

Strong Calves Are Linked to Better Brain Health

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October 18, 2025

STORY AT-A-GLANCE

- › Strong calf muscles act like a second heart, boosting circulation and delivering oxygen to your brain to support sharper thinking
- › Larger calves are linked with better balance, fewer falls, and a reduced risk of dementia as you age
- › Leg strength stimulates the release of growth factors that help your brain grow new cells and preserve memory
- › Simple exercises like calf raises, lunges, and squats build muscle, improve stability, and protect long-term independence
- › Tracking your calf size and strength gives you a clear, measurable way to safeguard both your body and your mind

Your legs are more than just a way to get from one place to another – they're a powerful driver of how your brain ages. The strength and size of your calves reflect not only your physical stability but also your ability to keep your memory sharp and your mind resilient.

Muscles in your lower legs are uniquely active, working every time you walk, climb stairs, or rise from a chair. That constant effort means they influence how well you balance, how quickly you move, and whether you stay steady enough to avoid dangerous falls.

Falls aren't just physical setbacks — they're strongly tied to higher odds of dementia later in life, making lower body strength a direct investment in your long-term brain health.

Researchers have also shown that calf and leg strength are tied to how your brain stays supplied with oxygen and nutrients, how flexible your thinking remains as you age, and even how long you maintain your independence. These connections highlight a simple truth: training your legs is training your brain. This relationship between strong calves and brain health sets the stage for examining new research on circulation, cognition, and how everyday exercises protect both body and mind.

Calves Work Like a Second Heart to Protect Your Brain

An article published in The Telegraph explained how stronger calf muscles — especially the soleus, the smaller muscle underneath the main calf muscle — act like a "second heart" by pumping blood back up toward your chest and brain.¹ When your calves contract, they squeeze blood vessels and act as a pump to move blood upward against gravity. This pumping increases blood flow, improves oxygen delivery, and reduces stagnation in your lower body.

Over time, this simple physiological effect has a profound influence on heart function, brain oxygenation, and overall energy levels. This means every step you take with stronger calves supports circulation that keeps oxygen moving where it's needed most.

- **Larger calves are linked with better cardiovascular outcomes** — Stronger calf muscles are tied to healthier circulation, lower blood pressure, and even a reduced risk of heart failure after a heart attack.² The same circulation that helps your heart also feeds your brain with the oxygen it needs to function properly.
- **Bigger calves are strongly tied to sharper thinking in older adults** — A study of 12,102 Chinese seniors showed that having calves under about 31 centimeters (cm) in size was linked to weaker cognition, while increasing size up to that point

improved brain function.³ Above 31 cm, the benefit leveled off, with women showing a stronger connection – especially those over 85 or who didn't exercise often.

- **Stronger calves protect you from falls and broken bones** – Beyond brain benefits, strong calves keep you steady on your feet and in proper alignment. That means **fewer falls**, less pressure on your knees and hips, and a much lower chance of suffering the fractures that often steal independence in older age.
- **Specific exercises help target these muscles effectively** – Simple strategies like calf lifts, split squat jumps, and single-leg hops strengthen not just your calves but also your **feet** and shin muscles, giving you a solid base for balance and long-term mobility.

Small Calves Signal Bigger Risks for Your Brain

An article published in the New York Post explored how calf circumference – the distance around the widest part of your lower leg – is emerging as a practical marker for cognitive health.⁴ Researchers explained that smaller calf sizes are connected with poorer memory and thinking skills, while even modest increases in calf size are tied to stronger brain performance.

- **The soleus muscle plays a central role in blood pressure and brain health** – Human physiology researcher Kenneth McLeod explained that these deep muscles in the back of your legs are specialized pumps that drive blood back up to your heart.

He noted that "raising resting diastolic blood pressure through daily soleus muscle stimulation, over a period of several months, can reverse the cognitive impairment associated with aging."⁵ In plain terms, activating these muscles improves circulation in a way that restores brain function that aging often steals.

- **Sarcopenia connected to cognitive decline** – **Sarcopenia** is the age-related loss of muscle mass and strength, and calf circumference is a useful way to detect it. Research shows that sarcopenia is strongly associated with mild cognitive

impairment and Alzheimer's disease.⁶ This means that watching the size of your calves is more than a cosmetic concern — it's a way to track whether your brain is at higher risk.

Leg Strength Sparks Brain Growth and Flexibility

Beyond your calves, an article published by Blueberry Therapy explains that training large leg muscles like your thighs and glutes stimulates blood flow, hormone release, and even the birth of new brain cells in your hippocampus, the part of your brain that handles memory and learning.⁷ This means every **squat** or lunge you perform has a ripple effect that strengthens your brain as well as your body.

- **Stronger legs predict better memory and thinking** — A study that tracked 324 female twins for a decade revealed that the sisters with stronger legs at the start of the study had sharper cognition later in life.⁸
- **Immobilized legs reduce neural stem cell production** — Experiments with mice showed that keeping hind legs inactive for 28 days led to a sharp drop in neural stem cells, the building blocks needed to repair and regenerate brain tissue.⁹ In other words, when your legs don't move, your brain loses its ability to renew itself.
- **Leg strength is directly tied to living longer** — A meta-analysis of 38 studies involving more than 1.9 million people found that adults with stronger muscles — including leg strength measured by knee extension — had a 14% lower risk of death from any cause, showing that building lower-body power is not just about mobility but also about extending your lifespan.¹⁰
- **Why your legs and brain are intertwined** — Large leg muscles demand more oxygen and nutrients during exercise, which increases blood flow throughout your body, including your brain. That surge stimulates growth factors — natural chemicals that encourage brain cell repair and new connections. This cycle helps keep your memory sharp, your mood stable, and your risk of neurological disease lower.

How to Strengthen Your Calves and Protect Your Brain

If you want to protect your memory and independence as you age, a smart step you can take is to strengthen your legs — especially your calves. Weak lower limbs reduce circulation, speed up muscle loss, and raise your risk of falls that are tied to dementia. The good news is that you can reverse this trend by making a few simple changes to your daily routine. Think of this as building a safety net for your brain with every rep, step, and jump you take.

- 1. Measure and track your calf size** — Start by wrapping a soft tape measure around the widest part of your calf while sitting or standing. If you're a man, aim for at least 34 centimeters, and if you're a woman, aim for at least 33 centimeters.¹¹ Tracking your progress gives you a clear goal and makes it easier to see the payoff from your efforts.
- 2. Do daily calf raises** — Stand with your feet shoulder-width apart, rise up on your toes, and lower your heels slowly. Begin with three sets of 20 raises every other day. Once this feels easy, add weight in your hands or progress to single-leg raises. This exercise directly targets the soleus, your "second heart," which boosts circulation and feeds oxygen to your brain.
- 3. Add balance and stability drills** — Practice standing on one leg while circling the raised leg or lightly hopping in place. These movements strengthen not only your calves but also your feet and shin muscles. If you've struggled with ankle sprains or **poor balance**, this step is especially important for staying steady and reducing fall risk.
- 4. Incorporate larger leg movements** — Squats, lunges, and split squat jumps activate your thighs and glutes while giving your calves extra workload. If you're a beginner, start with bodyweight only. As your strength builds, you can add weights or increase intensity with variations like jumping lunges. These moves improve blood flow and trigger the release of growth factors that support memory and learning.

5. Spend time barefoot on natural surfaces – Modern shoes often limit foot strength and calf activation. Spend time **barefoot on natural surfaces** like grass or sand. This **strengthens your foundation**, improves posture, and ensures that your calves work at their full potential to keep your circulation strong and your brain sharp.

FAQs About Strong Calves and Brain Health

Q: Why are strong calves important for brain health?

A: Strong calves improve circulation by acting like a pump that pushes blood back to your heart and brain. Better circulation means more oxygen and nutrients reach your brain, which supports sharper memory and reduces your risk of cognitive decline.

Q: How does calf size relate to dementia risk?

A: Studies show that smaller calves are linked with weaker cognition and higher risk of dementia. Increasing calf circumference to at least 33 centimeters for women and 34 centimeters for men is recommended for optimal health.

Q: What happens if I ignore calf strength as I age?

A: Weak calves raise your risk of falls, which are tied to a higher chance of a dementia diagnosis. They also accelerate frailty and muscle loss, which undermine both mobility and independence.

Q: What kinds of exercises strengthen calves and improve brain health?

A: Daily calf raises, heel drops, squats, lunges, single-leg balance drills, and even jump rope build calf size and strength. These movements also activate larger leg muscles, which release growth factors that encourage brain cell repair and growth.

Q: Do I need equipment to get these benefits?

A: No. You can strengthen your calves and protect your brain with bodyweight exercises done at home. Simple habits – like standing on one leg, hopping lightly, or walking barefoot on natural surfaces – are enough to trigger the brain-boosting benefits of stronger calves.

Sources and References

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- ⁷ [Blueberry Therapy, June 7, 2023](#)
- ⁸ [Gerontology. 2015 Nov 10;62\(2\):138–149](#)
- ⁹ [Front. Neurol., 23 October 2018](#)
- ¹⁰ [Arch Phys Med Rehabil. 2018 Oct;99\(10\):2100-2113.e5](#)
- ¹¹ [BMC Geriatr. 2023 Dec 8;23:826](#)