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Short bouts of high-intensity exercise before a fatty meal best for vascular health

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A short burst of intensive exercise before eating a high fat meal is better for blood vessel function in young people than the currently recommended moderate-intensity exercise, according to a new study from the University of Exeter.

Cardiovascular diseases including heart attacks and stroke are the leading cause of death in the UK, and the process underlying these diseases start in youth. An impairment in the function of blood vessels is thought to be the earliest event in this process, and this is known to occur in the hours after consuming a high fat meal.

Performing exercise before a high fat meal is known to prevent this impairment in blood vessel function, but no study has yet identified what type of exercise is best.

The study, published in the *American Journal of Physiology - Heart and Circulatory Physiology*, compared high-intensity, interval exercise against moderate-intensity exercise on blood vessel function in adolescent boys and girls after they had consumed a high fat milkshake.

It showed that approximately 25 minutes of moderate-intensity cycling prevented the fall in blood vessel function after the high fat meal. However, performing just eight minutes of high-intensity cycling not only prevented this fall, but improved blood vessel function to a level that was superior to moderate-intensity exercise.

Dr Alan Barker, of the Children's Health and Exercise Research Centre, Sport and Health Sciences at the University of Exeter, said: "Our study shows that the intensity of exercise plays an important part in protecting blood vessel function in young people after the ingestion of a high fat meal."

"Furthermore, both the boys and girls found the high-intensity exercise to be more enjoyable than the moderate-intensity exercise. Considering that very few adolescents currently achieve the recommended minimum of one hour of at least moderate-intensity exercise per day, smaller amounts of exercise performed at a higher-intensity might offer an attractive alternative to improve blood vessel function in adolescents."

The researchers say the next step is to move the work beyond healthy adolescents and study those with risk factors for cardiovascular disease, such as obesity and type I diabetes.

More information: 'Exercise intensity and the protection from postprandial vascular dysfunction in adolescents' by B. Bond, P.E Gates, S.R Jackman, L.M Corless, C.A Williams and A.R Barker is published in the *American Journal of Physiology - Heart and Circulatory Physiology*.

Provided by University of Exeter

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