**Intensive exercise with intervals “more effective”**

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Study shows how exercise can help to combat Type 2 diabetes

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Short bursts of intensive exercise provide a more “time-efficient” and realistic way of preventing, delaying and managing Type 2 diabetes and also losing weight, a study has found.

Small amounts of vigorous activity in quick successions are more “effective” compared to longer forms of exercise optimising the body’s ability to use and store blood sugar, the research by the University of Leicester and the NIHR Leicester-Loughborough Diet, Lifestyle and Physical Activity Biomedical Research Unit (BRU) has found.

The paper ‘The effects of high-intensity interval training on glucose regulation and insulin resistance: a meta-analysis’ has been published in the journal *Obesity Reviews.*

Obesity and Type 2 diabetes are linked, with over 80 per cent of people with the condition classed as overweight or obese – diet and physical activity interventions are the cornerstones for management of both conditions.

The effects of exercise on Type 2 diabetes and improving the body’s ability to use insulin to absorb blood sugar are well established, but its impact on weight regulation is more controversial.

The guidelines for weight loss suggest that 200 to 300 minutes of moderate to vigorous activity per week are required for long-term reductions, but previous research found that only five per cent of people in some industrialised countries achieve this amount. Recently, however, effects of physical activity on health in the absence of weight loss, have emerged.

In response, the study has proposed high-intensity interval training (HIIT) as an alternative: “time-efficient exercise intervention that may bring about similar benefits to moderate-intensity aerobic exercise”.

Researcher Charlotte Jelleyman said: “This study involved a meta-analysis of experimental research, allowing us to pull together evidence and establish cause and effect. We have demonstrated that HIIT conveys benefits to cardiometabolic health which in the cases of insulin resistance and aerobic fitness may be superior to the effect of traditional continuous training.

“HIIT may therefore be suitable as an alternative to continuous exercise training in the promotion of metabolic health and weight loss, particularly in those with Type 2 diabetes or metabolic syndrome. However, given the identified limitations, more research is needed to determine both behavioural responses and clinical benefits over the longer term.”

The NIHR Leicester-Loughborough Diet, Lifestyle and Physical Activity BRU is a national centre of excellence in diet, lifestyle and physical activity based in Leicester and Loughborough. It harnesses the power of experimental science to explore and develop ways to help prevent and treat chronic disease.

For more information about the study, visit <http://www.ncbi.nlm.nih.gov/pubmed/26481101>.

**Notes to editors**

* For further details, to arrange an interview or more photographs, email [oliver.jelley@ojpr.co.uk](mailto:oliver.jelley@ojpr.co.uk)
* [http://www.ll.dlpa.bru.nihr.ac.uk](http://www.ll.dlpa.bru.nihr.ac.uk/)
* The NIHR Leicester-Loughborough Diet, Lifestyle and Physical Activity Biomedical Research Unit (BRU) is funded by the NIHR. By harnessing the power of experimental science we will explore and develop innovative lifestyle interventions to help prevent and treat chronic disease for the benefit of all. The BRUs undertake translational clinical research in priority areas of high disease burden and clinical need.
* The National Institute for Health Research (NIHR) is funded by the Department of Health to improve the health and wealth of the nation through research. Since its establishment in April 2006, the NIHR has transformed research in the NHS. It has increased the volume of applied health research for the benefit of patients and the public, driven faster translation of basic science discoveries into tangible benefits for patients and the economy, and developed and supported the people who conduct and contribute to applied health research. The NIHR plays a key role in the Government’s strategy for economic growth, attracting investment by the life-sciences industries through its world-class infrastructure for health research. Together, the NIHR people, programmes, centres of excellence and systems represent the most integrated health research system in the world. For further information, visit [http://www.nihr.ac.uk](http://www.nihr.ac.uk/).
* The Leicester Diabetes Centre is an international centre of excellence in diabetes research, education and innovation and is led by Professor Melanie Davies and Professor Kamlesh Khunti. Hosted at Leicester General Hospital, the Leicester Diabetes Centre is a partnership between the University Hospitals of Leicester NHS Trust and the University of Leicester, working with the city and county Clinical Commissioning Groups. It is a leading applied health research unit committed to improving the lives and care of people with diabetes and other long-term conditions.
* For more information about the Leicester Diabetes Centre, visit [http://www.leicesterdiabetescentre.org.uk](http://www.leicesterdiabetescentre.org.uk/).