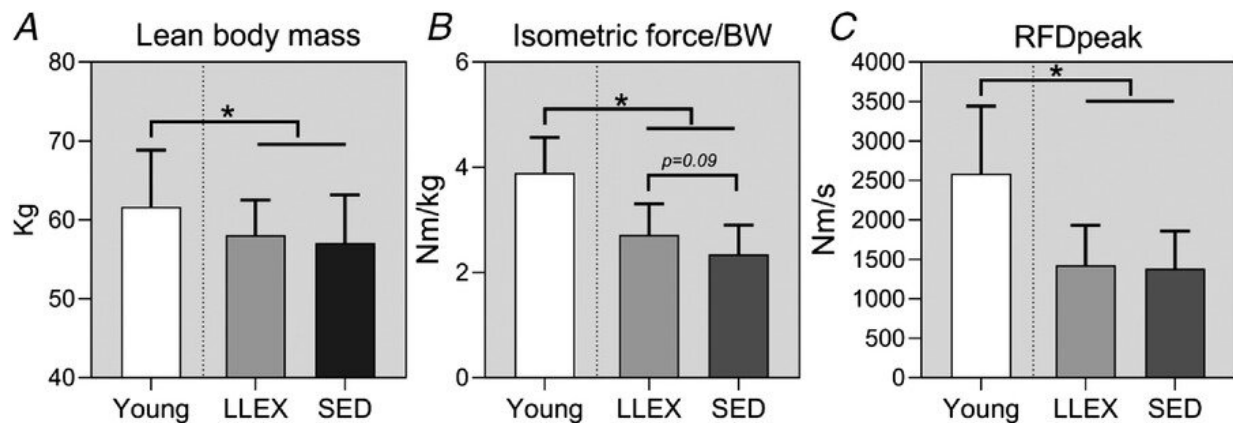


# New research highlights power of life long exercise to keep muscles healthy

March 17 2022



Muscle mass and strength. A, lean body mass, B, relative strength and C, rate of force development is provided for each group as averages with standard deviations. n = 15 (young), 16 (LLEX) and 15/14 (SED). Data were analysed using unpaired t tests. \*P The Journal of Physiology (2022). DOI: 10.1113/JP282677

Lifelong physical activity could 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 aging muscle that has superior function and is 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 muscle. These cells are important for muscle regeneration and long-term growth and protect against nerve decay.

There were 46 [male participants](#) in the study. They were divided into three groups: young sedentary (15), elderly lifelong exercise (16) and elderly sedentary (15). They performed a heavy resistance exercise, sitting in a mechanical chair performing a knee extension movement to evaluate muscle function. The amount of force produced was measured. Blood samples were taken, and muscle biopsies were analyzed from both legs. The researchers found elderly lifelong exercisers outperformed both the elderly and young sedentary adults.

Lead author Casper Soendenbroe, University of Copenhagen, Denmark said: "This is the first study in humans to find that lifelong exercise at a recreational level could delay some detrimental effects of aging. Using muscle tissue biopsies, we've found positive effects of exercise on the general aging population. This has been missing from the literature as previous studies have mostly focused on master athletes, which is a minority group. 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, aging and muscle health."

"The single 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 finding which can hopefully spur more people to engage in an activity that 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."

It is worth noting that the study was only carried out in males and the average age was 73. As the effects of aging on muscle health become more pronounced at 80+ years, follow up studies are needed to see if the benefits of lifelong exercise are maintained later in life. Further investigation on recreational activity and muscle health need to be carried out in females.

**More information:** Casper Soendenbroe et al, Preserved stem cell content and innervation profile of elderly human skeletal muscle with lifelong recreational exercise, *The Journal of Physiology* (2022). [DOI: 10.1113/JP282677](https://doi.org/10.1113/JP282677)

Provided by The Physiological Society

Citation: New research highlights power of life long exercise to keep muscles healthy (2022, March 17) retrieved 8 May 2024 from <https://medicalxpress.com/news/2022-03-highlights-power-life-muscles-healthy.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--