



The Science of a Healthier Life®

July/August | 2024

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Soothe **LOWER BACK PAIN** without Drugs



PLUS:
How aged black garlic
protects the heart

Add AMPK

TO YOUR HEALTH ROUTINE

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AMPK Metabolic Activator provides gynostemma and hesperidin extracts to:

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- Encourage use of abdominal fat for energy
- Promote healthy cellular metabolism



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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. Actiponin® is a trademark of TG Biotech Co., Ltd.

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.



"I have been taking it
for many years
would not stop."

Alicia

VERIFIED CUSTOMER
REVIEW

Power Up Your Hard-Working Heart

CoQ10

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

Item #01733 | Best in Class
Supercharged heart health &
general fatigue fighter

100 mg • 30 softgels

Item #01431
Our maximum
dose ubiquinol

200 mg • 30 softgels

These products are available at fine health food stores everywhere.



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ARE YOU LEAVING NUTRIENTS ON THE TABLE?

A plant-based diet offers many health benefits, but it can mean you're missing out on important nutrients. Our science-based supplements can help fill dietary gaps with no animal by-products.



Whole Food Multivitamin

Item #02428 • 90 vegetarian capsules

- The equivalent of three servings of vegetables and two servings of fruit
- Encourages cellular health and a healthy immune response
- Protects against oxidative stress, promoting bone, heart and brain health



Vegan Vitamin D3

Item #02422 • 125 mcg (5000 IU)
60 vegan capsules

- Promotes cognitive health and healthy bone density
- Helps maintain a healthy immune response
- Derived from algae (not animals!)



Vegetarian DHA

Item #01640 • 30 vegetarian softgels

- Supports healthy cognitive function at any age
- May support healthy mood in adults
- Helps maintain eye health

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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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BORON

PROMOTES HEALTHY PROSTATE FUNCTION and HEALTHY BONES

Each capsule provides **3 mg** of boron divided into three bioavailable different forms:

- **Boron citrate**
- **Boron aspartate**
- **Boron glycinate**

There are **3 mg** of boron in the daily dose of each of the following **Life Extension®** formulas:

- **Two-Per-Day**
- **Bone Restore**
- **Ultra Prostate Formula**
- **Life Extension Mix™**

The suggested daily dose for most adults is **6-9 mg** of boron.^{1,2} If you are already obtaining this potency in your multi-nutrient formulas, you may not need additional boron.

This product is available at fine health food stores everywhere.

Item #01661

100 vegetarian capsules

References

1. *Open Orthop J.* 2012;6:143-9.
2. *Altern Med Rev.* 2004 Dec;9(4):434-7.



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

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

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

Restore Smoother, Youthful-Looking Skin from the Inside Out

This product is available at fine health food stores everywhere.

Item #02096

30 liquid vegetarian capsules

Contains wheat. Gluten free.



GLUTEN
FREE

1
DAILY

NON
GMO
LE CERTIFIED

VEGETARIAN
LE CERTIFIED

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REPORTS



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ON THE COVER

Ease Back Pain

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

10 IN THE NEWS

Low brain levels of taurine in women linked to depression; low vitamin D underdiagnosed prior to wrist fractures; higher niacin intake may lower ED risk; getting systolic blood pressure below **120 mmHg** reduces cardiovascular events.

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SELENIUM PROMOTES NEW BRAIN CELL GROWTH

A recent animal study found **selenium** promotes the growth of **new brain cells**. Selenium may also protect against cognitive decline in humans.

16 HIDDEN POWER OF MUSHROOMS

Higher **mushroom** intake may reduce all-cause mortality by **35%**. A mushroom compound helps *protect* against **telomere shortening**, **DNA damage**, and **cognitive decline**.

24 WHAT ARE PREBIOTICS?

A **prebiotic** helps restore healthy *Bifidobacteria*, while reducing cholesterol, triglycerides, and blood sugar.

38 RESTORE YOUTHFUL FREE TESTOSTERONE

Reduced **free testosterone** increases health risks as well as feelings of fatigue. In a placebo-controlled **human trial**, a pomegranate-cacao blend **increased** critical **free testosterone** by **48%**.

48 POMEGRANATE PROMOTES HEART HEALTH

Studies show that **pomegranate** promotes multiple aspects of **heart health**, from improved endothelial function to reduced platelet aggregation.

58 WHAT IS BILBERRY?

Studies show that **bilberry** may protect against **eye** disorders like glaucoma and cataracts, as well as cardiovascular issues and type II diabetes.

64 NOVEL CARDIOVASCULAR SUPPORT

Aged black garlic contains a compound with **cardiovascular benefits**. **Clinical data** show aged black garlic *improved* cardiovascular markers in just **12 weeks**.

74 MORE COMPLETE SUN PROTECTION

A **clinical study** found that an oral **fern extract** protected the skin from photo-aging and *decreased* UV-radiation-induced DNA mutations by **84%**.

82 SOLUTIONS: IMPROVE HEALTH AND APPEARANCE OF LEG VEINS

Two **flavonoids** derived from citrus were found to improve **vein** health including **varicose veins**, and chronic venous insufficiency.



AGING CAN WAIT



Item #02527

Net Wt. 210 g

We've combined taurine for cardiovascular health, lithium for mood and spermidine from wheat germ extract for cognitive health into an unflavored, easy-to-mix powder.



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Contributors

Michael Downey • Steve Clark • Heather L. Makar
Laurie Mathena • Richard Stevens

Advertising

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

Vice President, Business Development

Carolyn Bouchard • cbouchard@lifeextension.com • 954-202-7685

Circulation & Distribution

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

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

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

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Letters to the Editor, PO Box 407198, Fort Lauderdale, FL 33340

or email us: LEmagazine@LifeExtension.com

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14
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Gustavo Tovar Baez, MD, operates the Life Extension Clinic in Caracas, Venezuela. He is the first physician in Caracas to specialize in anti-aging medicine.

Ricardo Bernales, MD, is a board-certified pediatrician and general practitioner in Chicago, IL, focusing on allergies, bronchial asthma, and immunodeficiency.

Mark S. Bezzek, MD, FACP, FAARM, FAAEM, is board-certified in internal medicine, emergency medicine, and anti-aging/regenerative medicine. He is the director of Med-Link Consulting, which specializes in bioidentical hormone replacement therapy, natural alternatives, anti-aging, and degenerative diseases. He holds U.S. patents for a multivitamin/mineral supplement, an Alzheimer's/dementia compilation, and a diabetic regimen.

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

William Davis, MD, is a preventive cardiologist and author of *Wheat Belly: Lose the Wheat, Lose the Weight and Find Your Path Back to Health*. He is also medical director of the online heart disease prevention and reversal program, *Track Your Plaque* (www.trackyourplaque.com).

Martin Dayton, MD, DO, practices at the Sunny Isles Medical Center in North Miami Beach, FL. His focus is on nutrition, aging, chelation therapy, holistic medicine, and oxidative medicine.

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

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

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

Norman R. Gay, MD, is proprietor of the Bahamas Anti-Aging Medical Institute in Nassau, Bahamas. A former member of the Bahamian Parliament, he served as Minister of Health and Minister of Youth and Sports.

Mitchell J. Ghen, DO, PhD, holds a doctorate in holistic health and anti-aging and serves on the faculty of medicine at the Benemerita Universidad Autonoma De Puebla, Mexico, as a professor of cellular hematopoietic studies.

Gary Goldfaden, MD, is a clinical dermatologist and a lifetime member of the American Academy of Dermatology. He is the founder of Academy Dermatology of Hollywood, FL, and COSMESIS Skin Care.

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

Richard Heifetz, MD, is a board-certified anesthesiologist in Santa Rosa, CA, specializing in the delivery of anesthesia for office-based, plastic/cosmetic surgery, chelation therapy, and pain management.

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

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

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

Philip Lee Miller, MD, is founder and medical director of the Los Gatos Longevity Institute in Los Gatos, CA.

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

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

Lambert Titus K. Parker, MD, an internist and a board-certified anti-aging physician, practices integrative medicine from a human ecology perspective with emphasis on personalized brain health, biomarkers, genomics and total health optimization. He serves as the Medical Director of Integrative Longevity Institute of Virginia, a 501(c)3 Non-Profit Medical Research Institute. He also collaborates on education and research for Hampton Roads Hyperbaric Therapy.

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

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

Allan Rashford, MD, graduated from the University of Iowa Medical School. Upon completing medical training, he became chief of medicine at St. Francis Hospital in South Carolina, and he was later named president of the Charleston Medical Society.

Marc R. Rose, MD, practices ophthalmology in Los Angeles, CA, and is president of the Rose Eye Medical Group. He is on the staff of Pacific Alliance Medical Center, Los Angeles, and other area hospitals.

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

Ron Rothenberg, MD, is a full clinical professor at the University of California San Diego School of Medicine and founder of California HealthSpan Institute in San Diego.

Roman Rozencwaig, MD, is a pioneer in research on melatonin and aging. He practices in Montreal, Canada, as research associate at Montreal General Hospital, Department of Medicine, McGill University.

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

Ronald L. Shuler, BS, DDS, CCN, LN, is involved in immunoncology for the prevention and treatment of cancer, human growth hormone secretagogues, and osteoporosis. He is board-certified in anti-aging medicine.



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



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



John Boik, PhD, is the author of two books on cancer therapy, *Cancer and Natural Medicine* (1996) and *Natural Compounds in Cancer Therapy* (2001). He earned his doctorate at the University of Texas Graduate School of Biomedical Sciences with research at the MD Anderson Cancer Center, focusing on screening models to identify promising new anti-cancer drugs. He conducted his postdoctoral training at Stanford University's Department of Statistics.



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



Deborah F. Harding, MD, is founder of the Harding Anti-Aging Center. She is double board-certified in internal medicine and sleep disorder medicine. She also earned the Cenegenics certification in age management medicine. She is a faculty member of the University of Central Florida Medical School.



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

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



L. Ray Matthews, MD, FACS, is a professor of surgery and director of Surgical Critical Care at Morehouse School of Medicine in Atlanta, GA, and a trauma and critical care surgeon at Grady Memorial Hospital. He has published widely and is known as one of the top vitamin D experts. Dr. Matthews has spoken before the U.S. Food and Drug Administration several times, presenting a recent update about clinical research on vitamin D.



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



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



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



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



In the News

Low Taurine Levels Linked to Depression in Women

Low levels of **taurine** within the hippocampus are associated with major depressive disorder in young women, according to a study published in *Biological Psychiatry*.*

The hippocampus is part of the brain that plays a major role in memory and emotion.

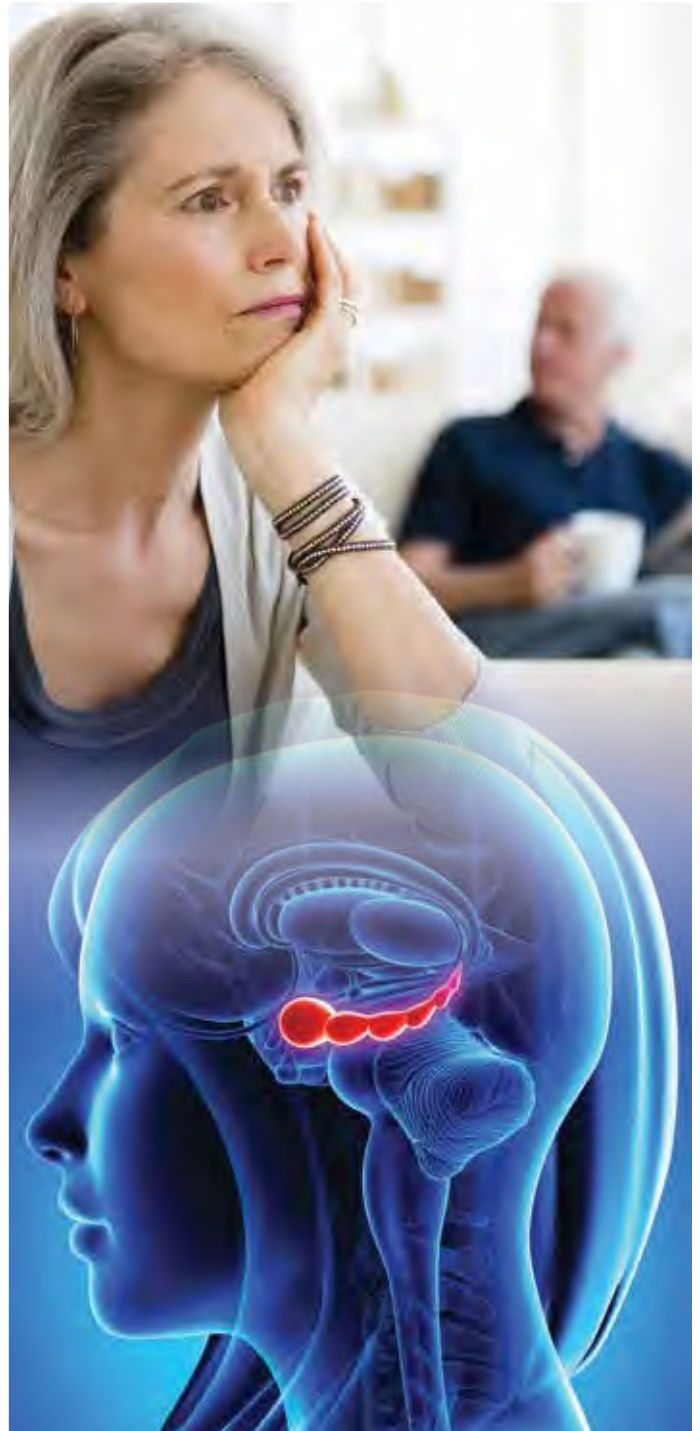
The study included 41 unmedicated women, 18-29 years old, with major depressive disorder, and 43 healthy controls.

To measure taurine levels in the hippocampus the researchers used proton magnetic resonance spectroscopy at 7T which is an enhanced version of a tool that shows metabolic changes occurring in the body.

“The key finding of this study is that the concentration of taurine in the hippocampus of young women with major **depressive** disorder was lower by **19%** compared with that of young women in the healthy controls group,” the researchers stated.

Editor’s Note: Taurine supplementation may help relieve some symptoms of major depressive disorder, the researchers asserted.

* *Biol Psychiatry*. 2023 Sep 9:S0006-3223(23)01558-5.



Vitamin D Insufficiency Under-Detected Prior to Wrist Fractures

A significant number of patients with distal radius (wrist) fractures had shown signs of having osteoporosis prior to their fractures, but they did not receive this diagnosis or treatment for it, a recent study revealed.*

The study evaluated 102 people, 46-91 years of age, who underwent surgery for distal radius fracture.

Blood levels of vitamin D were used to help determine whether there was an indication for prior osteoporosis diagnosis. In addition, a questionnaire was completed for a guideline-based osteoporosis diagnosis. Fracture risk was assessed separately by the Fracture Risk Assessment Tool®, which includes factors such as age, sex, weight, height, medical history, and bone mineral density.

The results showed monthly levels of **vitamin D** over the course of a year averaged only **23 ng/mL**, which are significantly below recommend levels. Despite indications for an osteoporosis diagnosis prior to the fracture in three-quarters of the patients, less than half received one. The fracture risk assessment tool showed that **57%** of the patients had indications for receiving specific osteoporosis treatment before the fracture incident.

Editor's Note: These study results highlight the importance of evaluating osteoporosis and fracture risk in aging people, which should include routine monitoring of vitamin D levels. **Life Extension®** suggests that optimal levels of vitamin D are between **50-80 ng/mL**.

* *Arch Orthop Trauma Surg* (2024).
<https://doi.org/10.1007/s00402-024-05199-4>.



Erectile Dysfunction Risk Reduced with Greater Intake of B Vitamin Niacin

An association was seen between increased intake of the B vitamin niacin and a lower risk of erectile dysfunction (ED), a recent study found.*

Participants included 3,184 men who enrolled in the 2001–2004 National Health and Nutrition Examination Survey (NHANES), 863 of whom had ED. The men responded to questionnaires concerning food intake for two 24-hour periods, which were analyzed to determine niacin content.

As niacin intake increased, a decrease was observed in ED risk.

After adjusting for factors that might influence ED risk (such as age, body mass index, smoking, drinking status, cardiovascular disease, high cholesterol, hypertension, diabetes and testosterone levels) men whose niacin intake was among the top **one-third** of participants had a risk of ED that was **56%** less than those who had the lowest intake of the vitamin.

* *Asian J Androl.*:202378, January 30, 2024.

Reducing Systolic Blood Pressure to Below 120 mmHg Lowers Cardiovascular Events

Findings from a clinical trial presented at the American Heart Association's Scientific Sessions 2023 support the recommendation of achieving a systolic blood pressure of less than 120 mmHg to help protect against cardiovascular events.*

The ESPRIT trial randomized **11,255** hypertensive adults with established cardiovascular disease or at least two major risk factors for cardiovascular disease, to receive either intensive blood pressure therapy that targeted systolic blood pressure below **120 mmHg** or standard treatment that targeted systolic pressure to only less than **140 mmHg** for a period of three years.

After two years, compared with standard treatment, intensive treatment prevented **12%** of heart attacks, stroke, revascularization procedures, death from cardiovascular causes, or hospitalization or emergency department visits for heart failure.

Intensive treatment was associated with a **39% reduction** of mortality from cardiovascular causes and **21% decrease** in all-cause **mortality**.

Editor's Note: Those in the intensive treatment group were prescribed several classes of drugs and received higher doses than the standard treatment group.

* <https://newsroom.heart.org/news/reducing-systolic-blood-pressure-to-less-than-120-mm-hg-reduced-cardiovascular-event-risk>



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

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- **1,000 mg** of **XOS** (xylooligosaccharides) per prebiotic chewable.

Item #02203

60 vegetarian chewable tablets

This product is available at fine health
food stores everywhere.

References

1. *Front Microbiol.* 2016;7:1204.
2. *Korean J Nutr.* 2007;40(2):154-61.



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Give the Old You a **Helping Hand**

"Helps your body do what it
needs to do."

Richard

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debris so healthy cells can flourish, and help
maintain the balance between cytokine
compounds that keep your body in harmony.
Pro-Resolving Mediators. Feel like you again.

Item #02223
30 softgels



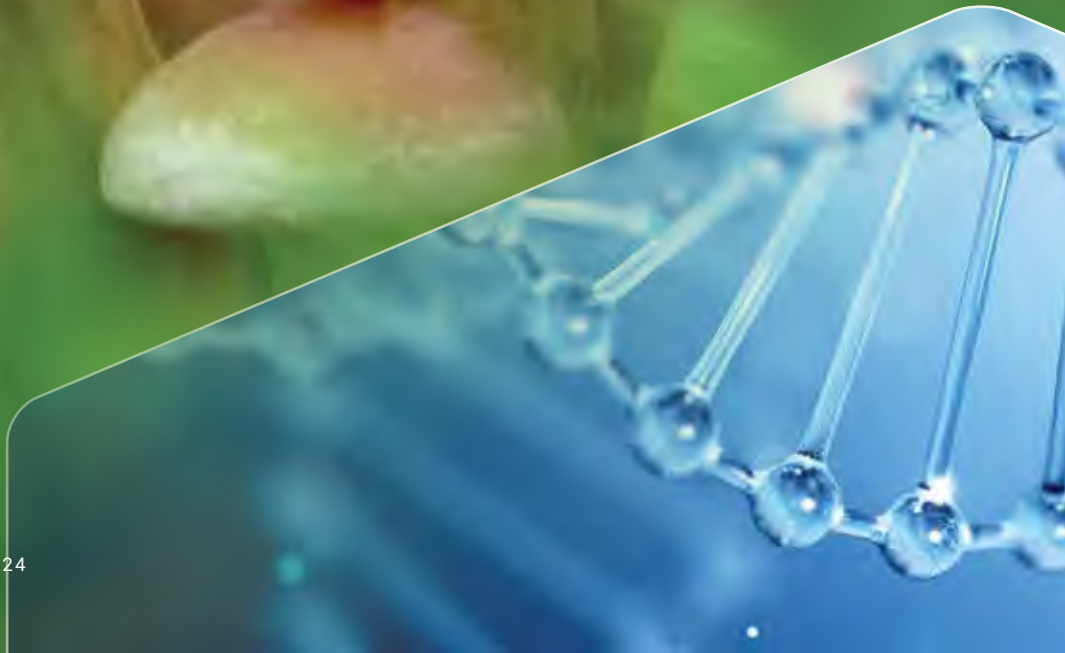
This product is available at fine health food stores everywhere.



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The Hidden Power of MUSHROOMS





BY HEATHER L. MAKAR

The results of a population study published in 2021 were striking:

Among more than 15,000 participants followed over 20 years, those who regularly consumed **mushrooms** had a **16% lower risk of death**.

Those who had just **one** serving a day of mushrooms rather than red or processed meat saw a staggering **35% decrease** in all-cause mortality.¹

Scientists believe one particular amino acid found in mushrooms may be the secret to their health benefits: **L-ergothioneine**.

This compound is so essential to human health, our cell membranes have **transporters** to specifically deliver L-ergothioneine into cells.

In preclinical studies this amino acid has been shown to defend against DNA damage^{2,3} and telomere shortening.⁴ Other preclinical studies show ergothioneine has brain-protective properties.^{5,6}

Multiple studies, including a prospective **randomized-placebo controlled trial**, have indicated an important role for **ergothioneine** in preserving brain and cognitive function.⁷⁻¹⁰

And an innovative prospective observational study found that higher ergothioneine was significantly associated with better **heart** health outcomes.¹¹

What Is L-Ergothioneine?

L-ergothioneine is an amino acid found in relatively high concentrations in **mushrooms** and other **fungi**, and in smaller amounts in a few other foods.^{12,13}

Our bodies can't produce it, yet we have dedicated **transporter proteins** that shuttle L-ergothioneine from our diet into cells throughout the body.¹⁰

Due to the high specificity of this transporter for ergothioneine, it can transport L-ergothioneine **100 times** more efficiently than other compounds. And this transporter can be found in cells and tissues throughout the body, so that ergothioneine is widely distributed.^{10,14}

Dysregulated **oxidative stress** may be a potential driver of aging and chronic disease.¹⁵ L-ergothioneine can promote the glutathione regeneration cycle.¹⁴ it may allow more glutathione to be **preserved**.^{9,13}

A preclinical study showed that **L-ergothioneine** can neutralize harmful oxidizing compounds before they damage mitochondria and other cellular structures.¹⁶

Promoting Healthier Aging

L-ergothioneine may be a powerful ally in **slowing aging**.

Tissues that are typically exposed to *higher* levels of damaging oxidative stress, such as eyes, brain, and red blood cells, have *higher* concentrations



of **L-ergothioneine transporters**, indicating that these tissues have a greater need for this beneficial compound.¹⁰

One study of 15,546 adults found that those who consumed mushrooms had a **16% lower mortality risk** over a 20-year period than those who did not eat mushrooms. Replacing a single serving of processed or red meat with mushrooms was associated with a **35% decrease in death** from all causes.¹ The study authors suggested that the benefits of the mushroom-rich diet may be attributable to their ergothioneine content.¹

Preserving Telomeres

Telomeres, the protective caps on the ends of chromosomes, shorten with age. This shortening is a marker of aging and has been associated with **decreased lifespan**.

Maintaining telomere length is a major focus of anti-aging research.

In a **human cell** study, researchers found that **L-ergothioneine** treatment significantly **reduced the rate of telomere shortening**.⁴ This action may help maintain cellular vitality and promote longevity.

This study achieved significant results in only a short **eight-week period**. Results were even more dramatic in cells exposed to additional **oxidative stress** conditions.⁴

Researchers believe **L-ergothioneine** may preserve telomeres by activating **telomerase**, the enzyme that lengthens telomere caps, which typically isn't active in healthy adult cells.

Guarding DNA

Our **DNA** is constantly damaged, both by normal metabolic processes and by outside influences like ultraviolet (UV) radiation and pollution. Failure to repair damaged DNA can lead to mutations, cellular dysfunction, and increased risk of **cancer**.¹⁷

L-ergothioneine appears to be able to **protect DNA integrity** by enhancing cellular repair functions and blocking some of the damage that can cause breaks and mutations.

For example, it can absorb UV light at the same wavelengths that DNA does, acting as a **built-in sunscreen** in skin cells that may protect against skin cancer. Preclinical evidence also shows that it can help support DNA repair processes in cells exposed to UV radiation and other DNA-damaging agents.^{2,18}



Preserving Brain Function

L-ergothioneine and its transporter are present throughout the brain, in multiple regions, including those involved in cognitive function, learning and memory.⁶ Several studies have linked **L-ergothioneine** to better **brain health**.

Studies have found that the decline in blood levels of this amino acid have been observed in people showing signs of **cognitive decline** and **neurodegenerative conditions** more than in healthy adults.^{8,9,19} This suggests that L-ergothioneine has a potential role in maintaining **cognitive function** and brain health as we age.^{9,20}

In preclinical studies L-ergothioneine enhances memory by promoting nerve cell maturation²¹ and the formation of new neurons,⁶ vital for learning and memory.

By protecting brain cells from oxidative stress, L-ergothioneine may help preserve cognitive function. In one prospective observational study, people aged 60 and over had lower ergothioneine blood levels, and those with mild cognitive impairment had especially low levels.⁹

In a **trial** with both healthy adults and individuals with **mild cognitive impairment**, consumption of a mushroom extract containing **5 mg** of L-ergothioneine daily for 12 weeks resulted in significant *improvements* in verbal memory, working memory, sustained attention, and other measures of **cognitive function** compared to a placebo group.⁷

L-Ergothioneine's Role in Healthy Aging

- **L-ergothioneine** is an amino acid found in mushrooms. Though our bodies do not produce it, we have dedicated transporter proteins to shuttle it into cells, suggesting its importance.
- In a prospective observational study, those who consumed more mushrooms had a **16% lower risk of death** than those who didn't, an effect the authors suggested may result from high ergothioneine content.
- L-ergothioneine may promote healthy aging by combating oxidative stress, reducing the rate of telomere shortening, and enhancing DNA repair.
- In a randomized controlled trial of adults with mild cognitive impairment, taking **5 mg** of L-ergothioneine daily significantly improved measures of **cognitive function**.
- Higher L-ergothioneine levels in the body were associated with better heart health and a **21% reduction in cardiovascular mortality** in a prospective observational study.

Cardiovascular Health

Research also shows that higher **L-ergothioneine** levels are associated with improved cardiovascular health.¹¹

A population study involving more than 3,200 subjects found that higher levels of **L-ergothioneine in the body** were associated with a **15% lower risk of coronary artery disease**, a **21% reduction in cardiovascular mortality**, and a **14% reduction in overall mortality**.¹¹

Daily L-ergothioneine intake may promote improved heart, brain, and overall health well into older age.

Summary

Scientists believe that the amino acid **L-ergothioneine** may be the key compound in **mushrooms** responsible for their health-promoting benefits.

It can combat **oxidative stress**, slow the rate of **telomere shortening**, preserve **cardiovascular health** and **cognitive function**, and support **DNA repair**.

In a population study, those consuming mushrooms high in **L-ergothioneine** had a significantly lower risk of death.

Those who don't include mushrooms in their daily diet may consider L-ergothioneine supplements. •



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The Cherry on Top

Magnesium is a sweet way to prioritize whole-body health—especially the heart and bones.

With two different forms that provide immediate- and longer-lasting benefits, you'll savor **Extend-Release Magnesium** long after you've taken it.

"Great product."

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VERIFIED CUSTOMER
REVIEW



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This product is available at fine health food stores everywhere.

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

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The Vitamin B Family is Complex. So is our formula.



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There's a whole bunch of different vitamin Bs out there, and you need all of them to stay sharp and full of energy.

There's also better vitamin Bs—forms of each nutrient that are easier for your body to use, absorb...or both.

BioActive Complete B-Complex is purpose-built to give you all the best vitamin Bs that your body needs so you can “B” at your most healthy.

This product is available at fine health food stores everywhere.



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

SUPPORT **HEALTHY LIPID LEVELS**



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ADVANCED LIPID CONTROL
CAN HELP SUPPORT
HEART HEALTH.



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ADVANCED LIPID CONTROL
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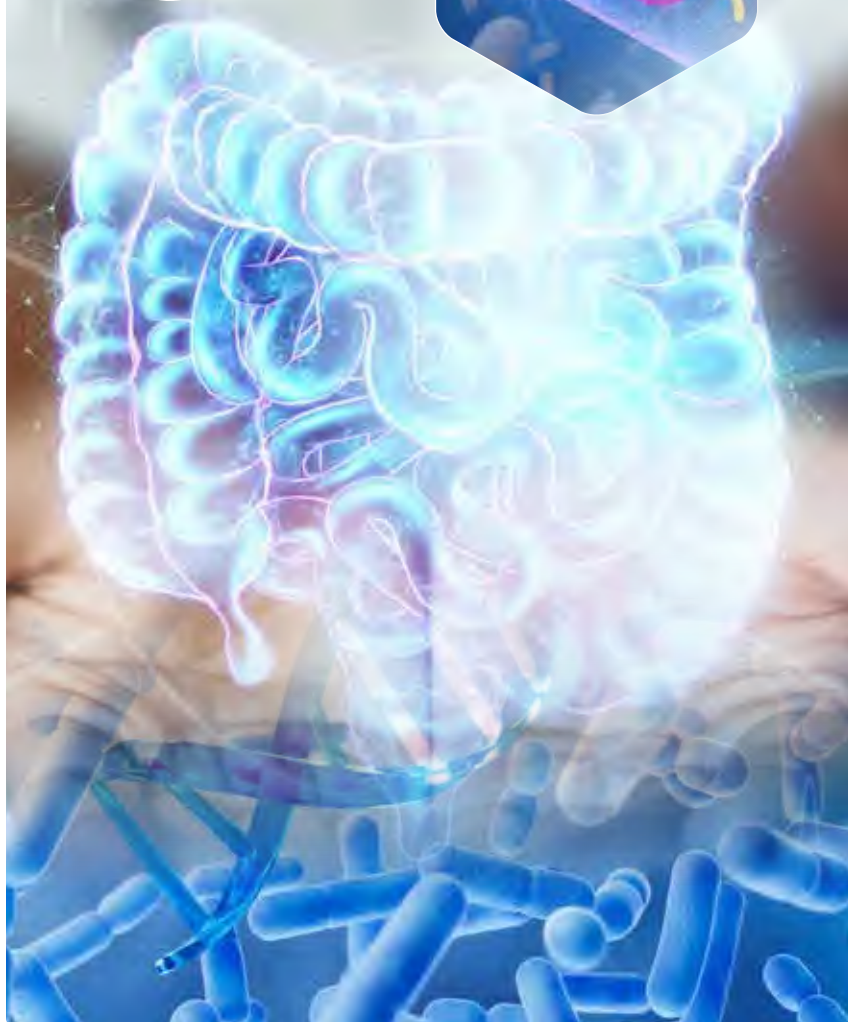
*BMC Complement Altern Med. 2019;19:97.



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What are Prebiotics?

BY LAURIE MATHENA



Prebiotics and **probiotics** work hand-in-hand to promote optimal digestive health.

Probiotics are live microorganisms that help you keep healthy when consumed in appropriate amounts, while **prebiotics** are non-digestible fermentable fibers that feed the growth and activity of **healthy bacteria**.

One prebiotic type is called **xylo-oligosaccharides**—sometimes shortened to **XOS**—and is particularly beneficial for two key reasons.

First, it helps restore healthy levels of *Bifidobacteria*.¹⁻³ These are beneficial bacteria associated with protection against allergies, high cholesterol levels, respiratory diseases, and more.⁴

Second, it works at small doses, minimizing unpleasant side effects often associated with other prebiotics.³

XOS prebiotics have been shown to safely reduce levels of cholesterol, triglycerides, and blood sugar.^{5,6}

A New and Improved Prebiotic

Prebiotics are foods that nourish and promote healthy gut flora.^{7,8}

For a food ingredient to be classified as a prebiotic, it must resist digestion, be fermented by intestinal microorganisms, and stimulate the growth and/or activity of beneficial bacteria.^{8,9}

Prebiotics are essential for a healthy gut by supporting and feeding the trillions of friendly bacteria residing in the digestive tract. These helpful bacteria support immunity, healthy metabolism, cardiovascular health, and even mood.¹⁰⁻¹³

Many commercial **prebiotics** require large doses to provide optimal digestive health support. This can cause flatulence, bloating, and general digestive discomfort.¹⁴

Xylooligosaccharides (XOS) are a unique prebiotic, made from corn cobs. Since only a small dose is required,^{3,15} this may help avoid the unpleasant side effects of commercial prebiotics.³

XOS Works Fast, With Fewer Side Effects

Up to **60%** of the gut microbiota of infants is composed of a group of bacteria known as ***Bifidobacteria***.

By adulthood this level declines to **30%-40%** of total gut microbes, to **10%** in late middle age, and by old age it drops to less than **5%** of original youthful levels. These beneficial bacteria are associated with protection against conditions including allergies, high cholesterol levels, and respiratory diseases.⁴

A variety of research models, from animal to clinical trials, have found that ***Bifidobacteria*** levels are reduced in some digestive disorders, infections, and in auto-immune arthritis.¹⁶

XOS significantly boosts levels of *bifidobacteria*.^{3,17}

In a **double-blind, randomized, placebo-controlled study**, 32 healthy subjects were divided into three groups that took either:³

- A placebo,
- **1.4 grams** of XOS, or
- **2.8 grams** of XOS.

After eight weeks of daily supplementation, both treatment groups had increases in *Bifidobacteria*, with no significant side effects. However, those taking **2.8 grams** daily of XOS had significantly *larger* increases than the lower-dose group.

Even the larger XOS dose is less than what other prebiotics require to increase the beneficial bacteria.

For example, you'd have to take **10 grams to 20 grams** of a common prebiotic called FOS (**fructooligosaccharides**) to achieve

similar increases in *Bifidobacteria*. Doses this high can cause gastrointestinal discomfort.

In addition to the *smaller dose* required, XOS produces results in a *shorter amount of time*.

A second study found that people taking **2.8 grams** of XOS daily achieved significant increases in *bifidobacteria* in **just 14 days**.¹⁷

Gastrointestinal and Metabolic Improvements

Increasing levels of *Bifidobacteria* with the prebiotic **XOS** produces important metabolic and gastrointestinal improvements such as:¹⁷

- **Decreased triglycerides and cholesterol** in the blood and increased levels in feces.
- **Decreased blood sugar**, protecting against type II diabetes and metabolic syndrome.
- **Increased fecal acidity**, which inhibits less-desirable bacteria and promotes healthy bacteria.¹⁶



Summary

Higher levels of *Bifidobacteria* in the gastrointestinal tract are associated with resistance to a wide range of age-related diseases. Unfortunately, the levels decline with age.

Human studies show that a **pre-biotic** called **XOS** (xylooligosaccharide) boosts bifidobacteria in as little as two weeks.

It also works at **low doses**, which helps avoid uncomfortable side effects often associated with other prebiotics.

XOS has also been shown to reduce cholesterol, triglycerides, and blood sugar, which are risk factors for conditions like cardiovascular disease and diabetes. •

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The 'Healthy Aging' Amino Acid

Essential Youth with L-Ergothioneine

L-ergothioneine is a nutrient derived from the amino acid histidine and found naturally in mushrooms.

L-ergothioneine may support healthy aging by:

- Protecting **mitochondrial DNA** function¹
- Helping to maintain **telomere** length²
- Supporting **DNA function** in cells subjected to UV exposure³

One daily capsule of **Essential Youth** provides **5 mg** of **L-ergothioneine**.

One daily capsule provides as much **L-ergothioneine** as up to 2 to 5 cups of white button mushrooms.^{4,5}



Item #02431

30 vegetarian capsules

This product is available
at fine health food stores everywhere.

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"Interest in intimacy has been heightened since beginning this supplement."

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VERIFIED CUSTOMER REVIEW



**PLANT-BASED
NUTRIENTS**

Testosterone builds muscle, maintains sexual health, supports cardiac function, strengthens bones, and nourishes brain cells.^{1,2}

Testosterone Elite helps maintain healthy testosterone levels.†

- A clinical trial showed that **pomegranate** and **cacao** elevated **free testosterone** levels **48%** in just eight weeks.³
- **Luteolin** increases a protein for testosterone synthesis and inhibits aromatase, an enzyme that breaks down testosterone.^{4,6}

Just one capsule a day.

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30 vegetarian capsules



† This product is intended to support testosterone levels but does not contain testosterone.



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Maintain Endothelial
Plaque Stability with

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ARTERIAL PROTECT can help stabilize endothelial plaque and promote healthy blood flow throughout the body.*

Each capsule provides the patented French Maritime **pine bark extract** used in clinical studies along with **Gotu Kola**.

This product is available at fine health food stores everywhere.

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30 vegetarian capsules

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



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Ginger



Safely BANISH BACK PAIN



Chinese Chaste Tree

BY MICHAEL DOWNEY

According to national survey data, **8.2%** of American adults have chronic, severe back pain, and about **75%** of those have difficulties with mobility.¹

Many pain medications are associated with side effects, prompting people to seek alternative treatments.²⁻⁶

Scientists identified **two plant-derived extracts** that they believed could potentially **reduce back pain** without adverse effects.

When these extracts were *combined*, **79%** of patients in a **clinical study** reported a *significant reduction* in back pain in just 30 days.⁷

These results suggest that taking these plant-derived ingredients *together* may deliver a drug-free improvement in **back pain**.



Back Pain is Widespread

Back pain can severely limit mobility and daily activities. It is the leading cause of work limitations worldwide.⁸

About **50%-80%** of adults will experience at least one episode of **back pain** during their lifetime. **Low back pain** is most prevalent in those aged **75 years** and older.⁸

Many people turn to **non-steroidal anti-inflammatory drugs (NSAIDs)** like ibuprofen (Advil®, Motrin®), naproxen (Aleve®), acetaminophen (Tylenol®) or high-dose aspirin to treat it.

But these medications can come with side effects, including increased risk of heart attack, stroke, kidney damage, and liver failure.⁹

Others turn to **cortisone injections** into their back that may work temporarily, but long term usage can contribute to progression of arthritis,¹⁰ osteoporosis,¹⁰ and cartilage damage.¹¹

Searching for a safer option, scientists evaluated several **plant-derived** compounds. Two extracts emerged as promising candidates for safe resolutions of back pain.

Chinese Chaste Tree and Ginger

Chinese chaste tree, also known as **Five-leaf chaste tree**, is a flowering shrub that grows in parts of Asia and the Middle East. Its scientific name is *Vitex negundo*.¹²

It is rich in **phytoactives** (plant-based compounds) and has long been used in traditional medicine to treat a range of ailments.

In ayurveda (Indian traditional medicine) it is known for its anti-inflammatory, antimicrobial, hepatoprotective, analgesic, and anti-rheumatic activity. Researchers noted that in ayurvedic medicine, Chinese chaste tree is called “the remedy for all diseases.”^{13,14}

Ginger is a flowering plant that originated in Southern Asia. Its root has been used in Eastern cuisine and traditional medicine for centuries.¹⁵

Ginger root contains the potent compound **gingerol**, known for its ability to reduce pro-inflammatory proteins. This may explain why ginger has shown promise in treating various forms of pain.¹⁵

To study the *combined* effect of these plants on **back pain**, investigators blended extracts of **chaste tree leaves** and **ginger root**. This blend was then evaluated in a **human** trial.

Robust Pain Relief

Scientists enlisted 72 men and women, aged 18-60, who had experienced occasional **back pain** for under a year, with a most recent episode of back pain that lasted 7–12 weeks.⁷

In this **clinical trial**, participants were randomized to receive either a **placebo** or **200 mg** of the **chaste tree-ginger** extract blend twice daily.



Ground and Sliced Ginger



Chinese Chaste Tree
Leaf and Fruit



WHAT
YOU
NEED
TO
KNOW

Lasting Relief for Back Pain

- **Back pain** can make life miserable, but pain-relieving drugs come with serious health risks.
- **Two** plant-derived extracts have demonstrated safe and significant relief of **back pain**.
- In a clinical study, a blend of **Chinese chaste tree** and **ginger** extracts significantly reduced back pain in **79%** of patients while improving functional activity and bending flexibility.
- Together, these two extracts may reduce **back pain**.

Summary

Back pain can severely harm quality of life.

Chronic use of drugs commonly used to treat it are linked to serious side effects.

Seeking safer, long-term options, scientists identified two plant-derived extracts with anti-inflammatory and analgesic effects.

In a clinical trial, a blend of **Chinese chaste tree** and **ginger** extracts reduced **pain** intensity, and increased functional activity and bending flexibility. •

After **30 days**, among those taking the **plant extract** combination:⁷

- **79%** reported clinically meaningful improvement in lower back **pain intensity** versus **6%** receiving **placebo**,
- **76.5%** reported clinically meaningful improvement in **functional activity** versus **30%** receiving **placebo**, and
- Subjects had a **40%** improvement in **bending flexibility** versus **17%** in the **placebo** group.

How They Work

Pre-clinical research shows that extracts of **Chinese chaste tree** and **ginger** reduce factors in the body like **NF-kB (nuclear factor-kappa B)** and **xanthin oxidase** that drive persistent **inflammation**.¹⁶⁻²⁰

For many pain sufferers, suppressing **pro-inflammatory** factors resolves chronic back discomforts.

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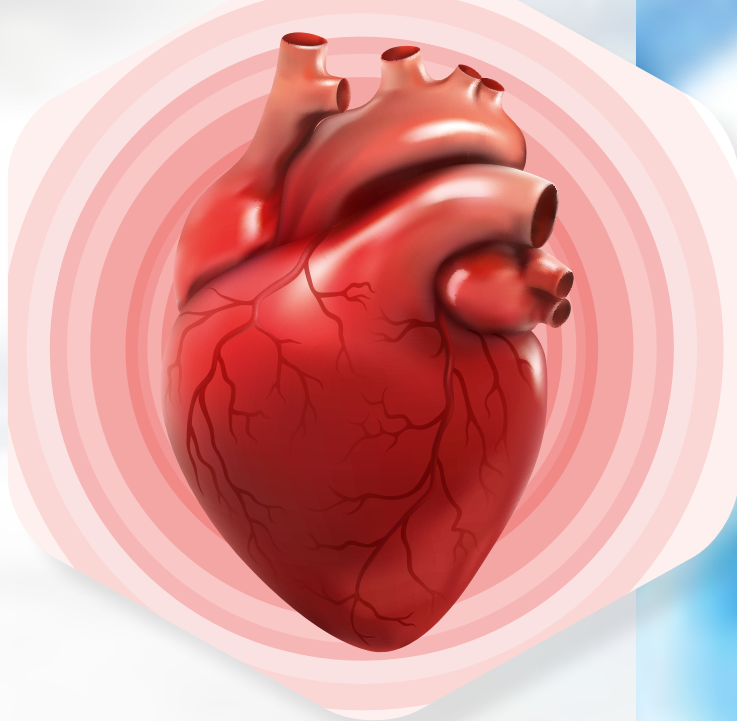
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Restore Youthful **FREE** Testosterone





BY MICHAEL DOWNEY

As men age, they frequently experience symptoms including low libido, erectile dysfunction, reduced strength/muscle mass, fatigue, and even depression.¹⁻³

Many of these issues are associated with **low testosterone**.

With age, testosterone levels fall at an average rate of about **1%-2%** each year.²

But the *real problem* is lack of testosterone in its **free, biologically active** form.

In a **clinical study**, aging men who received a blend of plant-based nutrients increased their **free testosterone** levels by **48%**.⁴

The benefits included a nearly **25% increase** in a measure of strength and a **19% improvement** in symptoms like low libido, exhaustion, anxiety, and feeling burned out.⁴

Dangers of Low Testosterone

Testosterone is a hormone crucial for development of the male reproductive system and impacts many different functions throughout the body. Common **low testosterone** symptoms include diminished sexual desire, erectile dysfunction, fatigue, reduced muscle mass and strength, and overall loss of youthful well-being.

Testosterone deficiency in men has been correlated with a greater risk of:⁵⁻¹²

- Cardiovascular disease,
- Osteoporosis,
- Chronic inflammation,
- Neurodegeneration, including cognitive decline and Alzheimer's disease,
- Metabolic syndrome and type II diabetes,
- Prostate cancer,
- Depression, and
- All-cause mortality.

Importance of Free Testosterone

Raising free **testosterone levels** in aging men is critical.

Testosterone circulates in the blood in two forms, bound to sex hormone-binding globulin (SHBG), albumin, and other proteins; and as unbound **free testosterone**.¹³

The most biologically active form is **free testosterone**, and people are often surprised to learn that only up to **3%** of their testosterone is in this bioactive “free” form.¹⁴

This leaves about **97%** of **total testosterone** that is not available for the body to use. It is not available to the cells because it is bound to proteins in the blood.

With age, critical **free testosterone** levels tend to decline.¹³

Overweight men are at an even higher risk for low testosterone.¹³ Being overweight or obese is associated with increased levels of the enzyme **aromatase**, which converts testosterone into **estrogen**.^{15,16}

Pomegranate and Cacao Boost Testosterone

Seeking a safe and drug-free way to raise **testosterone** levels, scientists took note of a study presented at an endocrinology conference over a decade ago.

The study found that in healthy adults, intake of **pomegranate** juice for just **two weeks** increased salivary testosterone levels by **23%-27%**. Measures of mood and well-being also improved.¹⁷

These findings inspired researchers to screen hundreds of **plant extracts** and nutrients for their ability to raise **testosterone** levels.



Pomegranate

Cacao



WHAT
YOU
NEED
TO
KNOW

In a study using testes cells from mice, researchers confirmed that **pomegranate extract** raised testosterone production.¹⁸

In the same study, they discovered that an extract of **cacao seed**, from the beans used to make cocoa and chocolate, *also* significantly increased testosterone production.¹⁸

Researchers then combined **pomegranate** and **cacao seed** extracts and found that *together*, they boosted **total testosterone** levels in rats by over **72%** in just **six weeks**.^{19,20}

Human Trials

To evaluate pomegranate and cacao extracts in **humans**, researchers gave men aged 36 to 55 either a blend of these extracts or a placebo.

After eight weeks, levels of **free testosterone** in men receiving **400 mg** of the **pomegranate-cacao blend** were elevated by over **48%** compared to baseline.⁴

In addition, in men taking the **pomegranate-cacao blend**:⁴

- Overall well-being improved,
- Measures of stress dropped by **26%**, and
- Hand grip strength increased by almost **25%**.

Boost Testosterone for Better Health

- Around age 30, testosterone levels in men begin to drop steadily, especially biologically active **free testosterone**.
- **Low testosterone** is associated with erectile dysfunction, virility loss, fatigue, low strength, and serious health issues including heart disease, diabetes, cognitive decline, and all-cause mortality.
- In a human trial, a blend of **pomegranate** and **cacao seed** extracts increased **free testosterone** by **48%** and led to increased strength, reduced stress, and improvements in symptoms like low libido, exhaustion, and depression.
- Preclinical studies show that the flavonoid **luteolin** may also support **testosterone** production and prevent its conversion into estrogen.
- Combining luteolin with pomegranate and cacao extracts may help men maintain healthy, youthful free testosterone levels at any age.

The **pomegranate-cacao** group also reduced their symptoms on the **Aging Males' Symptoms** scale by **19%**.⁴ These symptoms include:²¹

- Joint pain and muscle aches,
- Excessive sweating,
- Sleep problems and exhaustion,
- Anxiety and irritability,
- Depression and feeling burned out,
- Decrease in libido, and
- Other sexual problems.

Raising testosterone in younger men is more challenging, because their levels have not yet dropped as much.

Surprisingly, even in men aged **21 to 35**, in a separate trial, a **pomegranate-cacao** blend increased **free testosterone** by **25%**. After four weeks of supplementation, hand grip strength and the circumference of the upper arm significantly increased as well.¹⁹

Luteolin Supports Testosterone Production

Preclinical studies have shown that a *third* ingredient can support healthy **testosterone** levels.

Luteolin is a flavonoid found in certain plants, including celery, broccoli, parsley, and thyme.

Cell and animal studies show that **luteolin** may support healthy testosterone levels by:

- Increasing **steroidogenic acute regulatory (StAR) protein**, an *enzyme* required for testosterone production,²² and
- Inhibiting **aromatase**, the enzyme that converts testosterone into estrogen.²³⁻²⁵

A combination of **pomegranate**, **cacao**, and **luteolin** may maximize support for healthy **free testosterone** levels in men.



Optimum Testosterone Levels

The best way to check **free** and **total testosterone** levels is with simple **blood tests**.

In men, the optimal ranges for testosterone in the blood are:

- Free testosterone: **15-25 pg/mL**.
- Total testosterone: **600-900 ng/dL**.

Summary

Around age **30**, **testosterone** levels in men begin to decline. Critical **free testosterone** levels drop.

Low testosterone is associated with loss of energy and strength, low libido, erectile dysfunction, increased risk for heart disease, diabetes, cognitive decline, and death from any cause.

In a clinical study, **pomegranate** and **cacao seed** extracts increased **free testosterone** by **48%**, reduced stress, boosted strength, and improved symptoms like low libido and exhaustion.

Preclinical studies suggest that the flavonoid **luteolin** also supports youthful testosterone levels.

Together, these ingredients may help men boost **free testosterone**, maintaining healthy vigor while helping to prevent serious disorders. •

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* J Back Musculoskeletal Rehabil. 2023 Nov 20. BMR-230197.

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(to inhibit LDL oxidation)

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(to extend stability of DHA in the blood)

4. Astaxanthin

(protects against lipid peroxidation)

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(a source of EPA/DHA)



Item #01988

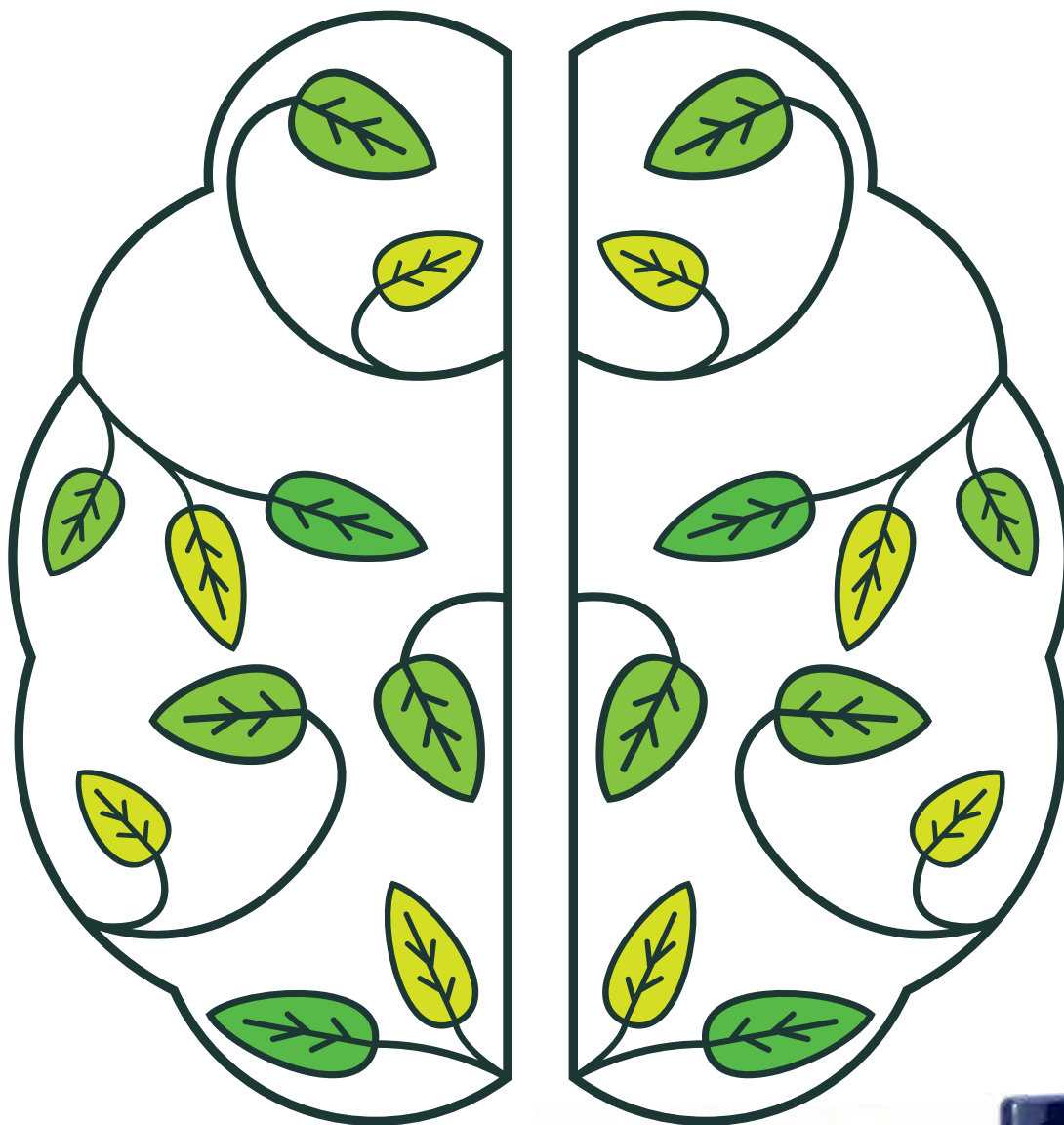
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Ashwagandha has been shown to:

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Optimized Ashwagandha provides **standardized** leaf and root **extracts** at a low cost.



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POMEGRANATE

Promotes Heart Health



BY RICHARD STEVENS

Heart disease is the world's leading cause of death.^{1,2} Yet many of the risk factors associated with it are largely preventable or controllable through changes in diet or nutrition.³

Pomegranate is a nutrient-dense superfood that has been consumed for millennia and has become popular all over the world.⁴ It is packed with compounds that have been shown in preclinical models to possess antioxidant and anti-inflammatory effects.^{4,5}

One of its most impressive properties demonstrated in preclinical settings is its ability to protect the **heart** in multiple ways, including by preventing and even reversing **endothelial dysfunction**⁶—a major contributor to **atherosclerosis**, the buildup of plaque in the arteries.⁷

Its benefits for the **heart** are enormous. Across many different kinds of studies, pomegranate extracts have been found to reduce blood clots in animals,⁸ reduce cholesterol and triglycerides in animals,⁹ improve blood flow in young healthy adults,¹⁰ and lower blood pressure in humans.^{11,12}

In a **clinical trial**, pomegranate has been shown to *reverse* atherosclerotic changes in patients with carotid artery stenosis.¹¹

These benefits may reduce risks for **cardiovascular diseases**.



A Nutritional Powerhouse

Pomegranate has been recognized as one of the oldest known edible fruits.⁴

All parts of the pomegranate plant, including the fruit, leaves, peel, seeds, and flowers, are packed with beneficial compounds. These include anthocyanins, organic acids, flavonoids, and tannins.⁴

These potent bioactive compounds, found in **pomegranate fruit, juice, and extracts**, have been shown to have health-promoting properties, with the potential to help improve or control inflammation, diabetes, blood lipid levels, and more. A number of clinical trials have confirmed the benefits, especially for blood pressure.⁴

By preventing and reversing **endothelial dysfunction**, pomegranate may help protect the cardiovascular system against the life-threatening processes that lead to high blood pressure, atherosclerosis, and eventually heart attacks and strokes.^{4,6}

Endothelial dysfunction affects the delicate tissue (**endothelium**) lining the inside of blood vessels. It is a major contributor to **atherosclerosis**, the buildup of plaque in the arteries. Atherosclerosis, in turn, is the leading cause of **heart disease, heart attacks, and strokes**.^{7,13}



Improving Lipid Health

Atherosclerosis is a complex process that involves **inflammation, endothelial dysfunction**, and active **lipid accumulation**. There is convincing evidence that cholesterol-lowering drugs, targeting low density lipoprotein (LDL) and related particles, can reduce progression of plaque and prevent cardiovascular events.¹⁴

Animal models have shown that **pomegranate** can reduce blood levels of total cholesterol, **LDL cholesterol** (the “bad” kind that contributes to atherosclerosis), and **triglycerides** (another type of fat linked to risk for heart disease).¹⁵⁻¹⁸

Oxidation of LDL cholesterol makes it even more dangerous than normal LDL. Oxidized LDL accumulates in blood vessel walls more easily and accelerates the progression of atherosclerosis. Pomegranate decreases the oxidation of lipids.^{19,20}

In **human** studies, consuming pomegranate juice has significantly reduced blood levels of **oxidized LDL**.^{19,21}

Restoring Blood Vessel Function

Perhaps the most important sign of **endothelial dysfunction** is an impaired ability of blood vessels to **dilate** (widen) when necessary.²²

Both preclinical and clinical evidence demonstrate that pomegranate extract improves **endothelial function** and promotes arterial relaxation and dilation.^{23,24}

How Endothelial Dysfunction Leads to Heart Disease

Many people think of **blood vessels** as the body’s pipes, passively carrying blood through them. Nothing could be further from the truth.

Blood vessels are **active** structures that play as big a role in blood supply as the heart itself. The blood vessels pulse and move with each heartbeat and actively change their diameter in response to the body’s demands. This helps maintain normal **blood pressure** and adequate **blood flow**.

The endothelium is a single layer of cells that lines the inner wall of every blood vessel. It produces signaling compounds and responds to chemical and physical signals, helping to control **vascular reactivity** (the vessel’s response to a stimulus).¹³

When functioning optimally, the endothelium helps regulate blood vessels’ tone, size, and function.

Vascular health depends on a balance between signals that cause blood vessels to **dilate** (widen) and other signals that cause them to **constrict** (narrow).¹³

This is particularly true in the **arteries**, the blood vessels that carry blood away from the heart to most tissues of the body.

Unfortunately, the **endothelium** can become damaged with advancing age. Other factors, including oxidative stress, inflammation, high blood pressure, and elevated blood glucose, can also harm the endothelium, impairing its ability to **dilate**. Narrowed and inflexible arteries can reduce vital blood flow.^{6,22}

This **endothelial dysfunction** is a direct contributor to high blood pressure and the development of **atherosclerosis**, the cause of most heart diseases.²²

WHAT
YOU
NEED
TO
KNOW

Pomegranate accomplishes this by targeting several compounds, including:

- **Nitric oxide.** This is one of the most important **vasodilators**, which means it induces the dilation of arteries. In preclinical studies, scientists have found that pomegranate is supportive of vascular/endothelial health through a **dual action** of **increasing** the enzymes that support nitric oxide production^{22,25-27} but also **neutralizing** compounds such as **peroxynitrate**, an enzyme that can be damaging to nitric oxide production.²⁸
- **Thromboxane A2.** This **vasoconstrictor** causes the *narrowing* of arteries.²⁹ Pomegranate extract *inhibits* an enzyme required to produce thromboxane A2,³⁰ lowering its levels and reducing constriction of arteries.

Preventing Blood Clots

Endothelial dysfunction and atherosclerosis increase the risk of abnormal **blood clots**. Most heart attacks and strokes are caused by clots forming in diseased arteries, which reduces blood flow to the heart or brain.^{14,31}

Fortunately, the same thromboxane that is *blocked* by pomegranate also influences the function of **platelets**, the tiny cells in our blood that form clots.

Pomegranate Improves Endothelial Health

- **Heart disease** is the most common cause of death worldwide.
- **Endothelial dysfunction**, damage to the layer of cells lining the inside of arteries, is a major contributor to atherosclerosis and risk for cardiovascular disease.
- **Pomegranate** and its extracts contain many antioxidant and anti-inflammatory nutrients that can shield against a wide range of chronic age-related diseases.
- Many of the health benefits of pomegranate apply specifically to blood vessel health, protecting against **endothelial dysfunction** and **atherosclerosis** in animal and human studies. This reduces the risk of developing cardiovascular disease.
- Even in subjects already experiencing signs of **heart disease**, pomegranate intake has been shown to reduce symptoms.

Thromboxane A2 activates platelets and causes their aggregation. Pomegranate *reduces* thromboxane A2.^{29,30}

In animal studies, pomegranate juice and extract *reduce* the **clotting** of human platelets, even when exposed to stimuli that would normally cause their aggregation.^{8,30}

Improving Blood Pressure

High blood pressure is a contributor to initiation and development of atherosclerosis.³²

One of the most common classes of drugs used to lower blood pressure are **ACE inhibitors**, which block an enzyme involved in blood pressure.

Preclinical and clinical research discovered that, like these medications, pomegranate *inhibits* ACE activity.^{33,34} Through this and other mechanisms, it is able to help reduce elevated blood pressure, thereby protecting blood vessel health and lowering the risk of **heart disease**.¹²



In people with **high blood pressure**, two weeks of pomegranate intake *decreased* blood ACE activity by **36%**.³³ In this and other human studies, pomegranate led to a significant reduction in both **systolic** (top number) and **diastolic** (bottom number) blood pressure.^{12,35}

In one study of subjects with **atherosclerosis** in the carotid artery, which delivers blood to the brain, head, and neck, pomegranate juice intake reduced **systolic blood pressure** up to **12%**.¹¹

Those with high blood pressure should use an **at-home** blood pressure monitor to target **blood pressure** below **120/80** throughout the day and night.

With aging, **anti-hypertension** drugs are often required in addition to lifestyle changes to achieve optimal blood pressure readings.

Controlling Blood Glucose

Poor control of **blood glucose** levels is another powerful contributor to endothelial dysfunction and atherosclerosis.^{6,13}

In animal studies, **pomegranate seed-oil extract** improved **insulin sensitivity** and reduced **fasting blood glucose** levels.^{36,37} In studies of patients with **type II diabetes** or impaired glucose control, pomegranate juice improved pancreas function, insulin sensitivity, and blood glucose control.^{38,39}

Pomegranate extract has been shown to *suppress* the glycation of proteins and prevent their accumulation, even in a high-sugar diet.⁴⁰ Glycation is a chemical reaction whereby sugars permanently attach themselves to proteins, fats, or nucleic acids. This is a highly destructive process that damages tissues, including those in the arteries.⁴¹

Reducing Atherosclerotic Plaques

Through all these actions, pomegranate use has a profound impact on blood vessel health.

In studies of rodents and pigs, **pomegranate extract** is capable of reversing **endothelial dysfunction**.^{42,43}

Animal models of accelerated **atherosclerosis** also show that pomegranate prevents and reverses the progression of atherosclerotic plaque.

For example, rodent studies showed that **pomegranate juice** or extract helped maintain healthy arteries and significantly slowed the progression of **atherosclerosis**.^{44,45} In a mouse study, pomegranate reduced the size of atherosclerotic plaques by **44%**.²¹

Human trials have also found striking effects on **cardiovascular disease** outcomes.

One clinical study that evaluated patients with **atherosclerosis** in the **carotid arteries** found that pomegranate juice consumption *decreased* the extent of atherosclerotic plaque by up to **35%** after a year. Those who did not receive pomegranate had a **9% worsening** of atherosclerosis.¹¹

In adults hospitalized with unstable angina (chest pain at rest due to inadequate blood flow) or heart attack, one glass of pomegranate juice per day for five days, as an add-on to standard treatment, significantly reduced the frequency, intensity, and duration of **angina** (chest pain) episodes. It also reduced levels of a marker of oxidative stress.⁴⁶

Another study in patients with **heart disease** found that while exercise-induced **ischemia** (reduced blood flow) of the heart increased in a control group over three months, patients receiving pomegranate had a significant *decrease*.⁴⁷

These studies show how pomegranate may help reduce risk for atherosclerosis and cardiovascular disease *and* help people with existing heart disease.

Summary

Pomegranate is a rich natural source of antioxidant and anti-inflammatory nutrients. Extracts of pomegranate have been found to help reduce risk factors for **atherosclerosis** and **cardiovascular disease**.

Pomegranate and its extracts may be capable of preventing and *reversing* signs of **endothelial dysfunction**, blood vessel damage that contributes to atherosclerosis and cardiovascular events like **heart attack** and **stroke**.

Pomegranate also improves other risk factors that contribute to cardiovascular disease, including blood pressure, blood glucose, and oxidation of lipids.

Through all of these actions, pomegranate and its extracts could reduce the risk of cardiovascular disorders and relieve symptoms in people already diagnosed with heart disease. •



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References: 1. *Neuropharmacology*. 2016 2016/09/01;108:426-39. 2. *Journal of Cellular Physiology*. 2016;231(9):1903-12. 3. *J Alzheimers Dis*. 2016;49(4):971-90.

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What is Bilberry?

BY LAURIE MATHENA



Bilberries (*Vaccinium myrtillus*) are deep blue berries that resemble blueberries.

Although small in size, they are densely packed with health-promoting compounds like anthocyanins, flavanols, and more.

Bilberries have been used historically as a tea to treat conditions ranging from diarrhea to inflammation of the throat.¹

In more recent years, they have gained attention for their ability to protect against eye diseases like glaucoma, while helping to manage blood sugar, reduce cholesterol, support metabolic health and more.

Potent Eye Protection

As of 2017, over **7 million** Americans had vision loss or blindness, out of which **1.6 million** were younger than 40.²

The Centers for Disease Control and Prevention predicts that, due to aging and chronic diseases like type II diabetes, by 2050 this number may reach almost **nine million**.³

Bilberry extracts offer protection for many of these increasingly common eye conditions.

Studies indicate that bilberry extracts, (alone or in combination with other nutrients that support eye health), help protect vision against disorders like **cataract**⁴ and **glaucoma**,^{5,6} improve parameters of **dry eye syndrome**,⁷ and help improve symptoms related to **eye fatigue**.⁸

A **clinical study** showed that a combination of a specific bilberry extract and French maritime pine bark extract effectively reduced intraocular pressure (pressure inside the eye), which is an underlying factor in **glaucoma**.⁶ Glaucoma is a leading cause of blindness. It often occurs because of high pressure in the eye that can cause *irreversible* damage to the **optic nerve**.⁹

In one study of people with high intraocular pressure (that had not yet progressed to glaucoma), participants were divided into three groups.

- The first group received pine bark-bilberry extract (**40 mg** French maritime pine bark + **80 mg** standardized bilberry extract).
- The second group received standard medical treatment with prescription latanoprost eye drops.
- The third group received both the pine bark-bilberry supplement and prescription latanoprost eye drops.

Reduction in intraocular pressure was demonstrated in all three groups. Participants taking the **pine bark-bilberry** formulation, beginning at six weeks, and continuing through to 24 weeks, had significantly reduced eye pressure. By the sixteenth week, the combination extract had reduced intraocular pressure readings by a meaningful **24%** — comparable to the drug, but with a better safety profile. Subjects using the prescription eye drops lowered their eye pressure by an average of **28%**, beginning from the fourth treatment week.

But by far the most compelling results were seen in the group that used the combination of **pine bark-bilberry** formulation and the latanoprost drops. A significant, average

reduction in **intraocular pressure** of **28%** began at four weeks—but when the study ended at 24 weeks, the decrease in eye pressure had reached approximately **40%**!

This means that the **pine bark-bilberry** compound appeared to have an additive effect with the latanoprost drops to **amplify** the reduction of **intraocular pressure** better than either agent alone. Study participants also experienced improved blood flow, including to the retina.⁶

Bilberries may contribute to eye health and visual function by many possible mechanisms. For example, it may be by antioxidant activity, stabilization of collagen, anti-inflammatory action, increased blood flow to the vessels of the eyes, and enhanced resynthesis of rhodopsin,¹⁰ a protein necessary for night vision.¹¹

Bilberry Regulates Metabolic Health

Scientists believe that increasing the intake of fruits like **bilberry** may help improve the long-term prospects for cardiovascular disease, type II diabetes, and obesity.¹²

Bilberries are one of the richest sources of anthocyanins, which are under investigation for a role in the prevention of metabolic disease and cardiovascular disease.

In a human cell study, bilberry extracts inhibit an angiotensin-converting enzyme, better known as ACE.¹³ This enzyme contributes to hypertension by promoting constriction of the arteries.¹⁴

In a study of participants with metabolic syndrome, consuming **400 grams** of fresh bilberries daily for eight weeks resulted in a reduction in **C-reactive protein** and other inflammatory markers.¹⁵

A review of four randomized controlled clinical trials conducted in China examined the effect of supplementation with a combination extract of bilberry and black currant and found that it lowered average levels of HbA1c (a measure of blood sugar levels) over a three-month period.

This effect was especially notable in older individuals, those with type II diabetes, and those participating in longer-term trials. In subjects with high cholesterol, type II diabetes, or metabolic syndrome, the bilberry and black currant extract significantly reduced total and LDL cholesterol after four weeks.¹⁶



Compounds in Bilberry

Bilberries contain a wide array of phenolic compounds with proven health benefits. The most notable include the following:

- **Anthocyanins.** These are the plant compounds that give bilberries their deep blue color, found in both pulp and peel. The anthocyanins in bilberries positively influence the body's antioxidant response and support metabolic and cardiovascular health.¹²
- **Flavonoids.** Flavonoids are reported to have anti-inflammatory activity.¹⁰ In a large cohort study, higher intake of flavonoids and anthocyanins was associated with decreased insulin resistance in women.¹⁷ Flavonoids found in bilberries have beneficial effects on microcirculation.¹⁰
- **Tannins.** Plants in the bilberry family are one of the richest sources of tannins, a group of polyphenolic compounds that may have potential to manage or even delay the onset of type II diabetes.¹⁰

Summary

Bilberries hold numerous benefits for those seeking to optimize their health and well-being.

This tiny fruit is packed with some of nature's most potent health-promoting substances, such as anthocyanins, flavonoids (including quercetin), and tannins.

Scientific studies confirm that bilberry could offer targeted protection for eye health, while helping protect against conditions like cardiovascular disease and type II diabetes.



Bilberry appears to be safe and has no known drug interactions. A suggested supplemental dose is one **100 mg** capsule daily of bilberry extract standardized to contain **25%** anthocyanins. •

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How Aged Black Garlic Protects the HEART

BY MICHAEL DOWNEY

Heart disease remains America's leading cause of death.¹

Conventional recommendations for improving cardiovascular health include maintaining optimal levels of **blood pressure, low density lipoprotein, and glucose.**²

A new form of garlic known as **aged black garlic** has been shown in a recent **clinical study** to improve these and all other heart disease risk factors measured.³⁻⁶

Aged black garlic appears to offer another way to support cardiovascular health.

What is Aged Black Garlic?

Many people are aware of garlic's broad health benefits, but few have heard of aged black garlic.

Garlic is known for its pungent odor/taste and methods have been developed to utilize the benefits of garlic and avoid the odor.⁵

Aged black garlic is formed when fresh, raw garlic is aged at high temperatures, between **140- and 190-degrees F** for up to **90 days**.⁴⁻⁶

Aging alters garlic substantially. It develops a chewy texture, loses its pungent odor and flavor, and becomes sweet-tasting. This is due, in part, to the reduction of allicin content, after exposure to high temperature.^{5,6} Allicin is a sulfur compound in fresh garlic.^{4,6}

These changes produce beneficial compounds, including **flavonoids** and **polyphenols**.^{5,7} They also increase the amount of **S-allyl-cysteine (SAC)**,⁵ a garlic constituent that has been shown to provide **cardiovascular** health benefits.⁴⁻⁶

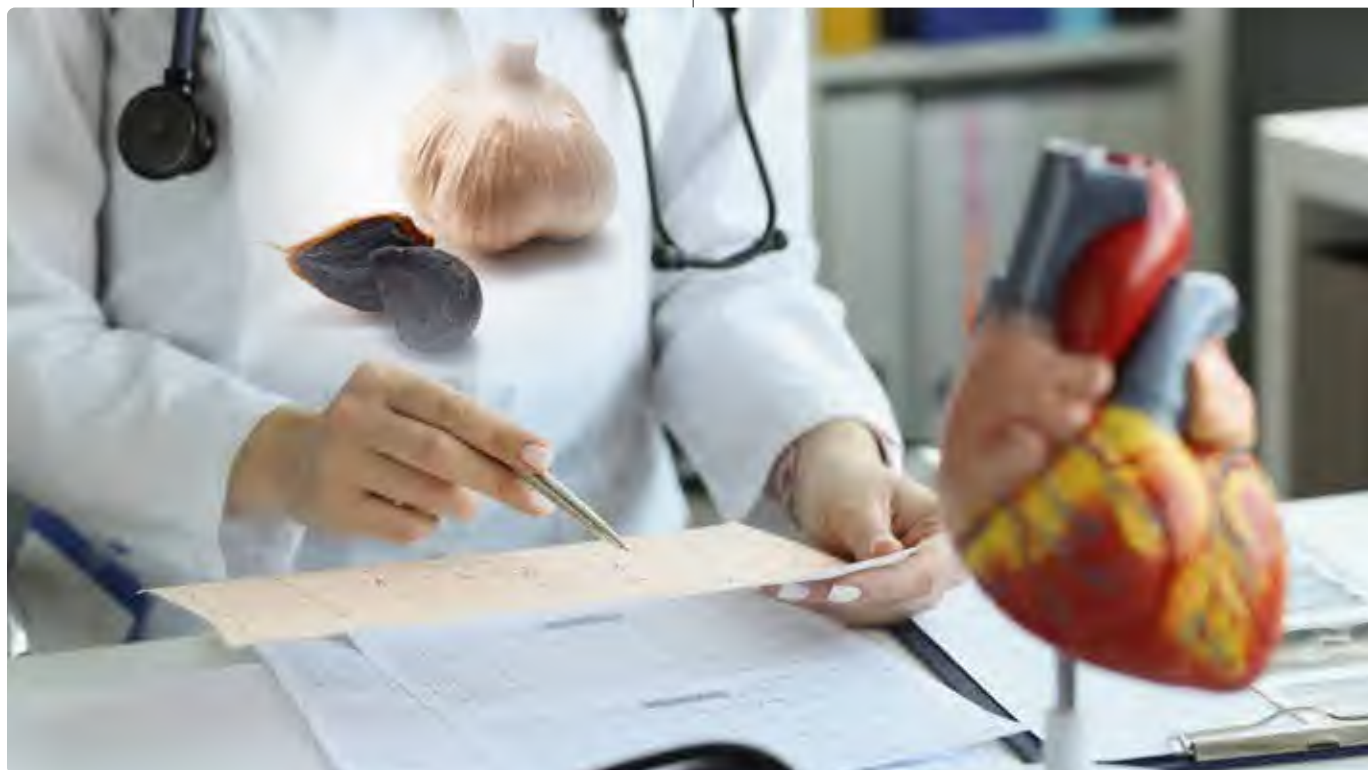
The concentration of **S-allyl-cysteine (SAC)** in raw, white garlic is low, but present in high amounts in **aged black garlic**. After oral ingestion, the beneficial **SAC** is easily absorbed in the gastrointestinal tract.⁴

Cardiovascular Benefits of SAC

S-allyl-cysteine (SAC) is associated with **cardio-protective** effects that include:⁴

- Inhibiting lipid peroxidation and oxidation of **LDL cholesterol**, a step in the development of **atherosclerosis**,
- Decreasing the synthesis and absorption of **cholesterol**,
- Lowering fasting **glucose** and **triglyceride** blood levels,
- Inhibiting activation of **nuclear factor-kappa B**, a pro-inflammatory protein, in cells lining the blood vessels,
- Helping prevent the **death** of cardiac muscle cells, and
- Enhancing production of **hydrogen sulfide**, which has a broad array of cardioprotective effects.

To maximize these cardiovascular benefits, scientists developed a **patented** process for producing an **aged black garlic extract**, with an *even higher* concentration of **SAC** than other forms.



With levels standardized to **0.5%**, this superior **black garlic extract** provides **2.5 mg** of **SAC** per single dose of a **500 mg** tablet.³

In a study published in **2023**, a research team tested its cardioprotective effects on **human** participants.³

Clinical Results

For this randomized, placebo-controlled trial, researchers enlisted 56 adults who were considered healthy but with a *borderline-degree risk* of **cardiovascular disease**.³

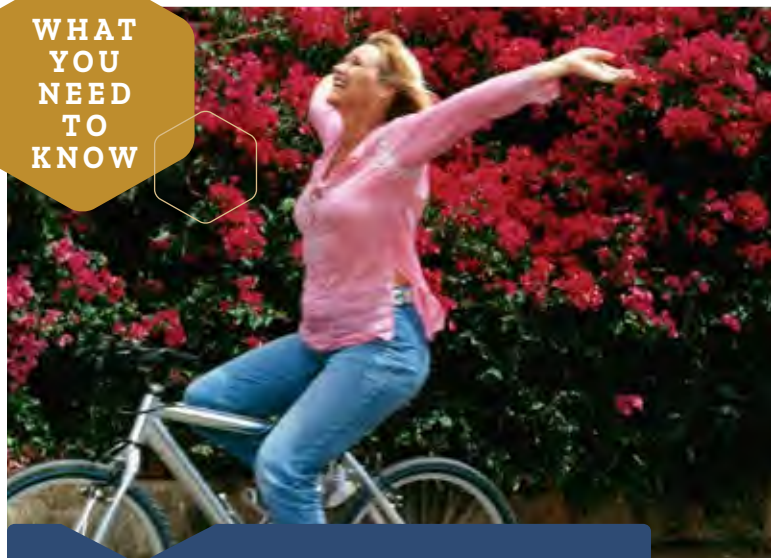
Subjects were given either a **placebo** or a capsule containing **500 mg** of aged **black garlic extract** providing **2.5 mg** of **S-allyl-cysteine** once daily.

Within just **12 weeks**, **eight different** markers for cardiovascular risk were dramatically improved:³

- Serum **triglycerides** were reduced by **12.3%**, compared to **2.5%** for placebo,
- **Total cholesterol** was lowered by **11.8%**, compared to **0.63%** for placebo,
- Protective **HDL** (“good” cholesterol) was *increased* by **11.5%**, compared to **0.17%** for placebo,
- The *ratio* of **total cholesterol** to **HDL** was reduced by **20.8%**, compared to **0.4%** for placebo,
- **LDL** cholesterol was lowered by **13%**, compared to **3%** for placebo,
- **Systolic blood pressure** (upper reading) decreased by **5.3%**, compared to **1.26%** for placebo,
- **Diastolic blood pressure** (lower reading) was reduced by **6.5%**, compared to **2.24%** for placebo, and
- **Fasting blood glucose** was lowered by **10.1%**, compared to **1.21%** for placebo.

These improvements represent a substantial shift toward improved cardiovascular health and reduced risk for occlusive coronary artery and valvular disorders that so many maturing individuals confront.

WHAT YOU NEED TO KNOW



The Cardiovascular Benefits of Aged Black Garlic

- A compound called **S-allyl-cysteine (SAC)** is known for its powerful **cardio-protective** effects.
- Unlike raw, fresh garlic, **aged black garlic** contains high levels of active, easily absorbable **SAC**.
- Scientists have developed an optimized **aged black garlic extract** that provides an even *higher* **SAC** concentration than other extracts.
- Results from a clinical study published in 2023 show that this **aged black garlic** extract improved **eight** critical markers of cardiovascular health. It lowered blood pressure, total and LDL cholesterol, fasting blood glucose levels, triglycerides, and more.
- These effects may help reduce the risk of **heart disease** and promote better cardiovascular health.

Summary

Aged black garlic contains high concentrations of a compound called **S-allyl-cysteine (SAC)**, which has been shown to provide potent support for **cardiovascular health**.

Scientists have developed an **aged black garlic extract** with an even *higher* concentration of **S-allyl-cysteine** content than other extracts, standardized to **0.5%**.

A recent clinical trial demonstrated that taking a single daily dose of this optimized **aged black garlic extract** significantly improved eight different markers for cardiovascular health. •

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Promote Visual Acuity

Bilberries are part of the blueberry family. They tend to look like blueberries, except smaller and darker. Most importantly, they are higher in anthocyanin content.



Item #01873

90 vegetarian capsules

European bilberry (*Vaccinium myrtillus*) helps maintain healthy eyes and supports retinal circulation and eye comfort.¹⁻⁴

Standardized European Bilberry Extract has been standardized to **36% total anthocyanins** for powerful eye support.

References

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This product is available at fine health food stores everywhere.

GAME ON



Clinical trials demonstrate that the plant extracts in once-daily **ArthroMax® Elite** help:

- Support a healthy inflammatory response
- Maintain healthy connective cartilage tissue
- Promote comfortable joint function

Take advantage of the benefits of **Mobile-Ease™ Chinese skullcap, cutch tree and white mulberry** TODAY!

This product is available at fine health food stores everywhere.

Item #02138

30 vegetarian tablets



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"Excellent product,
high quality."

Gil

VERIFIED CUSTOMER REVIEW

Self-Defense with Lactoferrin

Lactoferrin is a component of milk protein
best known for its immune benefits.



Item #01681

300 mg
60 vegetarian capsules

Two-Month Supply

Contains milk.

This product is available at fine health food stores everywhere.



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YOUR **BONE** HEALTH...NOW **BOOSTED**



Bone Restore Calcium Supplement with Vitamin K2 combines skeletal-strengthening nutrients in one highly absorbable formula.

Item #01727

120 capsules

This product is available at fine health food stores everywhere.

Caution: If you are taking a vitamin K antagonist (e.g. warfarin), consult your healthcare practitioner before taking this product.



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Promote Oral Health with a Targeted Probiotic Blend

FLORASSIST® Oral Hygiene provides the *S. salivarius* **BLIS M18™** oral probiotic that colonizes the mouth and inhibits the growth of unwanted bacteria.¹⁻²

This product also contains beneficial Immuno-LP20®.

Just one mint cherry lozenge of **FLORASSIST® Oral Hygiene** a day maximizes oral hygiene by supporting healthy bacterial colonization throughout the mouth.³⁻⁴

References

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Item #02120

30 vegetarian lozenges



**This product is available at
fine health food stores everywhere.**

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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.

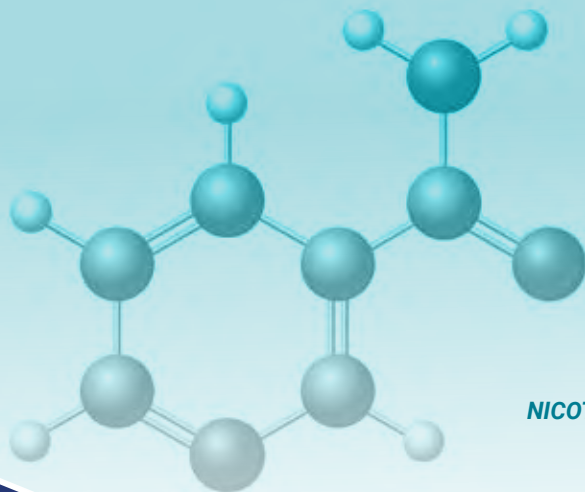


More Complete **SUN** PROTECTION

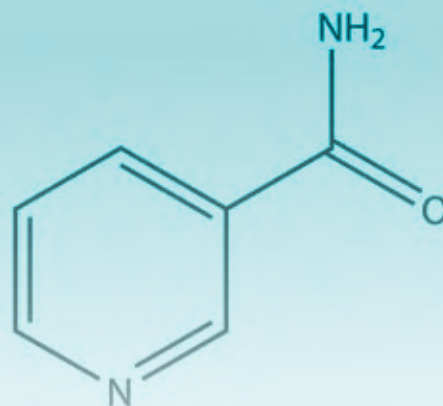


POLYPODIUM
LEUCOTOMOS





NICOTINAMIDE



BY MICHAEL DOWNEY



SICILIAN RED ORANGE

Nothing ages skin faster than the sun's **ultraviolet (UV)** rays.¹

Sun exposure causes DNA damage that leads to **premature skin aging** and increases the risk of **skin cancer**.¹⁻³

Daily sunscreen use is essential. But even this won't provide total protection.^{2,4}

An extract of a Central American fern called ***Polypodium leucotomos***, when taken orally, helps prevent ultraviolet rays from damaging your skin and potentially increasing cancer risk.

This extract protects skin cells all over your body, from the *inside out*.

A clinical trial showed that taking ***Polypodium*** extract before UV exposure led to a striking **84% decrease** in a UV-induced DNA mutation.⁵

Two additional oral compounds, **Sicilian red orange extract**⁶ and **nicotinamide**,^{7,8} provide further protection against damage from exposure to the sun's harmful rays.

Together, these ingredients can serve as a kind of "**oral sunscreen**." Used along with a topical sunblock, they provide all-day, **whole-body** protection.

Why Sunscreen Isn't Enough

Getting too much sun can lead to sunburn, **photo-aging** (premature skin aging), and skin **cancer**.

However, topical sunblocks and sunscreens cannot provide *total* protection because they:

- Don't protect the scalp or eyelids,
- May be rubbed or washed off by clothing or moisture/swimming,
- May be labeled incorrectly,⁹
- Don't protect areas of the body that UV rays reach by penetrating clothing,¹⁰
- Mostly shield against UVB rays (which are responsible for sunburns) but may not protect sufficiently against UVA rays (which promote DNA damage and skin aging),^{9,11} and
- May contain potentially harmful chemicals.¹²

There's a way to protect against damage done by the sun comprehensively: with sunscreen, protective clothing, and a combination of **three nutrients** taken orally. These nutrients, in separate studies, have been shown to guard against the harm done by UV rays.



Polypodium Protects Against UV Radiation

Polypodium leucotomos is a tropical fern containing polyphenols that protect the skin against sun damage.

Preclinical research shows that **Polypodium** extract has the ability to:^{13,14}

- Inhibit harmful **oxidative stress**,¹³
- Increase **glutathione**, the body's natural antioxidant,¹³
- Reduce **inflammation**,^{13,15}
- Protect the skin's tissue, a barrier against infection and environmental toxins,¹⁴
- Inhibit the breakdown of **elastin** and **collagen**, proteins that keep skin firm and youthful looking,¹⁴ and
- Support the immune system's **tumor surveillance**, the ability to identify and destroy cancerous cells.^{14,16}

Based on these effects, scientists set out to test *Polypodium leucotomos* in **humans**.

Preventing DNA Mutations

DNA mutations are a main cause of **skin cancer** and one of the causes of prematurely aged skin. This led investigators to study the DNA-protective effects of **Polypodium**.

In a **clinical trial**, volunteers aged 29 to 54 took either **240 mg of Polypodium leucotomos** extract or a **placebo** two times: eight hours and two hours *before* being exposed to ultraviolet rays.⁵

When exposed to a **low** dose of UV light:⁵

- Placebo participants had a **217% increase** in a damaging DNA mutation, while,
- **Polypodium**-taking participants had a striking **84% decrease** in that mutation.

When exposed to a **higher** dose of UV light:⁵

- The DNA mutation in the **placebo** group increased by a shocking **760%**, while
- The DNA mutation in the **Polypodium** group increased by only **61%**.

Another clinical study showed that a similar dose of **Polypodium** extract taken two hours and one hour before UV exposure helped prevent **redness** and **reduced**:¹⁵

- A **DNA damage** marker by **32%**,
- An **inflammation** marker by **78%**, and
- **Tumor** progression markers by an astonishing **85%-100%**.

Sun Defense with Nicotinamide

Nicotinamide is a form of vitamin B3.

Preclinical and human studies show that, taken **orally**, it helps prevent UV-light-induced **skin cancer** by:^{7,17-20}

- Protecting against skin cancer mutations,^{19,21}
- Enhancing DNA repair,^{17,18}
- Reducing inflammation and skin pigmentation,^{18,19}
- Preventing skin immune suppression,^{17,18,20}
- Boosting skin barrier function,⁷ and
- Preventing cellular energy depletion and *restoring* these energy levels after UV exposure.¹⁹

A clinical study enlisted healthy adults at high risk for skin cancer. In those given **500 mg** of **nicotinamide** twice daily for 12 months, the rate of new, non-melanoma **skin cancers** was reduced by **23%**, compared to a placebo.²²

Red Orange Protects Against Sunburn

An extract derived from Sicilian red orange contains high levels of anthocyanins, flavonoids, and polyphenols, which protect against UV-induced inflammation and oxidative stress.

A lab investigation showed that **red orange extract**:²³

- Reduced inflammatory markers,
- Inhibited cell damage, and
- Decreased skin cell death.



WHAT
YOU
NEED
TO
KNOW

Protect Against Sun Damage

- The sun's ultraviolet radiation is a major cause of **skin cancer** and premature **skin aging**.
- Taken orally, an extract of a fern called **Polypodium leucotomos** prevents UV-induced, cancer-causing DNA damage and promotes DNA repair.
- Two other nutrients, **nicotinamide** (a form of vitamin B3) and **Sicilian red orange extract**, further boost sun protection.
- An oral combination of all three ingredients can decrease sunburn intensity and inflammation and protect against **skin cancer** and **skin aging**.
- Combined with a topical sunblock, these compounds can provide *optimal* whole-body sun protection.

When **human** skin cells were treated with **Sicilian red orange extract** before being exposed to UV radiation:²⁴

- UV damage was prevented,
- DNA was protected,
- Oxidative stress was reduced, and
- Photoaging responses and inflammatory markers were decreased.

In a **clinical** study, volunteers took **100 mg** of **Sicilian red orange** extract daily for 15 days and were regularly exposed to a solar lamp. The extract decreased **redness** and **sunburn** by **40%** and skin pigment changes by **20%**.⁶

The lifetime number of severe sunburns is closely correlated to **skin cancer** development, making this protection extremely significant.

Red orange, combined with *Polypodium* and nicotinamide, helps protect against the damage sun exposure can do.

Summary

The sun's ultraviolet rays accelerate **skin aging** and increase **skin cancer** risk.

Taken **orally**, an extract of a fern called ***Polypodium leucotomos*** protects against UV-induced DNA mutations and inflammation, while promoting DNA repair.

Nicotinamide and **Sicilian red orange extract** provide additional support for sun protection.

Combined with a topical sunblock, these three nutrients can maximize total-body sun defense for the skin. •



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share a longer life



Item #01778

100 vegetarian capsules

Linked to Healthy Aging

Selenium has been shown to confer whole-body protection including supporting the heart, brain, and healthy cell division.^{1,2}

Super Selenium Complex provides three different forms of selenium—each of which uniquely acts along a different pathway.

1. **Sodium selenite**
2. **L-selenomethionine**
3. **Selenium-Methyl L-Selenocysteine**

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

This product is available at fine health food stores everywhere.

References

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VITAMIN

"I like the fact that it's high potency and so small and easy to swallow."

Barbara
VERIFIED CUSTOMER
REVIEW

1
DAILY



FOR LASTING HEALTH

Strong bones and a healthy heart—two incredible benefits of adding vitamin K to your routine. This essential vitamin helps maintain your body's calcium balance and, in turn, supports everything from your arterial health to healthy bone density.

But even if your diet is healthy, you may not be getting enough to maximize vitamin K's benefits. Fortunately, you can ensure you're getting enough of this important nutrient by supplementing with exactly as much—or as little—vitamin K as you need.

Super K*
Item #02334

90 softgels

Low Dose Vitamin K*
Item #01936

90 softgels

Mega Vitamin K2*
Item #02417

30 capsules

*** CAUTION:** If you are taking a vitamin K antagonist (e.g. warfarin), consult your healthcare practitioner before taking a vitamin K supplement.

These products are available at fine health food stores everywhere.



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.

"I feel better about my immune system with it."

Mary

VERIFIED CUSTOMER REVIEW

SUSTAINED SUPPORT

24
HOURS
A DAY

Liposomal-Hydrogel™



VITAMIN

Buffered **ascorbate** encased in two **plant extracts** (liposomes plus hydrogel fenugreek) increases blood (plasma) exposure nearly **seven times** more compared to an equivalent dose of regular vitamin C.

It also maintains vitamin C levels throughout the day.¹

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

Item #02501

60 vegetarian tablets

1. Akay Internal Study. Liposomal hydrogel vitamin C pharmacokinetics. Data on file. 2021.



This product is available at fine health food stores everywhere.

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.

Restore Healthy, Youthful-Looking Legs

BY LAURIE MATHENA



About half of all people have **chronic venous** abnormalities.

This can result in cosmetic concerns like varicose veins, which affect about **10% to 30%** of the population.

Vein disorders can also manifest as *chronic venous insufficiency*, which can cause painful, swollen legs, changes in skin appearance such as discoloration, and even ulcerations.^{1,2}

A flavonoid, **diosmin**, found in citrus, has been widely studied to improve the health of veins, including **varicose veins** and **chronic venous insufficiency**.

Chronic Venous Disease

The job of the veins in the legs is to return deoxygenated blood from the lower extremities to the heart. These leg veins contain one-way valves that are supposed to prevent blood from flowing back to the feet.

When those valves become damaged, blood can flow backward and collect in the leg veins. This condition is called **chronic venous disease** (CVD).

Over time, chronic venous disease damages the venous wall and leads to health concerns and cosmetic issues like varicose veins, ankle swelling, painful ulcers, and skin pigmentation.¹

It can also cause legs to feel heavy, tired, or achy.

Chronic venous disease is associated with **deep vein thrombosis**, a condition that can cause potentially life-threatening blood clots.⁵

There are different stages of chronic venous disease, classified according to the severity of symptoms and signs. Treatment options vary for different stages and may include lifestyle modifications, laser ablation, and surgical interventions.¹

Improved Symptoms in 30 Days

In a study of patients with chronic venous insufficiency who were not on medical treatment, supplementation with a citrus bioflavonoid called **diosmin** led to improvement of edema, pain, and leg discomfort/tightness in over **80%** of the participants as early as in 30 days. There was also improvement in symptom-severity classification of the disease.⁶

Measurable Reduction in Leg Swelling

In a clinical study of patients suffering from *chronic venous insufficiency/disease*, participants received **600 mg** of diosmin two times per day for three months. They were evaluated for cardiovascular disease based on clinical symptoms and blood markers of vascular health before and after the study.

After three months, there was significant improvement in pain and swelling. Blood markers revealed improvements in endothelial and inflammatory health markers.⁷

Another study found that within two months of receiving **500 mg** of **diosmin** two times a day, participants with venous edema without skin changes and symptoms (pain, tension, heaviness, and restless legs) saw their ankle and calf circumferences shrink by more than **half a centimeter**. Overall leg volume decreased by an average of **78 cubic centimeters** along with significant improvement in other symptoms.⁸

A review and analysis of 10 randomized controlled trials found that Micronized Purified Flavonoid Fraction diosmin helps significantly reduce pain and swelling in the lower legs.⁹

Another analysis of five randomized controlled trials on participants with venous ulcers found that treatment with Micronized Purified Flavonoid Fraction along with conventional therapy increased chances of ulcer healing by **32%** after six months as compared to conventional therapy alone.¹⁰

Improved Clinical Outcomes for Varicose Veins

The damaged valves that cause varicose veins allow for backflow of blood toward the feet, which can cause hypertension in the veins. This can damage the venous wall and contribute to the appearance of **varicose veins**.¹

In addition, prolonged untreated venous insufficiency is associated with vascular endothelial dysfunction, leakage, and inflammation. This can lead to venous leg ulcers.

In an animal study, treatment with **micronized diosmin** showed protective effects on vascular endothelium, improved vascular tone, reduced venous leakage, and alleviated inflammatory response; it also helped maintain overall vascular health.¹¹

A review of human studies of **micronized diosmin** showed that it improved ulcer healing in more advanced stage venous disease when used in addition to multilayer compression bandaging, and in individuals undergoing standardized local care of leg ulcers.¹²

Post thrombotic syndrome is a frequent and disabling complication of deep vein thrombosis and may involve swelling, chronic pain, and heaviness of the affected limb.

A clinical study randomized participants with a history of deep vein thrombosis into a control group that received standard care with rivaroxaban (Xeralto®) for six months and compression stockings for 12 months, or the experimental group that received diosmin **600 mg** with standard care. It was found that the group that received diosmin had a **14%** decreased risk of *post-thrombotic syndrome* along with complete vein recanalization (seen on ultrasound), and low vascular disease progression as compared to the control group.¹³

In a clinical trial, patients undergoing a surgical procedure for varicose vein disease were given micronized diosmin **1,000 mg/day** for two weeks *before* and for 30 days *after* surgery. Compared to those not taking diosmin, these individuals achieved a measurable reduction in postoperative hematomas, pain severity, and limb heaviness. They also saw better exercise tolerance and improved quality-of-life scores.¹⁴

Citrus Extracts and Venous Health

Diosmin can be derived as a metabolite of the flavonoid **hesperidin** from citrus rinds.³

To aid intestinal absorption, diosmin is often **micronized**; particles are milled down to a fine grade.

The resulting product is referred to as Micronized Purified Flavonoid Fraction, and often contains **diosmin** and **hesperidin** in a 9:1 ratio.³

Micronized Purified Flavonoid Fraction products have been widely used and studied in **Europe** for the treatment of varicose veins and chronic venous disease.^{3,4}

This Micronized Purified Flavonoid Fraction has been found, in several **clinical trials**, to improve vein and leg health, resulting in improved leg appearance and quality of life, including:⁴

- Improved healing of venous ulcers,
- Reduced leg swelling (edema) and feelings of heaviness in the legs,
- Improved changes in skin appearance associated with venous disease,
- Reduced leg cramping, and
- Improved symptom scores for venous disease and venous insufficiency.



Summary

Micronized diosmin, also called Micronized Purified Flavonoid Fraction, can be used alone as a dietary supplement, or in combination with standard treatment such as compression stockings, for chronic venous disease.

It has been shown to be effective for improving cosmetically unattractive venous disorders, including varicose veins, leg ulcers, swelling, and edema.

In patients suffering from chronic venous insufficiency, diosmin can provide significant relief from pain, heavy legs, and cramps, particularly when complemented with standard conservative treatment such as leg elevation and compression stockings. •

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Safe-Guard

Unique ORAL formula provides *Polypodium leucotomos* fern extract along with nicotinamide and red orange extract.

Your Skin
from Within



"I now have peace of mind knowing I'm doing what I can to protect myself."

Elaine

VERIFIED CUSTOMER
REVIEW

Item #01938

120 vegetarian capsules

This product is available at fine health food stores everywhere.



CAUTION: This product is not a substitute for topical sunscreens. Gastric disturbances may occur. Consult with your healthcare provider before taking this product if you have gout or liver disease.

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.

MAGNESIUM

CRITICAL FOR
WHOLE-BODY HEALTH

Magnesium is a critically important mineral, yet most Americans do not obtain enough from their diet.

Magnesium helps:^{1,2}

- Keep **heart rhythm** steady.
- Promote normal **blood pressure**.
- Maintain normal **muscle** and **nerve function**.
- Support a healthy **immune system**.
- Keep **bones strong**.
- Maintain **blood sugar levels** already within normal range.

The suggested intake of magnesium to maintain vascular health from Life Extension is **500 mg** or more a day.



This product is available at fine health food stores everywhere.

Item #01459

100 vegetarian capsules

References

1. *Am J Clin Nutr.* 1987;45:1305-12.
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Caution: If taken in high doses, magnesium may have a laxative effect. If this occurs, divide dosing, reduce intake, or discontinue product.



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.



Don't Weight Around

Maintain Optimal Hormone Levels

7-Keto® is a metabolite of **DHEA** ideal for weight management.

Maintaining healthy **DHEA** levels can help support immune function, circulatory health, mood, libido, and more.

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



Item #02478

60 vegetarian capsules
(Two-month supply)



This product is available at fine health food stores everywhere.

Caution: Consult your healthcare practitioner before taking this product if you are at risk for or have been diagnosed with prostate or breast cancer.

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

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

COMPREHENSIVE EYE HEALTH FORMULA

MACUGUARD® OCULAR SUPPORT PROVIDES:

- **Lutein, trans-zeaxanthin, and meso-zeaxanthin** help maintain structural integrity of the **macula** and **retina**.¹⁻⁵
- **Saffron** has been shown to help support **vision** as demonstrated by doctors' eye exams.¹
- **Alpha-carotene** further helps support **macular density**.¹

These products are available at fine health food stores everywhere.



**MACUGUARD® OCULAR SUPPORT
WITH SAFFRON & ASTAXANTHIN**

Item #01993

60 softgels



**MACUGUARD® OCULAR SUPPORT
WITH SAFFRON**

Item #01992

60 softgels

"This is a great
item for me."

Martin

VERIFIED CUSTOMER
REVIEW

(Each bottle lasts for two months.)

MacuGuard® Ocular Support is available with or without astaxanthin.

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.

References

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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.

Set Boosters to Brain Health

"This supplement
is amazing."

Linda

VERIFIED CUSTOMER
REVIEW

Maximize your mental powers to infinity and beyond with **Quick Brain Nootropic™**. With ingredients for learning, retention, and faster neural processing speeds, this brain boosting formula will have you blasting off to better health—no rocket required.



Item #02406

30 vegetarian capsules



This product is available at fine health food stores everywhere.

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.

Selenium

Promotes New Brain Cell Growth

BY STEVE CLARK



Studies have long suggested that the mineral **selenium** may have powerful brain benefits.

For example, age-related *decreases* in selenium levels correlate with an *increased* risk of **cognitive decline**.¹⁻⁶

Now, a promising animal study confirms that selenium can *reduce* age-related cognitive decline by increasing the formation of **new brain cells**. And it does so in the area of the brain important for **learning** and **memory** formation.⁷

Neurogenesis and Cognitive Decline

The **hippocampus** is a brain region that is critical for learning and the formation of new memories.⁸⁻¹⁰

Unlike most regions of the brain, some of the cells here retain the ability to divide and grow throughout life. This formation of new brain cells is called **neurogenesis**.¹¹

Adult neurogenesis is considered to be one of the main reasons brains have the ability to adapt, learn, and form new memories even in later life.^{10,12}

Unfortunately, neurogenesis tends to decline with advancing age. This inability to refresh the cells of the hippocampus may be an important contributor to age-related **cognitive decline**.⁷

Boosting neurogenesis, on the other hand, could provide a way to reduce or even prevent cognitive decline.^{12,13} That's where **selenium** comes in.

Selenium's Protective Effects

Animal studies have shown that selenium may play a role in protecting against normal brain aging.¹⁴ The transporter protein for selenium has been shown to protect the brain against selenium deficiency, promote neurogenesis, and prevent cognitive decline.¹⁵

In human studies, *low* selenium levels have been associated with a *rapid decline* in cognitive function.⁵

In a study of 320 heart failure patients, subjects with *higher* selenoprotein levels (a marker of plasma selenium status) performed *better* in global cognitive test scales as compared to those with lower levels.¹⁶

There is also preclinical evidence that **selenium deficiency** induces **inflammation** in the **brain**,¹⁷ and is associated with age-related disorders such as Alzheimer's disease.^{15,18,19}

Studies have highlighted the potential role of selenium in neurodegenerative diseases. A meta-analysis compared brain tissue selenium levels' status of Alzheimer's patients with those without Alzheimer's. This study found that the Alzheimer's patients had significantly *lower* selenium status in their brains as compared to those without Alzheimer's.²

Another meta-analysis indicated that Alzheimer's patients are strongly associated with *lower* selenium concentrations compared to healthy people.²⁰

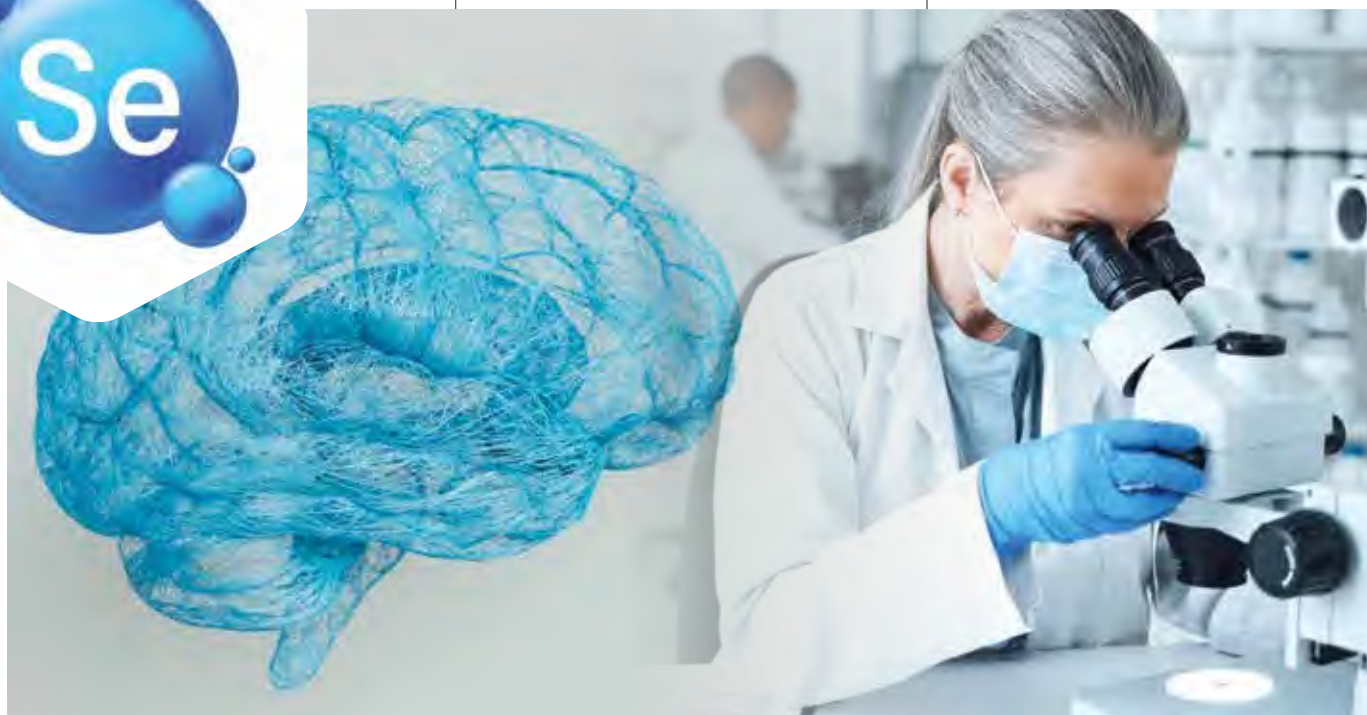
In animal models of Alzheimer's disease, selenium intake also *reduces* the accumulation of abnormal proteins associated with the disease, including hyperphosphorylated **tau** and **beta-amyloid**.^{15,18,19}

Boosting Neurogenesis in Older Adults

A preclinical study showed that **exercise** can trigger the growth of new brain cells in the hippocampus and enhance cognitive function.⁷

In a mouse study published in 2022, researchers demonstrated that with exercise comes a significant increase in blood levels of **SEPP1**, the main protein that supplies **selenium** to the brain. Exercise led to more than a **doubling** of SEPP1 levels.⁷

To test whether increased **selenium** brain levels *directly* led to **neurogenesis**, scientists applied selenium to brain cells in cell culture. The mineral stimulated their proliferation and signs of neurogenesis.





Supplying selenium to mice had the same effect, resulting in more than a **three-fold** increase in the number of dividing cells in the hippocampus.

Most impressively, when elderly mice were given selenium in their drinking water, increased neurogenesis was accompanied by significant improvements in tests of **learning** and **memory**.

Summary

The mineral **selenium** has been shown to be a crucial component in maintaining brain health into older age.

A recent animal study found that delivery of selenium to the brain promotes **neurogenesis**, the ability of the brain to grow new cells. In the **hippocampus**, these cells support cognitive function and support memory and learning. This could be a crucial area in the search for defenders against age-related decline.

Lower selenium levels have also been tied to **cognitive decline** and Alzheimer's disease in humans.

Oral intake of selenium is an effective way to increase delivery of the nutrient to the brain and support healthy cognitive function. •

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Discover a European Secret for Beautiful Legs

Combat Unsightly Veins

Youthful Legs helps your legs look and feel great by:¹⁻⁴

- Supporting healthy blood flow.
- Maintaining healthy venous tone and elasticity.
- Safeguarding collagen suppleness.

This product is available at fine health food stores everywhere.

Item #02252

60 softgels



References

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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

- C-reactive protein
- Apolipoprotein B
- Fibrinogen

Item #01821

60 vegetarian capsules



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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.



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 even supports your heart and vascular health and helps you maintain those healthy blood pressure levels.

Item #01713

125 mcg (5000 IU) • 60 softgels



This product is available at fine health food stores everywhere.

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.

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.



Sweet DREAMS

Fast-Acting Liquid Melatonin is a popular way to achieve more rapid sleep onset.

The nice-tasting, citrus-vanilla flavor enables convenient “drop” dosing of **Fast-Acting Liquid Melatonin** each night or when needed.

Life Extension also offers a full range of melatonin in solid forms and a variety of dosages.



Item #02234

3 mg per 20 drops, 2 fl. oz



FOR OCCASIONAL SLEEPLESSNESS.

This product is available at fine health food stores everywhere.

CAUTION: Do not consume alcohol, drive or operate heavy machinery after taking this product.

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NEW PRODUCTS

Backⁱⁿ Action

An estimated 39% of adults experience lower back discomfort, which can impact day-to-day activities. This new botanical formula can help.*

Combining Chinese chaste tree and ginger, these extracts have been clinically studied to help relieve lower back discomfort and occasional stiffness, and even encourage healthy flexibility and overall quality of life.

Fight discomfort in as little as 7 days and get back in the game with **Lower Back Relief!**

Item #02529
60 vegetarian capsules

*NCHS Data Brief. 2021;No. 415.



Better with Age



Some things, like vintage cars or fine wine, get more valuable over time. Garlic is no different, especially when it comes to a healthy heart.

A special aging process helps provide more S-allyl-cysteine, a powerful antioxidant found in garlic, to support vital parts of overall heart health, including already-healthy blood pressure, cholesterol and triglyceride levels.

Get to the heart of garlic's cardiovascular benefits and complement any healthy lifestyle with **Aged Black Garlic!**

Item #02530
30 vegetarian capsules



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IN THIS EDITION OF LIFE EXTENSION MAGAZINE®



16 HIDDEN POWER OF MUSHROOMS

A compound found in **mushrooms** *protects* against **telomere shortening** and may reduce all-cause mortality by **35%**.



24 WHAT ARE PREBIOTICS?

Prebiotics help restore healthy ***Bifidobacteria***, while *reducing* cholesterol, triglycerides, and blood sugar.



30 EASE STUBBORN BACK PAIN

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



38 RESTORE YOUTHFUL FREE TESTOSTERONE

Low **free testosterone** increases health risks as well as feelings of fatigue. In a **human trial**, a pomegranate-cacao blend **increased** critical **free testosterone**.



64 NOVEL CARDIOVASCULAR SUPPORT

Clinical data show **aged black garlic** *improved* numerous cardiovascular markers.



82 SOLUTIONS: IMPROVE HEALTH AND APPEARANCE OF LEG VEINS

Two **flavonoids** derived from citrus were found to improve **vein** health including **varicose veins** and chronic venous insufficiency.