

MAYO CLINIC PROCEEDINGS

Walking Throughout Your Day Keeps Depression (and a Host of Other Health Problems) Away



In this issue of *Mayo Clinic Proceedings*, Edwards and Loprinzi¹ report on a prospective, randomized trial that examined the effects of a forced period of sedentary behavior on depression and mood status in young adults. Although the duration of the induced sedentary behavior in the experimental group was only 1 week, significant deleterious effects were found on both depression and mood, and these effects were reversed with the reinstatement of physical activity. This study indicates that even a short period of sedentary activity can have negative psychological effects.

The physical health benefits of exercise are well known and well documented, but the psychosocial benefits of activity may not be as apparent. Holistic wellness includes both physical and psychological factors, and exercise has been found to provide many psychosocial benefits as well as physical benefits. Aerobic exercise reduces anxiety and improves mood and fatigue.^{2,3} One randomized controlled study discovered that exercise over a period of 10 days was nearly as effective as antidepressants for treatment of depression.⁴ Exercise has also been reported to elevate productivity and decrease work and school absences.⁵ Additional research has determined that exercise has a positive effect as a treatment for anxiety and depression,⁶ and exercise can help to improve social relationships.⁷ Exercise also influences cognitive functioning, and a population-based study discovered that physical activity and computer use were associated with a decreased risk of mild cognitive impairment.⁸ A meta-analysis determined that physical activity may

slow cognitive decline, mainly through modification of cerebrovascular risk, and also determined that exercise provides a neuroprotective effect in reducing the risk of dementia in later life.⁹ In a 2-part meta-analysis involving data from 23,345 and 10,615 patients, respectively, that also appears in this issue of the *Proceedings*, Santos-Lozano et al¹⁰ report that regular physical activity performed by elderly people correlates with apparent protection against incident Alzheimer disease.

Multiple studies have confirmed that regular physical activity and exercise can reduce the incidence of heart disease and high blood pressure and lower the risk of type 2 diabetes mellitus and stroke.¹¹ Physical activity also aids in weight loss and weight maintenance,¹² and a recent large-scale study determined that leisure time physical activity was associated with a lowered risk of 13 cancers, including breast and colon cancers.¹³ Physically active people use less medication, have shorter hospital stays, and require fewer physician visits.

Despite the impressive data regarding the benefits of physical activity and the importance of limiting sedentary behavior, the United States as a nation and the world as a whole continue to be mired in the midst of an epidemic of obesity and sedentary lifestyle. One study estimated that by 2030, the obesity rate in the United States will increase to approximately 50% for men and 52% for women, with the total number of obese individuals increasing from 99 million in 2008 to 164 million by 2020.¹⁴ The National Health and Nutrition Examination Surveys document

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continued increases in the incidence and prevalence of obesity throughout the United States. Approximately two-thirds of Americans are overweight or obese, and more than 70% of Americans do not meet the Centers for Disease Control and Prevention 2008 physical activity guidelines for the amount of physical activity recommended to obtain a health benefit (150 minutes of moderate activity per week or 75 minutes of vigorous activity per week).¹⁵

Sedentary lifestyle deleteriously affects the cardiovascular system and is recognized as an independent risk factor for all-cause mortality.¹⁶ Using direct measures, physical inactivity is reported to be the leading remediable cause of death in the United States.¹⁷ Research in the area of physical activity has revealed an association between the amounts of sedentary time in a person's life and his or her overall metabolic risk, even if the person attains the recommended amount of physical activity.^{18,19} People who are active, move about, and spend less time sitting have healthier blood lipid profiles and blood glucose levels than those who meet the minimum recommended activity levels but who sit for prolonged periods.¹⁸ Increased time spent watching television and sitting increases premature mortality risk.¹⁹ Even among persons who engaged in more than 7 hours per week of moderate to vigorous activity, viewing television for more than 7 hours per day was associated with an increased risk of all-cause cardiovascular mortality when compared with those who watched less than 1 hour of television per day.¹⁹

Physical activity and reduction of sedentary behavior have a synergistic effect on improving both physical and psychosocial health. As exemplified by the Exercise is Medicine campaign by the American College of Sports Medicine,²⁰ exercise is truly similar to a medication with respect to the myriad of health benefits associated with its consistent application. If the benefits of exercise could be distilled into one medication and bottled, it likely would be the best selling and most prescribed medication in history. Despite these beneficial effects, however, many physicians do not participate in physical activities themselves and do not counsel their patients on exercise and activity and the need to limit sedentary behavior. One study reported that 40% of primary care physicians in the United States and approximately 40% of US

medical students do not meet the Centers for Disease Control and Prevention physical activity guidelines.²¹ In addition, physically inactive doctors are less likely to provide exercise counseling to their patients, and they present themselves as less credible role models. One study found that only 34% of adults in the United States report having received counseling regarding exercise at their last medical visit.²² It is crucial that we physicians and other health care professionals prescribe this very basic, yet essential, treatment for our patients and that we make a concerted effort to role model activity and movement in our own lives.

Barriers to exercise are many and varied but can be overcome with education and counseling. The physician—by providing realistic, practical, and acceptable options—can help patients differentiate between perceived and real barriers. With respect to time efficiency, a considerable amount of research on high-intensity interval training reveals that it is well tolerated, even by those with obesity and cardiovascular disease, and leads to similar improvements in cardiovascular and metabolic measures in less time than long-duration moderately intense activity.²³

The voluminous evidence in support of both the physical and psychosocial benefits of exercise is impressive and overwhelming. The effects of a sedentary lifestyle on psychosocial as well as physical and metabolic outcomes have been well documented. The benefits are clear. It is now up to physicians and other health care professionals to ensure that the next generation (1) sees us as role models regarding physical activity and the reduction of sedentary behavior and (2) receives the information and encouragement from us that they need to make physical activity and movement part of their lifestyle. The costs of withholding this form of treatment from ourselves and from our patients are high indeed.

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