

Weightlifting for an Hour a Week Cuts Risk for Stroke and Heart Attack Up to 70%

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STORY AT-A-GLANCE

- › Strength training is foundational for optimal health, especially as you get older. It's not just about keeping your musculature strong; resistance training also benefits your heart, metabolism, cognition and mental health
- › Recent research shows less than an hour of strength training per week can reduce your risk for heart attack and stroke anywhere from 40% to 70%
- › These cardiovascular benefits were independent of aerobic exercises such as walking and running; strength training alone will lower your risk of heart attack and stroke, even if you don't meet the recommended guidelines for aerobic activity
- › Less than one hour of resistance training per week also lowers your risk of metabolic syndrome by 29% and high cholesterol by 32%, independently of aerobic exercise
- › Strength training also benefits your brain. In fact, there's a strong link between muscle strength – especially leg strength – and cognitive health

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Strength training is foundational for good health, especially as you get older. Importantly, weights is not just about keeping your musculature strong; it has a number of other health benefits that at first glance may seem unrelated, including improved metabolism, cognition and mental health.

Strength training is also important for heart health, and recent research^{1,2} shows less than an hour of strength training per week can reduce your risk for heart attack and stroke anywhere from 40% to 70%.

Weightlifting Protects Against Heart Attack and Stroke

The study³ in question, which had a mean follow-up of 5.4 and 10.5 years, analyzed data from nearly 13,000 adults taking part in the Aerobics Center Longitudinal Study, looking at three health outcomes:

1. Nonfatal cardiovascular events such as heart attack and stroke
2. All cardiovascular events, including death
3. All-cause mortality

Strength training reduced the risk for all three. According to the authors:⁴

"Compared with no resistance exercise, weekly resistance exercise frequencies of one, two, three times or total amount of one to 59 minutes were associated with approximately 40% to 70% decreased risk of total cardiovascular disease events, independent of aerobic exercise."

The fact that the cardiovascular benefits of weightlifting were independent of aerobic exercises such as walking and running means strength training is sufficient in and of itself. It alone will lower your risk of heart attack and stroke, even if you don't meet the recommended guidelines for aerobic activity. Just don't overdo it.

(The U.S. Centers for Disease Control and Prevention recommends⁵ at least 2.5 hours of moderate-intensity aerobic exercise each week.)

Weight Training Is Cardiovascular Exercise

It's worth remembering that cardiovascular exercise involves any physical exertion during which your heart and respiratory rates accelerate. While most people equate

cardiovascular exercise with aerobic exercises such as running or cycling, fitness experts note you cannot fully access your cardiovascular system unless you're performing mechanical work with your muscles.

So, strength training is in fact a cardiovascular workout. Overall, in this particular study⁶ resistance exercise was found to influence cardiovascular event risks in two ways, as it:

1. Had a direct U-shape association with cardiovascular disease risk
2. Indirectly lowered cardiovascular disease risk by decreasing body mass index

It's also noteworthy that even small amounts of strength training can have significant benefits. As noted by Duck-chul Lee, associate professor of kinesiology and one of the study's authors:⁷

"People may think they need to spend a lot of time lifting weights, but just two sets of bench presses that take less than five minutes could be effective ... The results are encouraging, but will people make weightlifting part of their lifestyle? Will they do it and stick with it? That's the million-dollar question."

Interestingly, your grip strength has also been shown to be predictive of your heart attack and stroke risk. In one study,⁸ there was a 17% increased risk of cardiovascular death, a 7% increased risk of heart attack and a 9% increased risk of stroke for every 11-pound decrease in grip strength. In fact, grip strength was a stronger predictor of all-cause and cardiovascular mortality than systolic blood pressure.

Strength Training Also Lowers Risk for Metabolic Syndrome

Lee's team has also analyzed the relationship between weight training and metabolic syndrome⁹ (a risk factor that raises your risk for Type 2 diabetes, heart disease and stroke) and high cholesterol.¹⁰

Again, less than one hour of resistance training per week lowered the risk of both – metabolic syndrome by 29% and high cholesterol by 32% – and again these reductions

were independent of any other aerobic exercise. Lee commented on the results, saying:¹¹

"Muscle is the power plant to burn calories. Building muscle helps move your joints and bones, but also there are metabolic benefits. I don't think this is well appreciated. If you build muscle, even if you're not aerobically active, you burn more energy because you have more muscle. This also helps prevent obesity and provide long-term benefits on various health outcomes."

Leg Strength Linked to Cognitive Health

Strength training also benefits your brain. In fact, there's a strong link between muscle strength — especially leg strength — and cognitive health. This fascinating link was again demonstrated in a recent study^{12,13} published in *Frontiers in Neuroscience*, which shows that neurological health is as dependent on signals from your large leg muscles as it is on signals from your brain to your muscles.

In other words, it's a two-way street, and neither "lane" is more important than the other. As noted by the authors:

"... [P]atients affected by chronic movement-limiting pathologies face impairment in muscle and/or brain performance ... Severe movement limitation can influence not only the motor and metabolic systems but also the nervous system, altering neurogenesis and the interaction between motoneurons and muscle cells ..."

"The overall results support the existence of a link between reduction of exercise and muscle disuse and metabolism in the brain and thus represent valuable new information that could clarify how circumstances such as the absence of load and the lack of movement that occurs in people with some neurological diseases, may affect the properties of NSCs and contribute to the negative manifestations of these conditions."

According to the press release,¹⁴ this finding "fundamentally alters brain and nervous system medicine – giving doctors new clues as to why patients with motor neuron disease, multiple sclerosis, spinal muscular atrophy and other neurological diseases often rapidly decline when their movement becomes limited."

In other words, whenever you're unable to perform load-bearing exercises, you not only lose muscle mass due to muscle atrophy, but your body chemistry is impacted in such a way that your nervous system and brain also begin to deteriorate.

In this study, neural stem cells – undifferentiated stem cells that can develop into both neurons and other brain cells – declined by a whopping 70% in mice who were prevented from using their hind legs for 28 days, compared to unhindered controls. This suggests weight-bearing exercise signals the brain to produce healthy neural cells.

What's more, by not using the leg muscles, two genes were adversely impacted. One of them, known as CDK5Rap1, plays an important role in mitochondrial health and function, which is yet another important reason for getting weight-bearing exercise.

Another, perhaps key, factor that helps explain the link between muscle strength and brain health is related to how exercise affects brain-derived neurotrophic factor (BDNF), a remarkable rejuvenator found in both your muscles and your brain.

In your brain, BDNF helps preserve existing brain cells,¹⁵ activates brain stem cells to convert into new neurons (neurogenesis) and promotes actual brain growth, especially in the hippocampus area, a region associated with memory.

Other Studies Demonstrating Muscle-Brain Link

Many other studies have confirmed this intriguing muscle-brain link, including the following:

- **Walking boosts hippocampal volume** – In a 2011 study,¹⁶ seniors who walked 30 to 45 minutes, three days per week for one year, increased the volume of their hippocampus by 2%. Typically, your hippocampus tends to shrink with age. The

results prompted the authors to claim exercise is "one of the most promising nonpharmaceutical treatments to improve brain health."

- **Leg strength maintains cognitive function** – A 2016 study¹⁷ in the journal *Gerontology* found that working your leg muscles helps maintain cognitive function as you get older. According to the authors, simply walking more could help maintain brain function well into old age.

The study followed 324 female twins, aged 43 to 73, for a decade. Cognitive function such as learning and memory was tested at the outset and at the conclusion of the study. Interestingly, leg strength was found to be a better predictor for brain health than any other lifestyle factor they reviewed.

Consistently, the twin with the greatest leg strength maintained higher cognitive functioning over time compared to her weaker twin. The stronger of the pair also experienced fewer age-related brain changes over time.

- **Leg workout enhances memory** – A Georgia Tech study¹⁸ (featured in the video above) found that 20 minutes of strength training enhanced long-term memory by about 10%.
- **Resistance training reduces age-related brain shrinkage** – Resistance training also helps reduce shrinkage of white brain matter, thereby improving your cognition. In one study, elderly sedentary women taking part in a 12-week strength exercise program improved their cognitive ability by 19%.¹⁹

Weight Training Benefits Your Health in Numerous Ways

Aside from protecting and improving heart and brain health, strength training has also been shown to:

Improve your insulin sensitivity – Mark Peterson, assistant professor of physical medicine at the University of Michigan, notes: "Muscle is very metabolically active,

and it uses glucose, or blood sugar, for energy."²⁰ Thus muscle activity reduces your risk of insulin resistance.

Reduce your risk of metabolic syndrome — This cluster of conditions includes a large waist circumference, high triglycerides, **high blood pressure** and high blood sugar, which raises your risk of Type 2 diabetes and heart disease.

Research shows working with weights for just under an hour per week can cut your risk of metabolic syndrome by 29%.^{21,22} Other research has found a twice-weekly resistance training program improved insulin sensitivity and reduced abdominal fat in older men who had already developed Type 2 diabetes, without any dietary changes.²³

Lower inflammation — Resistance training lowers inflammation in your body, a hallmark of most chronic disease, especially heart disease and cancer.

Improve mental health — In a meta-analysis of 16 previously published studies evaluating the effect of strength training on anxiety, the data demonstrated resistance training was associated with a reduction in symptoms of anxiety, whether or not the participant had a diagnosis of a mental health disorder.²⁴

Reduce your risk of sarcopenia — Strength training helps prevent the natural loss of skeletal muscle that occurs with advancing age, called sarcopenia. This is an important factor in the loss of independence and functional decline. In one study,²⁵ researchers demonstrated strength training reversed muscle atrophy in 70-year-old participants.

Reduce your risk of osteoporosis — As it improves your muscle mass, strength training also reduces your risk of osteoporotic changes to your bone and thus prevents broken hips, wrists or vertebrae from calcium loss and thinning.

Improve mobility and reduce your risk of falling — Bone and muscle loss are compounded by a sedentary lifestyle, increasing your risk of loss of mobility. Weak muscles in combination with a brittle bone structure are a recipe for crippling and disabling falls.

Boost your metabolism – Increased muscle mass also boosts your metabolism and helps you to lose or maintain your weight.

Prevent joint damage – Inactivity and muscle loss increases the potential damage to large joints, leading to arthritic changes and pain, while strength training helps prevent these changes.²⁶

Reduce perimenopausal symptoms in women – Symptoms of perimenopause, including anxiety and depression, mood swings, irregular periods, weight gain and brain fog, are reduced with strength training. In part these changes are the result of increasing production of testosterone, typically thought of as a male sex hormone.

During menopause, natural levels of testosterone may drop by as much as 50%.²⁷ Although women should not take testosterone supplementation, improving your natural production using strength training is a safe way to address perimenopausal symptoms.

Important Cautions if You Are New to Strength Training

Before you get started, I advise you to take a moment to evaluate your level of readiness for strength training by considering some important cautions. Check with your doctor first if you:

- Are a senior citizen who previously has not been physically active
- Are currently dealing with a serious illness
- Have a chronic condition, such as low-back pain or a bad knee

It's best to warm up your muscles before launching into strength training because cold muscles are more prone to injury than warm ones. Five to 10 minutes of brisk walking or another aerobic activity can help warm your muscles.

As you do each set of repetitions, listen to your body. If you experience pain, stop the exercise immediately. You might try again by changing your posture or position or using less weight. Using proper technique is an important aspect of strength training. Not only will good technique help you avoid injuries, but it will also ensure you achieve maximum benefits from the workout.

Another technique you can try is blood flow restriction training or Kaatsu training. It involves performing strength training exercises while restricting venous blood flow (but not arterial flow) to the extremity being worked.

A significant benefit of the method is that you can do strength exercises using just 30% to 50% of the weight you'd normally use while still reaping maximum benefits.

By restricting blood flow to the muscle, lactic acid and other waste products build up, giving you the same benefit as heavy lifting but without the dangers associated with heavy weights. For this reason, it's a great strategy for the elderly and those who are recuperating from an injury.

If you are brand-new to weight training and feel unsure about how to approach it, take a class or watch a video. Another option is to work with a personal trainer to learn the correct form and technique for the types of strength training of interest to you.

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