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Wellness and Nutrition Education Program to Promote Improved Nutritional
Practices and Decreased Body Mass in Individuals Working in a Health Care
Setting

A thesis
presented to
The faculty of the Department of Family and Consumer Sciences
East Tennessee State University

In partial fulfillment
of the requirements for the degree
Master of Science in Clinical Nutrition

by
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Keywords: obesity, overweight, nutrition, wellness, behavior modification

ABSTRACT

Wellness and Nutrition Education Program to Promote Improved Nutritional Practices and Decreased Body Mass in Individuals Working in a Health Care Setting

by

Jessica Brown Bandy

The purpose of this study was to determine whether a wellness and nutrition education program directed at employees of a health care facility would result in changes in weight, waist and hip circumference, BMI, and nutritional practices. Nine participants completed the five week program including final weight, measurements and post-program survey to determine nutritional practices. All participants attended weekly group classes with topics related to nutrition, physical activity, and behavior changes. Changes in weight, anthropometric measurements, and BMI were calculated. Changes in nutritional practices were analyzed using Minitab statistical software. There were improvements made in weight, anthropometric measurements, and BMI during the program. The improvements in nutritional practices were not significant.

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CHAPTER 1

INTRODUCTION

The prevalence of obesity in the United States is rapidly increasing. It is considered to be one of the last major unresolved public health issues, the most important nutritional disease and of epidemic proportions in the country (1). Appropriately used to describe the rise in obesity, an “epidemic” affects or tends to affect a disproportionately large number of individuals within a population, community, or region at the same time according to Merriam-Webster’s Dictionary (2). This rise in obesity has been credited to the continuous increase in availability of high calorie and high fat foods and a decrease in individual physical activity levels (1).

Statement of the Problem

It is estimated that 97 million adults are obese or overweight in the United States alone (1). The state of West Virginia ranks third among all states with approximately 27.6 % of the population weighing in as obese (1). The treatment of obesity has generally been unsuccessful as people attempt fad diets, medications or supplements, and bariatric surgeries. By falling into these “diet traps” people are not learning about nutrition and making good choices about food. The purpose of this study is to determine if a wellness and nutrition education program will bring about changes in body weight, physical activity level, and nutritional practices among people working in a health care setting in West Virginia.

Significance of the Problem

Obesity contributes to numerous health conditions. According to the National Institutes of Health, obesity and overweight are the second leading cause of preventable death in the United

States closely trailing tobacco use (3). Overweight and obesity are known risk factors for heart disease, diabetes, hypertension, gallbladder disease, osteoarthritis, sleep apnea and other breathing problems, and some cancers including uterine, breast, colorectal, kidney, and gallbladder (1). In addition, obesity is associated with pregnancy complications, high blood cholesterol, menstrual irregularities, hirsutism, stress incontinence, psychological disorders, and increased surgical risk. Social discrimination against obese persons has a strong negative effect on their quality of life. (1)

The condition is also gravely affecting the economy in both direct and indirect health care costs (1). Direct costs are calculated by preventive, diagnostic, and treatment services such as personal health care, physician visits, hospital care, medications, and nursing home care (1). Indirect health care costs are costs resulting from a reduction or cessation of productivity because of weight related disease such as lost wages and lost future earnings (1). According to 2006 statistics reported by the Centers for Disease Control and Prevention (CDC), overweight and obesity accounted for 9.1% of total US medical expenditures or 78.5 billion dollars (4). Approximately half of these health care expenses were paid for by Medicare and Medicaid (4).

A study conducted in West Virginia by the CDC reported that many state residents, including children, exercise rarely and ate large amounts of fat-filled foods and fast foods (4). As a result of these habits, 10% of the state's population suffers from diabetes (4). The state reports paying about \$100 million a year in obesity-related medical costs (1). Because of these costs and obesity prevalence, the state is providing Weight Watchers classes free to 75,000 West Virginians who are clients of Unicare, have a doctor's referral, and are within a specified range on the BMI scale (5). Unicare is a Medicaid program (5).

Hypothesis

There will be a difference between initial and final weight, waist and hip measurements, and BMI during the five-week intervention program in subjects following nutrition education. There will be a significant improvement in eating patterns based on a pre-intervention and post-intervention eating behavior survey among participants of a five-week wellness program that focuses on nutrition, exercise, and behavior changes.

Null Hypothesis

There will be no difference between initial and final weight, waist and hip measurements, or BMI during the five-week intervention in subjects following nutrition education. There will be no significant improvement in eating patterns based on pre-intervention and post-intervention eating behavior survey among participants of a five week wellness program that focuses on nutrition, exercise, and behaviors change.

Assumptions

Assumptions of this study include:

- Participants of the study are motivated and ready to make changes in their lifestyle to include exercise and monitoring of their nutritional choices and eating behaviors.
- Participants will be honest when reporting their daily activity and food consumption.
- The testing tool used will accurately measure the nutritional practices and changes made in nutritional practices of the participants.

Limitations

Limitations of this study include:

- The sample size is small and participation is voluntary.
- Participants were present at each weekly group class to receive all the class information and interaction with other participants and the instructor. Only participants who were present at the final class and weigh in received the post program survey.

Delimitations

Delimitations of this study are that the study was only conducted at Bluefield Regional Medical Center in Bluefield, West Virginia. Results are limited to this facility and cannot be generalized to other settings.

Definitions

Adult Obesity: a body mass index of $>30 \text{ kg/m}^2$; excess fatness (6)

Anthropometry: science of measuring the size, weight, and proportions of the human body (7)

Bariatrics: branch of medicine concerned with weight control, including gastroplasty and other types of surgical procedures (7)

Body Mass Index: (BMI) $\text{weight (kg)/height (m}^2\text{)}$; a definition of the degree of adiposity (7)

Epidemic: affects or tends to affect a disproportionately large number of individuals within a population, community, or region at the same time (2)

Overweight: a state in which weight exceeds a standard based on height; body mass index 25-29.9 (7)

Self-monitoring: recording by the patient of changes in behavior (7)

CHAPTER 2

REVIEW OF LITERATURE

The rise in obesity cannot be explained by genetic factors alone. Obesity is a complex, multifactorial disease that develops from the interaction between social, behavioral, cultural, physiologic, and metabolic factors as well as genetics (6). According to the National Health and Nutrition Examination Surveys (NHANES), one in eight Americans is obese (7) and obesity causes at least 300,000 excess deaths in the US each year (6).

Overweight is a state in which weight exceeds a standard based on height or a body mass index (BMI) of 25 to 29.9 kg/m², whereas obesity is a condition of excessive fatness, either generalized or localized and is defined as a BMI of >30 kg/m² (7). Overweight and obesity have been linked to increased mortality and morbidity as well as a higher incidence of developing certain diseases (7). Co-morbidities related to obesity include cardiovascular disease, diabetes mellitus, lipid abnormalities, glucose intolerance, insulin resistance, sleep apnea, some cancers, and hypertension (7).

Obesity is a frustrating disease for both patients and medical practitioners and is very difficult to treat. The roots of the disorder, in many obese people, can be traced to childhood (6). Different approaches have been developed while increased energy intake and a sedentary lifestyle represent the major targets for interventions aimed at combating this epidemic (7). Programs that integrate healthier food choices, exercise, and life-style modification show the highest success rates; however, many times when treatment is stopped, weight is regained (7). Overweight and obesity can be thought of as an incurable disease with the possibility of management if permanent lifestyle changes are made (8).

It is the position of the American Dietetic Association that successful weight management to improve overall health for adults requires a lifelong commitment to healthful lifestyle behaviors emphasizing sustainable and enjoyable eating practices and daily physical activity (9). It was stated that the goal of obesity treatment should be refocused from weight loss alone to weight management, defined as attaining the best weight possible in the context of overall health (9). To achieve weight management goals, programs should be designed to accomplish more than weight loss (9). The programs may also include composition of weight loss, regional location of weight loss, measures of physical performance, and other factors (9).

The composition of weight loss takes into consideration the ratio of lean and fat tissue in order to determine if a participant in a weight loss intervention is losing fat weight or muscle weight (8). Regional location of weight loss determined by body measurements can determine if weight loss is peripheral or central (8). Another factor, measures of physical performance, establishes if the participant is gaining muscular strength, power, endurance, and cardiorespiratory fitness (8). Other factors to consider include the participants' ability to perform activities of daily living, how the intervention affects mental health, and, most importantly, risk for diseases such as diabetes mellitus, coronary artery disease, and hypertension (8).

A variety of options are available for people who need assistance in decreasing and maintaining their body weight. As previously mentioned, the most successful programs incorporate nutrition, exercise, and lifestyle modification with the goal of attaining as well as maintaining a healthy and desirable weight (7).

Diet and Weight Loss

Weight reduction requires caloric output to exceed caloric intake. This can be achieved by taking in fewer calories and/or increasing energy expenditure through physical activity (7). The manipulation of energy content of the diet from fats, proteins, and carbohydrates will impact the rate of weight loss (7). Very low-calorie diets, defined as 800 calories or less per day, result in a larger, more rapid weight reduction, whereas a small to moderate reduction in energy intake will result in a small, steady rate of weight loss (7).

General recommendations have been to achieve a slow, steady reduction in body weight in order to maintain the weight long term, but more current research studies have produced conflicting results (7). Some studies indicated that a greater rate of initial weight loss is positively associated with sustained weight loss up to five years later (10). In a randomized clinical trial, the same amount of weight loss was achieved by subjects who were prescribed a very low-energy diet for eight weeks as ones prescribed a moderate energy diet for 17 weeks (11). Data gathered, in a one and two-year follow ups, indicated that subjects who consumed a very low-energy diet who lost the weight faster maintained the weight loss slightly better than the group who lost weight at a slower rate (11).

In addition to the rate of weight loss, it is important to consider the macronutrient composition of the diet (7). Standards are far from being clear for an ideal macronutrient distribution for weight loss and weight maintenance. Recently, numerous diets have been introduced with various macronutrient compositions from low fat to low carbohydrate/high protein to generally low calorie diets (12). According to a study in the British Journal of Medicine, a diet low in fat without caloric restriction produced weight loss in overweight subjects and prevents weight gain in normal weight subjects (12). The results of other studies

suggested that low fat diets cause weight loss by providing lower caloric intake considering the caloric composition of fats, e.g. fats yield nine kilocalories per gram while protein and carbohydrates provide four kilocalories per gram (13).

On the other hand, diets with a small amount of calories being contributed from carbohydrates tended to be very high in fat as well as protein (13). Advocates of the low carbohydrate diets proposed that high carbohydrate foods promote high energy intake through overeating, while opponents to this diet suggested that carbohydrate foods are protective against high energy intake (13). Much of the success is dependent on the type of carbohydrates consumed. Complex carbohydrates, which are high in fiber, give a feeling of satiety and can reduce the total amount of energy consumed (7). Simple sugars or refined carbohydrates, on the other hand, do not produce the feeling of fullness and higher calories are often consumed (7).

Equally important to composition of the diet is the size and frequency of meals. Small, frequent meals have become the recommendation in order to promote consistency in blood glucose and prevention of excessive hunger (14). Skipping meals leads to excessive hunger, feelings of deprivation, and increased vulnerability to binge eating or snacking on high-calorie, high fat, or sugary foods (14). It is also suggested by Fahey and colleagues that the ultimate goal for achieving a healthy diet that ensures successful and sustained weight management is to eat in moderation with no foods being “off limits”, though some should be eaten judiciously (14). Furthermore, in the cases of sustained weight maintenance, continued treatment including regular exercise, diet education and behavioral therapy are required, otherwise weight regain is probable (10).

Exercise and Weight Loss

Exercise is a vital component of a weight management program (6). Exercise may affect weight control by six possible mechanisms: 1) increased lean body mass increases metabolic rate; 2) exercise itself raises metabolic rate during and for some period after exercise; 3) energy expenditure during exercise; 4) psychological effects of exercise; 5) exercise affects food intake; and 6) exercise affects macronutrient balance (6). Self esteem was enhanced and overall wellbeing was achieved through physical exercise (6). As previously stated, exercise not only assists in weight loss but in the maintenance phases as well (15). It has been well documented that weight regain was significantly less likely to occur when physical activity was combined with any other weight reduction method (7). Klem and her associates concluded, in their study with the National Weight Control Registry (NWCR), that weight loss achieved through use of diet and exercise can be maintained for long periods (15).

The Surgeon General reports that levels of physical activity have declined and only 22% of US adults are currently active enough to obtain the health benefits offered by physical activity (16). Individuals identify many barriers or excuses not to exercise (16). Of those identified are lack of time, lack of social support, inclement weather, disruptions in routine, lack of access to facilities, and dislike of vigorous exercise (17).

There are several important aspects to consider when developing a physical activity routine for weight loss. First, the type or mode of the activity is important, the duration of the activity and the intensity of the exercise (8). Each of these components can be altered independently with different general responses by the individual (8). Exercise or physical activity is not limited to group instructed classes; it can range from general lifestyle activities, such as parking your car at the end of the parking lot, to specific exercises like running or weightlifting (8).

According to a trial published in the Journal of the American Medical Association, a program of diet plus lifestyle activity may offer similar health benefits and be a suitable alternative to diet plus structured aerobic activity for obese women (16). Correspondingly, Dunn and colleagues concluded that in previously sedentary healthy adults, a lifestyle physical activity intervention is as effective as a structured exercise program in improving physical activity, cardio-respiratory fitness, and blood pressure (17). It should also be noted that counseling patients to fit moderate-intensity activity into daily life may have significant health benefits and could aid public health efforts to reduce the prevalence of sedentary lifestyles (17).

Improving Nutrition

To improve nutrition for obesity management, dietary intervention with the individuals or groups is needed to explore nutrition education and dietary therapy (6). This component of the program is usually made as easy to follow as possible by incorporating daily recommendations for the participants (6). It can involve recipe modifications, grocery shopping training, and recommendations regarding foods to eat and foods to avoid or reduce in serving size (6).

Label reading is a fundamental component of a program to assist participants with improving nutritional practices (6). Society tends to have distorted perceptions of portion size due, at least in part, to frequent eating out and servings presented in restaurants (6). In order to accurately figure calorie intake, participants of a nutritional program must have the ability to understand standard labels presented on all foods (6).

Lifestyle Modification

Many health professionals and researchers have concluded that a collective treatment of diet, exercise, and behavior change is essential for weight loss in obese or overweight patients (18). Applying only one component instead of the combination leads to poor results in weight loss and management (18). Lifestyle modification or behavior modification interventions rely on analyzing behavior to identify events that are associated with inappropriate as well as appropriate eating, exercise, or thinking habits (18). Background, behaviors, and consequences are analyzed to determine how to modify the situation (7). An example of this approach is, for instance, when an individual finds that they overeat when stressed. Steps are taken to help the person deal with stress in a more constructive way (18). Self-monitoring, problem-solving, stimulus control, slowing of eating, and cognitive restructuring are all components of a nutritional lifestyle modification plan (18).

Self-monitoring with daily records of place and time of food intake, as well as accompanying thought and feelings, help identify the physical and emotional settings in which eating occurs (7). It provides feedback on progress and places the responsibility for change and accomplishment on the patient (7). Problem-solving, another component of lifestyle modification, is a process for defining the eating or weight problem, generating possible solutions, evaluating the solutions, and choosing the best one (7). Problem solving is followed by implementing the new behavior, evaluating the outcome, and re-evaluating alternative solutions if the one selected is not successful (7).

Another component is stimulus control that involves modification of the settings or the chain of events that precede eating, the kinds of foods consumed when eating occurs, and the consequences of eating (7). When using this technique, patients are taught to slow their rate of

eating to become mindful of satiety cues and reduce food intake (7). The next component, cognitive restructuring, teaches patients to identify, challenge, and correct the negative thoughts that frequently undermine their efforts (7).

Comprehensive life-style modification in weight control, when used without the other components of diet and exercise, do not show positive long-term results (7). Research has shown that subjects typically return to their baseline weight in a five-year follow up after participating in a life-style modification program (7).

As the prevalence of overweight and obesity continues to rise among our population, there is an urgent need to enhance our understanding of how modifiable treatment including diet and exercise affect short-term and long-term weight loss and other health related outcomes (8). Much research supports the concept that a diet of any macronutrient composition can lead to short-term weight loss (8). Still, the question remains, what combination will produce the most effective, lasting long-term maintenance of a healthy weight and is that combination appropriate across the board for all individuals. Also, will these interventions precipitate in an improved risk status for diseases?

CHAPTER 3

DESIGN AND METHODOLOGY

Participants

The subject criteria for inclusion in the study were male or female subjects over age 18 with a BMI of at least 23. Subjects were employees of the Bluefield Regional Medical Center, Bluefield, West Virginia, who volunteered to participate after seeing advertisements throughout the facility or receiving an e-mail advertisement. Twenty-six subjects, 3 men and 23 women, signed up for the program and participated in the initial assessment, including weight, height, waist and hip circumference measurements, and initial survey. Nine subjects (six female, three males) completed the five-week program. Informed consent documents were signed by all participants before beginning the program.

Instrumentation

Anthropometric measurements for waist and hip circumference were obtained initially and at the conclusion of the wellness and nutrition education study. Height was measured initially using stadiometer to assess caloric needs and calculate BMI. A medical beam scale was used to measure initial weight, weekly weight, and weight at the conclusion of the series. Body mass index was calculated after the initial and final weigh in by the equation:

$$\text{BMI} = \left(\frac{\text{Weight in Pounds}}{(\text{Height in inches}) \times (\text{Height in inches})} \right) \times 703$$

Waist and hip circumference was measured using a standard tape measure in centimeters. A pre-intervention survey was given to determine baseline nutritional practices and was adapted from the L.E.A.R.N. program (19). This assessment was also completed four weeks after the final class of the program to determine changes in nutritional practices. The instrument assessed food

and beverage consumption as well as food preparation styles for each subject on a daily basis. Other forms included daily diet records and exercise logs.

Procedures

The five-week wellness nutrition intervention program was developed to address health concerns including weight loss, disease prevention, and exercise programming. The program emphasized healthy lifestyle changes including nutrition, exercise, and behavior modification. The program consisted of five weekly group classes that lasted approximately one hour and included time for participant discussion and questions. The schedule for the classes can be seen in Appendix A.

The nutrition education component of the program focused on topics such as fiber, energy balance, fats, carbohydrates, proteins, food labels, portion sizes, cooking tips, shopping tips, dining out, healthy snacking, and fad diets. The exercise component included benefits of exercise, cardiovascular training, strength training and circuit training, safety and injuries, and maintaining motivation. Recommendations for physical activity included minimum of walking or more intense exercise for 30 minutes per day four days per week and increasing to five to six days per week by the end of the program. Behavior modification was taught through use of food and exercise logs. The sample food and exercise log given to participants can be seen in Appendix B. Behavior concerns addressed were reasons for being overweight, quality of life issues, unrealistic goals, and identifying barriers.

The subjects completed an individual assessment before the program began and individual goals were set for improved nutritional status. During this assessment, the subjects completed the pre-intervention survey. The initial assessment instrument can be seen in Appendix C. The

goals for the program included increasing fruit and vegetable consumption to at least five per day, increasing intake of low fat dairy products, choosing more lean meats, increasing fiber to a minimum of 25 grams per day. Goals for fat intake included consuming less than 30% total calories from fat with less than 10% saturated and 15% being monounsaturated fat. A goal deficit of 500-750 calories per day from estimated original intake was recommended to achieve one to two pounds weight loss per week. Current recommendations for preventing weight regain and/or continuing weight loss are exercising at moderate intensity for a minimum of 150 minutes per week. Individual food and exercise logs were evaluated weekly to identify areas of concern as well as areas for improvement.

Data Analysis

Data for each group being studied were collected and organized for entry into a data file to test the hypothesis. Means for weight loss, BMI reduction, and waist and hip circumference loss were calculated. All questions on the survey given at the beginning and at the completion of the program were analyzed for changes in scores and changes in nutritional practices. Data from the survey were analyzed using Minitab statistical computer program. The statistical results were used to determine if the null hypothesis should be rejected or fail to be rejected.

CHAPTER 4

RESULTS

The Population

The subjects of the research were employees of Bluefield Regional Medical Center in Bluefield, West Virginia. Participants included employees from various areas of the facility. Of the 26 subjects who began the program, 9 completed all phases of the research study. Results were based on the nine participants who completed the entire program including the final weigh in and final survey assessment. Data were not collected on age, ethnicity, or socioeconomic status of the participants.

Weight Loss

The participants' weights were collected before the start of the program, weekly prior to the classes, and at the conclusion of the program. Only the initial weight and final weights were used to evaluate weight change outcome for the study. Eight of the nine participants who completed the program were successful in decreasing their body weight. The average weight loss was 3.39 pounds during the five-week period. Results for weight loss are illustrated in Table 1.

	Weight (pounds)	BMI	Waist (inches)	Hip (inches)
Initial	209.19	34.42	44.31	47.50
Final	205.81	33.89	43.17	46.64
Change	-3.39	-0.52	-1.14	-0.86

Body Mass Index Change

Body Mass Index was calculated for each participant completing the program. The mean change in BMI was a reduction of 0.52. Results for change in BMI are shown in Table 1.

Waist and Hip Circumference Change

The mean change in waist circumference was a decrease of 1.14 inches. Eight of the nine participants showed a decrease in waist circumference. One participant had an increase of one inch while another participant had a decrease of 3.75 inches; both of these participants were women.

The mean hip circumference change was a decrease of 0.86 inches. There were no increases in hip circumference; two participants showed no change in hip circumference. The results for both waist and hip circumference change are shown in Table 1.

Perceived Change in Nutritional Practices

An increase in survey scores correlated to an improvement in perceived nutritional practices. The mean change in perceived nutritional practices was an increase of 2.92 points based on pre-intervention and post-intervention survey scores using the Rate Your Diet Survey. On average, the three male participants improved their scores, thus improving their perceived nutritional practices, during the program more than the female participants.

Four of the nine participants improved their scores on the survey, while the remaining participants' scores declined from the beginning to the end of the program. The minimum score on the survey improved by one point from the beginning to the end of the program while the maximum score decreased by 15 points. Standard deviation decreased by 5.71 from the initial to

the post-program survey. The changes were not significant. Results from the survey are seen in Table 2.

Table 2 Survey Scores for Change in Nutritional Practices		
	Mean	Standard Deviation
Survey Initial	-10.06	26.78
Survey Final	-7.14	21.07
Survey Changes	+2.92	
Survey Change for Male Participants	+7.33	
Survey Change for Female Participants	+0.71	

CHAPTER 5

DISCUSSION, CONCLUSION, RECOMMENDATIONS

Discussion

The data collected and analyzed from the Rate Your Diet survey did not show a significant improvement in perceived nutritional practices among participants working in a health care setting. While the mean change in the survey was positive, the change was not large enough to be statistically significant. The results obtained could be attributed to a very small sample size and short program duration.

Eight of the nine participants who completed the program were successful in losing weight and decreasing their waist circumference during the five-week wellness and nutrition education program. The one participant who had increased weight also showed an increase in waist circumference. One participant had a weight reduction of 3.5%, which was average. However, this participant had a decrease in waist circumference of 3.75 inches, which was greater than the mean. This could be attributed to the participant's increase in physical activity during the program.

Individual success in the program varied because of differences in metabolism, sex, nutritional practices before the program, and individual readiness to make nutritional changes and adopt better exercise habits. The participant who showed the most weight loss was male. There are many reasons why men tend to lose weight faster than women, including men's percent of lean body mass is generally higher than women. When lean body mass is higher, basal metabolic rate is also higher meaning those with more lean tissue, burn more calories at rest. Sex hormones also play a role in rate of weight loss. Both men and women have the

hormones testosterone and estrogen. Men have more testosterone and women have more estrogen. Estrogen allows women to bear children but also contributes to retention of body fat.

The men in the study generally had more physically demanding job positions than the women. Most of the female participants had jobs that required sitting and allow for little physical activity during work hours. The male participants, on the other hand, were employees in jobs that required lifting, climbing, and walking through the facility during work hours.

One of the small changes that seemed to make an impact on weight loss was the amount of high calorie beverages consumed before the program started. The first group class was focused on the amount of sugar and fat in beverages. This seemed to be a topic that many participants had not given much thought to before the class. The challenge given to the participants was to discontinue soda completely from their diet as this was a source of many empty calories.

There was no tool used to determine the individuals' readiness to begin a weight loss or exercise program prior to the start of the program. Losing and regaining weight is discouraging, so beginning a program when motivation is high shows the best results (19). Readiness refers to the participant's motivation and commitment during the program and over the weeks and months following its completion. A tool to determine readiness would help identify potential barriers that may need to be addressed before continuing the effort of a weight loss program.

Retention rate for the program was low with only one third of the participants from the first meeting completing the entire program. Reasons for stopping participation in the program were lack of time, work schedule conflict, and inadequate motivation. Unmentioned excuses for quitting may have been that effort and self-discipline were involved in this program and it was not a quick magical fix for the multiple factors involved in obesity. The participants were not given a diet to follow but were instructed about nutrition so better diet and lifestyle choices could

be made for now and in the future to promote continued weight loss and maintenance once the weight goal is reached.

Conclusions

Participants of the nutrition and wellness program made some positive changes in their nutritional and physical activity habits during the five-week program. A work-based lifestyle program that focuses on behavior change and education and the role of nutrition and physical activity on health could be beneficial to facilities to improve the health of the work staff and possibly save health care costs. The hypothesis was rejected and null hypothesis failed to be rejected as the difference in improvement in eating patterns based on the participants' pre-program and post-program eating behavior survey was not significant. However, the participants did show a mean loss in weight, waist and hip circumference measurements, and BMI. Also, the sample size was small; therefore, the significance is likely not accurate.

Recommendations

A wellness and nutrition education program would be a beneficial addition to a health care facility's wellness program. An extended program would help to reinforce the topics covered and aid in making more long-term changes in nutrition, physical activity, and lifestyle choices. Offering incentives may increase the participation and retention of participants. Incentives could include discounts in company insurance plans/co-pays or discount in wellness center/fitness facility membership.

Requiring a fee for membership in a facility's wellness program may increase the retention of participants as people tend to place more value on services which require payment. A facility

could offer pre-tax payroll deductions in an effort to save employees money and afford the convenience of having the program pre-paid.

Because many factors can stand in the way of being successful in a wellness program, assessing the participants' readiness could be a beneficial component. Determining potential benefits and sacrifices of involvement could assist them in starting the program when they have worked out all impending barriers of success. The LEARN program offers an on-line tool to assess readiness to make lifestyle changes including exercise and improved nutrition (19).

This tool focuses on six categories to evaluate attitudes and behaviors including motivation, expectations, confidence, eating cues, binge eating and purging, and emotional eating. Performing this assessment prior to the start of the intervention would allow more specific focus on obstacles preventing attainment of the participants' goals.

Additional research in this area would provide more evidence of the efficacy of corporate wellness programs. A larger sample size and longer program would likely produce a significant result in improved perception of nutritional practices, weight loss, and decrease in waist and hip circumference.

Wellness and nutrition education programs could also improve the obesity statistics not only for West Virginia but other states as well. Both direct and indirect economic costs may be reduced as a result of a successful program. This would benefit the facility that offers the program as well as the national economy.

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APPENDICES

APPENDIX A

Class Schedule

Wellness and Nutrition Education Program

Individual Meeting

- Introduction to weight management program
- Individual Nutrition Assessment, weight and measurements
- Rate you Diet Quiz (pre-intervention survey)

Session 1

- Goal setting
- Carbohydrates
- Sugar content of foods
- Think your drink lesson
- Assignment: keep a 3 day food diary (practice for baseline)

Session 2

- Calcium
- Low fat dairy products
- Calcium research

Session 3

- Food labels
- Portion sizes
- Fats
- Sodium
- Introduction to importance of exercise; exercise logs
- Assignment: keep a 3 day food diary for evaluation and 1 week exercise log

Session 4

- Fruits and Vegetables
- Protein
- Behavior modification
- Grocery shopping

Session 5

- Exercise
- Creating an individualized exercise routine with Guest from The Wellness Center
- Dining out

Lesson Plan

Session 1

- Goal Setting: Why did you choose to join this program?
 - The result or achievement towards which effort is directed or aimed
 - Write your individual goals for weight loss, improved nutritional practices, improved quality of life, physical activity, health.

- Carbohydrates: What is a carbohydrate? Obtain opinions from participants.
 - If our body is a car, carbohydrates are gasoline. Without gasoline, a car cannot move. Similarly, without carbohydrates, we don't have enough energy to do anything! Recognizing how important carbohydrates are, scientists allocate the base, which is also the largest part, of the food guide pyramid to carbohydrates. The food guide pyramid, designed by the U.S. Department of Agriculture and the Department of Health and Human Services, is meant to help Americans to understand how to maintain a balanced diet.

Now we know that carbohydrates are an important energy source to our bodies, as each gram of carbohydrates generates four calories. But, what are carbohydrates? In the simplest form of explanation, carbohydrates are sugars. There are two types of sugars -- simple sugars and complex sugars. Likewise, there are two types of carbohydrates -- simple carbohydrates and complex carbohydrates.

Simple carbohydrates (or simple sugars) are made up of one or two sugar units. Table sugar, honey, jelly, fructose (sugar from fruit), lactose (sugar from milk), syrup, candy, and other sweets are all examples of simple carbohydrates. Complex carbohydrates (or complex sugars) are made up of hundreds or thousands of sugar units. They reside in starchy food, such as pasta, bread, potatoes, cereals, rice, and other grains.

- Sugar content of foods. Discuss calorie savings by cutting empty calories from sugar.
 - Handout: sugar content of foods.
- Think your drink: calorie/sugar content of drinks. Calculate calories of soda related to weight loss: 3500 calories per pound. Have participants figure calorie savings per week, year and how many pounds potentially lost just by cutting soda.
 - Re-Think your drink handout

- Assignment: Keep a three day food journal.
 - Handout: My nutrition food log

Lesson Plan

Session 2

- Dairy and Calcium
 - 3-A-Day of Dairy can be a delicious way to help get a trimmer waistline! Research shows that including 3 daily servings of milk, cheese or yogurt in a reduced-calorie weight loss plan can help adults achieve better results, when it comes to trimming the waistline, than just cutting calories alone and consuming little or no dairy.
Current scientific evidence suggests that a combination of calcium and other dairy components may participate in the body's natural regulatory system for burning fat to support weight management.
It's also important to remember that calories count! To lose weight, you need to cut the calories you take in and boost the calories you burn through physical activity.
But no matter how you're cutting calories, be sure to include the power of 3-A-Day of Dairy — the wide variety of delicious reduced-fat, low-fat and fat-free dairy foods such as milk, cheese or yogurt can help you keep calories in check.
- What counts as a serving of low fat dairy? 8 oz milk, 1.5 ounces of cheese, 1 cup yogurt
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Lesson Plan

Session 3

- Food Label: What are the first things you look at on a food label?
 - Use white board to write responses. Draw food label on board.
 - Handout: Food Label. Discuss all parts of food label, % daily value, serving size, servings per container.
 - Food labels are required to be on all food items.
- Portion size: It is very important to read the portion size on all food labels and take into consideration how many servings you are eating. If you have two servings, you must double the calories, fat, carbohydrate, etc.
 - Discuss portions of common foods: fruit, vegetables, snacks, beverages.
- Fats: Fats are important in our diet; the type of fat must be taken into consideration.
 - Saturated fat, monounsaturated fats, polyunsaturated fats.
 - What foods have each of these types of fats?
- Sodium: How much sodium do we need in our diet?
 - Read the amount of sodium in foods on food labels.
 - Sodium requirements and need for restrictions.

- Exercise: Why do we need to be physically active?
 - Discuss benefits of exercise.
 - Recommendations for increasing physical activity.
 - Safety tips.

- Assignment: Keep a 3 day food journal to be turned in. Record time of day, feelings, location of meal.
 - Start recording your daily physical activity. Include duration, intensity and type of activity.

Lesson Plan

Session 4

- Fruits and Vegetables: What are the benefits of fruits and vegetables
 - Daily recommendations for intake
 - Serving sizes
 - Vitamins minerals and fiber available in fruits and vegetables
- Protein: Figure needs based on 0.8 g/kg body weight.
 - Proteins are the building blocks of our bodies. Present in all body tissues (such as muscles and skin), proteins make up the second largest portion of our body weight. Only water outweighs proteins, securing the top position of making up about 70% of our body weight.

Proteins are like our bodies' superintendents with many responsibilities. They build and repair tissues, fight off infections, and transport oxygen. Together with carbohydrates and fats, proteins are also our bodies' energy source. Just like carbohydrates, proteins generate four calories per gram. Nevertheless, our bodies usually consider proteins the back-up energy providers. Therefore, unless we exclude both carbohydrates and fats from our diet, we don't rely on proteins to get us energized.

Proteins are made up of amino acids. With twenty-two different types of amino acids in our bodies, nearly two-thirds (14) are non-essential and the remaining eight are essential. The term "non-essential amino acid" may lead you to believe that it is not important. This perception is incorrect. The fact is we need non-essential amino acids as much as we need essential amino acids in our bodies. So, what is the difference between non-essential amino acids and essential amino acids? "Source" is the answer. Our bodies manufacture non-essential amino acids. Yet, they cannot produce essential amino acids. For us to get essential amino acids, we must eat protein-rich foods, such as poultry and beans.

- Behavior modification: Using food journals and activity logs identify behaviors that are of concern such as emotional eating, physical location of meals, overeating.
 - What are some possible solutions to change these behaviors?
 - Have each participant tell one behavior that has been identified and a potential solution. Make suggestions.
 - Encourage participants to implement these changes in behavior.
- Grocery Shopping: Do you plan a grocery list before you go shopping?
 - Label comparisons in the grocery store
 - Handout: Grocery list

Lesson Plan

Session 5

- Increasing physical activity: How does exercise help with weight management?
 - Increased lean body mass increases metabolic rate
 - Exercise raises metabolic rate during and after exercise
 - Energy expenditure during exercise
 - Psychological effects of exercise
 - Exercise affects food intake
 - Exercise affects macronutrient balance
- Guest speaker from The Wellness Center, Bluefield, WV
 - Safety in the gym
 - Creating a personalized routine
 - Exercise attire

- Dining out: Tips for dining out
 - Nutrition facts are available for most restaurants upon request.
 - Tips for dining out without overeating
 - Handout: Tips for Dining Out

APPENDIX B

Handouts

SUGAR CONTENT OF VARIOUS FOODS (20)

<u>FOOD ITEM</u>	<u>SERVING SIZE</u>	<u>SUGAR/SERVING</u>
Cereal, sweetened	1 cup	14 tsp. Sugar
Chewing Gum	1 stick	1/2 + tsp. Sugar
Chocolate Bar	8 oz.	28 tsp. Sugar
Chocolate Cake	4 oz. slice, iced	10 tsp. Sugar
Chocolate Milk	8 oz.	6 tsp. Sugar
Cola or Soda	16 oz.	12 tsp. Sugar
Doughnut, glazed	1 whole	6 tsp. Sugar
Ice Cream	1 cup	6 tsp. Sugar
JELL-O	8 oz.	8 tsp. Sugar
Jelly Beans	A handful	8 tsp. Sugar
Kool-Aid	8 oz.	6 tsp. Sugar
Milkshake, thick	11 oz.	9 tsp. Sugar
Orange Soda	16 oz.	16 tsp. Sugar
Pecan Pie	5 oz. slice	12 tsp. Sugar
Peanut Butter Sand.	1 whole	7 tsp. Sugar
Pork and Beans	1 cup	5 tsp. Sugar
Yogurt, fruit	8 oz.	8 tsp. Sugar

Re-Think Your **DRINK** (21)

When it comes to nutrition, not all drinks are created equal. Which drink gives you the most nutritious "bang for your buck"?

Fat-free Milk



Serving size – 8 ounces
Calories 80

% of Daily Value
Fat 0%
Carbohydrates 4%
Protein 19%
Vitamin A 10%
Vitamin C 4%
Vitamin D 25%
Calcium 30%

Low-fat 1% Chocolate Milk



Serving size – 8 ounces
Calories 160

% of Daily Value
Fat 4%
Carbohydrates 10%
(includes 4 tsp added sugar)
Protein 17%
Vitamin A 10%
Vitamin C 4%

Vitamin D 25%
Calcium 30%

Cola



Serving size – 12-ounce can
Calories 150

% of Daily Value
Fat 0%
Carbohydrates 14%
(includes 9 tsp added sugar)
Protein 0%
Vitamin A 0%
Vitamin C 0%

Vitamin D 0%
Calcium 0%

Diet Cola



Serving size – 12-ounce can
Calories 0

% of Daily Value
Fat 0%
Carbohydrates 0%
Protein 0%
Vitamin A 0%
Vitamin C 0%
Vitamin D 0%
Calcium 0%

Fruit Punch

Serving size – 8.5-ounce box
Calories 130



% of Daily Value
Fat 0%
Carbohydrates 11%
(includes 6-3/4 tsp added sugar)
Protein 0%
Vitamin A 0%
Vitamin C 0%
Vitamin D 0%

Calcium 0%

100% Orange Juice

Serving size – 8 ounces
Calories 110



% of Daily Value
Fat 0%
Carbohydrates 8%
Protein 0%
Vitamin A 2%
Vitamin C 150%
Vitamin D 0%

Calcium 2%

Food Log

NAME _____ Date _____

Date	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Breakfast Time:							
Lunch Time:							
Dinner Time:							
Snacks: Time(s):							
Exercise: Duration, Type, Perceived Exertion							

Food Label (22)

Nutrition Facts	
Serving Size ½ cup (114g)	
Servings Per Container 4	
Amount Per Serving	
Calories 90	Calories from Fat 30
% Daily Value*	
Total Fat 3g	5%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 300mg	13%
Total Carbohydrate 13g	4%
Dietary Fiber 3g	12%
Sugars 3g	
Protein 3g	
Vitamin A 80%	• Vitamin C 60%
Calcium 4%	• Iron 4%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Sat Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9 • Carbohydrate 4 • Protein 4	

Tips for Dining Out

Many people have trouble here as they make split-second decisions and rationalize their poor choices. But since you have a plan ahead of time, it should make it easier to stay on track. If you're faced with a menu and no time to prepare, there are still a number of rules of thumb and tricks you can use.

- Try to order first. Listening to everyone else's choices can be pretty tempting.
- Don't ever be shy about asking questions or making requests. The food is every bit as important as the restaurant, the table and the setting, so make sure it's what you want.
- Try ordering menu items a la carte. Platters, combos and meals may come with extras you might not want. For example, a group of side items can make a great meal and fruit can make a delicious appetizer.
- Ask about the size of the dish. This could be important information when watching calories.
- You can add vegetables to just about anything (salad, pasta, soup, cheese burgers) if you just ask.
- Watch out for cheese, sour cream, gravies and special sauces.
- Ask for your food not to be prepared with butter, cream sauces or oil.
- When in doubt, opt for brighter colors. Most high-calorie, high-fat menu items are brown, beige, white or pale yellow (other than some desserts, of course).
- Don't feel rushed into making a hasty decision. Just because your server is in a hurry doesn't mean you have to be. At the same time, if you've made a healthy decision, stop looking at the menu immediately.
- Try ordering one course at a time. Order a healthy appetizer, but don't order your soup or salad until you're finished, then eventually your entrée. Sure, you may be starving now, but how will you feel in 20 minutes after the appetizer? Still feel like facing that pile of country fried chicken? Take your time, relax and enjoy.

APPENDIX C

Survey

RATE YOUR DIET QUIZ

The following questions will give you a rough sketch of your typical eating patterns. The quiz focuses on fat, saturated fat, cholesterol, sodium, sugar, fiber, and fruits and vegetables. It doesn't attempt to cover everything you eat, however it does help you identify problem areas (-) and areas you are doing well at (+). Circle the number that corresponds to the answer you choose and write that score (e.g., +1) in the space provided in front of each question. If two or more answers apply, circle each one and then average them to get your score for the question. Be sure to pay attention to serving sizes. For example, a serving of vegetables is ½ cup, so if you usually eat one cup of vegetables at a serving, then count that as two servings.

FRUITS, VEGETABLES, GRAINS, and BEANS

___ 1. How many servings of fruits or 100% fruit juice do you eat per day? (OMIT fruit snacks like fruit roll ups. One serving of fruit = one piece or ½ cup, or 6 oz fruit juice).

- | | | | |
|----|---------------------|----|--------------------|
| -3 | None | +1 | 2 servings |
| -2 | Less than 1 serving | +2 | 3 servings |
| 0 | 1 serving | +3 | 4 or more servings |

___ 2. How many servings of non-fried vegetables do you eat per day? (One serving= ½ cup)

- | | | | |
|----|---------------------|----|--------------------|
| -3 | None | +1 | 2 servings |
| -2 | Less than 1 serving | +2 | 3 servings |
| 0 | 1 serving | +3 | 4 or more servings |

___ 3. How many servings of vitamin rich vegetables do you eat per week (One serving= ½ cup. Only count broccoli, Brussels sprouts, carrots, collards, kale, red pepper, spinach, sweet potato, winter squash).

- | | | | |
|----|-----------------|----|--------------------|
| -3 | None | +2 | 4 to 6 servings |
| +1 | 1 to 3 servings | +3 | 7 or more servings |

___ 4. How many servings of leafy green vegetables do you eat per week? (One serving= ½ cup cooked or 1 cup raw. Only count collards, kale, mustard greens, romaine lettuce, spinach, or Swiss chard).

- | | | | |
|----|---------------------|----|--------------------|
| -3 | None | +2 | 3 to 4 servings |
| -2 | Less than 1 serving | +3 | 5 or more servings |
| +1 | 1 to 2 servings | | |

___ 5. How many times per week does your lunch or dinner contain grains, vegetables or beans, but little or no meat, poultry, fish, eggs, or cheese?

- | | | | |
|----|--------------|----|-----------------|
| -1 | None | +2 | 3 to 4 times |
| +1 | 1 to 2 times | +3 | 5 or more times |

___ 6. How many times per week do you eat beans, split peas, or lentils? (Omit green beans.)

- | | | | |
|----|------------------|----|-----------------|
| -3 | None | +1 | 2 times |
| -1 | Less than 1 time | +2 | 3 times |
| 0 | 1 time | +3 | 4 or more times |

___ 7. How many servings of grains do you eat per day? (One serving= 1 slice bread, 1 oz crackers, 1 large pancake, ½ cup pasta or rice, oatmeal, granola, or bulgur, 1 cup cereal. Omit heavily sweet cold cereals.)

- | | | | |
|----|-----------------|----|--------------------|
| -3 | None | +2 | 5 to 7 servings |
| 0 | 1 to 2 servings | +3 | 8 or more servings |
| -1 | 3 to 4 servings | | |

___ 8. What type of bread, rolls, etc. do you eat?

- | | | | |
|----|------------------------------------|----|-------------------------------|
| +3 | 100% Whole wheat | +1 | Rye, Pumpernickel, or oatmeal |
| +2 | Whole wheat flour as 1st/2nd flour | 0 | White, French, or Italian |

___ 9. What kind of breakfast grains do you eat?

- | | | | |
|----|-----------------------------------|----|-----------------------------------|
| +3 | Whole grain (oatmeal, Wheaties) | -1 | Sugary low fiber (Frosted flakes) |
| 0 | Low fiber (cornflakes) or Nothing | -2 | Regular granola |

MEAT, POULTRY, and SEAFOOD

___ 10. How many times per week do you eat high fat red meats (hamburgers, pork chops, ribs, hot dogs, pot roast, sausage, bologna, steaks other than round steak, bacon)?

- | | | | |
|----|------------------|----|-----------------|
| +3 | None | -2 | 2 times |
| +2 | Less than 1 time | -3 | 3 times |
| -1 | 1 time | -4 | 4 or more times |

___ 11. How many times per week do you eat lean red meats (hot dogs or lunch meats with no more than 2 grams of fat per serving, round steak, or pork tenderloin)?

- | | | | |
|----|------------------|----|-----------------|
| +3 | None | -1 | 2 to 3 times |
| +1 | Less than 1 time | -2 | 4 to 5 times |
| 0 | 1 time | -3 | 6 or more times |

___ 12. After cooking, how large is the serving of red meat you eat? (To convert from raw to cooked, reduce by 25%. For example, 4oz raw meat shrinks to 3oz cooked. 16 oz = 1 pound).

- | | | | |
|----|--------------|----|--------------------|
| -3 | 6 oz or more | 0 | 3 oz or less |
| -2 | 4 to 5 oz | +3 | Don't eat red meat |
- ___ 13. If you eat red meat do you trim the visible fat when you cook or eat it?
- | | | | |
|----|-----|--|--|
| +1 | Yes | | |
| -3 | No | | |
- ___ 14. What kind of ground meat or poultry do you eat?
- | | | | |
|----|--------------------------------|----|----------------------------------|
| -4 | Regular ground beef | -1 | Ground turkey |
| -3 | 11 to 25% fat ground beef | +2 | Ground turkey breast |
| -2 | Ground chicken or 10% fat beef | +3 | Don't eat ground meat or poultry |
- ___ 15. What chicken parts do you eat?
- | | | | |
|----|-------------------|----|-------|
| +3 | Breast | -1 | Thigh |
| +1 | Drumstick | -2 | Wing |
| +1 | Don't eat poultry | -3 | Liver |
- ___ 16. If you eat poultry, do you remove the skin before eating?
- | | | | |
|----|-----|--|--|
| +2 | Yes | | |
| -3 | No | | |
- ___ 17. If you eat seafood, how many times per week? (Omit deep fried)
- | | | | |
|----|------------------|----|-----------------|
| 0 | Less than 1 time | +2 | 2 times |
| +1 | 1 time | +3 | 3 or more times |

MIXED FOODS

- ___ 18. What is your most typical breakfast? (Subtract an extra 3 if you eat sausage also).
- | | | | |
|----|---------------------------------|----|---|
| -4 | Biscuit/croissant sandwich | +1 | Egg whites |
| -3 | Croissant, Danish, doughnut | +2 | Toast, bagel (no cream cheese) |
| -3 | Regular eggs | +3 | Whole wheat waffle/toast with light
or no syrup, low fat yogurt or low fat
cottage cheese |
| -1 | Pancakes, French toast, waffles | | |
| 0 | Don't eat breakfast | | |
- ___ 19. What sandwich fillings do you eat?
- | | | | |
|----|--|----|-------------------------------------|
| -3 | Regular lunch meat, egg salad | +1 | Low fat lunch meat or roast beef |
| -2 | Regular tuna/chicken salad, ham
or regular cheese | +3 | Tuna or chicken salad (nonfat mayo) |
| | | +3 | Turkey breast, hummus, veggie |
| 0 | Peanut butter, 2% or nonfat cheese | | |
- ___ 20. What do you order on your pizza?
- | | | | |
|----|------------------------------------|----|--------|
| +3 | No cheese with at least one veggie | -2 | Cheese |
|----|------------------------------------|----|--------|

- | | | | |
|----|---------------------------------|----|--------------------------------|
| +3 | Don't eat pizza | -3 | Extra cheese, one meat topping |
| -1 | Cheese with at least one veggie | -4 | More than one meat topping |
- ___ 21. What do you put on your pasta?
- | | | | |
|----|--------------------------------|----|-------------------------|
| +3 | Tomato sauce or red clam sauce | -2 | Pesto or oily sauce |
| +3 | Veggies | -4 | Alfredo or creamy sauce |
| -1 | Meat sauce or meat balls | | |
- ___ 22. How many times per week do you eat deep fried foods (fish, chicken, French fries, potato chips, etc.)?
- | | | | |
|----|---------|----|-----------------|
| +3 | None | -2 | 3 times |
| 0 | 1 time | -3 | 4 or more times |
| -1 | 2 times | | |
- ___ 23. At a salad bar, what do you choose?
- | | | | |
|----|-------------------------------------|----|---|
| +3 | No dressing, lemon, or vinegar | -2 | Regular dressing |
| +2 | Fat free dressing | -2 | Regular coleslaw, pasta salad, potato salad |
| +1 | Low or reduced calorie dressing | | |
| | or Olive oil -3 Cheese, eggs, bacon | | |
| -1 | Oil and vinegar | | |
- ___ 24. How many servings of low-fat, calcium rich foods do you eat per day? (One serving= 8oz skim milk or nonfat yogurt, 1oz low fat cheese, 1 1/2oz sardines, 3 1/2oz salmon with bones, 1oz tofu, 1 cup collards or kale, or 200 mg calcium supplement or fortified food).
- | | | | |
|----|---------------------|----|--------------------|
| -3 | None | +2 | 2 servings |
| -1 | Less than 1 serving | +3 | 3 or more servings |
| +1 | 1 serving | | |
- ___ 25. How many servings per week do you eat canned or dried soups, or frozen dinners? (Omit lower sodium, low fat ones).
- | | | | |
|----|---------|----|-----------------|
| +3 | None | -2 | 3 to 4 times |
| 0 | 1 time | -3 | 5 or more times |
| -1 | 2 times | | |
- ___ 26. How many times per week do you eat cheese? (Include pizza, cheeseburgers, lasagna, tacos, nachos, etc. Omit foods made with low fat cheese).
- | | | | |
|----|---------|----|-----------------|
| +3 | None | -2 | 3 times |
| +1 | 1 time | -3 | 4 or more times |
| -1 | 2 times | | |
- ___ 27. How many egg yolks do you eat per week? (Add one yolk for every slice of quiche).

+3	None	-1	3 yolks
+1	1 yolk	-2	4 yolks
0	2 yolks	-3	5 or more yolks

FATS and OILS

___ 28. What do you put on your bread, toast, bagel, or English muffin?

-4	Stick butter or cream cheese	0	Jam, fat free cream cheese, or margarine with no trans fats
-3	Stick margarine or whipped butter		
-2	Regular tub margarine	+3	Nothing
-1	Light margarine, light butter		

___ 29. What do you spread on your sandwiches?

-2	Regular mayonnaise	+1	Nonfat mayo, Mustard, Catsup
-1	Light mayonnaise	+2	Nothing

___ 30. What do you make tuna salad, chicken salad, or pasta salad with?

-2	Regular mayonnaise	0	Nonfat mayo
-1	Light mayonnaise	+2	Nothing, canola oil, olive oil

___ 31. What do you use to sauté vegetables or other food?

-3	Butter, lard	0	Margarine with no trans fats
-2	Margarine	+1	Broth or Cooking spray
-1	Vegetable oil or light margarine	+3	Olive, Canola, Peanut Oil

BEVERAGES and DESSERTS

___ 32. What do you drink on a typical day?

+3	Water or club soda	-2	Regular soda, sweet tea (2 or less)
+1	Green tea (un-sweet)	-3	Regular soda, sweet tea (3-4 per day)
0	Caffeine free coffee or tea (un-sweet, black)	-3	Coffee or tea (5 or more a day)
		-4	Regular soda, sweet tea (5 or more)
-1	Diet soda, coffee or tea (up to 4)		

___ 33. What kind of fruit beverage do you drink?

+3	Orange, grapefruit, prune, pineapple blends (100% juice)	0	No juice or cranberry juice
		-3	Fruit “drink, ade, punch”
+1	Apple, grape, pear, cranberry (100% juice)		

- ___ 34. What kind of milk do you drink?
- | | | | |
|----|---------|----|--------------------------------------|
| -3 | Whole | +2 | 1% low fat |
| -1 | 2% milk | +3 | Skim milk, calcium fortified soymilk |
| 0 | No milk | | |
- ___ 35. What do you eat as a snack?
- | | | | |
|----|-----------------------------------|----|----------------------|
| +3 | Fruits and Vegetables | -2 | Cookies, fried chips |
| +2 | Low fat yogurt | -2 | Regular granola bars |
| +1 | Wheat crackers, baked chips, nuts | -3 | Candy bars, pastries |
36. Which of the following “salty” snacks do you eat?
- | | | | |
|----|--|----|--------------------------------|
| -3 | Potato chips, corn chips, popcorn | +2 | Unsalted pretzels, baked chips |
| -2 | Tortilla chips | +2 | Air-popped popcorn |
| -1 | Salted pretzels, light microwave popcorn | +3 | Don’t eat salty snacks |
- ___ 37. What kind of cookies do you eat?
- | | | | |
|----|--|----|-----------------------------------|
| +1 | Fat free cookies, graham crackers or reduced fat cookies, No cookies | -2 | Sandwich cookies (Oreos) |
| -1 | Oatmeal cookies peanut butter, sugar cookies | -3 | Chocolate coated, chocolate chip, |
- ___ 38. What kind of cake or pastry do you eat?
- | | | | |
|----|-----------------------|----|----------------------------------|
| -4 | Cheesecake | 0 | Muffins |
| -3 | Pie or doughnuts | +1 | Angel food, fat-free cake/pastry |
| -2 | Cake with frosting | +3 | Don’t eat cakes, pastries |
| -1 | Cake without frosting | | |
- ___ 39. What kind of frozen desserts you eat? (subtract one point for each of the following toppings: hot fudge, chocolate candy bars, pieces)
- | | | | |
|----|----------------------------------|----|--|
| -4 | Gourmet ice cream | +1 | Nonfat frozen yogurt or fat free ice cream |
| -3 | Regular ice cream | | |
| -1 | Frozen yogurt or light ice cream | +3 | Don’t eat frozen desserts |
| -1 | Sorbet, sherbet, or ices | | |
- ___ 40. How often do you eat desserts?
- | | | | |
|----|---------------------------|----|--------------------|
| -3 | More than 2 times per day | 0 | 1 or less per week |
| -2 | 1 to 2 times per day | +2 | Never eat sweets |
| -1 | 3 to 5 times per week | | |

_____ **TOTAL SCORE**

Add up your score for each question and write it in the total score line above. If your score is:

Less than 29 Don't be discouraged. Eating healthy will come easier than you think, but you do have several areas you need to work on.

30 to 59 Congratulations. You are doing fine. You may have just a couple of areas to improve.

60 or above Excellent! You are a nutrition superstar. Give yourself a pat on the back.

