Chapter III

Methods

Participants

Participants will be randomly selected from the local YMCA to participate in this investigation. The participants will consist of 30 healthy males and females between the ages of 40-50 years of age. These participants will have expressed an interest in weight loss programs on his/her fitness profile during the enrollment interview. Health status of these participants will be judged by the absence of known disease and no more than one risk factor for cardiovascular disease (Balady et al., 2000). The participants will be asked to fill out a medical history questionnaire to determine current health status.

Instrumentation

Medical History Questionnaire

Current health status will be assessed using a medical history questionnaire provided by the American College of Sports Medicine (2000). This questionnaire is used to identify any known diseases or any risk factors for cardiovascular disease. Past histories including recent illnesses, orthopedic problems, exercise, medications, family, and work histories will also be evaluated. Once the participants complete the questionnaire, they will be stratified according to the American Heart Association (AHA) risk stratification criteria. Participants must be Class A, apparently healthy, in order to continue participation in the investigation.

Treatment

The thirty participants will be randomly assigned to one of three groups. Group one will be the exercise group, group two will be the supplement group, and group three will be the control group.

Exercise

The participants will be instructed to exercise by walking at 75% of his/her maximum heart rate for 30 minutes, five days a week, for six weeks. Participants will be required to wear a Polar Vantage XL Heart Rate Monitor during each exercise bout.

Supplement

The participants in the supplement group will be instructed to take one Metabolite supplement a day with breakfast for six weeks.

Resting Metabolic Rates

Each of the participants will come to the exercise physiology laboratory early in the morning in a rested, fasted state. After ten minutes of quiet sitting, oxygen consumption will be measured for 15 minutes using a MOXUS Modular VO2 System. Resting metabolic rate will be calculated from the resting oxygen consumption value.

Anthropometric Measurements

Body Mass and Height

Body weight will be measured in kilograms, without shoes and socks, to the nearest 0.1 kg. Weight will be taken on an electronic scale (SECA Alpha, Model 770). Height will be measured in centimeters, without shoes and socks, to the nearest 0.1 cm. Height will be taken

using a standiometer. Both height and weight will be measured two times and then averaged to produce a single value.

Skinfolds

Using a Harpendon skinfold caliper, skinfold thickness will be measured to the nearest millimeter at each of the seven standard sites described by the American College of Sports Medicine (2000). Measurements will be taken twice at each site in sequential order and averaged. If necessary, a third measure will be taken at any site where variation is greater than one millimeter (ACSM, 2000). Body density and body fat percentage will be estimated using predication equations adapted by Heyward and Stolarczyk (1996) for use will white males and females between the ages of 20-80.

Procedures

Initially, the 30 participants will visit the exercise physiology laboratory at the Middle Tennessee State University in Murfreesboro. During this visit, the participants will read and sign an informed consent form. After signing the informed consent, the participants will complete the medical history questionnaire. Once the questionnaires are completed, the test administrators will determine the health status of each participant. If the participants are determined to be apparently healthy according to AHA (2000), the anthropometric assessments will be obtained. Following completion of the physical assessments, each participant will receive necessary guidelines concerning alcohol, caffeine, medication, or any physical activity the day of the investigation.

During the first week of the investigation, each participant will arrive at the exercise physiology laboratory in a rested and fasted state. Resting metabolic rates will be measured for 15 minutes while the participants rest comfortably. At the end of the first week, the participants

will then be randomly assigned to one of three groups. Group one will be the exercise group, group two will be the supplement group, and group three will be the control group. Group one will be instructed to exercise by walking at 75% of his/her maximum heart rate for 30 minutes, five days a week for six weeks. During this visit, group one will also be fitted for heart rate monitors and instructed on how to use them. Group two will be instructed to take one Metabolite supplement a day with breakfast for six weeks. Group three, the control group, will do nothing. At the end of six weeks, the participants will come back to the exercise physiology laboratory to evaluate resting metabolic rates. The study design is a pretest posttest randomized group design.

Data Analysis

Statistical significance will be evaluated with a three-way analysis of variance (ANOVA) with repeated measures to determine differences in resting metabolic rates among the three groups.

Research Methods

Dr. Jennifer Caputo

Methods Section

What are the effects of dietary weight loss supplements versus the effects of exercise on metabolism in middle-aged adults?