

For longevity, muscle strength may be as important as aerobic exercise

By Ian McMahan

January 29, 2023

While aerobic exercise has long taken the lead in physical activity guidelines, researchers are finding that biceps curls and bench presses might be equally important for health and longevity.

Strength training — exercise that increases muscle strength by making muscles work against a weight or force (such as gravity) — was added to the 2010 Global Recommendations on Physical Activity for Health.

In a recent meta-analysis combining 16 studies and data from over 1.5 million subjects, muscle-strengthening activities were associated with almost a 20 percent lower risk of cardiovascular disease, cancer, diabetes, lung cancer and all-cause mortality.

“Strength training confers a host of health benefits independent of aerobic exercise,” said Daniel J. McDonough, a researcher at the University of Minnesota’s School of Public Health and co-author of a large study that looked at the effect of aerobic and muscle-strengthening exercise on mortality. Adding some muscle also improves physical fitness and bone mineral density and reduces the risk of musculoskeletal injury.

Running, swimming, playing soccer and other aerobic exercise do a lot for the cardiovascular system — our heart and blood vessels — but they don’t do much for overall muscle mass or strength.

Perhaps most important for health, studies have found that strength training improves the body’s response to insulin and, therefore, leads to better control of blood sugar after meals — which means a reduced risk of diabetes or insulin resistance, conditions that can harm the heart and cardiovascular system by thickening the heart wall and increasing arterial plaque formation.

Also, emerging evidence shows contracting skeletal muscles produce myokines, which are small strings of amino acids existing between muscles and the rest of the body that can help regulate various metabolic processes conducive to better cardiometabolic health, McDonough says. German researchers last spring reported that “by stimulating the skeletal muscle in a certain way, we can make use of this cross talk and improve health.”

Because aging and inactivity tend to reduce muscle mass, resistance training is even more crucial for older adults as it helps slow the natural loss of muscle mass with age, McDonough says. Reducing muscle loss with advanced age is crucial to maintaining independence and

helping older adults stay active. This also lowers the risk of chronic disease from disability and inactivity.

Strength training appears to have positive effects on brain health and function, perhaps decreasing the risk of dementia and Alzheimer's disease, experts say.

Michael Valenzuela is a researcher at the University of New South Wales and one of the leaders of a study that looked at the effect of resistance exercise on cognitive function and brain structure in 100 subjects with mild cognitive impairment. He found that strength training appeared to protect areas of the brain, specifically the hippocampus, normally targeted by Alzheimer's.

That may give strength training a potential role in prevention of the disease, Valenzuela says. "We also found these changes mediated better general cognitive performance in those older people that did the training, so it was not just an incidental finding," he says.

A 2022 study in JAMA Network Open based on the Canadian Longitudinal Study on Aging found that the presence of low muscle mass was associated with faster future cognitive function decline in adults at least 65 years old. The researchers theorized that greater muscle mass may result in more physical activity and cardiorespiratory fitness, which leads to more blood flow to the brain.

So how much strength training is enough?

The federal Physical Activity Guidelines for Americans recommends two or more strength-training sessions each week. Ideally, the sessions should include four to six different exercises that use as many muscle groups as possible (legs, hips, back, abdomen, chest, shoulders, and arms). For each exercise, complete 10 to 12 repetitions two to three times.

"We found that just 1-3 hours per week of moderate exercise — brisk walking and/or vigorous aerobic exercise such as [high intensity interval training] training — and just 1-2 times per week of strength exercise substantially reduced the risk of death by all-causes," McDonough says.

Given that walking to the bus or store counts, most people should be able to get in 60 minutes a week of aerobic exercise, McDonough says. And the two sessions of strength training don't have to be at the gym, he adds. They can be with any form of resistance, such as gravity, hand weights, resistance bands, or even water bottles or cans from the cupboard, or hefting grocery bags.

So cardio or weights or both? If you're looking to live longer, doing both is your best bet, experts say.

"We consistently found that the greatest health benefits, whether it was reduced risk of death or chronic diseases or improvement in risk factors like blood pressure or cholesterol, were seen

among people who performed both types of exercise rather than one or the other,” said Angelique Brellenthin, an assistant professor of kinesiology at Iowa State University and co-author of a recent review article titled “Aerobic or Muscle-Strengthening Exercise: Which is Better for Health?”

The review found that while aerobic and muscle-strengthening exercise independently reduced the risk of death by all causes, people who hit the cardio and the weights realized the largest benefit, including an approximately 40 percent reduced risk of all-cause mortality and 50 percent reduced risk of cardiovascular disease mortality.