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June 2026

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Michael D. Ozner, MD, FACC • Xiaoxi Wei, PhD • Jonathan V. Wright, MD

Contributors

Michael Downey • Laurie Mathena
Marsha McCulloch, MS, RD • Richard Ross

Advertising

Chief Marketing Officer • Rey Searles • rsearles@lifeextension.com
National Advertising Manager • JT Hroncich • 404-347-4170

Vice President, Business Development

Ryan Thompson • rythompson@lifeextension.com • 954-202-7685

Circulation & Distribution

Life Extension • 3600 West Commercial Blvd., Ft. Lauderdale, FL 33309
Editorial offices: 954-766-8433 • fax: 954-491-5306

Customer Service: 800-678-8989 • Email: customerservice@LifeExtension.com

Wellness specialists: 800-226-2370 • Email: wellness@LifeExtension.com

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Mark S. Bezzek, MD, FACP, FAARM, FAAEM, is board-certified in internal medicine, emergency medicine, and anti-aging/regenerative medicine. He holds U.S. patents for a multivitamin/mineral supplement, an Alzheimer's/dementia compilation, and a diabetic regimen.

William Davis, MD, is a preventive cardiologist and author of *Wheat Belly: Lose the Wheat, Lose the Weight* and *Find Your Path Back to Health*.

Thomas F. Crais, MD, FACS, a board-certified plastic surgeon, was medical director of the microsurgical research and training lab at Southern Baptist Hospital in New Orleans, LA, and currently works in Hailey, ID.

Martin Dayton, MD, DO, has a private practice and his focus is on nutrition, aging, chelation therapy, holistic medicine, and oxidative medicine.

John DeLuca, MD, DC, is a 2005 graduate of St. George's University School of Medicine. He completed his internal medicine residency at Monmouth Medical Center in Long Branch, NJ, in 2008 and is board-certified by the American Board of Internal Medicine. Dr. DeLuca is a Diplomate of the American Academy of Anti-Aging Medicine and has obtained certifications in hyperbaric medicine, pain management, nutrition, strength and conditioning, and manipulation under anesthesia.

Sergey A. Dzugan, MD, PhD, was formerly chief of cardiovascular surgery at the Donetsk Regional Medical Center in Donetsk, Ukraine. Dr. Dzugan's current primary interests are anti-aging and biological therapy for cancer, cholesterol, and hormonal disorders.

Patrick M. Fratellone, MD, RH, is the founder and executive medical director of Fratellone Associates. He completed his internal medicine and cardiology fellowship at Lenox Hill Hospital in 1994, before becoming the medical director for the Atkins Center for Complementary Medicine.

Mitchell J. Ghen, DO, PhD, holds a doctorate in holistic health and anti-aging and practices at Dr. Mitch's Total Health.

Gary Goldfaden, MD, is a clinical dermatologist and a lifetime member of the American Academy of Dermatology. He is the founder of Academy Dermatology of Hollywood, FL, and has a skin care line.

Miguelangelo Gonzalez, MD, is a certified plastic and reconstructive surgeon at the Miguelangelo Plastic Surgery Clinic, Cabo San Lucas.

Ingo Mahn, DDS, AIAOMT, is the founder of Natural Dental Partners in North Scottsdale, AZ. A 1985 graduate of Marquette University School of Dentistry, he also earned a degree in Integrative Medicine from Capital University in Georgetown in 2004. Dr. Mahn is on the board of the International Academy of Oral Medicine and Toxicology (IAOMT) and serves as the chairman of the IAOMT Ozone committee. He is the author of *A Healthy Mouth - The Missing Link to Optimal Health*, and *A Breath of Health*.

Roberto Marasi, MD, is a psychiatrist in Brescia and in Piacenza, Italy. He is involved in anti-aging strategies and weight management.

Maurice D. Marholin, DC, DO, is a licensed chiropractic physician and board-certified osteopathic family physician. While training at the University of Alabama, he completed fellowships in Clinical Nutrition and Behavioral Medicine. He is currently in private practice in Clermont, FL.

Professor Francesco Marotta, MD, PhD, of Montenaoleone Medical Center, Milan, Italy, is a gastroenterologist and nutrigenomics expert with extensive international university experience. He is also a consulting professor at the WHO-affiliated Center for Biotech & Traditional Medicine, University of Milano, Italy and honorary resident professor, Nutrition, Texas Women's University. He is the author of more than 130 papers and 400 lectures.

Philip Lee Miller, MD, is founder and medical director of California Age Management in Los Gatos, CA.

Michele G. Morrow, DO, FAAFP, is a board-certified family physician who merges mainstream and alternative medicine using functional medicine concepts, nutrition, and natural approaches.

Filippo Ongaro, MD, is board-certified in anti-aging medicine and has worked for many years as flight surgeon at the European Space Agency. He is a pioneer in functional and anti-aging medicine in Italy where he also works as a journalist and a writer.

Lambert Titus K. Parker, MD, an internist and a board-certified anti-aging physician, practices integrative medicine from a human ecology perspective with emphasis on personalized brain health, biomarkers, genomics and total health optimization. He also collaborates on education and research for Hampton Roads Hyperbaric Therapy.

Ross Pelton, RPh, PhD, CCN, is scientific director for Essential Formulas, Inc.

Patrick Quillin, PhD, RD, CNS, is a clinical nutritionist in Carlsbad, CA, and formerly served as vice president of nutrition for Cancer Treatment Centers of America, where he was a consultant to the National Institutes of Health.

Michael R. Rose, MD, a board-certified ophthalmologist with Acuity Eye Group in Los Angeles, CA, is on the staff of the University of Southern California and UCLA.

Ron Rothenberg, MD, is a former Clinical Professor in Family and Preventive Medicine at UCSD School of Medicine and founder of California HealthSpan Institute in San Diego.

Roman Rozencwaig, MD, is a pioneer in research on melatonin and aging. He practices in Montreal, Canada.

Michael D. Seidman, MD, FACS, is the director of skull base surgery and wellness for the Adventist Health System in Celebration, FL.



Sandra C. Kaufmann, MD, is a fellowship-trained and board-certified pediatric anesthesiologist as well as the Chief of Anesthesia at the Joe DiMaggio Children's Hospital in Hollywood, Florida. She is the founder of The Kaufmann Anti-Aging Institute and the author of the book *The Kaufmann Protocol: Why we Age and How to Stop It* (2018). Her expertise is in the practical application of anti-aging research.



Richard Black, DO, is a dedicated nuclear medicine physician practicing as an independent contractor out of Cleveland, Ohio. Dr. Black is board-certified in internal medicine and nuclear medicine, and is licensed to practice medicine in multiple states throughout the United States.



Aubrey de Grey, PhD, is a biomedical gerontologist and Editor-in-Chief of *Rejuvenation Research*, the world's highest-impact, peer-reviewed journal focused on intervention in aging. He received his BA and PhD from the University of Cambridge in 1985 and 2000 respectively. Dr. de Grey is a Fellow of both the Gerontological Society of America and the American Aging Association and sits on the editorial and scientific advisory boards of numerous journals and organizations.



Joel Kahn, MD, FACC of Detroit, Michigan, is a practicing cardiologist, and a Clinical Professor of Medicine at Wayne State University School of Medicine. He graduated Summa Cum Laude from the University of Michigan Medical School. Known as "America's Healthy Heart Doc", Dr. Kahn has triple board certification in Internal Medicine, Cardiovascular Medicine and Interventional Cardiology. He was the first physician in the world to certify in Metabolic Cardiology with A4M/MMI and the University of South Florida. He founded the Kahn Center for Cardiac Longevity in Bingham Farms, MI.



Peter H. Langsjoen, MD, FACC, is distinguished by a long career in cardiology with a specialization in congestive heart failure, primary and statin-induced diastolic dysfunction and other heart diseases. He is a leading authority on coenzyme Q10, having been involved with its clinical application since 1983. He is a founding and executive committee member of the International Coenzyme Q10 Association, a fellow of the American College of Cardiology and a member of numerous other medical associations.



Dipnarine Maharaj MD, MB, ChB, FRCP (Glasgow), FRCP (Edinburgh), FRCPPath., FACP, is the Medical Director of the South Florida Bone Marrow Stem Cell Transplant Institute doing business as the Maharaj Institute of Immune Regenerative Medicine, and is regarded as one of the world's foremost experts on adult stem cells. He received his medical degree in 1978 from the University of Glasgow Medical School, Scotland. He completed his internship and residency in Internal Medicine and Hematology at the University's Royal Infirmary.



Ralph W. Moss, PhD, is the author of books such as *Antioxidants Against Cancer*, *Cancer Therapy*, *Questioning Chemotherapy*, and *The Cancer Industry*, as well as the award-winning PBS documentary *The Cancer War*. Dr. Moss has independently evaluated the claims of various cancer treatments and currently directs The Moss Reports, an updated library of detailed reports on more than 200 varieties of cancer diagnoses.



Michael D. Ozner, MD, FACC, FAHA, is a board-certified cardiologist who specializes in cardiovascular disease prevention. He serves as medical director for the Cardiovascular Prevention Institute of South Florida and is a noted national speaker on heart disease prevention. Dr. Ozner is also author of *Heart Attacks Are Not Worth Dying For*, *The Great American Heart Hoax*, and *The Complete Mediterranean Diet*. For more information visit www.DrOzner.com.



Jonathan V. Wright, MD, is medical director of the Tahoma Clinic in Tukwila, WA. He received his MD from the University of Michigan and has taught natural biochemical medical treatments since 1983. Dr. Wright pioneered the use of bioidentical estrogens and DHEA in daily medical practice. He has authored or co-authored 14 books, selling more than 1.5 million copies.



Xiaoxi Wei, PhD, is a chemist, expert in supramolecular assembly and development of synthetic transmembrane nanopores with distinguished selectivity via biomimetic nanoscience. She has expertise in ion channel function and characterization. She founded X-Therma Inc., a company developing a radical new highway towards non-toxic, hyper-effective antifreeze agents to fight unwanted ice formation in regenerative medicine and reduce mechanical icing.

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CoQ10 and the Free Market

WILLIAM FALOON



A long-standing debate centers on how many **regulations** are needed to protect **consumers** without stifling **innovation**.

A movie titled “**CoQ10 Wars**” could depict the introduction of **coenzyme Q10** to the United States (in **1983**) and the epic **FDA** battles that followed.¹⁻³

The **FDA** claimed **CoQ10** was a **prescription drug** that could not be sold in the United States.

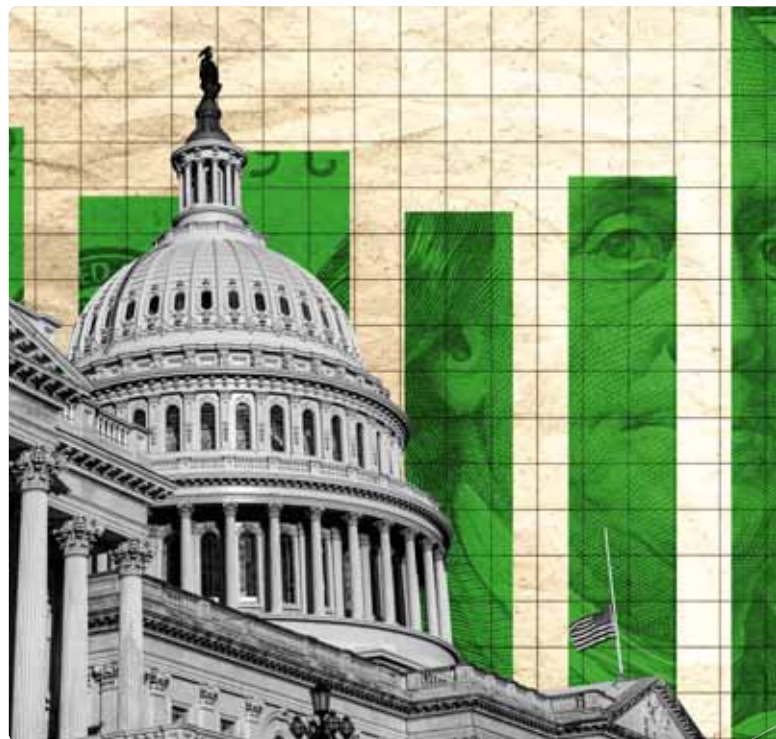
Consumers who had been using CoQ10 rebelled when the FDA staged armed raids/arrests against CoQ10 suppliers.^{2,3}

The end result was passage of a bill in Congress (in **1994**) that protected consumer access to CoQ10 and other nutrients the FDA sought to ban.⁴

What happened *after* deregulation were exponential advances in CoQ10 *absorption* technologies that slashed consumer costs while improving bioavailability.

In a nutshell, the consumers safely gained access to lower prices and improved **absorption** without **regulatory** impediments.

Had CoQ10 been classified as a **prescription drug**, it would have remained more expensive with few advances in cell delivery technologies. Unlike supplements, prescription drug changes require FDA approvals, which means delays and *higher* prices.



To put this into perspective, a bottle of 100 **10 mg** CoQ10 capsules cost about **\$30** in 1983. This same bottle today, after adjusting for inflation, would cost almost **\$100**.

Consumers today can receive **100 mg** in *each capsule* of a more **bioavailable** CoQ10 for around **\$45**.

That is **10x** more CoQ10 per capsule than in 1983, plus *enhanced bioavailability*, at half the **price!** A clear victory of **free market** innovation over **regulatory** tyranny.

As relates to efficacy, randomized **clinical trials** since CoQ10 liberation demonstrate benefits against heart failure,⁵ inflammatory markers,^{6,7} and progression of other age-related challenges.⁸ There is preliminary evidence that it may also help combat certain brain disorders.^{9,10}

A placebo-controlled **clinical trial** published in **2025** found that acute ischemic stroke victims given **600 mg/day** of CoQ10 for 30 days had significant reductions in markers of inflammation/oxidation, with increases in a **brain derived growth factor**. This led the research team to conclude:

“CoQ10 may be considered a therapeutic option for enhancing neuroprotection and rehabilitation in stroke patients.”¹¹

Educated consumers today are not waiting for acute **cardiovascular** events to initiate CoQ10 supplementation. Studies using CoQ10 have reported reductions in **heart failure** measures,^{12,13} including fewer hospitalizations for heart failure and reductions in the risk of cardiovascular mortality.^{12,13}

The good news for consumers is a new matrix that has up to **3-times** greater **bioavailability** than **ubiquinol** CoQ10 (introduced in **2006**).

It also has up to **24-times** greater **bioavailability** than the CoQ10 the FDA sought to ban after **1983**.¹⁴

The article on page 32 of this issue describes this new **CoQ10** formulation with an **improved delivery** system that significantly *boosts* its **bioavailability**.

For longer life,



William Faloon, Co-Founder
Life Extension



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- CARDIO CORE ESSENTIALS (QD100086)** ~~\$99~~ **\$74.25**
 Essential cardiovascular risk factors provide a low-cost analysis of your heart and vascular function. CBC • Chem/Metabolic Panel • Lipid/Cholesterol Profile • ApoB • C-Reactive Protein (high sensitivity)
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 The NMR Lipid Panel directly measures LDL and HDL particle size and number as well as VLDL particle size. Also includes a standard lipid panel.
- NMR PLUS LIPID PANEL (QD100049)** ~~\$269~~ **\$201.75**
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- OXIDIZED LDL (QD092769)** ~~\$75~~ **\$56.25**
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- MYELOPEROXIDASE (MPO) (QD092814)** ~~\$129~~ **\$96.75**
 The myeloperoxidase (MPO) test measures levels of an enzyme that oxidizes low-density lipoprotein (LDL) cholesterol, which could lead to increased arterial plaque formation.
- OMEGA-3 INDEX COMPLETE* (LC100066)** ~~\$99~~ **\$74.25**
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| ○ GUT BARRIER PANEL** (LC900004) | \$165 | \$123.75 |
| Measure immune response (IgG/C3d & IgA) to three key GI markers associated with intestinal permeability and leaky gut: Candida, Zonulin, and Occludin. | | |

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|---|------------------|-----------------|
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| ○ ENVIRONMENTAL TOXINS PROFILE** (LC900018) | \$249 | \$186.75 |
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| ○ MALE BASIC HORMONE PANEL (QD100012) | \$95 | \$71.25 |
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| ○ FEMALE ELITE PANEL (QD100017) | \$599 | \$449.25 |
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BLOOD COUNTS

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Baso (Absolute) • RDW • Monocytes (Absolute) • Monocytes
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In the News



Less Brain Choline Linked with Anxiety Disorders

A meta-analysis of human observational studies affirmed people with anxiety disorders had lower levels of the nutrient **choline** in their brains compared with individuals without anxiety.*

The meta-analysis included 25 case-control studies that compared brain neurometabolites of 370 people with social anxiety disorder, generalized anxiety disorder, and panic disorder with 342 individuals who were free of the disorders.

Proton magnetic resonance spectroscopy measured total choline and other compounds.

Among those with anxiety disorders, choline was lower in the prefrontal cortex and in all brain cortical regions, compared to participants without anxiety. The difference in **choline** averaged **8%**, which was significant.

Editor's Note: Choline is produced by the body, however only in insufficient quantities, so it must be supplemented with food and/or supplements.

* *Mol Psychiatry*. 2025 Dec;30(12):6020-6032.

Vitamin D and Curcumin Improve Psoriasis

Supplementation with vitamin D and curcumin may provide safe and beneficial adjunctive treatment for psoriasis, according to an article published in *Clinical Nutrition*.*

The meta-analysis included 21 randomized controlled trials involving 1,463 individuals with plaque psoriasis, a chronic autoimmune disease that causes thick, red, scaly patches on the skin.

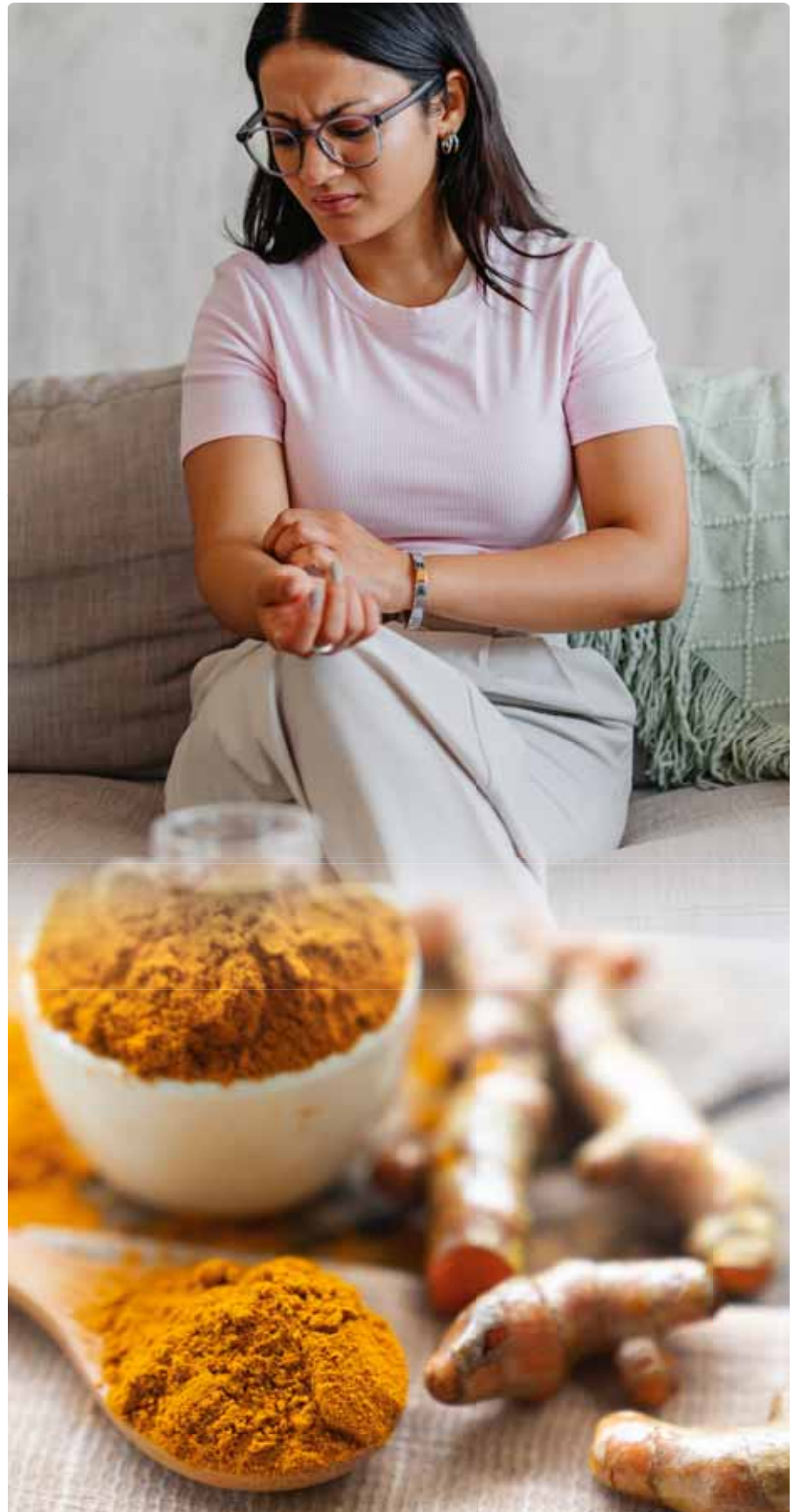
Compared to those who received conventional therapy alone, supplementation with vitamin D led to a statistically significant reduction in Psoriasis Area and Severity Index (PASI) scores, a system used to assess psoriasis severity.

When used in conjunction with narrow-band ultraviolet B (NB-UVB), a common type of phototherapy used to treat psoriasis, vitamin D consistently lowered IL-6, IL-17, and IL-23. These are pro-inflammatory cytokines that drive chronic inflammation in autoimmune conditions like psoriasis.

Curcumin supplementation was associated with reduced levels of IL-22, another cytokine implicated in chronic inflammatory diseases like psoriasis.

Editor's Note: Vitamin D and curcumin may provide complementary benefits when used alongside standard treatments to help calm inflammation and improve skin symptoms.

* *Front Nutr.* 2025 Dec 11:12:1718828.



Benefits of Combining Omega-3s with Resistance Training

Combining omega-3 supplements with resistance training resulted in enhanced physical benefits, improved metabolic parameters, and improved brain health, according to a study published in *Nutrients*.*

In this randomized, controlled trial, 30 active young men did eight weeks of a resistance training program three days per week, with or without taking a daily omega-3 fatty acid supplement.

The omega-3 group experienced enhanced physical benefits compared to the exercise-only group, including improvements in strength, power, agility, and reactive strength.

Additionally, the group taking omega-3s experienced multiple benefits compared to the control group, including: **8%** decrease in LDL and **11%** increase in HDL, **11%** decrease in triglycerides, and **41%**, **31%**, and **27%** decrease in C-reactive protein (marker of systemic inflammation), pro-inflammatory cytokines IL-6, and TNF-alpha, respectively.

The supplement used in this study provided **3,150 mg** of omega-3 fatty acids consisting of **1,620 mg EPA + 1,170 mg DHA**.

Editor's Note: The omega-3 group also showed improved brain health, including a **12%** increase in brain-derived neurotrophic factor (a protein that supports new nerve connections) and **19%** and **17%** increases in dopamine and serotonin, key neurotransmitters involved in brain function.

* *Nutrients*. 2025 June 24;17(13):2088.





Neurotransmitter Panel Tests Cognitive Health

Identifying the root cause of vague symptoms like anxiety, sleep disturbances, constipation, headaches, or brain fog can feel like a guessing game. But for many people, the answer can be found by testing their neurotransmitter levels.

Neurotransmitters are chemical messengers that allow neurons to communicate with one another and with other cells throughout the body. They help regulate nearly every function in the brain and body, including mood, hormones, digestion, behavior, sleep, and even pain perception.^{1,2}

When neurotransmitters become imbalanced, it can lead to symptoms ranging from emotional effects, to headaches, memory problems, constipation, and more.¹ A simple urine test can provide an overall assessment of your body's ability to make and break down neurotransmitters.

The Neurotransmitter Panel Urine Test (Comprehensive) measures levels of nine neurotransmitters. These include dopamine, serotonin, acetylcholine, epinephrine, glutamate, GABA, and more—plus taurine and several precursors and metabolites of many of the neurotransmitters.

Editor's Note: This analysis provides important insight into current neurotransmitter levels, and may highlight patterns related to imbalance. These patterns can be considered when discussing options to support overall neurotransmitter balance with a health-care professional.

References

1. Gasmi A, Nasreen A, Menzel A, et al. Neurotransmitters Regulation and Food Intake: The Role of Dietary Sources in Neurotransmission. *Molecules*. 2022;28(1).
2. Yang X, Lou J, Shan W, et al. Pathophysiologic Role of Neurotransmitters in Digestive Diseases. *Front Physiol*. 2021;12:567650.

To learn more about this at-home panel, visit www.LifeExtension.com/NEU

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1. *Int J Med Sci.* 2025 Jan 1;22(2):383-397. 2. *Bio-Luteolin Bioavailability Study.* Data on file. 2025. 3. *Bio-Luteolin Efficacy Study.* Data on file. 2025.

Tesnor® is a trademark of Laila Nutra and Gencor. *The highly bioavailable form of luteolin in this product was shown, in a clinical trial, to produce free luteolin blood levels that were 10 times greater, compared to regular luteolin.

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Protecting Your TELOMERES

BY RICHARD ROSS

Every strand of **DNA** in our **cells** is capped by protective structures called **telomeres**.

Long, healthy telomeres are *essential* to the function and stability of our genetic material.^{1,2}

The problem is that telomeres **shorten** each time cells divide, a process thought to be accelerated by oxidative stress and inflammation.

When telomeres become too short, cells stop dividing or die, contributing to aging and age-related diseases.³ For this reason, telomere **length** and shortening rate are considered markers of **biological age**.^{3,4}

Several nutrients have been found to protect telomeres and may even boost the function of enzymes that **lengthen telomeres**.

Oral intake of these ingredients may help reduce telomere shortening and protect DNA.

The Importance of Telomeres

Almost 100 years ago, scientists discovered that our **chromosomes**, or strands of DNA, are capped on each end by structures they called **telomeres**, a Greek-derived name meaning “end part.”

In youth, telomeres are long and healthy. But with age, they slowly become damaged and shorten. This **telomere attrition** is considered a primary marker and driver of biological aging.^{5,6}

When telomeres shorten to a critical length, this can damage DNA. Over time, this can impair the body’s ability to repair tissues and contribute to age-related disorders, including cardiovascular, neurodegenerative, and metabolic diseases,⁶ and an increased risk of overall **mortality**.⁷

In cell and animal models, increased telomere *shortening* is a predictor of decreased lifespan.^{4,8}

Human studies show shorter telomeres predict *higher* risk of **mortality**.^{4,7,9}

The bad news is that loss of telomeres is currently inevitable. (Current research aims to reverse this trend.)¹⁰

The good news is that the **rate** of telomere shortening can be slowed. An enzyme called **telomerase** is able to add to the telomere structure, maintaining longer telomeres.^{3,6} Another enzyme, **WRN helicase**, has been shown to work alongside telomerase to maintain telomere integrity.¹¹

Specific nutrients have been shown to boost these enzymes’ activity, protect telomeres, and promote healthy aging.

Scarlet Beebalm

Scarlet beebalm is an herb in the mint family native to North America. It contains several flavonoid nutrients such as **didymin**, which has garnered increasing attention in the medical literature for its multifaceted beneficial properties including a reduction in rate of **telomere shortening**.^{12,13}

In preclinical studies, an extract of scarlet beebalm has been found to exhibit multiple anti-aging effects on five recognized contributors of aging, including protecting DNA from damage, reducing cellular senescence, and suppressing chronic inflammation.¹²

The same extract was evaluated in human subjects. Adults aged 45-65 years were randomized to receive either **100 mg** of the beebalm extract or a placebo daily for 12 weeks. Despite the relatively short intervention



period, participants receiving the beebalm extract demonstrated no significant increase in **epigenetic age**, a major determinant of biological aging.¹²

In contrast, DNA methylation age in the placebo group increased by **1.7 years** over the **12-week** period.

Compared with placebo, the **beebalm** extract was associated with improvements in **leukocyte telomere length** and stabilization of **DNA methylation age**.¹²

Leukocyte telomere length *increased* among treated participants relative to **placebo**, suggesting a potential benefit for longer healthspan.

Curcumin

Curcumin is a polyphenol derived from turmeric root.¹⁴ It has been shown in preclinical studies to protect telomeres by activating telomerase.¹⁴⁻¹⁶

In a lab study of cells damaged by **amyloid** plaques, (protein deposits that accumulate in the brains of **Alzheimer’s** patients) curcumin exerted a neuro-protective effect. When scientists blocked telomerase, this effect was lost.¹⁴

In other words, the neuroprotective activity observed in this study appeared to be largely due to curcumin’s positive impact on activity of the **telomerase** enzyme.

Lithium

Lithium is a mineral present in small amounts in natural water sources and some foods.¹⁷

While high doses of a specific form of lithium are used as a treatment for bipolar disorder, in smaller amounts lithium may support optimal health.¹⁷

Lower lithium intake has been associated with *higher* rates of cognitive decline and dementia, mental health disorders, cardiovascular disease, and metabolic disease.¹⁸

In animal models, lithium has been shown to help preserve longer **telomeres** by regulating genes responsible for telomere maintenance.¹⁹⁻²² In **human** studies, patients with bipolar disorder who have been prescribed high doses of lithium tend to have significantly longer telomeres than those not taking lithium.²¹

Nicotinamide Riboside

Nicotinamide riboside is a bioavailable form of vitamin B3. It is a precursor for **NAD⁺**, a compound essential to cellular function.²³

Several proteins that maintain the health of our genetic material *require* ample **NAD⁺** to function. For example, **sirtuins** protect telomere health and have been tied to longer lifespan and protection from disease, but they don't work without adequate **NAD⁺**.^{23,24}

In one preclinical study, nicotinamide riboside boosted cellular **NAD⁺** levels, helping to maintain **telomere length**.²⁵

Omega-3 Fatty Acids

Several human studies have shown that **omega-3 fatty acids** have a beneficial effect on telomere length.²⁶⁻²⁸

One study found that *higher* DHA, an omega-3 found in **fish oil**, was linked to longer telomere length as compared to lower DHA intake.²⁷

Vitamin D

A substantial amount of **human** research indicates that **vitamin D** supports healthy telomeres.²⁹⁻³²

One study noted that women with *higher* vitamin D levels had telomere lengths of people approximately **five years younger** than those with *low* vitamin D levels.³³ Multiple studies have confirmed this association.^{30,34,35}

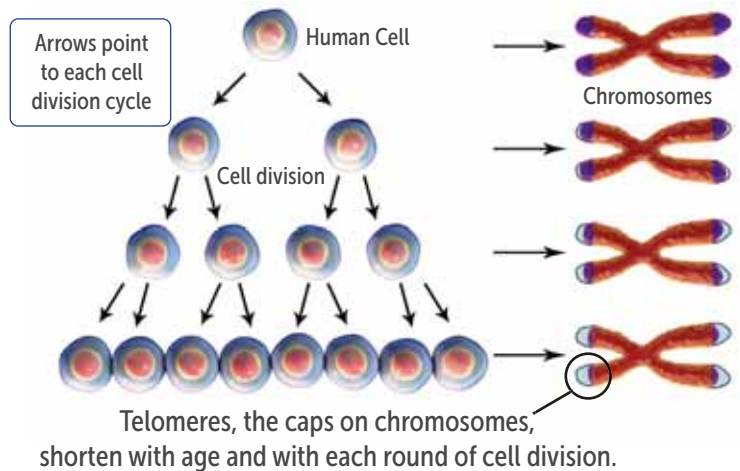
In overweight subjects, taking vitamin D for 16 weeks significantly increased **telomerase** activity, compared to baseline, whereas no changes were observed in the placebo group.³¹

In a large clinical trial published in **2025**, taking **2,000 IU** of **vitamin D3** daily for four years modestly slowed telomere shortening compared with the placebo, suggesting a protective effect on leukocyte telomere length. This benefit was consistent over time.³²

Taurine

Taurine is an amino acid, well-known for support of DNA health, among many other supportive properties.³⁶⁻³⁸ Some scientists have proposed that taurine deficiency may contribute to aging.³⁶⁻³⁸

In animal studies, taurine has been found to protect against **telomerase deficiency**. This helps prevent telomere shortening and protects DNA from damage.³⁸



Safeguard Your DNA

What You Need To Know

- Every DNA strand in our chromosomes, in the nuclei of our cells, is protected by caps called **telomeres**. Telomere shortening, which occurs with age, is associated with an increased risk of chronic disease and a decreased lifespan.
- Various nutrients have been found to protect telomeres and may activate enzymes that add to telomere structure.
- Scarlet beebalm, curcumin, lithium, nicotinamide riboside, omega-3 fatty acids, vitamin D, and taurine have been shown to help support telomere health.
- Maintaining longer, healthier telomeres may help protect DNA and promote healthy aging.

Summary

Telomeres help protect our genetic material (our chromosomes). Telomere shortening is considered a hallmark of aging and is associated with increased risk of disease and decreased lifespan.

Various **nutrients** may support **telomere length** or the *enzymes* that maintain them.

Scarlet beebalm, curcumin, lithium, nicotinamide riboside, omega-3 fatty acids from fish oil, vitamin D, and taurine have all been shown in preclinical or clinical studies to support telomere length, which may help protect **DNA** and promote healthy aging. ■

If you have any questions on the scientific content of this article, please call a **Life Extension** Wellness Specialist at 1-866-864-3027.



Researching Telomere-Based Longevity Therapies

Researchers associated with the University of Oxford, University College London, and a private laboratory have begun reporting on a previously undescribed **telomere** phenomenon that one day may lead to extended longevity.

Telomeres are repeating patterns of DNA base pairs that preserve our genetic material. Telomere length and the rate of their shortening have been used as a marker of biological aging in numerous research studies for years.

According to the researchers' published and unpublished papers on their preclinical research, under specific conditions some immune cells may transfer telomeres from one cell to another.^{10,39}

Immune helper T cells can take up telomere DNA, which may prevent cellular senescence and promote longevity of these cells.^{10,39} What's more, these activated T cells can then spread telomere material to other cells through so-called Telomere Rivers—a new term coined by this same group of researchers.¹⁰ Essentially, this process spreads additional telomere length to various cells, which may contribute to improved cellular function and longevity.

In one of the recent experiments in aged mice, researchers were able to induce this phenomenon (transfer of telomeres from one cell to another) in living animals. This intervention suggested a mechanism that may restore a cell's ability to divide, delay senescence, and sustain long-term immunological memory.¹⁰

It is important to note that this research is currently very preliminary and theoretical. The authors' most recent study demonstrating lifespan extension in mice has not undergone a peer-review process nor been published in the medical literature.¹⁰ Its lead author is the founder of a company planning to market anti-aging therapies.

For these reasons and more, these preliminary reports should be viewed as a promising first step in a possible new theory of life extension. Further studies and replication of these findings by independent laboratories need to occur. The long-term safety of this technology in humans will also need to be investigated carefully before considering it as a viable anti-aging approach.

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NEW! An Even More Bioavailable **CoQ10**

BY MICHAEL DOWNEY

Coenzyme Q10 (CoQ10) is naturally present in almost every cell in your body.^{1,2}

It plays critical roles in cellular energy production, anti-inflammatory activity, heart and blood vessel support, glucose metabolism, and more.^{1,2}

But our ability to synthesize coenzyme Q10 typically begins to diminish after our mid-twenties.^{3,4} And when taken orally, there are limitations as to how well it is *absorbed* by the body.^{2,5}

Now, a collaborative effort involving **Life Extension®** scientists has led to a new approach to addressing this.

Using a **100%** plant-based delivery system, scientists have developed a form of **CoQ10** designed to enhance its **stability** and significantly boost its **bioavailability**.⁶

Multiple bioavailability studies have been conducted, and a recent **clinical trial** demonstrated that, compared to standard coenzyme Q10, this next-generation form of CoQ10 resulted in up to **24-fold improvement in bioavailability!**⁶

This formulation resulted in *higher* circulating levels of **CoQ10** that persisted *longer*.

The Need for Coenzyme Q10

Coenzyme Q10 is a fat-soluble, vitamin-like molecule synthesized by the body and found in all human tissues. It plays an essential role for the creation of **ATP**, the energy used by cells.^{2,5,7}

Its *highest* concentrations are in tissues with the *greatest* energy requirements, like the heart, kidneys, liver, and muscle.⁵ One hallmark of **aging** is a decline in energy metabolism.⁸

Preclinical research suggests that CoQ10 may help address mitochondrial dysfunction.^{5,9,10} Mitochondria produce the energy our cells need. Mitochondrial damage is associated with age-related degenerative conditions, and reduced lifespan.¹¹

Some of this damage is linked to oxidative stress. CoQ10 acts as an **antioxidant** in cells and helps support other antioxidants and mitochondrial enzymes.⁸

Challenge: Poor Bioavailability

Absorption refers to how much of a nutrient enters the digestive system and bloodstream. **Bioavailability** refers to how much of a nutrient passes through the digestive system and reaches tissues that need it most.¹²

Standard CoQ10 suffers from both poor absorption and bioavailability. Taken orally, relatively little of it circulates in the bloodstream or reaches tissues, and it may degrade.¹³

The body's ability to produce its *own* CoQ10 decreases with **age**.⁸

Statin drugs, which are taken by about **35%** of Americans, *further inhibit* CoQ10 synthesis and deplete body levels.^{5,15}



Solution: Galactomannan Technology

In a recent development, scientists developed a new form of CoQ10 with superior **bioavailability**.⁶

Using a patented, plant-based water extraction process, they combined CoQ10 in a hydrogel with components of the spice **fenugreek**.

Fenugreek seeds contain **galactomannan**, a fiber with a unique chemical structure that improves CoQ10's stability and protects it from breakdown, enhancing **bioavailability**.

In a human study, scientists tested this **galactomannan-CoQ10** formula against two forms of *regular* **CoQ10**: the standard **ubiquinone** form and a reduced form called **ubiquinol**.⁶ Ubiquinol has been shown to produce *higher* plasma concentrations than ubiquinone.^{16,17}

With a 12-day washout period between each single-dose supplementation, 12 healthy adults (aged 30-57 years) took:⁶

- **100 mg** of ubiquinone CoQ10 formulated with **400 mg** of **galactomannan**,
- **100 mg** of standard CoQ10 as **ubiquinone**, and/or
- **100 mg** of CoQ10 as **ubiquinol**.



What You
Need
To Know

A Better Coenzyme Q10

Measuring plasma CoQ10 over twenty-four hours showed that:⁶

- Taking the *new* **galactomannan-CoQ10** formulation resulted in a **24-fold improvement** in bioavailability, compared to standard CoQ10 in the **ubiquinone** form.
- Even compared to CoQ10 in the more bioavailable **ubiquinol** form, taking the **galactomannan-CoQ10** formulation resulted in a **three-fold higher** bioavailability.

Validated in Older Adults

Scientists also tested the new formula in **older** adults, who have lower CoQ10 levels and may **absorb** it less efficiently.¹⁸

With a 12-day washout period between each single-dose supplement, twelve healthy volunteers, aged 58-73, took:⁶

- **250 mg** of the **galactomannan-CoQ10** formulation (which uses **20% CoQ10** as ubiquinone, providing **50 mg** of CoQ10), and
- **50 mg** of standard CoQ10 as **ubiquinone**.

Compared to standard CoQ10, the **galactomannan-CoQ10** formulation led to a **16-fold higher** bioavailability in these older adults.⁶

- Found in all human tissues, **coenzyme Q10 (CoQ10)** is required for the creation of **ATP**, the energy used by cells.
- CoQ10 production declines with age. Taken orally, it suffers from low **bioavailability**, which means little of it makes it to tissues where it is needed most.
- A new formulation has been developed that has resulted in a new enhanced-bioavailability CoQ10 that combines it with the fiber **galactomannan** from fenugreek seeds.
- In a human study, a single dose of this next-generation formulation led to a remarkable **24-fold** improvement in bioavailability, compared to standard CoQ10 (ubiquinone).
- This new formulation may help support cardiovascular and metabolic health, cellular energy production, and healthy aging.

Clinical Benefits

This new formulation increased the circulating levels of **CoQ10** in the studies conducted.

The potential benefits can be remarkable. Coenzyme Q10 supports cardiovascular and metabolic health and may influence factors associated with several **chronic conditions**.^{10,19-22}

In other **clinical trials**, CoQ10:

- Reduced the rate of major **cardiovascular** events like heart attack, stroke, or death by **50%** in heart failure patients,²³
- Decreased levels of triglycerides, LDL, and total cholesterol and increased HDL,²⁴
- Improved **endothelial** function and blood flow,²⁵
- Improved total antioxidant capacity and reduced a marker for oxidative stress and **lipid peroxidation**, a process that leads to cell damage,^{19,26}
- Boosted activity of the innate antioxidant **superoxide dismutase**,¹⁹
- Increased cellular energy production,²⁷
- Lowered levels of multiple **chronic inflammation** biomarkers,²⁸
- Decreased insulin resistance, fasting insulin, fasting glucose, and **HbA1c** (a measure of average blood glucose over time),²⁹
- Increased the pregnancy rate in women with infertility undergoing assisted reproductive technologies,³⁰
- Reduced the frequency, duration, and severity of **migraines**,^{31,32}
- Reduced general **fatigue** and enhanced physical performance,³³ and
- Decreased **myopathy** (muscular pain or weakness) associated with the use of statins.¹⁵

Improving CoQ10's **bioavailability** may help optimize these and other benefits.



Summary

Coenzyme Q10 is required throughout the body to boost cellular energy, help combat inflammation, support cardiovascular and metabolic health, and more.

CoQ10 production decreases with **aging** and **statin** drug use, and it suffers from poor **bioavailability** when taken orally.

A new formulation gets around that problem. Combining CoQ10 with the fiber **galactomannan** significantly increases **bioavailability**.

In a **human** trial, this novel formulation of CoQ10 provided vast **improvements** in bioavailability, compared to standard CoQ10. Greater bioavailability was separately validated in **older** adults, who generally have more difficulty *absorbing* CoQ10.

The greater bioavailability may help support CoQ10's multiple roles related to healthy aging. ■

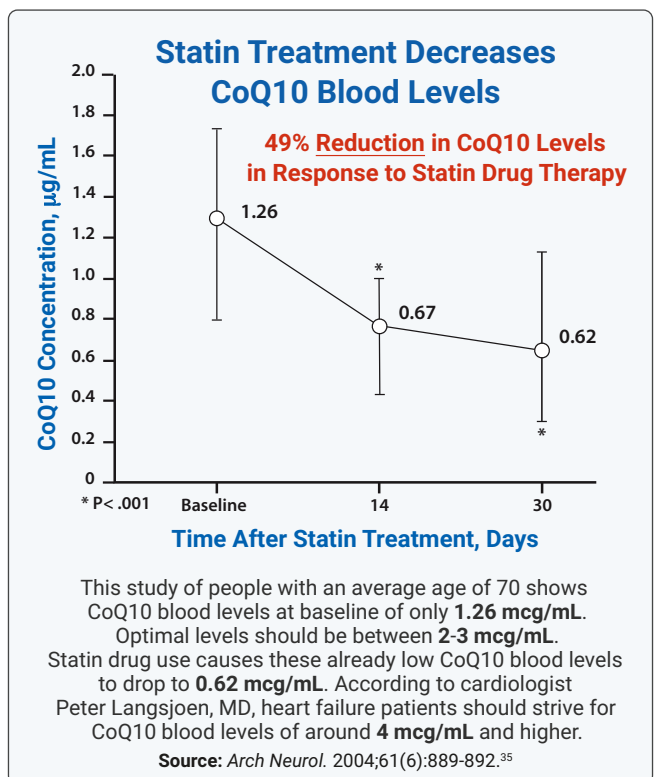
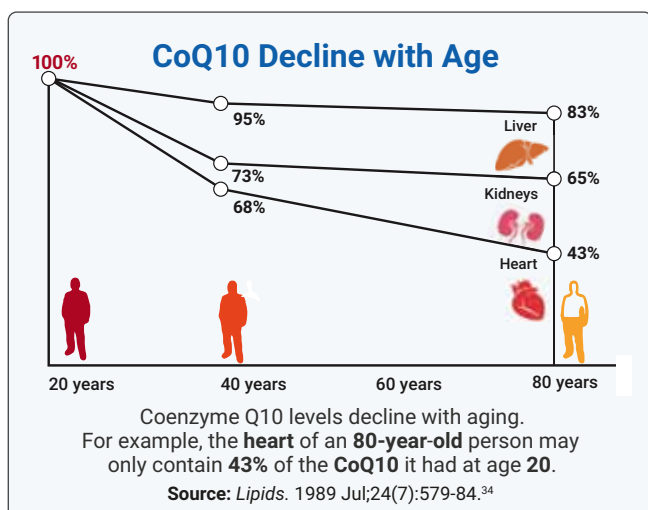
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MacuGuard® Ocular Support is available with or without astaxanthin.



These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.



The Energizing
Impact of

NAD⁺ Cell Regenerator

If you experience general fatigue, it may be due to the decline of NAD⁺, an important coenzyme found in every cell.

NAD⁺ facilitates the production of ATP, which your body uses for fuel.

The **NAD⁺ Cell Regenerator™** formula provides nicotinamide riboside to help maintain healthy levels of NAD⁺.

NIAGEN® is a registered trademark of ChromaDex, Inc., Patents see: www.ChromaDexPatents.com
NAD⁺ Cell Regenerator™ has met ConsumerLab.com standards for ingredient and product quality for Nicotinamide Riboside in independent testing. More information at www.consumerlab.com.

NAD⁺ Cell Regenerator™ and Resveratrol Elite™

Nicotinamide riboside (300 mg), bioavailable resveratrol and other cell-energizing nutrients in one capsule.

Item #02348 | 30 vegetarian capsules
1 bottle **\$45** | 4 bottles \$38.50 each

NAD⁺ Cell Regenerator™

300 mg of nicotinamide riboside per capsule.

Item #02344 | 30 vegetarian capsules
1 bottle **\$40.50** | 4 bottles \$36 each



For full product description and to order **NAD⁺ Cell Regenerator™** or **NAD⁺ Cell Regenerator™ and Resveratrol Elite™**, call **1-800-544-4440** or visit www.LifeExtension.com

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Don't Wait to Feel Great

Maintain Optimal Hormone Levels

DHEA Complete can help maintain DHEA levels to support lean muscle mass, bone health, libido and cognitive function.

DHEA Complete delivers 7-Keto® DHEA (100 mg) and regular DHEA (25 mg), plus extracts from curcumin, green tea, and whole red grapes.

For full product description and to order **DHEA Complete**, call 1-800-544-4440 or visit www.LifeExtension.com

7-Keto® is a Lonza trademark registered in USA.



Item #02478 • 60 vegetarian capsules
1 bottle **\$36** • 4 bottles **\$32** each

CAUTION: Consult a physician or licensed qualified health care professional before using this product if you have, or have a family history of breast cancer, prostate cancer, or other hormone-sensitive diseases.



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Boost Your Brain Game

with Gummy Science™ Neuro-Mag®
Magnesium L-Threonate

Whether you want to win at chess or dazzle your friends with your quick thinking, these orange-flavored sugar-free* gummies are your secret weapon.

Unlike other magnesium supplements, Neuro-Mag® formula is formulated with magnesium L-threonate, a special form of magnesium that supports healthy (short-term) memory, quick thinking, and cognitive health.



 SUGAR
FREE

 GLUTEN
FREE

 NON
GMO
LE CERTIFIED

Item #02520 60 Gummies

1 jar \$28.50

4 jars \$26 each

*Not a low-calorie food.

Magtein® is protected under a family of patents, pending patents, and is protected worldwide. Magtein® is a trademark of and is licensed exclusively by ThreoTech LLC.

For full product description and to order **Gummy Science™ Neuro-Mag® Magnesium L-Threonate**, call **1-800-544-4440** or visit **www.LifeExtension.com**

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.



Convenience and Cost Savings

Vitamins D and K as well as Iodine perform multiple functions for heart and bone health.

Life Extension brings these three nutrients together in one convenient capsule.

Just one capsule daily provides:

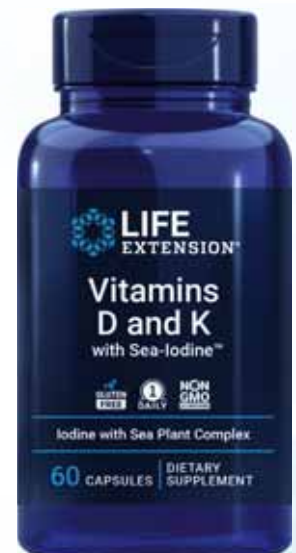
Vitamin D3	125 mcg (5,000 IU)
Vitamin K1	1,000 mcg
Vitamin K2 (MK4)	1,000 mcg
Vitamin K2 (MK7)	100 mcg
Iodine	1,000 mcg

Item #02040

60 capsules

1 bottle **\$18**

4 bottles \$16.50 each



For full product description and to order **Vitamins D and K with Sea-Iodine™**, call 1-800-544-4440 or visit www.LifeExtension.com

CAUTION: Individuals consuming more than 50 mcg 2,000 IU/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxy vitamin D measurement. Do not exceed 250 mcg per day unless recommended by your doctor. Vitamin D supplementation is not recommended for individuals with high blood calcium levels. If you have a thyroid condition or are taking antithyroid medications, do not use without consulting your healthcare practitioner. If you are taking a vitamin K antagonist (e.g. warfarin), consult your healthcare practitioner before taking this product.

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NEW



NEXT GEN CoQ10

CoQ10 is essential for **cellular energy** in the **heart, liver, kidneys, and muscles**.^{1,2}

Standard **CoQ10** is difficult for the body to *absorb* due to its limited bioavailability.³

An *innovative* **AmpliQ CoQ10™** formula combines **CoQ10** with **FenuMat® technology** to deliver superior bioavailability.

In a **clinical** study, this new form of **CoQ10** was found to be up to **24-fold more bioavailable** compared to standard CoQ10 ubiquinone—and **three times more bioavailable** than ubiquinol.⁴

AmpliQ provides greater **CoQ10 activity** per milligram at a lower effective cost than most CoQ10 products.

Two Choices of Highly Bioavailable **AmpliQ CoQ10™**

NEW

Item #02554
100 mg, 60 vegetarian capsules
1 bottle **\$45**
4 bottles \$42 each

Item #02553
50 mg, 60 vegetarian capsules
1 bottle **\$22.50**
4 bottles \$21 each



GLUTEN FREE

NON GMO LE CERTIFIED

MKBRPP260401

For full product description and to order **AmpliQ CoQ10™**, call **1-800-544-4440** or visit www.LifeExtension.com

References: 1. *Antioxidants (Basel)*. 2021 Jun 3;10(6):906. 2. *Int J Mol Sci*. 2024 Jun 20;25(12):6765. 3. *Int J Mol Sci*. 2023 Jan 30;24(3):2585. 4. Data on File. Manuscript in prep: 2025. FenuMat® is a registered trademark of Akay Group.

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.



Reduce STRESS While Staying SHARP



The number of U.S. adults reporting difficulties with **concentration, memory, and decision-making** increased from **5.3%** to **7.4%** from 2013 to 2023, according to a study published in **2025**.¹

Surprisingly, the number of **younger adults** reporting these cognitive issues nearly **doubled** over the 10-year period.¹

Several factors, including **stress**, contribute to foggy thinking and cognitive challenges.¹⁻³

However, these concerns can be addressed. Some scientists have been researching two botanical extracts to address stress and mental focus:

- **Ashwagandha:** In one clinical trial, a standardized ashwagandha extract reduced feelings of stress by **71%** and lowered levels of the stress hormone cortisol by **24%**.⁴
- **Spearmint:** In clinical trials, spearmint increased **attention** by **11%**,⁵ and **working memory** by **15%**.⁶

Together, these plant extracts may help lower stress while maintaining mental focus.

Stress and Brain Dysfunction

Stress can make it challenging to concentrate and think.⁷

Chronic stress weakens the immune system and can increase susceptibility to illness. It raises cortisol levels through activation of the HPA axis, which suppresses immune function.⁸ Stress and elevated cortisol can interfere with sleep.^{9,10} Good sleep is crucial for **memory consolidation** and **attention**.¹¹

Stress is also linked to an increased risk of cognitive impairment,¹² as well as cardiometabolic conditions, including **type 2 diabetes**,¹³ **cardiovascular disease**,¹⁴ **high blood pressure**,¹⁵ and even **stroke**.¹⁵

Over the long term, mental stress can even increase the risk of **dementia**.¹²

The plant world offers promising solutions for calming the brain and enhancing its function.



Ashwagandha: An Ancient Stress Solution

Ashwagandha, an herb used in traditional Indian Ayurvedic medicine, is classified as an **adaptogen** because it helps the body adapt to stress.¹⁶ Ashwagandha helps the body manage stress by reducing cortisol and supporting the overall balance of stress-related hormones.¹⁷⁻¹⁹

In one trial, chronically stressed adults ages 18 to 60 took varying doses of standardized **ashwagandha extract** or a **placebo** daily for 60 days.⁴

Stress levels were measured with the Hamilton Rating Scale for Anxiety (**HAM-A**), a questionnaire assessing mental and physical symptoms, such as **difficulty concentrating**, and tension headaches.²⁰

Those taking **250 mg** of standardized ashwagandha extract daily, in two divided doses for 60 days, experienced the following changes from baseline:⁴

- **71%** decrease in overall feelings of **stress** and **anxiety**,
- **24%** decrease in the stress hormone **cortisol**,
- **3.4%** decrease in **systolic** (top number) blood pressure, and
- **8.2%** decrease in **pulse rate**.

The placebo group had no significant change in perceived stress or physical measures of stress.⁴

Participants who were taking ashwagandha also reported improvements in their ability to **concentrate** and **remember** things.

Anti-Stress Action

In a **2024** study, 131 mild to moderate chronically stressed adults ages 18 to 60 took a standardized extract of ashwagandha at varying doses or a placebo daily for eight weeks.²¹

Compared with placebo, those who took **150 mg** of **standardized ashwagandha extract** daily showed a dose-dependent response from baseline:

- **34%** reduction in **mental stress** (measured by a standard questionnaire),
- **18%** decrease in plasma **cortisol** levels, and
- Significant reduction in **inflammatory cytokines** associated with stress.

Ease Stress and Sharpen Thinking

- Foggy thinking and difficulty concentrating can often be linked to stress.
- Ashwagandha, an herb used in traditional South Asian medicine, has been clinically shown to reduce overall perceived stress by up to **71%** when taken as a standardized daily extract.
- Daily oral intake of a specialized spearmint extract has been shown to improve working memory by **15%** and increase sustained attention by **11%** in clinical trials.
- Combining ashwagandha and spearmint extracts may help support mental focus and cognitive function while promoting calmness.



What You Need To Know

In addition, the ashwagandha extract improved feelings of **vitality** and **mood** along with self-reported quality of **sleep**.

Spearmint and Focus

Spearmint is rich in health-promoting polyphenolic compounds, including **rosmarinic acid**.²²

In preclinical studies rosmarinic acid and other spearmint polyphenols support the brain by:

- Reducing **oxidative stress** and **inflammation**,^{23,24}
- Protecting the health of **neurons** in the brain,^{25,26} and
- Increasing **acetylcholine**, a neurotransmitter critical for learning and memory.²⁷

Scientists used traditional breeding techniques to develop a spearmint extract high in rosmarinic acid and other polyphenols.²⁸

A pilot trial of healthy adults confirmed that a **900 mg** dose of this spearmint extract was well absorbed. Supplementation improved reasoning and attention after 30 days and enhanced **attention** within **2–4 hours** after a single dose.²⁹

In a three-month trial involving 90 adults, ages 50 to 70, with age-associated memory issues, taking **900 mg** of spearmint extract improved **working memory** (the ability to temporarily retain and use information) by **15%** and improved spatial working memory by **9%**, compared to placebo.⁶

Diverse Brain Benefits

In another clinical study, 142 healthy, active **younger adults**, ages 18 to 50, took either **900 mg** of spearmint extract or a placebo daily for 90 days to test its effect on **sustained attention**.³⁰

Sustained attention helps people complete longer tasks, such as reading this article or focusing during lengthy car drives.³¹ Ongoing stress or worry can affect daily life and may cause poor sleep, irritability, restlessness, and difficulty concentrating.³²

On computerized cognitive tests, the spearmint group had an **11%** increase in **sustained attention** from baseline, while the placebo group showed little change.³⁰

In another 90-day, placebo-controlled trial of younger adults, the spearmint extract not only improved **mental focus** but also **reaction time**, and **hand-eye, foot-eye coordination**.⁵

A **combination** of spearmint and ashwagandha may both relieve stress *and* improve focus.

Summary

Managing stress and supporting brain health are key to maintaining cognitive function.

Scientists have developed an **ashwagandha** extract that has been clinically shown to reduce feelings of stress and anxiety while lowering the stress hormone cortisol.

To complement these benefits, a specialized **spearmint** extract with high levels of polyphenols has been clinically shown to improve attention and working memory.

Together, ashwagandha and spearmint extracts may help adults manage stress while supporting mental focus and cognitive performance. ■

If you have any questions on the scientific content of this article, please call a **Life Extension** Wellness Specialist at 1-866-864-3027.

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Lose What's Weighing You Down



"Very satisfied."
Cindy
VERIFIED BUYER



Formulated with **lemon verbena leaf** and **hibiscus flower** extracts to promote satiety and encourage weight loss[†] in just **8 weeks**.



Item #02504 | 30 vegetarian capsules
1 bottle \$24 | 4 bottles \$21.50 each



Metabolaid® is a registered trademark of MONTELOEDER, S.L.

[†]This supplement should be taken in conjunction with a healthy diet and regular exercise program.

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Fuller, Stronger Hair



Item #02541

30 softgels

1 bottle **\$22.50**

4 bottles \$20.50 each

Contains wheat.

Hair Growth for Women is an oral formula with two scientifically studied **plant extracts** that:^{1,2}

- Help **maintain** existing hair,
- Support normal **hair growth** cycle,
- Support healthy **scalp oil** levels,
- Support **hair density** and **volume** for fuller hair, and
- Maintain already normal **DHT** levels (a hormone linked to maintaining hair follicle health).

In separate **clinical trials**, these standardized extracts show *reduced hair shedding*—by up to **48%** in one study.¹

Another study showed a **hair shedding** reduction of up to **20%**.² Some users noticed results in as little as two months.

For full product description and to order **Hair Growth for Women**, call **1-800-544-4440** or visit **www.LifeExtension.com**

VI-SPO® is a trademark of Vidya Herbs Inc. and used with permission. Ceramosides™ is a trademark of Seppic SA.

References: 1. *Int J Cosmet Sci.* 2024;46(2):284-296. 2. *Clin Cosmet Investig Dermatol.* 2023;16:3251-3266.

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Some Things
Get Better With Age

Aged Black Garlic

FOR HEART HEALTH



Black garlic is created through a patent-pending, solvent-free aging process that can take up to 90 days.

This produces a high content of s-allyl-cysteine, a phytochemical associated with **cardiovascular health**.¹⁻⁴

Clinical research has shown that **aged black garlic** provides targeted support for healthy serum triglycerides, blood pressure, and cholesterol within normal range.⁴



Item #02530

30 500 mg vegetarian capsules

1 bottle **\$18.75**

4 bottles \$17.50 each



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For full product description and to order **Aged Black Garlic Odorless Extract**, call **1-800-544-4440** or visit **www.LifeExtension.com**

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Dryness and loss of firmness are outward signs of normal aging.

One reason is loss of **ceramides** that are required for skin to retain its **moisture** and youthful suppleness.

Skin Restoring Ceramides contains wheat-derived ceramide lipids in an **oral** capsule that **hydrate** the skin and smooth the appearance of fine lines and wrinkles.

Restore Smoother, Youthful-Looking Skin from the Inside Out

For full product description and to order **Skin Restoring Ceramides**, call **1-800-544-4440** or visit **www.LifeExtension.com**

Item #02096
30 liquid vegetarian capsules
1 bottle **\$18.75**
4 bottles \$17.25 each

Contains wheat. Gluten free.

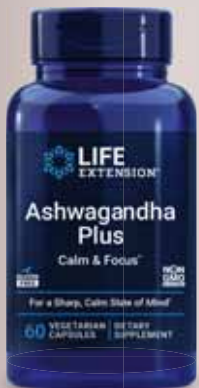
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In times of stress...
STAY CALM AND ALERT!



Ashwagandha Plus Calm & Focus ingredients promote a healthy response to everyday stress and encourage focus and attention. Each capsule contains:


- Standardized **ashwagandha** clinically studied to encourage a state of emotional well-being and feeling calm.¹
- Patented polyphenol-rich **spearmint** extract clinically studied to promote focus and sustained attention.²⁻³

Item #02519

60 vegetarian capsules
1 bottle **\$22.50**
4 bottles \$20 each

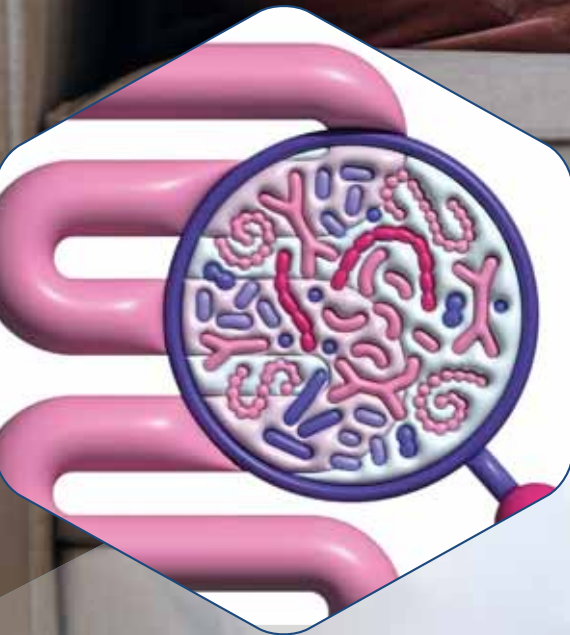
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 3. *Nutr Res.* 2019 Apr;64:24-38.
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For full product description and to order **Ashwagandha Plus Calm & Focus**, call 1-800-544-4440 or visit www.LifeExtension.com

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Ease STOMACH Discomfort

BY MARSHA MCCULLOCH, MS, RD

Stomach pain, fullness, and bloating are common symptoms of **gastritis**.¹

This inflammatory condition is frequently triggered by ***Helicobacter pylori***, a bacterium that also causes some **stomach ulcers** and **stomach cancer**.^{2,3}

Globally, approximately **44%** of adults were infected with *Helicobacter pylori* during **2015–2022**, including about **45%** of adults in the Americas.⁴

H. pylori infection is generally treated with the standard combination of prescription medications; however, antibiotic resistance remains a significant challenge.^{2,5}

Researchers have explored non-drug approaches that may complement standard treatment by helping reduce *H. pylori* burden and support gastric health. In clinical trials:

- **Zinc-carnosine** healed stomach ulcers in **65%** of subjects and eased gastritis symptoms.⁶
- ***Lactobacillus reuteri* DSMZ 17648** reduced the marker of *H. pylori* infection by **16%** in just two weeks.⁷

Combining these two ingredients may offer comprehensive support for stomach health and comfort.



Triggers of Stomach Problems

The interior of the stomach is acidic, which helps it digest food and kill harmful bacteria.¹

To prevent this acidity from destroying the inner lining, or mucosa, of the stomach, it secretes protective mucus.¹

Helicobacter pylori is a common bacterial infection that is usually acquired in childhood and can persist for life if untreated. It can disrupt normal stomach function.

Most infected people have no symptoms, but some develop chronic inflammation of the stomach lining (gastritis), and about **10–15%** develop peptic ulcers.⁸

H. pylori produces an enzyme called urease, which creates ammonia to neutralize stomach acid. The ammonia damages stomach tissue⁹ and enables the harmful bacteria to thrive and colonize the mucosa.^{2,10}

H. pylori also impairs the production of protective mucus in the stomach.¹¹

Non-steroidal anti-inflammatory drugs (NSAIDs), such as aspirin and ibuprofen (Advil®), can also drive gastritis. Symptoms of gastritis may include:¹

- Belching,
- Bloating,
- Feeling full prematurely,
- Gas,
- Heartburn,
- Low appetite,
- Nausea and vomiting, and
- Stomach pain.

Chronic Gastritis Risks

Over time, chronic gastritis caused by ***H. pylori*** can erode the lining of the stomach and duodenum (the top part of the small intestine), leading to painful peptic ulcers.²

H. pylori is responsible for over **80%** of stomach ulcers and **90%** of duodenal ulcers.⁹

The combination of ***H. pylori*** infection with NSAID use causes a 3.5-fold increased risk of peptic ulcers beyond the medication's use alone.¹²

Even more worrisome, individuals with *H. pylori* infection have **20 times the risk of stomach cancer** as those without the infection.¹³



H. pylori causes oxidative stress and DNA damage in stomach cells, provoking cancerous changes.^{14,15}

Zinc-Carnosine for Gastric Healing

To support gastric health, Japanese scientists developed **zinc-carnosine**.¹⁶

Zinc is an essential trace mineral and antioxidant that plays a crucial role in healing tissues, and gut health, including the stomach lining.¹⁷

Carnosine is a peptide (a short chain of amino acids) that promotes healing and is found in high concentrations in human **gastrointestinal tissues**.¹⁸

Zinc-carnosine offers an approach to addressing stomach issues such as gastritis and peptic ulcers.^{19,20}

Animal research revealed that the combination of zinc and carnosine in a single compound enables the nutrients to stay in ulcerous regions of the stomach **twice as long** as the individual ingredients. It binds tightly to the stomach lining, allowing zinc and carnosine to remain longer at ulcer sites and provide stronger, targeted stomach protection.²¹

In a clinical trial, **zinc-carnosine** was shown to be protective of the intestinal mucosal barrier when administered with a **non-steroidal anti-inflammatory drug (NSAID)**, compared to the group that received an NSAID alone.²²

In an eight-week clinical trial, taking **75 mg of zinc-carnosine twice daily healed gastric ulcers** in a remarkable **65%** of participants, as shown by endoscopy.⁶

Subjects also reported improvement in digestive symptoms, including:⁶

- **63.6%** reduction in **heartburn**,
- **66.7%** reduction in **nausea**,
- **76.9%** reduction in **bloating**, and an
- **80%** reduction in **belching**.

Similar results have been found in other clinical trials.²⁰

Zinc-Carnosine Targets *H. pylori*

Zinc-carnosine fights *H. pylori* by inhibiting its **urease** activity, which is what the pathogen uses to survive in the acidic stomach.¹⁶

Preclinical research shows zinc-carnosine also increases levels of protective **heat shock proteins** in stomach mucosal cells, helping to protect the stomach lining from damage associated with *Helicobacter pylori* colonization and activity.²³

A meta-analysis of three clinical trials involving 396 people with *H. pylori* infection compared **triple drug therapy** (the standard treatment of two antibiotics and a proton pump inhibitor) to the same drug therapy combined with **150 mg of zinc-carnosine** taken **twice** daily.²⁴

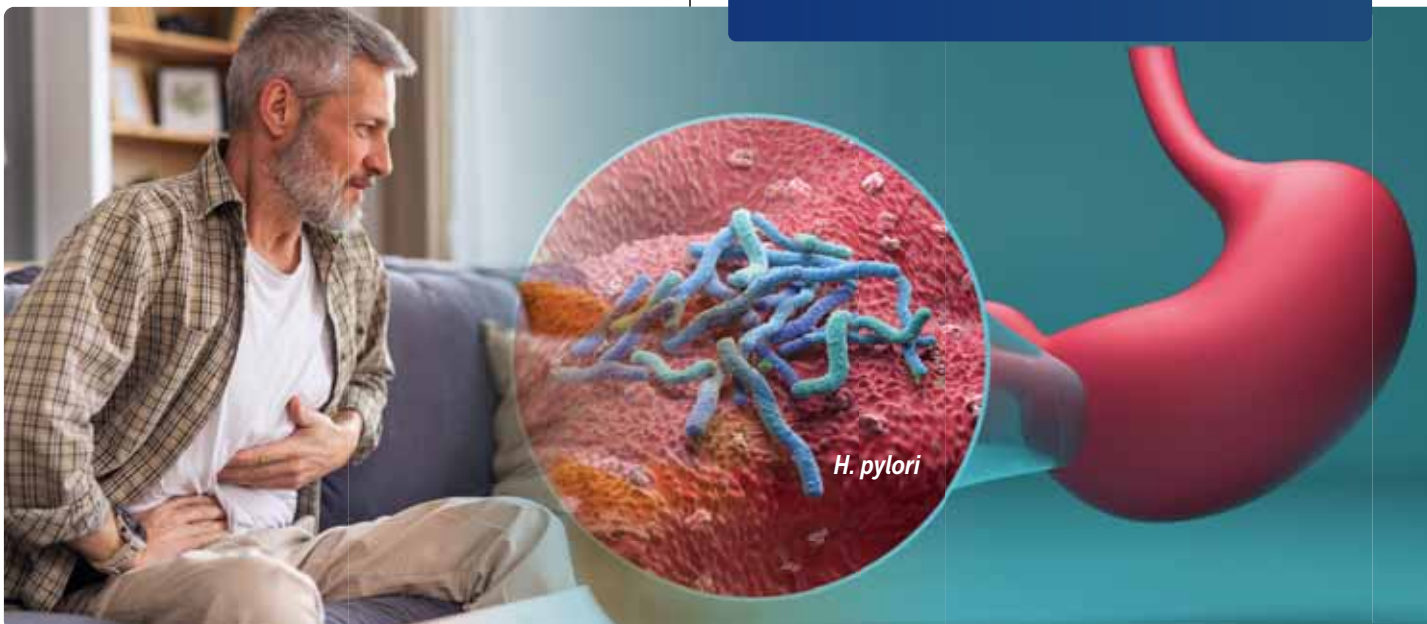
Pairing the medications with **zinc-carnosine** eradicated *H. pylori* in **80%** of cases, compared to **67%** of cases using *only* drug treatment.²⁴



What You
Need
To Know

Innovative Solutions for Stomach Health

- ***Helicobacter pylori* infection** is a top trigger of stomach ulcers and **gastritis**, which can cause bloating, belching, gas, heartburn, and nausea.
- **Zinc-carnosine** and the postbiotic ***Lactobacillus reuteri* DSMZ 17648** work in different ways to reduce *H. pylori* infection and heal the stomach lining.
- In a clinical trial of adults with stomach ulcers, zinc-carnosine produced healing in **65%** of subjects.
- A clinical trial study of ***L. reuteri* DSMZ 17648** found it helped lower a marker of *H. pylori* infection by **16%** within two weeks.



Postbiotic Protection

Seeking another way to make *H. pylori* treatment more effective,, scientists selected a beneficial bacterial strain, ***Lactobacillus reuteri* DSMZ 17648**.²⁵ This strain is heat-treated to make it more stable, so it is considered a **postbiotic**.²⁶⁻²⁸

In preclinical research, this strain has the unique ability to **bind** to *H. pylori* and prevent it from attaching to the stomach lining. Once bound, the pathogen can be **eliminated** in the stool.²⁵

The reduction of *H. pylori* levels can be measured using a **urea breath test**. As *H. pylori* levels decline, a product of urea metabolism decreases in the breath.²⁹

In two similar trials, adults with asymptomatic *H. pylori* infection were given a placebo for two weeks, followed by **200 mg** of ***L. reuteri* DSMZ 17648** daily for two weeks.^{7,25}

In both trials, the postbiotic was associated with a significant **decrease** in urea breath test levels from baseline, indicating a reduction in ***H. pylori***. The placebo produced no significant change.^{7,25}

In one trial, ***L. reuteri* DSMZ 17648** decreased urea breath test levels by **16%**. Scientists followed the participants for 24 weeks after treatment ended and found that significant improvement from baseline was maintained.⁷

A combination of ***L. reuteri* DSMZ 17648** and **zinc-carnosine** can target *H. pylori* infection in multiple ways and provide powerful relief for gastritis symptoms.

Summary

The stomach lining is vulnerable to damage from ***H. pylori*** infection, potentially resulting in gastritis, peptic ulcers, or stomach cancer.

Zinc-carnosine has been clinically shown to aid in the healing of peptic ulcers and combat *H. pylori* infection by inhibiting the bacteria's survival.

The postbiotic strain ***L. reuteri* DSMZ 17648** can bind to *H. pylori* in the stomach and facilitate its elimination.

Oral intake of a **combination** of these ingredients promotes stomach health and comfort. ■

If you have any questions on the scientific content of this article, please call a **Life Extension** Wellness Specialist at 1-866-864-3027.

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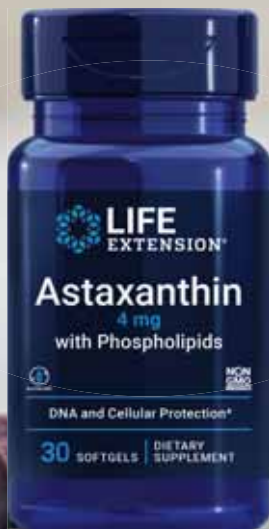
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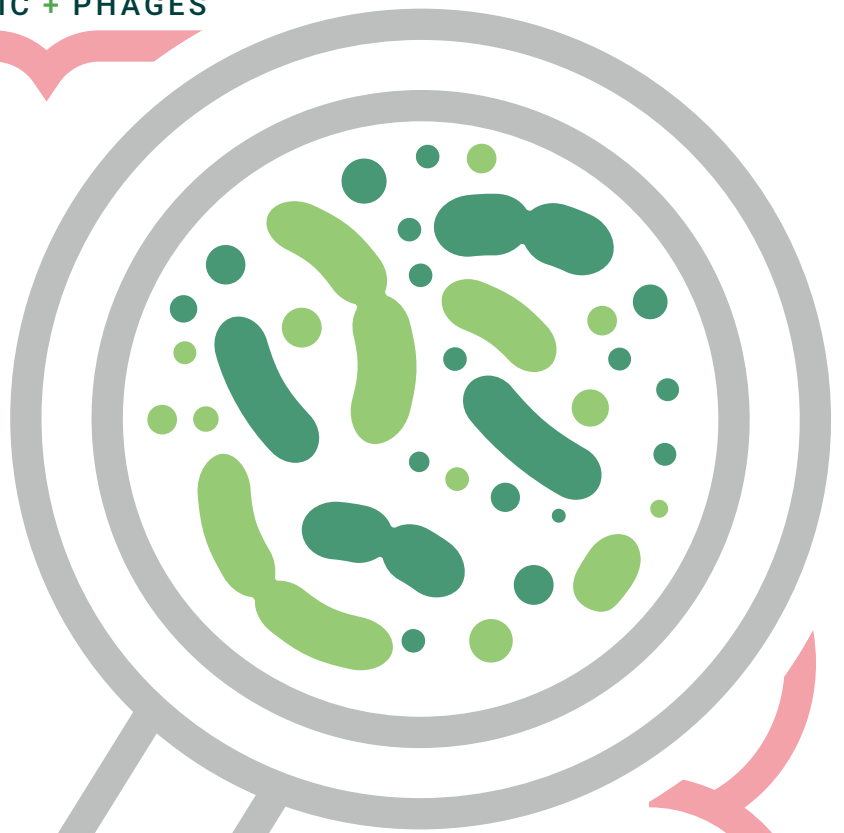
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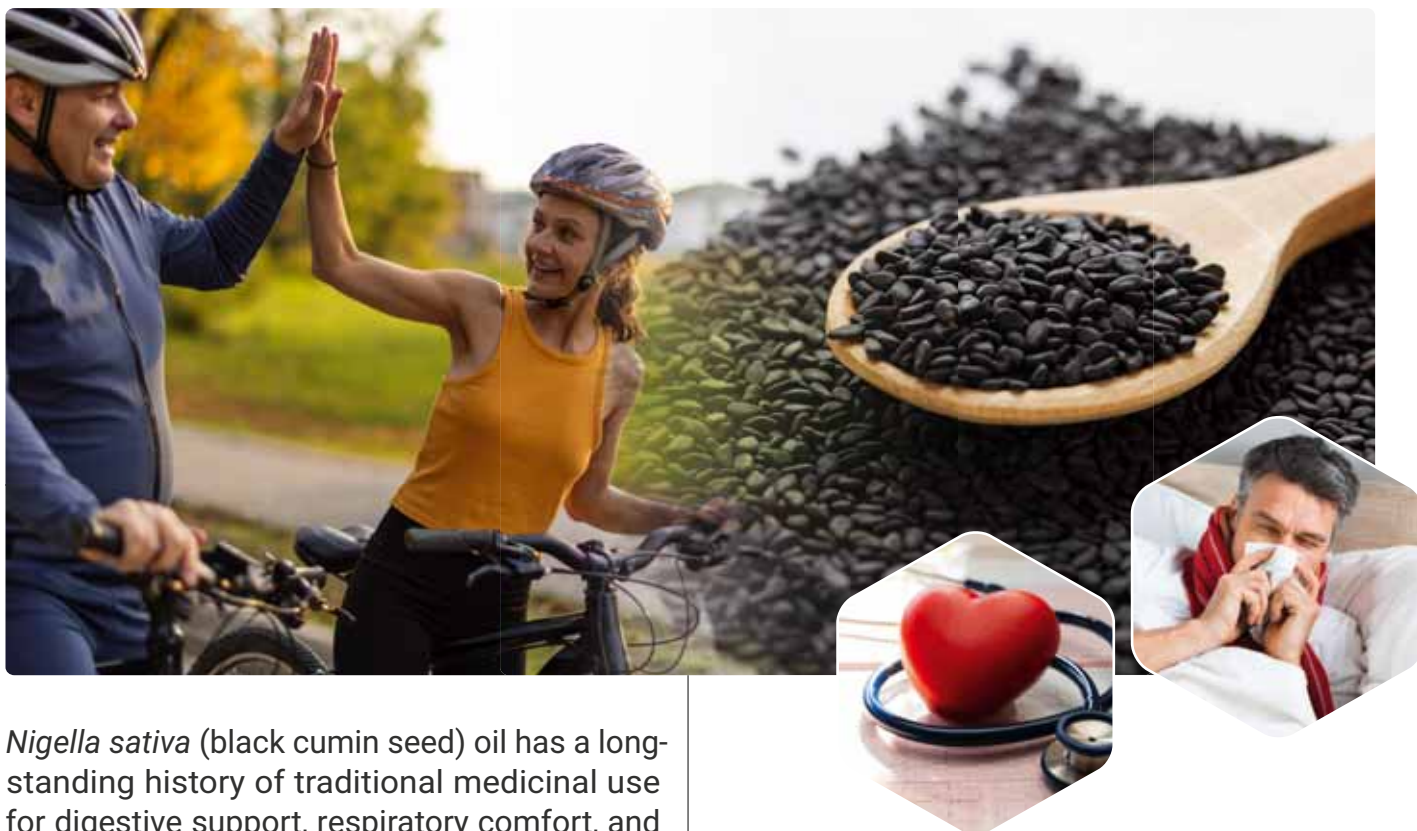
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CAUTION: Temporary flushing, itching, rash, or gastric disturbances may occur.

What is Black Cumin Seed Oil?

BY LAURIE MATHENA



Nigella sativa (black cumin seed) oil has a long-standing history of traditional medicinal use for digestive support, respiratory comfort, and vitality.^{1,2}

Preclinical and clinical research have reported beneficial effects related to immune support by its balancing **inflammatory** and beneficial **immune** responses.^{1,3,4}

Chronic inflammation and changes in immune system function are considered contributors to many age-related diseases.^{5,6}

With aging, the balance between protective and inflammatory responses may become dysregulated. This can lead to low-level systemic inflammation alongside reduced immune responsiveness.^{6,7}

Modern research has identified *thymoquinone*, a primary bioactive compound in **black cumin seed oil**, as having a range of biological activities relevant to inflammation and chronic conditions.²

Current research has focused on three main potential benefits of black cumin seed oil: inflammatory response,^{2,8,9} immune health,^{3,4} and antioxidant defense.^{2,9}

As a result, black cumin seed oil has attracted interest for its potential role in addressing chronic diseases such as arthritis, allergies, asthma, cardiovascular health, and more.²

Arthritis

Rheumatoid arthritis and osteoarthritis differ in cause but are both associated with joint pain, reduced mobility, and inflammation.¹⁰ Preclinical research suggests that **thymoquinone** may influence inflammatory pathways.^{11,12}

- **Rheumatoid arthritis** –

Preliminary research suggests that black cumin seed oil may support joint comfort and help maintain healthy joint function.¹⁰ In a small study of 40 women with rheumatoid arthritis who were already receiving standard treatment, taking **500 mg** of black cumin seed oil twice daily for one month led to significant improvements in disease activity. Participants experienced fewer swollen joints and shorter duration of morning stiffness, as measured by the Disease Activity Score for *Rheumatoid Arthritis*.¹³

- **Osteoarthritis** – associated with the breakdown of joint cartilage.¹⁰ In a study of 116 patients with knee **osteoarthritis**, those taking **2.5 mL** of **black cumin seed oil** every eight hours for one month experienced significant decreases in their symptoms and in their pain scores, compared to those taking a **placebo**.

A reduction in acetaminophen use was also observed in the treatment group.¹⁴



Nasal Allergies and Asthma

Nasal allergies (allergic rhinitis) and **asthma** are both driven by an overreaction of the immune system and resulting inflammation.¹⁵ Experimental and clinical research have reported that black cumin seed oil has been explored for potential effects on the inflammatory factors in these conditions. Studies suggest it exhibits a range of biological activities relevant to immune and respiratory functions.¹⁶

- **Nasal Allergies** – inflammation triggered by allergens in the air.¹⁵

In a clinical trial of 66 patients with allergic rhinitis, treatment with black cumin seed oil for **30 days** resulted in significant reductions in nasal congestion and itching, runny nose, and sneezing attacks. The improvements were seen in the treatment group as early as in 15 days.¹⁷

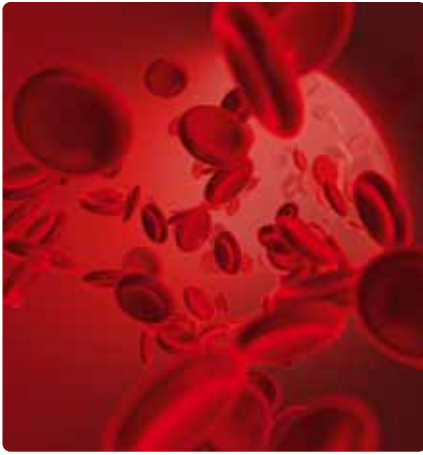


- **Asthma** – a chronic condition involving airway inflammation and reversible narrowing.¹⁸ In a randomized, double-blind, placebo-controlled trial, asthma patients who took **500 mg** of black cumin seed oil twice a day for four weeks experienced greater improvements in their Asthma Control Test score than those taking a placebo. They also had a significant reduction in blood eosinophils.¹⁹ These white blood cells are often elevated in asthma and contribute to the airway inflammation and swelling that trigger asthma attacks.¹⁸

Cardiovascular Health

C-reactive protein (CRP), a marker of **systemic inflammation**, helps predict the risk of **heart disease**.²⁰ Inflammation and oxidative stress contribute to cardiovascular disease progression, with CRP serving as a biomarker and a contributor to clot formation.²¹





- **Coronary artery disease.** In 60 individuals with coronary artery disease, patients took either **2 grams** of black cumin seed oil per day or a placebo for eight weeks. Those taking the black cumin seed oil experienced significant decreases in two cell adhesion molecules that contribute to inflammatory diseases. They also experienced a decrease in the measure of oxidative stress and beneficial increases in total antioxidant capacity. These results indicate that black cumin seed oil may support vascular function and markers of oxidative stress.²²

- **Two systematic reviews** and meta-analyses of randomized controlled trials suggest that *Nigella sativa* seed and seed oil supplementation may be associated with modest improvements in markers of **inflammation** and oxidative stress. Reported findings include reductions in serum **C-reactive protein**^{8,23} and malondialdehyde levels,²³ as well as increases in total antioxidant capacity,²³ with effects appearing more pronounced among individuals with obesity.⁸

Black cumin seed oil should not be confused with culinary cumin; it is derived from the seeds of the *Nigella sativa* plant and is often cold-pressed.

Summary

Black cumin seed oil has a history of traditional use and has been studied for its effects on inflammatory response, immune function, and antioxidant activity.

Research, including clinical trials, suggests it may be associated with improvements in symptoms and biomarkers in conditions such as arthritis, allergic rhinitis, asthma, and aspects of cardiovascular health. •

If you have any questions on the scientific content of this article, please call a **Life Extension Wellness Specialist** at 1-866-864-3027.

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- References**
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* Nutr Res. 2010 May;30(5):305-13.

This supplement should be taken in conjunction with a healthy diet and regular exercise program. Results may vary and individual results are not guaranteed.

For full product description and to order **Optimized Saffron**,
call **1-800-544-4440** or visit **www.LifeExtension.com**

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Goji Berries

BY LAURIE MATHENA

Goji berries are a small, red-orange fruit packed with an array of nutrients and bioactive compounds.

Long prized in traditional Chinese medicine for their anti-aging and health-promoting properties,¹ these berries have been shown in modern research to be a promising functional food with antioxidant, anti-inflammatory, and metabolic benefits.^{2,3}

Goji berries provide nutrients like vitamin C, minerals (potassium and copper), fatty acids (linolenic and oleic acid), amino acids (proline and serine), and flavonoids such as anthocyanins.⁴

One of goji berries' primary active components, called *Lycium barbarum* polysaccharides, provides antioxidant, immunoregulative, and anti-apoptotic effects, while reducing DNA damage.⁵

Goji berries are one of the richest dietary sources of *zeaxanthin*,⁶ a carotenoid shown to protect against eye damage.⁷ In one study, eating **15 grams** of goji berries (estimated to contain **3 mg** zeaxanthin) daily for 28 days more than **doubled** the levels of zeaxanthin in the blood.⁸

In a pilot trial, adults who ate **28 grams** of goji berries five times per week for 90 days had significant increases in macular pigment optical density, an indicator for evaluating the risk and progression of age-related macular degeneration, a major cause of vision loss.⁹

Even though goji berries have a relatively high sugar content (about **13 grams** per **one-ounce** serving),¹⁰ they may still offer metabolic benefits.

Patients with metabolic syndrome, who added **14 grams** of goji berry to a healthy diet for 45 days had improvements in lipid profiles, reduced waist circumference, and had increases in antioxidants like glutathione and catalase, compared to the control group.²

In a separate randomized controlled trial, consuming **15 grams** of dried goji berries daily for 16 weeks, combined with a healthy diet, led to significant increases in HDL cholesterol, reductions in the Framingham 10-year Cardiovascular Disease score, and decreases in vascular age.^{11,12}

Goji berries are most commonly consumed in their dried form (like raisins). They can be added to oatmeal, yogurt, or smoothies, or eaten separately as a snack. ●

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7 **COQ10 AND THE FREE MARKET**

In 1983, the **FDA** claimed **CoQ10** was a **prescription drug** and moved to ban it. Congress allowed consumer access in 1994. Since then, advances in **CoQ10 absorption** technologies have slashed **consumer** prices and improved **bioavailability**.

22 **PROTECTING YOUR TELOMERES**

Telomere shortening is associated with decreased lifespan. Preclinical and clinical studies have identified specific **nutrients** that can help *support* the **length** and **health of telomeres**.



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32 **A MORE BIOAVAILABLE COQ10**

In a clinical trial, a new **CoQ10** formulation *boosted* **bioavailability** up to **24-fold**, compared to conventional CoQ10.

44 **REDUCE STRESS WHILE STAYING SHARP**

In separate human trials, **two plant extracts** *reduced* **stress** by **71%**, *lowered* **cortisol** by **24%**, and *improved* **attention** and **working memory**.

54 **EASE STOMACH DISCOMFORT**

In separate trials, zinc-carnosine enhanced ***H. pylori*** eradication when combined with drug therapy, and supported healing in gastritis and peptic ulcers, while a postbiotic reduced a marker of ***H. pylori*** infection.



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67 **WHAT IS BLACK CUMIN SEED OIL?**

Components in **black cumin seed oil** may help support balanced **inflammatory** and **immune responses** associated with chronic diseases.