# Keeping Your Thymus Healthy Cuts Mortality Risk In Half (Yes, We Had to Look Up the Thymus, Too)

**4 MIN READ**

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**BY LAUREN GRAY**

# An overlooked immune organ — ignored by scientists for decades — is quietly shaping your health and determining your lifespan.

You've probably never given much thought to your thymus, if you've heard of it at all. Tucked behind your breastbone, in front of your heart, directly below your thyroid, this small pyramid-shaped gland doesn't come up in annual physicals and it certainly doesn't get its own awareness month.

Until very recently, most doctors assumed that the gland, crucial during fetal development and childhood, largely retired after puberty. But a new **study** published in *Nature* suggests that this assumption is a significant mistake: your thymus may in fact be one of the most important organs for how long and how well you live.

Suspicious that the thymus could still be of use in adulthood, researchers at Mass General Brigham used artificial intelligence to analyze CT scans from more than 25,000 adults enrolled in a national lung cancer screening trial, as well as 2,500 people enrolled in the Framingham Heart Study. Over a 12-year follow up period, they found that people with healthier thymuses were dramatically less likely to die or develop serious disease.

Compared with individuals who had poorer thymic health, those with healthier thymuses had about a 50% lower risk of death from any cause, a 63% lower risk of death from cardiovascular disease, and a 36% lower risk of developing lung cancer — relationships that remained strong even after accounting for age and other health factors. In a **companion study**, cancer patients with healthier thymuses responded

better to immunotherapy, facing roughly 37% lower risk of cancer progression and 44% **lower risk of death**.

The results are shocking, but the takeaway is simple: you should be caring for your thymus gland the way you do for your heart, **brain**, kidneys, liver, and lungs. What it does in your 60s, 70s, and beyond may matter enormously to how long you live, and how *well*.

**The thymus is like an Army boot camp for new soldiers."**

## Meet the Thymus: Your Immune System's Boot Camp

To understand why the thymus gland matters so much, it helps to understand what it actually does. A hero of the immune system, the thymus helps to train, regulate, and deploy important white blood cells when threats emerge.

"The thymus is like an Army boot camp for new soldiers," explains Dr. Florence Comite, MD, a Yale-trained endocrinologist and author of ***Invincible: Defy Your Genetic Destiny to Live Better, Longer***. "The gland puts immature white blood cells called T-lymphocytes (T-cells) through a training regimen to select those that are strong and loyal enough to fight off infections and cancer while rejecting those 'soldiers' that don't make the grade or are inclined to attack healthy cells. The gland secretes the hormones thymosin and thymulin, which support the maturation of young T-cells that travel from bone marrow where they were produced."

After puberty, the thymus shrinks and converts into fatty tissue — part of why doctors previously believed it became irrelevant to adult health. We now know that the organ

remains important throughout adulthood, and could eventually help guide disease prevention strategies and even cancer treatment decisions.

## Your Lifestyle Can Shape Your Thymus Health

The Mass General Brigham researchers didn't just measure outcomes — they also identified what drives thymic decline. Their analysis identified several factors associated with poorer thymic health, including chronic inflammation, smoking, and higher body weight, suggesting that lifestyle factors affect the immune system's ability to remain resilient over time.

That's good news. If thymic decline were purely genetic or inevitable, you'd have little agency over the outcome. As it stands, your daily decisions either protect or erode one of your body's most important longevity organs. The choice is, at least in part, up to you.

## How Will I Know If My Thymus Is Unhealthy?

Thymus dysfunction can include a range of disorders: **enlarged thymus**, **carcinoma**, **autoimmune disorders**, and more. So when a doctor is trying to spot a thymus disorder, there's usually no single smoking gun, Dr. Comite says.

"The symptoms common to thymus disorders mimic many other health problems" and can include "a constellation of symptoms," she tells Super Age. These may include chest pain, shortness of breath, unrelenting cough, trouble swallowing, and a hoarse voice.

"Neck and chest swelling are also common, as the thymus is in the chest," notes the endocrinologist. "Other findings might include weight loss, headache, and dizziness. If you experience three or more of these symptoms, though common in many other

conditions, please see your physician for an evaluation.”

## 6 Ways to Give Your Thymus a Tune-Up

Dr. Comite emphasizes that while protecting thymic health specifically is important, the most effective approach is treating the entire system. “What is good for the heart, brain, kidney, liver, metabolism, and gut microbiome is also beneficial for the thymus,” she urges. Here’s what she recommends:

**Sleep is foundational.** Dr. Comite recommends aiming for six to eight hours of quality sleep per night, including adequate deep and REM sleep. Wearables like an Oura ring, Whoop, or Apple Watch can help you understand what you’re actually getting — not just how long you’re in bed, she notes.

**Move with intention and intensity.** The endocrinologist also stresses the importance of regular exercise. Daily movement of 30 to 60 minutes, supplemented by high-intensity intervals several times per week, keeps inflammation in check and metabolic function sharp. Resistance training two to three times per week builds and preserves the muscle mass that supports metabolic health, she says. The intensity matters — brief sprint efforts, stairs instead of elevators, walking with purpose rather than just wandering, Dr. Comite advises.

**Eat to reduce inflammation.** A wide variety of vegetables, fruits, whole grains, lean proteins, and healthy fats — starting meals with protein, fat, and fiber to stabilize blood sugar — supports the anti-inflammatory environment your thymus needs. Limiting ultra-processed foods and avoiding plastics in food storage are also worth attention; microplastics have measurable effects on immune function, the doctor warns.

**Know your glucose.** Continuous glucose monitors, now available over the counter, give you real-time data on how your body responds to food, stress, sleep, and alcohol. Keeping blood sugar in a tight, healthy range — ideally a fasting level between 70-80

milligrams per deciliter (mg/dL), and up to 120 mg/dL beginning three hours after eating — is one of the most direct ways to reduce the chronic inflammation that appears to accelerate thymic aging. By extension, you'll protect against cardiovascular disease, diabetes, cancer, dementia and more.

**Manage stress actively.** Yoga, meditation, and other stress-reduction practices aren't wellness luxuries — chronic psychological stress drives inflammatory pathways that affect immune organs including the thymus.

**Finally, consider hormonal health.** Hormones act, as Dr. Comite puts it, "like air traffic controllers," signaling and regulating hundreds of functions throughout the body. Optimizing hormonal activity has downstream effects on every cell in the system, including those that support thymic function, she adds.

## A New Lens on Longevity

What makes this research particularly significant is what it implies about immune aging as a central — rather than peripheral — driver of healthspan. We've long known that immune function **declines with age**. What we're now beginning to understand is that this decline isn't simply inevitable wear and tear. It's shaped by measurable organ health, modifiable lifestyle factors, and patterns of chronic inflammation that accumulate over time.

The scientists in the room may also be interested in another implication: "These studies should extend to other organs, such as the adenoids and tonsils, that contribute to life-long immunity. Studying their contribution to optimal health and reduction of disease would likely reveal similar findings to the thymus gland," says Dr. Comite.

For those committed to aging well, the message is both sobering and empowering. A small organ you've likely never thought about has been quietly keeping score. And the daily habits you've been building (the sleep, the movement, the food choices, the stress management) may be doing more to protect it than you knew.

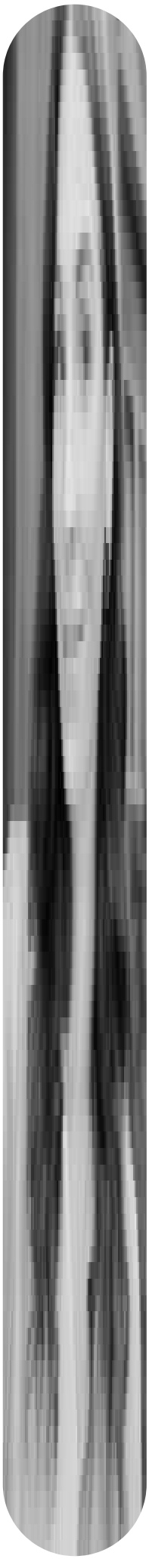
“The thymus has been overlooked for decades and may be a missing piece in explaining why people age differently,” Hugo Aerts, PhD, director of the Artificial Intelligence in Medicine Program at Mass General Brigham, said via **press release**. “Our findings suggest thymic health deserves much more attention and may open new avenues for understanding how to protect the immune system as we age.”

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