



Sit Less and Stand and Move More

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Addictions such as drug, alcohol, and tobacco abuse are widely recognized as significant health issues that lead to increased medical costs. Recent research indicates that America's addiction to the "chair" may be even more costly in terms of chronic health conditions and associated morbidity and mortality. Occupational, technological, and environmental advances during the past 30 years have resulted in a workforce that is "chair based." Continued progression in computer technology and the Internet provides even more opportunities to sit during our waking hours. People shop, bank, surf the Internet, email, socialize, and enjoy entertainment ... all done while sitting by their computers, tablets, and remotely controlled televisions.

PROLONGED SITTING HAS ADVERSE HEALTH CONSEQUENCES

There is solid evidence that moderate-to-vigorous exercise results in health and fitness benefits and should be undertaken for a minimum of 30 minutes 5 days per week. However, growing evidence suggests that prolonged daily sedentary behaviors, such as sitting, are associated with all-cause mortality and cardiovascular disease, independent of the time spent in fitness activities. Thus, time spent sitting may negate somewhat the positive influence of the daily exercise session. Most Americans (69%) do not meet the recommended guidelines for physical activity, and of those who do, many spend most of their day in sedentary activities, especially sitting. People eat meals, drive to and from work, spend hours at work on computers, talk on the telephone, read and participate in meetings, all in the seated position; and then go home to an evening of television, computer/video games, and/or reading.

Throughout the growing-up years, children frequently are counseled to "sit still," "stop wiggling," and are told to "sit down" when standing. Interestingly, this tendency to fidget may be exactly what people should be doing. Research indicates that nonexercise activity thermogenesis (NEAT), or the energy expenditure related to all physical activities out-

side of purposeful exercise, plays a significant role in fostering health. NEAT activities, as simple as standing while talking on the telephone, cause muscles to contract, positively impacting fat metabolism, increasing caloric expenditure, and minimizing long-term weight gain.

A number of negative metabolic changes are associated with low levels of NEAT. For example, lipoprotein lipase, an enzyme that plays an important role in the body's processing of fats, has been shown to be reduced significantly by sedentary activities such as prolonged sitting. Reduced lipoprotein lipase levels also are associated with increased cardiovascular mortality and contribute to the development of lipid disorders, insulin resistance, diabetes, metabolic syndrome, and obesity. Muscle contraction associated with NEAT, such as standing erect, increases skeletal muscle lipoprotein lipase levels, positively affecting metabolism and energy expenditure.

FIDGET MORE

Finding ways throughout the day to get out of the chair and increase NEAT is essential to everyone's health. Consider taking periodic standing/movement breaks; stand and pace while talking on the phone; arrange the home or work office so you have to get up at various intervals to retrieve items or complete a task; install a standing desk for computer/office work; walk to deliver messages instead of emailing; in other words, be creative and look for ways to move throughout the day.

SUMMARY

It is well recognized that physical activity is vitally important in promoting and maintaining good health, and all Americans are encouraged to participate in a minimum of 150 minutes per week of moderate-intensity aerobic activity. Recently, increased attention has been given to the health risks associated with prolonged sitting as well, independent of aerobic conditioning and leisure time activity. All people should look for opportunities to reduce daily sitting time, both at home and at work, by standing, taking frequent movement breaks, and implementing other strategies that promote muscle contraction and energy expenditure.

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