

Study: Overweight older women have less leg strength, power

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A new study from the University of New Hampshire finds that the leg strength and power of overweight older women is significantly less than that of normal-weight older women, increasing their risk for disability and loss of independence. With more Americans aging and becoming overweight or obese, the study, published recently in the *Journal of Electromyography and Kinesiology*, dispels the popular image of the bird-thin elder being at greatest risk of becoming disabled due to loss of muscle mass.

"That's the chorus that's been sung for the last 20 years," says lead author Dain LaRoche, assistant professor of kinesiology at UNH. "But with two-thirds of Americans overweight or obese and the [elderly population](#) expected to double by year 2030, we are going to see a large portion of people who are disabled due to the concurrent gaining of weight and loss of strength."

Working with two undergraduate students, Rachel Kralian and Erica Millet (both class of 2010), LaRoche sought to measure the impact of [excess weight](#) on subjects' [leg strength](#), walking speed, and power, the factors that affect activities of daily living like rising from a chair or climbing stairs. They found very little difference in the absolute strength of the overweight and normal-weight participants, but when their strength-to-weight ratio was calculated, the overweight women had an average of 24 percent lower strength than the normal-weight study participants.

"The deficits were even worse when you looked at power," says LaRoche, adding that power – the rate at which strength is applied – is more closely related to physical functions and fall risk than strength. The [overweight women](#) demonstrated 38 percent less power than the normal weight women. [Walking speed](#) was significantly slower – about 20 percent – for the overweight participants, as well.

"Everything pointed to the fact that it was the extra fat that these people were carrying that was really limiting their mobility," he says. "Being of a normal body weight lets you perform activities of daily living and live on your own longer."

Based on these findings, LaRoche suggests that normal-weight adults should work to maintain their weight and strength as they age. Older adults who are overweight can improve their strength-to-weight ratio by either losing weight or gaining strength. Perhaps surprisingly, data suggest the latter is the easier route. While most people are not successful at losing weight, "even the oldest old people can have dramatic increases in strength," says LaRoche, citing an earlier study he did (read about it here: http://www.unh.edu/news/cj_nr/2008/oct/bp23strength.cfm). The key to building strength is to fatigue the muscle with eight to fifteen repetitions, an aspect many new to weight training overlook.

LaRoche has been researching effects of strength and exercise on elderly populations for several years, but this is his first foray into the effects of obesity on this population. "I never intended to study overweight and obese elders, but it became obvious to me that being overweight is a growing and problematic concern," he says.

More information: A summary of the study, called "Fat mass limits lower-extremity relative strength and maximal walking performance in older women," is available here:

www.ncbi.nlm.nih.gov/pubmed/21824789

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