Purpose: The purpose of this study was to evaluate body composition and blood pressure (BP) responses to a 16-week dose of brisk walking in sedentary and obese African American (AA) and White women.

Methods: Seventy-five sedentary women (45 AA and 30 White) between the ages of 18 and 50 years and body fat ≥27% signed institutional approved informed consent forms and volunteered to participate in this study. The participants were divided into four groups (AA exercisers [AAE], AA control [AAC], White exercisers [WE], White controls [WC]). The exercisers walked three miles a day, three days a week, Body composition and BP were measured before and after the training intervention. Food records were collected before, during, and after the intervention.

Results: Following training, only the WE experienced a reduction in body weight and body fat (P<.05). However, the energy intake of the AAE increased 4.7% during and 16% at the conclusion of the intervention and contributed to them neither losing nor gaining weight or fat. Both exercise groups experienced reductions (P<.05) in systolic (AAE 5.7 mm Hg, WE 11.3 mm Hg) and diastolic BPs (AAE 3.0 mm Hg, WE 3.6 mm Hg) following training, but the reductions for the WE were greater (P<.05) than for the AAE. There were no changes in body composition or BP for either AAC or WC.

Conclusions: These results indicate that a 16-week walking intervention provides body composition and BP benefits for both AA and White women, but the benefits are greater for White women. (Ethn Dis. 2006;16:675–681)

Key Words: Active Lifestyle, Dose-Response, Energy Expenditure, Weight Management

INTRODUCTION

Obesity and hypertension are public health problems in the United States, particularly among African American (AA) women, ≈50% of whom are obese. Obesity, an excess deposit of stored adipose tissue, has been increasing in recent decades. Body fat deposits are the results of people consuming more energy than they use, which can be caused by a number of factors, including low resting energy expenditure, consuming a large number of calories, or a lack of physical activity. Resting energy expenditure (REE) strongly influences obesity when caloric consumption during most hours of the day is at or near the REE and results in an individual’s use of minimal energy. Since physical activity helps to increase the metabolic rates of lean body tissues, obese individuals would greatly benefit from physical activity.

Race and perhaps culture may also significantly influence REE. Several studies have documented a difference in REE by race, particularly in AA women who have lower metabolic rates than White women. Obese AA women typically do not consume more calories than White women but have lower relative REE and burn fewer calories during the day as they participate minimally in leisure physical activity. The lower REE in AA women is thought to be related to a lower aerobic fitness and bone weight, and not just total body weight.

An estimated 43 million to 58.5 million or more Americans are hypertensive, and AAs have the highest prevalence (32%). Hypertension, defined as systolic blood pressure (SBP) ≥140 mm Hg or diastolic blood pressure (DBP) ≥90 mm Hg, is a metabolic syndrome disease and a co-morbidity with a number of other diseases. It places individuals at increased risk of cardiovascular disease, and this risk is especially relevant for AA adults. Efforts to educate about hypertension do not appear to be producing the desired results as the percentage of individuals reporting hypertension increased from 22.1% in 1991 to 24.9% of the population in 1999. More than one billion people throughout the world are hypertensive, and ≈7.1 million people die each year from the disease. The large number of deaths related to hypertension is unfortunate, since hypertension is controllable.

One of the National Institutes of Health’s goals for treating obesity and hypertension is to prevent illness and death related to these diseases by encouraging lifestyle adjustments, such as improving diet and increasing physical activity. Endurance exercise reduces blood pressure by 5–7 mm Hg after an isolated exercise session. Possible mechanisms for the reduction include neurohumoral, vascular, and structural adaptation. Decreases in catecholamines and total peripheral resistance improve insulin sensitivity, and alterations in vasodilators and vasoconstrictors are some of the possible antihypertensive effects of exercise.

A study that evaluated the chronic effects of exercise reported that women who walked 3 km/day experienced an SBP reduction of 6 mm Hg at 12 weeks and a further reduction of 5 mm Hg at 24 weeks. Since the women were predominantly White, we cannot say how AA women may respond to a walking program. Therefore, the purpose of this study was to examine the effects of a 16-week program of brisk walking on body composition and

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