

## Muscle: The Organ that Powers Vitality

*In this series, discover how skeletal muscle, the body's largest organ, impacts health and longevity. From regulating hormones and blood sugar to boosting brain health, muscles are far more than just a source of strength.*

By [Sheramy Tsai](#) (Epoch Health / The Epoch Times) August 21, 2024 Updated: August 24, 2024

### Part 6

# How Building Strength Boosts Mental Health

**A strong body leads to a strong mind—dumbbells might be the key to mental health.**

What if the secret to a sharper mind and a happier life lies in the weight room? Research reveals a strong link between physical strength and mental well-being. Building muscle not only tones the body but also sharpens the mind, lifts the spirit, and combats anxiety and depression. As scientists delve deeper, it's becoming clear that the path to a healthier mind might just lead to the dumbbells.

## Strong Muscles, Strong Mind

Cardiovascular exercises such as running and cycling are well-known for reducing anxiety and boosting mood. A 2019 [study](#) found that 15 minutes of daily running can lower depression risk. [Research](#) from 2020 showed that a few weeks of regular, moderate exercise such as jogging or cycling noticeably reduced stress and boosted mental health in college students.

And it's not just cardio that matters. Building muscle is equally important for mental well-being. More recent [research](#) suggests that low muscle mass can undermine mental health, making strength training essential for a healthy mind. "Strength training has been linked to better cognitive and mental health," Dr. Austin Perlmutter, a board-certified internal medicine physician and co-author of "Brain Wash," told The Epoch Times. "That means lifting weights, in addition to helping you get stronger, can support clearer thinking and better mood."

## Strengthening the Mind Through Muscle Health

Imagine enhancing your memory, focus, and problem-solving skills simply by building muscle. Research suggests that improving muscle health can boost our ability to think, learn, and understand.

A 2020 [study](#) in BMC Nutrition found that seniors with low muscle mass had worse cognitive function, lower quality of life, and more symptoms of depression than those with normal muscle mass. While other health issues and poor nutrition contributed, the study concluded that “low muscle mass was associated with poor mental health.”

Building on this, a 2022 [study](#) in JAMA Network Open found that adults aged 65 to 86 with low muscle mass experienced a faster decline in executive function—mental skills essential for managing tasks and making decisions.

The Memory and Aging Center at the University of California–San Francisco notes that this decline [can affect activities](#) such as handling finances, making long-term plans, and managing time, potentially leading to poor decisions and loss of independence.

“Exercise is perhaps the best-studied method of protecting and enhancing brain health across the lifespan,” Perlmutter said. “People who exercise are at a dramatically lower risk for conditions like Alzheimer’s and depression, and research shows us that exercise translates into immediate benefits to cognitive ability as well.”

A recent [study](#) in JAMA Neurology backs this up, revealing that a lack of exercise is a major risk factor for Alzheimer’s disease, with 11.8 percent of cases linked to physical inactivity. Additionally, [research](#) in BMJ Medicine suggests that building lean muscle reduces Alzheimer’s risk by 12 percent, highlighting the protective power of staying active and strong.

Muscle strength is just as crucial as muscle mass, especially as we age. A [study](#) published in Clinical Interventions in Aging found that older adults with sarcopenia—a condition characterized by low muscle mass and strength—are at a much higher risk for cognitive and physical difficulties.

Among 223 participants over age 40, those with sarcopenia were six times more likely to struggle with both memory and physical tasks. This increased risk persists even after considering other health factors, tripling the likelihood of impairments that can lead to falls, confusion, and forgetfulness.

These challenges can make everyday activities, such as navigating stairs or remembering appointments, significantly harder, potentially compromising independence and quality of life.

“Our muscles want to be used. Our entire body functions at higher levels when we have good muscle health, and the brain is no different,” Perlmutter said.

## **Muscles Fight Depression and Anxiety**

Lifting weights isn't just about sculpting your physique—it's also a potent mood booster. [Research](#) shows that resistance training is a powerful tool against depression and anxiety.

Regular weight training often leads to improved mental health, with depressed individuals experiencing a significant lift in their spirits. And the good news is that you don't need to spend hours in the gym. Simply engaging in the exercise, regardless of reps or sets, can help fend off depression.

As muscle strength wanes, so does mental well-being. For instance, a decrease in handgrip strength, a simple measure of overall muscle health, has been linked to a higher risk of depression and anxiety. A 2022 [study](#) in the Journal of Cachexia, Sarcopenia and Muscle found that for every five-kilogram drop in grip strength, the risk of depression rose by 7 percent and anxiety by 8 percent over a decade.

This decline in muscle strength can lead to everyday challenges. As depression sets in, it can bring on behaviors such as sleeping more, feeling tired all the time, avoiding social activities, and losing interest in things that once brought joy. These changes make daily life feel more challenging, contributing to a cycle of mental and physical decline that can be hard to break.

The [link between](#) muscle health and mental well-being is a two-way street. People with conditions such as sarcopenia are more prone to depression. Conversely, those suffering from depression often experience a decline in muscle health, creating a challenging cycle to break.

It's not just depression—[anxiety](#) is also more common among those with weaker muscles. A 2024 [study](#) in Brain Science found that adults with low muscle mass were more likely to experience anxiety. As muscle mass decreased, anxiety symptoms intensified.

This connection makes sense when you consider that anxiety often manifests with physical symptoms such as a racing heart, sweating, and difficulty sleeping—symptoms that are harder to manage when your body is weaker. With low

muscle mass, handling stress becomes more challenging, amplifying worries and creating a cycle in which anxiety and physical decline feed off each other.

## **4 Factors That Unlock Brain Potential**

The muscles you build in the gym support and sustain your mental well-being. From releasing brain-boosting proteins to enhancing gut health, the science behind the muscle–mind connection reveals why strength training is vital for a healthy brain.

### **1. The Role of Myokines**

According to Perlmutter, muscles produce more than 600 molecules known as “myokines,” which travel throughout the body and directly affect various organs, including the brain. Among these, one stands out: brain-derived neurotrophic factor (BDNF).

BDNF is vital for brain health, supports existing neurons, promotes the growth of new ones, and strengthens connections between them—all essential for learning and memory.

Although BDNF is naturally produced in the brain, strength training, such as lifting weights, can boost its levels. During exercise, muscle contractions release BDNF into the bloodstream, which travels to the brain, helping protect against cognitive decline and diseases such as Alzheimer’s.

Increased BDNF levels have been linked to reduced symptoms of depression, particularly in older adults. A 2023 study in Geriatric Nursing found that resistance training boosts this vital protein and contributes to a better mood and overall mental well-being.

Higher BDNF levels are associated with increased motivation and energy. People feel more proactive and engaged in their daily lives. They might find themselves more willing to take on new challenges, pursue hobbies, or socialize—activities that are typically diminished by depression or cognitive decline.

### **2. The Hormone Connection**

Hormones act as the body’s messengers, crucial for communication between muscles and the brain. Strength training triggers the release of key hormones such as cortisol, testosterone, estrogen, and dopamine, which affect mood and mental sharpness.

As we age, hormone levels shift. For men, testosterone—known as the “vitality hormone”—declines by about 1 percent each year after 30, leading to sluggishness and mood changes. For women, post-menopause drops in estrogen contribute to muscle loss and that all-to-familiar fatigue.

Cortisol, the stress hormone, rises with age, particularly under chronic stress. Elevated cortisol can break down muscle, reduce strength, and increase body fat, creating a downward spiral in which poor mental health and declining muscle mass feed off each other.

Research shows that exercise, including strength training, initially spikes cortisol levels, but consistent exercise helps lower cortisol over time, reducing its harmful effects.

A 2022 study in the Journal of Clinical Endocrinology & Metabolism found that even slight increases in cortisol significantly decrease grip strength and muscle mass in women, making it harder to stay active and manage stress effectively. But there’s good news: research shows that strength training can help break this cycle. Lifting weights, even for 15 to 30 minutes, gives your body a temporary boost in testosterone and growth hormone—both crucial for muscle repair and growth. These short-term hormone spikes are especially strong after high-intensity workouts, helping build muscle and elevate mood.

### **3. Stable Glucose Levels Matter for the Mind**

Maintaining steady blood sugar levels is crucial for the brain. Stable blood glucose provides a constant energy supply to the brain, helping you stay focused, calm, and clear-headed.

When your blood sugar fluctuates, it can lead to mood swings, anxiety, and even depression. Research has shown that women with higher blood sugar variability often experience more anxiety, anger, and depressive symptoms.

Strength training plays a vital role in keeping these levels in check. Perlmutter notes that lifting weights is especially effective at stabilizing blood sugar in the short term. During resistance exercises, your muscles quickly absorb glucose from your bloodstream, helping keep levels balanced.

A 2023 study in Trials supports this, showing that both resistance and aerobic exercises effectively manage pre-diabetes by controlling blood sugar. However,

strength training is particularly effective at improving insulin resistance and maintaining healthy glucose levels, even without significant weight loss.

By helping muscles absorb glucose more efficiently, regular strength training supports both physical health and mental well-being.

#### **4. The Gut–Brain Connection**

The gut, often called the “second brain,” produces about 95 percent of the body’s serotonin, a key mood-regulating neurotransmitter. A balanced gut, rich in healthy bacteria, is linked to lower anxiety and depression by controlling inflammation and ensuring smooth gut-brain communication.

A 2023 study in Neuropharmacology shows that strength training strengthens this gut–brain connection. Resistance exercises release proteins that promote the growth of beneficial gut bacteria, which reinforce the gut lining and produce inflammation-reducing short-chain fatty acids.

A healthier gut boosts serotonin production and reduces inflammation, supporting mental well-being. Regular resistance training fosters a gut environment conducive to better mental health.

The study also suggests that combining strength training with probiotics may protect against neurodegenerative disorders by supporting this gut–muscle–brain axis. A 2023 study in the Journal of Cachexia, Sarcopenia and Muscle found that probiotics enhance muscle mass and strength, indicating their potential to improve muscle health.

#### **Building Muscles for Mental Resilience**

Incorporating strength exercises into your routine can profoundly affect brain health, making it crucial for overall mental well-being.

The key is to start small.

“It’s a common misconception that strength training requires lifting heavy weights,” Perlmutter said. “You can start with bodyweight exercises, including squats, lunges, and pushups (or modified pushups), as well as with small free weights or exercise bands.”

These simple yet effective exercises can help lay the foundation for both physical and mental strength.

Consistency is vital. Regular strength training with proper technique is essential for progress. Listening to your body's signals if it indicates unusual strain or discomfort is also important. For beginners, consulting with an expert can offer personalized guidance, ensuring that exercises are done safely and effectively, which reduces the risk of injury.

Incorporating strength training into your routine isn't just about building a more muscular body; it's also about forging a more resilient mind. So pick up those weights and give your brain the workout it deserves.

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