Obesity in the female African American population; the need for an outreach program

Obesity is described by the American Heart Association (AHA) as a health condition where a person’s weight is significantly above the ideal healthy weight9. It is calculated by using a formula that contains the ratio of weight to height12. A Body Mass Index (BMI) between 25.0 kg/m2 and 29.9 kg/m2 is considered overweight. A BMI over 30.0 kg/m2 is considered obese. The statistics show that 78 million American adults (1/3 of the American adult population) and 13 million children (16.9% of children between 2-19 years old) are obese while nearly 70% of Americans and one in three (31.8%) U.S. children (23.9 million) ages 2 to 19 are overweight or obese9. This is a national health epidemic that affects all of the US population physically and financially. Obesity is not a health condition that occurs in isolation. Obesity places a person at an increased risk for type 2 diabetes, high blood pressure, heart disease and stroke9. Other reports include increased risk for non-insulin-dependent diabetes mellitus (NIDDM), gallbladder disease, cardiovascular disease, hypertension, cancer, asthma and musculoskeletal disorders as part of the negative health consequences related to obesity1,2. The annual cost of treating weight health-related conditions in the United States is $190 billion 10. Those figures are staggering when one considers the number of people (adults and children) who are affected with obesity and the related risk factors, and the spectrum of related diseases along with the economic impact of treating obesity and associated diseases.

The problem of obesity is widespread across generations, ethnic groups and socioeconomic levels. The problem of obesity, however is not evenly distributed amongst the aforementioned groups. The rate of obesity is disproportionately higher in those of low socioeconomic status3, from a minority group especially Latinos and African Americans3,11, and Urban dwellers3. More than 77 percent of Latino and 75 percent of African-American adults are overweight or obese, compared with 67.2 percent of whites11. Looking at a specific population within African Americans, the rates of obesity in African American women are at a staggering rate of 53.9%4 compared to 47.8% of all African Americans11, 42% of Latinos and 32.6% of all Whites11. This population of African American women experience unique challenges and struggles in the weight loss arena that are many faceted and complex5. Generally speaking, the challenges that contribute to their obesity are a combination of psycho-social, metabolic2, cultural, economic, and social factors. Because of these challenges and barriers, weight loss efforts in African American women is more difficult and many times, ineffective. Losing weight is a goal for many in this community of women and they understand the importance of weight loss. In fact, obese African American women attempt to lose weight many times more than their normal weight counterparts but end up re-gaining the lost weight6. The key, then to successful and permanent weight loss is to have a program that addresses the barriers and challenges in this unique group.

A successful weight loss program is multidimensional and addresses more than one aspect of weight loss. This program is designed to address the barriers associated with changing healthy behaviors in a group with historically poor healthy habits and at risk for increased chronic diseases13. It will impact intrapersonal barriers such as taste preferences, habits, and knowledge deficits along with interpersonal barriers including cultural and social traditions. In addition, this program will facilitate easier access to increased physical activity by influencing the availability of community level gyms and exercise facilities. The goal, then of this program is to address knowledge deficits and myths with evidence based information on obesity reduction. Also, the participants will be introduced to evidenced based lifestyle modifications that will promote weight loss, improve dietary habits and increase physical activity.

It is well known that the components of effective weight loss program includes physical activity, diet and nutrition and education6,7. Even though physical activity is well known to reduce weight, decrease levels of hypertension and diabetes, African American communities do not provide for increased levels of physical activity. The level of physical activity in the African American population is less than the population of whites7. This reduced level of physical activity means that African Americans are unable to benefit from lower levels of cholesterol, triglycerides, blood pressure and blood glucose7. Adoption of a plan to increase the physical activity of African American women would be beneficial in promoting a healthier lifestyle with reduced weight, lower incidence of type 2 diabetes and overall improvement in cardiovascular fitness. Those benefits alone perhaps could translate into increased energy, reduced stress, and increased productivity during the day to complete the necessary jobs and functions of the day.

Tackling the dietary and nutrition barriers associated with obese African American requires a comprehensive approach because of the complexities associated with weight loss in this community. Weight loss strategies that African American women current employ are varied and ineffective. One study reported that 70% of African American women tried to lose weight in the past 12 months and included unhealthy methods such as skipping meals, fasting and using diet pills6. Perhaps use of unorthodox and unhealthy diet strategies is an explanation for why many obese African American women initially lose weight, then regain it. Losing weight, then, more importantly, maintaining the weight loss is key to achieving a healthy lifestyle.

Education is critical in combatting the obesity epidemic in the United States. With education, African American women can counter the many myths, social pressures and cultural tendencies associated with weight loss. Educational programs such as this one can address healthy menu choices, attitudes regarding body image, dealing with stress, and identifying a healthy level of physical activity. Behavior change is more effective in the context of community and if it addresses the cultural factors that impede healthy change14. This community will be relatively homogeneous in that they are all women, all African American and all work in the same college setting as educators.

This plan proposes to address weight loss in an at-risk population of middle to older African American professional women who work as instructors at Bennett College, in Greensboro, NC. Greensboro is a city with a total population of 277,08015 and according to the latest US Census statistics in 2010, Black or African Americans compose 40.6% of the population15. Bennett College is a small, private historically Black college for women and it has 102 full-time female, African American faculty and staff16; of those, 35 are full time faculty. The demographics of these women: their race, their educational level, their location make them a part of an ideal population to introduce healthy behavior changes because they are part of an at-risk population for obesity and the accompanying deleterious effects such as heart disease, diabetes and stroke.

Background

It has been established that obesity in the United States is a growing national concern among elderly women in general and in elderly African American women in particular1,10. There is discussion, however about the most effective way to manage obesity in elderly females1. This plan proposes to address weight loss in an at-risk population of middle to older African American professional women. The proposal includes culturally sensitive and relevant solutions to weight gain and obesity. The three- pronged approach involves education, nutrition and exercise. African American women will benefit from the proposed educational portion where they can learn about weight loss in the context of nutrition and healthy food choices. The educational component will allow for needed discussion of health risks as they relate specifically to African American women. According to the health belief model43, there are certain constructs that need to be addressed in order for people to make positive changes in healthy behavior. This program will allow at-risk women to explore, discover and discuss what prevents them from achieving a healthier lifestyle. The discussion will occur within a homogeneous social support of other professional African American women and therefore, may foster a positive attitude to change. African American women historically, have an intellectual understanding of obesity but lack sufficient knowledge for counteracting the health beliefs that pervade the culture17. To understand the culturally- related health beliefs about obesity in this culture, several focus groups were studied. The following are a few of the health belief constructs that were identified through those focus groups. Perceived susceptibility-“Obesity….when you are 300 pounds or even 600 pounds”; perceived benefits- “I’m tired of having to worry about a whole new wardrobe. I want to wear the cute stuff. I want to be around to enjoy my kids and learn new things with them”; perceived barriers-“No time for exercise” and self-efficacy-“no credible information and need for a diet buddy”17. These health belief constructs can be addressed with the educational component of this program and its success depends upon incorporating the constructs from this focus group to those of similar background such as the professors at Bennett College.

In addition to education about diet and exercise, this program will introduce its participants to adopt a nutrition program based upon the program Dietary Approaches to Stop Hypertension (DASH). This diet was originally designed to control hypertension, but has been identified as an aide to effective weight loss alone18, or in combination with exercise19. DASH diets focus on protein, healthy fruits and vegetables and healthy portion sizes. The food content and approach to healthful food choices fits into both the Dietary Guidelines for Americans (DGA) and the Academy of Nutrition and Dietetics20. In addition, DASH is compatible with the nutrition goals in the US government’s Healthy People 2020 20. Eligible obese, hypertensive adults were enrolled in a study to investigate the effectiveness of the DASH diet and exercise for a 6 month trial period. After 6 months of a reduced calorie intake, increased physical activity and implementation of the DASH diet, the participants lost an average of 6kg (13 lbs 3.6oz). Of particular interest is that African American men and women each lost an average of 4 kg (8 lbs 13 oz)19. That is an astonishing result considering that only 2 kg of weight loss corresponds to approximately 20% reduction in the relative risk of hypertension19 and could be predicted to decrease systolic blood pressure by 5.8 to 13.9 mmHg, the equivalent effect of eliminating one anti-hypertensive medication 19. The behavior change towards healthier food choices in the African American participants represents a meaningful shift at the interpersonal level from traditionally calorie-laden foods. Additionally, the DASH diet has accompanying recipes/menu choices for healthy food consumption at home where all family members can be positively affected. This program additionally, would encourage Bennett College, at the organizational level, to provide healthy food choices in the college dining room/cafeteria. Having access to fresh fruits and vegetables at work in addition to the dietary instructions may improve health behavior by eliminating the barrier of poor access to fresh foods13.

One key to obesity reduction is the increase in physical activity7,23. The problem is that only 22% of Americans are active22. The participants in this program will have the opportunity to exercise through one of three ways: resistance training, aerobic exercises or increased activity. There was some discussion about whether or not resisted exercise would be detrimental to elderly females1. One study investigated the implementation of a life-style based weight loss plus exercise group with elderly African American females where the participants were either enrolled in an educational class unrelated to health, or placed on a calorie restricted diet and performed a combination of resisted and aerobic exercises all in an attempt to create meaningful weight loss1. The results of the study were that elderly African American women in the exercise plus diet lost about 6% of their body weight and improved their level of physical function in 6 months without any musculoskeletal injuries as a result. Those two steps of weight loss and increased level of activity are a critical and significant part of the healthy response to the nations’ obesity epidemic among African American women.

In his study with 40 obese women, Dr. Anderson23 compared two methods of physical activity for weight loss: structured aerobic exercise or moderate lifestyle activity in addition. Those in the aerobic group attended a step class 3 times per week while those in the activity modification group were advised to increase their physical activity by 30 minutes per day in addition to incorporating short bouts of activity into their day. The results indicated that after 16 weeks the participants lost 7.9 kg and 8.3 kg in the lifestyle and the aerobic groups respectively (average of 17 lbs.). Both groups achieved a significant weight loss, but there was essentially no difference between the two groups. In light of this finding, the participants at Bennett College will be able to choose the physical activity that fits their lifestyle best and increase efficacy with effective weight loss. The faculty members can enjoy the fitness/weight room at Bennett College or incorporate increased activity into their lives. Intrapersonal and environmental barriers such as time limitations and poor access to gyms and fitness centers affect many African Americans. This optional exercise/activity setting will eliminate those barriers for the women at Bennett College who would make a health behavior change by choosing to increase physical activity13,17 by adding 30 minutes of activity 5 days per week.

In Anton’s study1 the participants were obese, elderly females whose exercise program consisted of aerobic exercise, strengthening and flexibility exercises. After 24 weeks the African American participants achieved weight loss, increase in physical activity, improved gait speed, strength and balance. The proposed study has the potential for achieving similar results if the faculty at Bennett College choose to use the strengthening exercise portion of the program. In a unique attempt to address the importance of social support and cultural roots, this program will offer dance as way to meet aerobic standards of 150 minutes of activity per week. In a study that compared dance as physical activity with educational information, African American women who used dance as their aerobic activity improved in the following measures24: body fat decreased from 41.6% to 40.2%; BMI decreased from 31.7% to 30.8%. The participants achieved these outcomes at 8 weeks and maintained them for an 18-week follow up check. Using dance as a means of reducing obesity in the African American population can be an effective social and appropriate (and fun) cultural approach for the faculty at Bennett College.

In order to reinforce compliance and to provide added support and education, this program will utilize online technology. It was discovered in 2007 that social networks play an important role in obesity24. They discovered that the likelihood of an individual becoming obese was influenced by whether or not the individuals’ closest associations became obese24. Effective use of technology to measure physical activity and weight loss was evaluated for a 6 month trial24. The participants used an online social network (OSN) iWell and also were issued an accelerometer and a wireless weight scale. In addition to uploading their physical activity levels and weight, the participants could connect to their friends and post messages of encouragement, set personal goals, compete with one another in their goals as well as receive motivational messages. In 6 months the participants increased their leisure walking activity by 164%, increased walking distance from 6.5 to 17.1 miles and lost a mean weight of 5.2 pounds. In comparison, the control group increased activity by 47%, increased walking distance from 7.1 to 10.4 miles and lost a mean weight of 1.6 pounds. The improvements in the health behaviors were related to the number of messages received on the iWell OSN. The greater the number of messages, the greater the positive change in health status. Use of online support groups is in its infancy, but the results of this study are encouraging. If online use is positively related to improved health behaviors and outcomes, then the faculty at Bennett College can explore use of a university-based online social network, or set up a Twitter or a Facebook account limited to its participants’ group.

Research supports the use of culturally sensitive education; nutrition and healthy eating and increased physical activity in the form of aerobic, resisted and flexibility exercises for promoting weight loss in obese African American females. The proposed program will utilize all three approaches to address intrapersonal, interpersonal and organizational factors with the faculty at Bennett staff in order to promote healthy lifestyle modification. Use of online technology can serve as an effective means of added education, accountability, encouragement and motivation.

Physical therapists are movement specialists and have the necessary knowledge, training and education to provide safe and effective guidance and intervention to the faculty at Bennett College as they embark on an obesity reduction program26. They have access to the latest research and evidenced-based approaches to a weight-reduction program and lifestyle modification. In addition, the American Physical Therapy Association (APTA) Guide to Practice Act27 recognizes the skills of a physical therapist in a consultative manner. In this program, a physical therapist would consult with a dietary professional regarding the nutrition requirements of the participants.

Objectives

Two-thirds of participants will:

* Lose 10% of body weight
* Lose 1.5% BMI
* Improve 6 min walking time by 50 m by 6 months31
* Increase Short Physical Performance Battery score by 7%38

Methods

All 35 faculty members are responsible for gaining clearance from their medical practitioners to enroll in the program. Once cleared for activity, the full time faculty will be surveyed using the Readiness for Activity Questionnaire (Sample 1) to determine their ability to participate in mild to moderate physical activity32. Participants will commit to a 6 month program that will include weekly meetings, dietary changes, and physical activity modifications. All activities will be held on the campus of Bennett College. Progress towards goals will be measured once a month.

There will be a 90 minute introductory educational session for the participants facilitated by the physical therapist to acquaint them with the program’s purpose, methods and goals. Educational materials will depict African American Women at work, at play and in the neighborhood. Printed messages will convey realistic lifestyle barriers to increasing physical activity along with messages highlighting the benefits of reducing obesity and other risk factors.

1. Initial educational session will discuss:
   1. Healthy People 2020
   2. Risk factors for heart disease33. 
      * 1. High blood pressure
        2. High blood cholesterol
        3. Diabetes and pre-diabetes
        4. Smoking
        5. Being overweight or obese
        6. Being physically inactive
        7. Having a family history of early heart disease
        8. Having a history of preeclampsia during pregnancy
        9. Unhealthy diet
        10. Age (55 or older for women)
   3. Strategies for reducing obesity/promoting health
   4. Personal barriers and facilitators for achieving healthy behavior changes
   5. Program goals
   6. Program purpose
   7. Participants’ anthropometrics (measured at semi-private stations)
      1. Height
      2. Weight
      3. BMI
      4. 6 minute walk test (6MWT)
      5. Short Physical Performance Battery (SPPB)
   8. Vital signs (BP, HR, RR) (measured at semi-private stations)
   9. DASH diet and website
   10. Participants’ personal goals for the program
   11. How to join DASH online support group
   12. Use of a diary in which to record their eating practices (Chart 1), reflections and reactions to the program, in addition to daily activity levels34.
   13. How to fill out the pre-test questionnaire40.
2. Following the initial session, the groups will then meet for one hour a week. A counselor will facilitate a discussion on a different topic each week. Topics include: nutrition and dietary changes, body image, strategies for increasing efficacy for physical activity in addition to personal successes and challenges with the program. Participants will also receive weekly tip sheets via email to highlight an educational, nutrition or exercise fact.
3. During the nutrition discussion, the participants will:
   1. Follow the DASH diet (direct participants to the section for African Americans35)
   2. Learn how to prepare healthy recipes at home
   3. Understand how to make healthy menu choices when dining out
   4. Learn how to count calories
   5. Learn how to read food nutrition labels
   6. Participants will utilize the online DASH tool as needed for diet adherence and to promote support during the transition to adopting a healthy diet.
4. Activity portion for the participants begins after week 1.
   1. Introduction to Borg’s Rate of Perceived Exertion (RPE). Participants will be instructed by the dance instructor and the physical therapist to keep RPE between 5-6 during activity. Each participant will be furnished with one card for self-monitoring of their activity levels. (See chart 2)
   2. Participants will choose one method of increasing their activity level.
      1. 150 minutes of aerobic activity per week from a variety of methods including: step aerobics, African dance, salsa, or Zumba classes, walking or running three times per week. Culturally pleasing, appealing, relevant, motivating and meaningful music will be played during the classes. Dance classes will be taught by Bennett College performing art students as extra-credit. Dance participants will meet in the fitness room on campus at one of 3 times: morning, afternoon and evening. (See chart 3)
      2. Resistance exercises will be performed 3 times per week and will be taught by a physical therapist. The circuit of exercises can be performed in the fitness room on campus to target the large muscle groups. Exercises consist of squats, bench press, latissimus pull-down, chest fly, shoulder press, leg extension and curl, leg press, arm curls and extensions, sit-ups and back extensions. They perform the exercises with a resistance that allows them to do 10 repetitions but not 14. During Weeks 3-14, an extra set of each of the exercises can be added to the routine. Resistance will be increased whenever participants are able to perform > 14 repetitions for two consecutive sets36. Faculty members may attend all three resisted exercise sessions offered by the physical therapist or if they were familiar with the machines, they could work out on their own. (See chart 4)
   3. The third choice involves increasing physical activity during the day. Participants will be instructed by the physical therapist how to increase activity levels by 30 minutes each day 5 days /week. Participants who choose this option of exercise will keep a log of their extra activities in their diary. (See chart 5).
   4. Weight, BMI, vital signs, 6 minute walk test and SPPB will be measured each month. A final measurement will be taken at the conclusion of 6 months.
   5. Once a month participants will discuss their progress towards their goals, review exercise charts, their activity logs and their meal trackers. A final review will be performed at the end of the program.

This free outreach program has a three-pronged approach to obesity reduction for 35 African American women. It will use education, nutrition counselling and increased activity as tools to address cultural barriers and to identify effective facilitators to accomplish its goal. It targets a small community of at-risk African American women who work at Bennett College in Greensboro, NC, a city of 40.6% African Americans by using evidence based practices. The goal is to promote healthy behavior change in the faculty using community support from fellow instructors in an environment that is familiar and convenient. The program includes elements such as education, an online support group, nutrition counseling, physical activity choices, group discussions and individual diaries that all assist in guiding the women towards healthy lifestyle behaviors including reduced obesity. The printed materials, the instructors and the music are culturally tailored to heighten identification with and participation from the faculty. The specific goal is obesity reduction, but overall, the goal is to promote permanent change in the health habits of this small community of African American women.

Program Evaluation

Obesity is a health epidemic that affects 33% of the American population. In the African American population, 75% of adults are described as obese while the approximately 54% of African American women are obese. This program targets a small population of African American Women in Greensboro, NC. Professional women will be enrolled and instructed to adopt a healthy lifestyle with education, nutrition changes and physical activity modification over a six month period. The program administrators may clearly understand the program purpose and goals, however, if the participants do not appreciate the program’s value or its’ benefits, the program will have limited significance and it may result in little or no behavior change40. This program intentionally targets African American women in order to address potential social, environmental and physical barriers41 that are unique to them. Included in the program design is an accommodation for the participants with regard to their time, ethnicity and convenience. The physical activity classes were held at three different time periods, were culturally, pleasing, conducted right on campus and taught by an African American student. The aerobic activities were designed to appeal to the varied tastes of African American women with the incorporation of non-traditional type of dance and classes. Group support and instruction was provided to the women with weekly discussion sessions intended to reinforce healthy behavior teaching and to offer social support; both of which are important to making healthy behavior changes. Despite the evidence-based program design, the efficacy of the program remains unknown. Therefore, the program effectiveness will be evaluated with a comparison of outcome measures, a pre/post program questionnaire (Chart 6) along with an exit questionnaire (Chart 7). The results of the program will be assessed at the completion of the program by comparing outcome measures of height, weight, BMI, 6MWT and SPPB taken at the beginning of the program with the final outcome measures. It is hoped that two-thirds of the participants achieve their weight, BMI, 6MWT and SPPB goals. A post program questionnaire and an exit questionnaire will be given to participants to assess their satisfaction with and the effectiveness of the program. If two-thirds participants accomplish their individualized program goals39, the program will also be considered successful. Added program success will be achieved if the participants reach the following goals by 6 months based on patient report: increased participation in physical activity by 10%39, increased choices while healthy dining out by 20%39, increased healthy foods preparation at home by 10%39 and if the majority of program participants plan to follow a healthy lifestyle after completing the program.

If the program goals are not met or are partially met, it may be due to the following limitations. Literature recommends that weight loss is best achieved with a combination of aerobic exercise and resisted exercise1. In this program, the participants were able to choose between resisted exercise, increasing physical activity and aerobic exercise as their means of increasing physical activity. That portion of the program was tailored to one form of exercise in order to make it feasible for participants to meet the time commitments of the program. Future programs may need to adjust the exercise combinations if the goals are not met by having participants self-select their method of activity.

Another limitation of the program may be due to a cultural phenomenon called “self-preservation bias”42. Women who demonstrate self-preservation bias can objectively classify images of females as either overweight or obese, but do not see themselves that way even though they fit the medical definition of being overweight or obese. If the women in the program do not see themselves as overweight or obese they may exhibit decreased motivation to reduce their body size. To overcome this limitation, and to counteract cultural perception13, an initial discussion on body image may help frame the focus around what healthy weight loss means.

Finally, a third limitation may be the feasibility of having the participants eat properly. It is known that those in lower socio-economic status face multiple barriers to healthy eating13. Barriers may include high cost of healthy food and availability of healthy food. There was no provision in this program to help participants find easy access to healthy food sources. The weekly discussions and tip sheets may address those barriers, but future programs may need to investigate means of accessing healthy food sources.

This program has potential to positively affect the health of African American women at Bennett College in Greensboro, NC. If the program meets its goals of improved healthy behavior through increased physical activity, education and dietary modifications, the affect has potential to create a ripple effect on the individual participants’ health and perhaps on the health of other African Americans in Greensboro, NC.

(Appendix is attached)

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Appendix

**Sample 1. PAR-Q32**

**Physical Activity Readiness Questionnaire**

Being more active is very safe for most people, and for most should not pose any problem or hazard. However, some people should check with their doctor before they start becoming much more physically active. The following list of questions should be completed by anyone who is looking to start an exercise program, to increase their current activity level, or partake in a fitness testing assessment. The questionnaire helps to determine how safe it is for you. The questionnaire is suitable for those aged between 15 and 69. If you are over 69 years of age, and you are not used to being very active, check with your doctor. Common sense is your best guide in answering these questions. Read the questions carefully and answer each one honestly.

|  |  |  |
| --- | --- | --- |
| **Yes** | **No** |  |
| |  | | --- | |  | | |  | | --- | |  | | Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor? |
| |  | | --- | |  | | |  | | --- | |  | | Do you feel pain in your chest when you do physical activity? |
| |  | | --- | |  | | |  | | --- | |  | | In the past month, have you had chest pain when you were not doing physical activity? |
| |  | | --- | |  | | |  | | --- | |  | | Do you lose your balance because of dizziness or do you ever lose consciousness? |
| |  | | --- | |  | | |  | | --- | |  | | Do you have a bone or joint problem that could be made worse by a change in your physical activity? |
| |  | | --- | |  | | |  | | --- | |  | | Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition? |
| |  | | --- | |  | | |  | | --- | |  | | Do you know of any other reason why you should not do physical activity? |

**If you answered YES** If you answered "yes" to one or more questions, talk with your doctor before you start becoming much more active or before you have a fitness test. Tell you doctor about the PAR-Q and which questions you answered "yes".

**If you answered NO** If you answered "no" honestly to all of the questions, you can be reasonably sure that you can start becoming much more physically active or take part in a physical fitness appraisal – begin slowly and build up gradually. This is the safest and easiest way to go.

**Things Change** Even if you answered "no" to all questions, you should delay becoming more active if you are temporarily ill with a cold or a fever, or if you are or may be pregnant. If your health changes so that you then answer "yes" to any of the above questions, tell your fitness or health professional and ask whether you should change your physical activity plan

**Chart 1. Meal Tracker. Indicate the number of healthy meals and number of healthy snacks per day (sample)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** | **Saturday** |
| 1 meal  2 snacks |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Chart 2. Borg Rating of Perceived Exertion Scale**



**Chart 3. Aerobic Exercise Log. Indicate method and minutes of aerobic activity. Choose only one: step aerobics, run, walk or dance) (Sample)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** | **Saturday** | **Total minutes (150)** |
|  | Dance 50 |  | Dance 50 |  | Dance 50 |  | 150 |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

**Chart 4. Exercise Log**

|  |  |  |  |
| --- | --- | --- | --- |
| **Exercises** | **Week 1-2 (10 reps)** | **Weeks 3-14( 2x10 reps)** | **Weeks 15-24 (3x10 reps)** |
| Squat |  |  |  |
| Bench Press |  |  |  |
| Lat pull down |  |  |  |
| Chest fly |  |  |  |
| Shoulder Press |  |  |  |
| Leg extension |  |  |  |
| Leg Curl |  |  |  |
| Arm Curl |  |  |  |
| Arm extension |  |  |  |
| Sit-ups |  |  |  |
| Back extensions |  |  |  |

The circuit of exercises can be performed in the fitness room on campus to target the large muscle groups. Exercises consist of squats, bench press, latissimus pull-down, chest fly, shoulder press, leg extension and curl, leg press, arm curls and extensions, sit-ups and back extensions. They perform the exercises with a resistance that allows them to do 10 repetitions but not 14. During Weeks 3-14, an extra set of each of the exercises can be added to the routine. Resistance will be increased whenever participants are able to perform > 14 repetitions for two consecutive sets36.

**Chart 5. Activity Diary. Minutes of Extra Activity (Sample)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** | **Saturday** |
| 15 minutes |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Chart 6. Pre/post program questionnaire**

1. How many minutes per week do you exercise?
2. How many times per week do you exercise?
3. How many vegetables per day do you eat?
4. How many cups (8 oz) of water do you drink per day?
5. What percentage of the time do you choose healthy meals when you dine out?
6. What percentage of the time do you prepare healthy meals at home?

**Chart 7. Post Program Questionnaire**

**Overall how satisfied were you with the program?**

Check one:

○ Completely satisfied

○ Mostly satisfied

○ Equally satisfied and dissatisfied

○ Mostly dissatisfied

○ Completely dissatisfied

○ Unsure

**How much do you agree or disagree with the following statements:**

Please circle one of the choices below.

(SA).....Strongly agree

(A).......Agree

(N).......Neither agree nor disagree

(D).......Disagree

(SD).....Strongly Disagree

1. The introductory class helped me understand the purpose of the program
2. I can name 5 of 10 risk factors for heart disease
3. I accomplished the goals that I established at the beginning of the program
4. The DASH diet was important in my weight management program
5. The exercise portion of the program helped me towards my goals
6. The weekly discussion sessions were beneficial to me
7. The online support group was useful for me
8. Now that I have completed the program, I will continue to follow a healthy lifestyle
9. If another program like this was offered, I would enroll

What did you like the most about the program?

What did you like the least about the program?