

Brief bouts of exercise begin to reverse heart abnormalities in people with type 2 diabetes

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A new study in *Diabetologia* (the journal of the European Association for the Study of Diabetes) is the first to show that high intensity intermittent exercise training improves heart structure and benefits diabetes control in patients with type 2 diabetes. The study is led by Professor Michael Trenell and Dr Sophie Cassidy from Newcastle University (UK) and was funded by the National Institute for Health Research.

People with type 2 diabetes are twice as likely as those without diabetes to have heart disease, and heart disease is the leading cause of death and complications for people with type 2 diabetes. The effect of diabetes on the heart happens early, with changes in the structure and function of the [left ventricle](#) (the heart's main pump), prior to any symptomatic cardiac disease. Despite the importance of the heart, there are few treatment options to improve its structure and function.

A [physically active](#) lifestyle is known to help manage type 2 diabetes and is recommended alongside a good diet, as it is for people without diabetes. Despite the well documented benefits of a physically active lifestyle on diabetes control, the direct effects of exercise on the heart of people with diabetes is not known. Short periods of more intense physical activity raise the heart rate more than longer periods at a modest intensity. In this study, the authors tested the effect of repeated short (up to 90 seconds) periods of intense cycling, called [high intensity intermittent exercise](#), on diabetes control and the heart.

The study included 23 people with type 2 diabetes who were randomised to 12 weeks of high intensity intermittent exercise (n=12; aged 45 to 70yrs, 8 men) or who continued their standard care (n=11; 46 to 71yrs, 10 men). Cardiac structure and function were measured using advanced magnetic resonance imaging techniques. Diabetes control was assessed by a standard oral glucose tolerance test.

The researchers found that high intensity intermittent exercise significantly improved cardiac structure and function. The exercise particularly benefited the left ventricle, identified to be altered with type 2 diabetes, which was shown to become stronger and work more efficiently. There was a significant but modest improvement in diabetes control.

The authors say: "This study demonstrates, for the first time, that exercise can begin to reverse some of the early cardiac changes that are commonly found in people with type 2 diabetes. Interestingly, the data also suggest that this type of high intensity intermittent exercise benefits both the heart and [diabetes control](#), but the benefits appear to be greatest in the heart. The strong positive effect of exercise on the heart is, although completely logical, a message that needs to be communicated to people with type 2 diabetes more clearly."

They conclude: "The data reinforce how important a physically active lifestyle is for people with type 2 diabetes. Our findings also suggest that exercise does not have to be 30 minutes of continuous exercise - repeated short bouts of higher intensity exercise give strong benefits to the heart. Getting more physically active is, quite literally, at the [heart](#) of good [diabetes](#) control."

More information: *Diabetologia*, link.springer.com/article/%2010.1007/s00125-015-3741-2

Provided by Diabetologia

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