

Sitting Too Much Ages You By 8 Years

Alice Park

Sitting too much during the day has been linked to a host of diseases, from obesity to heart problems and diabetes, as well as early death. It's not hard to understand why: being inactive can contribute to weight gain, which in turn is a risk factor for heart attack, stroke, hypertension and unhealthy blood sugar levels.

On top of everything else, sitting has detrimental effects on cells at the biological level, according to a new report published in the *American Journal of Epidemiology*.

In the new study, scientists led by Aladdin Shadyab, a post-doctoral fellow in family medicine and public health at the University of California San Diego, traced sitting's impact on the chromosomes. They took blood samples from nearly 1,500 older women enrolled in the Women's Health Initiative, a long-term study of chronic diseases in post-menopausal women and focused on the telomeres: the tips of the tightly packed DNA in every cell. Previous studies have found that as cells divide and age, they lose bits of the telomeres, so the length of this region can be a marker for how old a cell (and indirectly the person the cells belong to) is. The researchers compared telomere length to how much the women exercised, to see if physical activity affected aging.

Earlier studies have also looked at telomere length and exercise. But they relied on asking people to report on their activity levels, a process that's often inaccurate. Shadyab instead relied on more objective recordings of physical activity from accelerometers that the women wore for one week. Initially, he did not find any relationship between telomere length and physical activity levels. But when he focused on the women who did not meet the recommended 30 minutes of moderate-to-vigorous physical activity daily, he began to see some interesting trends.

Among women who didn't get the daily half hour of exercise, those who spent more time sedentary (about 10 hours or more) had shorter telomeres than those who spent less time sitting every day. The amount of shortening added up to about eight years of aging, the scientists estimated—meaning that inactive women who spent more time sitting were about eight years older, on average, than those who were inactive but spent less time sedentary.

Women who got the recommended amount of daily exercise showed no association between how much time they spent sitting and their telomere length, suggesting that physical activity might counteract the shortening that occurs with aging.

“Our results suggest that the combination of being sedentary and not engaging in enough physical activity to prevent the telomeres from shortening leads to the shorter telomere length,” says Shadyab. “Women who did not meet the physical activity guideline and were sedentary for at least 10 hours a day were biologically older; their cells are aging faster than those of women who were less sedentary.”

Exactly how much physical activity is needed to negate the aging effects of sitting on the cells isn't clear yet. But Shadyab's study shows that sedentary behavior has potentially aging effects on the cells, and exercise may be one way to combat that aging process.

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