



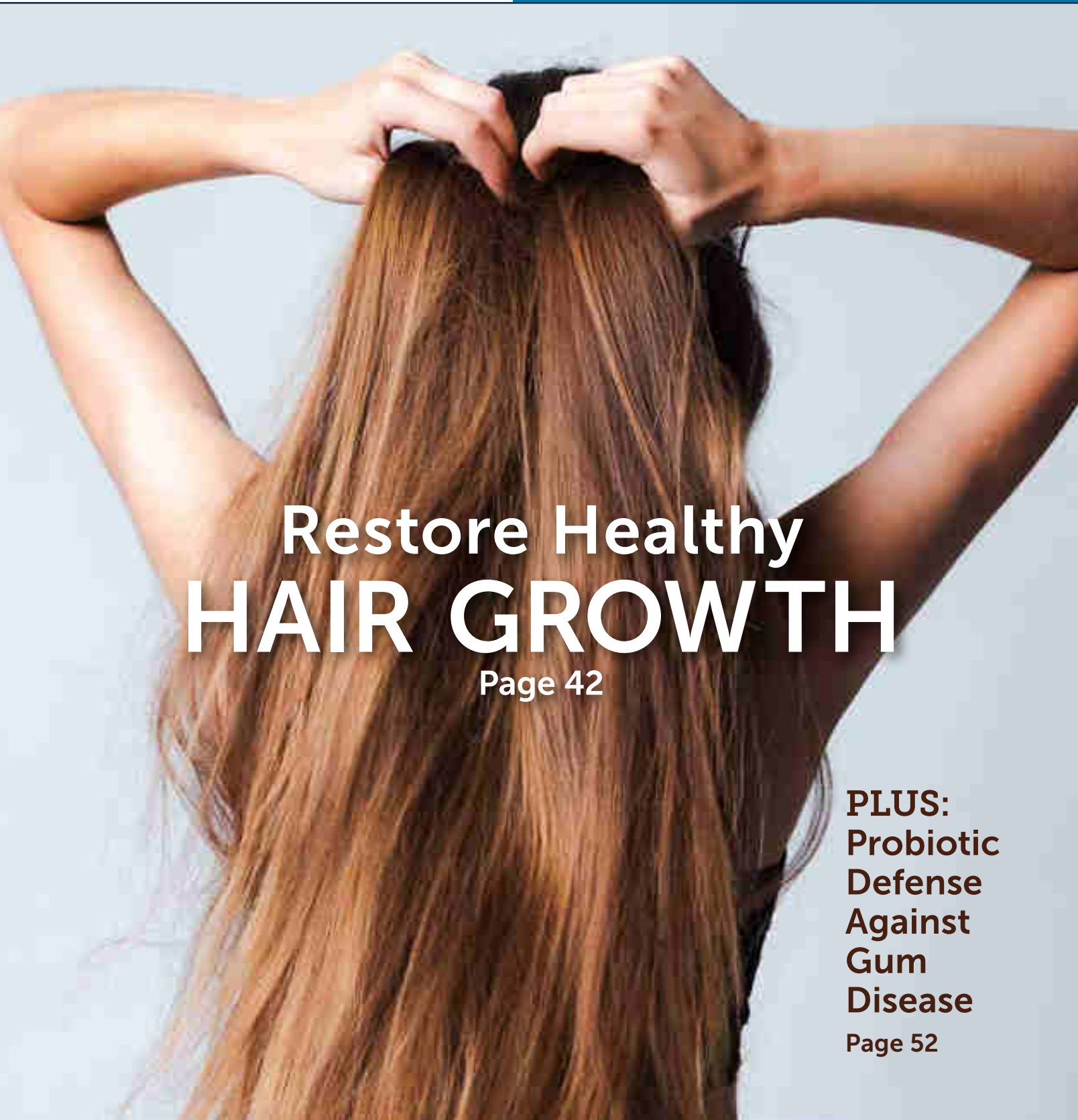
LIFE
EXTENSION®

The Science of a Healthier Life®

September/October 2025

FEATURE ARTICLES

- 16 Zinc Enhances Glucose Control
- 24 Danger of Slightly Low B12
- 32 Remove Your Aged Cells
- 60 Olive Oil Provides More Benefits
- 82 Cardiac Effects of Taurine
- 92 Vitamin E Reduces Mortality



Restore Healthy HAIR GROWTH

Page 42

PLUS:
Probiotic
Defense
Against
Gum
Disease

Page 52

Low-Cost
Biologically
Active

B COMPLEX

BioActive Complete B-Complex provides enzymatically active forms of meaningful potencies of each B vitamin.

This includes the *pyridoxal 5'-phosphate* form of vitamin B6 shown to protect lipids and proteins against **glycation** and the most biologically active form of **folate** called *5-methyltetrahydrofolate (5-MTHF)*.*

Item #01945

60 vegetarian capsules



This product is available at fine health food stores everywhere.

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

* *Br J Pharmacol.* 2004 Mar;141(5):825-30.

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.

Choose the Right Fish Oil for Your Needs

Highly Purified Fish Oil

In addition to ultra-pure fish oil,
Super Omega-3 provides other healthy
components of the Mediterranean diet
including **sesame lignans** and standardized
olive fruit and leaf extracts.

"Been using this
for years. Love it."

Gail

VERIFIED CUSTOMER
REVIEW



SUPER OMEGA-3 PLUS
EPA/DHA Fish Oil, Sesame Lignans,
Olive Extract, Krill & Astaxanthin
(2,520 mg of EPA + DHA in four softgels)

Item #01988

120 softgels



SUPER OMEGA-3
EPA/DHA Fish Oil,
Sesame Lignans & Olive Extract
(2,400 mg of EPA + DHA in four softgels)

Item #01982*

120 softgels

* IFOS™ certification mark is a registered trademark of Nutrasource Diagnostics, Inc. This product has been tested to the quality and purity standards of the IFOS™ program conducted at Nutrasource Diagnostics, Inc.



These products are available at fine health food stores everywhere.

CAUTION: If you are taking anticoagulant or antiplatelet medications, or have a bleeding disorder, consult your healthcare provider before taking these products.

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.

Oh-Mg!

LE

105 mg



It's Everyone's Favorite: Magnesium Glycinate

You need
magnesium
for your **heart**,
bones, **nerves**
and **muscles**.

But these body systems use magnesium in different ways. Magnesium glycinate is a widely popular kind of magnesium that is combined with the amino acid glycine. This magnesium-glycine complex is well-absorbed, allowing the different parts of your body to make use of it.

Get the magnesium your body needs with
Magnesium Glycinate!

Item #02535

90 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.

REPORTS



Female Hair Loss

Two **plant extracts** may help *resolve hair loss* and *restore healthy hair growth*.

In clinical trials, one extract *decreased hair loss* by **48%** while the second *reduced hair shedding* by **34%**.

DEPARTMENTS

8 IN THE NEWS

Eating more fruit and vegetables shown to lower depression risk; fish oil reduced triglycerides in diabetics; vitamin C doubled survival time in late-stage pancreatic cancer patients; how to obtain lower cost of generic drugs.



16 ZINC IMPROVES GLUCOSE CONTROL

Meta-analyses found that **zinc** supplementation *improved* fasting **glucose**, **A1c**, **insulin resistance**, and **C-reactive protein**.

24 VITAMIN B12 BLOOD LEVELS

A recent study suggested that “normal” blood levels of **vitamin B12** on standard tests are now considered too *low* and can *increase* risk of **cognitive impairment** and **dementia** in older adults.

32 REMOVE AGED CELLS

Dysfunctional aged cells *accelerate* degenerative processes. **Senolytics** can help the body *remove* them.

52 PROBIOTIC DEFENSE AGAINST GUM DISEASE

Clinical data show that a targeted **probiotic** *inhibited* harmful **oral bacteria**, and *reduced* **gum bleeding** and **plaque buildup**. In addition, a heat-treated **postbiotic** clinically *reduced* **periodontal pockets**.

60 SYSTEMIC EFFECTS OF OLIVE OIL

Extra virgin **olive oil** is associated with *decreased* risks of **dementia**, **cardiovascular** disease, and **non-alcoholic fatty liver**, along with *improved* **cognitive function**.

72 WHAT IS MAQUI BERRY?

Maqui berries have been shown to help relieve dry eyes and *reduce* **blood sugar** levels.

78 SUPERFOODS

Selenium-rich **Brazil nuts** may *lower* the risk of **cardiovascular disease**, **cancer**, and overall **mortality**. They may also combat two factors linked to obesity: inflammation and intestinal permeability.

82 CARDIOVASCULAR EFFECTS OF TAURINE

In clinical studies, **taurine** *improved* heart function, lowered blood pressure and reduced atherogenic lipids.

92 EXTENDING THE ROLE OF VITAMIN E

Vitamin E is associated with *reducing* incidence of **all-cause mortality**, COPD mortality, **fatty liver disease**, and **postmenopausal insomnia**.

ONE SCOOP, ALL Power



**BUILT FOR
STRENGTH.
BACKED BY
SCIENCE.**

NEW



Item #02543

Net Wt. 300 grams
About 60 servings

**NON
GMO
CERTIFIED** **GLUTEN
FREE**

Our pure creatine monohydrate powder supports muscle function, promotes cellular energy, and encourages exercise performance and recovery.

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.

Editorial

Editor-in-Chief • Philip Smith
Executive Managing Editor • Renee Smith
Medical Editor • Mahwish Aurangzeb, MD, MPH
Senior Editor • Dan Jewel
Senior Staff Writer • Michael Downey
Department Editor • Laurie Mathena
Associate Editor • Rivka Rosenberger, EdD
Creative Director • Robert Vergara, MS
Art Director • Alexandra Maldonado

Chief Medical Officer

Steven Joyal, MD

Chief Scientific Officer

Andrew Swick, MS, PhD

Scientific Advisory Board

Richard Black, DO • Aubrey de Grey, PhD • Joel Kahn, MD, FACC
Sandra C. Kaufmann, MD • Peter H. Langsjoen, MD, FACC
Dipnarine Maharaj, MD • L. Ray Matthews, MD, FACS
Ralph W. Moss, PhD • Michael D. Ozner, MD, FACC
Xiaoxi Wei, PhD • Jonathan V. Wright, MD

Contributors

Michael Downey • Ross Howzer • Laurie Mathena
Marsha McCulloch, MS, RD • Brad Taylor • Richard Thompson
Steven Townsend

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

Life Extension Magazine values your opinion and welcomes feedback.

Please mail your comments to *Life Extension Magazine*,

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

or email us: LEmagazine@LifeExtension.com

LIFE EXTENSION (ISSN 1524-198X) September/October 2025 ©2025 is published monthly except bi-monthly in April by LE Publications, Inc. at 3600 West Commercial Blvd., Fort Lauderdale, FL 33309-3338. LE Publications, Inc. All rights reserved. Published 13 times a year. Subscription rate: \$40 per year in the United States. US \$47 in Canada. US \$60 in other countries. Mail subscriptions or address changes to: LE Publications, Inc., P.O. Box 407198, Fort Lauderdale, FL 33340-7198, USA. Or phone us toll-free at: 1-800-841-5433. Canada Subscriptions: Publications mail agreement number 40028967. Return undeliverable Canadian addresses to PO Box 503, RPO West Beaver Creek, Richmond Hill, ON L4B4R6. You will be sent your first issue within six weeks after LE Publications, Inc. receives your subscription fee. Periodicals Postage paid at Fort Lauderdale, FL and at additional mailing offices. POSTMASTER: Send address changes to Life Extension, P.O. Box 407198, Ft. Lauderdale, Florida 33340-7198, USA. Printed in USA. The articles in this magazine are intended for informational purposes only. They are not intended to replace the attention or advice of a physician or other health-care professional. Anyone who wishes to embark on any dietary, drug, exercise, or other lifestyle change intended to prevent or treat a specific disease or condition should first consult with and seek clearance from a qualified health-care professional. **LEGAL NOTICE:** Health claims contained in articles and advertisements in this publication have not been approved by the FDA with the exception of FDA-approved, qualified health claims for calcium, antioxidant vitamins, folic acid and EPA and DHA omega-3 fatty acids, and selenium as noted where applicable. *Life Extension Magazine®* does not endorse any of the businesses or the products and/or services that may appear in advertisements for non-Life Extension branded products or services contained in it, except to state that they are advertisers who may have paid Life Extension for placement of an advertisement in this publication. Life Extension disclaims any and all responsibilities or warranties as to the accuracy of information contained in advertisements for non-Life Extension branded products or services. For Canadian customers send change of address information and blocks of undeliverable copies to P.O. Box 1051, Fort Erie, ON L2A 6C7.

H₂O Scams Exposed!

FREE Report

Get the lowdown on bogus water scams... oxygenated, structured, energized, alkalized and micro-clustered.

*Truth revealed about distilled, mineral, spring, filtered, bottled, reverse osmosis, well and ordinary "purified" water. Discover the amazing Waterwise system that **guarantees you consistent water purity.***

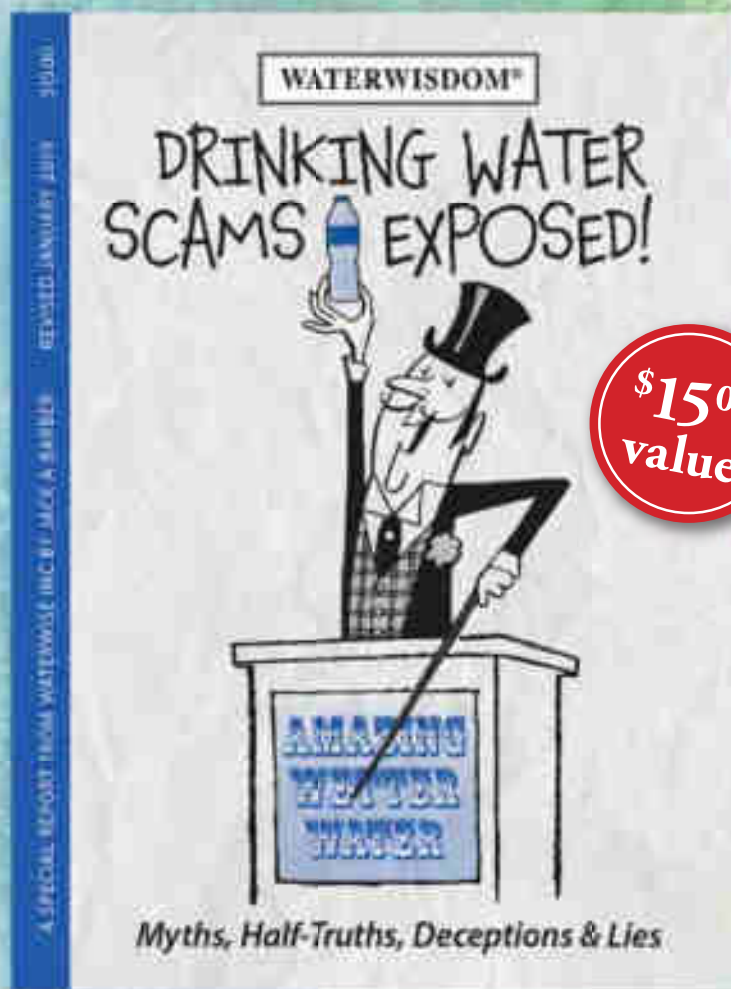
*Learn about the wise alternative to buying bottled and **save 70% or more.***

*Drink the purest... **you should consume about 2,920 glasses** (182 gallons) every year—**be water-wise!***

WATERWISE®
Purity Since 1977
Purification Systems



Call: **800-874-9028** Ext 750
Visit: **waterscamsreport.net**



Waterwise water purifiers are recommended by:

**Dr. Russell Blaylock, Dr. Patricia Bragg,
Dr. Ted Broer, Dr. Michael Colgan, Dr. David
Klein, Dr. Monte Kline, Dr. Bill Misner, Dr. Keith
Nemec, Dr. Scott Senne, Dr. Varah Siedlecki,
Dr. David Williams, and many more...**

Mail to: Waterwise Inc • PO Box 494000 Leesburg FL 34749

☒ **YES!** Please rush my **FREE** Waterwisdom Report
& Catalog... No Cost/No Obligation

LEXT

Name _____

Address _____

City _____ State _____ Zip _____

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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



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



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



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



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

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



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

Eating More Fruit and Vegetables Reduces Risk of Depression, Twin Study Shows

A study in adult twins found that consuming higher amounts of fruit and vegetables was associated with a reduced risk of depression.*

The study included 3,483 twins from 45 to 90 years old. The researchers used food-frequency questionnaires to assess the association between higher fruit and vegetable intake and depression risk over a period of 5-11 years.

Compared to low intake, defined as **less than half a serving** per day, high intake of fruit and vegetables, about **two servings per day** (although that number still falls well below the recommended daily intake of at least five servings per day), was associated with a modest reduction in the risk of depression.

The authors attributed the beneficial relationship between fruit and vegetable intake and depression as most likely due to “the high levels of dietary fiber, vitamins and micro-nutrients contained in fruit and vegetables.” They added that, *“The importance of the gut microbiome and its potential influence on depression via inflammation, both systemic and neuroinflammation, is becoming increasingly well understood.”*

Editor’s note: “Our previously published meta-analyses of four population-based studies of adults aged 45+ years found higher fruit intakes were associated with a **15%** reduced odds of incident depression, and higher vegetable intakes with **9%** reduced odds,” the authors noted.

* *Sci Rep.* 2024 Nov 29;14(1):29711.





Fish Oil Can Lower Triglycerides in People with Diabetes

A reduction in triglycerides was found among people with diabetes taking fish oil, which contains the omega-3 fatty acids EPA and DHA, compared with those given a placebo, according to a new clinical trial.*

The trial included 309 men and women with type II diabetes and high triglycerides. Participants were randomized to receive **4 grams** fish oil or placebo for 12 weeks. At the end of the 12-week trial triglycerides decreased by an average of **21%** in the fish oil group, while there was no significant difference in the placebo group.

Editor's Note: "These findings have important implications for the development of personalized dietary interventions to effectively manage high triglycerides and related metabolic disorders," the authors stated.

* *Med.* 2025 Jan 10;6(1):100496.

Vitamin C Doubles Survival Time in Late-Stage Pancreatic Cancer Patients

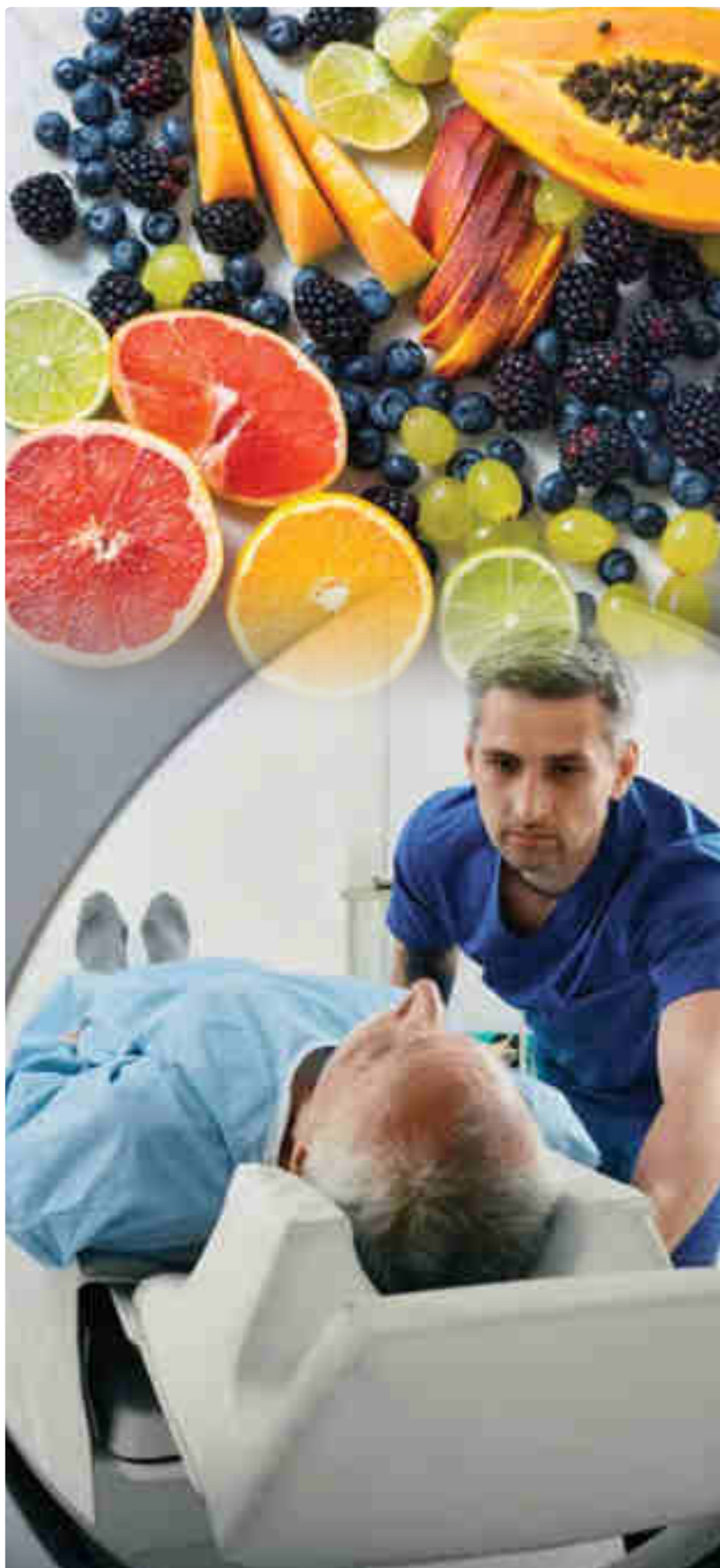
High-dose, intravenous vitamin C, when added to conventional chemotherapy, doubled survival time in patients with late-stage, metastatic pancreatic cancer, a study published in *Redox Biology* reported.*

In this phase 2 clinical trial, 34 people with pancreatic cancer were randomized into two groups. One group received standard chemotherapy alone and another group received the chemotherapy plus intravenous infusions of **75 grams** of vitamin C three times per week.

Those who received chemotherapy alone survived an average of **eight months**, while those who received chemotherapy plus intravenous vitamin C survived an average of **16 months**—double the amount of time.

Editor's note: Adding high-dose vitamin C did not increase the frequency or severity of adverse events, the authors noted. Not all vitamin C studies show these remarkable results.

* *Redox Biol.* 2024 Nov;77:103375.



Lower Cost of Generic Drugs

A new business model for selling generic drugs could dramatically lower drug costs, according to a study published in the *New England Journal of Medicine Catalyst*.*

CivicaScript is a not-for-profit generic drugs supplier in the U.S. whose goal is to lower the cost of certain high-cost generic medications. CivicaScript's proposed model contracts directly with manufacturers to produce generic drugs and sells them to pharmacies and health plans at a fixed cost-plus price. This model avoids middlemen and keeps markups low.

To test the effectiveness of this model, researchers evaluated the cost of **abiraterone acetate**, a generic drug used to treat metastatic prostate cancer. They compared payments between CivicaScript and other manufacturers over a four-month period.

The results showed that CivicaScript was able to provide this drug at a price that was **64%** lower for patients (saving them around \$81 per month) and **95%** lower for 14 insurers (saving the health plans an average of \$1,796 per patient per month).

Abiraterone acetate generally costs thousands of dollars per month per patient. CivicaScript was able to provide a one-month's supply (120 250-mg tablets) for \$171. This price is slightly above wholesale in order to cover pharmacy dispensing fees.

Editor's note: "These data show that when you align the interests of patients, healthcare institutions and society, there is great potential to create a more equitable, cost-effective healthcare system," said report co-author Carter Dredge.

* *NEJM Catalyst*. 2025;6(6):CAT.24.0417.



RE-ENERGIZE

HEART AND BRAIN CELLS

Three Choices
of Superior
Ubiquinol CoQ10

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

Alicia

VERIFIED CUSTOMER
REVIEW



100 mg CoQ10

Item #01426

100 mg • 60 softgels



200 mg CoQ10

Item #01431

200 mg • 30 softgels



100 mg CoQ10 + 10 mg PQQ

Item #01733

100 mg • 30 softgels

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.

Your Bone Health... Now **BOOSTED**

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



Item #01727
120 capsules

This product is available at fine health food stores everywhere.

Caution: Those taking a vitamin K antagonist (e.g. warfarin) should use Bone Restore without vitamin K2.

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.

Turn On
Your
Cellular
Energy

NAD⁺

Cell Regenerator™

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

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

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

NAD⁺ Cell Regenerator™ has met ConsumerLab.com standards for ingredient and product quality for Nicotinamide Riboside in independent testing. More information at www.consumerlab.com.

These products are available at fine health food stores everywhere.

NAD⁺ Cell Regenerator™ and Resveratrol Elite™

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

Item #02348 • 30 veg. caps.

NAD⁺ Cell Regenerator™

300 mg of nicotinamide riboside per capsule.

Item #02344 • 30 veg. caps.



**NON
GMO**
LE CERTIFIED

**GLUTEN
FREE**



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.



Boost Energy

CREATINE for Energy and Muscles

NEW



Item #02543

Net Wt. 300 grams (0.66 lb.)
About 60 servings

Creatine Monohydrate boosts **ATP** production which powers vital **cellular functions**, leading to **enhanced energy** and **improved strength**.¹

In clinical trials, **creatine**:

- Supported **ergogenic** performance benefits,^{2,3}
- Improved **muscle** mass^{4,5} and healthy body composition,⁴ and
- Enhanced **exercise performance** in various age groups and levels of training.²

Life Extension® Creatine Powder is a premium grade, pure **creatine monohydrate** with no added ingredients. This fine powder dissolves easily in water or your beverage of choice.

This product is available at fine health food stores everywhere.

1. *Nutrients*. 2021 Apr 9;13(4):1238.

2. *J Int Soc Sports Nutr*. 2017;14:18.

3. *Open Access J Sports Med*. 2017;8:213-26.

4. *J Cachexia Sarcopenia Muscle*. 2016

Sep;7(4):413-21.

5. *Eur J Appl Physiol*. 2013 Apr;113(4):987-96.



ZINC

Improves
Glucose Control



BY ROSS HOWZER

Many people take **zinc** to support their **immune** system.^{1,2} But zinc's benefits go far beyond.

Observational studies have found that low zinc levels are linked to insulin resistance, **type 2 diabetes**, poor blood sugar control,³⁻⁶ and the development of diabetic complications.^{3,7,8}

In **clinical trials**, oral zinc intake *improved* control of diabetes and associated disorders.⁹⁻¹¹

For those with **type 2 diabetes** or at risk for developing it, **zinc** reduced multiple measures of **blood sugar control**. This included fasting blood **glucose** and **hemoglobin A1C** (HbA1c), as well as a measure of insulin resistance.^{10,12,13}

Some studies suggest that *higher* zinc intake may modestly reduce the risk of developing **type 2 diabetes**.¹⁴

Zinc and Type 2 Diabetes

Zinc is a nutrient mineral that is a structural component of over 300 vital enzymes and 2,000 transcriptional factors in the body. This means that cells, organs, and tissues *require* zinc to function properly.¹⁵

It's essential for immune cell development and also plays a key role in brain, eye, and metabolic health.¹⁵

Unfortunately, inadequate zinc status and zinc consumption are surprisingly common, which increases the risk for various health issues, including **high blood sugar** and **type 2 diabetes**.¹⁶

Observational studies have shown that low zinc levels are associated with **type 2 diabetes**. This may be due to losing more zinc through urine, absorbing less from food, or high blood sugar and insulin resistance-related changes in how the body handles zinc.^{3,17}

One observational study compared serum zinc levels in 200 individuals with type 2 **diabetes** and 192 healthy controls. The results showed that those with diabetes had significantly lower average serum zinc levels (**66.5 µg/dL**) compared to healthy individuals (**82.6 µg/dL**).

Participants with zinc levels below **70 µg/dL** had markedly worse **glycemic** control, with an average fasting blood sugar of **140 mg/dL** and **HbA1c** of **9.77%**, compared to those with normal zinc levels, who had an average fasting blood sugar of **105 mg/dL** and **HbA1c** of **5.7%**.⁴

There is also evidence that low zinc status is associated with an increased risk of complications of diabetes.

A case-control study found that diabetic patients with polyneuropathy had significantly lower zinc levels than both diabetic patients without neuropathy and healthy individuals. Lower zinc levels were strongly linked to more severe neuropathy symptoms, poorer nerve function, and worse blood sugar control (higher HbA1c).⁷

What Zinc Can Do

Basic science and preclinical research show that zinc plays a key role in metabolic functioning. For instance:

- Zinc has demonstrated anti-inflammatory effects by blocking NF-κB (nuclear factor-kappa B), a protein complex that promotes **inflammation**.^{3,18} This could have important implications for blood sugar control and reducing obesity-related complications in diabetes.¹⁹
- Zinc aided in forming, storing, and releasing insulin, a hormone that allows tissues to take up glucose from the blood, lowering blood sugar.³
- In preclinical models, zinc *deficiency* impairs the response of tissues to insulin, contributing to **insulin resistance**, which is known to predispose to **high blood glucose** levels (hyperglycemia).²⁰⁻²² In rodents, supplementing with zinc improved insulin response.²¹
- Diabetes (chronic hyperglycemia) can lead to nerve damage, eye disease, kidney disease, cardiovascular disease, and more.²³

Increasing zinc intake through supplements helps ensure adequate levels of zinc in blood and tissues, potentially reducing the incidence and impact of insulin resistance and diabetes.^{9,12,13}



Oral Intake Offers Hope

Human studies on **zinc intake** in individuals with diabetes—or those at risk of developing it—have shown significant promise.^{9,10,12}

One systematic review and meta-analysis of 22 clinical studies in patients with **type 2 diabetes** found that zinc supplementation reduced:²⁴

- Fasting blood glucose,
- After-meal blood sugar,
- HbA1c levels,
- Systolic (top number) and diastolic blood pressure, and
- Total and LDL (bad) cholesterol.

Another **meta-analysis** of **32 clinical trials**, including 1,700 participants with diabetes, prediabetes, obesity, or other metabolic impairments, showed that zinc supplementation improved several markers of glucose control, including:⁹

- Fasting glucose,
- Post-meal glucose,
- HbA1c,
- Insulin resistance, and
- High-sensitivity C-reactive protein (a marker of chronic inflammation).

A very large **meta-analysis** of randomized controlled trials, mostly in patients with type 2 diabetes or prediabetes, further confirmed that zinc supplementation significantly improved key glycemic biomarkers in adults with or at risk for type 2 diabetes, including fasting blood sugar, insulin levels, HOMA-IR (a measure of insulin resistance), and HbA1c, compared to control groups.¹²

The studies analyzed used a range of daily zinc doses with supplementation durations ranging from **four weeks** up to **six months**.

These findings suggest that zinc supplementation may serve as an effective adjunct strategy for improving glycemic control in individuals with type 2 diabetes or prediabetes.



Zinc's Metabolic Benefits

- Zinc is well known for supporting immune health and playing an essential role in the optimal function of thousands of proteins throughout the body.
- Zinc is required for normal **insulin** function. Low levels contribute to insulin resistance and poor glucose control.
- Some studies have found that low zinc levels appear to increase the risk of **type 2 diabetes** and other metabolic disorders.
- Meta-analyses of clinical trials have found that zinc supplementation can improve glucose control, **lowering blood sugar** in those with diabetes or at risk for developing it, while also reducing blood pressure and improving lipid profiles.

Summary

Thousands of proteins rely on **zinc** to function, affecting the immune system and tissues throughout the body.

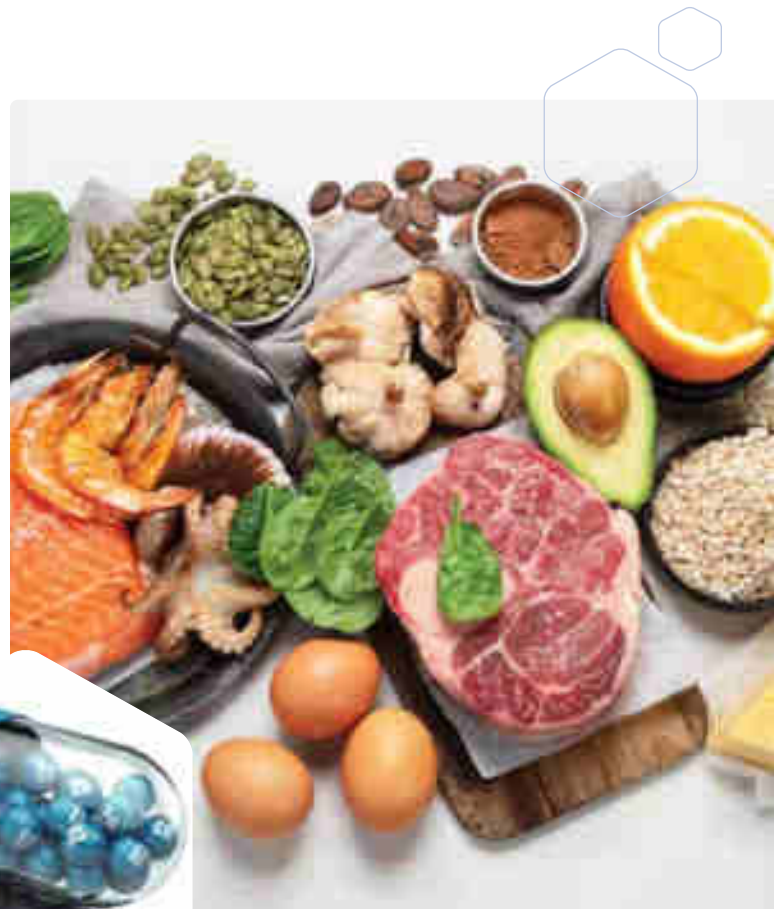
Zinc plays crucial roles in supporting metabolic health, including proper **insulin** function. Low zinc levels are associated with poor glucose control and a higher risk of diabetic complications.

Clinical studies involving people with diabetes—or those at risk of developing it—have shown that zinc supplementation can improve insulin function and glucose control, helping to reduce elevated blood sugar levels that can cause widespread damage in the body. ■

References

1. Kanwar A, Sharma A. A review on role of zinc as a potent immunity boosting agent. *Mater Today Proc.* 2022;68(4):880-5.
2. Available at: <https://ods.od.nih.gov/factsheets/Zinc-HealthProfessional/>. Accessed June 13, 2025.
3. Ahmad R, Shaju R, Atfi A, et al. Zinc and Diabetes: A Connection between Micronutrient and Metabolism. *Cells.* 2024 Aug 15;13(16).
4. Farooq M. Zinc Deficiency is Associated with Poor Glycemic Control. *J Coll Physicians Surg Pak.* 2019 Mar;29(3):253-7.
5. Bandeira VDS, Pires LV, Hashimoto LL, et al. Association of reduced zinc status with poor glycemic control in individuals with type 2 diabetes mellitus. *J Trace Elem Med Biol.* 2017 Dec;44:132-6.
6. Mba CM, Jones KS, Forouhi NG, et al. The association between plasma zinc concentrations and markers of glucose metabolism in adults in Cameroon. *Br J Nutr.* 2023 Oct 14;130(7):1220-7.
7. Hussein M, Fathy W, Hassan A, et al. Zinc deficiency correlates with severity of diabetic polyneuropathy. *Brain Behav.* 2021 Oct;11(10):e2349.
8. Luo YY, Zhao J, Han XY, et al. Relationship Between Serum Zinc Level and Microvascular Complications in Patients with Type 2 Diabetes. *Chin Med J (Engl).* 2015 Dec 20;128(24):3276-82.
9. Wang X, Wu W, Zheng W, et al. Zinc supplementation improves glycemic control for diabetes prevention and management: a systematic review and meta-analysis of randomized controlled trials. *Am J Clin Nutr.* 2019 Jul 1;110(1):76-90.
10. Wang Z, Ronsmans C, Woolf B. Triangulating evidence for the causal impact of single-intervention zinc supplement on glycaemic control for type 2 diabetes: systematic review and meta-analysis of randomised controlled trial and two-sample Mendelian randomisation. *Br J Nutr.* 2023 Jun 14;129(11):1929-44.
11. Capdor J, Foster M, Petocz P, et al. Zinc and glycemic control: a meta-analysis of randomised placebo controlled supplementation trials in humans. *J Trace Elem Med Biol.* 2013 Apr;27(2):137-42.
12. Daneshvar M, Ghaheiri M, Safarzadeh D, et al. Effect of zinc supplementation on glycemic biomarkers: an umbrella of interventional meta-analyses. *Diabetol Metab Syndr.* 2024 Jun 8;16(1):124.
13. Nazari M, Nikbaf-Shandiz M, Pashayee-Khamene F, et al. Zinc Supplementation in Individuals with Prediabetes and type 2 Diabetes: a GRADE-Assessed Systematic Review and Dose-Response Meta-analysis. *Biol Trace Elem Res.* 2024 Jul;202(7):2966-90.

14. Fernandez-Cao JC, Warthon-Medina M, V HM, et al. Zinc Intake and Status and Risk of Type 2 Diabetes Mellitus: A Systematic Review and Meta-Analysis. *Nutrients.* 2019 May 8;11(5).
15. Kiouri DP, Tsoupra E, Peana M, et al. Multifunctional role of zinc in human health: an update. *EXCLI J.* 2023;22:809-27.
16. Available at: <https://ods.od.nih.gov/factsheets/Zinc-HealthProfessional/#h8>. Accessed June 19, 2025.
17. Barman S, Srinivasan K. Diabetes and zinc dyshomeostasis: Can zinc supplementation mitigate diabetic complications? *Crit Rev Food Sci Nutr.* 2022;62(4):1046-61.
18. Jarosz M, Olbert M, Wyszogrodzka G, et al. Antioxidant and anti-inflammatory effects of zinc. Zinc-dependent NF-kappaB signaling. *Inflammopharmacology.* 2017 Feb;25(1):11-24.
19. Kracht M, Muller-Ladner U, Schmitz ML. Mutual regulation of metabolic processes and proinflammatory NF-kappaB signaling. *J Allergy Clin Immunol.* 2020 Oct;146(4):694-705.
20. Tamura Y. The Role of Zinc Homeostasis in the Prevention of Diabetes Mellitus and Cardiovascular Diseases. *J Atheroscler Thromb.* 2021 Nov 1;28(11):1109-22.
21. Rech L, Zahradka P, Taylor CG. Marginal Zinc Deficiency Promotes Pancreatic Islet Enlargement While Zinc Supplementation Improves the Pancreatic Insulin Response in Zucker Diabetic Fatty Rats. *Nutrients.* 2024 Jun 10;16(12).
22. Nakamura A, Kido T, Seki Y, et al. Zinc deficiency affects insulin secretion and alters insulin-regulated metabolic signaling in rats. *J Trace Elem Med Biol.* 2024 May;83:127375.
23. Available at: <https://www.who.int/news-room/fact-sheets/detail/diabetes>. Accessed June 16, 2025.
24. Jayawardena R, Ranasinghe P, Galappaththy P, et al. Effects of zinc supplementation on diabetes mellitus: a systematic review and meta-analysis. *Diabetol Metab Syndr.* 2012 Apr 19;4(1):13.



PROMOTE DIGESTIVE HEALTH

"Whenever I have a problem, this works to get things back on track."

Wendy

VERIFIED CUSTOMER
REVIEW

FLORASSIST® Daily Bowel REGULARITY

Discovered in New Zealand yogurt, this unique **probiotic** formula contains **17.2 billion CFU[†]** of *Bifidobacterium lactis* HN019.

This probiotic has been **clinically studied** to help maintain a healthy **colonic transit time**, **combat occasional constipation**, and **support bowel regularity**.¹

One capsule daily of **FLORASSIST® Daily Bowel Regularity** formula can help promote healthy, daily movement through the **colon**.



GLUTEN
FREE

1
DAILY

NON
GMO
LE CERTIFIED

Item #02421

30 vegetarian capsules

This product is available at fine health food stores everywhere.

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

† Colony Forming Units at time of manufacture.



"I love it."

Steven

VERIFIED CUSTOMER
REVIEW

UP TO 45 TIMES
GREATER
BIOAVAILABILITY

CURCUMIN



This product is available at
fine health food stores everywhere.

Item #02407

500 mg
60 vegetarian capsules

Patented technology combining
turmeric and **fenugreek blend**
(500 mg) results in up to
45 times greater bioavailability
of free **curcuminoids**.*

*Studied against powder turmeric extract
standardized to 95% curcuminoids.

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.

BOOST YOUR FREE

TESTOSTERONE

"Excellent."

Chris

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 up to **48%** from baseline in just eight weeks.³
- Helps support physical strength and other benefits of healthy testosterone levels.†

Just one capsule a day.

Item #02500

30 vegetarian capsules

References

1. Rev Urol. 2004;6 Suppl 6(Suppl 6):S9-S15.
2. Am J Med. 2007 Oct;120(10):835-40.
3. Laila Nutraceutical Internal Study. Data on file. 2019.

WINNER
NUTRA
INGREDIENTS
AWARDS 2024

GLUTEN
FREE

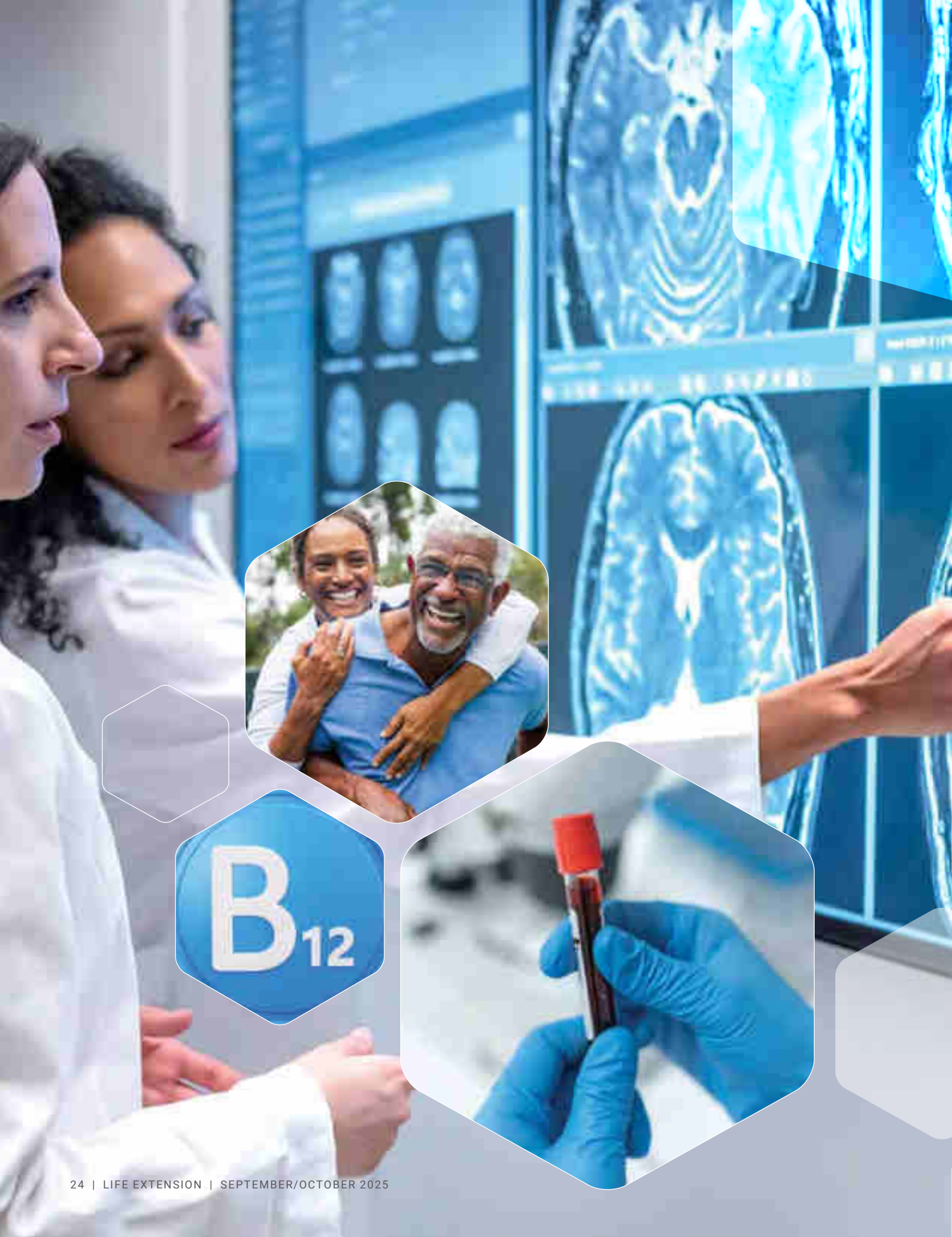
1
DAILY

NON
GMO
LE CERTIFIED

This product is available at fine health food stores everywhere.

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

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.





Impact of Slightly Low Vitamin B12 on BRAIN AGING

BY BRAD TAYLOR

A recent study challenges the definition of what constitutes vitamin B12 **deficiency**.

The results, published in *Annals of Neurology* in **2025**, suggest that low blood **vitamin B12** levels are associated with *early* neurological changes even at levels previously considered to be adequate in older adults.¹

This data adds to a growing body of research indicating that even *slightly low* B12 levels are associated with harmful changes in the brain and increased risk for **cognitive impairment** and **dementia**.²⁻⁶

Oral **vitamin B12** can maintain adequate levels to help ward off that increased risk.



Getting Enough Vitamin B12

Vitamin B12 is found in animal sources such as beef, lamb, fish, seafood, poultry, and dairy foods. It is not produced in plants, which means vegetarians and especially **vegans** have an elevated risk of low B12 levels.⁷

In addition, many individuals have difficulty absorbing vitamin B12 due to factors such as gastritis, gastrointestinal surgeries or abnormalities, certain medications (including antacids and metformin), and other underlying conditions.⁸

Vitamin B12 is critical for the development, function, and maintenance of the **nervous system**. It plays a key role in DNA synthesis and supports enzymes essential for nerve health.⁸

A deficiency in B12 can lead to **megaloblastic anemia** and serious **neurological problems**.^{8,9}

These B12-deficiency related neurological problems can include cognitive impairment, psychosis, nerve damage, and balance concerns, even without signs of anemia.

Neurological pathologies caused by B12 deficiency may not become evident until years after the initial deficiency begins. At this point vitamin B12 **supplementation** can no longer correct the damage, and neurological recovery may no longer be feasible. Early diagnosis and intervention are essential to prevent permanent damage, especially in older adults.¹⁰

The most commonly used initial test for diagnosing B12 deficiency is a simple vitamin B12 blood test with a reading of **148 pmol/L** or lower often used to indicate deficiency. This level has been historically linked to the onset of clinical symptoms like anemia and neuropsychiatric issues.¹¹

But a growing number of scientists have criticized this cutoff.^{1,12,13} That's because even in people with *modest* reductions in B12 levels that fall within the normal range, damaging changes can occur in the **brain** that may be associated with a range of neurodegenerative conditions, including **Alzheimer's**, **Parkinson's**, and **multiple sclerosis**.^{1-4,6}

B12 and Brain Health

The new (2025) study,¹ led by researchers at the University of California, San Francisco, took a fresh approach to evaluating the impact of vitamin B12 on brain aging.

Most studies test for total **vitamin B12** in blood. But B12 exists in more than one form in the bloodstream. Therefore, in this study researchers tested the participants for both forms of B12 using both the **bioavailable** and **total B12** blood tests.¹

Some circulating B12 is bound to a protein called **transcobalamin**. This form can be readily used by cells and is considered the **active** form of vitamin B12.

B12 can also be bound to a protein called **haptocorrin**. Most cells in the body cannot access haptocorrin-bound B12, making this form functionally **inactive**.

B12 Blood Test Ranges

According to LabCorp, a nationwide laboratory, the current range for acceptable B12 levels is **232–1245 pg/mL**.¹⁸

Life Extension has long advocated for maintaining serum vitamin B12 levels above **400 pg/mL** to support overall health.

Current research now supports this position, suggesting that ideal B12 concentrations for cognitive support range from, approximately, above **350 pmol/L**, though values may vary.¹

Individuals with lower levels can easily correct deficiencies through oral B12 supplementation.

Those taking B12 from various supplements often have high B12 levels, which is typical since the lab reference range was created from the general population, and not from those taking B12. Typically, any excess B12 is eliminated in the urine since B12 is a water soluble vitamin.



This 2025 published study enrolled 231 healthy older adults, median age about 71, with no history of cognitive decline or dementia. Researchers also performed various tests of the structure and function of their nervous system.

They found that lower levels of the **available form** of vitamin B12 correlated with:

- Slower conduction of signals in the brain,
- Slower **cognitive processing speeds** (how quickly we take in, interpret, and react to information), and
- Increased abnormalities in **brain white matter**, the nerve fibers that connect different areas of the brain to each other and to the spinal cord.

Many of the subjects with lower **bioavailable B12** levels were in the normal range for **total B12**. But they were still susceptible to the negative effects of low B12.

This suggests that many older adults with “normal” B12 levels may in fact be functionally vitamin B12 deficient, and thus at elevated risk of neurodegenerative disease and cognitive decline.

This frequently goes unrecognized because *normal* B12 lab levels are assumed to mean “healthy.” Older adults can benefit from taking **oral vitamin B12** to keep their active B12 levels in a higher range.

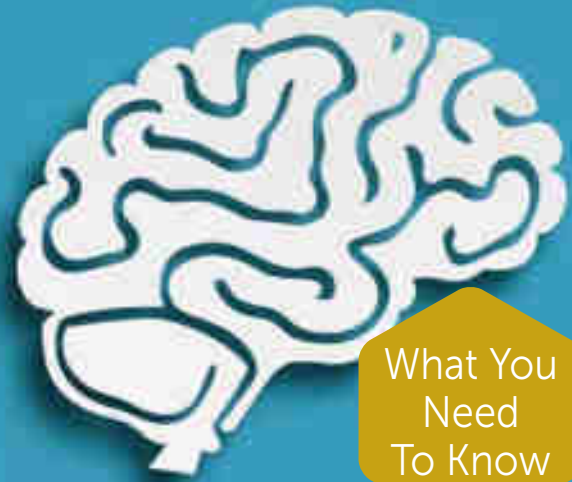
B12 Boosts Cognitive Function

The 2025 published study is not the first to demonstrate that low B12 levels are connected to accelerated **brain aging**.

A prospective observational study of 107 adult volunteers aged 61 to 87 years, found that low levels of B12 were associated with greater **loss of brain volume**. Those with the lowest B12 levels had over **six times** the risk of brain *atrophy* compared to those with the *highest* levels.¹⁴

In another observational study of older adults, researchers found that markers of vitamin B12 **deficiency** were associated with smaller total brain volume and poorer cognitive function, including **memory**.¹⁵

A systematic review and meta-analysis of 12 observational studies including participants aged 7 to 70 years, found that vitamin B12 deficiency was associated with **cognitive decline** and structural (as seen on MRI) and functional brain abnormalities across all age groups.



What You
Need
To Know

B12 Protects the Brain

- Deficiency of **vitamin B12** can lead to nervous system disorders.
- A recent study of older adults found that even low normal levels of the **active form** of vitamin B12 are associated with slower brain processing speeds and damage to the brain.
- This and other studies suggest that many more adults than previously realized may be at risk for **cognitive decline** due to suboptimal vitamin B12 levels.
- Oral B12 intake can keep levels of active vitamin B12 high to help reduce risk of **brain aging**.

In three of these studies that included cognitive testing after vitamin B12 replacement, there was partial to complete **recovery of cognitive function**.¹⁶

These data sets show a clear link between B12 status and brain health. The newest study reveals that many more adults may have dangerously low B12 levels than previously understood.

Taking **oral B12** may help to prevent structural brain damage and loss of cognitive function.

Summary

A study published in **2025** reveals that the lower end of “normal” **vitamin B12** levels is associated with loss of **cognitive function** and harmful changes in the brain in older adults.

This study and others suggest that people with both deficient, or low “normal” levels of vitamin B12 should urgently consider taking a vitamin B12 supplement to support brain health, help slow **brain aging**, and ward off cognitive decline. ■

References

1. Beaudry-Richard A, Abdelhak A, Saloner R, et al. Vitamin B12 Levels Association with Functional and Structural Biomarkers of Central Nervous System Injury in Older Adults. *Ann Neurol*. 2025 Jun;97(6):1190-204.
2. Grober U, Kisters K, Schmidt J. Neuroenhancement with vitamin B12—underestimated neurological significance. *Nutrients*. 2013 Dec 12;5(12):5031-45.
3. Kobe T, Witte AV, Schnelle A, et al. Vitamin B-12 concentration, memory performance, and hippocampal structure in patients with mild cognitive impairment. *Am J Clin Nutr*. 2016 Apr;103(4):1045-54.
4. Moore E, Mander A, Ames D, et al. Cognitive impairment and vitamin B12: a review. *Int Psychogeriatr*. 2012 Apr;24(4):541-56.
5. Smith AD, Refsum H. Vitamin B-12 and cognition in the elderly. *Am J Clin Nutr*. 2009 Feb;89(2):707S-11S.
6. McCaddon A. Vitamin B12 in neurology and ageing; clinical and genetic aspects. *Biochimie*. 2013 May;95(5):1066-76.
7. Available at: <https://ods.od.nih.gov/factsheets/VitaminB12-HealthProfessional/#h3>. Accessed June 20, 2025.
8. Green R, Allen LH, Bjorke-Monsen AL, et al. Vitamin B(12) deficiency. *Nat Rev Dis Primers*. 2017 Jun 29;3:17040.
9. Green R. Vitamin B(12) deficiency from the perspective of a practicing hematologist. *Blood*. 2017 May 11;129(19):2603-11.
10. Mathew AR, Di Matteo G, La Rosa P, et al. Vitamin B12 Deficiency and the Nervous System: Beyond Metabolic Decompensation—Comparing Biological Models and Gaining New Insights into Molecular and Cellular Mechanisms. *Int J Mol Sci*. 2024 Jan 2;25(1).
11. Harrington DJ. Laboratory assessment of vitamin B12 status. *J Clin Pathol*. 2017 Feb;70(2):168-73.
12. Solomon LR. Cobalamin-responsive disorders in the ambulatory care setting: unreliability of cobalamin, methylmalonic acid, and homocysteine testing. *Blood*. 2005 Feb 1;105(3):978-85; author reply 1137.
13. Yetley EA, Pfeiffer CM, Phinney KW, et al. Biomarkers of vitamin B-12 status in NHANES: a roundtable summary. *Am J Clin Nutr*. 2011 Jul;94(1):313S-21S.
14. Vogiatzoglou A, Refsum H, Johnston C, et al. Vitamin B12 status and rate of brain volume loss in community-dwelling elderly. *Neurology*. 2008 Sep 9;71(11):826-32.
15. Tangney CC, Aggarwal NT, Li H, et al. Vitamin B12, cognition, and brain MRI measures: a cross-sectional examination. *Neurology*. 2011 Sep 27;77(13):1276-82.
16. Alghamdi A. Structural and Functional Brain Changes Associated with Vitamin B12 Deficiency using Magnetic Resonance Imaging: A Systematic Review and Meta-analysis. *Curr Med Imaging*. 2023;19(4):312-26.
17. Schaffner A, Li X, Gomez-Llorente Y, et al. Vitamin B(12) modulates Parkinson's disease LRRK2 kinase activity through allosteric regulation and confers neuroprotection. *Cell Res*. 2019 Apr;29(4):313-29.
18. Available at: <https://www.labcorp.com/tests/001503/vitamin-b12>. Accessed June 26, 2025.

Two Bioactive Forms of Vitamin B12

Many people already take **methylcobalamin**, one of two **bioactive** forms of vitamin B12, in their multivitamin.

But there is *another* active B12 form—**adenosylcobalamin**—that may play its own particular role in the body.⁷

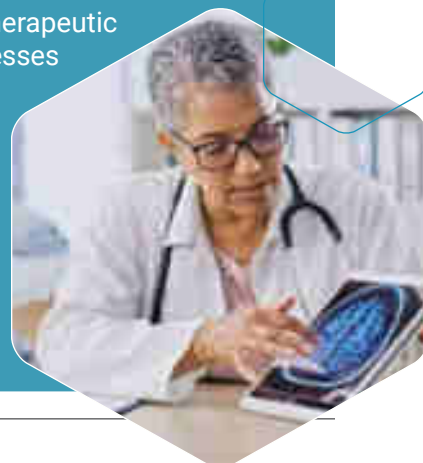
Preclinical research has shown therapeutic potential for **adenosylcobalamin**. Scientists performed a series of experiments in *in-vitro* models, worms, and mice.¹⁷

Worms with a Parkinson's-related mutation show impaired movement and accelerated loss of dopamine-producing neurons. However, when treated with **adenosylcobalamin** during their larval stage, these worms exhibited normal movement and significantly improved neuron survival.¹⁷

In a related mouse study, brain slices treated with adenosylcobalamin maintained stable dopamine levels during stimulation, unlike untreated slices, which showed a **20% drop** in dopamine release. This suggests that adenosylcobalamin may help preserve dopamine function in Parkinson's-like conditions.¹⁷

These findings suggest that vitamin B12 may offer a novel therapeutic approach targeting processes involved in pathogenesis of Parkinson's disease

A combination of both active forms of **vitamin B12** offers protection for aging brain cells.



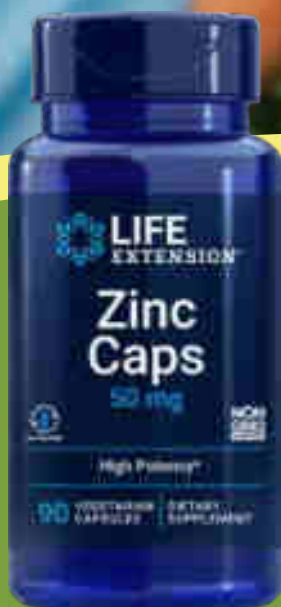
Think Zinc

FOR IMMUNE HEALTH

"An important
supplement for
daily use."

Albert

VERIFIED CUSTOMER
REVIEW



**You know zinc is good
for you—but are you
getting enough?**

Zinc promotes critical immune
functions and healthy bones.

This formula provides **50 mg** of
zinc in a convenient, vegetarian
capsule.

Item #01813

50 mg • 90 vegetarian capsules

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



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.



Add AMPK

To Your Health Routine

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

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

AMPK Metabolic Activator provides gnostemma and hesperidin extracts to:

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

Item #02207

30 vegetarian tablets

This product is available at fine health food stores everywhere.



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



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 like what I
see when I look
in my mirror!"

Nancy
VERIFIED CUSTOMER
REVIEW

The quickest
way to betray
your age is
with a tired
appearance...



Revive Hair, Skin, and Nails from Within

This product is available at fine health food stores everywhere.

Working from the inside out, **Hair, Skin & Nails Collagen Plus Formula** is an oral supplement with nutrients shown to benefit the hair, skin, and nails to keep them looking vibrant and healthy.

Rejuvenating nutrients include:

- **VERISOL® Bioactive Collagen Peptides®**—Stimulates the formation of new collagen and elastin to promote skin suppleness and elasticity¹
- **Cynatine® HNS Plus**—Provides solubilized keratin, zinc, B vitamins, biotin, and copper
- **Biotin**—Supports nail strength and integrity²
- **Silicon**—For the formation of collagen and keratin molecules³

Item #02322

120 tablets

Caution: Individuals with inborn errors of copper metabolism (e.g. Wilson's disease) should avoid daily, chronic use of this product.

Cynatine® is a registered trademark of Roxlor, LLC. VERISOL® and Bioactive Collagen Peptides® are registered trademarks of GELITA AG.

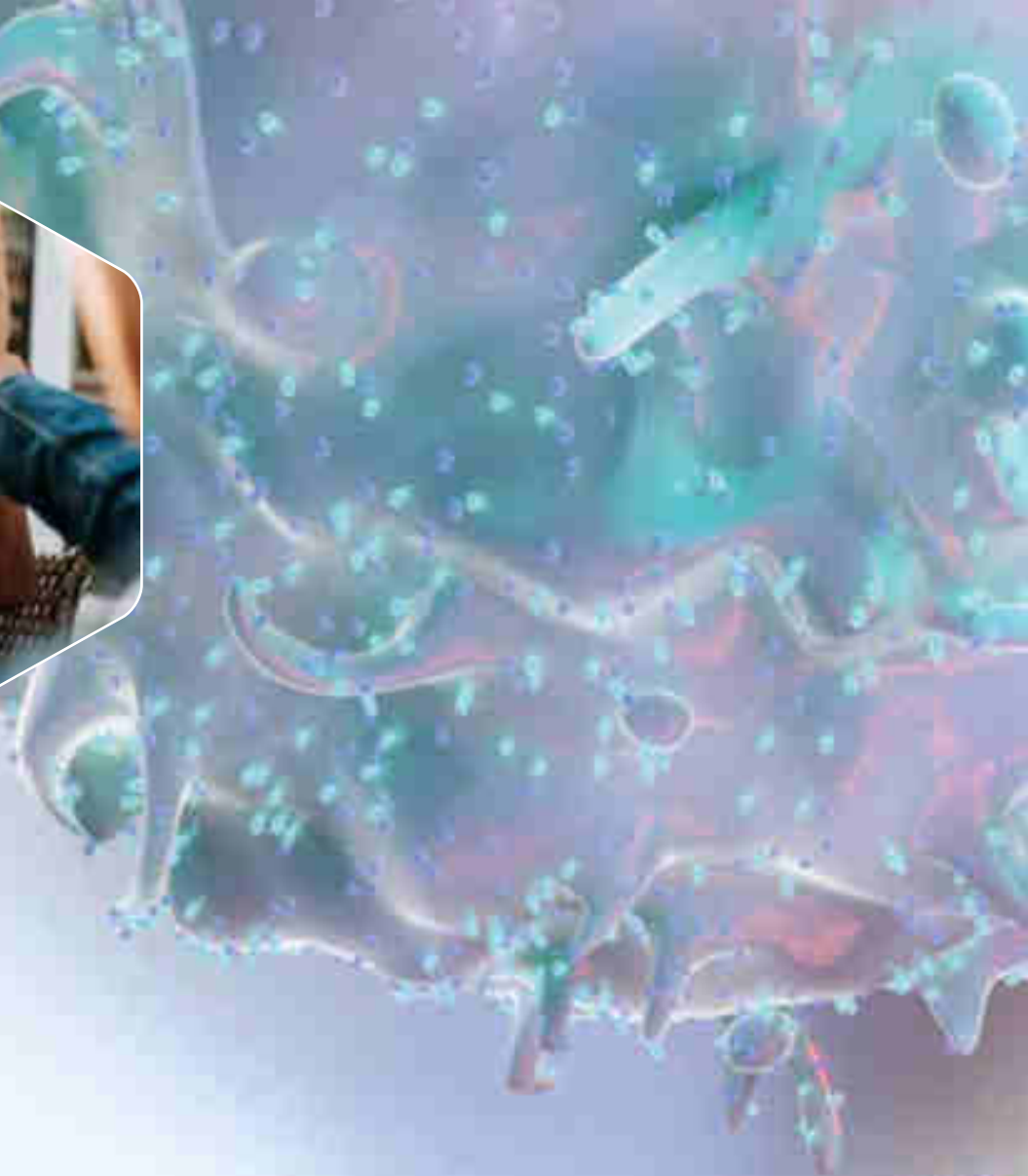
References

1. *Skin Pharmacol Physiol.* 2014 27(3):113-9.
2. *Vet Rec.* 1984 Dec 22-29;114 (25-26):642-5.
3. *Nutr Today.* 1993;28(4):13-8.

GLUTEN
FREE

NON
GMO
LE CERTIFIED

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.





SENOLYTICS

Remove Aged Cells

BY STEVEN TOWNSEND

Cells have a built-in program to beneficially self-destruct (via apoptosis) that is part of the body's maintenance system.¹

With age, however, not all of aged “senescent” cells are eradicated.

Instead of undergoing normal elimination, **senescent cells** linger in a toxic dysfunctional state.

The accumulation of damaged **senescent cells** can accelerate aging processes and contribute to development of chronic diseases.²

Scientists have conducted research into compounds (called **senolytics**) that remove **senescent cells**, which have shown promising regenerative effects.³⁻⁵

Enlightened people today utilize plant-based **senolytics** like **fisetin**, **theaflavins** and **quercetin** that target pathways that block favorable programmed cell death (apoptosis).

Turning “on” youthful apoptosis helps rid the body of accumulated **senescent cells**.

The Problem of Cellular Senescence

Senescent cells have structural and functional abnormalities that make them different from normal, healthy cells.^{2,6,7}

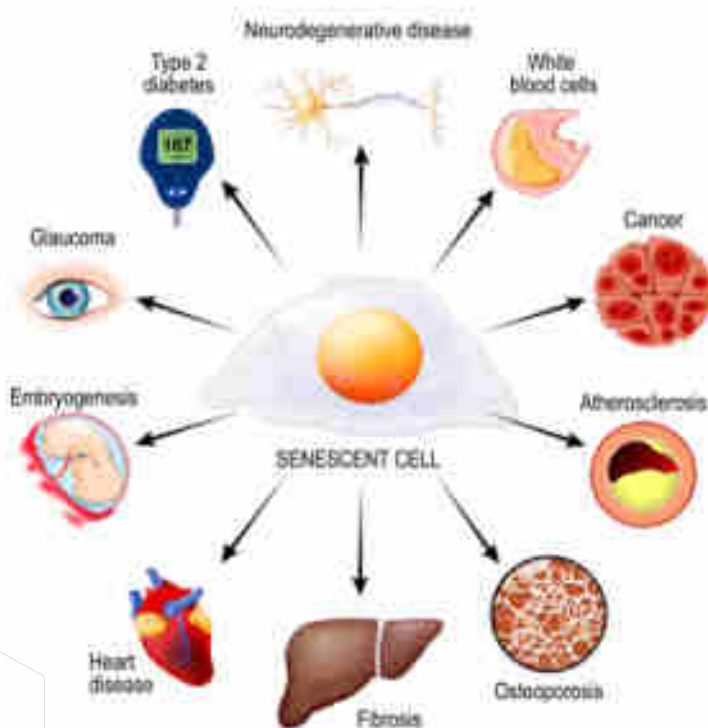
As these damaged (senescent) cells accumulate with age, they secrete compounds that promote local and systemic degeneration. Their resistance to apoptosis has earned them the nickname “zombie cells.”⁸

Compounds secreted by senescent cells are called **senescence-associated secretory phenotypes** (SASPs). They **degrade** surrounding tissues and contribute to chronic **inflammation**.^{6,9}

This **low-grade inflammation**, also known as **inflammaging**, is a significant contributor to loss of function and chronic disease.¹⁰

The buildup of **senescent cells** and **inflammaging** has been shown in clinical and preclinical settings to **accelerate the aging process** and increase the risk of age-related diseases, including:

- Cardiovascular disease,^{6,11}
- Osteoarthritis,^{2,7,11}
- Type 2 diabetes,¹²
- Cognitive decline and dementia,^{2,7,11} and
- Cancer.^{2,6,7,11}



Senolytic Therapy

Researchers at a major research hospital have made significant contributions to ways to combat cellular senescence.^{13,14} They found that compounds called **senolytics** activated a kind of “switch” in senescent cells, causing them to die without affecting healthy cells.^{2,13} They also found that the removal of senescent cells may delay aging-associated disorders.¹³

They termed these interventions **senolytic therapy**. By targeting senescent cells for removal, senolytic compounds aim to delay age-associated diseases and restore tissue function.

In animal models, using senolytics to eliminate senescent cells has demonstrated remarkable health effects, including:

- Improving markers associated with aging,^{9,15,16}
- Extending the life of elderly mice by about **10%**, which is analogous to a 75-year-old human living an extra **7.5 years**,¹⁷
- Halting or even reversing atherosclerotic plaque development, the most common cause of cardiovascular disease in mice,^{14,16}
- Reducing inflammation associated with obesity and improving metabolic health,^{15,18} and
- Protecting against osteoarthritis.^{16,19}

Intermittent treatment with senolytics (formulated with the drug dasatinib and the nutrient quercetin) reduced senescent cells, improved physical function, and increased post-treatment survival by **36%**, lowering the mortality hazard by **65%** in aged mice.⁵

Early **human studies** of senolytic therapies have shown promise as well.

In one pilot study of patients suffering from **idiopathic pulmonary fibrosis**, a progressive lung disease, senolytic therapy with a cocktail of dasatinib (**100 mg** per day) and quercetin (**1250 mg** per day) for three consecutive days per week over a total of three weeks, led to a clinically meaningful improvement in physical function, including gains in walking distance and gait speed.²⁰

In a phase 2 randomized controlled trial of 60 postmenopausal **women** who had a high burden of **senescent cells**, intermittent senolytic therapy for 20 weeks with dasatinib and quercetin significantly increased markers of bone formation and increased **bone mineral density**.²¹

Plant-Derived Senolytics

Scientists have spent years testing plant-derived nutrients for their senolytic properties to aid in the safe removal of senescent cells.³⁻⁵ These damaged cells not only contribute to aging but can accelerate the aging process throughout the body, contributing to degenerative diseases such as cancer and arthritis.^{2,6} These nutrients help activate the senolytic process in the body without the use of pharmaceuticals. The following compounds have been found to be particularly promising:

- **Fisetin**, a polyphenol found in fruits such as strawberries and apples, is one of the *most potent plant-derived senolytics* yet discovered. In an animal study, old mice given fisetin eliminated about **70%** of **senescent cells** and experienced an increase in lifespan of nearly **10%**.¹⁷ In other preclinical studies, fisetin has demonstrated other health-promoting effects, including reducing body weight, improving metabolic health, protecting the brain against degenerative diseases, and reducing cancer incidence.^{22,23}
- **Quercetin**, an anti-inflammatory nutrient found in many fruits and vegetables.²⁴ On its own, it removed senescent cells in the kidneys of mice, improving function and decreasing the fibrosis (scarring) that leads to **kidney failure**.²⁰
- **Theaflavins**, polyphenolic compounds found in black tea, have been known and studied for anti-cancer properties, cognitive function improvement, and anti-inflammatory effects.²⁵ Theaflavins have shown anticancer effects by inducing apoptosis in several cancer cell lines. They work by targeting survival pathways of senescent cells involving a protein called **BCL-2** that stops senescent cells from dying.²⁶ In one mouse model study, theaflavins were shown to have significant senolytic activity in ameliorating ionizing radiation-induced cell injury.²⁷
- **Apigenin** is a polyphenol found in various foods such as parsley, celery, and chamomile. It has been shown to *block* the pro-inflammatory compounds senescent cells produce, decreasing harmful chronic inflammation,^{28,29} and has also been shown to improve physical and cognitive function in animal models of premature aging.³⁰

What You Need To Know

How Senolytics may Slow Aging and Chronic Disease

- Some aging, dysfunctional cells become **senescent**, spreading pro-inflammatory compounds and refusing to die off to make room for new, healthy cells.
- Senescent cells have been found to contribute to loss of function and progression of **age-related disease** in tissues and organs throughout the body.
- **Senolytics** are compounds that can eliminate senescent cells by turning on the “cellular switch” that allows them to die, while leaving healthy cells unharmed.
- In early preclinical and clinical studies, **senolytic therapy** has been effective at reducing senescent cells, improving tissue function, and reducing risk for disease.
- Several plant-derived compounds have been found to possess potent senolytic activity, including **fisetin**, **quercetin**, **theaflavins**, and **apigenin**.
- A combination of these senolytics may work in different ways to reduce the number of senescent cells in the body and block their harmful effects.



Taken together, these senolytic nutrients may work in different ways to help wipe away senescent cells *and* reduce the toxic impact of those that remain.

There is much discussion in the longevity field about the best way to use senolytic therapies.

Right now, taking these treatments intermittently may work best for clearing out senescent cells.^{2,20,31,32} In one preclinical study, a drug that blocked the inflammatory signals released by senescent cells was more effective when used on an occasional basis rather than being used daily.³³

Early research suggests that taking high doses of compounds like fisetin, quercetin, theaflavins, and apigenin once a week could be an effective approach.

Summary

Aged cells can become dysfunctional and toxic to healthy cells around them. This **cellular senescence** occurs throughout the body and is a major contributor to accelerated aging and risk for age-related disease.

Scientists have discovered that some compounds have a **senolytic** effect, removing senescent cells from tissues, reducing associated inflammation, and improving tissue health and function.

Some of the most potent plant-derived senolytic compounds identified include **fisetin**, **quercetin**, **theaflavins**, and **apigenin**.

Senolytics

Senolytics are compounds (medications or dietary products) that help clear **senescent cells** from the body.

What Are Senescent Cells?

They are old or damaged cells that have stopped dividing but remain in the body.

Over time, they build up and release inflammatory chemicals.

This inflammation can harm surrounding tissues and contribute to age-related diseases, like **cancer**, **arthritis**, and **frailty**.

How Senolytics Help:

Senolytics specifically target and eliminate senescent cells.

By reducing these cells, senolytics lower inflammation and may improve tissue health.

This could help slow aging and reduce the risk of diseases linked to aging.

Early studies have found **senolytic therapies** to be effective in reducing senescent cell numbers and improving health. Scientists are optimistic that senolytics can help rejuvenate tissues, slowing loss of function associated with aging and reducing risk for chronic disease. ■

References

- Alberts B JA, Lewis J, et al. *Molecular Biology of the Cell*. 4th edition. 4th ed: New York: Garland Science;; 2002.
- Kirkland JL, Tchkonja T. Cellular Senescence: A Translational Perspective. *EBioMedicine*. 2017 Jul;21:21-8.
- Kirkland JL, Tchkonja T, Zhu Y, et al. The Clinical Potential of Senolytic Drugs. *J Am Geriatr Soc*. 2017 Oct;65(10):2297-301.
- Robbins PD, Jurk D, Khosla S, et al. Senolytic Drugs: Reducing Senescent Cell Viability to Extend Health Span. *Annu Rev Pharmacol Toxicol*. 2021 Jan 6;61:779-803.
- Xu M, Pirtskhalava T, Farr JN, et al. Senolytics improve physical function and increase lifespan in old age. *Nat Med*. 2018 Aug;24(8):1246-56.
- Di Micco R, Krizhanovsky V, Baker D, et al. Cellular senescence in ageing: from mechanisms to therapeutic opportunities. *Nat Rev Mol Cell Biol*. 2021 Feb;22(2):75-95.
- Zhu Y, Armstrong JL, Tchkonja T, et al. Cellular senescence and the senescent secretory phenotype in age-related chronic diseases. *Curr Opin Clin Nutr Metab Care*. 2014 Jul;17(4):324-8.
- Zhao Y, Simon M, Seluanov A, et al. DNA damage and repair in age-related inflammation. *Nat Rev Immunol*. 2023 Feb;23(2):75-89.
- Zhang L, Pitcher LE, Prahallad V, et al. Targeting cellular senescence with senotherapeutics: senolytics and senomorphics. *FEBS J*. 2023 Mar;290(5):1362-83.
- Franceschi C, Campisi J. Chronic inflammation (inflammaging) and its potential contribution to age-associated diseases. *J Gerontol A Biol Sci Med Sci*. 2014 Jun;69 Suppl 1:S4-9.
- Walker KA, Basisty N, Wilson DM, 3rd, et al. Connecting aging biology and inflammation in the omics era. *J Clin Invest*. 2022 Jul 15;132(14).
- Narasimhan A, Flores RR, Robbins PD, et al. Role of Cellular Senescence in Type II Diabetes. *Endocrinology*. 2021 Oct 1;162(10).
- Baker DJ, Wijshake T, Tchkonja T, et al. Clearance of p16Ink4a-positive senescent cells delays ageing-associated disorders. *Nature*. 2011 Nov 2;479(7372):232-6.
- Childs BG, Baker DJ, Wijshake T, et al. Senescent intimal foam cells are deleterious at all stages of atherosclerosis. *Science*. 2016 Oct 28;354(6311):472-7.
- Chaib S, Tchkonja T, Kirkland JL. Cellular senescence and senolytics: the path to the clinic. *Nat Med*. 2022 Aug;28(8):1556-68.
- Zhang L, Pitcher LE, Yousefzadeh MJ, et al. Cellular senescence: a key therapeutic target in aging and diseases. *J Clin Invest*. 2022 Aug 1;132(15).
- Yousefzadeh MJ, Zhu Y, McGowan SJ, et al. Fisetin is a senotherapeutic that extends health and lifespan. *EBioMedicine*. 2018 Oct;36:18-28.
- Islam MT, Tuday E, Allen S, et al. Senolytic drugs, dasatinib and quercetin, attenuate adipose tissue inflammation, and ameliorate metabolic function in old age. *Aging Cell*. 2023 Feb;22(2):e13767.
- Yamaura K, Nelson AL, Nishimura H, et al. Therapeutic potential of senolytic agent quercetin in osteoarthritis: A systematic review and meta-analysis of preclinical studies. *Ageing Res Rev*. 2023 Sep;90:101989.
- Justice JN, Nambiar AM, Tchkonja T, et al. Senolytics in idiopathic pulmonary fibrosis: Results from a first-in-human, open-label, pilot study. *EBioMedicine*. 2019 Feb;40:554-63.
- Farr JN, Atkinson EJ, Achenbach SJ, et al. Effects of intermittent senolytic therapy on bone metabolism in postmenopausal women: a phase 2 randomized controlled trial. *Nat Med*. 2024 Sep;30(9):2605-12.
- Pal HC, Pearlman RL, Afaq F. Fisetin and Its Role in Chronic Diseases. *Adv Exp Med Biol*. 2016;928:213-44.
- Gryniewicz G, Demchuk OM. New Perspectives for Fisetin. *Front Chem*. 2019;7:697.
- Deepika, Maurya PK. Health Benefits of Quercetin in Age-Related Diseases. *Molecules*. 2022 Apr 13;27(8).
- Li M, Zhang C, Xiao X, et al. Theaflavins in Black Tea Mitigate Aging-Associated Cognitive Dysfunction via the Microbiota-Gut-Brain Axis. *J Agric Food Chem*. 2023 Feb 8;71(5):2356-69.
- O'Neill EJ, Termini D, Albano A, et al. Anti-Cancer Properties of Theaflavins. *Molecules*. 2021 Feb 13;26(4).
- Han X, Zhang J, Xue X, et al. Theaflavin ameliorates ionizing radiation-induced hematopoietic injury via the NRF2 pathway. *Free Radic Biol Med*. 2017 Dec;113:59-70.
- Lim H, Park H, Kim HP. Effects of flavonoids on senescence-associated secretory phenotype formation from bleomycin-induced senescence in BJ fibroblasts. *Biochem Pharmacol*. 2015 Aug 15;96(4):337-48.
- Perrott KM, Wiley CD, Desprez PY, et al. Apigenin suppresses the senescence-associated secretory phenotype and paracrine effects on breast cancer cells. *Geroscience*. 2017 Apr;39(2):161-73.
- Zhang H, Xu Q, Jiang Z, et al. Targeting Senescence with Apigenin Improves Chemotherapeutic Efficacy and Ameliorates Age-Related Conditions in Mice. *Adv Sci (Weinh)*. 2025 Apr 23:e2412950.
- Zhu Y, Tchkonja T, Pirtskhalava T, et al. The Achilles' heel of senescent cells: from transcriptome to senolytic drugs. *Aging Cell*. 2015 Aug;14(4):644-58.
- Roos CM, Zhang B, Palmer AK, et al. Chronic senolytic treatment alleviates established vasomotor dysfunction in aged or atherosclerotic mice. *Aging Cell*. 2016 Oct;15(5):973-7.
- Laberge RM, Sun Y, Orjalo AV, et al. MTOR regulates the pro-tumorigenic senescence-associated secretory phenotype by promoting IL1A translation. *Nat Cell Biol*. 2015 Aug;17(8):1049-61.



Bioactive Forms of Vitamin B12

B12 Elite provides both:

Adenosylcobalamin

- Active in brain cell mitochondria.
- Supports nerve cell function.
- Supports cellular energy production.

Methylcobalamin

- Supports brain cell function.
- Promotes red blood cell production.
- Helps maintain healthy homocysteine levels.

Dissolve in the mouth or chew one vegetarian **lozenge** daily.

"It is everything I wanted
in a B12 supplement."

Christine

VERIFIED CUSTOMER REVIEW



Item #02419

60 vegetarian lozenges

B
SMART
BODY & BRAIN

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.



Female-Support PROBIOTIC

Vaginal,
Digestive,
and Immune
Support

FLORASSIST® Probiotic Women's Health contains two probiotic strains.

One promotes microbial flora for **vaginal** health.

The other supports **digestive** and **immune** functions.

Several clinical trials have shown that:

- ***L. plantarum* ROSELL®A** oral intake helps restore and maintain a microbiome to support proper **vaginal** health.^{1,2}
- ***L. helveticus* LAFTI® L10** promotes **digestive** health³ and encourages a healthy **immune** response.⁴

Just one capsule daily provides the broad **probiotic** support a woman needs.

"I've noticed a big difference since taking these."

Christy

VERIFIED CUSTOMER
REVIEW

References

1. *Nutrafoods*. 2013;12:35-42.
2. *Eur Rev Med Pharmacol Sci*. 2018 Jan;22(1):262-7.
3. *Nutrafoods*. 2005;4:2-3.
4. *J Strength & Conditioning Res*. 2017;31(1):62-70.



Item #02505

30 vegetarian capsules

Contains soybeans.

L. plantarum ROSELL®A is *L. plantarum* P17630 (Proge P17630®), licensed from PROGE FARM®, Italy.

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.

Menopause Relief

For Hot Flashes
and 10 Other
Menopause
Discomforts



Item #02204

30 enteric-coated
vegetarian tablets

Menopause Relief contains a proprietary extract of Siberian rhubarb that in clinical studies has been shown to provide relief for up to **11 menopause discomforts** on the menopause rating scale, including:

- Hot flashes
- Night sweats
- Irritability
- Muscle discomfort
- Mood swings
- Sleep disturbances
- Exhaustion
- Sexual function
- Joint discomfort
- Urinary discomfort
- Vaginal dryness

ESTROGEN
FREE

CAUTION: Consult with
your healthcare
practitioner if you have,
or have a history of,
estrogen-dependent
tumors.



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.

Discover a European Secret for Beautiful Legs

Youthful Legs helps your legs stay healthy by:¹⁻⁴

- Supporting healthy blood flow.
- Maintaining healthy leg vein function.
- Promoting vascular health.



Item #02252

60 softgels



References

1. *Angiology*. 1994 Jun;45(6):419-28.
2. *Angiology*. 2003 Jul-Aug;54 Suppl 1:S33-44.
3. *Angiology*. 2000 Jan;51(1):31-7.
4. *Angiology*. 2005 Sep-Oct;56 Suppl 1:S25-32.

This product is available at fine health food stores everywhere.



Fight Female HAIR LOSS

Hair loss isn't just a problem for men.

It affects about **half** of all women in their lifetime.^{1,2}

Thinning hair or bald spots can negatively affect a woman's **emotional well-being** and **quality of life**.²⁻⁴ The few medications approved for hair loss can be unpleasant to use and have unwanted side effects.⁵

Scientists have identified two well-tolerated **plant-derived** ingredients that have been shown to combat **hair loss**.

In a clinical trial, women with thinning hair and hair loss who took gluten-free **wheat ceramides** had a stunning **48% decrease in hair loss** from baseline and a **12.5%** improvement in **hair growth** as compared to placebo.⁶

In another clinical trial, women with hair loss who took **saw palmetto oil** reduced hair shedding by **34%** and increased hair thickness from baseline.⁷

Together, these oral extracts may help resolve the top causes of hair loss in women and restore healthy hair growth.



Understanding Female Hair Loss

Hair grows in cycles. Usually, most hair is in the **anagen** (growth) phase, while approximately **10%** is in the **telogen** (resting) phase.^{8,9}

The most common types of hair loss in women are:

- **Telogen effluvium**, which occurs when a greater proportion of hair transitions from the growth (anagen) phase to the shedding or resting (telogen) phase. This condition can result in the loss of up to **35%** of scalp hairs, compared to the typical daily shedding of 50–150 hairs (about **10%**). It may be triggered by physiological or psychological stressors such as trauma, illness, malnutrition, or childbirth.⁹
- **Female pattern hair loss**, progressive hair loss also known as **androgenetic alopecia**. This disorder, in which hair gradually gets thinner at the top of the head,¹⁰ is increasingly common with age, affecting about **40%** of women by age 50.¹¹

Hormonal changes, such as the drop in estrogen and increase in androgens (particularly **dihydrotestosterone DHT**) around **menopause**, can contribute to female pattern hair loss.¹²

Elevated levels of **DHT** contribute to the progressive shrinkage of hair follicles, resulting in thinning hair, reduced follicular density, and eventual baldness.¹³



Female hair loss typically presents a different pattern than male-pattern baldness, characterized by diffuse thinning at the crown and a noticeable widening of the central part.¹⁴

Scientists have identified plant-derived extracts that, when taken orally, may help maintain healthy hair life-cycle and **reduce hair loss**.

Ceramides Halt Hair Loss

Ceramides are a type of lipid or fat. A hair strand's outermost layer contains ceramides that help protect and **strengthen** hair.¹⁵

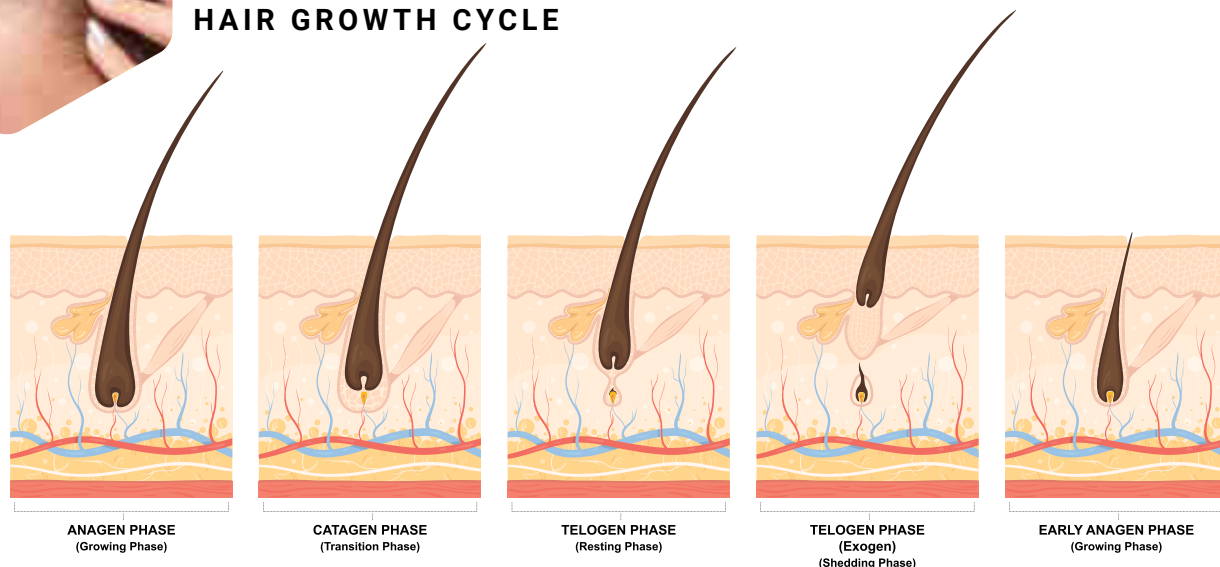
Preclinical research has found that ceramides may also promote cellular signaling to stimulate **hair growth**.¹⁶⁻¹⁸

Scientists have developed a **gluten-free wheat extract** rich in **ceramides** and **digalactosyldiglycerides**, another plant lipid that promotes the absorption of ceramides in the gut.¹⁹

In a clinical trial, 66 healthy women aged 24 to 64 with more than **15%** of total hair in the telogen phase took **30 mg** of an **oral wheat ceramide extract** or a placebo daily. The participants initially reported brittle, thinning hair and experienced mild to moderate hair loss.⁶

Hair characteristics were evaluated at 56 and 84 days using a **phototrichogram**. This is a noninvasive imaging technique that monitors **hair growth** and **loss** through periodic scalp imaging and analysis. The **phototrichogram** assesses hair growth phases.

HAIR GROWTH CYCLE



This **clinical trial** also used hair pull tests to measure shedding, while additional assessments evaluated hair diameter, strength, growth, sebum levels, density, and volume.

Within just two months, the extract group exhibited significant signs of healthier hair. After three months, the treatment group showed significantly *greater improvements* than the **placebo** group, including:

- **48%** decrease in hair loss (per hair pull test) from baseline,
- **12.5%** greater increase in hair growth compared to placebo, and
- **12%** reduction in scalp oil from baseline among participants with oily hair.

Overall, up to **90%** of women who took the **ceramide extract** reported that their hair was healthier, citing faster growth with fewer split ends. A subgroup analysis of postmenopausal women found that those who received the extract experienced similar improvements.

Fight Hormonal Hair Loss

Saw palmetto is a plant rich in beneficial compounds including **fatty acids** and **beta-sitosterol**.^{20,21}

Preclinical research suggests saw palmetto oil may help combat hair loss, especially **androgenetic alopecia**, by:^{20,22-24}

- **Reducing** the body's production of **DHT** (dihydrotestosterone), a hair loss promoter,
- **Blocking** cellular uptake of DHT, and
- **Decreasing** DHT **binding** to receptors.

Excess **DHT** increases hair loss by shortening the growth phase and lengthening the shedding phase of the hair lifecycle.^{8,20}

Saw palmetto inhibited **5-alpha reductase**—the enzyme that converts testosterone to **DHT**—and it also exhibited anti-inflammatory and pro-angiogenic effects in laboratory studies. Scientists formulated a saw palmetto oil standardized to contain **2%–3%** beta-sitosterol and **85%** total fatty acids, which was tested in a clinical study.⁷



What You
Need
To Know

Good Hair Days Ahead

- **Hair loss** affects roughly **50%** of all women.
- The top causes of female hair loss are **telogen effluvium**, shedding that is often triggered by a major stressor, and **androgenetic alopecia**, female pattern hair loss linked to hormonal imbalance.
- In a clinical trial of women with telogen effluvium, a gluten-free **wheat ceramide extract** reduced hair loss by **48%** and increased hair growth and health.
- In another clinical trial, women with androgenetic alopecia who took standardized **saw palmetto oil** had a **34%** decrease in hair shedding and an increase in hair thickness.
- Combined, these oral plant-based extracts address the top causes of hair loss in women.

Saw Palmetto Stops Shedding

A **double-blinded, placebo-controlled trial** recruited 80 healthy men and women (ages 18–50) with mild-to-moderate androgenetic alopecia. Participants were randomized into four arms and received daily treatments for 16 weeks:⁷

- **100 mg** oral standardized form of **saw palmetto oil**
- Oral placebo

Participants were evaluated using hair comb and hair pull tests, self-assessment of perceived efficacy, and objective evaluation via global photographic assessment scores. Hair density, thickness, and the anagen/telogen ratio were measured through **phototrichogram** analysis.

After four months, those receiving saw palmetto, compared to placebo, exhibited:

- **11.3% increase** in **hair density**,
- **34% decrease** in **hair shedding** (per a hair comb test),
- **16.6% decrease** in **hair loss** (per a hair pull test), and
- **18.9% reduction** in blood levels of **DHT**.

Some improvements were observed as early as two months and became more pronounced over time. Both men and women experienced similar outcomes.

Combining **saw palmetto** and **wheat ceramides** may help stop many cases of female hair loss and boost hair growth.

Summary

Hair loss affects about **half** of women, whether due to a sudden uptick in shedding or progressive hair loss on the top of the head.

Standardized **wheat ceramide extract** and **saw palmetto oil**, when taken orally, have both been clinically shown to reduce hair loss and renew hair growth in women.

Significant improvements in hair growth commonly start within just **two months** of using the ingredients. ■

Good Vs. Bad Ceramides

You may have heard that having high **ceramide** levels can be unhealthy.

That's because the type of ceramides generated from a calorie-dense Western diet high in **long-chain saturated fats** are linked with inflammation, cardiovascular disease, and metabolic disorders.^{25,26}

By contrast, *plant-derived* ceramides called **phytoceramides**, like those present in **wheat extract**, are rich in **healthy unsaturated fats** and are associated with better overall health, including healthy hair.²⁷



References

1. Gokce N, Basgoz N, Kenanoglu S, et al. An overview of the genetic aspects of hair loss and its connection with nutrition. *J Prev Med Hyg.* 2022 Jun;63(2 Suppl 3):E228-E38.
2. Chan L, Cook DK. Female pattern hair loss. *Aust J Gen Pract.* 2018 Jul;47(7):459-64.
3. Hwang HW, Ryou S, Jeong JH, et al. The Quality of Life and Psychosocial Impact on Female Pattern Hair Loss. *Ann Dermatol.* 2024 Feb;36(1):44-52.
4. Davis DS, Callender VD. Review of quality of life studies in women with alopecia. *Int J Womens Dermatol.* 2018 Mar;4(1):18-22.
5. Muller Ramos P, Melo DF, Radwanski H, et al. Female-pattern hair loss: therapeutic update. *An Bras Dermatol.* 2023 Jul-Aug;98(4):506-19.
6. Dudonne S, Kern C, Garcia C. Efficacy of a wheat polar lipid complex in reducing hair loss and improving hair growth in healthy women: A randomized, double-blind, placebo-controlled clinical study. *Int J Cosmet Sci.* 2024 Apr;46(2):284-96.
7. Sudeep HV, Rashmi S, Jestin TV, et al. Oral and topical administration of a standardized saw palmetto oil reduces hair fall and improves the hair growth in androgenetic alopecia subjects - a 16-week randomized, placebo-controlled study. *Clin Cosmet Investig Dermatol.* 2023;16:3251-66.
8. Ntarelli N, Gahoonia N, Sivamani RK. Integrative and Mechanistic Approach to the Hair Growth Cycle and Hair Loss. *J Clin Med.* 2023 Jan 23;12(3).
9. Available at: <https://www.uptodate.com/contents/telogen-effluvium>. Accessed May 8, 2025.
10. Available at: <https://www.health.harvard.edu/staying-healthy/treating-female-pattern-hair-loss>. Accessed May 8, 2025.
11. Famenini S, Slaught C, Duan L, et al. Demographics of women with female pattern hair loss and the effectiveness of spironolactone therapy. *J Am Acad Dermatol.* 2015 Oct;73(4):705-6.
12. Gupta AK, Economopoulos V, Mann A, et al. Menopause and hair loss in women: Exploring the hormonal transition. *Maturitas.* 2025 May 2;198:108378.
13. Owecka B, Tomaszewska A, Dobrzeniecki K, et al. The Hormonal Background of Hair Loss in Non-Scarring Alopecias. *Biomedicines.* 2024 Feb 24;12(3):513.
14. Available at: <https://medlineplus.gov/genetics/condition/androgenetic-alopecia/>. Accessed May 8, 2025.
15. Coderch L, Alonso C, García MT, et al. Hair Lipid Structure: Effect of Surfactants. *Cosmetics.* 2023;10(4):107.
16. Peters F, Hofs W, Lee H, et al. Sphingolipid metabolism orchestrates establishment of the hair follicle stem cell compartment. *J Cell Biol.* 2025 Apr 7;224(4).
17. Oh JH, Jeong KH, Kim JE, et al. Synthesized Ceramide Induces Growth of Dermal Papilla Cells with Potential Contribution to Hair Growth. *Ann Dermatol.* 2019 Apr;31(2):164-74.
18. Park BM, Bak SS, Shin KO, et al. Promotion of hair growth by newly synthesized ceramide mimetic compound. *Biochem Biophys Res Commun.* 2017 Sep 9;491(1):173-7.
19. Bizot V, Cestone E, Michelotti A, et al. Improving Skin Hydration and Age-related Symptoms by Oral Administration of Wheat Glucosylceramides and Digalactosyl Diglycerides: A Human Clinical Study. *Cosmetics.* 2017;4(4):37.
20. Evron E, Juhasz M, Babadjouni A, et al. Natural Hair Supplement: Friend or Foe? Saw Palmetto, a Systematic Review in Alopecia. *Skin Appendage Disord.* 2020 Nov;6(6):329-37.
21. Penugonda K, Lindshield BL. Fatty acid and phytosterol content of commercial saw palmetto supplements. *Nutrients.* 2013 Sep 13;5(9):3617-33.
22. Pais P, Villar A, Rull S. Determination of the potency of a novel saw palmetto supercritical CO₂ extract (SPSE) for 5 α -reductase isoform II inhibition using a cell-free in vitro test system. *Res Rep Urol.* 2016;8:41-9.
23. Pais P. Potency of a novel saw palmetto ethanol extract, SPET-085, for inhibition of 5 α -reductase II. *Adv Ther.* 2010 Aug;27(8):555-63.
24. Goepel M, Hecker U, Kregge S, et al. Saw palmetto extracts potently and noncompetitively inhibit human α 1-adrenoceptors in vitro. *Prostate.* 1999 Feb 15;38(3):208-15.
25. Shalaby YM, Al Aidaros A, Valappil A, et al. Role of Ceramides in the Molecular Pathogenesis and Potential Therapeutic Strategies of Cardiometabolic Diseases: What we Know so Far. *Front Cell Dev Biol.* 2021;9:816301.
26. Spaggiari R, Angelini S, Di Vincenzo A, et al. Ceramides as Emerging Players in Cardiovascular Disease: Focus on Their Pathogenetic Effects and Regulation by Diet. *Adv Nutr.* 2024 Jul;15(7):100252.
27. Bizot V, Cestone E, Michelotti A, et al. Improving skin hydration and age-related symptoms by oral administration of wheat glucosylceramides and digalactosyl diglycerides: a human clinical study. *Cosmetics.* 2017;4(37).



Senolytic Activator®

with **BIO-FISETIN®**

SENESCENT
CELL

"Taking this supplement, I feel I will be healthy for the long haul."

Larry

VERIFIED
CUSTOMER
REVIEW



Item #02301

36 vegetarian capsules

With age, our body accumulates **senescent cells** that affect the day-to-day function of the healthy cells around them.

Senolytics are compounds that promote the body's natural processes for clearing senescent cells.

Senolytic Activator® provides four ingredients, including a bio-available form of Bio-Fisetin® to support healthy aging.

This product is available at
fine health food stores everywhere.

Comprehensive SENOLYTIC Support

The **Senolytic Activator®** formula provides the following nutrients:

- **THEAFLAVINS** (polyphenols from black tea)
- **BIO-QUERCETIN®** (ultra-absorbable form)
- **APIGENIN** (a natural flavonoid)
- **BIO-FISETIN®** (up to **25 times** greater bioavailability)*

The suggested dose of the **Senolytic Activator®** is **3 capsules** once a week. Each bottle lasts 3 months and costs very little.

* Studied against powder fisetin (98% purity).

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

Healthy Aging

AMINO ACID



NEW

25 mg
Dose



Item #02540

30 vegetarian capsules

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

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

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

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

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

This product is available at fine health food stores everywhere.

References

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

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



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
Cellular Energy

NEXT-GENERATION
LIPOLIC ACID

Super R-Lipoic Acid provides the biologically active form of R-lipoic acid in the body. Lipoic acid is an important part of cellular energy production and maintenance and helps protect against oxidative stress.

Suggested dose is one to two capsules daily.



Item #01208

60 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.

Boost Your Brain Game

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

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

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



Item #02520

60 gummies

*Not a low-calorie food.

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

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.





PROBIOTIC DEFENSE Against Gum Disease

BY MARSHA MCCULLOCH, MS, RD



In a study of 794 adults, **82%** of those who reported gingival bleeding believed it to be a harmless condition.¹

Bleeding gums, however, are a common sign of **periodontal disease**, which can damage the tissues that anchor teeth in place.^{2,3}

Even more worrisome, periodontal infections may increase the risk of non-oral conditions, including **diabetes**, **heart disease**, and **dementia**.⁴

A key driver of periodontal disease is an imbalance of **microbes** in the mouth that promote harmful bacteria and the buildup of dental **plaque**.^{2,4}

Plaque can result in gaps between the teeth and gums, called **periodontal pockets**, which can become infected and inflamed.²

Scientists have identified a specific **probiotic** strain that helps keep problematic oral bacteria in check. It has been clinically shown to reduce **gum bleeding** and **inflammation** by **31%** when taken daily.^{5,6}

Researchers have also developed a heat-treated bacteria, a **postbiotic**, that in a clinical trial reduced periodontal pocket depth **64%** better than the **placebo** group.⁷

Taking this **probiotic** and **postbiotic** daily in addition to brushing and flossing may provide a strong defense against **periodontal disease**.

Microbiome of the Mouth

The link between **periodontal disease** and other conditions may be driven by **chronic inflammation**, **immune dysregulation**, and the spread of **harmful bacteria** from the mouth to other parts of the body.²

The oral microbiome includes beneficial bacteria like ***Streptococcus salivarius*** (*S. salivarius*) as well as harmful bacteria like ***Streptococcus mutans*** (*S. mutans*).¹⁶

S. mutans is one of the top promoters of tooth decay. This bacteria thrives in an acidic (low pH) oral environment.¹⁶

In the mouth, ***S. mutans*** ferments sugars from food and produces acid that can erode tooth enamel. This promotes the buildup of plaque on teeth, which can lead to tooth decay and periodontal disease.¹⁶

Improving the Oral Ecosystem

The M18 strain of ***S. salivarius*** can provide a robust defense against ***S. mutans***.

In a clinical trial involving 69 young adults aged 18–40 at high risk for tooth decay, 22 participants took a nightly lozenge containing *S. salivarius* M18 (**2.5 billion CFU**) after brushing.

After 30 days, the M18 group showed better oral health outcomes compared to those following standard oral care practices without the M18 probiotic.¹⁷

The M18 probiotic group experienced a **75% decrease** in salivary levels of harmful ***S. mutans***. In the control group, *S. mutans* decreased by only **11%**.



The **M18** probiotic group also had a **5.2% increase** in salivary pH, meaning it was less acidic and better for oral health, while the control group's saliva became slightly more acidic.¹⁷

Increased acidity can lead to an increase in dental problems because when the pH of the oral cavity becomes **more acidic**, *S. mutans* can become more competitive and damaging.^{16,18}

Less Dental Plaque, Healthier Gums

In a randomized controlled clinical trial, 61 participants with gingivitis aged between 18 to 25 years were randomized to receive a daily ***Streptococcus salivarius* M18 (500 million CFU)** lozenge or a placebo nightly after brushing, for four weeks. The probiotic improved gum health in young adults with gingivitis.⁵

Participants showed **31%** reduced gingival inflammation index, and mild but significant improvement in **dental plaque** index compared to placebo after four weeks. Continued use of ***S. salivarius* M18** might be needed to maintain results.

In another trial, a three-month supplementation with ***Streptococcus salivarius* M18** has been shown to reduce gingival bleeding and dental plaque in young adults with gingivitis.⁶

In this longer randomized controlled trial, 62 individuals with gingivitis were randomized to receive ***S. salivarius* M18 (500 million CFU)** or a placebo every evening for three months followed by a four-week washout period.

The daily use led to significant improvements in gum health compared to placebo. The probiotic group had a **31%** placebo-adjusted reduction in **gum bleeding** and a **7%** reduction in dental **plaque buildup**.⁶

The best results for gum health and dental plaque control likely come from **long-term** use of the probiotic.

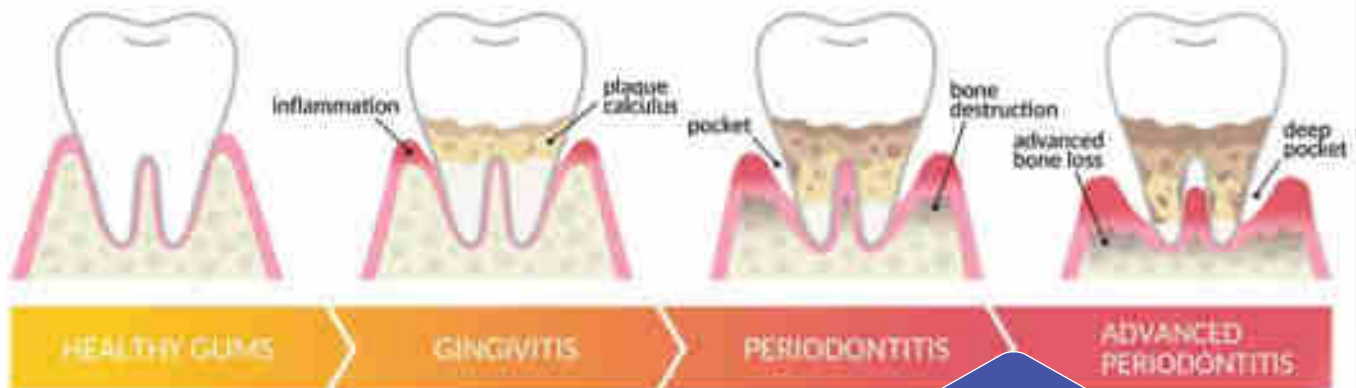
Postbiotic Improves Periodontal Pockets

As part of a routine checkup, dental staff may probe a person's gums to check **periodontal pockets**. A pocket depth of **4 mm** or more suggests **periodontal disease**.¹⁹

Scientists explored living oral **probiotics** and heat-treated **postbiotics**. Postbiotics include components of inactivated beneficial microbes.²⁰

For a randomized controlled trial, researchers recruited 39 older adults with **chronic periodontitis**, including one or more periodontal pockets measuring at least **4 mm**.⁷

Stages of Periodontal Disease



What You Need To Know

Banish the Bacteria Behind Gum Disease

- Bleeding gums can be a sign of **periodontal disease**, which harms the gums and bones that support teeth. Periodontal disease is also linked to an increased risk of heart disease, diabetes, and dementia.
- A major driver of periodontal disease is an overgrowth of **harmful bacteria** that promotes dental plaque buildup, inflammation, and destruction of oral tissues.
- The probiotic ***Streptococcus salivarius* M18** is clinically shown to counteract harmful oral bacteria, reducing gum inflammation and bleeding by 31%.
- Heat-treated ***Lactobacillus plantarum* L-137**, a postbiotic, has been clinically shown to reduce periodontal pocket depth by 64% greater than seen in placebo group.
- Daily oral intake of this probiotic-postbiotic **combination** can be a beneficial addition to dental care routines.

Subjects took **50 mg** of heat-treated ***L. plantarum* L-137** (a postbiotic) or a placebo daily for 12 weeks. Both groups also underwent standard periodontal therapy.

The postbiotic group showed a **64%** greater *reduction* in **pocket depth** than the placebo group.⁷

Previous studies have shown that heat-treated ***L. plantarum* L-137** stimulates the action of **IL-12**, a cytokine (signaling molecule) that supports healthy immune function. The researchers suggest that this immune modulation may help promote oral health.^{7,21}

Together, ***S. salivarius* M18** and heat-treated ***L. plantarum* L-137** may offer a balanced combination for optimizing periodontal health.

The Mouth-Body Connection

Periodontal disease (also called **gum disease**) starts with **gingivitis**, a condition characterized by red, swollen gums that bleed easily.^{2,8}

This can progress to **periodontitis**, severe gum disease that includes deepening **periodontal pockets**. These pockets trap infection-causing bacteria and plaque between the teeth and gums.^{2,8}

The body's immune response to this microbial assault leads to **inflammation** and damage to the teeth's **structural support**, potentially resulting in tooth removal.^{8,9}

Damage caused by periodontal disease isn't necessarily confined to the teeth.

Cardiovascular disease, **diabetes**, and **dementia** are just a few of the non-oral conditions associated with periodontal disease.^{4,10-15}

Summary

A balanced **oral microbiome** promotes periodontal health.

In clinical trials, the probiotic ***S. salivarius* M18** inhibited the growth of **harmful** oral bacteria, reduced gum inflammation and bleeding, and helped prevent **dental plaque** buildup.

A heat-treated postbiotic, ***L. plantarum* L-137**, was clinically shown to reduce periodontal pockets.

Long-term use of this oral probiotic-postbiotic **combination** can help keep teeth and gums healthy, with benefits for overall health. ■



References

1. Baudet A, Veynachter T, Rousseau H, et al. Perception of Gingival Bleeding by People and Healthcare Professionals: A Multicentre Study in an Adult French Population. *Int J Environ Res Public Health*. 2020 Aug 18;17(16).
2. Hashim NT, Babiker R, Padmanabhan V, et al. The Global Burden of Periodontal Disease: A Narrative Review on Unveiling Socioeconomic and Health Challenges. *Int J Environ Res Public Health*. 2025 Apr 16;22(4).
3. Available at: <https://www.nidcr.nih.gov/health-info/gum-disease>. Accessed June 24, 2025.
4. Available at: <https://www.health.harvard.edu/heart-health/why-your-gums-are-so-important-to-your-health>. Accessed June 24, 2025.
5. Babina K, Salikhova D, Doroshina V, et al. Antigingivitis and Antiplatelet Effects of Oral Probiotic Containing the Streptococcus salivarius M18 Strain: A Randomized Clinical Trial. *Nutrients*. 2023 Sep 6;15(18).
6. Babina K, Salikhova D, Makeeva I, et al. A Three-Month Probiotic (the Streptococcus salivarius M18 Strain) Supplementation Decreases Gingival Bleeding and Plaque Accumulation: A Randomized Clinical Trial. *Dent J (Basel)*. 2024 Jul 18;12(7).
7. Iwasaki K, Maeda K, Hidaka K, et al. Daily Intake of Heat-killed Lactobacillus plantarum L-137 Decreases the Probing Depth in Patients Undergoing Supportive Periodontal Therapy. *Oral Health Prev Dent*. 2016;14(3):207-14.
8. Kalhan AC, Wong ML, Allen F, et al. Periodontal disease and systemic health: An update for medical practitioners. *Ann Acad Med Singap*. 2022 Sep;51(9):567-74.
9. Zhang M, Liu Y, Afzali H, et al. An update on periodontal inflammation and bone loss. *Front Immunol*. 2024;15:1385436.
10. Sanz M, Marco Del Castillo A, Jepsen S, et al. Periodontitis and cardiovascular diseases: Consensus report. *J Clin Periodontol*. 2020 Mar;47(3):268-88.
11. Munoz Aguilera E, Suvan J, Orlandi M, et al. Association Between Periodontitis and Blood Pressure Highlighted in Systemically Healthy Individuals: Results From a Nested Case-Control Study. *Hypertension*. 2021 May 5;77(5):1765-74.
12. Paunica I, Giurgiu M, Dumitriu AS, et al. The Bidirectional Relationship between Periodontal Disease and Diabetes Mellitus-A Review. *Diagnostics (Basel)*. 2023 Feb 11;13(4).
13. Costa R, Rios-Carrasco B, Lopez-Jarana P, et al. Periodontal status and risk factors in patients with type 1 diabetes mellitus. *Clin Oral Investig*. 2025 Feb 5;29(2):113.
14. Borsa L, Dubois M, Sacco G, et al. Analysis the Link between Periodontal Diseases and Alzheimer's Disease: A Systematic Review. *Int J Environ Res Public Health*. 2021 Sep 3;18(17).
15. Lundergan W, Parthasarathy K, Knight N. Periodontitis and Alzheimer's disease: is there a connection? *Oral*. 2024;4(1):61-73.
16. Ye D, Liu Y, Li J, et al. Competitive dynamics and balance between Streptococcus mutans and commensal streptococci in oral microbiology. *Crit Rev Microbiol*. 2025 May;51(3):532-43.
17. Poorni S, MS N, Ramakrishnan Srinivasan M. Comparing the effect of probiotic Streptococcus salivarius K12 and M18 on the Streptococcus mutans count, salivary pH and buffer capacity: a randomized double blinded clinical trial. *Cumhuriyet Dent J*. 2021;24(4):346-54.
18. Friedman JY. The role of Streptococcus mutans in the formation of dental caries: an ecological perspective. *The Science Journal of the Lander College of Arts and Sciences*. 2011;5(1).
19. Lima de Sousa T, Dourado D, Rodrigues JS, et al. Treatment of periodontal disease: does drug delivery matter? *Front Bioeng Biotechnol*. 2024;12:1427758.
20. Salminen S, Collado MC, Endo A, et al. The International Scientific Association of Probiotics and Prebiotics (ISAPP) consensus statement on the definition and scope of postbiotics. *Nat Rev Gastroenterol Hepatol*. 2021 Sep;18(9):649-67.
21. Hirose Y, Murosaki S, Yamamoto Y, et al. Daily intake of heat-killed Lactobacillus plantarum L-137 augments acquired immunity in healthy adults. *J Nutr*. 2006 Dec;136(12):3069-73.

Fuller, Stronger Hair

NEW



Item #02541

30 softgels

“Mane-taining” healthy, full,
beautiful hair just got easier!

Our new supplement for women promotes hair health, density and volume with phytoceramide and saw palmetto extracts. It also helps reduce shedding and maintain already-normal levels of DHT, a hormone linked to hair follicle health.

Show your hair some love with Hair Growth for Women.

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.



Hair so Nice, They'll Look Twice!

NEW

Thinning hair is a fact of life for many men as they age.

This formula uses scientifically studied plant extracts to promote hair fullness and density, support hair health, help reduce shedding and maintain already-normal levels of DHT, a hormone which is linked to maintaining hair follicle health.

Results reported within an average of 3-4 months of use.

Try Hair Growth for Men today!

This product is available at fine
health food stores everywhere.



GLUTEN
FREE

1
DAILY

NON
GMO
LE CERTIFIED

Item #02538

30 softgels

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.



"One of my main daily
'go to' supplements."

Lew

VERIFIED CUSTOMER REVIEW

Get MORE Vitamin D

For a strong immune system, bones and heart,
you need the sunshine vitamin. Most people don't
get enough from their diet or time outdoors.

Good thing there's Life Extension® Vitamin D3.

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



Item #01713

125 mcg (5000 IU)
60 softgels

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.





EXTRA VIRGIN OLIVE OIL: More Benefits Discovered

BY LAURIE MATHENA

Many of the health benefits associated with the **Mediterranean** diet are thought to be due, in part, to one of its key components: extra virgin olive oil.¹

Consumption of **olive oil** has been shown to be associated with improvement in:

- Symptoms of mild cognitive impairment and biomarkers of Alzheimer's disease,^{2,3}
- Insulin resistance biomarkers,⁴
- Cardiovascular disease,⁵
- Type 2 diabetes,^{5,6} and
- Cancer.⁷

It has also been associated in different studies with a lower risk of **death** from cardiovascular events, cancer, and *from **any cause***.^{5,8,9}

But not all olive oil is equal. For optimal health benefits, choose a cold-pressed **extra virgin olive oil** high in **polyphenols**.

Brain Protection

Extra virgin olive oil (EVOO) and its phenolic compounds help combat key processes involved in the development of **Alzheimer's** disease.

Evidence from preclinical studies, summarized in a comprehensive review published in **2024**, suggests that this includes reducing the buildup of harmful plaques, easing inflammation, enhancing the brain's protective barrier, and lowering oxidative stress.¹⁰

In human studies examined in that same **2024** review, it was found that regular consumption of **extra virgin olive oil** improved not only **cognitive function** but also biomarkers and indices associated with developing **mild cognitive impairment** and Alzheimer's.¹⁰

It may also reduce the risk of *dying* from dementia.

In an analysis of data from two large prospective cohorts—the Nurses' Health Study in **60,582** women and the Health Professional Follow-up Study in **31,801** men, followed for 28 years—it was found that those who consumed more than **7 grams** (just over **half a tablespoon**) of **olive oil** per day had a **29% lower risk of dementia-related death** than those who consumed little or no olive oil.⁹



Boost Metabolic Health

Olive oil has been identified as a key contributor to the **cardiovascular** benefits of the Mediterranean diet.^{11,12}

Research has highlighted the polyphenol content of olive oil, revealing that its anti-inflammatory effects play a major role in improving lipid profiles and blood vessel function, promoting healthy arteries and blood pressure.^{13,14} As a result, extra virgin olive oil polyphenols may lower the risk of heart attack, stroke, and sudden cardiac death.¹⁴

A famous multicenter trial involved about 7,500 people aged between 55-80 years, who were at high cardiovascular risk but without any diagnosed disease at the start of the study. Participants were assigned to one of three groups and followed for nearly **five** years:

- Mediterranean diet supplemented with extra virgin olive oil group,
- Mediterranean diet supplemented with mixed nuts, and
- Controlled diet (with advice to reduce dietary fat).

The olive oil group consumed, on average, roughly two-thirds of a tablespoon of extra virgin olive oil daily and had a **31% reduced risk of a major cardiovascular heart event** (including **myocardial infarction, stroke, or cardiovascular death**), compared to those following a low-fat diet.¹⁵

A systematic review and meta-analysis of 29 clinical trials and four cohort studies found that *higher* olive oil intake is associated with a significantly reduced risk of developing **type 2 diabetes**. Individuals with the highest intake had a **16% lower risk** of incident type 2 diabetes compared to those with the lowest intake.

In people with established type 2 diabetes, olive oil supplementation also improved glycemic control, leading to a significant reduction in **HbA1c** levels and fasting plasma glucose.⁶

One review found that **extra virgin olive oil (EVOO)** outperformed other dietary fats in several key areas of health. It was more effective at lowering blood pressure and LDL ("bad") cholesterol, while also increasing HDL ("good") cholesterol. Additionally, EVOO contributed to better glucose control and supported healthy weight management. These benefits are believed to stem from EVOO's rich polyphenol content.¹

In an early randomized controlled trial, 23 people with high blood pressure were randomly assigned to follow either a diet high in monounsaturated fatty acids (MUFA) from extra virgin olive oil or a diet high in polyunsaturated fatty acids (PUFA) from sunflower oil for six months, after which they crossed over to the alternate diet for another six months. At the end of six months, blood pressure drug dosage was reduced by **48%** in the extra virgin olive oil group as compared to the sunflower oil group.¹⁶

Fight Against Fatty Liver Disease

Non-alcoholic fatty liver disease (NAFLD) is a growing health concern in the U.S., characterized by excess fat buildup in the liver.

Cases have surged in recent years, and a 2018 forecast determined that by 2030, more than **100 million** Americans would have the condition—a whopping **21%** increase from 2018 levels.¹⁷

In a study of 2,436 adults, those who consumed more than **2.7 tbs** of extra virgin olive oil per day had a **27% lower chance** of having NAFLD compared to those who consumed **0–1.75 tbs** daily.

The benefits in people with excess weight were impressive:

- **18% lower risk** of NAFLD in overweight individuals, and
- **26% lower risk** of NAFLD in those with obesity.¹⁸

In another observational study of 2,754 people with and without non-alcoholic fatty liver disease, those who consumed **2.25 tbs** or more of extra virgin olive oil per day had a **27%–34%** lower risk of **all-cause mortality** compared to those who consumed about **1.5 tbs** or less, with greater protection associated with higher levels of daily extra virgin olive oil.

In those with NAFLD (non-alcoholic fatty liver disease), the protective effect was even greater.⁸

Reduced Cancer Mortality

Consuming a Mediterranean-style diet is associated with a reduced risk of numerous types of **cancer**, including breast, colorectal, prostate, gastric, bladder, head and neck, and lung cancers.¹⁹

Olive oil may play an important role in this benefit.



What You
Need
To Know

The Protective Effects of Extra Virgin Olive Oil

- **Olive oil** is a key component of the Mediterranean diet that is likely responsible for many of its health benefits.
- Consuming higher amounts of **extra virgin olive oil** is associated with a reduced risk of dementia, cancer, heart disease, and liver disease.
- It has also been connected to a lower risk of **dying** from cancer, dementia, or any cause at all.
- Cold-pressed extra virgin olive oil is the least processed olive oil and contains higher amounts of **polyphenols**, plant compounds responsible for many health benefits.

In a 17-year observational study, researchers analyzed dietary intake of olive oil and compared it to mortality data. Results showed that consuming²⁰ about **2.25 – 3.75 tbs** per day was linked to a **24%** lower risk of **all-cause mortality**. Consuming about **3.75 tbs** or more daily was linked to a significant reduction in death from **cancer**, including a:

- **60%** lower mortality for **gastrointestinal cancer**, and
- **50%** reduction in mortality from **other cancers**.

Virtues of Cold-Pressed Olive Oil

All olive oil isn't the same. **Cold-pressed extra virgin olive oil** is the highest-quality variety. It is the champagne of olive oil.

Cold pressing uses a mechanical press to extract oil without heat or chemicals, helping preserve more of its health benefits by promoting compounds such as polyphenols, which also provide flavor.^{21,22}

Greater dietary intake of **polyphenols** helps improve lipid profiles and lower blood pressure, insulin resistance, and systemic inflammation.²³

The polyphenol content of olive oil varies based on factors including the climate, ripeness of the olives, how the oil is extracted, and the storing process.²²

Olive oil is also high in **monounsaturated fatty acids** (primarily **oleic acid**), which can lower LDL cholesterol, another potential contributor to olive oil's abundant health benefits.¹¹



Olive Oil and Oral Health

Olive oil may even help reduce gingival inflammation²⁴ and dental plaque.^{24,25}

In a clinical study, 75 adults with **gingivitis** (early gum disease) caused by plaque bacteria used extra virgin olive oil as a daily **mouthwash**. After 30 days, they had a **48%** reduction in plaque formation and a **64%** reduction in gum bleeding.²⁴

Participants in this study held one **tablespoon** of extra virgin olive oil in their mouths and swished it around for five minutes, one time per evening before going to bed, after brushing and flossing.



Summary

Extra virgin olive oil is a key component of the **Mediterranean diet** that is thought to contribute to many of the diet's health benefits.

Consuming higher amounts of **extra virgin olive oil** is associated with a reduced risk of numerous age-related health conditions, as well as a lower risk of dying from heart events, strokes, dementia, cancer, or any cause at all.

For the greatest health benefits, choose a cold-pressed **extra virgin olive oil** with a high **polyphenol** content. ■

References

1. Flynn MM, Tierney A, Itsiopoulos C. Is Extra Virgin Olive Oil the Critical Ingredient Driving the Health Benefits of a Mediterranean Diet? A Narrative Review. *Nutrients*. 2023 Jun 27;15(13).
2. Tzekaki EE, Papaspyropoulos A, Tsolaki M, et al. Restoration of BMI1 levels after the administration of early harvest extra virgin olive oil as a therapeutic strategy against Alzheimer's disease. *Exp Gerontol*. 2021 Feb;144:111178.
3. Kaddoumi A, Denney TS, Jr., Deshpande G, et al. Extra-Virgin Olive Oil Enhances the Blood-Brain Barrier Function in Mild Cognitive Impairment: A Randomized Controlled Trial. *Nutrients*. 2022 Dec 1;14(23).
4. Morvaridzadeh M, Cohen AA, Heshmati J, et al. Effect of Extra Virgin Olive Oil on Anthropometric Indices, Inflammatory and Cardiometabolic Markers: a Systematic Review and Meta-Analysis of Randomized Clinical Trials. *J Nutr*. 2024 Jan;154(1):95-120.
5. Martinez-Gonzalez MA, Sayon-Orea C, Bullon-Vela V, et al. Effect of olive oil consumption on cardiovascular disease, cancer, type 2 diabetes, and all-cause mortality: A systematic review and meta-analysis. *Clin Nutr*. 2022 Dec;41(12):2659-82.
6. Schwingshackl L, Lampousi AM, Portillo MP, et al. Olive oil in the prevention and management of type 2 diabetes mellitus: a systematic review and meta-analysis of cohort studies and intervention trials. *Nutr Diabetes*. 2017 Apr 10;7(4):e262.
7. Psaltopoulou T, Kosti RI, Haidopoulos D, et al. Olive oil intake is inversely related to cancer prevalence: a systematic review and a meta-analysis of 13,800 patients and 23,340 controls in 19 observational studies. *Lipids Health Dis*. 2011 Jul 30;10:127.
8. Bonfiglio C, Cuccaro F, Campanella A, et al. Effect of Intake of Extra Virgin Olive Oil on Mortality in a South Italian Cohort with and without NAFLD. *Nutrients*. 2023 Oct 29;15(21).
9. Guasch-Ferre M, Li Y, Willett WC, et al. Consumption of Olive Oil and Risk of Total and Cause-Specific Mortality Among U.S. Adults. *J Am Coll Cardiol*. 2022 Jan 18;79(2):101-12.
10. Alkhalifa AE, Al-Ghraiya NF, Kaddoumi A. Extra-Virgin Olive Oil in Alzheimer's Disease: A Comprehensive Review of Cellular, Animal, and Clinical Studies. *Int J Mol Sci*. 2024 Feb 5;25(3).
11. Milena E, Maurizio M. Exploring the Cardiovascular Benefits of Extra Virgin Olive Oil: Insights into Mechanisms and Therapeutic Potential. *Biomolecules*. 2025 Feb 14;15(2).
12. Marcelino G, Hiane PA, Freitas KC, et al. Effects of Olive Oil and Its Minor Components on Cardiovascular Diseases, Inflammation, and Gut Microbiota. *Nutrients*. 2019 Aug 7;11(8).
13. George ES, Marshall S, Mayr HL, et al. The effect of high-polyphenol extra virgin olive oil on cardiovascular risk factors: A systematic review and meta-analysis. *Crit Rev Food Sci Nutr*. 2019;59(17):2772-95.

14. Schwingshackl L, Christoph M, Hoffmann G. Effects of Olive Oil on Markers of Inflammation and Endothelial Function-A Systematic Review and Meta-Analysis. *Nutrients*. 2015 Sep 11;7(9):7651-75.
15. Estruch R, Ros E, Salas-Salvado J, et al. Primary Prevention of Cardiovascular Disease with a Mediterranean Diet Supplemented with Extra-Virgin Olive Oil or Nuts. *N Engl J Med*. 2018 Jun 21;378(25):e34.
16. Ferrara LA, Raimondi AS, d'Episcopo L, et al. Olive oil and reduced need for antihypertensive medications. *Arch Intern Med*. 2000 Mar 27;160(6):837-42.
17. Estes C, Razavi H, Loomba R, et al. Modeling the epidemic of non-alcoholic fatty liver disease demonstrates an exponential increase in burden of disease. *Hepatology*. 2018 Jan;67(1):123-33.
18. Tedesco CC, Bonfiglio C, Notarnicola M, et al. High Extra Virgin Olive Oil Consumption Is Linked to a Lower Prevalence of NAFLD with a Prominent Effect in Obese Subjects: Results from the MICOL Study. *Nutrients*. 2023 Nov 4;15(21).
19. Mentella MC, Scaldaferrri F, Ricci C, et al. Cancer and Mediterranean Diet: A Review. *Nutrients*. 2019 Sep 2;11(9).
20. Bonfiglio C, Reddavid R, Cisternino AM, et al. Protective Effect of Extra Virgin Olive Oil on Cancers, Gastrointestinal Cancers, and All-Cause Mortality: A Competing Risk Analysis in a Southern Italian Cohort. *Cancers (Basel)*. 2024 Oct 23;16(21).
21. Fernandez-Prior A, Cardoso JC, Bermudez-Oria A, et al. Application of a Cold-Pressing Treatment to Improve Virgin Olive Oil Production and the Antioxidant Phenolic Profile of Its by-Products. *Antioxidants (Basel)*. 2023 May 27;12(6).
22. Gorzynik-Debicka M, Przychodzen P, Cappello F, et al. Potential Health Benefits of Olive Oil and Plant Polyphenols. *Int J Mol Sci*. 2018 Feb 28;19(3).
23. Kiyimba T, Yiga P, Bamuwamye M, et al. Efficacy of Dietary Polyphenols from Whole Foods and Purified Food Polyphenol Extracts in Optimizing Cardiometabolic Health: A Meta-Analysis of Randomized Controlled Trials. *Adv Nutr*. 2023 Mar;14(2):270-82.
24. Zumbo G, Corridore D, Sciscione S, et al. Oil Pulling and Polyphenols: Treatment of Gingivitis Patients with 'Itri Extra-Virgin Olive Oil'. *J Clin Med*. 2023 Aug 12;12(16).
25. Pretty IA, Gallagher MJ, Martin MV, et al. A study to assess the effects of a new detergent-free, olive oil formulation dentifrice in vitro and in vivo. *J Dent*. 2003 Jul;31(5):327-32.



For Oral Health Worth Smiling About

NEW & IMPROVED

FLORASSIST® Probiotic Oral Hygiene



Promote oral health and inhibit unwanted oral bacteria with **FLORASSIST® Probiotic Oral Hygiene**.

This mint-flavored lozenge contains a unique probiotic strain paired with a postbiotic to maintain healthy gum tissue, help manage dental plaque, inhibit inflammation to support oral health, promote a healthy oral pH and even inhibit the unwanted bacteria that live in your mouth.

Go beyond brushing with **FLORASSIST® Probiotic Oral Hygiene!**

Item #02120

30 vegetarian lozenges



BLIS™ and BLIS M18™ are trademarks of Blis Technologies Limited. Immuno-LP20® is a registered trademark of House Foods Group Inc.

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.

When
it comes to heart health.

Go Green.

Your heart will love the benefits of Life Extension® **Mega Green Tea Extract**.

Help maintain already-healthy blood cholesterol and LDL levels.

Our extract is standardized to **98% total polyphenols** with **45% beneficial EGCG**.

Item #00954 or **Item #00953**

100 vegetarian capsules



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.

STRESS RELIEF, WHEN YOU NEED IT MOST.

What do medical appointments, public speaking, or preparing for a trip have in common?

They can all make you feel worried or uneasy. GABA is an amino acid that has been clinically studied to help relieve occasional stress and promote a relaxed state of mind, balanced mood and better sleep.*

And unlike traditional stress support supplements, GABA can support a healthy stress response in as little as 30 minutes.

*For occasional sleeplessness

NEW



GLUTEN
FREE

NON
GMO
LE CERTIFIED

Item #02542

60 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.

Maintain Endothelial
Health with

Arterial Protect



ARTERIAL PROTECT can help maintain endothelial health and support 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.

Item #02004

30 vegetarian capsules

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



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.

Vitamin D
+ Vitamin K
+ Sea Iodine
= Convenience
+ Cost Savings



Item #02040

60 capsules



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

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

Just one capsule daily provides:

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

This product is available at fine health food stores everywhere.

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

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.



share a
longer
life



Item #01778

100 vegetarian capsules

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



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

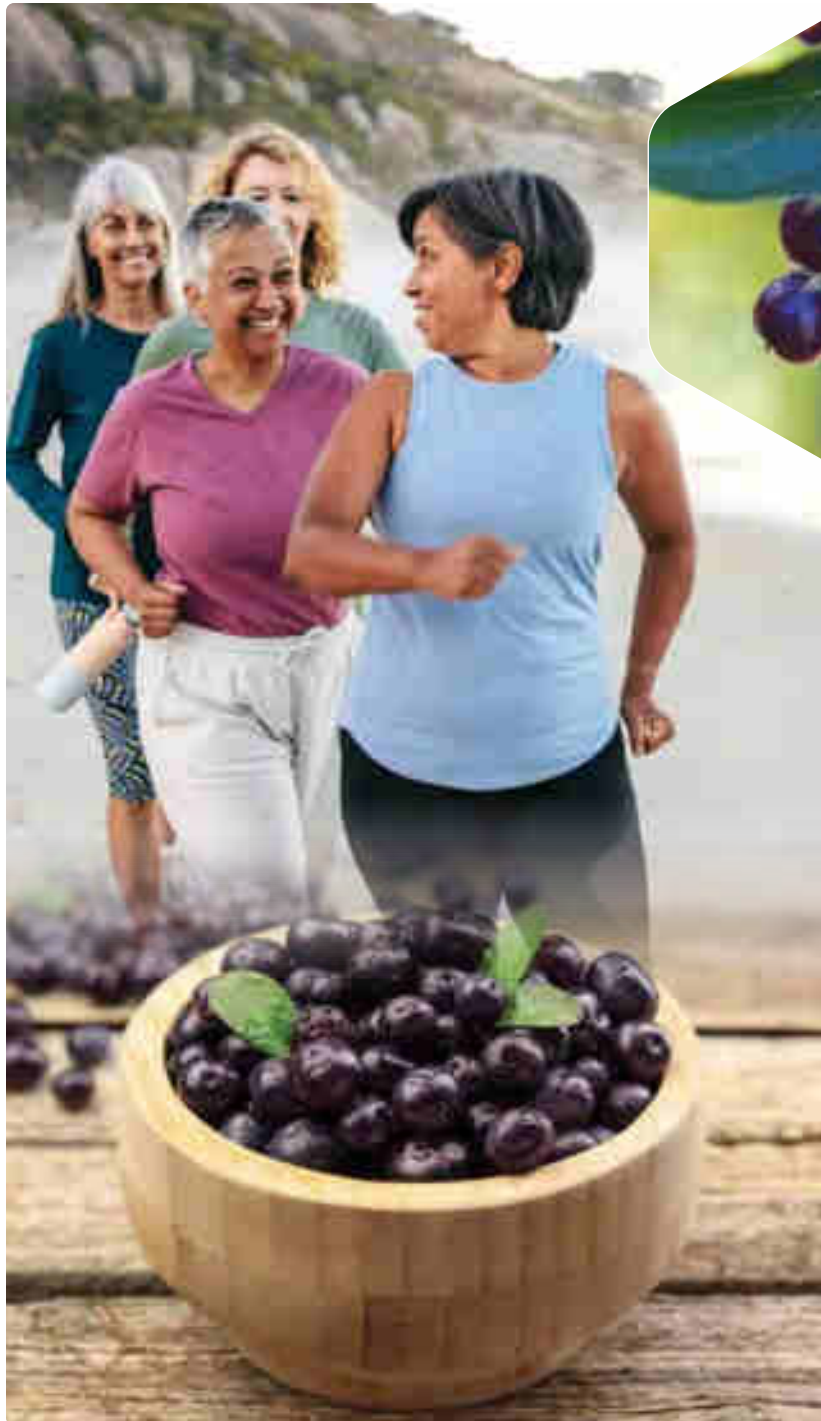
Super Selenium Complex combines three complementary forms of selenium with vitamin E for additional antioxidant protection.

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.

What is Maqui Berry?

BY LAURIE MATHENA



Maqui berries are the fruit of trees that grow wild in the rainforests of Chile and in some parts of Argentina.^{1,2}

People indigenous to these areas have long consumed the small, purple **berries** for their health benefits, and the berries have earned a reputation for their free radical scavenging and anti-inflammatory properties.²

Their range of potential benefits includes reducing LDL cholesterol levels,³ reducing free radical damage,⁴ and more.¹

Two key areas in which maqui berries are especially effective include:

1. Relieving **dry eyes**,^{5,6} and
2. Reducing **blood sugar levels**.^{3,7,8}

Dry Eye Relief

Dry eye occurs when the body either produces too few tears or tears that are of poor quality.⁹

In the short term, dry eye causes stinging, itching, and light sensitivity.⁹ Left untreated, it can become severe over time and can even cause permanent eye damage.¹⁰

Eye drops are just a temporary solution, because they cannot replicate the complex structure of real tears and need to be reapplied frequently.

However, extracts from **maqui berry** do what artificial tears cannot: they help the body produce more of its own **tears**.

A pilot clinical trial tested a standardized maqui berry extract's effect on dry eyes in 13 adults. Participants took either **30 mg** or **60 mg** daily for 60 days. Both groups saw a **45% increase** in tear production after 30 days.

By day 60, only the **60 mg** group maintained these improvements. Quality-of-life scores related to dry eye symptoms also improved more significantly in the **60 mg** group, showing a sustained reduction in discomfort. The study suggests that a *higher* dose of **maqui berry extract** is more effective for relieving dry eye symptoms and enhancing tear production.¹¹

A placebo-controlled trial of 74 participants investigated the effectiveness of **60 mg** standardized maqui berry extract in reducing **eye dryness** and **fatigue**. Previous studies have shown that maqui berry's high anthocyanin content can improve dry eye symptoms and reduce inflammation. After four weeks, the maqui berry group experienced reduced eye dryness compared to the placebo group, as well as improvement in eye fatigue.⁵

In a similar randomized trial, 20 patients with dry eye symptoms were randomly assigned to receive a standardized maqui berry extract or a placebo for two months. After two months, the **maqui berry** extract group showed significant **improvements** in **tear production** and dry eye symptoms compared to placebo. Molecular analysis revealed that the extract reduced proinflammatory cytokines in tear fluid. These findings suggest that maqui berry extract may be an effective adjunctive therapy for managing dry eye disease by reducing ocular inflammation.⁶

Blood Sugar Control

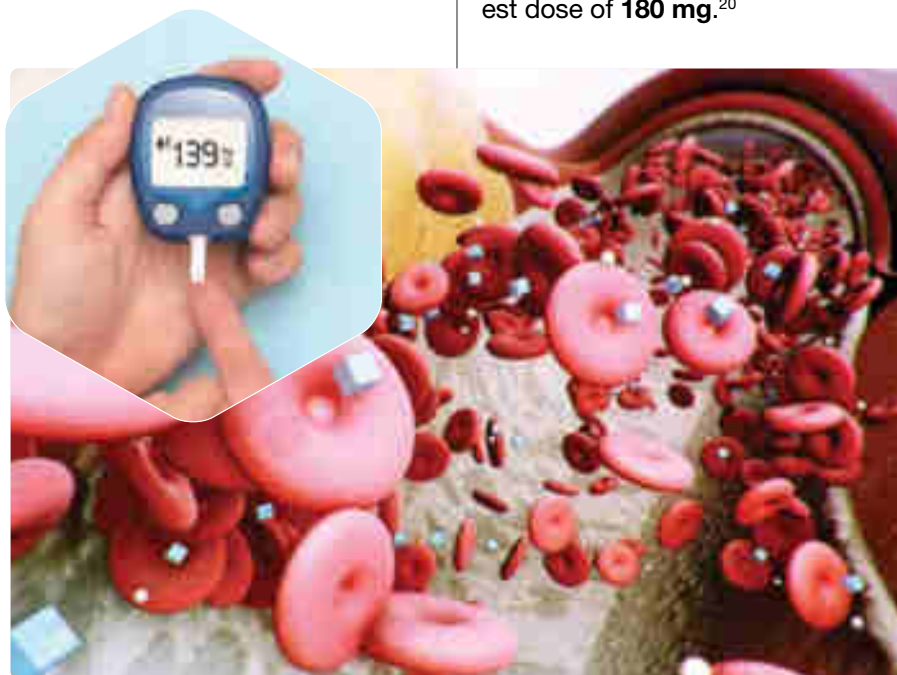
Scientists have discovered that different standardization processes of the maqui berry can yield distinct health benefits. In particular, another standardized form, rich in delphinidins, has been increasingly supported by scientific evidence suggesting that, at higher doses, it may help reduce blood glucose spikes after meals.

After-meal glucose spikes are associated with higher rates of cardiovascular disease,^{12,13} impaired cognitive function,^{14,15} and other chronic conditions.^{16,17}

In an advanced preclinical analysis of maqui berries' metabolic effects, scientists discovered that a family of polyphenolic compounds called **delphinidins** act on multiple targets related to metabolic syndrome.¹⁸

Maqui berry extracts are rich in delphinidins. These compounds have been found to reduce post-meal blood glucose levels by stimulating a peptide in the intestines that enhances glucose metabolism.^{3,19}

A study in 36 individuals with non-diabetic high blood sugar found that taking a single dose of standardized maqui berry extract prior to an oral glucose tolerance test was associated with a reduced risk of elevated blood glucose levels in individuals with prediabetes. Participants experienced a lower risk of dysglycemia (abnormal blood sugar levels) across all tested doses, with the most significant effect observed at the highest dose of **180 mg**.²⁰



In one study, people who took **200 mg** of a maqui berry extract 30 minutes before a meal had **15%** lower after-meal glucose levels than those who took a placebo.⁷

Maqui berry's ability to reduce *long-term* glucose levels is also noteworthy.

In a study of 31 individuals with mild prediabetes, **180 mg** of maqui berry extract every day for 90 days reduced HbA1c (a measure of glucose over the past three to four months) by **0.3%** (from **5.65%** to **5.35%**). This reduction brought HbA1c levels down into the normal range, which is **5.6%** or lower.³

Summary

Maqui berries have been scientifically studied for a range of health benefits. An extract of maqui berries is particularly effective at relieving symptoms of dry eye disease, because it helps the body produce more of its own natural tears.

Maqui berry extract also helps maintain healthy blood sugar levels by reducing after-meal blood sugar spikes and HbA1c levels.

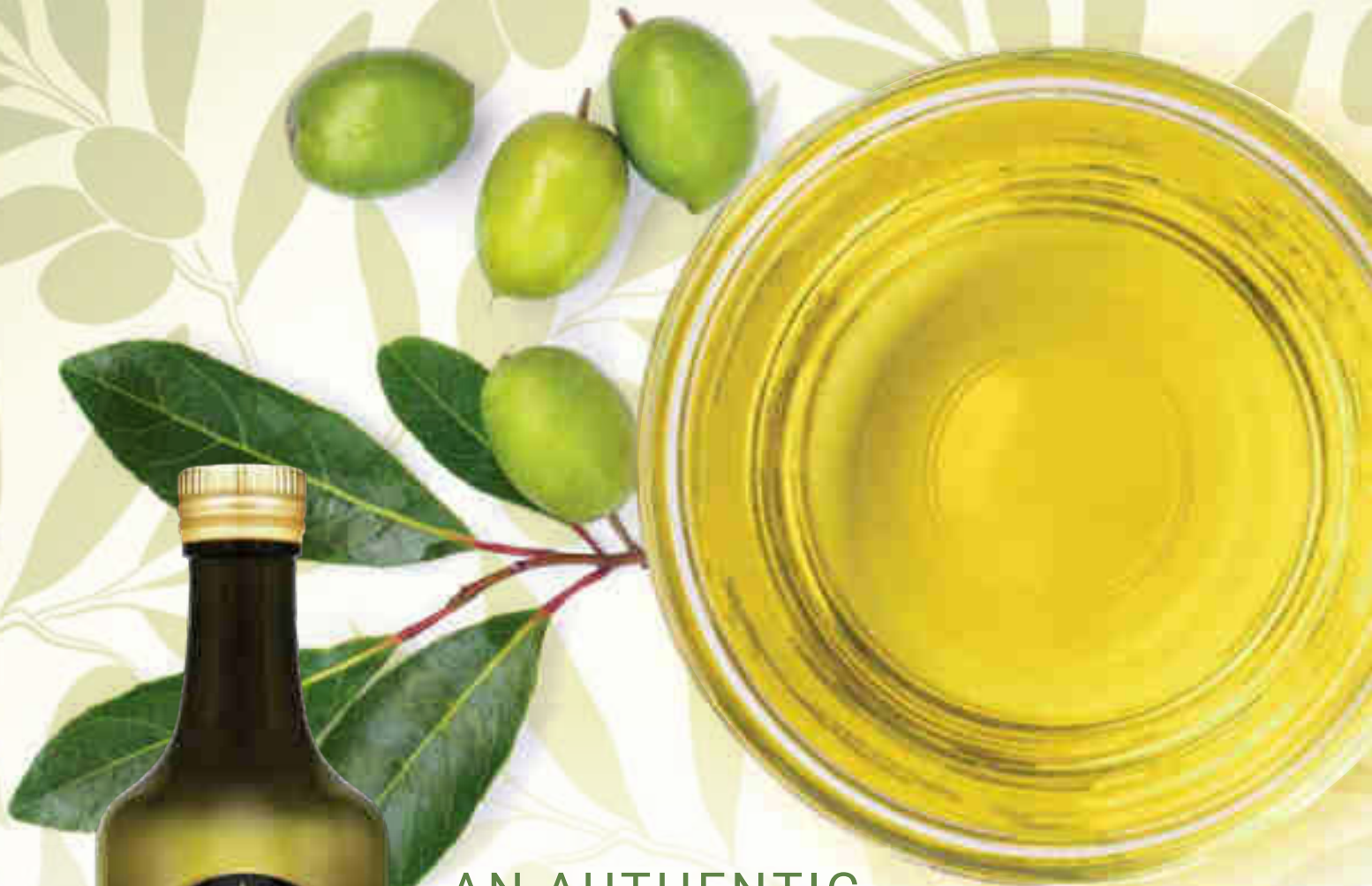
These benefits show that maqui berries can help support health and influence quality of life. •

References

1. Garcia-Milla P, Penalver R, Nieto G. A Review of the Functional Characteristics and Applications of *Aristotelia chilensis* (Maqui Berry), in the Food Industry. *Foods*. 2024 Mar 9;13(6).
2. Fuentes L, Figueroa CR, Valdenegro M, et al. Patagonian Berries: Healthy Potential and the Path to Becoming Functional Foods. *Foods*. 2019 Jul 26;8(8).
3. Alvarado J, Schoenlau F, Leschot A, et al. Delphinol(R) standardized maqui berry extract significantly lowers blood glucose and improves blood lipid profile in prediabetic individuals in three-month clinical trial. *Panminerva Med*. 2016 Sep;58(3 Suppl 1):1-6.



4. Davinelli S, Bertoglio JC, Zarrelli A, et al. A Randomized Clinical Trial Evaluating the Efficacy of an Anthocyanin-Maqui Berry Extract (Delphinol(R)) on Oxidative Stress Biomarkers. *J Am Coll Nutr*. 2015;34 Suppl 1:28-33.
5. Yamashita SI, Suzuki N, Yamamoto K, et al. Effects of MaquiBright(R) on improving eye dryness and fatigue in humans: A randomized, double-blind, placebo-controlled trial. *J Tradit Complement Med*. 2019 Jul;9(3):172-8.
6. Kundu G, Shetty R, D'Souza S, et al. Effect of maqui-berry extract in dry eye disease - A clinical and molecular analysis. *Indian J Ophthalmol*. 2023 Apr;71(4):1613-8.
7. Hidalgo J, Flores C, Hidalgo MA, et al. Delphinol(R) standardized maqui berry extract reduces postprandial blood glucose increase in individuals with impaired glucose regulation by novel mechanism of sodium glucose cotransporter inhibition. *Panminerva Med*. 2014 Jun;56(2 Suppl 3):1-7.
8. Deters B, Saleem M. Hyperinsulinemia, cancer and maqui berry: The promise of nutritional supplementation. *Food Science and Human Wellness*. 2019 2019/09/01;8(3):264-7.
9. Available at: <https://www.aoa.org/healthy-eyes/eye-and-vision-conditions/dry-eye?ss=y>. Accessed May 20, 2025.
10. Verjee MA, Brissette AR, Starr CE. Dry Eye Disease: Early Recognition with Guidance on Management and Treatment for Primary Care Family Physicians. *Ophthalmol Ther*. 2020 Dec;9(4):877-88.
11. Hitoe S, Tanaka J, Shimoda H. MaquiBright standardized maqui berry extract significantly increases tear fluid production and ameliorates dry eye-related symptoms in a clinical pilot trial. *Panminerva Med*. 2014 Sep;56(3 Suppl 1):1-6.
12. Lin HJ, Lee BC, Ho YL, et al. Postprandial glucose improves the risk prediction of cardiovascular death beyond the metabolic syndrome in the nondiabetic population. *Diabetes Care*. 2009 Sep;32(9):1721-6.
13. Mann BK, Bhandohal JS, Hong J. An Overall Glance of Evidence Supportive of One-Hour and Two-Hour Postload Plasma Glucose Levels as Predictors of Long-Term Cardiovascular Events. *Int J Endocrinol*. 2019;2019:6048954.
14. Abbatecola AM, Rizzo MR, Barbieri M, et al. Postprandial plasma glucose excursions and cognitive functioning in aged type 2 diabetics. *Neurology*. 2006 Jul 25;67(2):235-40.
15. Blaak EE, Antoine JM, Benton D, et al. Impact of postprandial glycaemia on health and prevention of disease. *Obes Rev*. 2012 Oct;13(10):923-84.
16. Barclay AW, Petocz P, McMillan-Price J, et al. Glycemic index, glycemic load, and chronic disease risk--a meta-analysis of observational studies. *Am J Clin Nutr*. 2008 Mar;87(3):627-37.
17. Ceriello A. Postprandial hyperglycemia and diabetes complications: is it time to treat? *Diabetes*. 2005 Jan;54(1):1-7.
18. Castillo-Garcia EL, Cossio-Ramirez AL, Cordoba-Mendez OA, et al. In Silico and In Vivo Evaluation of the Maqui Berry (*Aristotelia chilensis* (Mol.) Stuntz) on Biochemical Parameters and Oxidative Stress Markers in a Metabolic Syndrome Model. *Metabolites*. 2023 Dec 7;13(12).
19. Kato M, Tani T, Terahara N, et al. The Anthocyanin Delphinidin 3-Rutinoside Stimulates Glucagon-Like Peptide-1 Secretion in Murine GLUTag Cell Line via the Ca2+/Calmodulin-Dependent Kinase II Pathway. *PLoS One*. 2015;10(5):e0126157.
20. Olivera-Nappa A, Contreras S, Tevy MF, et al. Patient-Wise Methodology to Assess Glycemic Health Status: Applications to Quantify the Efficacy and Physiological Targets of Polyphenols on Glycemic Control. *Front Nutr*. 2022;9:831696.



AN AUTHENTIC EXTRA VIRGIN OLIVE OIL YOU CAN TRUST



Item #02008

500 ml



California Estate Extra Virgin Olive Oil is made with hand-picked, fresh milled olives. It contains concentrated (over **800mg/kg**), naturally occurring, olive polyphenols at time of bottling.

This unfiltered **extra virgin olive oil** is:

- Cold-extracted at a small, family farm in Yolo County, California
- Made entirely from green olives, *handpicked* to avoid bruising
- Rich in distinctive and fruity flavor

"Healthy and delicious."

Cecile

VERIFIED CUSTOMER
REVIEW

This product is available at fine health food stores everywhere.

eye

PRESSURE SUPPORT



"It's AWESOME."

Chrissy

VERIFIED CUSTOMER REVIEW

Eye Pressure Support with Mirtogenol® is designed to support blood flow in tiny vessels of the eyes, to help maintain healthy fluid pressure.

Item #01514

30 vegetarian capsules



This product is available at fine health food stores everywhere.

Mirtogenol® is a registered trademark of Horphag Research, Ltd. Mirtoselect® is a registered trademark of Indena, S.p.A., Milan, Italy. Pycnogenol® is a registered trademark of Horphag Research, Ltd. Pycnogenol® is protected by U.S. patent #9,125,925 and other international patents.

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.



Rejuvenate Your Microbiome for Healthy Aging



Item #02539

30 vegetarian capsules

FLORASSIST® Probiotic Youthful Gut promotes a healthy lifespan with three targeted **probiotics** and a **postbiotic**.

In **clinical trials**, these three **probiotics**:¹⁻⁴

- Encourage a more “**youthful**” gut microbiome
- Promote a healthy inflammatory response
- Support **healthy aging** processes
- Help support cholesterol levels already within the normal range

Youthful Gut contains: PoZibio® HT § *L. paracasei* D3-5, *L. plantarum* ECGC 13110402, *L. rhamnosus* IMC 501, and *L. paracasei* IMC 502 (9 Billion CFU+)

This product is available at
fine health food stores everywhere.

References

1. *J Applied Microbiology*. 2022;133(5):2941-53.
2. *Microorganisms*. 2023;11:801.
3. *PloS One*. 2017;12(12):e0187964.
4. *J Func Foods*. 2022;89:104939.

PoZibio® is protected under US Patent No.11,622,981 and is a registered trademark of Postbiotics, Inc. *L. plantarum* ECGC 13110402 is LPLDL. LPLDL is a trademarked ingredient developed and produced by ProBiotix Health.

† Colony forming units at time of manufacture. § Heat treated.

Brazil Nuts

BY LAURIE MATHENA



Brazil nuts are best known for their large size, with most nuts averaging up to two inches long.

These nuts provide a variety of minerals, amino acids, dietary fiber, protein, and tocopherols. They also contain **19 grams** of fat per ounce (about six nuts), **37%** of which is from heart-healthy polyunsaturated fatty acids.¹

With a nutrient profile like this, it's hardly surprising that consuming more than **three servings** of Brazil nuts *per week* has been associated with a reduced risk of cardiovascular, cancer, and overall mortality.²

Human studies have shown that consuming **15-50 grams** of Brazil nuts per day may favorably modify lipid profiles. This is likely due to their higher levels of unsaturated fatty acids.^{3,4} However, further clinical trials are needed to confirm these benefits.

A pilot trial found that daily consumption of one Brazil nut for six months improved selenium levels, antioxidant activity, and certain cognitive functions in older adults with mild cognitive impairment. Compared to those in the control group, the people consuming Brazil nuts experienced improvements in **verbal fluency** (the ability to quickly produce words) and in **constructional praxis** (the ability to manipulate spatial patterns, as in drawing or handwriting).⁵

Eating Brazil nuts could also help combat two factors associated with obesity: inflammation and intestinal permeability.

A study found that incorporating **8 grams** of Brazil nuts (about 1-2 nuts) per day into an energy-restricted diet for eight weeks significantly reduced inflammatory markers and improved intestinal permeability in women with overweight or obesity, compared to a nut-free control group. These benefits were linked to increased selenium content of the nut.⁶

Brazil nuts are nutrient powerhouses, but it is important to eat them in moderation because of the potential for nutrient imbalances.

References

1. Available at: <https://nuthealth.org/nut-facts/brazil-nuts/>. Accessed March 31, 2025.
2. Ferrari CKB. Anti-atherosclerotic and cardiovascular protective benefits of Brazilian nuts. *Front Biosci (Schol Ed)*. 2020 Jan 1;12(1):38-56.
3. Colpo E, Vilanova CD, Brenner Reetz LG, et al. A single consumption of high amounts of the Brazil nuts improves lipid profile of healthy volunteers. *J Nutr Metab*. 2013;2013:653185.
4. Maranhao PA, Kraemer-Aguiar LG, de Oliveira CL, et al. Brazil nuts intake improves lipid profile, oxidative stress and microvascular function in obese adolescents: a randomized controlled trial. *Nutr Metab (Lond)*. 2011 May 28;8(1):32.
5. Rita Cardoso B, Apolinario D, da Silva Bandeira V, et al. Effects of Brazil nut consumption on selenium status and cognitive performance in older adults with mild cognitive impairment: a randomized controlled pilot trial. *Eur J Nutr*. 2016 Feb;55(1):107-16.
6. Silveira BKS, Silva AD, Rocha D, et al. Brazil Nut (Bertholletia excelsa H.B.K.) Consumption in Energy-Restricted Intervention Decreases Proinflammatory Markers and Intestinal Permeability of Women with Overweight/Obesity: A Controlled Trial (Brazilian Nuts Study). *J Nutr*. 2024 Sep;154(9):2670-9.

Ciao, Belly!

Say “goodbye” to belly fat and
“hello” to a trimmer waist with
Gummy Science™ Mediterranean
Weight Management!

Inspired by the healthy weight benefits of the Mediterranean diet, these gummies promote both fat and weight loss when combined with diet and exercise. This formula targets not just belly fat but the visceral fat that surrounds your organs.

If your goal is a trimmer waistline that’s “molto bene,” Life Extension’s new and improved sugar-free* gummies may be just the ticket.

Item #02506C

60 gummies



*Not a
low-
calorie
food.



This product is available at fine health food stores everywhere.

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

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.

Choose the Melatonin That's Right For You

For occasional sleeplessness.

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

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



Melatonin 10 mg
60 vegetarian capsules
10 mg of melatonin in each vegetarian capsule.
Item #00331



Melatonin 3 mg
60 vegetarian capsules
3 mg of melatonin in each vegetarian capsule.
Item #00330



Melatonin IR/XR
60 capsules
1.5 mg of combined immediate-release and extended-release melatonin in each capsule.
Item #02201



Liquid Melatonin
(Fast-Acting Liquid)
Citrus Vanilla • 2 fl. oz
3 mg of melatonin per 1 mL dropper (approximately 20 drops).
Item #02234

These products are available at fine health food stores everywhere.

CAUTION: Do not consume alcohol, drive or operate machinery after taking these products.



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.

Are You Taking the Right Form of Vitamin E?

"It works for me."

Janice

VERIFIED CUSTOMER
REVIEW



Most people obtain **alpha-tocopherol** in their multivitamin, but miss out on critical **gamma-tocopherol**.

Gamma E Mixed Tocopherols provides all four tocopherol forms.

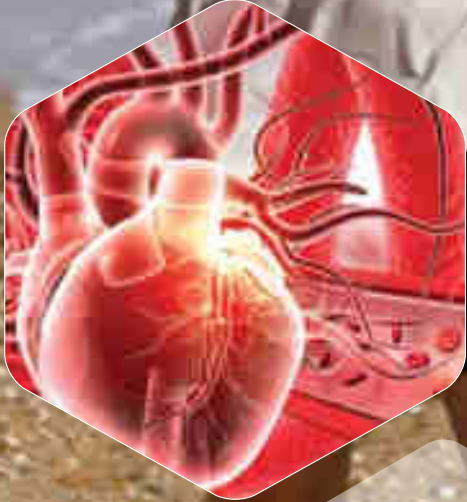
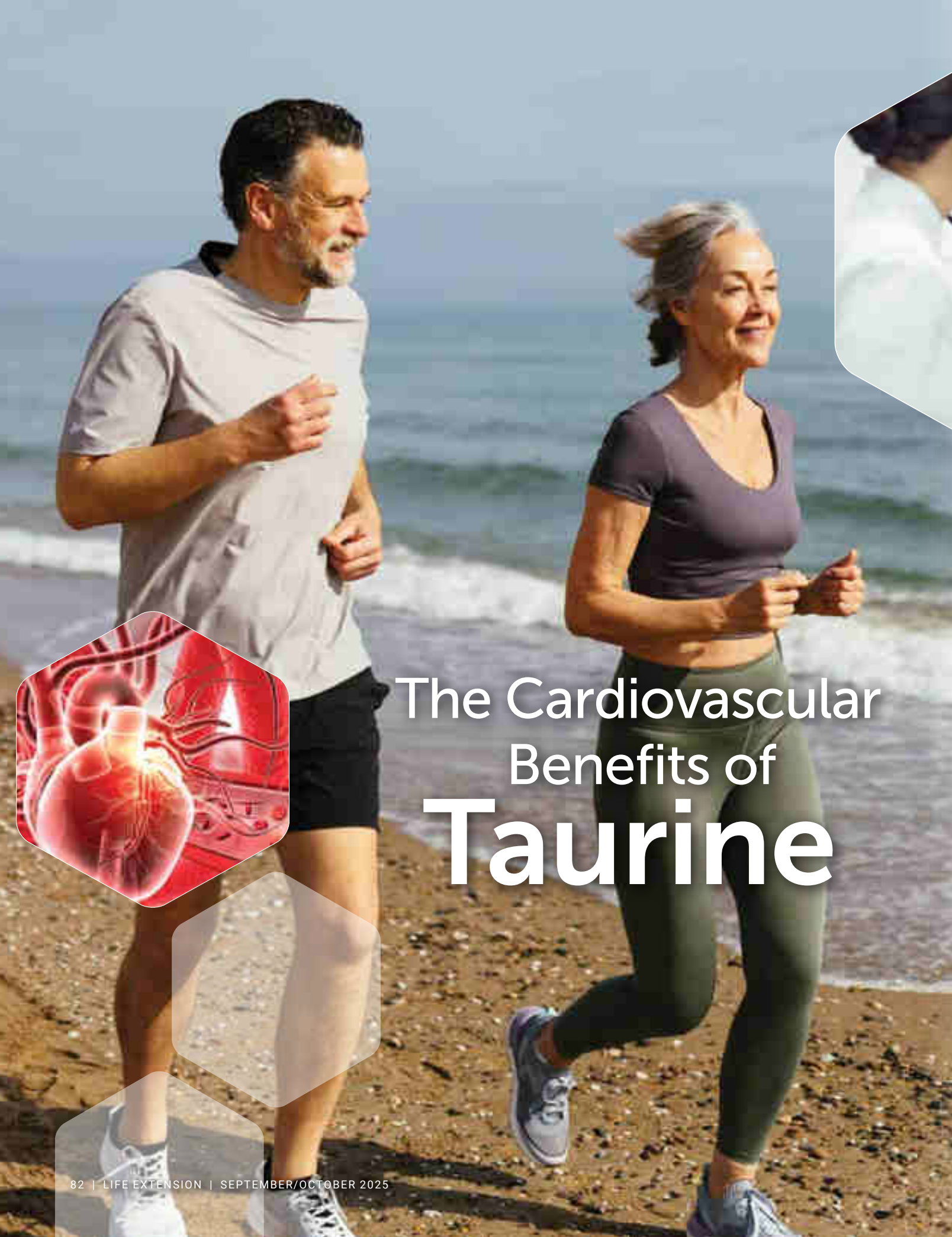
This product is available
at fine health food stores everywhere.

Item #02075

60 softgels

Caution: If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this 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.



The Cardiovascular Benefits of **Taurine**



BY MICHAEL DOWNEY

Taurine is an **amino acid** found in nearly all tissues.¹

In animals, adding **taurine** helped them live longer^{2,3} and stay healthier.^{2,4-6}

This is likely a result of taurine's protection against cell damage,^{5,7} repairing energy problems in cells,^{7,8} protecting DNA,⁷ and reducing long-term inflammation,⁵ which are common malfunctions that accompany aging.² However, taurine's role in aging humans remains a topic of ongoing research.

Scientific research has long focused on the **cardio-vascular** benefits of taurine.^{7,9-13}

In Japan, taurine has been safely and successfully used for **four decades** to improve **heart function** and **exercise capacity** in patients with heart failure.⁸

Clinical studies have shown its potential to decrease elevated **cholesterol, blood pressure**,^{13,14} and **triglycerides**,¹³ which are risk factors for cardiovascular disease.

What is Taurine?

While most amino acids serve as building blocks for proteins, taurine does not.

Instead, taurine acts as a “free” amino acid in body tissue, assisting with a variety of processes, such as the regulation of calcium and potassium.¹⁵ Taurine also supports the health of **cells** and **mitochondria**, the energy-generating “powerhouses” of the cell.⁸

Taurine is especially abundant in the heart, where it constitutes approximately **50%** of the total free amino acids in the heart.¹⁵

Animal studies have linked taurine to overall healthy aging. For example, taurine intake boosted the median **lifespan** of middle-aged mice by **10%-12%**. Elderly mice given taurine had an even more dramatic **25%** increase in life expectancy.²

While taurine supplementation in humans shows promise in supporting cardiovascular and metabolic health, effects on aging are from animal studies; additional research is on-going to clarify taurine’s role in aging humans.



How Taurine Works

Research evidence has demonstrated that taurine may deliver many of its cardiovascular benefits by:

- Modulating calcium and potassium channels, which influence cardiac electrical activity and vascular tone. It can relax arteries by opening calcium-activated potassium channels.¹¹
- Improving **myocardial energetics**, how well the heart muscle uses and produces energy to pump blood,¹⁶⁻¹⁸
- Reducing the effects of **angiotensin II**, a hormone that causes blood vessels to tighten and the body to retain salt, which can worsen heart failure,^{19,20}
- Reducing damage to cardiac, endothelial, and other cells by enhancing nitric oxide (NO) availability and by boosting antioxidant enzymes,^{21,22}
- Boosting anti-inflammatory activity (likely by reducing the effects of the renin-angiotensin system),¹⁰
- Inhibiting **cardiomyopathy**, a set of pathologies that make the heart muscle weak, thick, or rigid,²³ and
- Helping to slow the development of atherosclerosis.²⁴

Cardiac Benefits

Taurine plays a key role in the functioning of the **cardiovascular system**.

A review describing the functional role of taurine in cardiac health concluded that it can enhance **cardiac contractility** (the heart’s ability to contract and pump blood effectively) and overall heart function, especially **left ventricular function**, which is a primary factor in how well the heart pumps oxygen-rich blood to the body.¹⁵

In **animal** studies, taurine intake improved:¹⁵

- Contractility,
- Stroke volume (amount pumped per beat), and
- Cardiac output (amount of blood pumped per minute).



What You
Need
To Know

A study investigating the effects of taurine deficiency in rats found that taurine deficiency resulted in **atrophic cardiac remodeling**. The structural changes were associated with impaired cardiac function, including decreased ejection fraction as well as systolic and diastolic dysfunction.²⁵

In **human** studies, taurine intake led to improvements in:^{18,26,27}

- Heart function, including left ventricular function, and
- Exercise tolerance.

In Japan, **taurine** was approved as a treatment for patients with **heart failure** in 1985. Since then, it has been used to improve heart function and increase exercise capacity. It has also become a topic of interest for scientists worldwide due to its potential benefits in aging, mitochondrial diseases, metabolic syndrome, cancer, cardiovascular diseases, and neurological disorders.⁸

Keep the Heart Healthy

- The amino acid **taurine** is found throughout the body.
- Studies show that it can improve multiple aspects of **heart** and **blood vessel function**. It has been successfully used as part of treatment for heart failure patients in Japan for decades.
- In human studies, taking oral taurine boosted heart function and decreased triglycerides, blood pressure, and cholesterol, reducing risk factors for atherosclerosis and **cardiovascular disease**.
- Taking oral taurine can support cardiovascular health and promote healthy aging.

Vascular Effects

Taurine may provide vascular benefits in several different ways. Preclinical research has shown that it supports the production of endothelial **nitric oxide** (NO), which is a compound that, when released from the endothelium (inner arterial lining) leads to vasodilation, improved blood flow, and a decreased risk of endothelial dysfunction.^{21,28}

Other research suggests that taurine may be able to reduce the risk of **atherosclerosis** (the buildup of plaque in the arteries) and cardiovascular events by modulation of lipids, and lowering inflammation.

In animal models, taurine supplements have shrunk atherosclerotic plaques and improved blood vessel function.^{24,29,30}

In a randomized double-blind placebo-controlled trial, 120 people with prehypertension were randomized to receive **1.6 grams** of taurine or placebo daily for 12 weeks. Those who supplemented with taurine had significantly improved vasodilation and, on average, systolic pressure fell by **7.2 mm Hg**, which was over two-and-a-half times more than the placebo group.¹²

Meta-analyses which combined the results of multiple randomized-controlled trials have found a range of vascular benefits from **taurine supplementation**:

- Reduced **systolic** and **diastolic** blood pressure to a clinically significant degree. The average reductions were about **3 mmHg** each in an analysis of studies evaluating blood pressure changes in dosages of **1,000-6,000 mg** daily over periods ranging from one day to 12 weeks. The studies included a range of subjects, from young healthy and recreationally active to elderly and diseased.¹⁴
- Lowered **triglycerides**, **cholesterol**, and **blood pressure** in an analysis of people with metabolic or liver dysregulation receiving **500-6,000 mg** daily for 15 days to six months.¹³
- In participants of varying age, health, and training status, taurine enhanced endurance exercise performance in analyses that evaluated **1,000-6,000 mg** dosages daily for up to two weeks. The greatest performance improvements were observed in the elderly with heart failure.²⁶

All of these effects may help reduce the risk for **cardiovascular disease**.

People today are supplementing with **1,000-6,000 mg** a day of taurine.³¹ Those with kidney impairment should avoid high taurine doses as it can overwhelm the ability of weakened kidneys to efficiently clear taurine.



Highest Taurine Intake, Lowest Cardiovascular Disease

Scientists conducted a worldwide epidemiological study that included **25 countries** and over **14,000 people**.³²

They found that residents of Okinawa, Japan had the:

- **Highest** intake of seafood and thus of taurine,
- **Lowest** rate of heart disease, and
- **Longest** average lifespan.

Summary

Cells throughout the body require the amino acid **taurine** to function optimally.

In clinical studies, taurine improved **heart function** and reduced cholesterol, blood pressure, and triglycerides, supporting optimal cardiovascular health. ■

References

1. Abud GF, de Freitas EC. Taurine supplementation as a strategy to enhance thermoregulation during low-intensity exercise. *Eur J Appl Physiol.* 2025 Apr 1.
2. Singh P, Gollapalli K, Mangiola S, et al. Taurine deficiency as a driver of aging. *Science.* 2023 Jun 9;380(6649):eabn9257.
3. McGaunn J, Baur JA. Taurine linked with healthy aging. *Science.* 2023 Jun 9;380(6649):1010-1.
4. Ma Y, Maruta H, Sun B, et al. Effects of long-term taurine supplementation on age-related changes in skeletal muscle function of Sprague-Dawley rats. *Amino Acids.* 2021 Feb;53(2):159-70.
5. Barbiera A, Sorrentino S, Fard D, et al. Taurine Administration Counteracts Aging-Associated Impingement of Skeletal Muscle Regeneration by Reducing Inflammation and Oxidative Stress. *Antioxidants (Basel).* 2022 May 21;11(5).
6. Barbiera A, Sorrentino S, Lepore E, et al. Taurine Attenuates Catabolic Processes Related to the Onset of Sarcopenia. *Int J Mol Sci.* 2020 Nov 23;21(22).
7. Baliou S, Adamaki M, Ioannou P, et al. Protective role of taurine against oxidative stress (Review). *Mol Med Rep.* 2021 Aug;24(2).
8. Jong CJ, Sandal P, Schaffer SW. The Role of Taurine in Mitochondria Health: More Than Just an Antioxidant. *Molecules.* 2021 Aug 13;26(16).
9. Ames BN. Prolonging healthy aging: Longevity vitamins and proteins. *Proc Natl Acad Sci U S A.* 2018 Oct 23;115(43):10836-44.
10. Qaradakh T, Gadanec LK, McSweeney KR, et al. The Anti-Inflammatory Effect of Taurine on Cardiovascular Disease. *Nutrients.* 2020 Sep 17;12(9).
11. Yildiz O, Ulusoy KG. Effects of taurine on vascular tone. *Amino Acids.* 2022 Dec;54(12):1527-40.
12. Sun Q, Wang B, Li Y, et al. Taurine Supplementation Lowers Blood Pressure and Improves Vascular Function in Prehypertension: Randomized, Double-Blind, Placebo-Controlled Study. *Hypertension.* 2016 Mar;67(3):541-9.
13. Guan L, Miao P. The effects of taurine supplementation on obesity, blood pressure and lipid profile: A meta-analysis of randomized controlled trials. *Eur J Pharmacol.* 2020 Oct 15;885:173533.
14. Waldron M, Patterson SD, Tallent J, et al. The Effects of Oral Taurine on Resting Blood Pressure in Humans: a Meta-Analysis. *Curr Hypertens Rep.* 2018 Jul 13;20(9):81.
15. Santulli G, Kansakar U, Varzideh F, et al. Functional Role of Taurine in Aging and Cardiovascular Health: An Updated Overview. *Nutrients.* 2023 Sep 30;15(19).
16. Schaffer SW, Shimada-Takaura K, Jong CJ, et al. Impaired energy metabolism of the taurine-deficient heart. *Amino Acids.* 2016 Feb;48(2):549-58.
17. Schaffer SW, Jong CJ, Ramila KC, et al. Differences Between Physiological and Pharmacological Actions of Taurine. *Adv Exp Med Biol.* 2022;1370:311-21.
18. Tzang CC, Lin WC, Lin LH, et al. Insights into the cardiovascular benefits of taurine: a systematic review and meta-analysis. *Nutr J.* 2024 Aug 15;23(1):93.
19. Jacques D, Bkaily G. Taurine Prevents Angiotensin II-Induced Human Endocardial Endothelium Morphological Remodeling and the Increase in Cytosolic and Nuclear Calcium and ROS. *Nutrients.* 2024 Mar 5;16(5).
20. Ito T, Schaffer S, Azuma J. The effect of taurine on chronic heart failure: actions of taurine against catecholamine and angiotensin II. *Amino Acids.* 2014 Jan;46(1):111-9.
21. Guizoni DM, Vettorazzi JF, Carneiro EM, et al. Modulation of endothelium-derived nitric oxide production and activity by taurine and taurine-conjugated bile acids. *Nitric Oxide.* 2020 Jan 1;94:48-53.
22. Abud GF, De Carvalho FG, Batitucci G, et al. Taurine as a possible antiaging therapy: A controlled clinical trial on taurine antioxidant activity in women ages 55 to 70. *Nutrition.* 2022 Sep;101:111706.
23. Ito T, Murakami S. Taurine deficiency associated with dilated cardiomyopathy and aging. *J Pharmacol Sci.* 2024 Mar;154(3):175-81.
24. Murakami S. Taurine and atherosclerosis. *Amino Acids.* 2014 Jan;46(1):73-80.
25. Pansani MC, Azevedo PS, Rafacho BP, et al. Atrophic cardiac remodeling induced by taurine deficiency in Wistar rats. *PLoS One.* 2012;7(7):e41439.
26. Waldron M, Patterson SD, Tallent J, et al. The Effects of an Oral Taurine Dose and Supplementation Period on Endurance Exercise Performance in Humans: A Meta-Analysis. *Sports Med.* 2018 May;48(5):1247-53.
27. Kurtz JA, VanDusseldorp TA, Doyle JA, et al. Taurine in sports and exercise. *J Int Soc Sports Nutr.* 2021 May 26;18(1):39.
28. Maia AR, Batista TM, Victorio JA, et al. Taurine supplementation reduces blood pressure and prevents endothelial dysfunction and oxidative stress in post-weaning protein-restricted rats. *PLoS One.* 2014;9(8):e105851.
29. Murakami S, Sakurai T, Tomoike H, et al. Prevention of hypercholesterolemia and atherosclerosis in the hyperlipidemia- and atherosclerosis-prone Japanese (LAP) quail by taurine supplementation. *Amino Acids.* 2010 Jan;38(1):271-8.
30. Zulli A, Lau E, Wijaya BP, et al. High dietary taurine reduces apoptosis and atherosclerosis in the left main coronary artery: association with reduced CCAAT/enhancer binding protein homologous protein and total plasma homocysteine but not lipidemia. *Hypertension.* 2009 Jun;53(6):1017-22.
31. Chen Q, Li Z, Pinho RA, et al. The Dose Response of Taurine on Aerobic and Strength Exercises: A Systematic Review. *Front Physiol.* 2021;12:700352.
32. Yamori Y, Liu L, Mori M, et al. Taurine as the nutritional factor for the longevity of the Japanese revealed by a world-wide epidemiological survey. *Adv Exp Med Biol.* 2009;643:13-25.



*Cry Out
Loud
go ahead,
shed a tear.*

"I'm happy with it!"

Mary

VERIFIED CUSTOMER
REVIEW



Tears are a good thing—until you don't have enough.

Maqui berries (*Aristotelia chilensis*) produce compounds called **delphinidins** that encourage tear production—an up to **45%** increase after 30 days in one study. So where can you get a maqui extract with delphinidin? **Tear Support with MaquiBright®.**

This product is available at fine health food stores everywhere.

MaquiBright® is a registered trademark of MAQUI NEW LIFE S.A, Chile and ORYZA OIL & FAT CHEMICAL CO., LTD., Japan.

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.

Item #01918

30 vegetarian capsules



ADVANCED Milk Thistle

ULTIMATE SUPPORT
FOR YOUR LIVER



Item #01922

60 softgels

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

SILIPHOS® phytosome in **Advanced Milk Thistle** resulted in almost **3.5-fold** greater bioavailability compared to unformulated milk thistle extract.



This product is available at fine health food stores everywhere.

SILIPHOS® is a registered trademark of Indena S.p.A., Italy.

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.

GO WITH THE FLOW



Ultra Prostate Formula is designed to address essential factors involved in prostate health: function, hormone metabolism, and nighttime flow.

It is our most advanced prostate-health supplement.

Item #02029

60 softgels



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.

BUILD BETTER *Beauty* WITH VEGAN PRO COLLAGEN

Vegan Pro Collagen is an *alternative* to animal collagen with an amino acid profile *identical* to **human type I collagen**.

The formula contains **amino acids** plus a combination of **ginseng extract**, **vitamin C**, and **gotu kola extract** that have been shown to support normal collagen production.*

Vegan Pro Collagen helps reduce the appearance of **skin aging** and **wrinkles**.

A **clinical trial** showed that this vegan formulation reduced the appearance of wrinkles by **14%**, enhanced skin texture up to **13%** and increased skin **collagen density** in just **eight weeks**.*

Vegan Pro Collagen is a *sugar-free*** powder, with natural orange flavor with other natural flavors.

* J Functional Foods. 2024;112:105955.



**NON
GMO**
LE CERTIFIED

**GLUTEN
FREE**

**SUGAR
FREE**

**Not a
low-calorie
food.

Item #02528

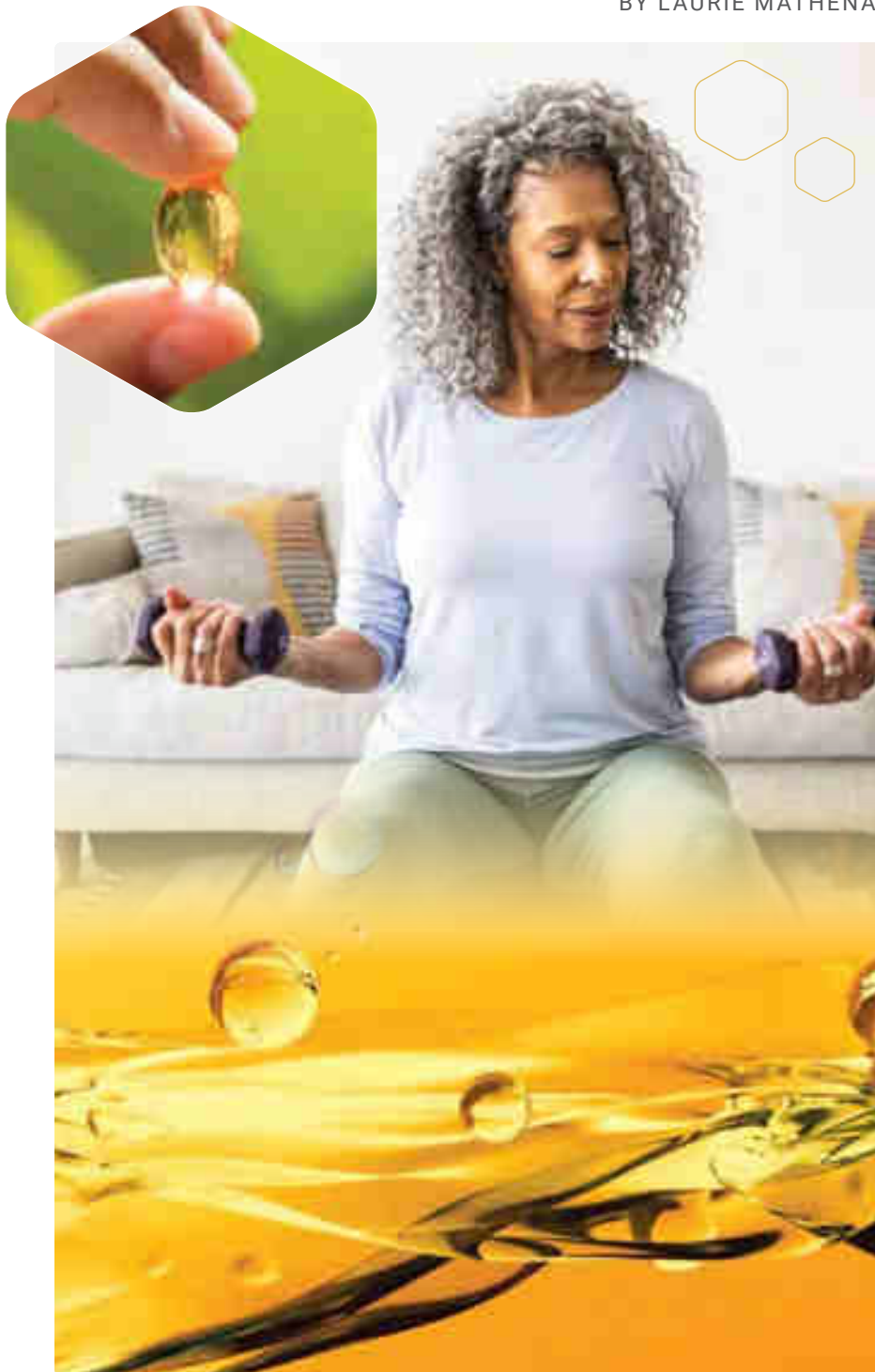
Net Wt. 189 g

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.

Expanding the Role of Vitamin E in Health

BY LAURIE MATHENA



Vitamin E is a fat-soluble antioxidant that helps support heart and brain health, immune function, and more.¹

Twenty years ago, *Life Extension* reported on a meta-analysis of 19 clinical trials² showing that people with the *highest* levels of serum **alpha-tocopherol** (a form of vitamin E) had significantly lower risk of dying from cancer, cardiovascular disease, and other causes.³

Emerging evidence from observational studies, along with findings from prospective clinical trials, point to a promising role for vitamin E in supporting various aspects of health and well-being.

Here are some highlights.

Higher vitamin E intake associated with reduced mortality in rheumatoid arthritis patients.⁴

Researchers analyzed data from the **National Health and Nutrition Examination Survey (NHANES)** from 1999 to 2018 on **2,906** patients aged 20 and older with **rheumatoid arthritis**. They found that *higher* dietary intake of vitamin E was associated with a lower risk of all-cause mortality among patients with rheumatoid arthritis.

Those in the top **50%** of vitamin E intake had significantly **lower risk of death** from any cause, compared to those in the bottom half of intake.

Higher vitamin E intake associated with reduced risk of all-cause mortality and chronic lower respiratory disease mortality in COPD.⁵

In a study of **1,261** patients aged 40 and older with **chronic obstructive pulmonary disease (COPD)**, a group of lung conditions causing restricted airflow and breathing problems, researchers found that **higher** vitamin E intake was associated with a lower risk of all-cause mortality and death from chronic lower respiratory disease.

Higher vitamin E intake associated with lower incidence of non-alcoholic fatty liver disease.⁶

In a study analyzing data from **6,122** adults, researchers evaluated vitamin E intake using two 24-hour dietary recalls. They found that both dietary and supplemental vitamin E were significantly linked to reduced odds of **non-alcoholic fatty liver disease**. Dietary vitamin E intake in the **highest** quartile was associated with a **40% lower** risk of non-alcoholic fatty liver disease, while supplement use was associated with a **34% reduction**.

Vitamin E improves markers of metabolic function.⁷

A systematic review and meta-analysis of seven clinical trials involving participants aged 25 to 64 years found that vitamin E significantly improved liver health in adults with **metabolic associated fatty liver disease** (another name for non-alcoholic fatty liver disease).

It significantly improved two markers of liver function: alanine aminotransferase (ALT) and aspartate aminotransferase (AST). It reduced fat buildup in the liver, reduced inflammation in the lobes of the liver, and reduced swelling of liver cells. Vitamin E was also found to increase the **resolution of metabolic dysfunction-associated steatohepatitis**, a more severe form of fatty liver disease.

Studies administered **200 to 600 mg** of vitamin E daily for durations ranging from eight to 96 weeks.

Vitamin E improves insomnia in postmenopausal women.⁸

In a prospective, double-blinded, controlled trial, 160 postmenopausal women with chronic insomnia disorder were randomly assigned to receive either vitamin E (**268 mg** of mixed tocopherols) or a placebo daily.

After one month, the vitamin E group showed significantly improved scores on a standardized **sleep** quality questionnaire, indicating better sleep quality compared to the placebo group. The vitamin E group also had a greater reduction in the percentage of patients requiring sedative medications—**15%** compared to **7.5%** in the placebo group.

Summary

Vitamin E has been connected to reduced mortality and reduced risk of many health conditions.

One concern specific to vitamin E is an issue of lower bio-availability when delivered synthetically.⁹ For optimal benefits, choose a non-synthetic vitamin E. •

References

1. Available at: <https://ods.od.nih.gov/factsheets/VitaminE-HealthProfessional/>. Accessed June 16, 2025.
2. Wright ME, Lawson KA, Weinstein SJ, et al. Higher baseline serum concentrations of vitamin E are associated with lower total and cause-specific mortality in the Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study. *Am J Clin Nutr*. 2006 Nov;84(5):1200-7.
3. Available at: <https://www.lifeextension.com/magazine/2007/3/awsi>. Accessed June 17, 2025.
4. Yin Y, Dong Y, Cao Y, et al. Association of Vitamin E Intake with All-Cause Mortality Among Individuals with Rheumatoid Arthritis: A Cohort Study from the NHANES 1999-2018. *J Am Nutr Assoc*. 2025 Feb;44(2):89-95.
5. Tian M, Li W, He X, et al. Higher Vitamin E Intake Reduces Risk of All-Cause Mortality and Chronic Lower Respiratory Disease Mortality in Chronic Obstructive Pulmonary Disease: NHANES (2008-2018). *Int J Chron Obstruct Pulmon Dis*. 2024;19:1865-78.
6. Qi X, Guo J, Li Y, et al. Vitamin E intake is inversely associated with NAFLD measured by liver ultrasound transient elastography. *Sci Rep*. 2024 Jan 31;14(1):2592.
7. Chee NM, Sinnanaidu RP, Chan WK. Vitamin E improves serum markers and histology in adults with metabolic dysfunction-associated steatotic liver disease: Systematic review and meta-analysis. *J Gastroenterol Hepatol*. 2024 Dec;39(12):2545-54.
8. Thongchumnum W, Vallibhakara SA, Sophonsritsuk A, et al. Effect of Vitamin E Supplementation on Chronic Insomnia Disorder in Postmenopausal Women: A Prospective, Double-Blinded Randomized Controlled Trial. *Nutrients*. 2023 Feb 27;15(5).
9. Schmölz L, Birringer M, Lorkowski S, et al. Complexity of vitamin E metabolism. *World J Biol Chem*. 2016 Feb 26;7(1):14-43.



Taurine

A Wellness Trip for Your
Heart & Mind



Item #01827

1000 mg
90 vegetarian capsules



"An absolute must-have in any supplement plan."

Donald

VERIFIED CUSTOMER
REVIEW

Healthy aging is your destination

Taurine is one of the most abundant **amino acids** in the body.

It supports a healthy **heart** and **brain**, muscle mass and exercise performance.

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.

Love the Sun?

Shield Your Skin
from Within

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

"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.

"I use this as a support
for bone health."

Myron

VERIFIED CUSTOMER REVIEW



Just one daily softgel of
Super K provides:

Vitamin K1	2,000 mcg
Vitamin K2 (MK-4)	1,000 mcg
Vitamin K2 (trans MK-7)	180 mcg

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



Item #02334

90 softgels

Each bottle lasts for
three months.



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.

NEW PRODUCTS

Fuller, Stronger Hair

Wavy or straight, short or long, healthy hair starts at the roots. Hair Growth for Women is a once-daily formula that reduces shedding, supports hair density, volume, and helps maintain already-normal dihydrotestosterone (DHT) levels, a hormone associated with hair follicle health.



Item #02541

30 softgels



Crack ^{the} Aging Code



Item #02540

30 vegetarian
capsules



Mega L-Ergothioneine

An amino acid that supports healthy aging, L-ergothioneine is a stellar antioxidant that promotes overall well-being, but levels decline as we age.

Mega L-Ergothioneine combats oxidative stress that contributes to the aging process with a powerful 25 mg dose of L-ergothioneine in every capsule.

ONE SCOOP, ALL **Power**



Fuel muscle mass, strength, endurance and recovery in and outside the gym with Creatine Powder.

Our unflavored, easy-mix exercise support formula delivers the gold standard 5 grams dose of creatine monohydrate in every scoop! Just add it to water or your favorite beverage.

Item #02543

Net Wt. 300 grams
About 60 servings



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



IN THIS EDITION OF LIFE EXTENSION MAGAZINE®



16 ZINC IMPROVES GLUCOSE CONTROL

Meta-analyses found that **zinc** supplementation *improved* fasting **glucose**, **A1c**, **insulin resistance**, and **C-reactive protein**.



24 VITAMIN B12 BLOOD LEVELS AND BRAIN AGING

A recent study suggested that “normal” blood levels of **vitamin B12** on standard tests are too low and can *increase* risk of **cognitive impairment** and **dementia** in older adults.



32 REMOVE AGED CELLS

Aged, dysfunctional **cells** *accelerate* degenerative processes. Plant-based **senolytic** compounds can help the body *remove* these toxic cells.



42 FEMALE HAIR LOSS

Two **plant extracts** may help *resolve* **hair loss** and restore **hair growth**. In clinical trials, one extract *decreased* **hair loss** by **48%** while the second *reduced* **hair shedding** by **34%**.



52 PROBIOTIC DEFENSE AGAINST GUM DISEASE

In a clinical trial, a **probiotic** *inhibited* harmful **oral bacteria**, *reduced* **gum bleeding**, and **plaque buildup**. Plus, a **postbiotic** clinically *reduced* **periodontal pockets**.



82 CARDIOVASCULAR EFFECTS OF TAURINE

In clinical studies, **taurine** *improved* heart function, lowered blood pressure and reduced atherogenic lipids.