

Research shows significant health benefits for overweight adults in breaking up prolonged sitting

March 1 2012, By Christina Hickie

Overweight office workers, drivers and call centre staff who sit for long periods could improve their health by simply breaking up their sitting time with frequent activity breaks according to new research by Baker IDI Heart and Diabetes Institute, published online today in *Diabetes Care* – a publication of the American Diabetes Association.

Baker IDI researchers examined spikes in participants' blood glucose levels after consuming a high-calorie meal and found that their bodies were much more effective in controlling glucose and insulin levels when they performed regular two minute bouts of either light or moderate-intensity activity.

Repeated spikes in glucose, or blood sugar, are known to contribute to a number of negative health outcomes, including hardening of the arteries and cardiovascular disease. Insulin is important, because it plays a key role in controlling blood sugar levels.

Lead researcher, Associate Professor David Dunstan explained; “When we eat, we get rises in blood glucose. With larger and more frequent rises in blood glucose, we gradually accumulate damage to the walls of our veins and arteries. This increases our susceptibility to [heart](#) disease. So, we want to minimise these rises in order to improve our health outcomes.”

“In a controlled laboratory environment that mimicked the typical patterns of desk-bound [office workers](#), participants who interrupted their sitting time with regular activity breaks, showed up to 30 per cent improvement in the body’s response to a meal containing glucose. The good news is that the improvements were seen even with light-intensity activity, which is the equivalent of strolling.”

“Our research has already shown that sitting for long periods can be hazardous to health. Sedentary behaviour is also a risk factor for chronic diseases, including some cancers. The results of this study now provide some direction about what activity can be undertaken to break up sitting time and counteract the negative effects of sitting for long periods, including the frequency of breaks required to improve health outcomes.

“Being overweight has been shown to be associated with an increased susceptibility to impaired glucose metabolism. So the findings are likely to have important implications for people who already have difficulty processing blood sugars.”

Dunstan said; “When we sit, we have muscle ‘dis-use’ – our muscles are essentially ‘sleeping’. When we’re up and moving, we’re contracting muscles and it appears that these frequent contractions throughout the day are beneficial for helping to regulate the body’s metabolic processes.”

The findings may also provide added support to the current Australian OHS recommendations that desk bound employees take a break from their computer screen approximately every 30 minutes to reduce eye strain.

While the majority of people in a modern office based environment are required by their jobs to sit for long periods, the researchers warned that there are other settings in which people need to be mindful of breaking

up long sitting periods. These include the home environment where long periods of TV or video viewing and computer use is increasingly frequent or long car commutes that many people find difficult to avoid.

“The findings are not confined to people who are overweight and suggest that even people who are not overweight could benefit from breaking up their sitting time, commented Dunstan.”

Participants were aged 45-65 and were either overweight or obese with a body mass index of 31.2 kg/m² (overweight or obese). Each participant was required to participate in three separate daily sitting schedules with a break of six days between each of the days. In the first trial condition, each participant sat for 5 hours with no break. In the second experiment, they walked on a treadmill at a light-intensity pace for 2 minutes every 20 minutes. And in the third trial condition, they walked on a treadmill at moderate-intensity pace for 2 minutes every 20 minutes.

Importantly, the researchers found that the benefit of walking at a light intensity pace was almost identical to walking at a moderate intensity pace, suggesting that it was not so much the amount of effort put into the break that was critical but the act of standing up and moving and thereby reducing sitting time was intrinsically beneficial.

Dunstan said; “We were encouraged to see people getting a tangible benefit from breaking up their sitting time with light-intensity activity. We appreciate that it’s not very common to find a treadmill in the workplace and how difficult it would be for people to engage in reasonably vigorous movement in the office. Just standing up regularly, walking to the printer, using the stairs instead of an elevator and standing while on the phone are all likely to deliver a benefit.”

“As recently as two decades ago, people were moving more frequently throughout the day in the workplace. Prior to email, people had to

collect mail from a pigeon hole, or walk over to people's desks for a chat. I think we've reached a crisis point where we need to step back and acknowledge that sitting for long periods is not what our bodies were designed for."

The researchers concluded that regularly breaking up sitting time by standing up more, finding ways to move about and generally being more active instead of sitting could prove to be an important public [health](#) and clinical intervention strategy for reducing cardiovascular risk.

Tips for Breaking up Sitting time:

there are no rules against standing during meetings – try it
take a brisk walk during your lunch break
conduct meetings while walking outdoors – these can be very effective for one-on-ones with colleagues
stand at a high bench top to eat your lunch
stand up and move around while answering the telephone
at the very least get up and move once every hour
consider a height adjustable desk that permits working in both a sitting or standing posture
limit your TV viewing to two hours a day
use commercial breaks for household chores

Provided by Baker IDI Heart and Diabetes Institute

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