Medical Xpress

Lessons for optimizing exercise programs

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Scientists previously thought that women may not respond to sprint interval training to the same Biological sex has little influence on how the body adapts to sprint interval training. That's according to findings published in *Experimental Physiology* and carried out at McMaster University, Canada.

Scientists previously thought that women may not respond to sprint interval training to the same extent as men. Studies had suggested that following several weeks of sprint interval training, women experienced smaller changes in the way that skeletal muscle takes up sugar and make new proteins as part of the exercise-induced remodelling process.

The new study shows that changes in gene expression over a short time-scale are very similar between men and women. The research also provides new insights into how exercise changes skeletal muscles on a molecular level. The findings demonstrate that brief, intense exercise is a powerful stimulus to elicit cellular remodelling in both sexes.

Unlike previous studies in this area, the Canadian lab matched the groups of men and women for baseline fitness. The subjects' maximal oxygen uptake was determined and expressed relative to fat-free mass, which is considered best practice to make comparisons between men and women. The researchers then obtained thigh muscle biopsies and analysed the samples to determine the expression of genes related to changes in muscle structure due to exercise.

Professor Martin Gibala from the Department of Kinesiology at

McMaster University, senior author of the study, explained: "We need more rigorously controlled studies to determine whether in fact there are sex-specific differences in the chronic response to interval training, that is, over the course of weeks or months. An important message from our study is that brief, intense exercise seems to be effective in both men and women".

More information: Lauren E. Skelly et al, Effect of sex on the acute skeletal muscle response to sprint interval exercise, *Experimental Physiology* (2017). DOI: 10.1113/EP086118

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