



## Exercise is Good for Type 2 Diabetes Patients



Moderate exercise reduces fat stored around the heart, in the liver and the abdomen of people with type 2 diabetes mellitus, even if there are no changes in diet, according to a new study published online in the journal *Radiology*.

Exercise is recommended for people with diabetes, but its effects on different fat deposits in the body are unclear, according to the study's senior author, Hildo J. Lamb, M.D., Ph.D., from the Department of Radiology at Leiden University Medical Center in the Netherlands.

"Based on previous studies, we noticed that different fat deposits in the body show a differential response to dietary or medical intervention," he said. "Metabolic and other effects of exercise are hard to investigate, because usually an exercise programme is accompanied by changes in lifestyle and diet."

In this study, the researchers assessed the effects of exercise on organ-specific fat accumulation and cardiac function in type 2 diabetes patients, independent of any other lifestyle or dietary changes. 12 patients with an average age of 46 years underwent MRI examinations before and after six months of moderate intensity exercise of between 3.5 and six hours per week. The exercise programme included two endurance and two resistance training sessions, and ended with a 12 day trekking expedition.

The MRI results showed that, although cardiac function was not affected, the exercise programme led to a significant decrease in fat volume in the abdomen, liver and around the heart, all of which have been previously shown to be associated with increased cardiovascular risk.

"In the present study we observed that the second layer of fat around the heart, the peracardial fat, behaved similarly in response to exercise training as intra-abdominal, or visceral fat," Dr. Lamb said. "The fat content in the liver also decreased substantially after exercise."

Dr. Lamb noted that the exercise-induced fat reductions in the liver are of particular importance to people with type 2 diabetes, many of whom are overweight or obese.

"The liver plays a central role in regulating total body fat distribution," he said. "Therefore, reduction of liver fat content and visceral fat volume by physical exercise are very important to reverse the adverse effects of lipid accumulation elsewhere, such as the heart and arterial vessel wall."

The findings point to an important role for imaging in identifying appropriate treatment for patients with type 2 diabetes, which the World Health Organization projects to be the seventh leading cause of death worldwide by

2030.

“In the future, we hope to be able to use advanced imaging techniques to predict in individual patients which therapeutic strategy is most effective: diet, medication, exercise, surgery or certain combinations,” Dr. Lamb said.

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