

WELL | MOVE

Keep It Moving

By GRETCHEN REYNOLDS DEC. 9, 2016

By now it is pretty well accepted both that physical inactivity is bad — recently linked to 6 percent of all cases of heart disease worldwide and 11 percent of all premature deaths in the United States — and that exercise is good, because it tends to increase life span and protect against heart disease. Yet few studies actually show that exercise reduces the unhealthful impacts of too much sitting. People who work out but *also* sit for long hours — active couch potatoes, you might say — may often share the same elevated risks for disease and early death as their less active peers.

Because these correlations were established mostly through epidemiological research based on surveys linking health and lifestyle rather than experiments, the physiological interactions between inactivity and exercise have remained largely unknown. But a study published last month in *The American Journal of Physiology — Endocrinology and Metabolism* is one of the first to directly compare exercisers who also sit extensively with those who are more active generally. The findings suggest that a single vigorous workout may do little to counter the effects of prolonged sitting, while strolling around frequently in addition to exercising does seem to keep the harm at bay.

For their study, researchers from the University of Texas at Austin asked seven healthy young male volunteers to wear monitors and spend four active days in a row and four sedentary days in a row. When active, the subjects walked as often as they could, averaging more than 17,000 daily steps, and ended up sitting for a total of roughly eight hours a day on average; when sedentary, they sat for 14 hours or so.

On the evening of the fourth day, the men ran for an hour, and the next morning they ate a high-fat, sugary breakfast — basically “ice cream and half and half,” says Edward F. Coyle, a professor of kinesiology and health education at the University of Texas and senior author of the study. In one of their earlier studies, the researchers found that this workout leads to a healthful reduction of triglycerides — fats associated with heart disease that enter the bloodstream after meals — following the next morning’s breakfast. And indeed, when the men were regularly active and ran, their bodies reproduced this same healthful effect. But when the men instead sat for 14 hours a day, running did not bring down the high levels of triglycerides in their blood.

“So much sitting seems to have made the men’s bodies exercise-resistant,” Coyle says. In essence, inactivity altered the men’s physiology in ways that apparently prevented exercise from improving the metabolism of fat. Coyle and his colleagues, who include Il-Young Kim, the lead author of the study, theorize that the act of sitting blocks the normal impacts of exercise.

They hope future experiments will reveal the cellular mechanisms at work and also test if the same dynamics are found in people who are not young, healthy and male (as Coyle suspects will be the case). For now, even though the study’s findings are preliminary, they reinforce the message that we should walk and move as much and as often as we can.

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