

## Does it matter how long you sit —if you are fit?

Oct 18, 2016--It may not be enough just to meet public health guidelines for physical activity if you want to stave off the negative effects of a sedentary lifestyle. New research shows that fitness —especially among the elderly— may play an important role in protecting us from risk factors for cardiovascular and other diseases.

By Nancy Bazilchuk

More and more studies confirm that sitting is bad for our health, increasing the likelihood of developing cardiovascular disease and other lifestyle-related illnesses such as diabetes. Some studies have estimated that being sedentary kills as many people as smoking.

The average adult in the Western world sits between 9 and 11 hours a day, a number that only increases as we age. In fact, in a study in older adults just published in *Mayo Clinic Proceedings*, researchers from the Norwegian University of Science and Technology (NTNU) found that the least sedentary third of the participants in their study spent between 12 and 13 hours in sedentary behavior, while the most sedentary of the elders in the study were sedentary for up to 15 hours a day.

But how does being fit affect the health risk associated with a sedentary lifestyle, especially in older adults, who are the most likely to be sedentary? The NTNU researchers found that older women and men within the most sedentary third were correspondingly 83% and 63% more likely to present with risk factors for cardiovascular disease compared to women and men who were least sedentary.

But when the researchers took fitness into account, they found that having high age-specific fitness (in this case, being among the fittest 40%) attenuated the likelihood of presenting with cardiovascular risks factors posed by extended time spent sedentary. However, no such effect was found in those who were physically active without being fit.

“Our Western lifestyles necessarily involve a lot of sitting, and we spend more and more time sitting on average as we age,” said Silvana Sandbakk, first author of the study. “But our findings show that being fit plays an important part when aging and may lend protection against the negative health effects of being sedentary.”

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The NTNU research was conducted as a part of a larger study called Generation 100, a randomized controlled clinical trial that began in 2012 to see whether exercise leads to longevity.

While the Generation 100 is a five-year study, for the current study Sandbakk and colleagues used the baseline information collected at the commencement of the study to look at a subset of participants who did not have known cardiovascular disease. Following up these participants over the next five years will give the researchers insight if improving fitness in those most sedentary could prevent or delay lifestyle related disease and prolong life.

### High fitness is highly important

When the researchers looked at accelerometer measurements taken over a week (as an objective measure of activity) for the 874 participants who were included in the study and compared them to fitness levels and cardiovascular risk factor clusters, they found that seniors who had the highest fitness levels, defined as the most fit 40 percent of the study group, had the lowest risk of having a cardiovascular risk factor cluster.

This held true even though the most fit participants were relatively sedentary, with between 12 and 13 hours per day on average of sedentary behavior.

A cardiovascular risk factor cluster was defined as the presence of three of five risk factors for cardiovascular disease, including elevated waist circumference; elevated blood triglycerides or reduced “good” cholesterol levels or being treated for these; elevated blood pressure or treatment for hypertension; and elevated fasting blood sugar levels (or being treated for diabetes). These symptoms combined are commonly referred to as metabolic syndrome.

What was most surprising, however, was that this finding held true even if the most fit elders in the study did not meet current recommendations for moderate to vigorous physical activity. Conversely, meeting physical activity guidelines on its own did not seem to be enough to eliminate the cardiovascular risk associated with sedentary behavior if people didn’t have a certain level of cardiorespiratory fitness, the researchers found.

“There is little doubt on the benefits of regular physical activity, even amounts below public recommendations, Sandbakk said. “However, it seems that fitness matters in this age group and while we wait for more evidence, some physical activity that improves fitness will go a long way.”