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December 2026

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Bacteriophages target bacteria associated with UTIs, while **cranberries** help prevent bacteria from adhering to the urinary tract lining.

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13. Publication Title		14. Issue Date for Circulation Data Below	
LIFE EXTENSION		NOVEMBER 2026	
15. Extent and Nature of Circulation		Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a. Total Number of Copies (Net press run)		392,509	375,288
b. Paid Circulation (By Mail and Outside the Mail)	(1) Mailed Outside-County Paid Subscriptions Based on PS Form 3541 (Include paid distribution above nominal rate, advertiser's proof copies, and exchange copies)	358,994	346,230
	(2) Mailed In-County Paid Subscriptions Based on PS Form 3541 (Include paid distribution above nominal rate, advertiser's proof copies, and exchange copies)	5,591	5,196
	(3) Paid Distribution Outside the Mails Including Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS®	—	—
	(4) Paid Distribution by Other Classes of Mail Through the USPS (e.g., First-Class Mail®)	260	234
c. Total Paid Distribution (Sum of 15b (1), (2), (3), and (4))		0	0
d. Free or Nominal Rate Distribution (By Mail and Outside the Mail)	(1) Free or Nominal Rate Outside-County Copies Included on PS Form 3541	364,845	351,660
	(2) Free or Nominal Rate In-County Copies Included on PS Form 3541	27,253	23,272
	(3) Free or Nominal Rate Copies Mailed at Other Classes Through the USPS (e.g., First-Class Mail®)	405	352
	(4) Free or Nominal Rate Distribution Outside the Mail (Carriers or other means)	4	4
e. Total Free or Nominal Rate Distribution (Sum of 15d (1), (2), (3), and (4))		27,922	23,862
f. Total Distribution (Sum of 15c and 15e)		392,767	375,522
g. Copies not Distributed (See Instructions to Publishers #4 (page B2))		—	—
h. Total (Sum of 15f and g)		392,767	375,522
i. Percent Paid (15c divided by 15f times 100)		92.8%	93.6%

* If you are claiming electronic copies, go to line 15b on page 3. If you are not claiming electronic copies, skip to line 17 on page 3.

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LIFE EXTENSION (ISSN 1524-198X) Vol. 32, No. 12 ©2026 is published monthly except bi-monthly in April by LE Publications, Inc. at 3600 West Commercial Blvd., Fort Lauderdale, FL 33309-3338. LE Publications, Inc. All rights reserved. Published 13 times a year. Subscription rate: \$40 per year in the United States. US \$47 in Canada. US \$60 in other countries. Mail subscriptions or address changes to: LE Publications, Inc., P.O. Box 407198, Fort Lauderdale, FL 33340-7198, USA. Or phone us toll-free at: 1-800-841-5433. Canada Subscriptions: Publications mail agreement number 40028967. Return undeliverable Canadian addresses to PO Box 503, RPO West Beaver Creek, Richmond Hill, ON L4B4R6. You will be sent your first issue within six weeks after LE Publications, Inc. receives your subscription fee. Periodicals Postage paid at Fort Lauderdale, FL and at additional mailing offices. POSTMASTER: Send address changes to Life Extension, P.O. Box 407198, Ft. Lauderdale, Florida 33340-7198, USA. Printed in USA. The articles in this magazine are intended for informational purposes only. They are not intended to replace the attention or advice of a physician or other health-care professional. Anyone who wishes to embark on any dietary, drug, exercise, or other lifestyle change intended to prevent or treat a specific disease or condition should first consult with and seek clearance from a qualified health-care professional. LEGAL NOTICE: Health claims contained in articles and advertisements in this publication have not been approved by the FDA with the exception of FDA-approved, qualified health claims for calcium, antioxidant vitamins, folic acid and EPA and DHA omega-3 fatty acids, and selenium as noted where applicable. *Life Extension Magazine* does not endorse any of the businesses or the products and/or services that may appear in advertisements for non-Life Extension branded products or services contained in it, except to state that they are advertisers who may have paid Life Extension for placement of an advertisement in this publication. Life Extension disclaims any and all responsibilities or warranties as to the accuracy of information contained in advertisements for non-Life Extension branded products or services. For Canadian customers send change of address information and blocks of undeliverable copies to P.O. Box 1051, Fort Erie, ON L2A 6C7.

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New Strategies for Urinary Tract Health

BY WILLIAM FALOON AND CHANCELLOR FALOON



Urinary tract infections (UTIs) are the most common infections seen in American physicians' offices, mostly in women, with approximately 10 million visits annually.

Prompt treatment can shorten the duration of symptoms.¹



In a Swedish observational study of women with uncomplicated UTIs, the median duration of symptoms from the time of consultation was about **4 days** with **antibiotic** treatment compared to approximately **6.5 days** without treatment. Longer symptom duration was associated with individuals over 50 years old.¹

Physicians are placing greater emphasis on prevention, in part because **antibiotic-resistant** bacteria have increased over time.²

Most uncomplicated UTIs carry a low risk of serious complications and respond well to first-line antibiotics.³

An estimated **8% to 25%** of patients, however, do not improve as expected.^{3,4} In many cases, the prescribed antibiotic may be ineffective because the infecting bacteria are resistant to it.⁵

As a result, effective **preventive** strategies are becoming increasingly important for individuals at elevated risk of recurrent **UTIs**.

Cranberries have demonstrated the ability to support urinary tract health by helping to prevent bacteria, such as ***Escherichia coli* (E. coli)**, from **adhering** to cells lining the urinary tract.⁶

Another promising approach may involve harnessing **bacteriophages** that **target** and **destroy** harmful **bacteria** while leaving human cells unharmed.⁷

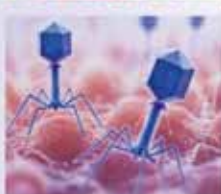
Scientists explored **bacteriophages** as antibacterial agents long before the discovery of antibiotics. Interest waned after antibiotics became widely available. Today, the rise of **antibiotic resistance** has renewed scientific attention on **bacteriophages** as a potential tool for combating bacterial infections.⁷

In addition to appropriate treatment, these strategies may help support urinary tract health.



Cranberries

Have demonstrated the ability to prevent bacteria, such as *E. coli*, from adhering to cells lining the urinary tract.⁶



Bacteriophages

May target and destroy harmful bacteria while leaving human cells unharmed.⁷ renewed interest in bacteriophages is growing due to rising antibiotic resistance.

The article on page 34 examines research on cranberry powder and bacteriophages. Together, these two approaches may offer a novel strategy for reducing the risk of recurrent UTIs.

For longer life,



William Faloon, Co-Founder
Life Extension

A Faster UTI Test May Soon Be Available

One way to combat antibiotic resistance is through **rapid diagnostic testing** that identifies the infecting bacteria and helps determine the most effective antibiotic treatment.

For many otherwise healthy women with typical symptoms, urine culture and antibiotic susceptibility testing are not routinely performed and are generally reserved for recurrent infections, treatment failure, suspected resistance, or atypical presentations.⁸ Patients who are candidates for testing typically must wait **two to four days** for the lab results that identify the best antibiotics.⁹

Researchers from the University of Reading, the University of Southampton, and Hampshire Hospitals NHS Foundation Trust have developed a new testing approach that can detect

Standard Urine Culture

2-4 Days

for results



Bacteria are grown in a lab and tested against antibiotics.

New Rapid Test

~6 Hours

for results



Detects bacteria and determines antibiotic susceptibility.

bacteria in the urine and determine antibiotic susceptibility within about **six hours**, rather than the several days required by conventional methods.¹⁰

When compared to standard laboratory methods, this new test matched results in about **97%** of cases across seven different antibiotics for UTIs.¹⁰

If successfully validated and adopted in clinical practice, rapid tests such as this could help more patients receive the most appropriate antibiotic from the outset, reducing treatment failures and limiting unnecessary antibiotic exposure.

This new test could play an important role in slowing down the development of antibiotic resistance. However, additional validation studies and regulatory review will likely be required before this test becomes widely available.

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In the News



Ubiquinol Form of CoQ10 Improves Insulin Sensitivity in Prediabetic Adults

A randomized controlled pilot study that evaluated the effects of the ubiquinol form of coenzyme Q10 (CoQ10) in men and women with **prediabetes** showed a reduction in insulin resistance among those who were given **CoQ10** compared with participants who received a placebo.*

The trial enrolled 20 prediabetic individuals between the ages of 18–60 years. Ten participants were given **100 mg** of ubiquinol in medium-chain triglyceride oil, while the remainder received a placebo daily for 12 weeks.

Laboratory values, including assessment of insulin resistance, glucose, hemoglobin A1c and lipids, were measured at the beginning and end of the trial.

After 12 weeks, participants who received CoQ10 had significantly lower insulin resistance compared with the placebo group.

Editor's Note: "One hundred milligrams ubiquinol for 12 weeks improves insulin sensitivity for prediabetic patients with a favorable safety profile," the authors concluded.

* *Clin Nutr Open Sci.* 2026 Apr;66:100627.

Vitamin D Shows Promise in Inflammatory Bowel Disease

Vitamin D may help regulate the overactive immune response to gut bacteria that occurs in inflammatory bowel disease (IBD), according to a recent study.*

Participants included 48 adults with IBD and low levels of vitamin D. They received a dose of **50,000 IU (1,250 mcg)** of oral vitamin D once weekly for 12 weeks. Blood and stool samples were analyzed before and after treatment.

At the end of the study, participants showed *higher* vitamin D levels, reduced disease activity scores, and other positive outcomes. Improvements were also observed in gut microbiota composition and immune cell function, suggesting a potential role for vitamin D in restoring immune balance.

Editor's Note: Inflammatory bowel disease—including Crohn's disease and ulcerative colitis—is characterized by inflammation of the gastrointestinal tract. "Loss of immune tolerance to the gut microbiome plays a pathogenic role in inflammatory bowel disease (IBD)," the authors stated.

* *Cell Rep Med.* 2026 Apr 21;7(4):102703.





Melatonin Lowers Cardiometabolic Risk Factors

Individuals who received melatonin demonstrated improvements in several risk factors for metabolic syndrome and cardiovascular disease, according to a systematic review and meta-analysis of clinical trials.*

The meta-analysis included 63 randomized controlled trials involving a total of 3,157 participants. Of these, 1,606 were given melatonin supplementation, while 1,551 were part of control groups.

Participants included healthy individuals or those with specific conditions such as metabolic syndrome.

Overall, **melatonin** supplementation was associated with significantly reduced hip circumference, systolic blood pressure, fasting blood glucose, total cholesterol, low-density lipoprotein (LDL) cholesterol, ALT (a liver enzyme), malondialdehyde (a marker of oxidative stress), and markers of inflammation that included C-reactive protein, tumor necrosis factor-alpha, and interleukin-6.

Editor's Note: Melatonin was additionally associated with improvement in serum total antioxidant capacity and an increase in high-density lipoprotein (HDL) cholesterol.

* *Nutrients*. 2025 Dec 31;18(1):134.

Magnesium Associated with Lower 28-Day Mortality Rate in Heart Failure Patients

Heart **failure** patients with preserved ejection fraction (also known as diastolic heart failure), treated in an intensive care unit had a significantly lower 28-day risk of all-cause mortality when given **magnesium** compared to those who did not receive it.*

Researchers compared 985 patients who received magnesium with another 985 who did not. Within 28 days, **20%** of the group not receiving magnesium died, whereas only **13.6%** of the magnesium group died.

After adjustment for various confounding factors, magnesium intake was linked to a **32%** lower risk of mortality.

Editor's Note: Subgroup analysis showed even greater benefits, with lower risk for certain groups: older patients: **35%**, women: **45%**, individuals without diabetes: **46%** and patients with high blood pressure: **38%**.

* *Sci Rep.* 2025 Jan 14;15(1):1944.





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Reference 1. *Scand J Gastroenterol.* 2011;46:1057-64.

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*European Journal of Nutrition. 2011;50(5):387-389.

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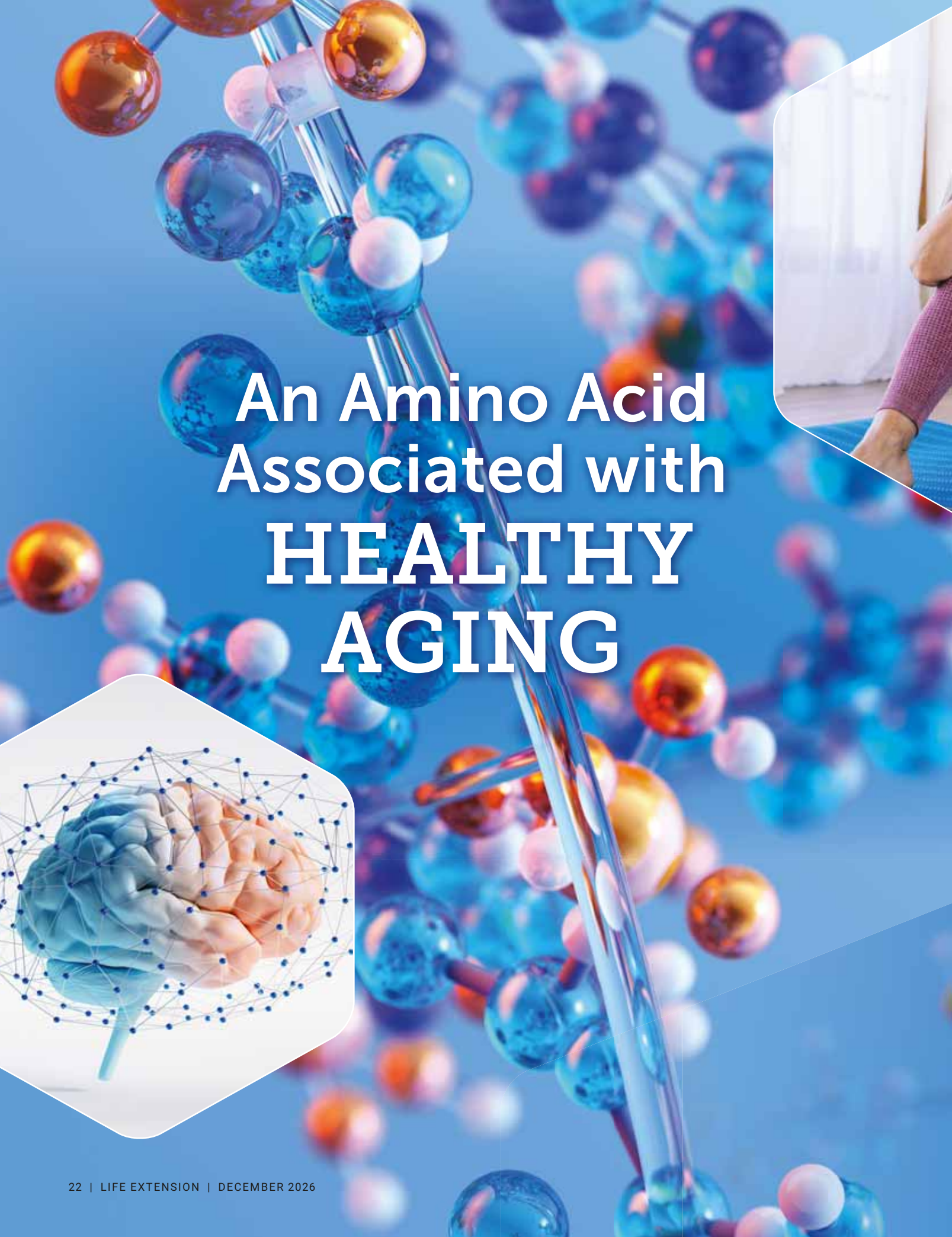
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An Amino Acid Associated with **HEALTHY AGING**





BY ROGER VINCENTO

L-ergothioneine is an amino acid associated with longevity and cognitive health.

It is found in mushrooms and fermented foods.¹

In preclinical studies, L-ergothioneine activates **proteins** tied to **longevity**,²⁻⁴ reduces inflammation^{3,5} and oxidative damage,³⁻⁶ and may help preserve **telomere length**.⁷

Studies have linked higher L-ergothioneine body levels to a lower risk for age-related diseases, including cognitive decline,^{8,9} dementia,^{1,10,11} and cardiovascular disease.^{1,12}

In a large population study, *higher* blood L-ergothioneine levels were associated with roughly **14%** lower risk of overall **death** and about **21%** lower risk of cardiovascular death.¹²

Early clinical studies of L-ergothioneine supplementation in older adults showed promise for improving **cognitive function**,^{13,14} and **sleep quality**,¹⁵ suggesting **L-ergothioneine** may help support **healthy aging**.

To deliver *higher* **L-ergothioneine** levels than can typically be obtained through diet alone, researchers have developed a process to increase potency.



What Is L-Ergothioneine?

L-ergothioneine is a naturally occurring amino acid that the human body cannot make,^{5,16} so it must come from diet or supplements.

Early studies suggest it helps activate the body's natural defenses against aging, protecting cells while supporting mitochondrial health.^{2,3,7}

Humans have evolved a specific **transporter** that carries **L-ergothioneine** into cells.^{5,6,16,17}

Cells lacking this transporter cannot accumulate it and become more vulnerable to oxidative stress and cell death.¹⁸

Biologic Effects

There are several reasons why L-ergothioneine is so beneficial.

For one, it has a unique structure that gives it stable, long-lasting antioxidant activity.¹⁶ Unlike many other antioxidants, it resists being used up and stays effective even after repeated rounds of neutralizing free radicals and other toxins.¹⁹

In addition, in laboratory studies it activates the protein Nrf2, which ramps up cells' natural defenses against a range of threats.^{6,16} It also inhibits NF-κB (nuclear factor-kappa B), a protein complex that drives **chronic inflammation**.¹⁶

One proposed anti-aging effect of L-ergothioneine is that it may help slow the shortening of **telomeres**—the protective end caps on chromosomes—and possibly help preserve their length.^{3,7} Shorter telomere length is associated with higher mortality and a shorter, less healthy lifespan.^{20,21}

In preclinical (cell and animal) studies, L-ergothioneine has also been tied to:

- Protecting cells against **ultraviolet damage**, a driver of skin aging, by reducing oxidative DNA damage and collagen breakdown,²²⁻²⁴
- Warding off the onset of **cellular senescence**, when old cells become dysfunctional,^{22,25}
- Activating **sirtuins** (SIRT1/SIRT6), cellular defense proteins tied to longevity,²⁵
- Providing **neuroprotection**, helping to forestall neurodegeneration, including in Parkinson's disease models,^{26,27} and
- Supporting healthy **mitochondria**, the cell's energy 'powerhouses' in part by activating the enzyme MPST.^{27,28}

Together, these mechanisms are thought to contribute to **L-ergothioneine's** potential role in healthy aging, though most of this evidence remains preclinical.



Tied to Better Health

In population studies, lower blood levels of **L-ergothioneine** are associated with increased risk of age-related disorders,⁶ including neurodegenerative disorders,^{9-11,29} cardiovascular disease,¹² and frailty.³⁰

Blood levels of L-ergothioneine are consistently lower in **people** with dementia, including **Alzheimer's** disease, and track with greater brain atrophy.¹⁰

In one study that followed elderly adults attending memory clinics for up to five years, lower L-ergothioneine levels were associated with worse cognitive performance at the start of the study and predicted a significantly **faster rate of cognitive decline**, particularly in those without established dementia.⁸

Lower L-ergothioneine levels are also linked to cardiovascular and all-cause mortality.^{6,12,31} In a population study that followed 3,236 adults for **20 years**, **higher** blood levels of **L-ergothioneine** were associated with a **21%** lower risk of cardiovascular mortality and a **14%** lower risk of **death from any cause**.¹²

A larger study of adults spanning a wide age range likewise identified L-ergothioneine among metabolites associated with lower mortality risk.³¹

What Clinical Studies Show

Studies in cell and animal models have shown that L-ergothioneine may help improve health and lifespan. For example, male mice given L-ergothioneine experienced an approximately **21%** increase in their average **lifespan**.³²

In humans, body levels of L-ergothioneine tend to decline with age.^{33,34} Direct oral intake reliably raises blood levels, as ergothioneine is efficiently absorbed and retained.³⁵

In one clinical trial of adults with **mild cognitive impairment**, taking **5 mg** of L-ergothioneine daily for 12 weeks improved multiple measures of cognitive function compared with a placebo.¹³

In a **2025** randomized, placebo-controlled trial, healthy older adults with subjective memory complaints took either **10 mg** or **25 mg** of L-ergothioneine daily for 16 weeks. From baseline, both doses were associated with improvements in complex attention, cognitive flexibility, and executive function (the ability to plan and carry out goals). The **25 mg** group additionally showed improvement in verbal memory and in overall cognitive function and reported better prospective memory (remembering to carry out intended future actions) on a self-report questionnaire.³⁶



What You
Need
To Know

L-Ergothioneine: A Unique Longevity Nutrient

- **L-ergothioneine**, a little-known amino acid associated with longevity and cognitive health, is found in mushrooms and fermented foods.
- L-ergothioneine is believed to contribute to many of the health benefits and lower mortality rates associated with mushroom consumption.
- Studies have linked higher body levels of L-ergothioneine to a lower risk for multiple age-related diseases, including cognitive decline.
- In clinical studies, L-ergothioneine intake improved **cognitive function** and **quality of sleep**.

In another clinical study, adults with **mild cognitive impairment** received **25 mg** of L-ergothioneine or a placebo three times per week for a year. The **placebo** group showed no improvement, and a blood marker of neurodegeneration **worsened**.¹⁴

But in the group receiving **L-ergothioneine**, learning and memory performance improved and the marker of **neurodegeneration** stabilized.¹⁴

L-ergothioneine may also improve **sleep**. In one placebo-controlled study, healthy adults aged 40–75 with poor sleep and high anxiety who took **20 mg** of L-ergothioneine daily for four weeks reported less difficulty sleeping than those who received placebo. EEG (brainwave) recordings showed the L-ergothioneine group woke less often during the night and spent less time in the lightest stage of sleep.¹⁵

A separate 2025 study found that a lower dose—**8 mg** of L-ergothioneine daily for 16 weeks—was also associated with better subjective sleep quality, with participants reporting more refreshing sleep and longer sleep duration than those receiving placebo.³⁷

Ensuring adequate L-ergothioneine intake may help support multiple aspects of healthy aging.

Summary

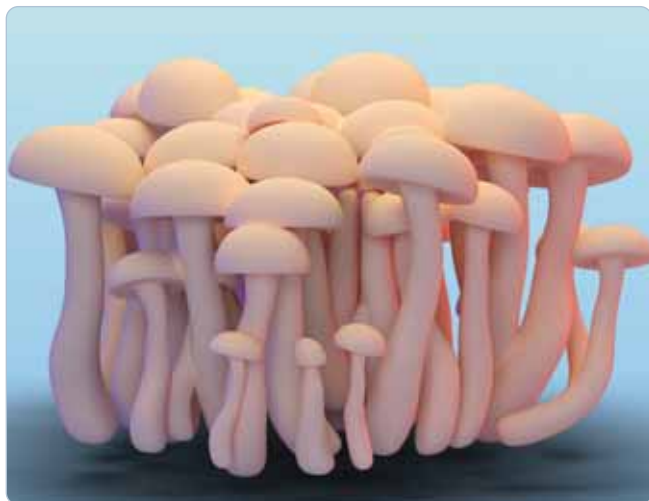
L-ergothioneine, an amino acid found in **mushrooms**, may contribute to some of the health benefits associated with mushroom consumption.

Observational studies have linked *higher* L-ergothioneine levels to *longer* survival and lower risk of several chronic age-related diseases.

In small clinical studies, L-ergothioneine supplementation improved measures of **cognitive function** and **sleep quality** and was associated with stabilization of a biomarker linked to **neurodegeneration**. ■

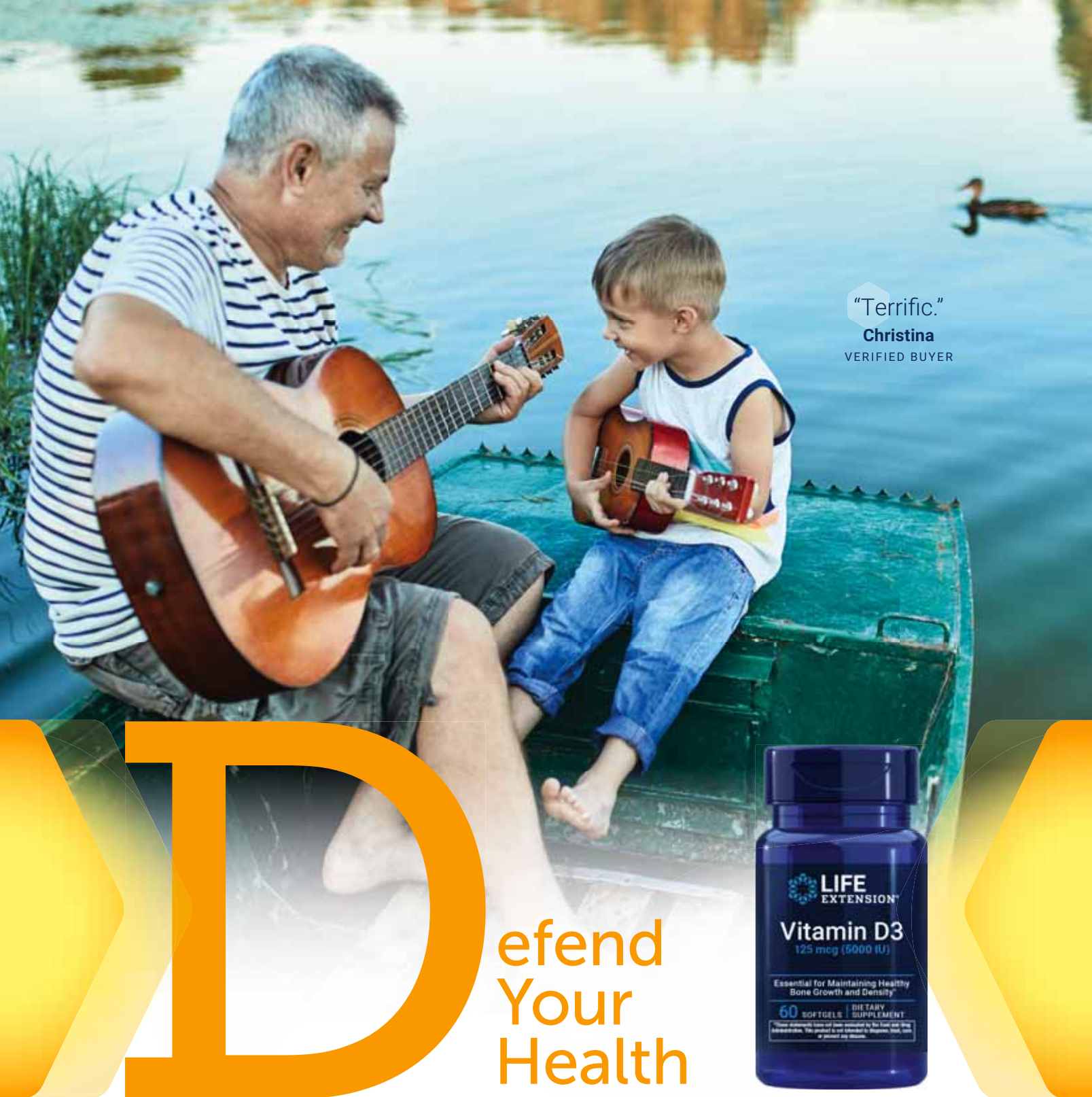
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SUPER SALE PRICE

Item #02556 * 30 vegetarian capsules
1 bottle **\$14.85** • 4 bottles \$13.50 each

SUPER SALE PRICE

Item #02559 * 90 vegetarian capsules
1 bottle **\$31.05** • 4 bottles \$28.80 each



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

References: 1. *Nat Rev Mol Cell Biol.* 2021 Feb;22(2):119-41. 2. *NPJ Aging.* 2022 May 1;8(1):5. 3. *Geroscience.* 2024 Oct;46(5):4671-4688.

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.

more QUERCETIN

HEART HEALTH AND MORE



SUPER SALE PRICE

Item #02302

30 vegetarian capsules

1 bottle **\$8.10**

4 bottles \$7.20 each



UP TO 62 TIMES GREATER BIOAVAILABILITY*

For years, researchers have worked to *increase* the **bioavailability** of the plant flavonoid, **quercetin**.

Now, **Bio-Quercetin®** formula with an innovative **hydrogel delivery** system is up to **62 times more** bioavailable than unformulated quercetin.*

And, it delivers up to **18 times more free quercetin**.

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

* Studied against powder *Sophora japonica* extract standardized to 98% quercetin.

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.



Bioavailability-Enhanced **Bio-Luteolin™**

In a clinical study, Bio-Luteolin™ supplements achieved blood levels up to 14 times higher compared to regular luteolin*!¹

The flavonoid **luteolin** has been scientifically optimized in our Bio-Luteolin™ supplement and shown to have increased bioavailability.

Bioavailability refers to the proportion of an orally administered compound that reaches the bloodstream intact and becomes available to produce effects in the body.²

Luteolin occurs naturally in foods such as celery, broccoli, peppers, and artichokes, but because it's metabolized in the intestines, it's not easily absorbed by the body.

The Bio-Luteolin™ formula is combined with fenugreek-derived galactomannans that has been shown to greatly boost bioavailability.

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



SUPER SALE PRICE
Item #02547
30 vegetarian capsules
1 bottle \$14.85
4 bottles \$12.60 each

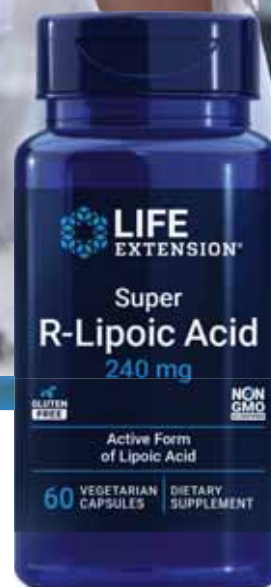
* Regular luteolin defined as 98% pure powder luteolin

1. Akay. Data on file. Bio-Luteolin pharmacokinetics study. 2025. 2. Molecules. 2023;28(24):8038.

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.

NEXT-GENERATION R-Lipoic Acid

Restore
Healthy
Cellular
Energy



R-Lipoic Acid provides the biologically active form of R-lipoic acid in the body.

Lipoic acid is an important part of cellular energy production and helps protect against oxidative stress.

Suggested dose: One to two capsules daily.

SUPER SALE PRICE

Item #01208

60 vegetarian capsules

1 bottle **\$32.40**

4 bottles \$29.25 each



For full product description and to order Super R-Lipoic Acid,
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.

Healthy Aging

AMINO ACID

25 MG DOSE

L-ergothioneine, an amino acid found in mushrooms, is delivered directly to our cells and mitochondria.

Mega L-Ergothioneine provides a powerful dose of highly bioavailable¹ L-ergothioneine and may support healthy aging by:

- Promoting plasma ergothioneine levels¹
- Providing sustained ergothioneine levels¹ with **high bioavailability** and efficient absorption
- Supporting overall well-being²
- Offering cellular protection against oxidative stress^{1,3}

References

1. *Antioxid Redox Signal*. 2017 Feb 10;26(5):193-206.
2. *Food Chem*. 2017 Oct 15;233:429-433.
3. *Biointerface Research in Applied Chemistry*. 2020 08/02;11:8669-85.

Just one daily vegetarian capsule of **Mega L-Ergothioneine** provides a full **25 mg** of L-ergothioneine.

This strength provides **25 mg** of **L-ergothioneine** per capsule, which is equivalent to the amount found in approximately **10 to 23** cups of white button mushrooms.³⁻⁵

For full product description and to order **Mega L-Ergothioneine**, call **1-800-544-4440** or visit



SUPER SALE PRICE
Item #02540

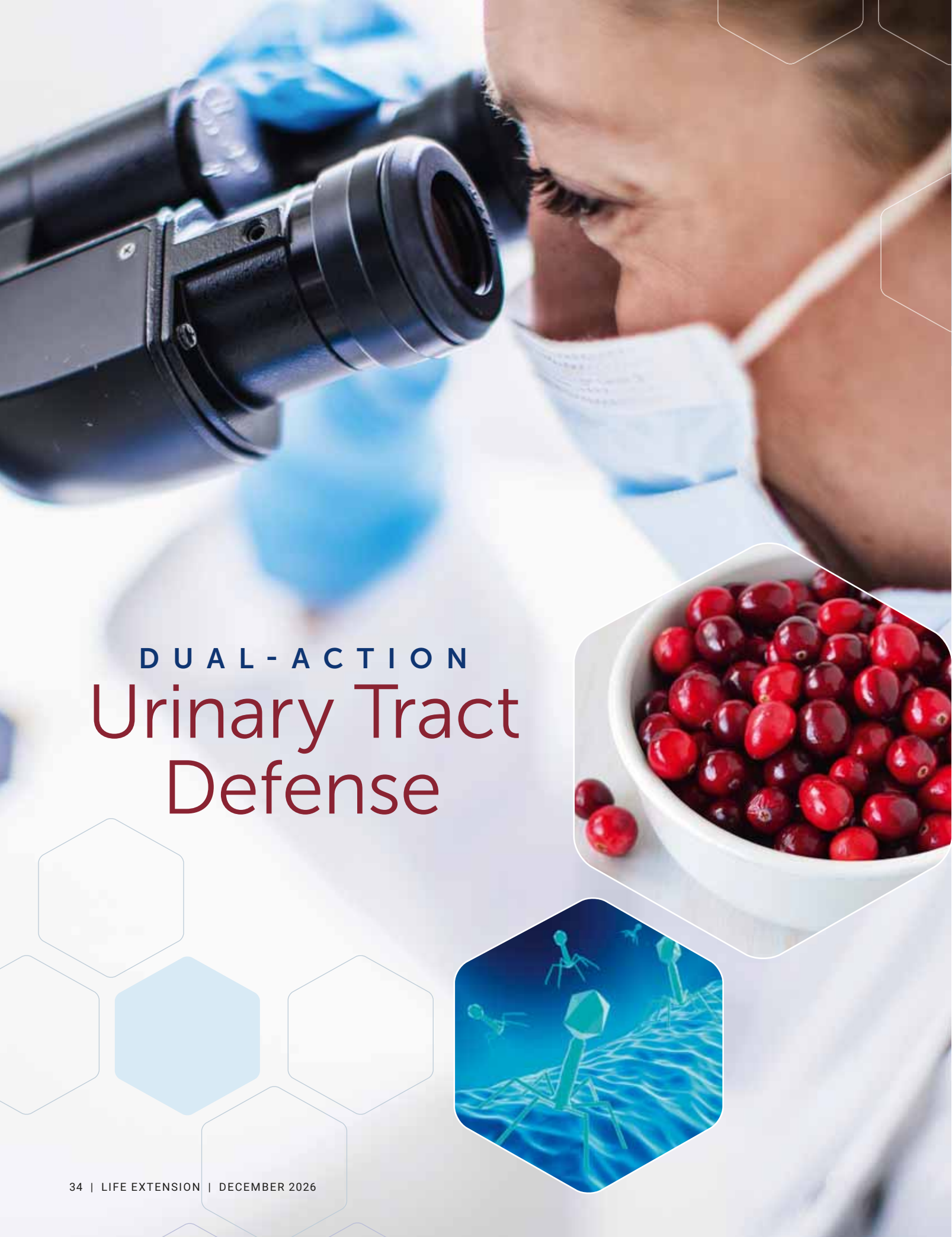
30 vegetarian capsules
1 bottle **\$25.65**
4 bottles \$23.40 each

4. *FEBS Lett*. 2018 Oct;592(20):3357-66.
5. *Food Chem*. 2017 Oct 15;233:429-33.

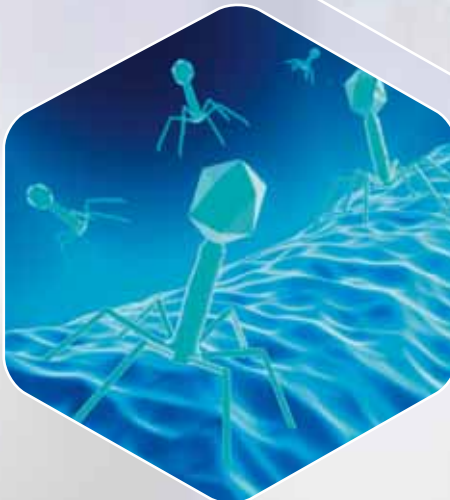
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DUAL-ACTION
Urinary Tract
Defense





BY MARSHA MCCULLOCH, MS, RD

Pain and burning during urination, persistent need to urinate, and urinary urgency/frequency are recognized signs of **urinary tract infections (UTIs)**.^{1,2}

Globally, about **400 million** UTIs are diagnosed each year, the majority in women.³ About **25%** of women deal with recurrent UTIs.⁴

These infections are commonly treated with antibiotics, but repeated use is contributing to increasing **drug resistance**.⁵

Researchers have identified two non-drug approaches that may support urinary tract health.

Compounds found in **cranberries** are thought to prevent infection-causing *E. coli* from **adhering** to urinary tract cells.^{6,7} Cranberry has been shown to reduce the occurrence of UTIs in women with recurrent infections.⁸

In a randomized trial of women with recurrent UTIs, **cranberry powder** reduced the relative risk of ***E. coli*-related UTIs** by **64%** and of all recurrent UTIs by **58%** compared with **placebo**.⁹

To complement cranberries, scientists developed a targeted blend of **bacteriophages** that, in preclinical studies, were found to seek out and selectively target *E. coli* strains responsible for UTIs.¹⁰

Researchers have now combined these **bacteriophages** with a **cranberry** powder encapsulated to maintain potency.

This oral formula is designed to support urinary tract health through complementary mechanisms.

Understanding Urinary Tract Infections

A **urinary tract infection (UTI)** can affect any part of the urinary system, including the bladder, kidneys, and the tubes that connect them.¹¹

Common symptoms include a painful **burning** during urination and a frequent, strong need to use the bathroom.^{1,2}

UTIs are much more common in **women** because of anatomical differences.⁸ Women are also more likely to experience **recurrent UTIs**, defined as at least two infections within six months or three within 12 months.⁴

Menopause is an established risk factor for recurrent UTIs, largely because declining estrogen alters the urogenital epithelium and microbiome.^{4,12}

Roughly **80%** of urinary tract infections are caused by the bacteria ***Escherichia coli* (*E. coli*)**.¹³ Many different strains can cause UTIs.¹⁴

UTIs are becoming harder to treat as the bacteria that cause them are developing **resistance** to antibiotics.¹⁵ Antibiotics can also cause **side effects**, including microbiome imbalances and gastrointestinal issues.¹⁶

As a result, interest in non-drug strategies for managing UTIs is growing.^{4,17}

Cranberries Prevent UTIs

Cranberries have long been used to support urinary tract health.^{8,9}

These berries are rich in compounds that help prevent *E. coli* from adhering to urinary tract cells,^{8,17} potentially reducing *E. coli*'s ability to colonize the urinary tract.^{6,18}

This **anti-adhesion** effect has been demonstrated in the laboratory. In one *in vitro* study, pretreating human urinary tract cells with cranberry powder reduced *E. coli* binding by **90%** compared with untreated cells.¹⁸ In another, cranberry juice reduced the ability of *E. coli* to bind to human kidney epithelial cells.⁶

These laboratory findings are supported by clinical trials: A rigorous Cochrane Review of clinical trials in women with **recurrent urinary tract infections** found that cranberry products lowered the risk for future infections by an average of **26%**.⁸

In an earlier randomized trial, 176 women with a recent history of UTIs took either **500 mg** of whole-fruit cranberry powder or a placebo daily for six months. Over the course of the trial, the cranberry group had a **58%** lower risk of recurrent UTIs and a **64%** lower risk of *E. coli*-related UTIs than the placebo group.⁹



Bacteriophages: A Cutting-Edge Solution

Cranberry's ability to stop *E. coli* from sticking to the urinary tract would be complemented by an agent that helps curb *E. coli* **growth**.

That's where **bacteriophages** come in.

A bacteriophage, or phage for short, is a naturally occurring virus that infects specific bacteria and can destroy them, while generally not targeting human cells.^{19,20}

Phage therapy emerged in the early 1900s as a way to combat bacterial infections, but its use declined when antibiotics became widespread.^{20,21}

Now, phages are receiving renewed interest as **antibiotic resistance** grows.^{20,22-24}

In addition, phages are highly prevalent in the environment and in our bodies.¹¹ We ingest them every day in **food** and **water**.²⁵

Targeting Infection-Causing Bacteria

Phage therapy is highly specific. This means that bacteriophages can be selected to target certain bacteria, including specific strains of *E. coli*.²⁰

Scientists identified **27 *E. coli* strains** reported to be associated with urinary tract infections. Next, they developed a **blend** of three **phages** (ECRBP-203-2, ECTF-195-1, and ECML-1) in preclinical testing to target all **27 strains** of *E. coli* evaluated.¹⁰

The scientists then compared the ability of the **phage blend** and **cranberry powder** to suppress the **growth** of three *E. coli* strains commonly associated with UTIs.²⁶

In simulated **small intestine** and **urine** environments, the **phages** significantly suppressed *E. coli* growth, while cranberry did not.

In other words, cranberries have been shown to reduce *E. coli* adhesion to urinary tract cells, but only the selected **phages** suppressed *E. coli* growth.²⁶

In preclinical studies, *E. coli*-targeting phage cocktails reduced *E. coli* while sparing beneficial microbes commonly found in the gut.^{27,28} By contrast, **antibiotics** wiped out both harmful and beneficial gut bacteria.^{29,30}

Pairing this phage blend with encapsulated whole-fruit cranberry powder is intended to combine two complementary mechanisms: cranberry's anti-adhesion effect and the phages' ability to target bacteria directly, which may support urinary tract health.



What You
Need
To Know

Safeguard Urinary Tract Health

- Women are highly vulnerable to urinary tract infections (UTIs), and antibiotic resistance has made them increasingly difficult to treat.
- Cranberries have long been used to maintain urinary tract health. In clinical studies, they lower UTI relative risk by as much as 58%, potentially preventing infection-causing *E. coli* bacteria from adhering to urinary tract cells.
- To complement cranberry's actions, scientists developed a blend of three bacteriophages that, in preclinical testing, selectively targeted 27 distinct *E. coli* strains associated with UTIs.
- Combining specially encapsulated whole-fruit cranberry powder with the three-phage blend is intended to provide dual support for urinary tract health.

Summary

Painful and irritating **urinary tract infections** are common in women. **Antibiotic resistance** is making them harder to treat, causing many people to seek other solutions.

Whole-fruit **cranberry powder** has been shown to help prevent infection-causing bacteria from adhering to urinary tract cells and has been associated with reduced UTI recurrence in clinical trials.

A scientifically selected blend of **bacteriophages** has been shown in preclinical studies to target *E. coli* strains associated with urinary tract infections.

An oral **combination** of cranberry powder and phages is designed to provide complementary support for urinary tract 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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Stay Calm with Theanine

L-theanine, found in green tea*, supports a healthy stress response, calms the mind and produces a state of alert relaxation without drowsiness.¹



Theanine XR™ Stress Relief delivers L-theanine throughout the day using extended-release technology.

SUPER SALE PRICE

Item #02429

30 vegetarian tablets

1 bottle **\$18.90**

4 bottles \$16.65 each

One tablet per day dosing.



L-Theanine provides **200 mg-400 mg of L-theanine**, the same dosage used in clinical studies.^{2,3}

SUPER SALE PRICE

Item #01683

60 vegetarian capsules

1 bottle **\$16.20**

4 bottles \$13.84 each



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2. *Neurol Ther.* 2021 Dec;10(2):1061-78.
3. *Neurology and Therapy.* 2024 Aug;13(4):1135-53.

For full product description and to order **Theanine XR™ Stress Relief** and **L-Theanine**, call **1-800-544-4440** or visit **www.LifeExtension.com**

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* Our L-theanine is not made from green tea.

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			Price	Super Sale	Save
01982	Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 120 softgels Comprehensive fish/olive oil benefits for the heart, brain and beyond.	1 unit	\$29.25	\$26.33	10%
		4 units	—	\$24.75 ea.	15%
		10+ units	—	\$21.60 ea.	26%
01827	Taurine • 1000 mg • 90 vegetarian capsules Taurine capsules to support cardiovascular health.	1 unit	\$9.75	\$8.78	10%
		4+ units	—	\$8.10 ea.	17%
02535	Magnesium Glycinate • 90 vegetarian capsules Well-absorbed magnesium for heart, bone and muscle health.	1 unit	\$18.00	\$16.20	10%
		4+ units	—	\$14.40 ea.	20%
02334	Super K • 90 softgels (3-month supply) Vitamin K supplement with K1 and two forms of K2.	1 unit	\$24.00	\$21.60	10%
		4+ units	—	\$19.80 ea.	18%
01426	Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™ 100 mg • 60 softgels • Augmented with shilajit Bioavailable form of CoQ10 for heart and cellular energy support.	1 unit	\$42.00	\$37.80	10%
		4 units	—	\$33.75 ea.	20%
		6+ units	—	\$30.60 ea.	27%
02560	NEW Ultra Memory and Recall™ • 30 vegetarian capsules Advanced support for memory, learning, retention and cognition.	1 unit	\$24.00	\$21.60	10%
		4+ units	—	\$18.90 ea.	21%
02403	Lithium • 1000 mcg • 100 vegetarian capsules (100-day supply) Low-cost mineral that functions in several ways to support overall brain health.	1 unit	\$12.00	\$10.80	10%
		4+ units	—	\$9.45 ea.	21%
02406	Quick Brain Nootropic® • 30 vegetarian capsules Once-daily formula supports fast thinking and sharp mental alertness and accuracy.	1 unit	\$18.00	\$16.20	10%
		4+ units	—	\$13.95 ea.	23%

IMMUNE HEALTH

01813	Zinc Caps • 50 mg • 90 vegetarian capsules Support for the body's natural immune defenses.	1 unit	\$6.75	\$6.08	10%
		4+ units	—	\$5.40 ea.	20%
02501	Vitamin C 24-Hour Liposomal Hydrogel™ Formula 60 vegetarian tablets (2-month supply) Absorbs much better than standard vitamin C, staying in your system up to 24 hours!	1 unit	\$25.50	\$22.95	10%
		4+ units	—	\$20.70 ea.	19%
02302	Bio-Quercetin® • 30 vegetarian capsules Promotes immune and cardiovascular health and supports a healthy inflammatory response.	1 unit	\$9.00	\$8.10	10%
		4+ units	—	\$7.20 ea.	20%

AGE WELL			Price	Super Sale	Save
01993	MacuGuard® Ocular Support with Saffron & Astaxanthin 60 softgels • Just <u>one</u> softgel per day. Lutein, <i>trans</i> -zeaxanthin, <i>meso</i> -zeaxanthin, astaxanthin, and saffron help maintain structural integrity of the macula and retina.	1 unit	\$32.25	\$29.03	10%
		4+ units	—	\$26.10 ea.	19%
02230	Optimized Resveratrol Elite™ • 60 vegetarian capsules Healthy aging, oxidative stress, heart and brain, absorbable multi-nutrient formula.	1 unit	\$27.00	\$24.30	10%
		4+ units	—	\$21.15 ea.	22%
01208	Super R-Lipoic Acid • 240 mg • 60 vegetarian capsules Provides a powerful 240 mg dose of the “active” form of alpha-lipoic acid (R-lipoic acid) in each capsule.	1 unit	\$36.00	\$32.40	10%
		4+ units	—	\$29.25 ea.	19%
02301	Senolytic Activator® • 36 vegetarian capsules (3-month supply) Highly <i>absorbable</i> forms of fisetin, quercetin, plus apigenin and theaflavins designed to help manage senescent cells.	1 unit	\$20.25	\$18.23	10%
		4+ units	—	\$16.88 ea.	17%
02548	Biological Aging Defense • 100 mg • 30 vegetarian capsules Helps preserve telomere length and DNA methylation age, two key biomarkers of the aging process.	1 unit	\$16.50	\$14.85	10%
		4+ units	—	\$13.28 ea.	20%
01778	Super Selenium Complex • 200 mcg • 100 vegetarian capsules Three different forms of selenium that support healthy aging, thyroid and immune function.	1 unit	\$10.50	\$9.45	10%
		4 units	—	\$8.10 ea.	23%
		10+ units	—	\$7.43 ea.	29%

BONE & JOINT SUPPORT

01713	Vitamin D3 • 125 mcg (5000 IU) • 60 softgels (2-month supply) High-potency vitamin D supports strong, healthy bones.	1 unit	\$7.50	\$6.75	10%
		4+ units	—	\$5.85 ea.	22%
01727	Bone Restore Calcium Supplement with Vitamin K2 120 capsules • Nutrients to maintain bone density and strength including four types of calcium.	1 unit	\$18.00	\$16.20	10%
		4+ units	—	\$14.85 ea.	18%
02238	ArthroMax® Advanced NT2 Collagen™ & AprèsFlex® 60 vegetarian capsules • Move about easily with support from collagen, <i>Boswellia serrata</i> , glucosamine and boron.	1 unit	\$25.50	\$22.95	10%
		4+ units	—	\$19.80 ea.	22%

FEEL YOUR BEST

00888	Optimized Ashwagandha • 60 vegetarian capsules Helps your body respond to everyday stress in a healthy way.	1 unit	\$7.50	\$6.75	10%
		4+ units	—	\$6.08 ea.	19%
02201	Melatonin IR/XR • 60 capsules Supports restful sleep, immediate and extended release, 1.5 mg. <small>For occasional sleeplessness</small>	1 unit	\$9.00	\$8.10	10%
		4+ units	—	\$6.75 ea.	25%
01925	Advanced Milk Thistle • 120 softgels Delivers milk thistle compounds to support liver function.	1 unit	\$36.00	\$32.40	10%
		4+ units	—	\$29.70 ea.	18%

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Ultra Memory & Recall™ formula is an advanced **memory support formula**, containing standardized botanical extracts of ***Boswellia***, **chebulic myrobalan**, and **green oat**.

- A proprietary blend of ***Boswellia*** and **chebular myrobalan** extracts substantially promoted numerous forms of memory, including short-term, long-term, recognition, episodic, and visual memory speed *and* accuracy—as well as learning and executive function.¹

- A proprietary **green oat extract** supported visual-spatial working memory, as well as encouraging multitasking speed.²

ONE daily vegetarian capsule of **Ultra Memory & Recall™** formula can support your learning, retention, and *retrieval*—with some results possible in as little as **15 days**¹

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LIFE
EXTENSION[®]

Ultra Memory & Recall[™]

VE[®]
GLUTEN
FREE

1
DAILY

NON
GMO
VERIFIED

Learn • Retain • Retrieve[®]

30 VEGETARIAN CAPSULES | DIETARY SUPPLEMENT

4 bottles \$18.90 each



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.

For Urinary Tract Support

NEW



GLUTEN
FREE

1
DAILY

NON
GMO
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Life Extension® scientists developed a next-generation formula for urinary tract health, with women in mind.

Advanced Cranberry with Uro Tri-Phase™ Defense contains two powerful ingredients to support urinary tract health and comfort:

- Innovative microencapsulation delivering a clinically studied whole cranberry powder, shown to help support urinary tract health and comfort in women along with the body's natural urinary tract cleansing processes.^{1,2}
- A blend of three bacteriophages for targeted urinary tract support.^{3,4}

SUPER SALE PRICE

Item #02565

30 vegetarian capsules

1 bottle \$27

4 bottles \$25.20 each

For full product description and to order **Advanced Cranberry with Uro Tri-Phase™ Defense**, call **1-800-544-4440** or visit **www.LifeExtension.com**

Phage component developed and manufactured by Intralytix, Inc.

References: 1. *Cochrane Database Syst Rev.* 2023;11(11):CD001321. 2. *Front Nutr.* 2025;12:1502720.

3. Intralytix Phage Blend Development. Data on file. 2024. 4. Intralytix Phage Efficacy Report. Data on file. 2025.

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Boost Your Heart's Pumping Capacity



BY MICHAEL DOWNEY

As we age, the heart finds it harder to pump strongly when we exert ourselves or feel stressed.¹

A weaker pumping capacity of the left ventricle is a sign that the heart isn't working as efficiently as it should.² This can lead to rapid **physical fatigue**, especially with exertion or stress.^{1,3,4}

The **arjuna** plant has long been used in traditional Indian Ayurvedic medicine to treat heart disorders.⁵

Modern research suggests that in people with **heart failure**, arjuna added to standard treatment may help improve symptoms and **functional capacity**.^{6,7}

In a trial of healthy adults, a standardized arjuna extract *raised ejection fraction* by about **3.6** percentage points (from a baseline near **58%**) and lowered *fatigue scores* by roughly **23%**.⁸

An earlier trial in young male athletes similarly found improvements in ejection fraction and reductions in post-exercise fatigue.⁹



Arjuna Bark





Your Heart's Pumping Power

An **ejection fraction** test measures the *percentage* of blood within a heart's chamber ejected with each heartbeat. In common usage, ejection fraction nearly always refers to the left ventricle.¹⁰

Doctors use **left ventricular ejection fraction (LVEF)** to evaluate how effectively the left ventricle pushes oxygen-rich blood into the aorta, from which it circulates throughout the body.¹⁰

A normal **LVEF** will be somewhere between **50%** and **75%**.¹¹ An ejection fraction below **50%** is considered below normal and may indicate that the heart is not pumping as efficiently as it should, particularly during activity or stress.¹²

With age, the heart fills less easily and its pumping reserve declines.¹ Beyond lifestyle approaches, researchers are investigating natural compounds that may help support cardiac performance.¹³

A proprietary **arjuna extract** was shown to increase left ventricular **ejection fraction** in healthy adults in a small, randomized trial.⁸

Heart-Supportive Compounds

The **arjuna tree** is native to the Indian subcontinent and has long been studied for its medicinal qualities.¹⁴

In laboratory and animal studies, the natural substances in arjuna have shown a range of promising effects. They appear to protect the heart, help keep arteries clear, calm inflammation, shield cells from damage, and may even act against tumors.¹⁵

Many of these observed effects may be related in part to a group of plant compounds called **polyphenols**—the same kind of protective substances found in foods like green tea and berries. Arjuna's polyphenols include:

- **Flavonols** (quercetin, myricetin, and kaempferol),¹⁵
- **Flavan-3-ols** (catechin, gallic acid, epigallocatechin, proanthocyanidin oligomers),¹⁶ and
- **Phenolic acids** (gallic acid, p-coumaric acid, and ferulic acid).¹⁵

Arjuna also contains natural compounds called “cardiotonic,” meaning “heart-strengthening.” These are thought to support cardiac contraction and pumping efficiency, so it pumps more blood with each beat.¹⁴

In trials of a standardized arjuna extract in healthy adults, this has translated into measurable improvements in ejection fraction and **less physical fatigue**.^{8,9}

These compounds are especially concentrated in the bark, which is why the bark has traditionally been the medicinal part of the tree.^{5,17}

Researchers created a bark extract with consistent, measured levels of these active compounds.⁸ Each batch is also checked with DNA testing—a botanical fingerprint—to confirm it is true arjuna and not a look-alike tree.^{16,18}

Improved Pumping, Reduced Fatigue

To evaluate the cardiac effects of this arjuna extract in **humans**, researchers conducted two placebo-controlled clinical trials.

One trial involved 72 sedentary, overweight men and women aged 30-70 years. Their **left ventricular ejection fraction**, measured by echocardiogram, fell between **48%** and **60%**, from mildly reduced to within the normal range.⁸

What You Need To Know

BOOST YOUR HEART'S PUMPING CAPACITY

Participants took either **400 mg** of **arjuna bark** extract or a placebo daily, while continuing their usual diet and exercise habits.⁸

After eight weeks, the arjuna group experienced increased left ventricular **ejection fraction**—a measure of how efficiently the heart pumps with each beat—by an average of **3.6 percentage points**.⁸

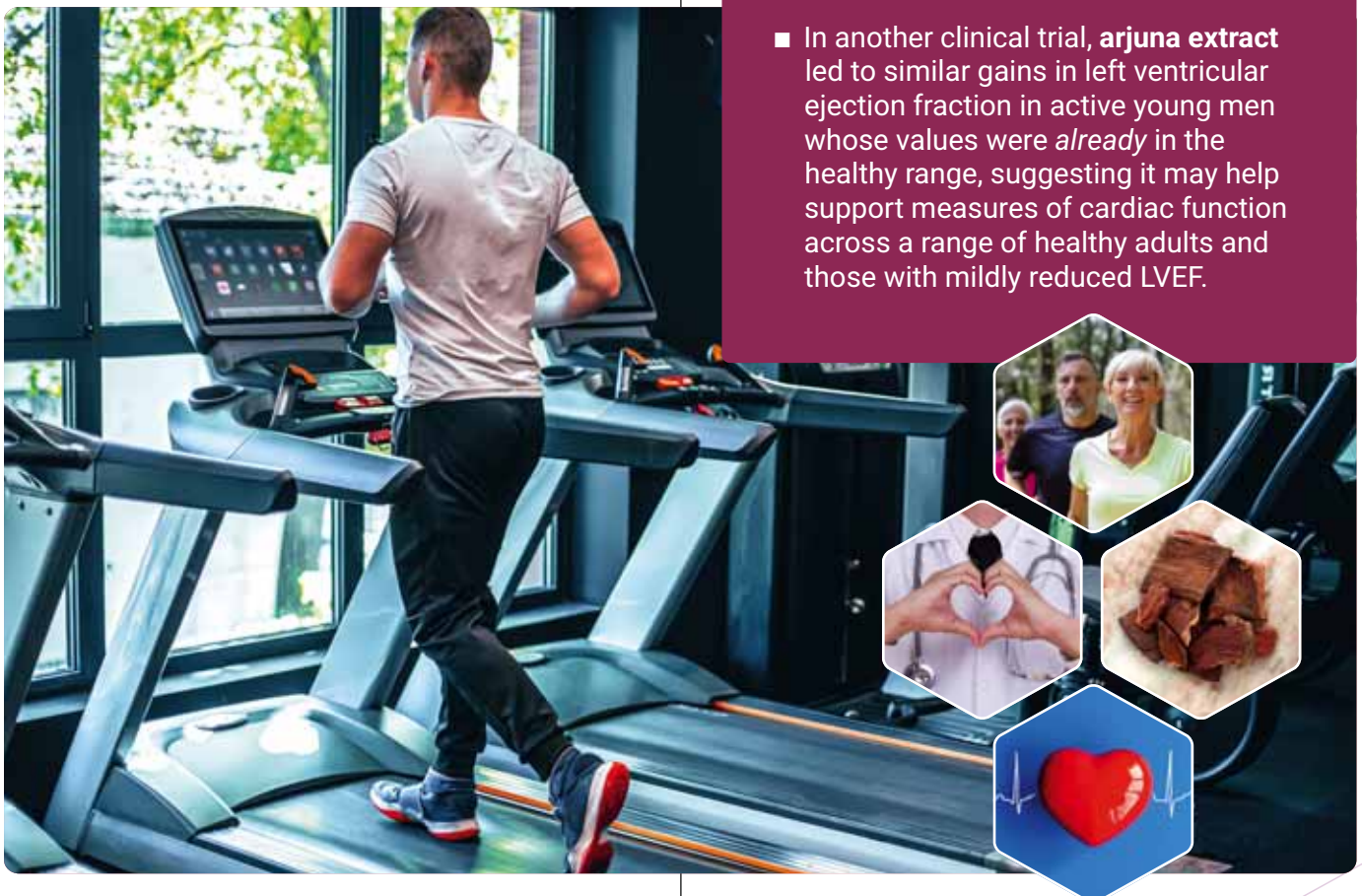
The arjuna group also experienced improved physical **fatigue scores** on a validated fatigue questionnaire by an average of nearly **23%**, compared with under **10%** for **placebo**. Participants reported that arjuna *reduced* how much fatigue interfered with:⁸

- Physical functioning,
- Sustained physical functioning, and
- Performance of certain duties and responsibilities.

While these are early findings from a small, short-term trial, they add to a growing body of research pointing to arjuna as a promising candidate for supporting heart function.^{7,19}

Support Healthy Heart Output

- Age-related changes can impair the ability of the heart's **left ventricle** to pump oxygen-rich blood. Over time, this may contribute to cardiovascular disease.
- A standardized **arjuna bark extract** has been shown in clinical studies to increase **left ventricular ejection fraction (LVEF)**, a measure of how efficiently the left ventricle pumps blood with each heartbeat.
- In one clinical study, **400 mg** of **arjuna extract** daily raised LVEF by **3.6 percentage points** among adults with mildly reduced to normal values. Physical fatigue scores improved by **23%**.
- In another clinical trial, **arjuna extract** led to similar gains in left ventricular ejection fraction in active young men whose values were *already* in the healthy range, suggesting it may help support measures of cardiac function across a range of healthy adults and those with mildly reduced LVEF.



Benefits for Healthy Adults

Researchers also tested the extract in healthy men aged 18–40, who regularly engaged in endurance exercise. Their **left ventricular ejection fraction** ranged from **55% to 70%**, well within the normal range.⁹

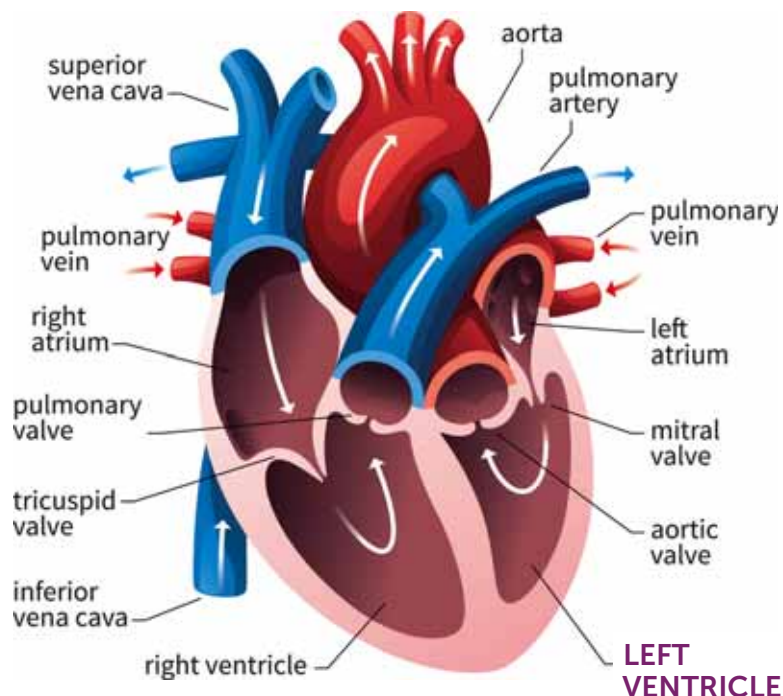
Subjects took either a placebo or **400 mg** of standardized **arjuna bark** extract daily for eight weeks.

Left ventricular ejection fraction was measured after using a treadmill. Physical fatigue was also measured, using a perceived-exertion scale.

After eight weeks, those taking **arjuna** extract:⁹

- Significantly increased their time to exhaustion on the treadmill,
- Raised their already-normal LVEF by **3.7** percentage points, and
- Significantly reduced their perceived exertion during exercise.

Anatomy of the Human Heart



Interpreting Left Ventricular Ejection Fraction

The **left ventricular ejection fraction (LVEF)** is the percentage of blood in the heart's main pumping chamber (left ventricle) that is squeezed out with each heartbeat.

A physician should always interpret your LVEF number. But traditional guidelines are:

50% to ~75% - Normal function,¹¹

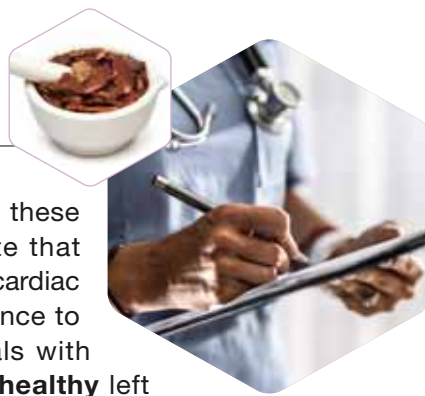
41% to 49% - Mild dysfunction,²⁰

30% to 40% - Moderate dysfunction,²⁰ and

Below 30% - Severe dysfunction, possibly indicating heart failure.²⁰



Increasing attention has focused on LVEF trajectory, or how ejection fraction changes over time, rather than a single measurement alone.^{21,22} Because larger studies have linked changes in ejection fraction over time with clinical outcomes, even modest changes in **LVEF**, especially around **50–55%** may carry prognostic significance.²³



The findings from these two studies indicate that arjuna may support cardiac function and resistance to fatigue in individuals with **mildly reduced** or **healthy** left ventricular ejection fraction, and even in healthy young endurance exercise-trained individuals.

Neither trial reported any adverse events judged related to the arjuna extract.^{8,9}

Together, these early studies suggest arjuna bark extract may support healthy heart function and reduce physical fatigue — findings researchers hope to confirm in larger, longer trials.

Summary

Age-related changes can affect the heart's pumping efficiency and its ability to respond to increased demands for blood flow throughout the body.

In clinical studies, **arjuna bark extract increased left ventricular ejection fraction**, a measure of the percentage of blood ejected from the left ventricle with each beat, and reduced fatigue.

Benefits occurred in healthy young athletic subjects, as well as in overweight sedentary adults with mildly **reduced** to **normal ejection fractions**. ■

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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* J Agric Food Chem. 2014 Jan 15;62(2):443-53.

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PROBIOTIC for **HEART** HEALTH



In clinical trials, the probiotic *Lactobacillus reuteri* NCIMB 30242 found in **FLORASSIST® Heart Health** has been shown to support cholesterol levels already within normal range.^{1,2}

Additionally, *Lactobacillus reuteri* NCIMB 30242 supports healthy levels already within the normal range of:³

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- Apolipoprotein B
- Fibrinogen.

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In clinical studies, **arjuna bark extract** was shown to:^{1,2}

- **Support** the **heart's pumping capacity** for those already in the healthy range
- **Reduce** general physical **fatigue** scores and promote sustained physical functioning

References

1. *J Multidiscip Healthc.* 2022 Nov 2;15:2511-2525.
2. *Am J Ther.* 2017 May;24(3): e298-e307.

SUPER SALE PRICE

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30 vegetarian capsules

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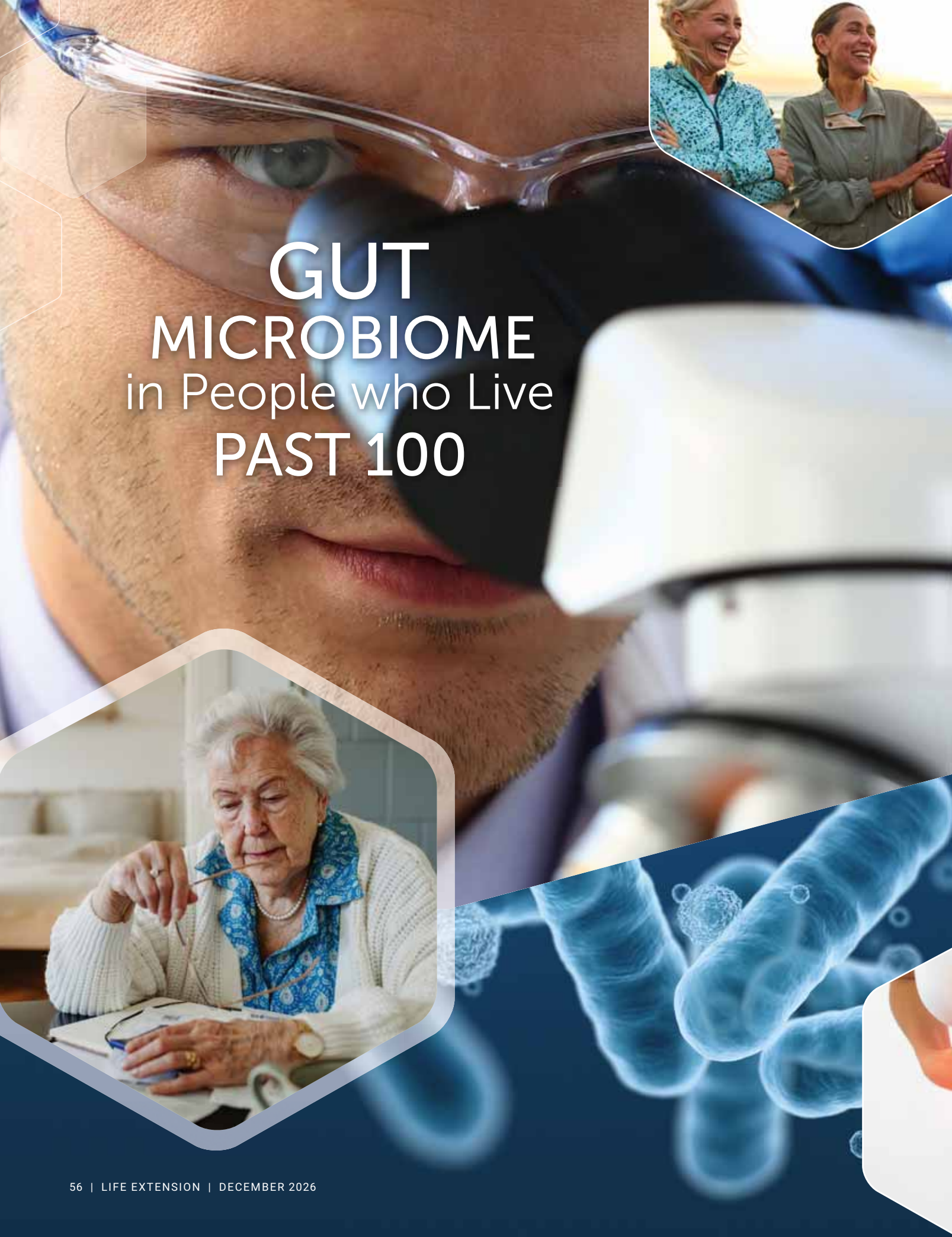
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GUT MICROBIOME in People who Live PAST 100





BY MARSHA MCCULLOCH, MS, RD

Most of us associate our **gut microbiome** with digestive health.

Researchers are now uncovering how the gut microbiome shapes the way we age—and how **aging**, in turn, reshapes the **microbiome**.^{1,2}

A healthy gut microbiome supports normal metabolism and helps keep inflammation in check, whereas an unhealthy microbiome, known as **dysbiosis**, can promote chronic inflammation that contributes to age-related disease.^{3,4}

Improving our microbiome with **probiotics** has emerged as a promising strategy to support healthier aging.⁵⁻⁷

- In a small preliminary human trial, a blend of two **probiotics** slowed age-related **telomere shortening** in older adults,⁸ and, in other human studies, reduced **inflammatory** markers.^{9,10}
- A third **probiotic**, in another human trial, modestly lowered LDL (“bad”) cholesterol, with larger reductions in people with high baseline cholesterol, a cardiovascular risk factor,¹¹ and
- In animal studies, a non-living, heat-treated form of a beneficial bacterium (a ‘**postbiotic**’) extended lifespan in worms and improved gut, physical, and thinking ability in older mice.¹²

Carefully selected **probiotics**, and possibly **postbiotics**, may support healthy aging and a healthier **microbiome**.

Targeting Drivers of Aging

Scientists have identified several “hallmarks of aging”—underlying biological processes that contribute to degenerative decline.¹³

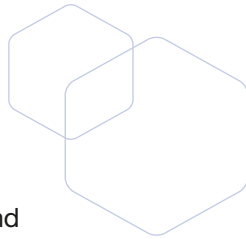
One of these is **gut dysbiosis**, or microbial imbalance.

As people age, this imbalance often develops and may contribute to chronic inflammation creating a cascade of health problems.¹³⁻¹⁵

An unhealthy gut microbiome can weaken the gut barrier, allowing harmful compounds to enter the bloodstream and promote inflammation.^{16,17}

Dysbiosis and chronic inflammation are linked to a higher risk of age-related diseases, including:

- Obesity,¹³
- Type 2 diabetes,¹³
- Cancer,¹³
- Frailty and sarcopenia,¹⁸
- Cardiovascular disease,¹³ and
- Neurological conditions such as cognitive decline.¹⁹



Dysbiosis is not inevitable.

Healthy centenarians (people 100 years or older) often retain a diverse, well-balanced gut microbiome that in several respects resembles that of younger adults—preserving **microbial diversity** and populations of beneficial gut bacteria rather than the dysbiosis commonly seen with aging.^{20,21}

Long-lived individuals tend to have higher levels of beneficial bacteria such as *Akkermansia* and *Bifidobacterium*.^{22,23} These microbes produce short-chain fatty acids

that strengthen the gut lining and help control inflammation.^{16,24,25}

Early evidence suggests that carefully selected probiotics, and possibly postbiotics, may help shift the aging gut microbiome toward a more beneficial profile, though human trial results are still mixed, and the benefits appear modest.^{5,14}

Taking a carefully selected mix of probiotics and a postbiotic may help promote a healthier microbiome to support healthier aging.



Proven Probiotic Duo

Researchers isolated two beneficial bacterial (probiotic) strains from healthy older adults and confirmed that they can survive digestion and adhere to the intestinal lining.²⁶⁻²⁸

- ***Lacticaseibacillus rhamnosus* IMC 501®**
- ***Lacticaseibacillus paracasei* IMC 502®**

Together, these probiotics have been studied for their role in healthy aging.

In a **clinical trial** of 97 older adults, participants who received the probiotic blend experienced several positive changes compared with those who did not receive the probiotics. These included:¹⁰

- Increased **beneficial bacteria**, including *Lactobacillus*, *Akkermansia*, and *Bifidobacterium*,
- Reduced levels of **potentially harmful *Proteobacteria***,
- Lower **CRP (C-reactive protein)**, a marker of low-grade inflammation associated with cardiovascular risk, and
- Increased production of **short-chain fatty acids**, which help support gut and immune health.



Additional studies of the same probiotic combination found further benefits, including:

- Reduced **inflammatory cytokines**,⁹
- Increased **IGF-1 (insulin-like growth factor-1)**, which helps support muscle maintenance,⁹
- Improved **nutritional status** and lower risk of malnutrition,⁹ and
- Slowed **shortening of telomeres** in white blood cells, a marker associated with healthy aging and cardiovascular health.^{8,29}

In a separate 15-day study of premenopausal women, daily supplementation with **5 billion CFU** of the same probiotic blend also reduced levels of harmful **vaginal bacteria**.³⁰



What You
Need
To Know

Heart Health

Heart disease is the leading cause of death worldwide. In 2023, about **one in six** cardiovascular deaths occurred before age 65.³¹

Targeted **probiotics**, including certain *Lactobacillus* strains, may help support heart health by altering bile acid metabolism and promoting cholesterol clearance.^{32,33}

***Lactobacillus plantarum* ECGC 13110402** was selected for its cholesterol-reducing capacity, along with good survival through the digestive tract.³⁴

In a six-week, double-blind, randomized, placebo-controlled pilot trial of 16 adults with elevated cholesterol (total cholesterol about **232 mg/dL**), daily intake of **4 billion CFU** of ***L. plantarum* ECGC 13110402** produced significant improvements in cholesterol measurements compared with placebo, including a:¹¹

- **35% reduction** in **total cholesterol**,
- **28% reduction** in **LDL** (“bad”) cholesterol,
- **18% reduction** in **non-HDL cholesterol** (atherogenic cholesterol), and
- **29% reduction** in **apoB** (apolipoprotein B), an atherogenic lipid-carrying protein.

Nurture a Youthful Microbiome

- People who live past 100 tend to have gut microbiomes that look surprisingly youthful, which prompted researchers to identify bacterial strains that could support healthy aging.
- A probiotic blend of ***Lacticaseibacillus rhamnosus* IMC 501®** and ***Lacticaseibacillus paracasei* IMC 502®** has been clinically shown to reduce inflammation and slow telomere shortening associated with aging.
- Another probiotic, ***Lactobacillus plantarum* ECGC 13110402**, significantly lowered LDL and total cholesterol in a clinical trial, which could reduce the risk of cardiovascular disease.
- Heat-treated ***Lactobacillus paracasei* D3-5**, a postbiotic, extended lifespan in an animal model and improved digestive comfort in a small human study and improved gut health measures in animal studies.
- A combination of these probiotic and postbiotic formulas may help promote a balanced, youthful microbiome to support optimal aging.

Postbiotic Protection

Postbiotics are non-living bacterial compounds that support gut, immune, and microbiome health. They complement probiotics and help promote a healthy gut microbiome.^{35,36}

***Lactobacillus paracasei* D3-5** is a heat-treated, non-living postbiotic that has shown promising benefits.

In studies of older mice, ***L. paracasei* D3-5** and one of its natural components helped:¹²

- Strengthen the gut barrier,
- Decrease inflammation,
- Support metabolic health and immune function, and
- Regulate the gut-brain axis to improve physical performance and cognition.

In the roundworm *C. elegans*, a standard aging model,³⁷ a heat-killed (no longer alive) form of *L. paracasei* D3-5 improved physical function and **extended lifespan**.¹²



In a small human pilot study of healthy older adults, daily intake of heat-treated *L. paracasei* D3-5 for one month eased **digestive discomfort** and supported **emotional well-being**.³⁸

Pairing this postbiotic with proven probiotics could reinforce microbial balance and support healthier aging.

Summary

A healthy microbiome can support healthy metabolism and modulate inflammatory response, while an unhealthy microbiome may promote age-related disease.

A probiotic blend of ***L. rhamnosus* IMC 501®** and ***L. paracasei* IMC 502®** has been clinically shown to lower inflammation and slow telomere shortening.

A third probiotic strain, ***L. plantarum* ECGC 13110402**, reduces harmful cholesterol.

Heat-treated ***L. paracasei* D3-5**, a postbiotic, increased lifespan in an animal aging model and eased digestive symptoms in a small human study.

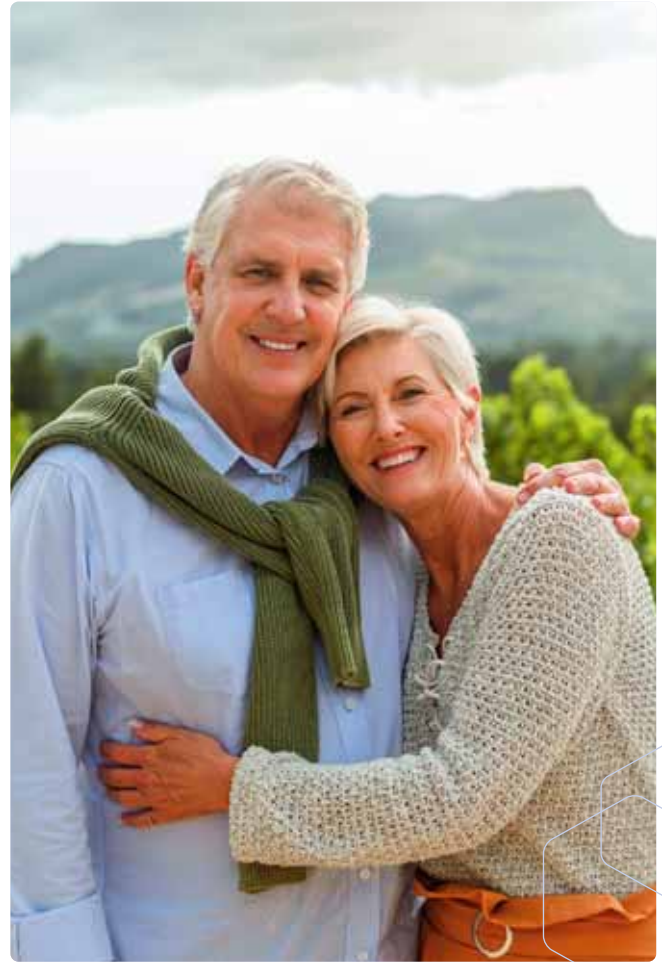
Combining these probiotic and postbiotic approaches may help promote a more youthful microbiome to support healthy aging. ■

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

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Zucchini

BY LAURIE MATHENA

Many low-calorie foods are also low in nutrients. Not zucchini.

At just 33 calories per medium zucchini, this fruit (yes, it's a fruit!) is naturally low in fat and sugar, yet it delivers a variety of vitamins (C and B-group), minerals (including potassium, phosphorus, manganese, magnesium, iron, and zinc), and beneficial plant compounds, along with small amounts of protein and fiber.¹

One medium zucchini provides nearly **40%** of the daily value of vitamin C, about **20%** of the daily value of vitamin B6, and about **500 mg** of potassium. It also supplies calcium, phosphorus, manganese, and folate, making it a nutrient-dense food for its calorie content.²

Zucchini is also a source of lutein and zeaxanthin, two carotenoid pigments found in fruits and vegetables that contribute to their color.^{3,4}

These are the only two dietary carotenoids that cross the blood-retina barrier to form macular pigment, and they also preferentially accumulate in the brain, where lutein predominates.⁵ In these tissues, they act as antioxidants, helping protect cells from oxidative damage.

Because the body doesn't make lutein or zeaxanthin on its own, it is essential to obtain them from food sources like zucchini, or through supplementation.⁶

Zucchini's mild flavor makes it a versatile ingredient in a variety of recipes. It can be sauteed in olive oil, roasted, grilled, or added to stir-fries, soups, and stews. You can also blend it into sauces or bake it into bread for extra nutrition.

Zucchini can also be spiralized into "zoodles" and used in place of traditional wheat noodles for a lower-calorie, gluten-free option.

To obtain the most nutrients from zucchini, be sure to consume it with the skin on because many of its beneficial nutrients are concentrated there. ●

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MAGNESIUM

Promotes
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Blood Sugar





About **one in eight** Americans lives with **diabetes**, and more than **one in three** adults have **prediabetes**.¹

Magnesium plays an important role in **blood sugar** regulation.^{2,3}

A meta-analysis of observational studies found that people who consumed the most **magnesium** were **23% less** likely to develop **type 2 diabetes** compared with those who consumed the least.⁴

Magnesium deficiency is very common.⁵ Lower magnesium levels have been associated with greater insulin resistance, the primary driver of type 2 diabetes.³

Clinical trials suggest magnesium supplements (**roughly 250–500 mg daily**) may modestly improve blood sugar control in type 2 diabetes.⁶

Together, these findings suggest that improving magnesium intake may:

- Help reduce the risk of developing type 2 diabetes, and
- Modestly reduce high blood sugar in those who already have it, especially if they are magnesium deficient.

Maintaining healthy blood sugar over time is key to preventing the lasting damage that uncontrolled diabetes can cause throughout the body.⁷



Why Magnesium Matters

Magnesium is needed for several key steps in blood glucose regulation, including:

- Release of **insulin**, the hormone that allows cells to take in glucose from the blood,²
- Activation of insulin **receptors**,² and
- Movement of **glucose** into cells for energy.³

If magnesium levels are low, these steps can be impaired, contributing to insulin resistance.^{8,9}

Low magnesium levels have long been linked with an increased risk of **type 2 diabetes**.¹⁰

People with type 2 diabetes are up to **10 times** more likely to have inadequate serum magnesium than those without diabetes.¹¹

About **31%** of people worldwide do not consume enough magnesium.¹² Common medications, including diuretics and acid reflux drugs (proton pump inhibitors), can lower the body's magnesium levels.^{5,13,14}

For people who are low in magnesium, increasing dietary or supplemental magnesium can help restore adequate levels.



Lower Type 2 Diabetes Risk

Higher magnesium intake has been associated with a lower risk of developing type 2 diabetes.^{4,10}

A meta-analysis of observational studies found a **23% lower** risk of **type 2 diabetes** among adults with the highest magnesium intake, compared with those consuming the least.⁴

Each additional **100 mg** of daily magnesium intake was associated with a further reduction in risk, with the benefit leveling off at around **300 mg** per day.⁴

A separate study found that daily magnesium intake of around **400 mg** was significantly associated with a lower risk of type 2 diabetes.¹⁰

Intake of **310–420 mg** of magnesium per day is also recommended for general health in adults.¹⁵

Supporting Healthy Insulin Sensitivity

Magnesium supports healthy **insulin sensitivity**, while magnesium deficiency has been associated with insulin resistance.³

Insulin resistance means cells respond poorly to insulin's signal to take up glucose.¹⁶ This results in elevated blood glucose, which may contribute to the development of prediabetes and type 2 diabetes.^{16,17}

When magnesium is low, **insulin-signaling enzymes** don't work properly.¹⁸ Preclinical studies show that low magnesium could impair **pancreatic beta-cell** function, reducing insulin production and release.⁵

A **2026** observational study of adults with type 2 diabetes found that participants with magnesium at the low end of normal had significantly higher insulin resistance than those with magnesium comfortably within the normal range.³

In that study, a **1 mg/dL** decrease in serum magnesium was associated with a **47% increase** in insulin resistance.³

Better Glucose Control

In those who already have type 2 diabetes, magnesium supplementation has been shown in some clinical trials to support blood glucose control.

In a **2025** trial, 100 adults with type 2 diabetes took either **200 mg** of magnesium or a placebo daily for three months.¹⁹



The magnesium group experienced a:

- **10%** decrease in **hemoglobin A1C** (average blood sugar),
- **19%** decrease in **fasting blood sugar** levels, and a
- **26.5%** decrease in **post-meal blood sugar** levels.

A larger **2026** trial followed 247 adults with type 2 diabetes who received about **300 mg** of magnesium daily for one year. Among those who completed the study, **fasting blood sugar** dropped by roughly **13.5 mg/dL**, with the biggest benefits in people who were low in magnesium at the start.²⁰

Growing Evidence

These findings support results from many earlier trials.

A **2025** meta-analysis of 23 randomized trials involving 1,345 adults with type 2 diabetes found that magnesium significantly lowered fasting blood sugar, though its effect on A1C was small.²¹

The A1C benefit was more apparent with longer use and in older adults.²¹

Magnesium Supports Healthy Blood Sugar Regulation

- About **one in three** people worldwide fail to consume enough **magnesium**.
- Magnesium is critical for blood sugar control. Low magnesium can contribute to **insulin resistance** and elevated blood glucose.
- Higher magnesium has been associated with a lower risk of type 2 diabetes, with the benefit leveling off at around **300 mg** per day.
- In a three-month trial, participants taking **200 mg** of magnesium daily experienced a **10%** decrease in A1C (a measure of average blood sugar), a **19%** decrease in fasting blood sugar, and a **26.5%** decrease in post-meal blood sugar.

A separate dose-response analysis suggested the clearest effects at higher intakes — roughly **360 mg** daily for fasting glucose and about **500 mg** daily for A1C—with benefits strengthening over about 24 weeks.⁶

Another meta-analysis pooled 24 clinical trials of adults with type 2 diabetes to estimate the magnesium dosage associated with the greatest improvements in blood glucose measures. It found that a daily oral magnesium intake of about **279 mg** produced the greatest improvements in blood glucose control.²²

Taking magnesium may help people with diabetes manage high blood sugar and may lower the risk of developing type 2 diabetes in the first place.²³

Summary

Magnesium is key for maintaining healthy blood sugar.

Low magnesium levels have been associated with greater insulin resistance and an increased risk of **pre-diabetes** and **type 2 diabetes**.

In clinical trials, magnesium supplementation was associated with improvements in measures of **blood glucose control**. ■

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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Linking Vitamin D, Magnesium, and Diabetes

Insulin resistance and type 2 diabetes have been associated with both low magnesium and low vitamin D levels.²⁴⁻²⁷

These two nutrients work together in the body.²⁸

Magnesium is *required* to convert vitamin D into its **active form**.^{29,30} Magnesium may also support the **transport** of vitamin D through the bloodstream.³¹

In turn, active vitamin D may enhance the **absorption** of magnesium from the small intestine.³²

Vitamin D may also reduce inflammation associated with **insulin resistance**.²⁶

Maintaining adequate magnesium and vitamin D status may help support the functions of both nutrients and may contribute to healthy blood sugar regulation in people with type 2 diabetes.²⁶





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AMINO ACIDS

00038	Arginine Ornithine Powder
01253	Branched Chain Amino Acids
01829	Carnosine
01671	D,L-Phenylalanine Capsules
01624	L-Arginine Caps
01532	L-Carnitine
00345	L-Glutamine
00141	L-Glutamine Powder
01678	L-Lysine
01827	Taurine
00133	Taurine Powder

ANTI-AGING & LONGEVITY

00457	Alpha-Lipoic Acid
02414	Bio-Fisetin®
02547	Bio-Luteolin™
02548	Biological Aging Defense
01214	Blueberry Extract
01438	Blueberry Extract and Pomegranate
02431	Essential Youth - L-Ergothioneine
02119	GEROPROTECT® Ageless Cell™
02415	GEROPROTECT® Autophagy Renew
02401	GEROPROTECT® Stem Cell
02211	Grapeseed Extract
02527	Healthy Aging Powder
00954	Mega Green Tea Extract (decaffeinated)
00953	Mega Green Tea Extract (lightly caffeinated)
02540	Mega L-Ergothioneine
01513	Optimized Fucoidan with Maritech® 926
02230	Optimized Resveratrol Elite™
01637	Pycnogenol® French Maritime Pine Bark Extract
02210	Resveratrol Elite™
02301	Senolytic Activator®
01208	Super R-Lipoic Acid

BLOOD PRESSURE & VASCULAR SUPPORT

01824	Advanced Olive Leaf Vascular Support
02004	Arterial Protect
56885	Natto Activ Cardiovascular & Respiratory Support
02320	NitroVasc™ Boost
01953	Pomegranate Complete

00956	Pomegranate Fruit Extract
02024	Triple Action Blood Pressure AM/PM
02102	VenoFlow™

BONE HEALTH

01726	Bone Restore Calcium Supplement
02123	Bone Restore Calcium Supplement Chewable Tablet
02416	Bone Restore Elite with Super Potent K2
01727	Bone Restore Calcium Supplement w/ Vitamin K2
01725	Bone Strength Collagen Formula
01963	Calcium Citrate with Vitamin D
01506C	Dr. Strum's Intensive Bone Formula
02417	Mega Vitamin K2
01476	Strontium Caps

BRAIN HEALTH

01524	Acetyl-L-Carnitine
01974	Acetyl-L-Carnitine Arginate
02419	B12 Elite
02510	Brain Fog Relief
01659	CDP Choline
02321	Cognitex® Alpha GPC
02396	Cognitex® Elite
02397	Cognitex® Elite Pregnenolone
01540	DMAE Bitartrate
02006	Dopa-Mind™
02413	Dopamine Advantage
01658	Ginkgo Biloba Certified Extract™
01527	Huperzine A
00020	Lecithin
02101	Memory Protect
00709	Migra-Eeze™
01603	Neuro-Mag® Magnesium L-Threonate Caps
02032	Neuro-Mag® Magnesium L-Threonate Powder
00888	Optimized Ashwagandha
01676	PS (Phosphatidylserine) Caps
02406	Quick Brain Nootropic®
02560	Ultra Memory & Recall™
01327	Vinpocetine

CHOLESTEROL MANAGEMENT

01828	Advanced Lipid Control
01910	CHOL-Support™
00372	Vitamin B3 Niacin Capsules

DIGESTION SUPPORT

02412	Bloat Relief
02514	Easy Fiber
01736	Effervescent Vitamin C - Magnesium Crystals
02021	Enhanced Super Digestive Enzymes
02022	Enhanced Super Digestive Enzymes and Probiotics
02033	EsophaCool™
01737	Esophageal Guardian
02533	Food Sensitivity Relief with Diamine Oxidase
02100	Gastro-Ease™

ENERGY MANAGEMENT

01628C	Adrenal Energy Formula • 60 vegetarian capsules
01630C	Adrenal Energy Formula • 120 vegetarian capsules
00972	D-Ribose Powder
01473	D-Ribose Tablets

01900	EnergyGain™
01544	Forskolin
01805	Ginseng Energy Boost
01869	Mitochondrial Basics with PQQ
01868	Mitochondrial Energy Optimizer with PQQ
01904	NAD ⁺ Cell Regenerator™ • 100 mg, 30 veg capsules
02344	NAD ⁺ Cell Regenerator™ 300 mg, 30 veg capsules
02348	NAD ⁺ Cell Regenerator™ and Resveratrol Elite™
02555	NAD ⁺ Cell Support NMN • 30 veg capsules
02558	NAD ⁺ Cell Support NMN • 90 veg capsules
02556	Optimized NAD ⁺ NMN w/Resveratrol Elite 30 vegetarian capsules
02559	Optimized NAD ⁺ NMN w/Resveratrol Elite 90 vegetarian capsules
01500	PQQ Caps • 10 mg, 60 vegetarian capsules
01647	PQQ Caps • 20 mg, 30 vegetarian capsules
00889	Rhodiola Extract
02003	Thyroid Support Complex

EYE HEALTH

01923	Astaxanthin with Phospholipids
02551	Digital Eye Support
01514	Eye Pressure Support with Mirtogenol®
01992	MacuGuard® Ocular Support with Saffron
01993	MacuGuard® Ocular Support with Saffron & Astaxanthin
01873	Standardized European Bilberry Extract
01918	Tear Support with MaquiBright®

FISH OIL & OMEGAS

01937	Mega EPA/DHA
02218	Mega GLA Sesame Lignans
01983	Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 60 softgels
01988	Super Omega-3 Plus EPA/DHA Fish Oil, Sesame Lignans, Olive Extract, Krill & Astaxanthin
01982	Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 120 softgels
01985	Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 60 enteric coated softgels
01984	Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 120 enteric coated softgels
01986	Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 240 softgels
01812	Provinal® Purified Omega-7
01640	Vegetarian DHA

FOOD

02008	California Estate Extra Virgin Olive Oil
02170	Rainforest Blend Decaf Ground Coffee
02169	Rainforest Blend Ground Coffee
02171	Rainforest Blend Whole Bean Coffee

GLUCOSE MANAGEMENT

01503	CinSulin® with InSea ² ® and Crominex® 3+
01620	CoffeeGenic® Green Coffee Extract
02122	Glycemic Guard™
00925	Mega Benfotiamine
01803	Tri Sugar Shield®

HEART HEALTH

02530	Aged Black Garlic
02553	AmpliQ CoQ10™ • 50 mg, 60 vegetarian capsules
02554	AmpliQ CoQ10™ • 100 mg, 60 vegetarian capsules
01066	Aspirin (Enteric Coated)
01842	BioActive Folate & Vitamin B12 Caps
02531	Cardio Peak™
01949	CoQ10 (Ubiquinone) with d'Limonene • 50 mg, 60 softgels
01951	CoQ10 (Ubiquinone) with d'Limonene • 100 mg, 60 softgels
02121	Homocysteine Resist
02508	Omega-3 Fish Oil Gummy Bites
02018	Optimized Carnitine
01929	Super Ubiquinol CoQ10
01427	Super Ubiquinol CoQ10 with Enh Mitochondrial Support™ • 50 mg, 30 softgels
01425	Super Ubiquinol CoQ10 with Enh Mitochondrial Support™ • 50 mg, 100 softgels
01437	Super Ubiquinol CoQ10 with Enh Mitochondrial Support™ • 100 mg, 30 softgels
01426	Super Ubiquinol CoQ10 with Enh Mitochondrial Support™ • 100 mg, 60 softgels
01431	Super Ubiquinol CoQ10 with Enh Mitochondrial Support™ • 200 mg, 30 softgels
01733	Super Ubiquinol CoQ10 with PQQ
01859	TMG Liquid Capsules
00349	TMG Powder

HORMONE BALANCE

01468	Cruciferous Vegetable Extract Blend
01469	Cruciferous Vegetable Extract Blend and Resveratrol
00454	DHEA • 15 mg, 100 capsules
00335	DHEA • 25 mg, 100 capsules
00882	DHEA • 50 mg, 60 capsules
00607	DHEA • 25 mg, 100 vegetarian dissolve in mouth tablets
01689	DHEA • 100 mg, 60 vegetarian capsules
02368	Optimized Broccoli with Myrosinase
00302	Pregnenolone • 50 mg, 100 capsules
00700	Pregnenolone • 100 mg, 100 capsules

IMMUNE SUPPORT

02546	Bee Immune Propolis Capsules
02550	Bee Immune Propolis Spray
02302	Bio-Quercetin®
02433	Echinacea Elite
01961	Enhanced Zinc Lozenges
02005	Immune Senescence Protection Formula™
01681	Lactoferrin (Apolactoferrin) Caps
02426	Mushroom Immune with Beta Glucans
01903	NK Cell Activator™
01394	Optimized Garlic
01309	Optimized Quercetin
01811	Peony Immune
01708	Reishi Extract Mushroom Complex
01906	Standardized Cistanche
01561	Zinc Lozenges

INFLAMMATION HEALTH SUPPORT

- 01639 Boswellia
- 02324 Advanced Curcumin Elite™
Turmeric Extract, Ginger & Turmerones
- 01709 Black Cumin Seed Oil
- 02310 Black Cumin Seed Oil and Curcumin Elite™
- 02467 Curcumin Elite™ Turmeric Extract
30 vegetarian capsules
- 02407 Curcumin Elite™ Turmeric Extract
60 vegetarian capsules
- 01804 Cytokine Suppress® with EGCG
- 02223 Pro-Resolving Mediators
- 56886 Restore Activ Joint, Muscle & Tissue
- 01203 Specially-Coated Bromelain
- 00407 Super Bio-Curcumin® Turmeric Extract

JOINT SUPPORT

- 02238 ArthroMax® Advanced NT2 Collagen™
& AprèsFlex®
- 00965 Fast-Acting Joint Formula
- 02430 Fast Acting Relief
- 00522 Glucosamine/Chondroitin Capsules
- 02420 Glucosamine Sulfate
- 02424 Joint Mobility
- 01600 Krill Healthy Joint Formula
- 02529 Lower Back Relief
- 00451 MSM (Methylsulfonylmethane)
- 02566 Neck Relief
- 02231 NT2 Collagen™

KIDNEY & BLADDER SUPPORT

- 02565 Advanced Cranberry with Uro Tri-Phase™ Defense
- 00862 Cran-Max® Cranberry Whole Fruit Concentrate
- 01424 Optimized Cran-Max®
- 01921 Uric Acid Control
- 01209 Water-Soluble Pumpkin Seed Extract

LIVER HEALTH & DETOXIFICATION

- 01922 Advanced Milk Thistle • 60 softgels
- 01925 Advanced Milk Thistle • 120 softgels
- 02240C Anti-Alcohol Complex
- 01651 Calcium D-Glucarate
- 01571 Chlorophyllin
- 02402 FLORASSIST® Liver Restore™
- 02521 Glutathione
- 01541 Glutathione, Cysteine & C
- 01393 HepatoPro
- 01608 Liver Efficiency Formula
- 01522 Milk Thistle • 60 vegetarian capsules
- 01534 N-Acetyl-L-Cysteine
- 01884 Silymarin
- 02361 SOD Booster

LUNG HEALTH

- 02512 Healthy Lungs

MEN'S HEALTH

- 02538 Hair Growth for Men
- 02549 Advanced Male Sexual Support
- 02209 Male Vascular Sexual Support

- 00455 Mega Lycopene Extract
- 02306 Men's Bladder Support
- 01789 PalmettoGuard® Saw Palmetto and Beta-Sitosterol
- 01790 PalmettoGuard® Saw Palmetto/Nettle Root
Formula and Beta-Sitosterol
- 01373 Prelox® Enhanced Sex for Men
- 01940 Super MiraForte with Standardized Lignans
- 02500 Testosterone Elite®
- 01909 Triple Strength ProstaPollen™
- 02029 Ultra Prostate Formula

MINERALS

- 01661 Boron
- 02107 Extend-Release Magnesium
- 01677 Iron Protein Plus
- 02403 Lithium
- 01459 Magnesium Caps
- 01682 Magnesium (Citrate)
- 02535 Magnesium Glycinate
- 01328 Only Trace Minerals
- 01504 Optimized Chromium with Crominex® 3+
- 02309 Potassium with Extend-Release Magnesium
- 01740 Sea-Iodine™
- 01879 Se-Methyl L-Selenocysteine
- 01778 Super Selenium Complex
- 00213 Vanadyl Sulfate
- 01813 Zinc Caps

MISCELLANEOUS

- 00577 Potassium Iodide

MOOD & STRESS MANAGEMENT

- 02519 Ashwagandha Plus
- 02434 Calm-Mag
- 02312 Cortisol-Stress Balance
- 00987 Enhanced Stress Relief
- 02542 GABA
- 01683 L-Theanine
- 02175 SAMe (S-Adenosyl-Methionine)
200 mg, 30 enteric coated vegetarian tablets
- 02176 SAMe (S-Adenosyl-Methionine)
400 mg, 30 enteric coated vegetarian tablets
- 02174 SAMe (S-Adenosyl-Methionine)
400 mg, 60 enteric coated vegetarian tablets
- 02429 Theanine XR™ Stress Relief

MULTIVITAMINS

- 02199 Children's Formula Life Extension Mix™
- 02354 Life Extension Mix™ Capsules
- 02356 Life Extension Mix™ Powder
- 02355 Life Extension Mix™ Tablets
- 02292 Once-Daily Health Booster • 30 softgels
- 02291 Once-Daily Health Booster • 60 softgels
- 02313 One-Per-Day Tablets
- 02317 Two-Per-Day Capsules • 60 capsules
- 02314 Two-Per-Day Capsules • 120 capsules
- 02316 Two-Per-Day Tablets • 60 tablets
- 02315 Two-Per-Day Tablets • 120 tablets
- 02428 Whole Food Multivitamin

NERVE & COMFORT SUPPORT

- 02202 ComfortMAX™
- 02303 Discomfort Relief
- 02544 Migra-Health®

PERSONAL CARE

- 02322 Hair, Skin & Nails Collagen Plus Formula
- 01278 Life Extension® Toothpaste
- 00408 Venotone

PET CARE

- 01932 Cat Mix
- 01931 Dog Mix

PROBIOTICS

- 01622 Bifido GI Balance
- 02421 FLORASSIST® Probiotic Daily Bowel Regularity
- 02125 FLORASSIST® Probiotic GI with Phage Technology
- 01821 FLORASSIST® Probiotic Heart Health
- 02250 FLORASSIST® Probiotic Mood Improve
- 02120 FLORASSIST® Probiotic Oral Hygiene
- 02203 FLORASSIST® Probiotic Chewable
- 01825 FLORASSIST® Probiotic Balance
- 02505 FLORASSIST® Probiotic Women's Health
- 02539 FLORASSIST® Probiotic Youthful Gut

SKIN CARE

- 02423 Daily Skin Defense
- 01938 Shade Factor™
- 02129 Skin Care Collection Anti-Aging Serum
- 02130 Skin Care Collection Day Cream
- 02131 Skin Care Collection Night Cream
- 02096 Skin Restoring Ceramides

SLEEP

- 02234 Fast-Acting Liquid Melatonin
- 01669 Glycine
- 01722 L-Tryptophan
- 01668 Melatonin • 300 mcg, 100 vegetarian capsules
- 01083 Melatonin • 500 mcg, 200 vegetarian capsules
- 00329 Melatonin • 1 mg, 60 capsules
- 00330 Melatonin • 3 mg, 60 vegetarian capsules
- 00331 Melatonin • 10 mg, 60 vegetarian capsules
- 00332 Melatonin • 3 mg, 60 vegetarian lozenges
- 02201 Melatonin IR/XR
- 01787 Melatonin 6 Hour Timed Release
300 mcg, 100 vegetarian tablets
- 01788 Melatonin 6 Hour Timed Release
750 mcg, 60 vegetarian tablets
- 01786 Melatonin 6 Hour Timed Release • 3 mg,
60 vegetarian tabs
- 01445 Quiet Sleep Melatonin • 5 mg, 60 veg capsules
- 02502 Rest & Renew
- 02526 Serene Sleep

VITAMINS

- 01533 Ascorbyl Palmitate
- 00920 Benfotiamine with Thiamine
- 01945 BioActive Complete B-Complex
- 00102 Biotin

- 00084 Buffered Vitamin C Powder
- 02229 Fast-C® and Bio-Quercetin®
- 02075 Gamma E Mixed Tocopherol Enhanced with
Sesame Lignans
- 02070 Gamma E Mixed Tocopherol & Tocotrienols
- 01913 High Potency Optimized Folate
- 01674 Inositol Caps
- 02244 Liquid Vitamin D3 • 50 mcg (2000 IU)
- 02232 Liquid Vitamin D3 (Mint) • 50 mcg (2000 IU)
- 01936 Low-Dose Vitamin K2
- 00373 No Flush Niacin
- 01939 Optimized Folate (L-Methylfolate)
- 01217 Pyridoxal 5'-Phosphate Caps
- 01400 Super Absorbable Tocotrienols
- 02334 Super K
- 01863 Super Vitamin E
- 02422 Vegan Vitamin D3
- 02028 Vitamin B5 (Pantothenic Acid)
- 01535 Vitamin B6
- 00361 Vitamin B12 Methylcobalamin
- 01536 Vitamin B12 Methylcobalamin
1 mg, 60 vegetarian lozenges
- 01537 Vitamin B12 Methylcobalamin
5 mg, 60 vegetarian lozenges
- 02228 Vitamin C and Bio-Quercetin®
60 vegetarian tablets
- 02227 Vitamin C and Bio-Quercetin®
250 vegetarian tablets
- 01753 Vitamin D3 • 25 mcg (1000 IU), 90 softgels
- 01751 Vitamin D3 • 25 mcg (1000 IU), 250 softgels
- 01713 Vitamin D3 • 125 mcg (5000 IU), 60 softgels
- 01718 Vitamin D3 • 175 mcg (7000 IU), 60 softgels
- 01758 Vitamin D3 with Sea-Iodine™
- 02040 Vitamins D and K with Sea-Iodine™

WEIGHT MANAGEMENT & BODY COMPOSITION

- 02479 7-Keto® DHEA Metabolite
100 mg, 60 vegetarian capsules
- 02207 AMPK Metabolic Activator
- 02504 Body Trim and Appetite Control
- 02478 DHEA Complete
- 02506C Mediterranean Weight Management
- 01432 Optimized Saffron
- 02511 Thermo Weight Control
- 02509 Waistline Control™

WOMEN'S HEALTH

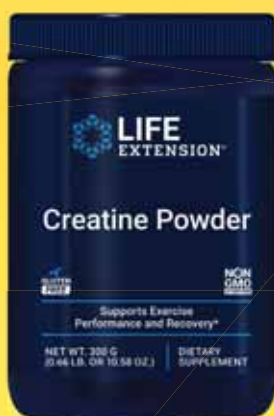
- 01942 Breast Health Formula
- 02537 Daily PMS Relief
- 02534 Estrogen Balance Elite
- 01894 Estrogen for Women
- 02541 Hair Growth for Women
- 02204 Menopause Relief
- 02319 Prenatal Advantage
- 02536 Sexual Health for Her
- 01649 Soy Isoflavones
- 02513 Women's Bladder Support

Need an Energy Boost?

The Choice is Yours

CREATINE provides **energy-boosting effects** to cells throughout the body to support:*

- Cellular energy and muscle strength¹⁻³
- Increased workout capacity and performance in various age groups¹⁻³
- Enhanced lean muscle mass and healthy body composition^{1,3}



Creatine Powder

This premium-grade, pure **creatine monohydrate** is an unflavored powder that dissolves quickly in water or your beverage of choice. Contains no sugar. Every scoop provides **5 grams** of creatine monohydrate.

SUPER SALE PRICE

Item #02543
Net Wt. 300 g (0.66 lbs.)
About 60 servings.
1 jar \$16.20 • 4 jars \$14.85 each



Creatine Capsules

Each capsule supplies **500 mg** of premium-grade, pure **creatine monohydrate**. Take two capsules twice daily with water or your beverage of choice. Contains no sugar.

SUPER SALE PRICE

Item #01529
120 capsules
1 bottle \$12.15
4 bottles \$10.80 each



Creatine & Acetyl-L-Carnitine Energy Plus

Premium-grade, pure creatine monohydrate for muscle strength, exercise performance and cellular energy, combined with acetyl-L-carnitine for physical and mental energy and healthy cognitive function.¹⁻³ Every scoop provides **5 grams** of creatine monohydrate and **2 grams** of acetyl-L-carnitine. This unflavored, fine powder dissolves easily and contains no sugar.

SUPER SALE PRICE

Item #02532
Net Wt. 233 g (0.51 lbs.)
1 jar \$22.28 • 4 jars \$19.80 each

For full product description and to order **Creatine Powder**, **Creatine Capsules**, or **Creatine & Acetyl-L-Carnitine Energy Plus**, call 1-800-544-4440 or visit www.LifeExtension.com

References 1. *J Int Soc Sports Nutr.* 2017;14(1):18. 2. *Open Access J Sports Med.* 2017;8:213-26. 3. *Eur J Appl Physiol.* 2013 Apr;113(4):987-96.

* When combined with a regular resistance training/exercise program.

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.



Whole-Body Support

MAGNESIUM supports more than 300 biochemical reactions in the body.^{1,2}

This vital mineral supports heart,³ bone,⁴ muscle,⁵ metabolic,⁴ and nerve health,¹ among other functions that promote whole-body wellness.²

FOUR Choices of MAGNESIUM for your Specific Needs



Immediate and Extend-Release
SUPER SALE PRICE
Item #02107
250 mg, 60 vegetarian capsules*
1 bottle **\$8.78**
4 bottles \$7.88 each



Three forms of magnesium
SUPER SALE PRICE
Item #01459
500 mg, 100 vegetarian capsules
1 bottle **\$8.10**
4 bottles \$6.75 each

"A supplement that helps."
Clarence
VERIFIED BUYER



High absorption.
Easy on the GI tract
SUPER SALE PRICE
Item #02535
105 mg, 90 vegetarian capsules
1 bottle **\$16.20**
4 bottles \$14.40 each



Readily absorbed magnesium
SUPER SALE PRICE
Item #01682
100 mg, 100 vegetarian capsules
1 bottle **\$8.55**
4 bottles \$7.43 each

For full product description and to order Magnesium Glycinate, Magnesium Caps, Magnesium (Citrate), or Extend-Release Magnesium, call 1-800-544-4440 or visit www.LifeExtension.com

References 1. *Int J Endocrinol*. 2018/01/01;2018(1):9041694. 2. *N Engl J Med*. 2024 Jun 6;390(21):1998-2009. 3. *Adv Chronic Kidney Dis*. 2018 May;25(3):251-60. 4. *Physiol Rev*. 2015 Jan;95(1):1-46. 5. *Sci Rep*. 2021 Dec 22;11(1):24388.

CAUTION: If taken in high doses, magnesium may have a laxative effect. If this occurs, divide the dose, reduce intake, or discontinue the product.

*ZümXR® is a registered trademark and protected by patents. See www.ZümXR.com.

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"Really like this
supplement."

Yoshiko

VERIFIED BUYER

UP TO 45 TIMES GREATER BIOAVAILABILITY† CURCUMIN

Patented technology combining **turmeric** and
fenugreek fiber results in up to **45 times**
greater bioavailability of free **curcuminoids**.

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

† Studied against powder turmeric extract standardized to 95% curcuminoids



SUPER SALE PRICE

Item #02407

500 mg

60 vegetarian capsules

1 bottle **\$22.95**

4 bottles \$21.38 each



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.

Olive Polyphenols + Fish Oil + Sesame = SUPER OMEGA-3

"Been using
this for years.
Love it."

Gail
VERIFIED BUYER

SUPER SALE PRICE

Item #01982*

120 softgels

1 bottle \$26.33

4 bottles \$24.75 each

Contains sesame.

**2,400 mg
EPA/DHA**
in four softgels
Plus Standardized
Olive Extract and
Sesame Lignans



**2,520 mg
EPA/DHA**
in four softgels
with Standardized
Olive Extract,
Sesame Lignans, Krill
and **Astaxanthin**



SUPER SALE PRICE

Item #01988

120 softgels

1 bottle \$35.78

4 bottles \$32.40 each

Contains crustacean shellfish
(krill), sesame.

CAUTION: If you are
taking anti-coagulant
or anti-platelet
medications, or have a
bleeding disorder,
consult your health-
care provider before
taking these products.

Fish oil is a popular supplement people use to boost
omega-3 levels in the **heart, brain, eyes,** and other
tissues.

Super Omega-3 provides healthy components of the
Mediterranean diet including highly purified **fish oil,**
sesame lignans, and standardized **olive extract.**



* The IFOS™ product certification is a
registered trademark of SGS Nutrasource.
This product has been tested to verify quality
and purity per the IFOS™ standard.

For full product description and to order **SUPER OMEGA-3** and
SUPER OMEGA-3 PLUS, call 1-800-544-4440 or visit www.LifeExtension.com



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.



IN THIS EDITION OF *LIFE EXTENSION* MAGAZINE



7 URINARY TRACT CHALLENGES

Nearly **10 million** Americans, mostly **women**, are treated annually for **urinary tract infections** (UTIs). About **8-25%** of patients do not improve as expected.



22 AN AMINO ACID ASSOCIATED WITH HEALTHY AGING

L-ergothioneine, found in mushrooms and fermented foods, *improved* measures of **cognitive function**, **sleep quality**, and a marker of **neurodegeneration** in **human** trials.



34 DUAL-ACTION URINARY TRACT DEFENSE

Encapsulated bacteriophages combined with whole-fruit **cranberry** can help support urinary tract health.



44 BOOST CARDIAC PUMPING CAPACITY

A plant extract *increased* people's cardiac **ejection fraction**, and *reduced* **exhaustion** and *perceived* **exertion** during exercise.



56 GUT MICROBIOME IN PEOPLE WHO LIVE PAST 100

To recreate **centenarians'** unique microbiome researchers studied **three probiotics** in separate trials that *lowered* **inflammation**, *slowed* **telomere shortening**, and *reduced* **cholesterol**.



68 MAGNESIUM PROMOTES HEALTHY BLOOD SUGAR

Clinical studies have shown that **magnesium** supplementation may support healthy fasting **blood sugar**, post-meal blood sugar, and **hemoglobin A1c** levels.