

Study Finds That Sitting May Increase Risk of Disease

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Most people spend most of their day sitting with relatively idle muscles. Health professionals advise that at least 30 minutes of activity at least 5 days a week will counteract health concerns, such as cardiovascular disease, diabetes and obesity that may result from inactivity. Now, researchers at the University of Missouri-Columbia say a new model regarding physical activity recommendations is emerging. New research shows that what people do in the other 15 and a half hours of their waking day is just as important, or more so, than the time they spend actively exercising.

“Many activities like talking on the phone or watching a child’s ballgame can be done just as enjoyably upright, and you burn double the number of calories while you’re doing it,” said Marc Hamilton, an associate professor of biomedical sciences whose work was recently published in *Diabetes*. “We’re pretty stationary when we’re talking on the phone or sitting in a chair at a ballgame, but if you stand, you’re probably going to pace or move around.”

In a series of studies that will be presented at the Second International Congress on Physical Activity and Public Health in Amsterdam, Hamilton, Theodore Zderic, a post-doctoral researcher, and their research team studied the impact of inactivity among rats, pigs and humans. In humans, they studied the effects of sitting in office chairs, using computers, reading, talking on the phone and watching TV. They found evidence that sitting had negative effects on fat and cholesterol metabolism. The researchers also found that physical inactivity

throughout the day stimulated disease-promoting processes, and that exercising, even for an hour a day, was not sufficient to reverse the effect.

There is a misconception that actively exercising is the only way to make a healthy difference in an otherwise sedentary lifestyle. However, Hamilton's studies found that standing and other non-exercise activities burn many calories in most adults even if they do not exercise at all.

“The enzymes in blood vessels of muscles responsible for ‘fat burning’ are shut off within hours of not standing,” Hamilton said. “Standing and moving lightly will re-engage the enzymes, but since people are awake 16 hours a day, it stands to reason that when people sit much of that time they are losing the opportunity for optimal metabolism throughout the day.”

Hamilton hopes that creative strategies in homes, communities and workplaces can help solve the problem of inactivity. Some common non-exercise physical activities that people can do instead of sitting include performing household chores, shopping, typing while standing and even fidgeting while standing. Given the work of muscles necessary to hold the body's weight upright, standing can double the metabolic rate. Hamilton believes that scientists and the public have underestimated common activities because they are intermittent and do not take as much effort as a heavy workout.

“To hold a body that weighs 170 pounds upright takes a fair amount of energy from muscles,” Hamilton said. “You can appreciate that our legs are big and strong because they must be used all the time. There is a large amount of energy associated with standing every day that can't be easily compensated for by 30 to 60 minutes at the gym.”

Only 28 percent of Americans are getting the minimal amount of

recommended exercise. Hamilton predicts that eventually there will be health campaigns with doctors advocating limiting sitting time, just like they ask people to limit sun and second hand smoke exposure.

“The purpose of medical research is to offer effective new strategies for people whom the existing therapies are not working,” Hamilton said.

“Because our research reveals that too little exercise and excessive sitting do not change health by the same genes and biological mechanisms, it offers hope for people who either are not seeing results from exercise or can not exercise regularly.

The lifestyle change we are studying is also unlike exercise because it does not require that people squeeze an extra hour into their days and/or get sweaty at the gym, but instead improving the quality of what they already are doing. One misrepresentation is that people tend to say 'I sit all the time, so your studies suggest that I can't even work,' but Ben Franklin and Thomas Jefferson showed us that you can be very productive and still do great work in an office with a 'standing' desk."

Source: University of Missouri

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