The Effect of Standing-Desks on Productivity in Obese Populations
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Hypothesis: The researcher hypothesized that standing desks will have no significant effects on motor skills and a positive effect on cognitive functions.

Abstract

Sedentary behaviors can have negative health effects even if suggested activity recommendations have been met. Many people sit for a majority of the day, especially at work. Several studies have been conducted on the effects of the standing desk on cognitive function and motor skills in a healthy population, but none on the obese population. This study was designed to understand how the use of a standing desk would affect the cognitive function and motor skills of obese subjects. As the obesity epidemic is increasing, many people in the workforce fall into the obesity category. The subjects were asked to stand for 1.5 hours before testing began to mimic the suggested time to use a standing desk during the day. The results were compared to the results when the subjects were sitting. They were then analyzed to see how standing affected cognitive function and motor skills.

Methods

Participants are allowed to communicate to each other before the first 1.5 hours while they either work on a word processor or a computer. Study, Day 1: Participants get in proper position (sit or stand) and are allowed to adjust desk to comfortable height. Study, Day 2: Participants are asked to take the position opposite to what they did on the first day. Informal meeting: Participants are briefed of study purpose, risks and procedure. Assigned to sit or stand on first day, and then given specific dates to attend the study. Preliminary meeting: BMI is measured. Participants are cleared; PAR-Q is submitted. Operational Definitions

Obesity:
- Sedentary individuals with a body mass index (BMI) of 30 - 35 kg/m²
- Two-thirds of Americans are either overweight or obese
- Occurs when the body does not regulate energy intake, energy expenditure and energy storage correctly

Physical Activity:
- Produces a decline in energy expenditure, but also declines resting metabolic rate and the thermic effect of food

Sedentary Behavior:
- Any waking behavior that involves less than 1.5 METS while in a sitting or reclining position

Motor Skills:
- Movements of bone structures
- Was tested by assessing mouse proficiency and typing speed

Cognitive Function:
- Means of acquiring information
- Was tested by assessing the performance on a practice GRE as well as the Stroop Color and Word Test

The largest limitation found in prior research was the amount of time the study was conducted. The present study will analyze if standing for the recommended 2-4 hours (John et al., 2009), has an effect on cognitive function and motor skills. If the hypothesis is supported, this study can be used to formulate a plan to integrate standing-desks into everyday work. By doing so, the risks involved with sitting can be minimized and cognitive function will improve. This research will be beneficial to employers and employees, as health will be increased which will decrease the cost of health insurance.

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References