on a strictly volunteer basis from the Wheeler County Hospital and nursing home staff.

The administrative staff of Wheeler County Hospital approved the program and the use of their facility. A letter explaining the program and its requirements was sent to the staff of the hospital and nursing home adjacent to the hospital. Others who wished to participate in the community were permitted as well.

Individuals who wished to participate were given an initial screening tool developed by the FOOD FITNESS FIRST, Inc.® staff at the initial class. This tool included criteria based upon:

1. Dietary Intake;
2. Upper arm, chest, hip, and thigh circumferences;
3. Weight, height;
4. Laboratory values;
5. Medications taken;
6. Physical Activity levels;
7. Family medical history;
8. Past and current medical history; and
9. Substance

Each category was scored according to a pre-set standard developed by the FOOD FITNESS FIRST, Inc.® Dietitians. The total possible score is 100%. This score was called the Favorable Fitness Factor®. This numeric system allows the individual to grade their current status like a report card of health. They can then choose areas that need improvement. Once the area(s) are identified educational materials are distributed. Materials include personalized disease information, diet and exercise logs, recipe book, and a grocery store book.

Individualized menus and diets were dispersed according to their Food Factor. The Food Factor is a portion of the Favorable Fitness Factor® that is derived from food intake, weight, and body measurements. Diets were based upon the Food Factor and the FOOD SPIRAL®, which is a colorful way to choose the best choices of food. Each participant was given the instructor's email address, fax and address for further information throughout the program. Each participant was evaluated based upon the change in Favorable Fitness Factor®, comparing the initial score versus the final score and each component.

Each participant was evaluated based upon the weight change over time:

Final Weight – Initial Weight = Total Weight Change.

Each participant was also evaluated upon personal lab values and how these values changed over the five-month time period: Final Lab Value – Initial Lab Value = Lab Value Change. Statistical Analysis was determined by use of a t-test, mean and standard deviation on the individual's lifestyle modifications in diet, exercise, preventative exams, laboratory values, substance abuse and medication use.

RESULTS AND DISCUSSION

Thirty participants began this program. Nine individuals successfully completed the five month program. The mean initial Favorable Fitness Factor® score was 60%. The final score increased by 12% leading to a score of 72% out of a possible score of 100%. All areas increased from the initial score to the final score with the exception of the substance abuse category (diet 20 to 22%, exercise 2 to 9%, and diseases and labs 12 to 17% respectively). Participants demonstrated:

1. Increased understanding of a healthy diet.
2. Increase in better food choices.
3. Increased physical activity levels.

Initially the program began with one Diabetic patient (fasting blood sugar >126 mg/dL), five participants with Hypertension (HTN) (blood pressure > 140/80), and four individuals with elevated total cholesterol levels (>200 mg/dL).

Results confirmed:

1. Total cholesterol decreases of up to 10 points.
2. Drop in Triglyceride levels of up to 15 points.
3. Improved blood pressures.
4. Improved blood sugars.
5. Decreased HTN medication use.

IMPLICATIONS, CONCLUSIONS AND APPLICATIONS

The FOOD FITNESS FIRST, Inc.® program was developed with a goal of improving health and all the components that constitute a healthy lifestyle. Upon review of this pilot program, it can be clearly seen that FOOD FITNESS FIRST, Inc.® has reached its goal. This program leaves lasting impression for better health to its participants but also shows the health care community what must be done to fight obesity.

FOOD FITNESS FIRST, Inc.® can help pave the way to lower obesity rates and in-turn lower health care costs. Obesity must be combated at all levels, not just diet and individuals must have a clear understanding of how diet directly affects health and well-being.

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