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Secret to healthy ageing

A study shows lifelong recreational exercise may maintain muscle strength in old age, writes Lili Lajman

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ANEW research has discovered the power of lifelong exercise to keep our muscles healthy. Lifelong physical activity may protect against age-related loss of muscle mass and function, according to research published in *The Journal of Physiology*.



Individuals aged 68 and above who were physically active throughout their life have healthier ageing muscles with superior function and are more resistant to fatigue compared to inactive individuals, both young and old.

This is the first study to investigate muscle, stem cell and nerve activity in humans.

The researchers from University of Copenhagen, Denmark, found that elderly individuals who keep physically active throughout their adult life, whether by taking part in resistance exercise, ball games, racket sports, swimming, cycling, running and/or rowing had a greater number of muscle stem cells, otherwise known as satellite cells in their muscles.

These cells are important for muscle regeneration and long-term growth, and they also protect against nerve decay.

“This is the first study in humans to find that lifelong exercise at a recreational level could delay some detrimental effects of ageing. Using muscle tissue biopsies, we’ve found positive effects of exercise on the general ageing population,” lead author Casper Soendenbroe, from the University of Copenhagen, says.

“This has been missing from the literature as previous studies have mostly focused on master athletes, who are a minority group.”

EXERCISE, AGEING AND MUSCLE HEALTH

“Our study is more representative of the general population aged 60 and above, as the average person is more likely to take part in a mixture of activities at a moderate level. That’s why we wanted to explore the relation between satellite cell content and muscle health in recreationally active individuals. We can now use this as a biomarker to further investigate the link between exercise, ageing and muscle health,” adds Soendenbroe.

The study witnessed the participation of 46 males. They were divided into three groups: young sedentary (15), elderly lifelong exercise (16) and elderly sedentary (15). They performed a heavy resistance exercise, sitting on a mechanical chair and performing a knee extension movement to evaluate muscle function.

The amount of force produced was measured. Blood samples were taken, and muscle biopsies were analysed from both legs. The researchers found elderly lifelong exercisers outperformed the elderly and young sedentary adults.

“The most important message from this study, is that even a little exercise seems to go a long way when it comes to protecting against the age-related decline in muscle function. This is an encouraging find that can hopefully spur more people to engage in an activity they enjoy. We still have much to learn about the mechanisms and interactions between nerves and muscles, and how these change as we age. Our research takes us one step closer,” says Soendenbroe.

The study was carried out only in males and the average age was 73. As the effects of ageing on muscle health become more pronounced at 80 years and above, followup studies are needed to see if the benefits of lifelong exercise are maintained later in life. Further investigation on recreational activity and muscle health also needs to be carried out in females.