The effects of engaging in self-paced gardening on oral glucose tolerance test and metabolic demand on healthy males and females

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Abstract

The purpose of this study was to examine the effects of a self-paced everyday physical activity such as gardening on insulin sensitivity and metabolic rate. Oral glucose tolerance testing (OGTT) was utilized to determine how gardening affects insulin sensitivity when compared to walking or sedentary activity. This study also investigated heart rate and blood pressure responses, as well as rating of perceived exertion (RPE) as indicators of exercise intensity both subjective and subjective respectively. Baseline testing were used to determine body composition of participants via Jackson and Pollack Skinfold testing, as well as fitness using the body mass index (BMI), and with regard to VO2 max using the Rockport Walk Test. To our knowledge, limited studies have investigated the effects of moderate intensity self-paced activity on insulin sensitivity. Exercise has been shown to improve the body’s ability to remove glucose from the bloodstream for storage and use. Although this relationship between exercise and blood glucose levels has been demonstrated, very little research has investigated the contribution of activities of daily living on maintenance of homostatic blood glucose levels.

Introduction

The American College of Sports Medicine endorses physical activity for improving health and well-being; their mantra is “Exercise is Medicine.” Outdoor activities such as gardening and yard work are important means of physical exercise and can be personally rewarding due to the self-satisfaction of improving one’s quality of life. Stewardship of Copeland Creek requires physical human power to clean the watercourse of refuse and artificial materials, to maintain hiking and biking trails, to plant native species and remove invasive non-natives, and to strengthen the water base for native fish.

Generally speaking, gardening seen as more of a leisure time activity, not as form of exercise. Throughout in our class project, we hoped to debunk this common misconception with the hopes of proving that everyday activities can improve heart rate enough that can contribute significant increases in metabolic rate and energy expenditure. The outcome of the class project might be important for the public to know different alternatives to going to the gym in order to maintain a healthy life.

With this research project we hoped to demonstrate that increasing one’s metabolic rate is not solely dependent on the actual activity itself, but also on the length of time of the activity. Often gym sessions or other traditional forms of activity tend to last anywhere from 45 minutes to 1 hour, but every day activities like gardening can be an all day event. So while 45 minutes of gardening is not equivalent to 45 minutes of high intensity training in a gym setting, perhaps 2 hours of gardening may provide the desired results that could be attained through a short gym session.

The purpose of this class project was to examine the effects of self-paced everyday physical activity such as gardening, yard work, or Copeland Creek cleanup on OGTT and HR responses and metabolic rate compared to resting and walking conditions.