

The Mitochondria Reset: How Urolithin A Supports Stronger, Smarter Aging

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You are only as young as your mitochondria are strong and healthy, especially in terms of muscle endurance and inflammation.

In fact, optimizing mitochondrial can lead to more energy, better immune function, better cognition, and healthier aging.

Mitochondria are the energy-producing powerhouses found inside every cell in the human body. As we age, these powerhouses begin to decline and some become damaged. When that happens, the body initiates a cleanup process called mitophagy, where specialized enzymes break down faulty or expired mitochondria. The cell then recycles those fragments to build new, healthy mitochondria. This renewal process helps maintain your energy, muscle function, and cellular health over time.

What You Should Know About Urolithin A

Even with your body's built-in recycling system, mitochondrial performance naturally declines with age. For decades, this slowdown was considered inevitable. But new science suggests otherwise, thanks in part to a powerful compound called **urolithin A (UA)**.

UA is a postbiotic produced by gut microbes when you digest certain polyphenol-rich foods like pomegranates, walnuts, and raspberries. Postbiotics are emerging as a new frontier in longevity science. Since its discovery 40 years ago, research has shown that UA can enhance mitophagy, improve mitochondrial function, and reduce inflammation, making it a promising tool for supporting energy,

strength, and cellular health as you age.

Does Urolithin A Improve Aging Markers

Preclinical studies show that UA plays a **powerful role** in protecting against age-related decline in muscles, joints, brain, and other organs. In **one study** using *C. elegans* (a well-established model organism for aging research), urolithin A (UA) was shown to halt the buildup of dysfunctional mitochondria and extend their lifespan.

Animal studies have further linked UA to a range of longevity benefits: stronger muscles, increased **collagen** production (which smooths skin), reduced **bone breakdown** linked to osteoporosis, and even relief from **nerve pain**. It may also help protect the skin from UV-induced aging by reducing oxidative stress and preventing wrinkle formation.

When it comes to brain health, UA is especially promising. Neurons in people with Alzheimer's disease often show impaired mitophagy. By stimulating mitochondrial cleanup, UA has been shown in animal models to **reduce beta-amyloid and tau plaques**.

What the Research Says: Urolithin A in Humans

Urolithin A is backed by growing clinical evidence in humans. Here's what recent studies reveal about its ability to improve mitochondrial health, reduce inflammation, and boost endurance.

- In the first human clinical trial of its kind, reported in *Nature Metabolism*, researchers demonstrated that UA is safe and effectively stimulates mitophagy. Adults over age 60 who took 500–1,000 mg daily for four weeks showed increased mitochondrial gene expression in muscle and reduced levels of acylcarnitine—an inflammatory biomarker linked to mitochondrial dysfunction.
- A four-month **randomized trial** in 40–64-year-olds with low fitness found that UA supplementation improved aerobic endurance, enhanced mitochondrial function, and significantly reduced levels of CRP and acylcarnitine. Participants also experienced up to a 12% improvement in muscle strength.
- A placebo-controlled trial, reported in *JAMA*, of 66 participants showed that daily UA supplementation over two months significantly improved muscle endurance and lowered markers of inflammation, including CRP, acylcarnitine, and ceramides—lipid compounds linked to cellular aging and death.

Taken together, these studies suggest that UA holds a lot of promise as a practical, science-backed tool to support whole-body vitality as you age.

How Urolithin A Supports Stronger, Smarter Aging

Urolithin A supports multiple aspects of healthy aging, from brain and neuroprotection to muscle strength, skin renewal, and metabolic resilience. While mitophagy is a key driver, UA also works through additional pathways to enhance cellular function and longevity across organs and tissues.

Although foods like pomegranates, berries, and walnuts contain ellagitannins, the precursor to UA, your body's ability to convert them to UA declines with age. That's where supplementation can help fill the gap.

UA can be taken on its own or combined with other longevity-supporting compounds like NAD+ activators and spermidine. Stacking these nutrients may enhance mitochondrial renewal and amplify results.

Of course, supplementation is only one piece of the puzzle. Exercise, safe intermittent fasting, and circadian alignment are powerful, proven ways to support mitophagy naturally. Because aging well is about working with your biology to repair, renew, and thrive. With the right tools, you can feel strong, clear, and fully alive in every chapter.

About Our Sponsor

For those looking to tap into the full benefits of urolithin A, Timeline has emerged as a trusted leader in the space. Backed by over a decade of clinical research, Timeline's Mitopure supplement delivers a highly bioavailable, precise dose of UA. They perform robust purity testing on their supplements and have an in-house science team working to deliver a high-quality product. Use code SUPERAGE at checkout for 10% off Mitopure Gummies.

“Our goal with Mitopure is simple: to help people enhance cellular health and extend vitality through cutting-edge mitochondrial science.”

— Dr. Anurag Singh, Chief Medical Officer, Timeline

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