

Calorie reduction + exercise = better muscle function in older adults

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Improved muscle performance starts with better mitochondrial function. Older adults who are overweight may improve their muscle function with a weight loss program that combines exercise and calorie reduction, according to researchers from Florida Hospital, in Orlando, Fla., who present their findings today at the American Physiological Society's Physiological Bioenergetics: Mitochondria from Bench to Bedside conference in San Diego.

The researchers studied three groups of obese seniors (average age: 70) over the course of six months:

- One group followed a reduced-calorie diet to lose weight.
- A second group combined calorie restriction with a supervised exercise program.
- A control group attended health education classes but did not follow any specific diet or exercise program.

The research team took samples of muscle fibers from all volunteers before and after the trial period to measure the mitochondria's ability to use oxygen and provide the cells with energy (mitochondrial respiratory capacity). Mitochondrial respiratory capacity typically decreases with age as some people become less active and gain weight. "Increased mitochondrial capacity is desired as it translates to greater metabolic and muscular functions," wrote Giovanna Distefano, PhD, first author on the study.

The researchers found no change in mitochondrial respiration rate in the control and calorie-restricted groups. The exercise and diet group, however, demonstrated improved [mitochondrial respiration](#) rates and a higher exercise capacity. These results suggest that "the addition of [exercise training](#) to a calorie restriction-induced [weight loss program](#) is essential to promote improvements in mitochondrial capacity," Distefano wrote.

Provided by American Physiological Society

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