

Benefits of Step-Counting Device-Based Intervention in Overweight Participants

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Abstract

Obesity and overweight are a major risk factor of hypertension and leads to cardiovascular disease. Increased physical activity has been recommended for the prevention of these diseases. The purpose of the study was to determine the effect of accumulating 10,000 steps per day on physical and mental health conditions. Thirty participants with overweight (defined as body mass index: BMI ≥ 25 kg/m²), both male and female within the age range of 35–59 years were recruited. These participants were recommended to accumulate at least 10,000 steps per day. Measurement of anthropometry, resting blood pressure, blood glucose and the Profile Of Mood States Scales (POMS) questionnaire were taken pre- and post-walking program for 12 weeks.

Daily step counts were recorded using a Yamax SW-200 pedometer. During the walking intervention, individuals who accumulate 10,000 steps per day were observed with significantly lower weight, waist circumference, BMI, body fat percentage, resting systolic blood pressure and blood sugar ($p < 0.05$) as compared to what it was prior to the study program. Further, the benefits of accumulating 10,000 steps a day were noted in mental health conditions: decreased tension, depression, anger, confusion, fatigue. In conclusion, accumulating at least 10,000 steps per day resulted in improved anthropometry (BMI, % body fat, waist circumference).

In addition, a reduction in resting systolic blood pressure, blood glucose and decreased mental health problems in overweight participants was observed. This shows that increase in physical activity by accumulating at least 10,000 steps per day can reduce the risk of cardiovascular disease and psychological health problems in overweight adults.

Introduction

Measurement of physical activity is important, given the vital role of this behavior in physical and mental health. Over the past quarter of a century, the use of small, non-invasive, wearable monitors to assess physical activity has become commonplace. This review is divided into three sections. In the first section, a brief history of physical activity monitoring is provided, along with a discussion of the strengths and weaknesses of different devices. In the second section, recent applications of physical activity

monitoring in physical activity and public health research are discussed. Wearable monitors are being used to conduct surveillance, and to determine the extent and

distribution of physical activity and sedentary behaviors in populations around the world. They have been used to help clarify the dose–response relation between physical activity and health. Wearable monitors that provide feedback to users have also been used in longitudinal interventions to motivate research participants and to assess their compliance with program goals. In the third section, future directions for research in physical activity monitoring are discussed. It is likely that new developments in wearable monitors will lead to greater accuracy and improved ease-of-use.

Method

Thirty participants with overweight (defined as body mass index: BMI ≥ 25 kg/m²), both male and female within the age range of 35–59 years were recruited. These participants were recommended to accumulate at least 10,000 steps per day. Measurement of anthropometry, resting blood pressure, blood glucose and the Profile Of Mood States Scales (POMS) questionnaire were taken pre- and post-walking program for 12 weeks. Daily step counts were recorded using a Yamax SW-200 pedometer. During the walking intervention, individuals who accumulate 10,000 steps per day were observed with significantly lower weight, waist circumference, BMI, body fat percentage, resting systolic blood pressure and blood sugar ($p < 0.05$) as compared to what it was prior to the study program. Further, the benefits of accumulating 10,000 steps a day were noted in mental health conditions: decreased tension, depression, anger, confusion, fatigue. In conclusion, accumulating at least 10,000 steps per day resulted in improved anthropometry (BMI, % body fat, waist circumference).

Conclusion

In reduction resting systolic blood pressure, blood glucose and decreased mental health problems in overweight participants was observed. This shows that increase in physical activity by accumulating at least 10,000 steps per day can reduce the risk of cardiovascular disease and psychological health problems in overweight adults.

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