

A Work-Based Walking Program for Older Women

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Abstract. With the aging workforce, the workplace is a unique environment to implement a physical activity (PA) program for older adults. **PURPOSE:** To investigate the impact of a work-based internet-delivered PA program on older female elementary school teachers. **METHODS:** A 25-week PA program was delivered via a secure web site. The site consisted of six elements: education, PA tracking logs and graphs, individualized PA goals, team standings, progression along a US trail, and discussion board. Employees logged onto the site daily, recorded steps and non-walking (i.e. swimming) PA. Non-walking PA was converted to steps and combined with daily steps. Participants wore a pedometer daily and entered steps and other activity on the program website. Body Mass Index (BMI), percent body fat (BF), blood pressure (BP) and resting heart rate (HR) were also collected. **RESULTS:** 22 women [11 intervention (53.7 yrs.) and 11 control (54.1 yrs.)] participated. The average number of steps among intervention participants increased. There was a significant change in both measures of body composition. BMI and BF decreased slightly. There was no difference in BP or HR. **CONCLUSION:** The results of this study indicate a work-based PA program can be a useful tool to improve the activity level and body composition of older women.

1. Introduction

As the entirety of the baby boom generation, a cohort of nearly 78 million, reaches retirement age over the next 25 years, maintaining the health and productivity of aging workers will be at the forefront of employer's goals [1]. Workers over 50 represent substantial benefits and challenges to organizations. In addition to being the fastest growing segment of the population, older Americans are the least physically active of any age group and lead the nation in healthcare expenses [2]. In 2007, the American College of Sports Medicine and the American Heart Association recommended moderate intensity aerobic activity like walking for older adults to promote and maintain health [2]. Benefits of increased amounts of physical activity (PA) include: improved personal fitness, management of an existing disease, and/or reduction in the risk for premature chronic health conditions and mortality related to physical inactivity [2]. PA is therapeutic or preventative for conditions such as chronic obstructive pulmonary disease, stroke, congestive heart failure, diabetes, osteoarthritis, dementia, and pain [2].

Specific health benefits of increased levels of physical activity in older women are numerous and well documented. Benefits include: "reduced risk of coronary heart disease, the leading cause of death for white, black and Hispanic women (USDHHS, 2004), and hypertension, a disease affecting 32.3% of U.S. women (AHA, 2005) [3]." In addition, physical activity may reduce the risk of falls and improve balance and bone density, thus reducing the risk of osteoporosis [4]. Research indicates physically active women also have less risk of breast cancer [2]. Despite clear benefits of physical activity, over 60% of U.S. women are overweight or obese, and only 43% maintain adequate activity levels [3].

Rising health care costs, due in part to increases in obesity, chronic conditions and inactivity, are causing many employers to reevaluate insurance programs and consider implementing wellness programs. Increasing PA through programs in the workplace has been increasingly viewed as a successful means for improving employee health and a cost-effective method of reducing health care expenses.

2. Purpose

The primary aim of this project was to provide individuals with the knowledge, tools and motivation to increase PA levels by implementing a PA program in the workplace. The health benefits to participants, particularly older women, and the overall effectiveness of the program were evaluated by assessing changes in Body Mass Index (BMI), percent body fat (BF), blood pressure (BP) and resting heart rate (HR).

Intervention

The First Step to Active Health at Work (FSAH-W) program was implemented in one randomly selected intervention school, Allen Elementary; Lawrence elementary served as the control school. FSAH-W is the combination of a pedometer program developed and evaluated in a Wichita, KS workplace; and FSAH™

developed in response to the *National Blueprint: Increasing Physical Activities Among Adults Age 50 and Older* calling for an increase in physical activity in older adults. The combined program involves three components: cardiorespiratory, flexibility, and strengthening activities. Employees progressed through the program following instructions outlined on the program web site. Specific exercises, described in written format with accompanying photos, were provided for each step. The web site was supplemented with a pedometer allowing employees to monitor their daily activity and an elastic resistance band allowing employees to easily perform strengthening exercises at work. The 25-week PA program was delivered via a secure web site. The site consisted of six elements: education, PA tracking logs and graphs, individualized PA goals, team standings, progression along a US trail, and discussion board. Employees logged onto the site daily, recorded steps and non-walking (i.e. swimming) PA. Non-walking PA was converted to steps and combined with daily steps.

Screening

To minimize risk, persons for which an increase in walking would be contraindicated were excluded from study. Principal exclusion criteria, as identified by the ACSM and the AHA [5], included the presence of a medical condition(s) (cardiovascular, pulmonary, balance or musculoskeletal disorder) that would preclude safe participation in a program to increase walking behavior. Identification of exclusionary medical conditions were acquired via two standardized self-administered pre-participation physical activity screening questionnaires and one personal inventory paper-based screening.

Assessment

Demographics were obtained through a questionnaire to record and assess age, race/ethnicity, marital status years of education, and household/family income, self-reports of alcohol consumption, smoking status, personal history of disease, and medication use. Body weight was measured using a standard medical scale and height was measured using a stadiometer. Blood pressure was measured using standard procedures with a sphygmomanometer. Body Mass Index (BMI), was used to determine the appropriateness of a participant's body weight in relation to her height. BMI was calculated by dividing body weight in kilograms (kg) by height in meters squared (m²). A full-body DEXA unit (Hologic QDR 4500) was used to determine body fat (BF) percentage. Resting heart rate (HR), the number of beats per minute was also recorded.

All participants (intervention and control) wore a pedometer during all waking hours (taking it off to bathe or swim) for 2 weeks prior to program implementation (baseline). The protocol for pedometer measurement was as follows: worn at the waistline, clipped to a belt or clothing and centered over the dominant foot. Baseline steps at Week 1 and Week 2 were recorded by the principal investigator and researchers. For all subsequent weeks, intervention participants wore their pedometer and recorded their daily step counts and other non-translatory activities (biking, swimming, etc.) on the study's secure web-site.

Results

Descriptive statistics for the baseline and following the 25-week intervention were computed and analyzed. The mean age of participants was 53.7 years. The average number of steps among intervention participants increased 59% ($p < .01$). The average number of steps per day increased from 7555 to 12,050 which is equivalent to over one mile. There was a significant change in both measures of body composition. Average BMI decreased from 27 to 25 ($p < .01$) and average BF decreased 3% ($p < .01$) from 39.5 to 38.2. There was no significant difference in BP or HR.

3. Conclusions and Discussion

The results of this study indicate a work-based PA program can be a useful tool to improve the activity level and body composition of older women. Following a 25-week intervention, older women increased the number of daily steps, and displayed decreases in the ratios of BMI and BF. Although the study is limited by the small sample size, the results suggest even moderate increases in PA can impact body composition and in time, possibly the health of women over 50. Further research is needed for the field of gerontology and also for organizations considering the implementation of wellness programs for employees. These findings are valuable to older women interested in increasing PA to improve their personal fitness or reduce the risk or impact of chronic conditions.

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