

Daily walk can help control diabetes

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(PhysOrg.com) -- Just an extra 45 minute walk a day can help people control Type 2 diabetes, according to a new study at Newcastle University. Dr Michael Trenell and Prof Roy Taylor, who led the research, showed that people with Type 2 diabetes who walk regularly can keep some of the effects of the disease at bay.

Today, almost 5% of the UK population - over 2.3 million people - are classified as having diabetes. Over 90% is Type 2 diabetes.

Dr Trenell says, “We found that people who walked for an extra 45 minutes a day became better at burning fat. Over a period of weeks this helped control their blood glucose levels.

"People often find the thought of going to the gym quite daunting, but what we've found is that nearly everyone with diabetes is able to become more active through walking. In our study many people got off the bus a few stops earlier and some took a walk at lunchtime.

“What is exciting about this study is that it provides an immediate way to help control diabetes without any additional drugs. By building physical activity into everyday life the difficulty of making time to go out just for exercise is avoided. It is an important and simple health message – walking 45 minutes extra a day helps diabetes.”

Type 2 diabetes is a serious condition and if not diagnosed early and managed effectively, it can lead to complications including heart disease, stroke, blindness and amputation.

In the study, published today in the journal *Diabetes Care*, ten people with Type 2 diabetes were paired with a control group of people of a similar height, weight and age who did not have diabetes. They were each given a pedometer and asked to walk over 10,000 steps a day.

Using an advanced MRI scanner the team were able to show how the muscles were processing energy inside the mitochondria – the “engines” of the cell.

The participants underwent an MRI scan at Newcastle University before they took part in the trial to see how efficiently the mitochondria were processing the energy in their leg muscles. They had further MRI scans after two weeks and eight weeks of extra walking.

Results showed that there were no major problems with the mitochondria for people with Type 2 diabetes, but walking 45 minutes extra per day helped them burn about 20% more fat – increasing the ability of the muscles to store sugar and help control the diabetes.

Dr Trenell explains, “We were able to show that people with Type 2 diabetes did not have any basic problems with the mitochondria but by becoming more active it actually helped the mitochondria to become more efficient.”

Type 2 diabetes develops when the body is not able to pull sugar out of the blood and the blood sugar levels remain high throughout the day. The high levels of sugar in the blood can damage blood vessels and cause long term problems in organs which are sensitive to changes in blood flow, resulting in an increased risk of blindness, heart attack and kidney failure. Muscles are the biggest storage depot for sugar in the body and react quickly after a meal to take sugar out of the blood and store it. However, high levels of fat in the blood and inside of the muscles stop the muscles from storing sugar – leaving the levels in the blood high

after a meal.

Inside the muscles, fat and sugar are burnt by mitochondria. The more efficient the mitochondria are, the more fat they burn – lowering the levels of fat in the muscle and blood. Their ability to burn fat means that they are linked directly to the development and progression of Type 2 diabetes.

Dr Trenell, who is funded by Diabetes UK said “Even in this limited eight-week period we could see that people with Type 2 diabetes were processing energy more efficiently, which meant that walking for 45 minutes more is an effective way to help improve glucose control”.

Dr Iain Frame, Director of Research at Diabetes UK, said: “Dr Trenell’s findings prove that even gentle physical activity is vital in managing Type 2 diabetes. Effectively controlling the condition reduces the risk of developing serious long-term complications and will improve well-being. It is fantastic to see Diabetes UK-funded research translating into practical advice for people with diabetes.”

Following this study, the Newcastle University team aims to develop the UK’s first professional development programme for physical activity. This programme is designed to advise doctors and nurses on methods that work in getting people with Type 2 diabetes to become more active. A follow-up national clinical trial is also planned by the Newcastle University team.

Patients should talk to their doctor before undertaking any significant change in lifestyle especially to avoid hypoglycemia or other complications.

Increased Daily Walking Improves Lipid Oxidation Without Changes in Mitochondrial Function in Type 2 Diabetes. Michael I Trenell PhD,

Keren G. Hollingsworth PhD, Ee Lin Lim MRCP, Roy Taylor MD.
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