

Losing muscle power as we age: A fat molecule may be a factor in the decline of strength in older adults

August 12 2013, by Julie Flaherty

As people get older, fat tissue inevitably takes up residence in their muscles, but some of that fat may be particularly damaging. A small study conducted at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) suggests that buildup of a fat molecule known as ceramide might play a leading role in muscle deterioration in older adults.

The study enrolled 10 men in their mid-70s and nine men in their early 20s. None was overweight, and none had exercised in six months. The researchers, including first author Donato Rivas, an HNRCA scientist, took [muscle biopsies](#) before and after the participants performed a single round of leg exercises to examine how the workout affected muscle growth. Their analysis showed that two types of ceramide molecules were higher in the older men.

"We suspect that the increased storage of ceramide we saw in the older men, exacerbated by the presence of saturated fat, has a part in weakening the anabolic signaling that responds to [resistance exercises](#) and helps with the assembly of new muscle," says Roger Fielding, N93, senior author and director of the HNRCA Nutrition, Exercise Physiology and Sarcopenia Laboratory.

Learning more about ceramide activity through larger, long-term interventional trials may identify a role for dietary or therapeutic [drug](#)

[interventions](#) in treating sarcopenia, an age-related condition of muscle loss and function.

"The deterioration of muscle is compounded by a loss of muscle strength, which really begins to decline around age 50 and appears to be a factor in the visible decrease in mobility people exhibit around age 80," adds Fielding, who is also a professor at the Friedman School.

Previous research done at Tufts and other institutions suggests that even with limited exercise, [older adults](#) can maintain and build some new muscle. "Until there is enough research to develop specific exercise and dietary interventions, staying as physically active as deemed safe by your health-care provider can only benefit aging muscle."

The results of the study were published in the *Journal of Applied Physiology*.

Provided by Tufts University

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