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April 2026

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ON THE
COVER



Low Back Pain Relief

A clinical trial showed that two **plant extracts** significantly *reduced lower back pain* for **79%** of patients in 30 days.

In a separate clinical trial, another plant extract eliminated chronic low back pain for **22%** of subjects after four weeks.

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A recent study found that cancer patients on a common class of immunotherapy drugs who took **probiotics** had prolonged progression-free survival. The **probiotic** group was **42% less** likely to die during follow-up.

55 SOLUTIONS: IMPROVE DIGESTION WITH ENZYMES

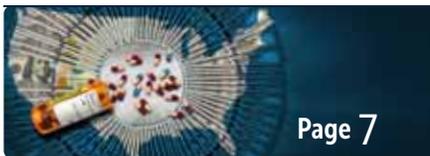
With age, the body produces fewer **digestive enzymes**, which may cause bloating, gas, general discomfort, and nutrient deficiencies. Taking digestive enzymes before meals offers a solution.



64 RESPIRATORY HEALTH

A **probiotic** clinically *reduced cold* and **flu** incidence by more than **half**, while a **postbiotic** yeast strain *reduced* days with **nasal congestion** in seasonal allergy sufferers by **43%**.

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AS WE SEE IT: AMERICA'S NEW PAIN DRUG PROBLEM

Prescriptions have skyrocketed for pain-relieving alternatives to opioid drugs. New findings show these non-opioid drugs are riskier than previously believed. Effective alternatives include physical therapy and a novel plant extract combination.



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IN THE NEWS

L-theanine supports healthy sleep; fish oil reduces early markers of type 2 diabetes risk; vitamin D3 improves polycystic ovary syndrome; multivitamins associated with reduced risk of prostate cancer recurrence.



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SUPERFOODS: CHICKPEAS

Chickpeas offer slow digestion, low fat, and unusually high protein and fiber content. Studies show they improved total and LDL cholesterol, body weight, and after-meal blood sugar spikes.

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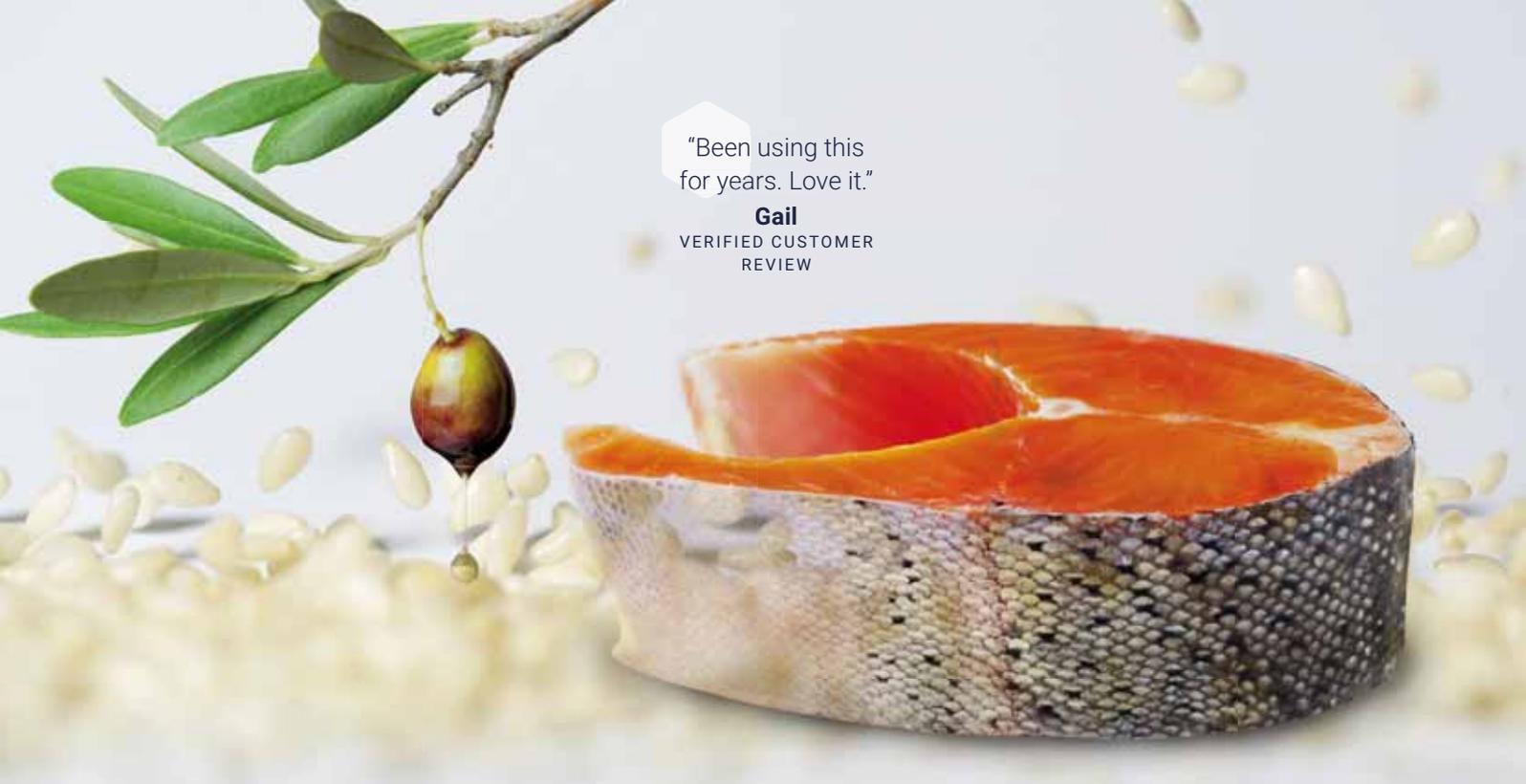


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America's New Pain Drug Problem

WILLIAM FALOON



In 1995, the **FDA** approved the drug **OxyContin®** as a treatment for chronic **pain** that was less prone to abuse and addiction.

It was not!

Millions got **addicted**, and over 800,000 people lost their lives to **overdoses** as **FDA** approved widespread availability of other **opioid drugs**... and then restricted them, forcing addicts to turn to more dangerous opioids like **heroin** and **fentanyl**.²

We at **Life Extension®** have long been outspoken against the **FDA's** approval of **OxyContin®** as a safe treatment for chronic pain.

Its manufacturer, **Purdue Pharma**, filed for bankruptcy in 2019. They, along with the Sackler family, faced a combined criminal and civil penalty of **\$8.3 billion** in 2020³ and a national civil lawsuit settlement of **\$7.4 billion** in 2025 over their role in the opioid crisis.⁴

With opioid drug access heavily restricted today, prescriptions for alternative pain pills in the class of **gabapentinoids** have dramatically increased.⁵

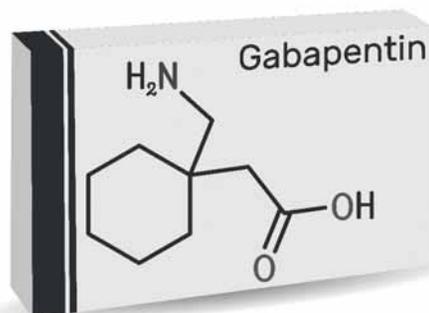
Gabapentin and **pregabalin** are two gabapentinoid generics. They were broadly marketed

under brand names **Neurontin®** and **Lyrica®**, respectively.⁶

Whereas OxyContin was approved for general pain, **gabapentinoids** are approved for the treatment of nerve pain and a few other conditions.

Doctors have been prescribing gabapentinoids off-label for various other pains.⁷

Gabapentin is prescribed significantly more than pregabalin.⁸ In **2024**, it was the **fifth** most widely prescribed drug in the U.S., used by about **15.5 million** people.⁹



Doctors have touted these drugs as safer alternatives to opioids with a low risk of addiction. New research has shown that the risks are far greater than previously believed.⁷

Gabapentin,¹⁰ **pregabalin**,¹¹ or both have been associated with common side effects of:

- **Withdrawal**,¹⁰⁻¹²
- **Depression**,^{10,11,13}
- **Psychosis**,¹⁰⁻¹²
- **Suicide, suicidal thoughts and behavior, and self-injury**,^{10,11,13-15}
- **Peripheral edema**,^{10,11,16}
- **Sleepiness**,^{10,11,16}
- **Blurred vision**,^{10,11,16}
- **Dizziness**,^{10,11,16}
- **Weight gain**,^{10,11,15}
- **Dementia**,^{10,11,17} and
- **Heart failure**.¹⁸

In addition, patients often report worsening symptoms when discontinuing these drugs.

For example, a front-page *Wall Street Journal* article reported a patient with a herniated disc experienced severe withdrawal symptoms after stopping the medication, making his original back pain seem like a “paper cut” by comparison.¹⁴

What’s worse is that every year for the last five years there have been about **5,000 gabapentin-involved deaths**.¹⁴

Pain management treatment is very difficult, and doctors want to help their patients but feel their options are limited. Recent evidence has shown that other approaches may offer some relief from **lower back pain** without side effects.

These include **physical therapy** sessions that are often covered for Medicare participants.¹⁹

Physical therapy is considered as a first line option for chronic low back pain by improving pain, strength, mobility, function, and quality of life while reducing pain medication use.^{20,21}

The article on page 34 of this month’s issue describes a **plant extract** combination that was shown to provide a non-drug option for people experiencing **low back pain**.

For longer life,



Willam Faloon, Co-Founder
Life Extension





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Contains crustacean shellfish (krill).

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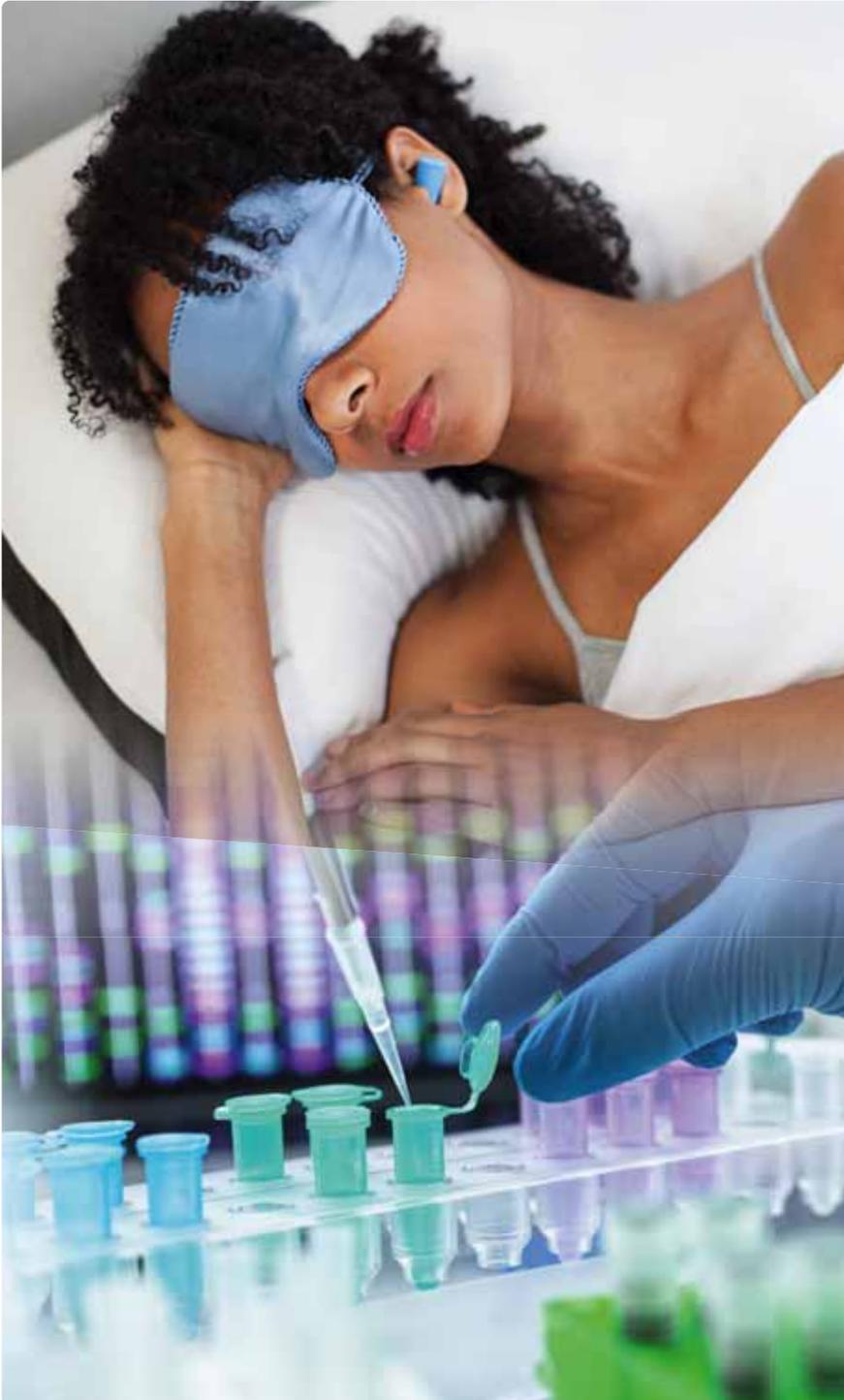
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In the News



L-Theanine Supports Healthy Sleep

Consuming **L-theanine** can support healthy sleep, a systematic review of clinical trials concluded.*

Researchers identified 11 randomized, controlled trials plus two single-arm trials that examined the effects of theanine as a standalone nutrient among a total of 550 participants aged 9–57 years. L-theanine doses ranged from **50 mg–900 mg** per day. All but two trials evaluated doses between **200 mg** and **450 mg**. Trial durations ranged from one day to eight weeks.

Statistically significant beneficial outcomes or trends toward beneficial effects were associated with L-theanine in nine trials, with improvements in both objective sleep evaluations and participant-reported sleep measures.

Although total sleep time did not increase, sleep latency, efficiency, maintenance and satisfaction, and feelings of refreshment and recovery upon waking improved in theanine-treated participants. L-theanine was not associated with drowsiness.

Editor's Note: "Based on the current evidence, supplementation with **200-450 mg/day** of L-theanine appears to be a safe and effective way to support healthy sleep in adults," the authors stated.

* *Nutr Neurosci.* 2025 Nov 1:1-15.

Fish Oil Consumption Reduces Early Markers of Type 2 Diabetes Risk

A recent double-blind, randomized, controlled trial found that fish oil supplementation over 12 weeks significantly improved early biomarkers associated with type 2 diabetes risk.*

In the study, around 200 people were randomly assigned to one of four groups: a control group or one of three fish oil groups receiving daily doses of **310 mg**, **620 mg**, or **1,240 mg** of EPA and DHA (key omega-3 fatty acids).

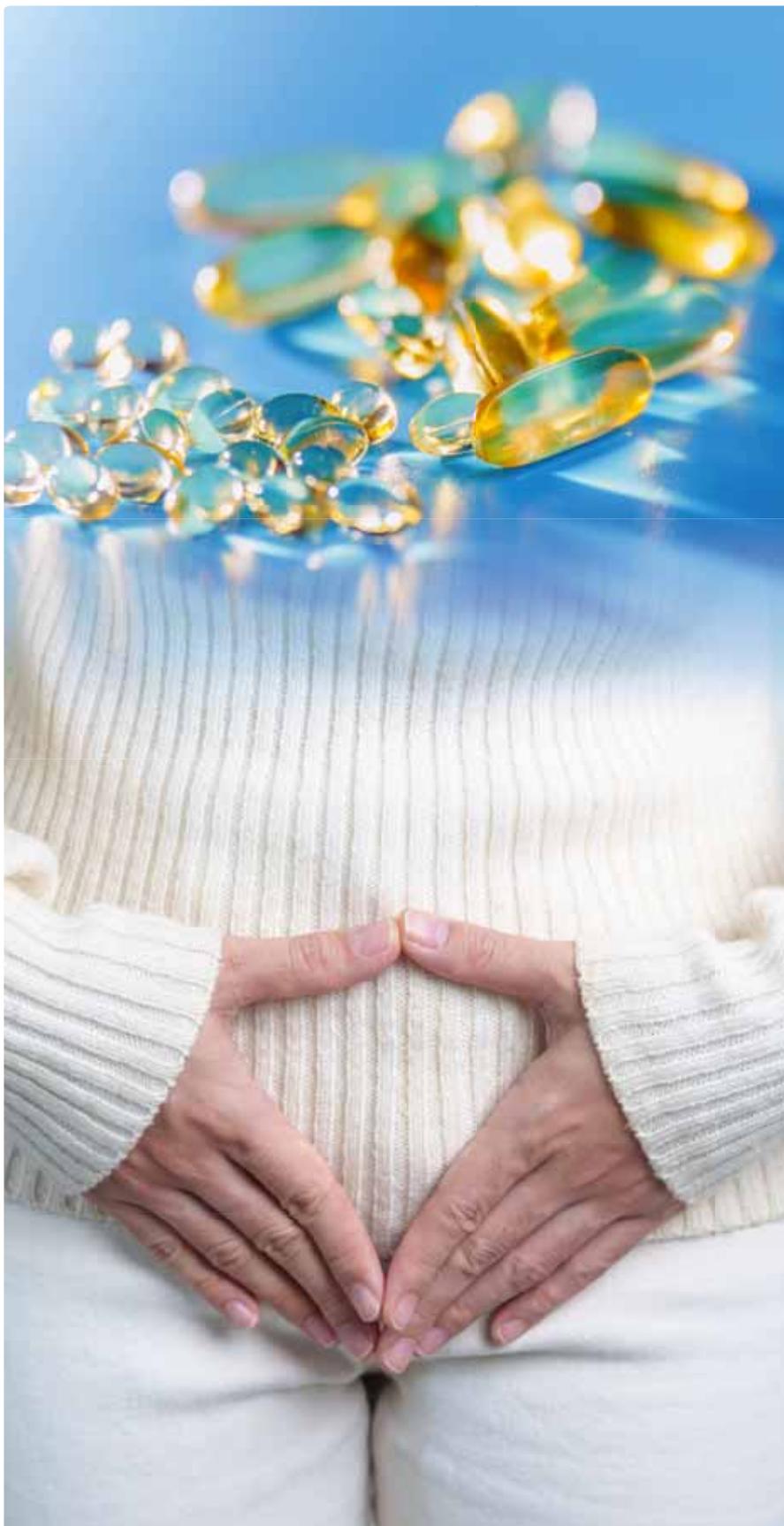
After 12 weeks, all fish oil groups showed increased serum levels of EPA and DHA, with the highest dose yielding the greatest rise.

Compared to the control group, those receiving fish oil experienced significant reductions in fasting insulin levels and HOMA-IR index (a marker of insulin resistance)—two important indicators of diabetes risk and status.

Editor's Note: Fasting blood glucose exhibited a downward trend, with all fish oil groups showing a significant reduction compared with the beginning of the study.

* *Food Funct.* 2025 May 30;12:1598588.





Vitamin D3 Benefits Women with Polycystic Ovary Syndrome

A randomized, controlled clinical trial suggests that vitamin D3 supplementation may offer several important benefits for women with polycystic ovary syndrome (PCOS).*

Study participants received either vitamin D3 (**30,000 IU/week**) or a placebo for 12 weeks. This was followed by an additional 12 weeks in which every woman received the same vitamin D treatment. Women with inadequate dietary calcium intake also received supplemental calcium.

Vitamin D3 treatment led to improvements in ovarian morphology (the size, shape, and structure of the ovaries) and more regular menstrual cycles in over half of the participants. Additionally, the ovulation rate increased significantly.

Editor's Note: Vitamin D deficiency is common in women with PCOS, the authors stated. They concluded that, "Our results suggest that vitamin D3 treatment could function as either a standalone or an adjunctive therapy in the management of PCOS".

* *Nutrients*. 2025 Apr 2;17(7):1246.

Multivitamin Use May Lower Risk of Prostate Cancer Recurrence

An association was found between the use of multivitamins and a reduction in the risk of prostate cancer recurrence, according to a recently published study.*

Participants included 1,396 men enrolled in the Cancer of the Prostate Strategic Urologic Research Endeavor (CaPSURE) between 1999 and 2018. The men received treatment with radiation or removal of the prostate for nonmetastatic prostate cancer. Responses to health questionnaires completed after diagnosis provided information concerning the use of multivitamins.

Prostate cancer recurred in 119 men during a median follow-up of 4.7 years. Men who reported supplementing with multivitamins had a **49% lower** risk of disease recurrence compared with men who had never used multivitamins.

Among multivitamin users whose prostate cancer was of medium grade or higher, the risk of recurrence was **73% lower** than among those who never used them.

Editor's Note: The authors stated that oxidative stress is a risk factor for the onset and progression of prostate cancer. This suggests that multivitamins' antioxidant properties may be responsible for the protective effect observed in this study.

* *Eur Urol Oncol.* 2025 May 6: S2588-9311(25)00110-5.



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

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References: 1. *Nutrients*;14:5235.10.3390/nu14245235. 2. *J Alzheimers Dis.* 2016;49(4):971-90.

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POMEGRANATE

The Powerhouse of Nutrients

Pomegranate contains diverse compounds that have demonstrated a range of biological activities in preclinical and clinical studies.¹⁻³

In other words, pomegranate is a fruit with body-wide health benefits.

Across preclinical studies, pomegranate extracts have been shown to support processes involved in mitochondrial function,⁴ vascular and cardiovascular health,^{5,6} inflammatory balance,⁷ and glucose metabolism.⁸

Collectively, these findings have led to investigations of pomegranate and its extracts for their potential role in promoting healthy aging.^{9,10}

Clinical studies indicate that pomegranate consumption may improve blood flow in healthy adults,^{11,12} and help lower blood pressure.¹³⁻¹⁶



Pomegranate as a Source of Diverse Nutrients

All parts of the pomegranate—bark, flowers, and leaves—have traditional therapeutic uses. They have been studied in relation to digestive, metabolic, cardiovascular, and antimicrobial functions, as well as hair and skin structure.²

But why is pomegranate so packed with benefits?

Every component of the plant contains a potent assortment of **polyphenols**. These include an abundance of anthocyanins and flavonoids, many of which have demonstrated antioxidant and anti-inflammatory activity in experimental studies.^{6,17}

Pomegranate also contains special polyphenols like **ellagic acid**, **ellagitannins**, and **punicalagin**.^{17,18} These compounds have been studied for their potential health-promoting properties.¹⁸

One of the most potent nutrients derived from pomegranate is **urolithin A** which has been studied for its role in supporting cellular health.¹⁹

Urolithin A: A Mitochondrial Booster

While pomegranate and its extracts contain a wide array of nutrients, they do *not* contain **urolithin A**—it needs to be made in the body from nutrients contained in pomegranate.

Pomegranate provides raw materials from which some people can make **urolithin A** for themselves.

In the body, urolithin A is created from the polyphenol called **punicalagin** which can be present in relatively high amounts in pomegranate products²⁰—some pomegranate supplements are even standardized to contain a specific punicalagin content.²¹

When we consume punicalagin, our healthy gut bacteria metabolizes it and converts it into **urolithin A**, which can then be absorbed and distributed throughout the body.²²

Urolithin A has various bioactive properties including anti-inflammatory activity. The primary area of research is its role in **mitochondrial health**.



Pomegranate: A Nutrient Powerhouse

- Pomegranate is a nutrient-dense source of bioactive compounds.
- Multiple parts of the pomegranate plant contain notable concentrations of various bioactive compounds including various polyphenols and ellagitannins.
- Punicalagin—the most abundant ellagitannin found in pomegranate—can, in some people, be converted in the body to urolithin A—a metabolite that has been studied for its role in mitochondrial function.
- Both preclinical and human studies have examined associations between pomegranate consumption and diverse health-related outcomes.

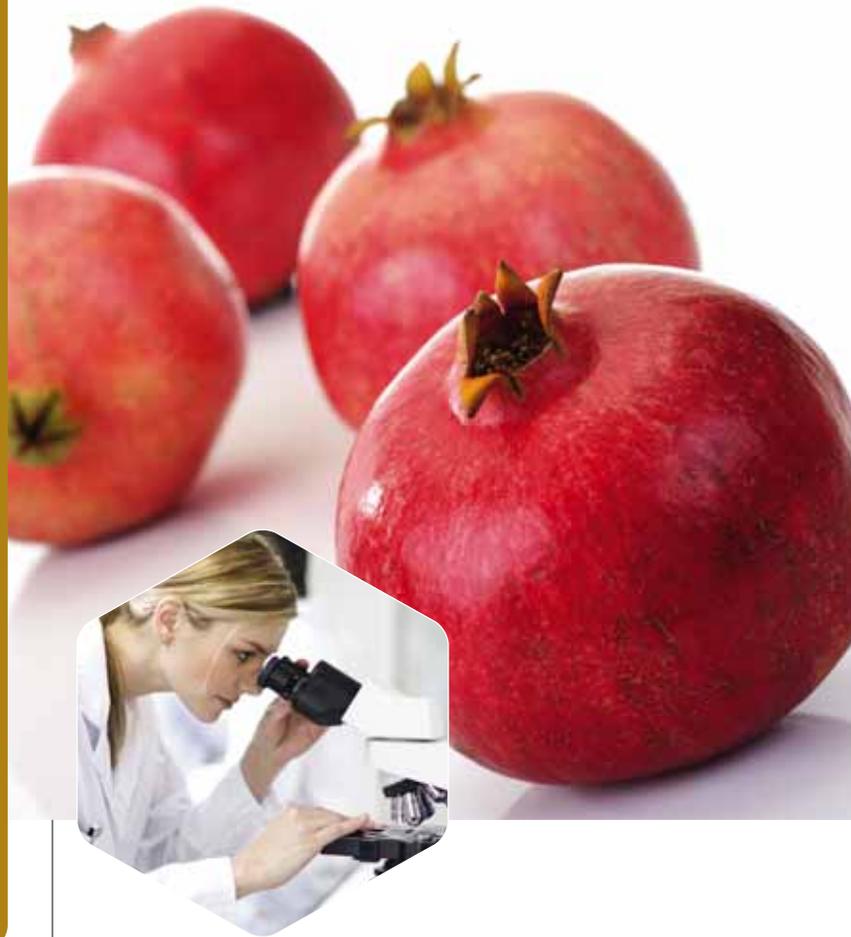
Mitochondria are present in abundance in most cells in the body. Some exceptions include red blood cells and bacteria. For all other cells, the mitochondria are the primary source of cellular energy they use to grow, repair themselves, and function.

In various preclinical studies urolithin A improves mitochondrial function and helps rejuvenate mitochondria.²³ It activates cellular quality-control processes that remove damaged mitochondria and support mitochondrial turnover.^{23,24}

In multiple cell and animal studies, supplementation with **urolithin A** has been associated with improvements in markers related to healthy functions.

In various animal models it improves healthspan and lifespan with protection against an array of age-related disorders such as cardiovascular, metabolic, neurologic, joint, and inflammatory bowel disease.²³

Human studies of urolithin A are still in their early stages. But results so far support its potential to influence markers of **mitochondrial** health.²⁵



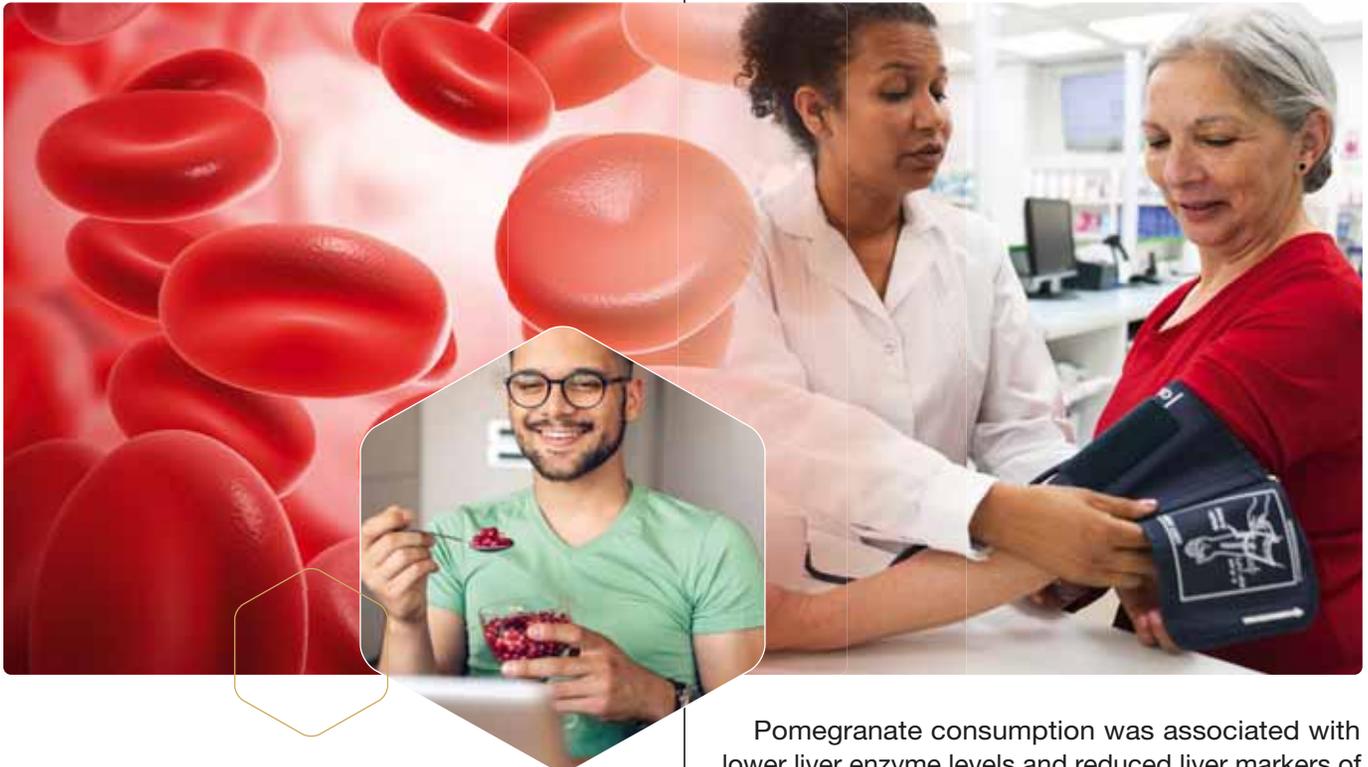
Furthermore, trials report improvements in certain measures of muscle function, including strength and endurance—in both young athletes²⁶ as well as middle-aged²⁶ and older adults.²⁷ In one study, muscle strength increased by approximately **12%** while also increasing aerobic endurance and physical performance in middle-aged adults.²⁶

Benefits of Pomegranate Consumption

Pomegranate has been investigated for its potential effects against common threats to health in older adulthood.

CARDIOVASCULAR

Cardiovascular disease is the most prevalent chronic disease of older age.²⁸ Pomegranate has been reported to beneficially influence numerous cardiometabolic risk factors in both preclinical and clinical studies.



In preclinical studies it has been shown to:

- Support blood vessel function,^{5,6,29,30}
- Reduce markers associated with atherosclerotic plaque development,^{13,31-34} and
- Influence pathways involved in blood clot formation.^{31,35-37}

Whereas in clinical studies:

- It lowers blood pressure,^{16,38,39} and
- Improves blood lipid abnormalities and prevents lipid oxidation.⁴⁰

OBESITY & METABOLIC HEALTH

Obesity, metabolic syndrome, and type 2 diabetes share overlapping signs like high blood pressure and abnormal lipid levels.

In two clinical trials involving adults with type 2 diabetes or poor glucose control, consumption of pomegranate juice was associated with improvements in insulin sensitivity and glycemic indices.^{41,42}

A **2024** systematic review and meta-analysis of **28 human trials** found that pomegranate consumption in adults was associated with modest reductions in body weight (about 4.41 lbs.) and **BMI** compared with controls.⁴³

Pomegranate consumption was associated with lower liver enzyme levels and reduced liver markers of **fatty liver disease**—even in individuals already suffering from this disorder.^{38,44}

In another study, data from 32 different randomized controlled trials of pomegranate consumption were pooled. Overall, the researchers reported that pomegranate consumption was associated with lowered:⁴⁵

- Fasting blood glucose,
- Fasting insulin,
- Hemoglobin A1c—a marker of long-term glucose control, and
- HOMA-IR—an index indicating level of insulin resistance.

CANCER

Pomegranate has been studied for mechanisms that may help reduce both cancer risk and progression.^{46,47}

In experimental models involving carcinogenic exposures, pomegranate has shown it may reduce cancer incidence.⁴⁸⁻⁵⁰

Multiple mechanisms of pomegranate have been identified that may influence tumor progression, making it potentially relevant for more than just prevention. These include effects on cancer cell proliferation and survival, and pathways involved in metastasis such as angiogenesis.^{51,52}

In studies on people with prostate cancer, researchers evaluated the effects of pomegranate consumption on **PSA** levels.⁵³⁻⁵⁵ PSA is an important blood marker of prostate disease. It is commonly used to monitor prostate cancer progression, as levels tend to increase with tumor growth. In these studies, pomegranate consumption was associated with a slower rise in PSA levels following cancer treatment, suggesting a potential role as an adjunct to standard therapy.

Summary

Pomegranate is a nutrient-dense fruit that contains a wide range of health-relevant compounds.

Some of the important nutrients associated with pomegranate—punicalagin and polyphenols, anthocyanins, and flavonoids,—have demonstrated biological activity in experimental and clinical studies. Research suggests that the combined activity of all these nutrients may be relevant to healthy aging.

Owing to multiple mechanisms of action, pomegranate has been studied for effects across an array of physiological systems.

Animal and human studies have reported associations with several outcomes that impact cardiovascular and metabolic 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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CAUTION: Individuals consuming more than 50 mcg (2000 IU)/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxy vitamin D measurement. Vitamin D supplementation is not recommended for individuals with high blood calcium levels.

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MacuGuard® Ocular Support with Saffron has met ConsumerLab.com standards for ingredient and product quality for Lutein and Zeaxanthin in independent testing. More information at www.consumerlab.com.



Each bottle lasts for **two months**.

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Theanine XR™ Stress Relief supplement promotes **alert relaxation** and a feeling of well-being *throughout the day*.*

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

The flavonoid **luteolin** has been scientifically optimized 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.

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* Regular luteolin defined as 98% pure powder luteolin

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

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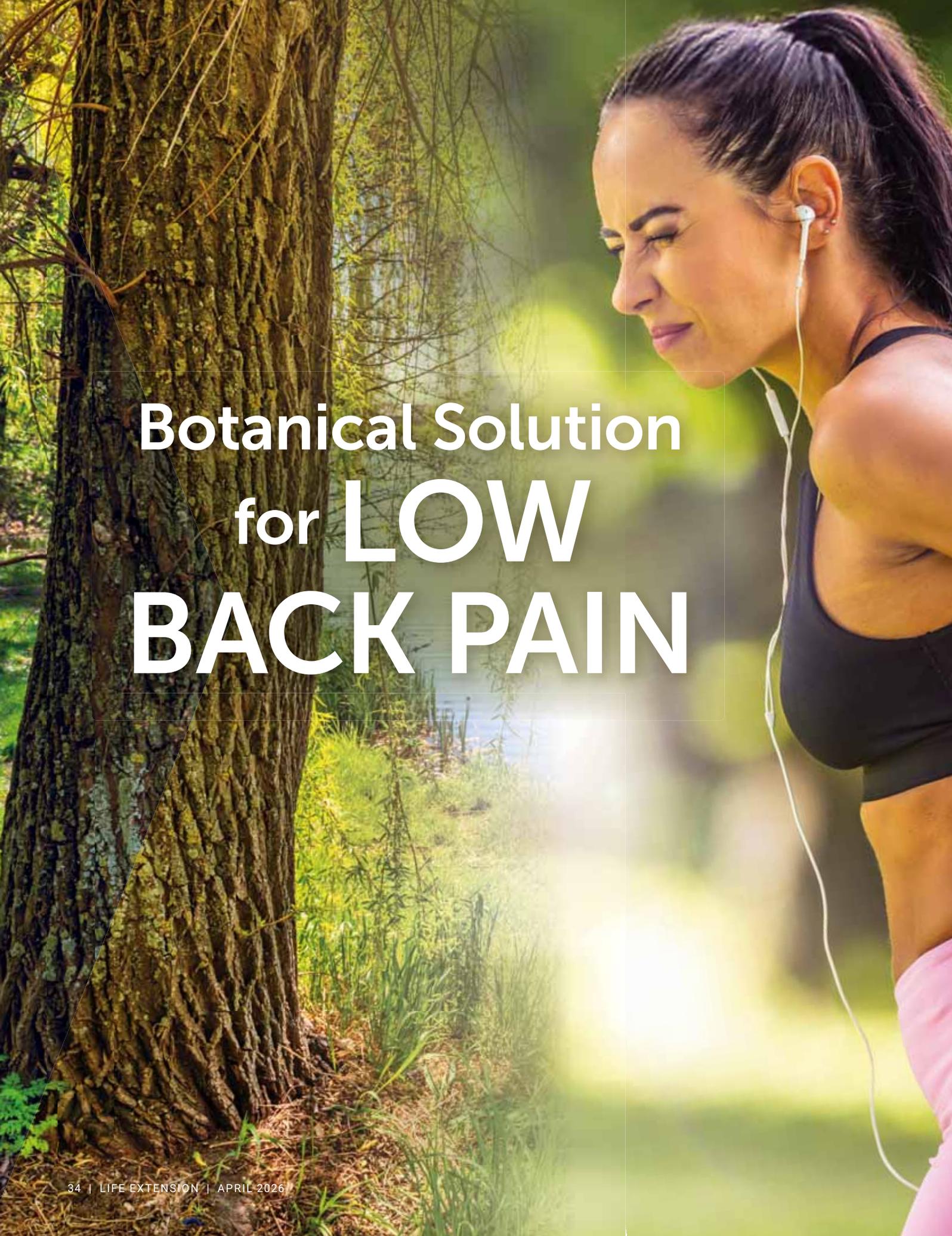
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**Botanical Solution
for LOW
BACK PAIN**



BY MARSHA MCCULLOCH, MS, RD

Lower back pain can interfere with work, sleep, and social activities¹ and make day-to-day life miserable.

Only **10%** of common non-surgical treatments for lower back pain are effective.²

Searching for plant-based alternatives,³ scientists focused on three **botanical extracts**. They all have documented anti-inflammatory and pain-relieving properties.⁴⁻⁷

A placebo-controlled clinical trial showed that about **79%** of people taking a blend of **chaste tree** and **ginger** extracts experienced clinically significant reduction in lower back pain intensity, compared with just **36%** in the placebo group.⁸

In a separate clinical trial, **22%** of subjects were **completely free** of chronic lower back pain after four weeks of taking white willow bark extract.⁹

A nutritional solution that combines these ingredients can help people stay active and independent as they age.

The Lowdown on Low Back Pain

Lower back pain is alarmingly common and is the single leading cause of disability worldwide.¹⁰

In the U.S., over **8%** of adults have **chronic severe back pain**, and according to an analysis from the National Health Interview Survey, nearly **75%** of them have trouble with **mobility**.¹¹

People will try anything to ease back pain. But a meta-analysis of **301** studies of non-surgical treatments found that the majority produced little to no improvement.²

Non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen (Advil®, Motrin®) and aspirin, provided only slight reductions in low back pain.²

NSAIDs, however, increase the risk of gastrointestinal bleeding, heart attacks, renal damage, and strokes.¹² The risk of side effects grows with higher doses and long-term use.¹³⁻¹⁵

Chaste Tree, Ginger, and Willow Bark

To formulate a **safe** and potent pain solution, scientists selected three botanicals:

- **Five-leaf chaste tree**
- **Ginger**
- **White willow bark**



Five-leaf chaste tree is a shrub native to China and India.¹⁶ It has been used in **Ayurveda** (traditional Indian medicine) to relieve pain and inflammation.⁵

Ginger has a history of use in Chinese medicine and is known for its digestive health benefits.¹⁷ Newer research has explored its pain-relief properties.^{6,18}

White willow bark is chemically related to aspirin.⁷ It contains **salicin**, which can be converted to salicylic acid in the body.^{9,19} Unlike aspirin, which can cause gastrointestinal bleeding, willow bark has *not* shown this side effect.^{7,9,19}

Preclinical and clinical research suggest that **pain-relief benefits** from these extracts may come from inhibiting:

- **Enzyme** pathways that promote inflammation and pain,^{7,18,20,21}
- **Inflammatory signaling**, including by **NF-kB** (nuclear factor-kappa B)^{17,22} and **TNF-alpha** (tumor necrosis factor-alpha),^{8,19,23} and
- **Oxidative stress**, by suppressing **xanthine oxidase**,¹⁸ an enzyme that generates oxidative stress,²⁴ and increasing the antioxidant **glutathione**.²⁵

To maximize benefits, scientists **combined** standardized extracts from five-leaf chaste tree leaves and ginger root, then added white willow bark extract.

Clinical Results

To test the **chaste tree-ginger extract** blend, researchers enlisted 67 relatively sedentary adults, aged 18-60, with persistent **low back pain**.

They were given **200 mg** of **chaste tree-ginger** blend or a **placebo** twice daily for 30 days.⁸

Within **seven days**, those taking the extracts had a **three times** greater reduction in self-rated **pain** than those taking placebos.

By the end of the study, a whopping **79%** of the **extract** group reported a clinically significant reduction in **lower back pain intensity**, compared with only **36%** in the **placebo** group.

In this study, about **77%** achieved a meaningful improvement in **functional activity**, compared with **30%** in the placebo group.⁸



What You Need To Know

Beat Lower Back Pain

- Most medications to relieve **lower back pain** have limited benefits and carry risks.
- Scientists developed a safe blend of extracts from **five-leaf chaste tree** leaves, **ginger root**, and **white willow bark**, which have pain-relieving, anti-inflammatory, and antioxidant properties.
- A placebo-controlled clinical trial reported that nearly **79%** of participants treated with a combination of **five-leaf chaste tree** and **ginger extracts** experienced a clinically significant decrease in **lower back pain intensity**, versus just **36%** in the placebo group.
- In another clinical trial, **22%** of subjects taking white willow bark extract experienced complete relief from lower back pain.
- A blend of these extracts may help ease pain, reduce functional **disability**, and improve quality of life.

Those taking the **extract blend** also had:

- More than **twice** the reduction in low back pain-related **disability** compared to placebo, improving their ability to perform daily activities,
- A **40%** improvement in **bending flexibility** (the ability to touch their toes), compared to a **17%** improvement in the placebo group, and
- Improved **sleep quality**, compared to no clinically meaningful improvement in the placebo group.

Optimizing Pain Relief with Willow Bark

Researchers tested white willow bark in a clinical trial of 191 people with recent worsening of their chronic **lower back pain**.⁹

Subjects received either a **placebo** or a low-dose **willow bark** extract containing **120 mg** of **salicin**, roughly equal to **half** a baby aspirin.²⁶

All participants could use an opioid rescue medication (tramadol) for pain, if necessary.

After four weeks, **22%** of those taking low-dose willow bark were completely pain-free (without rescue medication), compared with **7%** of placebo recipients.

Only **15%** of subjects taking **willow bark** for four weeks needed the **opioid** pain medication, compared to **56%** in the **placebo** group.⁹

The pain-relieving benefits of willow bark likely come from its **salicin** and **polyphenol** content.^{7,19} The polyphenols may also help protect the stomach lining.^{7,19}

Willow bark was well tolerated in this⁹ and other studies.^{19,27} However, individuals allergic to aspirin or sensitive to salicylates should not take willow bark.¹⁹

White willow bark, five-leaf chaste tree, and ginger extracts clearly provide much-needed, safe relief for back pain.

Summary

A placebo-controlled trial showed that about **79%** of participants taking **five-leaf chaste tree** and **ginger extracts** reported a clinically significant reduction in **lower back pain intensity**, compared to only **36%** of the placebo group.

In another clinical trial, **22%** of participants with lower back pain became **pain-free** within four weeks of taking **white willow bark** extract.

Taking a blend of these extracts **twice** daily is recommended for maximum effectiveness. ■

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

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

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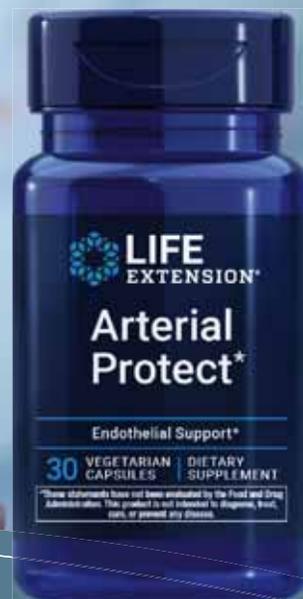
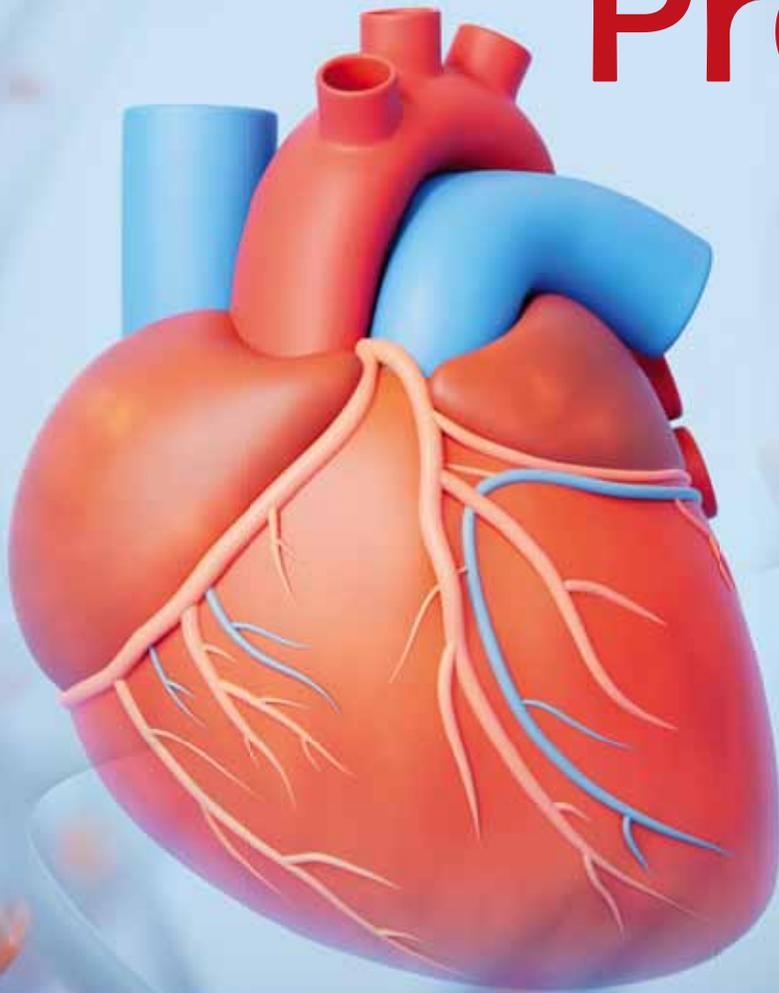
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References: 1. *Int J Cosmet Sci.* 2024;46(2):284-296. 2. *Clin Cosmet Investig Dermatol.* 2023;16:3251-3266.

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Arterial Protect supports the body's natural processes for managing arterial debris to help maintain endothelial and circulatory healthy.*

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* Int Angiol. 2014 Feb;33(1):20-6.

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Shell-broken Reishi mushroom **150 mg**
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Item #01708
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For full product description and to order **Lower Back Relief**, call **1-800-544-4440** or visit **www.LifeExtension.com**

References: 1. *J Back Musculoskelet Rehabil.* 2024;37(2):487-502. 2. *Am J Med.* 2000 Jul;109(1):9-14. Muvz is a trademark of Enovate Biolife, a part of OmniActive
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ADVANCED LIPID CONTROL[†]
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Researchers have discovered
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- ▶ LDL
- ▶ HDL
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* BMC Complement Altern Med. 2019;19:97.

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Probiotics Improve Survival During Cancer Treatment

BY RYAN SULLIVAN



The Promise of ICIs

Traditional **cancer** treatments use surgery, chemotherapy, and radiation to remove or kill cancer cells.³

Over the past few decades, doctors began using a new approach: harnessing our own **immune system** to better target and destroy cancer cells. This is known as **immunotherapy**.⁴

One example that has entered routine cancer care is the **immune checkpoint inhibitor (ICI)** class of drugs.⁵

These medications increase the power of cancer-fighting immune cells.⁵ Among them are cytotoxic T cells whose role is identifying and killing virus-infected cells, but they are also the preferred immune cells for targeting cancer.⁶

The ICI drugs work by removing immune system “**checkpoints**” in tumors that can shut off T cell activation. This allows those T cells to successfully attack and kill cancer cells.⁵

ICIs have improved outcomes for many cancers, particularly **melanoma** and **non-small-cell lung cancer**.^{1,5}

But roughly **10-27%** of patients experience resistance to ICI treatment,⁷ which means the cancer fails to respond to treatment. Additionally, **52-57%** develop secondary resistance. These patients initially respond to treatment, but the cancer rebounds.⁸

In recent years, doctors have made remarkable progress recruiting the body’s own **immune system** to fight **cancer**.

A **2025** meta-analysis shows that adding **probiotics** during these treatments may be associated with **improved** patient outcomes.¹

The analysis showed that taking oral probiotics *significantly prolonged overall and progression-free survival* in patients taking **immune checkpoint inhibitor** drugs (like Keytruda®).

Those using probiotics were **42% less likely to die** during follow-up than those who did not receive probiotics.¹

Cancer patients are frequently susceptible to infection and are prescribed **antibiotics**, however this has been associated with a higher risk of adverse effects and reduced survival.²

Gut Health Impacts Cancer Treatment

Scientists looking for ways to improve the response to ICI drugs focused on the **gut microbiome**.

That's because a healthy gut microbiome, the mix of microorganisms in our digestive tract, is crucial to the health of the **immune system**.⁹ An unhealthy microbiome can weaken immune function.

As the use of ICIs grew, doctors noted that cancer patients who responded well to these treatments had a more diverse mix of microorganisms and greater proportion of **healthy bacteria** than patients who failed to respond to therapy.¹⁰⁻¹⁴

Furthermore, antibiotics may damage the gut microbiome¹⁵ and are shown in observational studies to be associated with worsened outcomes and shortened survival in ICI treatment.¹⁶ Randomized controlled trials could help confirm if the association is causal; however it is unethical to blind patients susceptible to infection with a placebo.

Prospective observational studies and interventional studies are needed to better understand this association.¹⁷

Other interventions that improved gut health, such as fecal transplants and high fiber dietary interventions, are associated with better outcomes in small studies of patients receiving cancer immunotherapy.² This suggests that probiotics would be useful too.

Probiotics Improved Survival

Following these observations, researchers investigated whether improving the health of the gut microbiome would promote **immune health** and improve the response to ICIs.^{1,13,18,19}

In a meta-analysis published in **2025**, researchers compiled data from 12 studies including **3,142 cancer patients** on ICI therapy. They found that using probiotics was associated with **better overall**

survival and progression-free survival. Those using probiotics had a **42% lower** risk of death during follow-up than those who did not receive them.¹

This means that **probiotic supplements** may be associated with improved survival outcomes in people with cancer undergoing ICI treatment.

Not only that, but progression-free survival refers to a period during which cancer growth is not observed during these treatments. Probiotics extended the duration of that as well.

While ICI medications have improved the outcomes of therapy in many forms of cancer, a simple and inexpensive probiotic supplement may help optimize these therapies and minimize treatment resistance.

The type of probiotic varied from study to study. Several bacterial strains were used, including *Lactobacillus species*, *Bifidobacterium*, *Streptococcus faecalis*, and butyric acid bacteria.¹

The meta-analysis also found that use of probiotics could ameliorate the negative effects of **antibiotics** on ICI treatment.¹

In patients with non-small-cell **lung cancer** who took antibiotics during ICI therapy, use of a probiotic **reduced the chance of death by an astonishing 55%** during follow-up, compared to those not taking a probiotic.¹

While ICIs improve outcomes for many cancers, a probiotic may optimize these therapies and help prevent treatment resistance.



PROBIOTICS USED IN THE CHECKPOINT INHIBITOR STUDIES

The preliminary data from these multiple studies is extremely encouraging for cancer patients being experimentally treated with checkpoint inhibitors and probiotics. Clearly more studies are needed to assess how to best match specific probiotic strains with specific cancers and their treatments.

It is important to note that probiotics come in many different types of strains that have specific targets. In these studies, a variety of specific strains were used in each case. In other words, there is no one probiotic that is appropriate for each situation. Currently, there are no commercial products available that match the formulations used in the studies.

The type of probiotic varied from study to study. Several bacterial strains were used, including *Lactobacillus* species, *Bifidobacterium*, *Streptococcus faecalis*, and butyrate producing bacteria.⁹

These exciting findings of the benefits of specific probiotics being used with cancer treatments require further study. If you are undergoing cancer therapy, please discuss this article with your doctor before taking probiotics. Not every cancer patient would benefit from probiotics during treatment.

As always, **Life Extension** will keep you up to date regarding ongoing developments in this field.



Summary

Immune checkpoint inhibitors (ICIs) have improved outcomes for many people with **cancer**, but resistance to these medications is still common.^{9,20}

A meta-analysis of patients undergoing ICI treatment found that taking a **probiotic** prolonged overall survival and progression-free survival.

Antibiotic use can impair ICI effectiveness. This research found that taking probiotics may help counter this effect and support treatment response.

The addition of a **probiotic** to ICI drugs may support the effectiveness of these cancer treatments and be associated with longer survival. •

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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Advanced Milk Thistle contains standardized, top-grade ingredients of *silymarin*, *silybin*, *isosilybin A*, and *isosilybin B*, providing a full spectrum of liver-supportive compounds.

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60 softgels
1 bottle \$21
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Life Extension's Advanced Milk Thistle has met ConsumerLab.com standards for ingredient and product quality for Milk Thistle in independent testing. More information at www.consumerlab.com



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For occasional sleeplessness.

While many people find **melatonin** helps improve sleep, others take it nightly for its **immune** protection effects.

People often try a range of doses before bedtime to assess what works best for them.



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60 vegetarian capsules
10 mg of melatonin in each vegetarian capsule.
Item #00331
Price: \$15



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60 vegetarian capsules
3 mg of melatonin in each vegetarian capsule.
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Melatonin IR/XR
60 capsules
1.5 mg of combined immediate-release and extended-release melatonin in each capsule.
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Price: \$9



Liquid Melatonin
(Fast-Acting Liquid)
Citrus Vanilla • 2 fl. oz
3 mg of melatonin per 1 mL dropper (approximately 20 drops).
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Price: \$9

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AMPK is an *enzyme* in the body that signals cells to burn **fat** for energy.

Over time, AMPK levels decline and can cause accumulation of **abdominal fat**.

AMPK Metabolic Activator provides gnostemma and hesperidin extracts to:

- Revitalize youthful AMPK activity
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- Promote healthy cellular metabolism

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30 vegetarian tablets
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This supplement should be taken in conjunction with a healthy diet and regular exercise program. Individual results are not guaranteed, and results may vary.



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Don't Let PMS Cramp Your Style

Daily PMS Relief is a nutrient blend designed to help relieve **premenstrual syndrome (PMS) discomforts**.

This formula includes a **ginger extract**, standardized to contain at least **26% gingeroids**—**five times** the amount in standard ginger.

In a clinical study, taking **200 mg** of this extract daily resulted in an average **84% reduction** in menstrual-cramp discomfort score.

It also eased period-related nausea, fatigue, and low back discomfort.¹

Magnesium and **vitamin B6** are included in this nutrient blend.

Taken together daily, in clinical studies, the combination helped alleviate PMS related irritability and mood swings.^{2,3}



Item #02537 | 60 vegetarian capsules

1 bottle **\$15** | 4 bottles **\$13.50** each

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

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H I G H L Y A B S O R B A B L E

ASTAXANTHIN

Supports Whole-Body Health

ASTAXANTHIN is a carotenoid that benefits the eyes, immune system and cognitive functions. Research suggests that astaxanthin can play a role in promoting cardiovascular health.¹⁻⁴

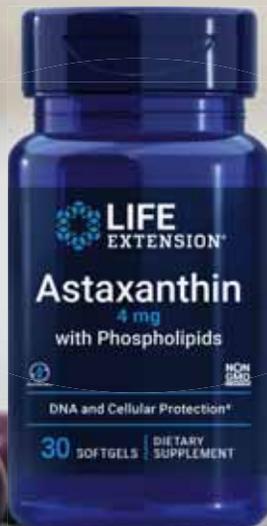
Found naturally in seafood and algae, as little as **50%** of **astaxanthin** is normally **absorbed** in the blood-stream.⁵

Life Extension combines **4 mg** of **astaxanthin** with a blend of four different **phospholipids**, which has been shown to enhance carotenoid **absorption**.⁵

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Item #01923
30 softgels
1 bottle **\$12**
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"I love this supplement for all benefits that it gives you."

Maria

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Restore Optimal GUT HEALTH

Dual-
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FLORASSIST® GI with Phage Technology contains **probiotics**, a **postbiotic** and a **phage** blend—to restore and promote a healthy digestive system.

FLORASSIST® GI with Phage Technology supports digestive health by:

- helping to ease occasional bloating and gas,^{1,2}
- promoting regularity,^{1,2,3}
- maintaining healthy stool consistency and comfort.^{1,2}



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30 Liquid Vegetarian Capsules
1 bottle **28.50**
4 bottles \$25.75 each

For full product description and to order FLORASSIST® GI with Phage Technology, call 1-800-544-4440 or visit www.LifeExtension.com

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MAGNESIUM GLYCINATE For Whole-Body Health

Magnesium is involved in over **600** biochemical reactions in the human body.

Each capsule of **Magnesium Glycinate** provides **105 mg** of elemental magnesium. This can enable healthy magnesium levels to be achieved throughout the body.

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Improve Digestion with Enzymes

BY LAURIE MATHENA



With age, our body produces fewer of the **enzymes** necessary to efficiently break down food.¹

Without sufficient enzymes, undigested food can pass into the colon, where it may cause bloating, gas, diarrhea, and cramping.²

Incomplete digestion limits the body's ability to extract all the nutrients needed for optimal health. This may result in nutrient deficiencies in older adults.^{1,3}

Supplemental **digestive enzymes**, when taken before a meal, may provide additional digestive support to break down food.

This can help relieve digestive concerns and improve nutrient absorption for better overall health.

The Importance of Digestive Enzymes

In people with recurring abdominal pain or discomfort, supplementing with various types of enzyme supplements has been associated with reduced symptoms of digestive discomfort, such as:

- Flatulence/belching,⁴
- Bloating,^{4,5}
- Feeling of fullness,^{4,5} and
- Abdominal pain.⁵

Each major food group—such as **protein, fat, milk, sugar, carbohydrates**, and more—has *specific enzymes* responsible for its breakdown.⁶ A deficiency in any *one* of these enzymes may lead to a wide range of common intestinal troubles.

Let's look at the enzymes one at a time.

PROTEASE

Proteases break down protein.⁷ Aging can impact how the body digests, absorbs, and utilizes protein. Low digestive enzyme activity may reduce protein breakdown, slow digestion, and may increase the risk of protein deficiency and muscle loss in older adults.¹

Aging individuals often benefit from boosting protein intake. Supplementing with protease enzymes may support protein digestion efficiency.

BROMELAIN PROTEASE

Bromelain is a protease enzyme extracted from pineapple stem that contains protein-digesting enzymes (proteases). By breaking down dietary proteins, bromelain may support protein digestion and nutrient absorption.⁸ This may be particularly relevant for individuals whose pancreas does not produce enough digestive enzymes (a condition called exocrine pancreatic insufficiency).

LACTASE

Lactase is an enzyme that breaks down milk sugar (lactose). Lactase activity naturally declines with age, and low lactase activity affects about **70%** of people worldwide. This may contribute to lactose malabsorption, leading to symptoms such as bloating, gas, and diarrhea in people with lactose intolerance.⁹



Avoiding dairy products may alleviate unpleasant symptoms, but it can also result in inadequate calcium intake, increasing the risk of osteoporosis and fractures.¹⁰

Fortunately, supplementation with lactase helps reduce the symptoms of abdominal discomfort in individuals with lactase insufficiency.¹¹

LIPASE

Lipase is an enzyme that breaks down fat. If undigested fats pass through the gastrointestinal tract, they may produce greasy, fatty stools, and cramping. Lack of lipase may also prevent the body from absorbing fat-soluble vitamins like D, K, E, and A.^{12,13}

In healthy adults, taking a lipase supplement before a high-fat meal significantly reduced feelings of stomach fullness 10 minutes after eating, compared with a placebo.¹⁴

CELLULOSE

Cellulose is the name for indigestible plant fiber. Humans cannot digest dietary plant fibers on our own, but intestinal bacteria (friendly flora, our intestinal microbiota) help break them down. However, high-fiber plant foods can cause excessive gas and bloating for many people.^{15,16}

Intestinal bacteria use the enzyme *cellulase* to help break down plant fibers (cellulose).¹⁷ Cellulase supplementation may support tolerance of high-fiber foods so people can reap the benefits of a plant-centric diet, without the unpleasant effects of high amounts of plant fibers.

AMYLASE

Amylase is an enzyme that breaks down carbohydrates and starches. If carbohydrates are not properly broken down and absorbed, they

can ferment in the colon, which may contribute to gas, bloating, abdominal pain, and diarrhea.¹⁸

Summary

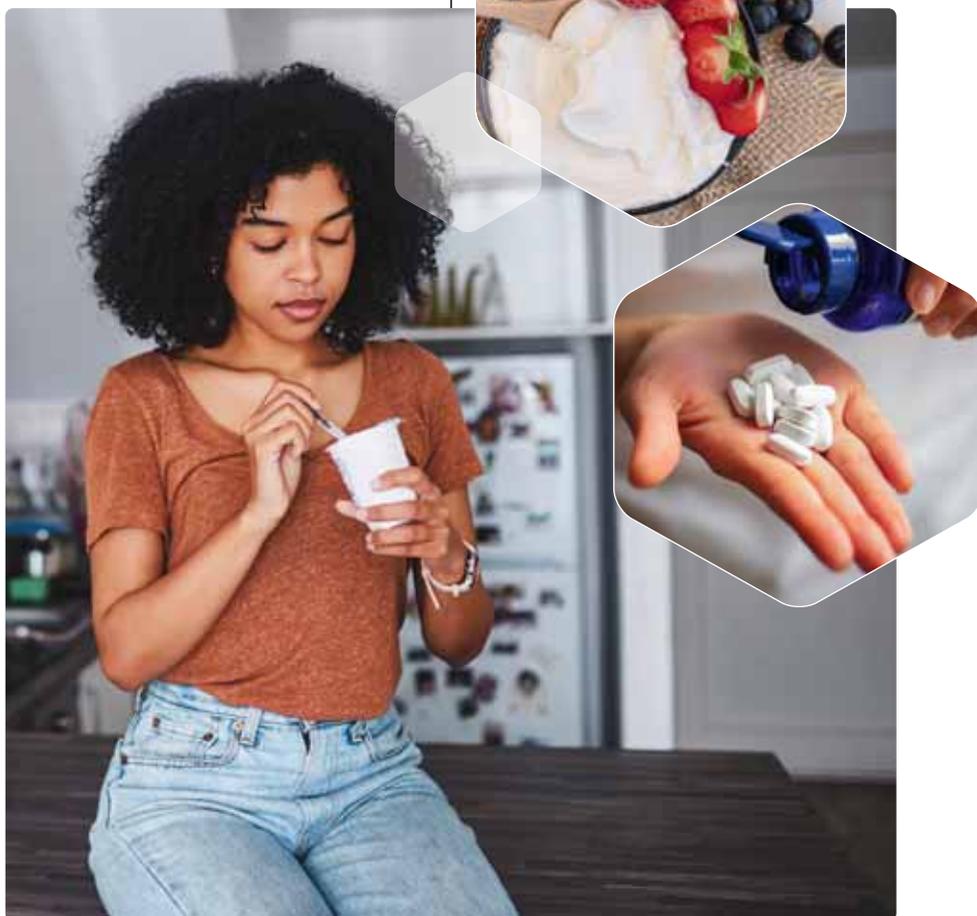
With age, reduced amounts of digestive enzymes may contribute to poor digestion. When food is not properly digested, it may cause bloating, gas, and general discomfort. It can also lead to nutrient deficiencies that can threaten overall health.

When taken orally before a meal, supplemental digestive enzymes may help reduce digestive discomfort, while supporting the body's ability to absorb the nutrients it needs for optimal health and wellness. •

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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Christine

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- Supports nerve cell function.
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METHYLCOBALAMIN

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Dissolve in the mouth or chew one vegetarian lozenge daily.



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4 bottles \$7.50 each



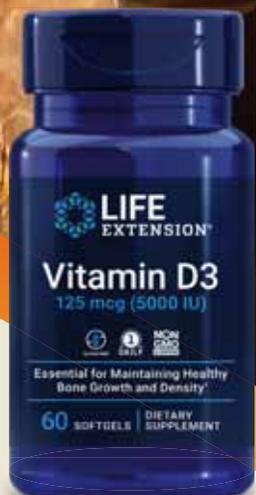
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"Works great!"

Eric

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REVIEW



Let the Sunshine In

D3, the sunshine vitamin, is key to strong bones and immune health

Vitamin D3 is the ultimate whole-body health supporter. A daily dose of D3 also helps maintain healthy cardiovascular function.

Item #01713

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Caution: Individuals consuming more than 50 mcg (2000 IU)/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxy vitamin D measurement. Do not exceed 10000 IU per day unless recommended by your doctor. Vitamin D supplementation is not recommended for individuals with high blood calcium levels.

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"NAC is a powerful tool."

Maury

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TO SUPPORT IMMUNE FUNCTION

N-Acetyl-L-Cysteine (NAC) has been shown to support healthy immune response and respiratory function.

NAC supports healthy levels of *glutathione* that helps promote a healthy **inflammatory response** and protect cells from **oxidative damage**.

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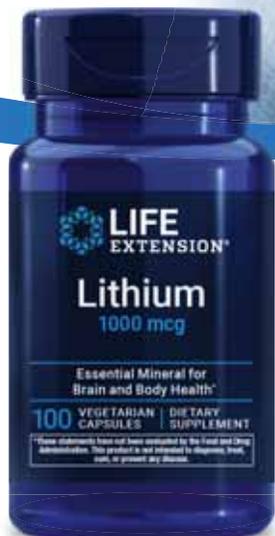
"Good stuff!"

Steven

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REVIEW



A Bodyguard for Your BRAIN



(1000 mcg of lithium per tiny cap)
Item #02403 | 100 vegetarian capsules
1 bottle \$12 | 4 bottles \$10.50 each
Each bottle lasts 100 days.



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

People tend to live longer in areas where lithium is abundant in the drinking water.*

Lithium is a low-cost mineral that functions in several ways to support cognition and overall brain health.

Maintain healthy cognition with lithium—it's like a bodyguard for your brain!

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

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"Great product,
works well."

Lloyd

VERIFIED CUSTOMER
REVIEW



Share a Long, Healthy Life



GLUTEN
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1
DAILY

NON
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LE CERTIFIED

Selenium promotes the body's production of **glutathione**, a powerful cellular antioxidant. It also encourages healthy cell division, thyroid health, and immune function.

Super Selenium Complex combines three complementary forms of selenium with vitamin E for additional antioxidant protection.

Item #01778 • 100 vegetarian capsules

1 bottle \$10.50 • 4 bottles \$9 each

Each bottle provides a supply that lasts more than three months.

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

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Munch

Crunch Digest Your Lunch

(Or breakfast, or dinner...)

Uncomfortable after eating?

Digestive enzymes are specialized proteins that help you break down the foods you eat.*

Enhanced Super Digestive Enzymes combines 10 vegetarian-friendly enzymes to help you break down hard-to-digest foods and encourage a healthy gastrointestinal balance...so you can feel good after you eat!

* Curr Drug Metab. 2016;17(2):187-93.



Item #02021

60 vegetarian capsules
1 bottle **\$16.50**
2 bottles \$15.75 each



For full product description and to order **Enhanced Super Digestive Enzymes**, call **1-800-544-4440** or visit www.LifeExtension.com

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Bolster
RESPIRATORY
HEALTH
All Year Long



BY MARSHA MCCULLOCH, MS, RD

Runny nose. Congestion. Sore throat.

These upper respiratory tract symptoms can be due to the **common cold, influenza**, or environmental **allergies**.^{1,2}

Scientists have found a **probiotic** and a **post-biotic** that can tackle these upper respiratory tract symptoms.

In a **clinical trial**, a specific **probiotic** strain cut the incidence of **colds** and flu by more than **half** compared to a placebo.³

Additionally, a placebo-controlled trial of individuals with seasonal **allergies** showed that a **postbiotic** strain of yeast reduced days with **nasal congestion** by **43%** during high pollen counts.⁴

Combining these ingredients can help support **respiratory health** throughout the year.

Respiratory System Under Attack

Upper respiratory tract symptoms are common:

- Adults average **two to four** colds a year,¹
- **Influenza** afflicts up to **11%** of Americans annually,⁵ and
- **Allergic rhinitis** (allergies) causes nasal symptoms like sneezing or congestion, and affects up to **40%** of people worldwide.⁶

The flu, a common name for influenza, can be dangerous, killing **tens of thousands** of people in the U.S. every year.⁷

Colds are bad enough on their own but can also lead to more severe illnesses like **pneumonia**, especially in immune-compromised individuals.^{8,9}

Respiratory infections may also worsen existing conditions, including **asthma** and **chronic obstructive pulmonary disease (COPD)**.¹

A clinically tested probiotic *and* postbiotic can help **prevent** and **reduce the severity** of respiratory illnesses.

Probiotic Defense

***Lactobacillus rhamnosus* CRL 1505** is a **probiotic** originally isolated from goat's milk in Argentina.¹⁰

The health properties of probiotics are often unique to a specific **strain**.

"**CRL 1505**" refers to the **strain** of the bacteria discussed in this article.



The CRL 1505 strain of *L. rhamnosus* can promote **immune responses** in the **respiratory tract** as well as the gut. It is considered so beneficial to immune health that it was made part of the **nutrition program** for children in Argentina.¹⁰

Preclinical research shows that *L. rhamnosus* CRL 1505 **primes the immune system** to respond and helps clear infections faster.^{11,12}

Preventing Colds and Flu

Young children are an ideal group on whom to test the **respiratory effects** of a probiotic. Their immature immune system puts them at increased risk of catching colds and flu.¹³

In a large placebo-controlled trial, preschool children received **100 million CFU** (colony-forming units) of ***L. rhamnosus* CRL 1505** in yogurt five days a week for six months.¹⁰

During the study, **31%** of the **probiotic group** had upper respiratory tract infections like colds and flu compared to **69%** of those receiving a placebo yogurt, an astonishing difference.

Similarly, only **28%** of children in the treatment group developed **pharyngitis** (sore throat) and **tonsillitis**, while **72%** of those in the placebo group did.

Taking the probiotic also cut instances of **fever** nearly in **half**.

The study found that the treatment group had a **47%** increase in levels of salivary **IgA** (immunoglobulin A), an antibody that protects against viruses and bacteria.¹⁴ Levels in the placebo group were unchanged from baseline.¹⁰

Boosting **IgA** in the respiratory tract helps prevent infections from **colonizing** and **spreading** in the body.¹⁵

Postbiotic Protection

Postbiotics are compounds produced when gut microbes ferment fiber. They can also include inactive microorganisms and their beneficial byproducts. In **human** studies, **postbiotics** have shown immune support, reduced inflammation, and improved gut barrier function.¹⁶

About two decades ago, this was illustrated when an employer discovered that factory workers manufacturing a **yeast** culture took significantly **fewer sick days** than their coworkers with desk jobs.¹⁷

The factory workers were unknowingly inhaling airborne **yeast fermentate**, a **postbiotic**, as part of their daily work.

They also had beneficial changes in their bloodwork compared to their office-based colleagues, including:

- **Higher levels of secretory IgA**,¹⁷ the antibody essential to the mucosal immune system's defense against infection,¹⁴ and
- **Increased activity of natural killer cells**,¹⁷ immune cells that can recognize and rapidly eliminate virus-infected cells.¹⁸

Clinical trials have confirmed that a specific **dried yeast fermentate** promotes IgA production and natural killer cell activity.^{4,19,20}

In one trial in healthy adults, a single 500 mg dose of the yeast fermentate *increased* markers of **natural killer cell** activity within just **two hours**.¹⁹

Easing Allergy Symptoms

After the “accidental” discovery of the immune effects of this **yeast fermentate**, the company went on to make the postbiotic commercially. Its effects have been verified in multiple **clinical trials**.

The benefits of the specialized **dried yeast fermentate** include:

- **Fewer colds and influenza.** In clinical trials of healthy adults, daily intake of **500 mg** of yeast fermentate reduced the **incidence** of **cold** or **flu-like symptoms** by up to **13%** during peak cold and flu season.^{21,22} It also decreased the **duration** of symptoms by **17%**.²¹
- **Reduced seasonal allergies.** When adults with seasonal allergies took **500 mg** of yeast fermentate daily during six weeks of high pollen counts, they had significantly milder **nasal symptoms** and a whopping **43%** fewer days of **nasal congestion** than a placebo group.⁴
- **Decreased effects of histamine.** Histamine is one of the compounds that causes allergy symptoms. In an allergy test, the inflammatory effects of histamine were reduced by **54%** in healthy adults given this **yeast fermentate**.²³



What You
Need
To Know

Fend Off Colds, Flu, and Seasonal Allergies

- Upper respiratory tract ailments, including colds, flu, and environmental allergies, are top causes of sore throats, stuffy noses, and other symptoms.
- The probiotic strain ***Lactobacillus rhamnosus* CRL 1505** primes the immune system to respond to infections faster. In a clinical trial, it cut the incidence of **colds** and **flu** by **more than half** compared to a placebo.
- Placebo-controlled trials have shown that taking **500 mg** daily of a specific **yeast fermentate**, a postbiotic, can decrease the incidence and duration of colds and flu and dramatically reduce seasonal allergy symptoms.
- A **combination** of these ingredients can help ward off colds, flu, and allergy symptoms year-round.

In another clinical trial, taking the specialized yeast fermentate significantly reduced the need for respiratory medications.²⁴

Combining yeast fermentate with the probiotic *Lactobacillus rhamnosus* CRL 1505 may provide powerful protection against symptoms of allergies, colds, and flu.

Summary

There's a way to help counter cold, flu, and seasonal allergies.

Clinical trials have shown that the probiotic ***Lactobacillus rhamnosus* CRL 1505** and a **yeast fermentate** can reduce the incidence and duration of **colds and flu**.

This yeast fermentate can also significantly ease symptoms of seasonal **allergies**.

These ingredients each bolster the immune system's ability to quickly respond to respiratory invaders. ■

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

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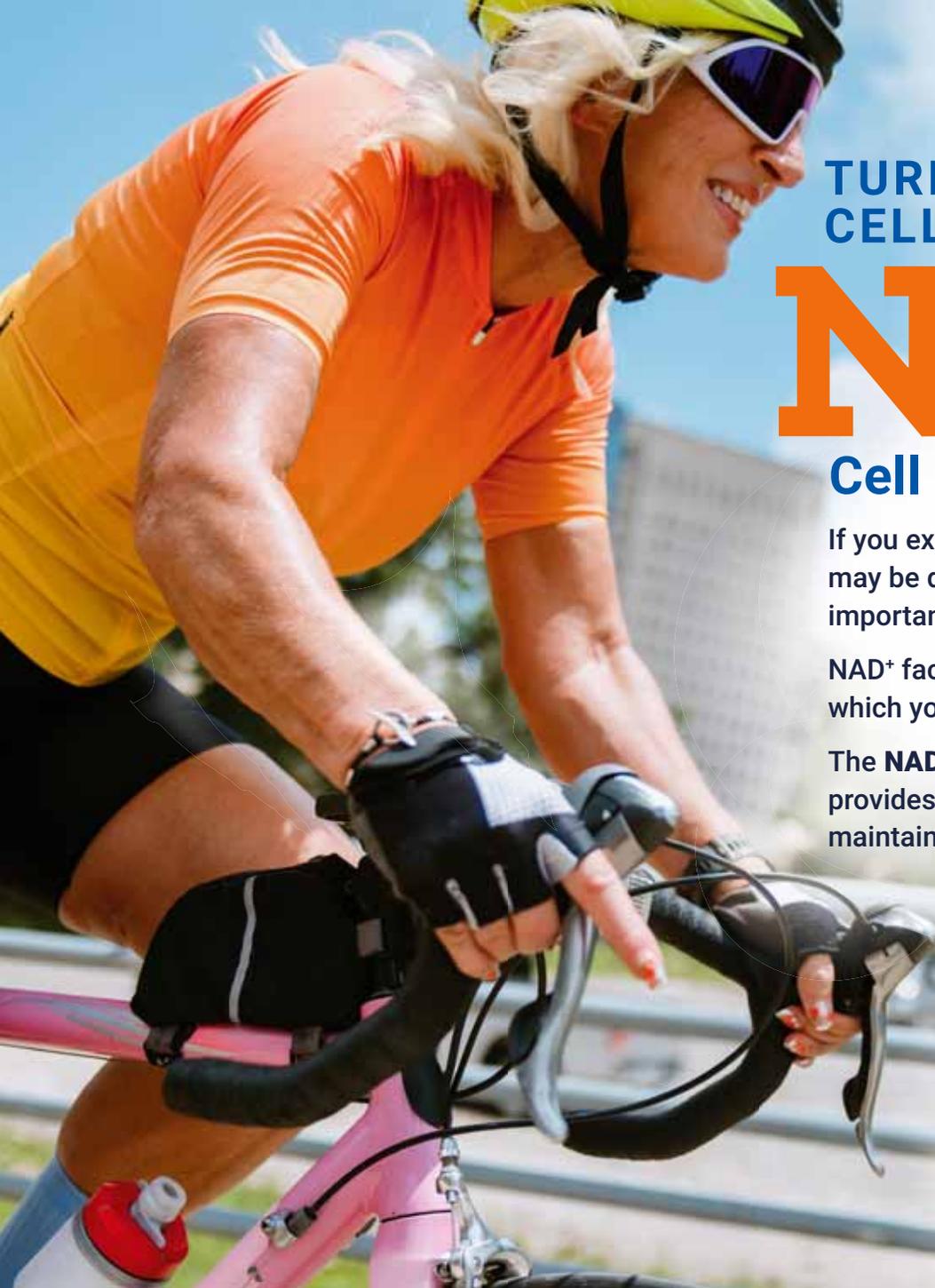
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120 capsules
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Chickpeas

BY LAURIE MATHENA

Chickpeas, also known as garbanzo beans, are a nutrient-packed legume with well-researched health benefits.

Common in Middle Eastern, Indian, and Mediterranean cuisines, chickpeas not only add a nutty flavor and grainy texture to meals, but may also help support healthy blood sugar, cholesterol, and body weight.

They have an unusually high amount of protein and fiber for a plant food (**14 grams** and **12 grams** per cup, respectively).¹ They provide about **4 grams** of fat per cup,¹ which is relatively lower compared to other legumes, and a majority of the fats are unsaturated.²

This unique nutritional profile makes chickpeas beneficial for satiety, weight management, nutrient absorption, blood sugar control, and more.²

Preclinical studies also support broader metabolic benefits. In a study of rats on a high-fat diet, adding chickpeas reduced abdominal fat, improved blood lipid profiles, lowered triglyceride levels in fat and liver, normalized fat-processing enzymes, and enhanced sensitivity and blood sugar control, compared to rats on a high-fat diet alone.³

Chickpeas may also support heart health. In a randomized, crossover trial involving 47 adults, eating chickpeas every day for at least five weeks lowered total cholesterol by **3.9%** and reduced LDL (“bad”) cholesterol by **4.6%**, compared to those on a wheat-supplemented diet.⁴

A review of 28 studies found that people who ate chickpeas had much lower post-meal blood sugar spikes compared to those who ate similar carbohydrate foods.⁵

Another meta-analysis of 12 studies involving 182 healthy adults found that chickpeas were more effective at reducing after-meal blood sugar spikes than potatoes or wheat. The researchers suggested that this benefit comes from chickpeas’ slow digestion and their high protein and fiber content, which help support healthy blood sugar responses.⁶

Overall, these findings suggest that including chickpeas in your regular diet could be a simple and effective strategy for supporting blood sugar regulation, heart health, and metabolic wellness. •

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Tina

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Caution: Supplemental zinc can inhibit the absorption and availability of copper. If more than 50 mg of supplemental zinc is to be taken daily for more than four weeks, 2 mg of supplemental copper should also be taken to prevent copper deficiency.

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spring

summer

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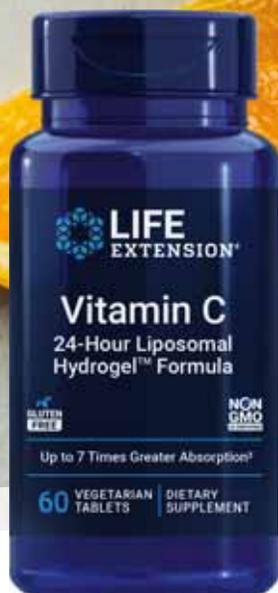
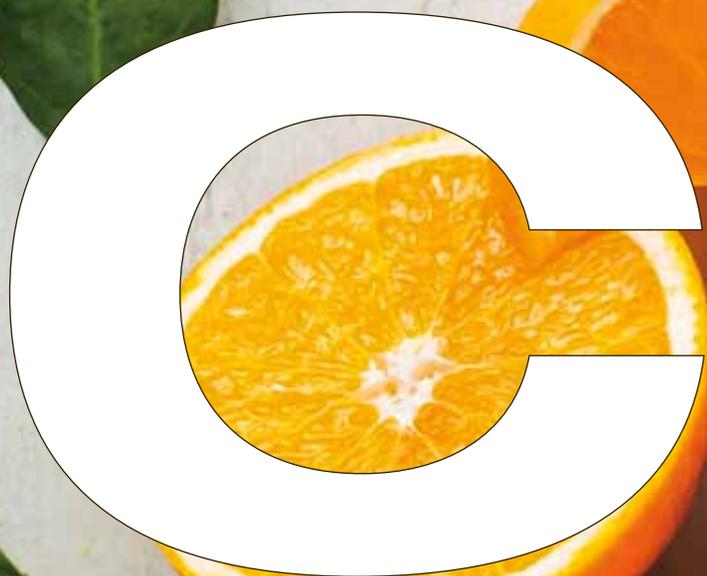
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REVIEW

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Just one vegetarian tablet daily provides **around-the-clock** vitamin C support.

References 1. Akay Internal Study. Liposomal vitamin C (calcium ascorbate) pharmacokinetics. Data on file. 2021.
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- 02419 B12 Elite
- 02510 Brain Fog Relief
- 01659 CDP Choline
- 02321 Cognitex® Alpha GPC

- 02396 Cognitex® Elite
- 02397 Cognitex® Elite Pregnenolone
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- 02006 Dopa-Mind™
- 02413 Dopamine Advantage
- 01658 Ginkgo Biloba Certified Extract™
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- 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 InSea²® and Crominex® 3+
- 01620 CoffeeGenic® Green Coffee Extract
- 02122 Glycemic Guard™
- 00925 Mega Benfotiamine
- 01803 Tri Sugar Shield®

HEART HEALTH

- 02530 Aged Black Garlic
- 01066 Aspirin (Enteric Coated)
- 01842 BioActive Folate & Vitamin B12 Caps
- 02531 Cardio Peak™
- 02121 Homocysteine Resist
- 02508 Omega-3 Fish Oil Gummy Bites
- 02018 Optimized Carnitine
- 01949 Super-Absorbable CoQ10 Ubiquinone with d-Limonene • 50 mg, 60 softgels
- 01951 Super-Absorbable CoQ10 Ubiquinone with d-Limonene • 100 mg, 60 softgels
- 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

- 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 veg capsules
- 02368 Optimized Broccoli with Myrosinase
- 00302 Pregnenolone • 50 mg, 100 capsules
- 00700 Pregnenolone • 100 mg, 100 capsules
- 01468 Triple Action Cruciferous Vegetable Extract
- 01469 Triple Action Cruciferous Vegetable Extract and Resveratrol

IMMUNE SUPPORT

- 02546 Bee Immune Propolis Capsules
- 02550 Bee Immune Propolis Spray
- 02302 Bio-Quercetin®
- 02433 Echinacea Elite
- 01961 Enhanced Zinc Lozenges
- 02425 Immune Packs with Vitamin C & D, Zinc and Probiotic
- 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 5-LOX Inhibitor with AprèsFlex®
- 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 veg capsules
- 02407 Curcumin Elite™ Turmeric Extract 60 veg 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)
- 02231 NT2 Collagen™

KIDNEY & BLADDER SUPPORT

- 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 veg capsules
- 01534 N-Acetyl-L-Cysteine
- 01884 Silymarin
- 02361 SOD Booster

LONGEVITY & WELLNESS

- 00457 Alpha-Lipoic Acid
- 02414 Bio-Fisetin®
- 02547 Bio-Luteolin™
- 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
- 01919 X-R Shield

LUNG HEALTH

- 02512 Healthy Lungs

MEN'S HEALTH

- 02538 Hair Growth for Men
- 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
- 02364 Life Extension Mix™ Capsules without Copper
- 02356 Life Extension Mix™ Powder
- 02355 Life Extension Mix™ Tablets
- 02357 Life Extension Mix™ Tablets with Extra Niacin
- 02365 Life Extension Mix™ Tablets without Copper
- 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
- 02252 Youthful Legs

PET CARE

- 01932 Cat Mix
- 01931 Dog Mix

PROBIOTICS

- 01622 Bifido GI Balance
- 02421 FLORASSIST® Daily Bowel Regularity
- 02125 FLORASSIST® GI with Phage Technology
- 01821 FLORASSIST® Heart Health
- 02250 FLORASSIST® Mood Improve
- 02208 FLORASSIST® Immune & Nasal Defense
- 02120 FLORASSIST® Oral Hygiene
- 02203 FLORASSIST® Prebiotic
- 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
- 02096 Skin Restoring Ceramides
- 02528 Vegan Pro Collagen

SLEEP

- 01512 Bioactive Milk Peptides
- 01511 Enhanced Sleep without Melatonin
- 02234 Fast-Acting Liquid Melatonin
- 01669 Glycine
- 02308 Herbal Sleep PM
- 01722 L-Tryptophan
- 01668 Melatonin • 300 mcg, 100 veg capsules
- 01083 Melatonin • 500 mcg, 200 veg capsules
- 00329 Melatonin • 1 mg, 60 capsules
- 00330 Melatonin • 3 mg, 60 veg capsules
- 00331 Melatonin • 10 mg, 60 veg capsules
- 00332 Melatonin • 3 mg, 60 veg lozenges
- 02201 Melatonin IR/XR
- 01787 Melatonin 6 Hour Timed Release
300 mcg, 100 veg tablets
- 01788 Melatonin 6 Hour Timed Release
750 mcg, 60 veg tablets
- 01786 Melatonin 6 Hour Timed Release
3 mg, 60 veg tabs
- 01721 Optimized Tryptophan Plus
- 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 veg lozenges
- 01537 Vitamin B12 Methylcobalamin
5 mg, 60 veg lozenges
- 02228 Vitamin C and Bio-Quercetin®
60 veg tablets
- 02227 Vitamin C and Bio-Quercetin®
250 veg 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 veg 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



Hair so Nice, They'll Look Twice!

Hair Growth for Men is a **plant-derived** formula that *supports* the normal growth cycle for **healthy hair**.

In a clinical trial, a proprietary blend of **black rice seed** and **prickly pear** flower extracts helped to:¹

- Support hair health
- Promote hair fullness and density

This formula also features a standardized **saw palmetto** oil that in a 4-month clinical trial demonstrated support for:²

- Fuller hair with more density
- Reduced hair shedding
- Healthy hair appearance

Just one **Hair Growth for Men** softgel daily can help maintain healthy hair.

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



Item #02538
30 softgels
1 bottle **\$21**
4 bottles \$19 each

References: 1. *J Cosmo Tricho.* 2023;9(3):207. 2. *Clin Cosmet Investig Dermatol.* 2023 Nov 11;16:3251-3266.
Actrisave® is a registered trademark of Bionap S.r.l. VI-SPO® is a trademark of Vidya Herbs Inc. and used with permission.

"Super product!"

Richard

VERIFIED CUSTOMER
REVIEW

CoQ10

FOR HEART HEALTH AND GENERAL FATIGUE

CoQ10 helps energize every cell in your body.

But standard CoQ10 (called ubiquinone) isn't as well absorbed.

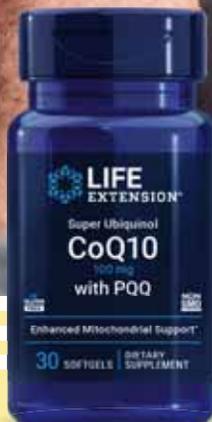
The ubiquinol form of CoQ10 maintains higher blood concentrations.



Item #01426 | Best Seller

Our customer favorite
CoQ10 formula

100 mg • 60 softgels • 2-month supply
1 bottle **\$42**
4 bottles \$37.50 each



Item #01733 | Best in Class

Supercharged heart health &
general fatigue fighter

100 mg ubiquinol + 10 mg PQQ
30 softgels
1 bottle **\$33.75**
4 bottles \$29 each



Item #01431

Our maximum
dose ubiquinol

200 mg • 30 softgels
1 bottle **\$39**
4 bottles \$35 each

#1 Rated CoQ10 Products - 6 Time Winner!

For full product description and to order **Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™**, or **Super Ubiquinol CoQ10 with PQQ**, call 1-800-544-4440 or visit www.LifeExtension.com

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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.



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The Science of a Healthier Life®

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IN THIS EDITION OF *LIFE EXTENSION MAGAZINE*®



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7 **AMERICA'S NEW PAIN DRUG PROBLEM**

Prescriptions have skyrocketed for alternatives to **opioid** drugs. These non-opioid drugs can be addictive and are riskier than previously believed.

22 **DIVERSE EFFECTS OF POMEGRANATE ON AGING**

Densely packed with synergistic nutrients, **pomegranate** may help forestall common disorders related to **biological aging**.



34



45

34 **LOW BACK PAIN RELIEF**

Two **plant extracts** significantly *reduced lower back pain* for **79%** of patients in 30 days. In a separate trial, another plant extract eliminated chronic low back pain for **22%** of subjects after four weeks.

45 **IMPROVE SURVIVAL DURING CANCER TREATMENT**

Cancer patients on a common class of immunotherapy drugs who took **probiotics** had prolonged progression-free survival. The **probiotic** group was **42%** *less* likely to die during follow-up.

55 **IMPROVE DIGESTION WITH ENZYMES**

With age, the body produces fewer **digestive enzymes**, which may cause bloating, gas, general discomfort, and nutrient deficiencies.



55



64

64 **RESPIRATORY HEALTH**

A **probiotic** clinically *reduced cold and flu* incidence by more than **half**, while a **postbiotic** *reduced* days with **nasal congestion** in seasonal allergy sufferers by **43%**.

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