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Early steps toward personalized fitness: Interval training may benefit men more than women

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When it comes to reaping benefits of sprint interval training, it appears that men have won the battle of the sexes, if just barely. According to new research published in the June 2014 issue of *The FASEB Journal*, men create more new proteins as a result of this exercise than women do. The good news, however, is that men and women experienced similar increases in aerobic capacity. This study is the first to directly measure the creation of proteins made to adapt to this mode of exercise. The study also uniquely used methods that measure the cumulative making of proteins during the entire three weeks to account for other daily living factors, effectively ensuring that the study was a measure of real life conditions. Finally, this study does not extend to other types of exercise, such as running, jogging and cycling, where women may benefit equally or more.

"It is hoped that future studies distinguishing differences in responsiveness between sexes, age groups or disease conditions could lead to better tailored exercise prescription for health benefits," said Benjamin F. Miller, Ph.D., study author from the Translational Research on Aging and Chronic Disease Laboratory at Colorado State University in Fort Collins, CO.

To make this discovery, Miller and colleagues analyzed young, healthy, recreationally active males and females who completed sprint interval training (a series of very high intensity bouts of exercise on a stationary

bike for short periods of time (30 second), three times a week, for three weeks. Outside of the study, the subjects carried on with their normal activities. Before and after the study, aerobic capacity was measured in both genders. In addition, over the course of the exercise training, researchers measured how many new proteins were made as well as what kinds of proteins were made in muscle. The making of muscle proteins was measured using metabolic tracers to determine the cumulative new amount of protein over the entire period.

"Just as we move into an era of personalized medicine, this report helps pave the way to personalized fitness," said Gerald Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*. "In fact, the two are really part of the same health spectrum: medicine is usually fixes problems, and fitness usually prevents them."

More information: Rebecca L. Scalzo, Garrett L. Peltonen, Scott E. Binns, Mahalakshmi Shankaran, Gregory R. Giordano, Dylan A. Hartley, Anna L. Klochak, Mark C. Lonac, Hunter L. R. Paris, Steve E. Szallar, Lacey M. Wood, Frederick F. Peelor III, William E. Holmes, Marc K. Hellerstein, Christopher Bell, Karyn L. Hamilton, and Benjamin F. Miller. Greater muscle protein synthesis and mitochondrial biogenesis in males compared with females during sprint interval training *FASEB J*. June 2014 28:2705-2714; DOI: 10.1096/fj.13-246595

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