Hormone released after exercise can 'predict' biological age

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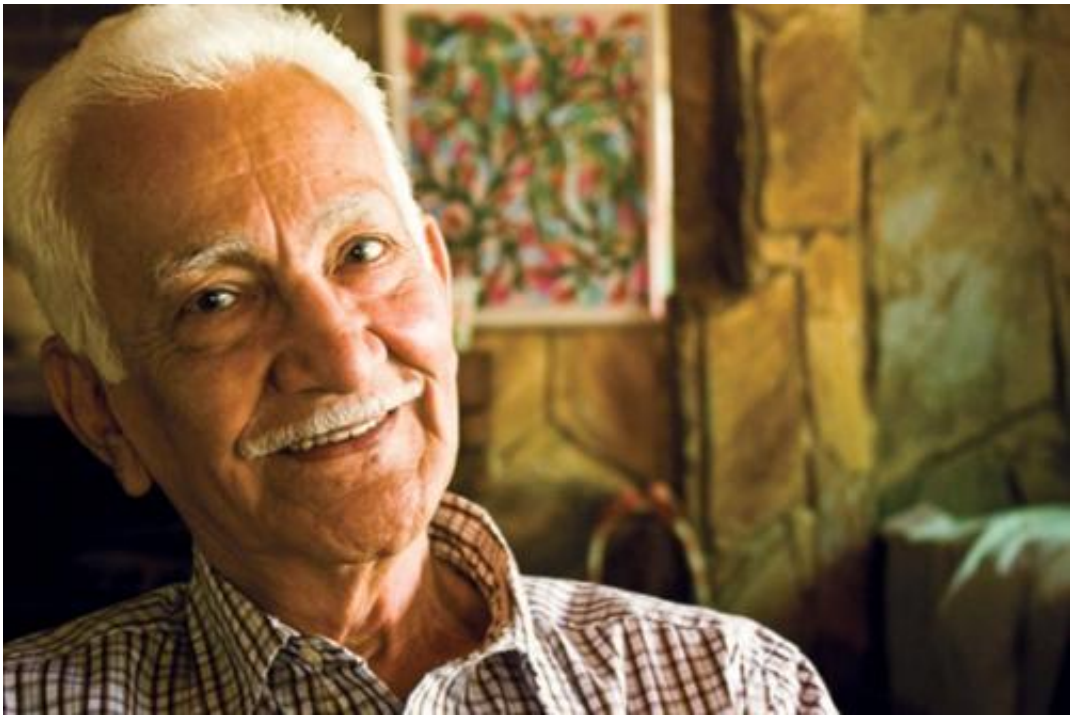

(Medical Xpress)—Scientists from Aston University have discovered a potential molecular link between Irisin, a recently identified hormone released from muscle after bouts of exercise, and the ageing process.

Irisin, which is naturally present in humans, is capable of reprograming the body's fat cells to burn energy instead of storing it. This increases the

metabolic rate and is thought to have potential anti-obesity effects which in turn could help with conditions such as type-2 diabetes.

The research team led by Dr James Brown have proven a significant link exists between Irisin levels in the blood and a biological marker of ageing called telomere length. Telomeres are small regions found at the end of chromosomes that shorten as cells within the body replicate. Short telomere length has been linked to many age-related diseases including cancer, heart disease and Alzheimer's disease.

Using a population of healthy, non-obese individuals, the team has shown those individuals who had higher levels of Irisin were found to have longer telomeres. The finding provides a potential molecular link between keeping active and healthy ageing with those having higher Irisin levels more 'biological young' than those with lower levels of the hormone.

Dr James Brown from Aston's Research Centre for Healthy Ageing, said; "Exercise is known to have wide ranging benefits, from cardiovascular protection to weight loss. Recent research has suggested that exercise can protect people from both physical and mental decline with ageing. Our latest findings now provide a potential molecular link between keeping active and a healthy ageing process."

Study information

Eighty-one healthy participants (44 males and 37 females;age, 18–83 years) with a mean body mass index (BMI) of between 20 and 30 kg/m2 were recruited from the local community in Birmingham, England. None of the participants in the present study were obese (BMI>30), pregnant, type 2 diabetic, previously diagnosed with cancer, suffered from immune disorder, were recently hospitalised or treated with oral corticosteroids.

To control for physical activity, all participants refrained from exercise for at least 12 h prior to recruitment. As there is no enhancing effect of long-term training on circulating irisin levels (Norheim et al. 2013), this ensured that physical activity was not a confounding factor. The study was approved by both Aston University and Staffordshire NHS Research Ethics Committees and written informed consent was given by all participants according to the principles of the Declaration of Helsinki. Subjects were asked to fast for a minimum of 8h prior to recruitment into the study.

More information: "Plasma irisin levels predict telomere length in healthy adults." Karan S. Rana, Muhammad Arif, Eric J. Hill, Sarah Aldred, David A. Nagel, Alan Nevill, Harpal S. Randeva, Clifford J. Bailey, Srikanth Bellary, James E. Brown. *Age*, January 2014. link.springer.com/article/10.1 … 7/s11357-014-9620-9#

Provided by Aston University