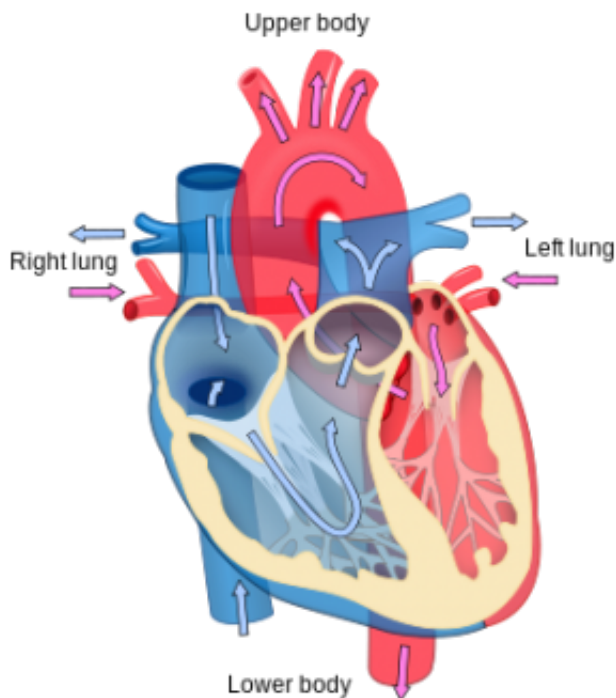


Get up for your heart health and move for your waistline

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Heart diagram. Credit: Wikipedia

More time spent standing rather than sitting could improve your blood sugar, fats in the blood and cholesterol levels, according to a new study published today (Friday) in the *European Heart Journal*. The study also shows that replacing time spent sitting with time walking could have additional benefits for your waistline and body mass index (BMI).

Researchers in Australia gave activity monitors to 782 men and women, aged 36-80 years, who were taking part in the Australian Diabetes, Obesity and Lifestyle Study. The monitors were capable of determining, very accurately, how long each participant spent sleeping, [sitting](#) or lying down, [standing](#) and stepping (which includes walking and running). After providing [blood samples](#) and measurements of their blood pressure, height, weight and [waist circumference](#), participants each wore an activity monitor on their thigh for 24 hours a day over a seven-day period. The researchers then used a statistical technique called isotemporal analysis to estimate the potential impact on health of reallocating time from sitting to standing or stepping.

Dr Genevieve Healy, senior research fellow at the School of Public Health, The University of Queensland, Australia, who led the study, said: "We found that time spent standing rather than sitting was significantly associated with lower levels of [blood sugar](#) and [blood fats](#). Replacing sitting time with stepping was also associated with a significant reduction in waistline and BMI. While the study cannot show that less time spent sitting causes the improvements in these markers of health, the associations it reveals are consistent with what is known already about the benefits of a non-sedentary lifestyle. More work is needed to understand cause and effect."

An extra two hours per day spent standing rather than sitting was associated with approximately 2% lower average fasting [blood sugar levels](#) and 11% lower average triglycerides (fats in the blood). Extra standing time was also associated with 0.06 mmol/L higher average levels of the "good" type of [cholesterol](#), HDL, and a 6% lower average total/HDL cholesterol ratio, which indicates an improvement in the total amount of HDL cholesterol in relation to "bad" LDL cholesterol.

Replacing two hours a day of sitting time with stepping was associated with an approximately 11% lower average BMI and a 7.5cm smaller

average waist circumference. In addition, average blood sugar levels fell by approximately 11% and average triglycerides by 14% for every two hours spent walking rather than sitting, while HDL cholesterol was 0.10 mmol/L higher. There was no significant effect on BMI or waistline of replacing sitting time with standing.

"These findings provide important preliminary evidence that strategies to increase the amount of time spent standing or walking rather than sitting may benefit the heart and metabolism of many people," said Dr Healy. "Get up for your heart health and move for your waistline.

"This has important public health implications, given that standing is a common behaviour that usually replaces sitting, and that can be encouraged in the workplace with interventions such as sit-stand desks.

"However, it is important to say that not all sitting is bad; but if people can incorporate alternatives to sitting wherever possible, it may benefit their heart and metabolic health. Our message is to 'Stand Up, Sit Less, Move More'."

She said the study had also produced evidence of how common standing is during the waking day. "Standing takes up nearly a third of waking hours, and among this group of participants who could choose when they sat, stood or walked, the standing had health benefits. Notably, we did not measure upper body movement, so someone could be standing up doing the dishes, which involves some extra physical activity."

While the benefits to health of walking have been well established, until now the potential benefits (or harms) of replacing sitting with standing have been less well understood. The study is one of the first to look at the estimated associations between replacing time in one activity with another and its effect on markers of health, such as blood pressure, blood sugar and [cholesterol levels](#), BMI and waist circumference. The

researchers say more, larger studies are needed to confirm their findings and they hope to follow up the study participants for longer, as well as studying participants from a wider age range.

In the meantime, Dr Healy and her colleagues are working to encourage people to stand up more in their workplaces. "We are also looking to increase the amount of [time](#) spent stepping as well," she concluded.

In an accompanying editorial, Professor Francisco Lopez-Jimenez (MD, MSc) of the Mayo Clinic and Mayo College of Medicine (Minnesota, USA) writes that the study "provides an important addition to the wealth of scientific evidence highlighting the importance of avoiding sedentary behaviour". He writes that "the fight against sedentary behaviour cannot be won based only on the promotion of regular exercise" and that while exercise should continue to be recommended, it is important to promote non-sedentary behaviour in everyday life. "A person walking while at work for two hours, standing for another four hours, and performing some daily chores at home for another hour will burn more calories than jogging or running for 60 minutes."

He also points out that sedentary behaviour and environments that promote it are "seen as a sign of progress and economic power". For instance, poorer people are more likely to bike or walk than drive a car, and standing tickets to watch a football match or an opera will be cheaper than seated tickets. He concludes: "The unintended consequences of modern life promoting sedentary behaviours can be reversed. Health care providers, policy makers and people in general need to stand up for this. Literally."

More information: "Replacing sitting by standing or stepping: associations with cardio-metabolic risk biomarkers", by Genevieve N. Healy et al. *European Heart Journal*. [DOI: 10.1093/eurheartj/ehv308](https://doi.org/10.1093/eurheartj/ehv308)

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