



The Science of a Healthier Life®

LifeExtension.com

May 2025

FEATURE ARTICLES

- 7 End-Stage Kidney Disease Doubles
- 28 Migraine Relief with CoQ10
- 38 Slow and Reverse Hair Loss
- 48 Multifaceted Effects of Fisetin
- 61 What is NAD⁺?
- 64 Comprehensive Blood Testing

Slow & Reverse Hair Loss

PLUS
Dementia Linked
to Vitamin D
Deficiency



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
1 bottle \$9 • 4 bottles \$8 each



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

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.

REPORTS



**PAGE 38
ON THE COVER**

Slow and Reverse Hair Loss

In a clinical trial, scientists identified **two plant** extracts that increased **hair growth** for **95%** of men with male pattern baldness.

28 COQ10 AND MIGRAINES

Human studies show that **CoQ10** reduces migraine frequency, duration, and severity.



48 ANTI-AGING EFFECTS OF Fisetin

In preclinical studies, **fisetin** *reduces* **senescent cell** burdens and *prolongs* **lifespan**. Dozens of clinical trials are investigating **fisetin's** potential age-delaying effects.



61 WHAT IS NAD+?

NAD+ is found in every living cell and is vital for maintaining healthy cell functions. Boosting **NAD+** levels may *delay* aspects of **systemic aging**.



64 PREVENTIVE BLOOD TESTS GAIN WIDE ACCEPTANCE

Comprehensive blood tests identify risk factors *early* so corrective steps can be taken. Record numbers of Americans now have at least the basic blood tests done annually.



DEPARTMENTS

7 END-STAGE KIDNEY DISEASE DOUBLES

Chronic kidney disease incidence is surging higher. Judicious use of medicines like **colchicine** and **SGLT2 inhibitors** may help improve clinical outcomes in those stricken with common kidney disorders.

19 IN THE NEWS

CoQ10 and chronic kidney disease; calorie restriction

plus diabetes drug improves remission odds; joint replacement failures linked to vitamin D deficiency; legacy of 104-year-old Dr. Loretta C. Ford.

73 SUPERFOODS: BROCCOLI

Broccoli is a rich source of compounds that are linked to a lower risk of numerous types of cancer, including stomach, breast, prostate, and pancreatic.





The Science of a Healthier Life®

LifeExtension.com

May 2025

Volume 31 • Number Five

Publisher • LE Publications, Inc.

Stay connected—and save!

Don't miss out on a single sale. Sign up for exclusive savings opportunities and the latest health news.

**Get \$15 Off
+ FREE Shipping**

on your order of \$75+
when you sign up for
emails & texts.*

**Text "HEALTH" to 543339 to
sign up for emails & texts.**

*FREE standard shipping on orders \$50+ in every U.S. state (regularly \$5.50 USD), excluding territories and wholesalers. Discounted flat-rate shipping of \$14 USD for Canadian orders of \$50 USD or more (\$19.50 USD shipping for orders below \$50 USD). To receive the \$15 discount, your purchase must total at least \$75 in a single order. Premier Rewards program fees, gift cards, and Life Extension Magazine® subscriptions do not apply to the \$75 order total. Discounts available for nonstandard and international shipping.

By signing up via text, you agree to receive recurring automated text messages with account related notices and information, and promotional offers from Life Extension at the mobile number provided when signing up. Consent is not a condition of any purchase. Reply HELP for help and STOP to cancel. Msg frequency varies. Msg & data rates may apply. See Offer for details. View Terms <https://www.lifeextension.com/legal/legal-notices-01#text> and Privacy <https://www.lifeextension.com/legal/privacy-notice>.



**#1 Rated
Catalog/Internet Merchant
8 Time Winner!***

* Ratings based on results of the 2023
ConsumerLab.com survey of supplement users.
More information at www.ConsumerLab.com/survey.

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 • Brent Green • Ryan Johnson

Jody Kelly • Laurie Mathena

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) Vol. 31, No. 5 ©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.

NEW

LE

Oh-Mg!



Bioavailable
MAGNESIUM GLYCINATE
For Whole-Body Health

Magnesium is involved in over **300** biochemical reactions in the human body.

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

Item #02535
90 vegetarian capsules

1 bottle \$18
4 bottles \$16 each

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

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

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 the Los Gatos Longevity Institute in Los Gatos, CA.

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

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

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

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

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

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

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

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

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

Ronald L. Shuler, BS, DDS, CCN, LN, is involved in immunoncology for the prevention and treatment of cancer, human growth hormone secretagogues, and osteoporosis.



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 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.

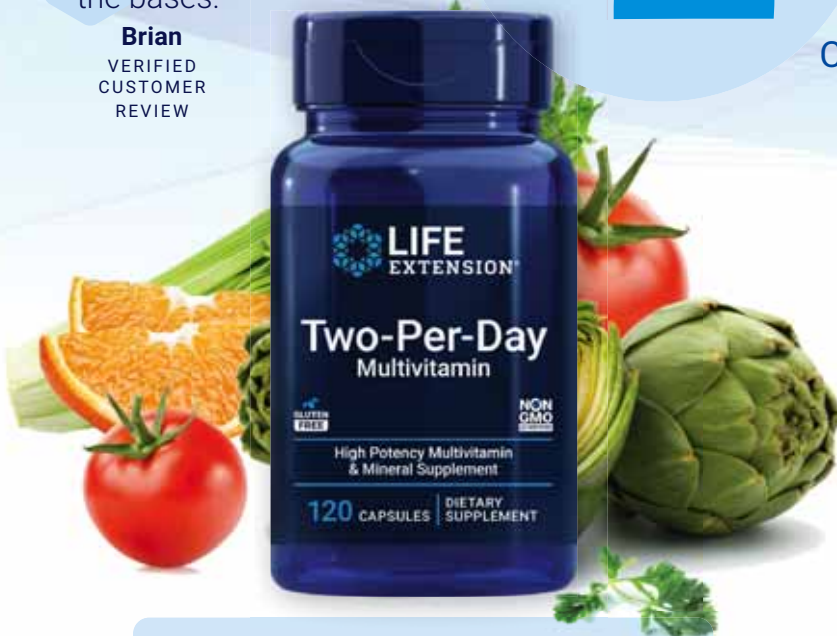


VOTED #1 MULTIVITAMIN

"Covers all the bases."

Brian
VERIFIED
CUSTOMER
REVIEW

Compare **Two-Per-Day Multivitamin** to the Leading Brand



The **Two-Per-Day** multinutrient formula is superior because it provides vastly **higher** potencies of **vitamins, minerals** and **plant extracts**.



#1 Rated
Multivitamins | 11 Time Winner!†

Compared to **Centrum® Silver Adult 50+ Two-Per-Day** Provides:

50 TIMES THE VITAMIN B1

25 TIMES THE VITAMIN B6

12 TIMES THE VITAMIN B12

10 TIMES THE BIOTIN

10 TIMES THE SELENIUM

7 TIMES THE VITAMIN C

2 TIMES THE VITAMIN E

2.5 TIMES THE VITAMIN B3

2 TIMES THE VITAMIN D

2 TIMES THE ZINC

Two-Per-Day Multivitamin Capsules

Item **#02314** • 120 capsules (two-month supply)
1 bottle \$19.13 • 4 bottles \$17 each

Two-Per-Day Multivitamin Tablets

Item **#02315** • 120 tablets (two-month supply)
1 bottle \$18.38 • 4 bottles \$16.25 each

Alpha lipoic acid, quercetin and plant extracts lacking in most commercial multivitamins.

For full product description and to order
TWO-PER-DAY MULTIVITAMIN,
call **1-800-544-4440** or
visit **www.Life Extension.com**

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

† Ratings based on results of the 2024 ConsumerLab.com Survey of Supplement Users. More information at www.consumerlab.com/survey.

Crominex® 3+, Capros® and PrimaVie® are patent protected and registered trademarks of Natreon, Inc. Lycored LycoBeads® is a registered trademark of Lycored; Orange, New Jersey. SelenoExcell® is a registered trademark of Cypress Systems Inc. L-OptiZinc® is a Lonza trademark, registered in USA.

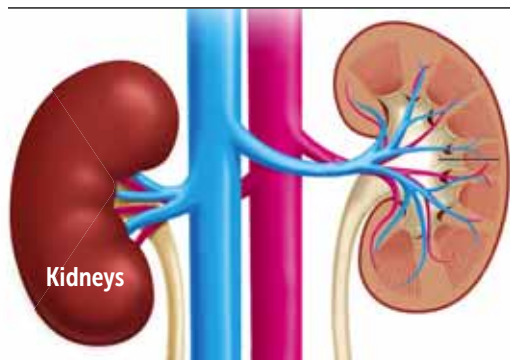


These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.

End-Stage Kidney Disease Doubles



WILLIAM FALOON



A startling number of Americans suffer from **chronic kidney disease**.

Most don't know they have it.

As kidney function declines, the incidences of **heart disease, stroke, and death** surge *higher*.¹

Major risk factors for **chronic kidney disease** include:²

- **High Blood Pressure**
- **Diabetes/obesity**
- **Older age**

Early stages of chronic kidney disease are usually asymptomatic, and if left unaddressed may lead to end-stage kidney failure.³

Prevention is easy when starting at a young age by keeping **blood pressure** and **glucose** in **optimal** ranges and maintaining a healthy body weight.³

Slowing the progression of existing **chronic kidney disease**, however, remains a major challenge.⁴

The *Journal of the American Medical Association* published a report showing that between the years **2000** and **2019**, the number of people in the United States with end-stage kidney disease more than **doubled**.⁵

Conventional treatments for **kidney failure** are limited to **dialysis** three times-a-week or kidney **transplant**.⁶

Growing numbers of people are vulnerable to **chronic kidney disease**, especially those with risk factors. This prompted us to investigate methods to reduce progression or partially reverse this rising epidemic.

As you will read in this editorial, currently available **drugs** prescribed “on- and off-label” are demonstrating some unexpected kidney, heart, and brain protective effects.



Chronic kidney disease affects more than **1 in 7** U.S. adults.⁷

Protecting one's kidneys involves controlling **blood pressure** and **glucose**, eating healthy, and guarding against chronic **inflammation** and **oxidative stress**.

Avoid prolonged use of common **drugs** that are **toxic** to the kidneys such as **NSAIDs** (e.g., **ibuprofen**)⁸ and **proton pump inhibitors** (e.g. omeprazole).⁹

When a blood test detects a **chronic kidney** problem, one must initiate aggressive approaches to halt or slow the worsening of the disease before full-blown **kidney failure** ensues.

A Multi-Purpose Drug: Colchicine

Colchicine is one of the oldest medications still in use today.

It has long been used to prevent or treat **gout**.¹⁰

Published literature has uncovered evidence that colchicine may be effective against coronary **heart disease**, **pericarditis**, and post-operative **atrial fibrillation**.¹¹

The **anti-inflammatory** properties of colchicine make it a candidate in the adjuvant treatment of a range of degenerative illnesses involving **inflammation**.¹²

Colchicine and Kidneys

Preclinical evidence reveals a protective effect of **colchicine** against **kidney fibrosis**.^{13,14} This prompted researchers to study whether colchicine could delay the **progression** of chronic **kidney disease** in humans.

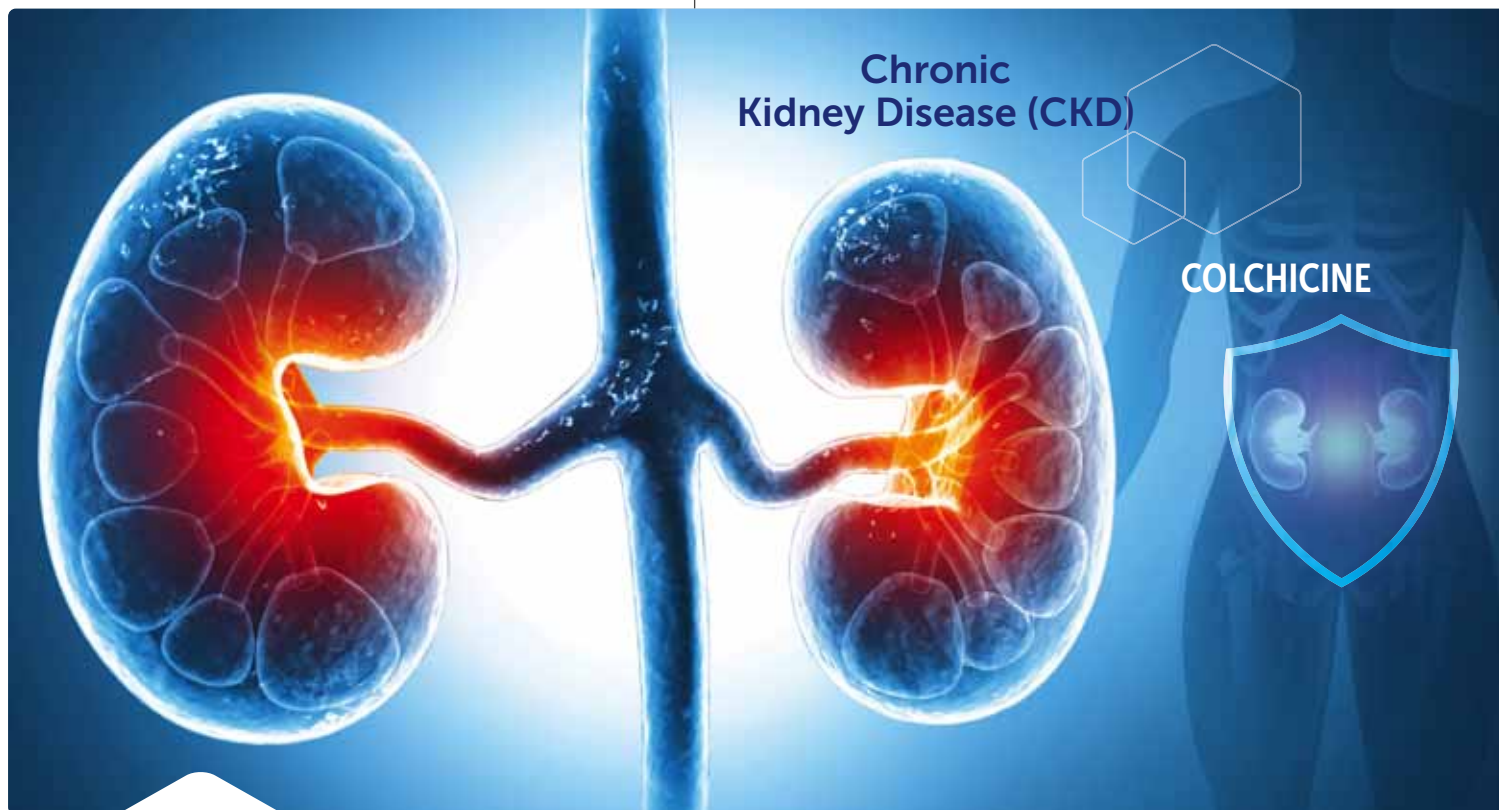
A Korean multicenter case-control study involved gout patients who had used a range of drugs to treat **gout** over a 20-year period.

Patients with significant **chronic kidney disease** (CKD) progression or the onset of **kidney failure** requiring replacement therapy were matched to controls.

The results showed that gout patients with over 90 cumulative daily doses of **colchicine** had **23% lower** odds of chronic kidney disease **progression**.¹⁵

These results are impressive as they occurred despite some patients already having advanced kidney disease before **colchicine** use began.

These correlation-based findings provide a basis for studying colchicine directly in interventional randomized clinical trials in *early*-stage kidney disease patients for a *longer*-term period. The objective would be to see if chronic kidney disease **progression** can be halted or slowed.



However, caution is warranted when prescribing colchicine to CKD patients due to the potential for increased drug accumulation and toxicity. Close monitoring under the care of an expert medical professional is required.¹⁶

Colchicine and the Heart

Those with **failing kidneys** have sharply elevated risks of **cardiovascular diseases**.^{17,18}

Chronic kidney disease patients should methodically reduce every **cardiovascular** risk factor.¹⁸ This includes **hypertension** and a myriad of blood markers such as elevated **homocysteine** and artery-clogging **lipids** like **apolipoprotein B**.¹⁹

Colchicine at lower doses has been proven to provide cardiovascular benefits in patients with **coronary artery disease** and recent **stroke**.²⁰⁻²⁴ It is encouraging that similar doses have shown promising results to slow progression of chronic **kidney** disease. More extensive trials are needed to confirm these findings.^{15,25,26}

American Heart Association Reviews Colchicine

The **American Heart Association** published an in-depth review of **colchicine** in **2021** that acknowledged the merits and limitations of colchicine research. It concluded by stating:

*"Altogether, colchicine's simplicity, low cost and effectiveness may provide an important addition to other standard cardiovascular therapies. Ongoing studies will address complementary questions pertaining to the use of low-dose colchicine for the treatment of cardiovascular disease."*²⁷



Life Extension's Prior Reports on Colchicine:

REDUCES STROKE IN HEART ATTACK PATIENTS²⁹

August 1, 2020

"A clinical trial published in the *New England Journal of Medicine* showed that patients taking the anti-inflammatory medication **colchicine** cut stroke incidence by an astonishing **74%**"²⁴

NO REAL HEALTHCARE COST CRISIS³²

March 1, 2011

In July 2009, the FDA officially announced what physicians have long known. An old drug called colchicine can effectively treat acute flares of gouty arthritis. Before the study, **colchicine** was sold by several companies for around nine cents a pill. Once the FDA granted the three-year exclusive, the price shot up 50-fold to an average of \$5 per pill.³³

PERICARDITIS³⁰

March 1, 2015

Gout drug (colchicine) benefits **pericarditis** (inflammation of outer heart wall) patients.³¹

POTENTIAL CARDIOVASCULAR BENEFITS AFTER HEART ATTACK³⁴

A randomized controlled trial called the Colchicine Cardiovascular Outcomes Trial (**COLCOT**), published in late 2019, assessed the benefits of colchicine in people who had had a heart attack within the past 30 days. The composite outcome occurred less frequently among subjects randomized to colchicine. The overall composite reduction with colchicine was driven largely by pronounced reductions in incidence of stroke and urgent hospitalizations for chest pain requiring coronary revascularization.²⁴ Colchicine remains an underutilized medication in our opinion.

A **2024** study published by the **Mayo Clinic** suggests that the use of **colchicine** in patients with **peripheral artery disease** is associated with reduced risks of **amputations** and **cardiovascular death**.²⁸

The results showed the **colchicine** group had a **25%** lower risk of major adverse limb events over an average follow-up of 4.5 years.

The Mayo Clinic researchers surmise that the **anti-inflammatory** effects of **colchicine** may offer protective effects in vascular areas beyond coronary arteries, highlighting a potential broader benefit for peripheral artery disease patients.

Based on what we know today, it seems to make sense for **chronic kidney disease** patients to ask their doctor to consider prescribing between **0.5 mg** and **1 mg** of **colchicine** daily.

Anti-Diabetic Drug that Protects Kidneys

Your **kidneys** filter about **50 gallons (180 liters)** of blood every day.³⁵

During this filtration process, **glucose** is temporarily removed from blood and placed into tiny renal tubules.

Your kidneys either return the **glucose** to **circulating blood** or shunt it to your bladder for **urinary excretion**.³⁵

A determining factor in kidneys that enables the return of **glucose** to **blood** is **sodium-glucose co-transporters**.

A drug that inhibits **sodium-glucose co-transporter-2** propels **glucose** towards **urinary excretion**, which decreases **blood glucose**.^{36,37}

This drug class known as **SGLT2 inhibitors** (sodium-glucose co-transporter-2 *inhibitors*) has been heavily advertised to **type II diabetics**.^{38,39}

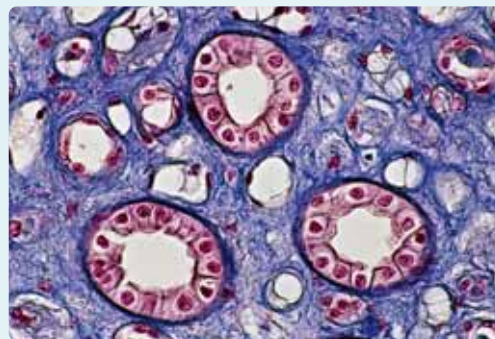
SGLT2 inhibitors have demonstrated benefits beyond mere **glucose reduction**. They help protect against most forms of **chronic kidney disease**.³⁸⁻⁴⁰

Evidence Supporting SGLT2 Inhibitors

In clinical trials assessing the effects of **SGLT2 inhibitors** on **type II diabetics**, markers of **kidney function** were closely monitored.

That's because **SGLT2 inhibitors** function by moving excess **glucose** from the **kidneys** into urine, instead of returning it all to the bloodstream. Instead of impairing kidney function, **SGLT2 inhibitors** have been shown to **improve** it.^{38,40-42}

SGLT2 Inhibitors Benefit the Kidneys



Kidney tubules (collecting ducts), magnified 100X

SGLT2 INHIBITORS have been shown to:

- Improve **glycemic** control and lower **blood pressure**.
- Reduce **glomerular hyperfiltration**.
- Decrease **inflammation-fibrosis** of proximal tubular cells in response to hyperglycemia and albuminuria.
- Show potential to protect against **diabetic neuropathy**.⁴²

One measure that researchers looked at was the level of the protein **albumin** in urine (albuminuria). The presence of albumin in urine, especially at higher levels, indicates worsening kidney function.

In a comprehensive study from two large clinical trials, researchers focused on individuals with type II diabetes, many of whom had chronic or advanced kidney disease. **SGLT2 inhibitors** showed potential renal benefits, including progression of albuminuria (protein in urine), that was **27% less** in the SGLT2 Inhibitor group than in the placebo arm.⁴³

Regression of **albuminuria** (less albumin in urine) occurred **70% more** in the **SGLT2 inhibitor** group, indicating an **improvement** in these advanced-stage chronic kidney failure patients.

A **blood** marker of **kidney function** is the **estimated glomerular filtration rate** (eGFR). It is included in most **CBC/Chemistry Blood Test** panels.

Among **type II diabetic** patients taking an **SGLT2 inhibitor**, **40% fewer** of this group experienced a massive drop in eGFR, the need for kidney dialysis or transplant, or death from kidney causes, compared to the **placebo** arm.⁴³

In this study, serious side effects were **7% less** common among the group receiving the **SGLT2 inhibitor**.

Other studies of **SGLT2 inhibitors** indicate kidney-protecting effects including reductions of protein in urine and preservation of the critical **eGFR** blood marker.^{44,45}

The primary outcomes identified in these studies were reduced markers of severity of type II diabetes and reduced incidences of cardiovascular events.

The observation of **kidney protection** in response to the **SGLT2 inhibitors** reflects intriguing data that may be of considerable clinical value to those with failing kidneys.

As we were investigating the effects of **SGLT2 inhibitors** for anti-aging purposes, the data became strong enough that the **FDA** started to **approve** them to slow the worsening of chronic **kidney disease**.⁴⁶⁻⁴⁸

And the great news is that as more companies have introduced their own versions of SGLT2 inhibitors, prices are expected to drop significantly compared to the initial drugs on the market.

What Should Chronic Kidney Failure Patients Consider?

Those stricken with **chronic kidney disease** should follow all conventional guidelines to slow progression.

Alternative guidelines include consuming a mostly plant-based diet,^{49,50} avoiding red meat,⁵¹ optimizing all **cardiovascular risk** markers, and taking nutrients that have demonstrated some kidney benefits, such as **coenzyme Q10**⁵²⁻⁵⁷ and **curcumin**.^{58,59}

10,000 Patient NEJM Study Finds Multiple Major Benefits of SGLT2 Inhibitors⁴³

Those taking an **SGLT2 inhibitor** were **27% less likely** to progress to albuminuria (protein in urine) compared to placebo.

Regression of albuminuria occurred **70% more frequently** in the **SGLT2 inhibitor** group, indicating an improvement in advanced stage chronic kidney failure patients.

Among type II diabetic patients taking an **SGLT2 inhibitor**, there were **40% fewer** instances of a massive drop in eGFR, a need for kidney dialysis or transplant, or death from kidney causes compared to the placebo arm.

SGLT2 inhibitor Drugs with Typical Dose Ranges

Empagliflozin (Jardiance®)⁶⁰

Dose Range: 10 mg to 25 mg once daily.

Dapagliflozin (Farxiga®)⁶⁰

Dose Range: 5 mg to 10 mg once daily.

Bexagliflozin (Brenzavvy®)⁶⁰

Dose Range: 20 mg once daily.

Sotagliflozin (Inpefa®)⁶¹

Dose Range: 200 mg to 400 mg once daily.

Ertugliflozin (Steglatro®)⁶⁰

Dose Range: 5 mg to 15 mg once daily.

Canagliflozin (Invokana®)⁶⁰

Dose Range: 100 mg to 300 mg once daily.

Luseogliflozin (Lusefi®) (Japan Only)⁶²

Dose Range: 2.5 mg to 5 mg once daily.

These doses can vary based on individual patient needs, tolerability, and specific health conditions. Consult a healthcare provider for personalized dosing recommendations.

The use of inhibitors of sodium-glucose cotransporter (SGLT2) results in favorable effects on biomarkers, including glycemia, blood pressure, weight, intrarenal hemodynamics, and albuminuria, and may also reduce the risk of serious cardiovascular complications, kidney disease, and death.

FDA-Approved SGLT2 Inhibitor Drugs



Another nutrient to consider is **terminalia bellerica** which lowers uric acid.^{63,64} Lowering uric acid helps support kidney function. Optimal levels of **uric acid** are less than **6 mg/dL**.⁶⁵ Comprehensive **blood tests** usually include uric acid levels.

Show your doctor this editorial that describes potential benefits of lower doses of **colchicine** on cardiovascular endpoints, as well as the data correlating **23% lower** odds of chronic kidney disease progression with colchicine in gout patients.¹⁵

Also show your doctor the potential benefits of **SGLT2 inhibitor** drugs on improving kidney function and reducing kidney disease markers through the systemic pathways on which they act.

On the previous page there is a list of currently available **SGLT2 inhibitor** drugs, which are becoming more affordable because of greater competition among different brands. More insurance plans now cover them to treat **heart** and **kidney** issues in addition to type II diabetes.

Do You Have Kidney Disease?

As many as 9 in 10 adults with chronic kidney disease do not know they have it!⁶⁶

As a result, damage silently smolders until it reaches advanced stages when **kidney failure** transforms into harsh reality.

Comprehensive annual blood tests can detect kidney problems *early* when corrective measures can be taken, such as stopping chronic use of drugs like proton-pump inhibitors that can damage kidneys.

These blood tests can also identify *early-stage* type II diabetes in time to reverse it and protect your kidneys, heart, and brain from the damage inflicted by excess **blood glucose**.

Annual Blood Test Super Sale

Since our founding **48 years** ago, **Life Extension** has urged its supporters to have annual **blood tests**.

The number of lives saved by our recommendations is huge.

This includes men diagnosed with *early-stage prostate cancer* who are readily cured with today's less side-effect-prone treatments.

The most popular **blood test** our supporters order each year is the comprehensive **Male or Female Panel**. We normally charge **\$325** for these tests that cost around **\$2,800** at commercial labs.

Worldwide Epidemic of Kidney Disease

Chronic kidney disease is on the rise on a global scale.⁶⁸

Causative factors include diabetes, hypertension, glomerulonephritis, and various infections.

It was estimated to afflict about **10%** of the world's adults in 2017, which represents a **29%** increase since 1990.

Chronic kidney disease has emerged as one of the leading causes of worldwide mortality.⁶⁸

The prevalence of type II diabetes and obesity continues to rise worldwide, which inflicts severe damage on multiple organ systems. One of these organs is the kidney.

Once a year, we discount the prices of our lab tests, enabling readers to obtain the **Male or Female Blood Test Panel** for only **\$243**.

This represents more than **90% savings**.

To order a **Male** and/or **Female Panel** and other tests at the year's lowest prices, call **1-800-208-3444** (24 hours) or visit: **www.LifeExtension.com/blood**

You can view the tests included in the **Male or Female Panels** on the page to the right.

Those who are concerned that they are at **high risk** for chronic **kidney disease**, such as those with hypertension or diabetes may consider the most accurate blood marker of renal function called **cystatin-C**.⁶⁷

This test is available during the Blood Test Super Sale for **\$74.25** and can be added to the **Male or Female Panels**.

For longer life,



William Faloan, Co-Founder
Life Extension

(References can be found on page 14.)

COMPREHENSIVE BLOOD TESTS AT LOW LAB SALE PRICES



Commercial labs charge around **\$2,800** for **blood tests** needed to evaluate cardiac, inflammatory, immune, and other degenerative risk factors.

Life Extension offers these same tests for **\$243** when the **Male** or **Female Panel** is ordered during the annual **Lab Test Sale**.

This represents a savings of about **90%** compared to commercial labs.

Regular Price: \$325
Sale Price: \$243

LAB TEST SALE
ENDS JULY 7, 2025

To obtain these extensive **Male** or **Female Panels** at these low prices, call **1-800-208-3444** or visit www.LifeExtension.com/sales/lab-tests to order your requisition forms.

MALE PANEL

ORGAN FUNCTION

Kidney: creatinine, BUN, uric acid, BUN/creatinine ratio
Liver: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase
Blood proteins: albumin, globulin, total protein

VITAMIN D

(25-hydroxyvitamin D)

CARDIAC MARKERS

C-Reactive Protein (high sensitivity)
Apolipoprotein B (ApoB)
Homocysteine
Total Cholesterol
LDL (low-density lipoprotein)
HDL (high-density lipoprotein)
Triglycerides

GLUCOSE PROFILE

Insulin
Hemoglobin A1c
Glucose

HORMONES

Free and Total Testosterone
DHEA-S
Estradiol (an estrogen)
TSH (thyroid function)
Cortisol

MINERALS

Magnesium (serum)
Ferritin (measure of iron status)
Calcium
Potassium
Phosphorus
Sodium
Iron
Chloride

COMPLETE BLOOD COUNT (CBC)

Immune Cells including: lymphocytes, monocytes, eosinophils, neutrophils, basophils
Red Blood Cells including: hemoglobin, hematocrit, MCV, MCH, MCHC, RDW
Platelets

CANCER MARKER

PSA (Prostate Specific Antigen)

FEMALE PANEL

ORGAN FUNCTION

Kidney: creatinine, BUN, uric acid, BUN/creatinine ratio
Liver: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase
Blood proteins: albumin, globulin, total protein

VITAMIN D

(25-hydroxyvitamin D)

CARDIAC MARKERS

C-Reactive Protein (high sensitivity)
Apolipoprotein B (ApoB)
Homocysteine
Total Cholesterol
LDL (low-density lipoprotein)
HDL (high-density lipoprotein)
Triglycerides

GLUCOSE PROFILE

Insulin
Hemoglobin A1c
Glucose

HORMONES

Progesterone
Free and Total Testosterone
DHEA-S
Estradiol (an estrogen)
TSH (thyroid function)
Cortisol

MINERALS

Magnesium (serum)
Ferritin (measure of iron status)
Calcium
Potassium
Phosphorus
Sodium
Iron
Chloride

COMPLETE BLOOD COUNT (CBC)

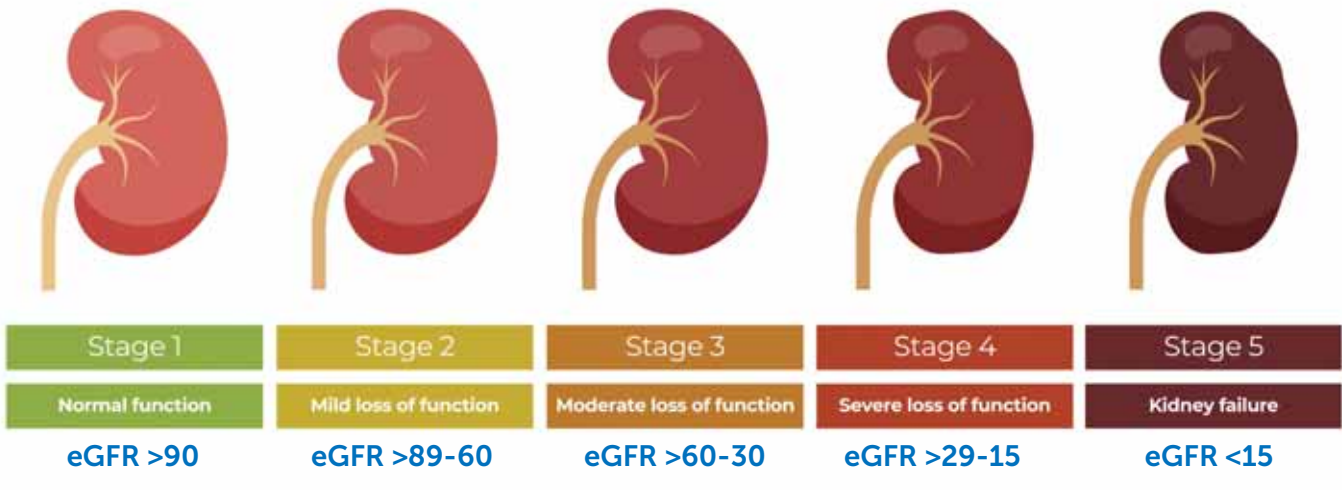
Immune Cells including: lymphocytes, monocytes, eosinophils, neutrophils, basophils
Red Blood Cells including: hemoglobin, hematocrit, MCV, MCH, MCHC, RDW
Platelets

Lab tests are available in the continental United States and Anchorage, AK, only. Not available in Maryland.

Restrictions apply in MA, NY, NJ, and RI. Kits not available in PA. The Lab Test Sale expires on **July 7, 2025**.

After you order and receive our form, you can visit a blood-draw facility we suggest at your convenience in your area or the **Life Extension Health & Wellness Market** in Ft. Lauderdale.

Stages of Chronic Kidney Disease



References

1. Saeed D, Reza T, Shahzad MW, et al. Navigating the Crossroads: Understanding the Link Between Chronic Kidney Disease and Cardiovascular Health. *Cureus*. 2023 Dec;15(12):e51362.

2. Mallamaci F, Tripepi G. Risk Factors of Chronic Kidney Disease Progression: Between Old and New Concepts. *J Clin Med*. 2024 Jan 24;13(3).

3. Levin A, Okpechi IG, Caskey FJ, et al. Perspectives on early detection of chronic kidney disease: the facts, the questions, and a proposed framework for 2023 and beyond. *Kidney Int*. 2023 Jun;103(6):1004-8.

4. Evans M, Lewis RD, Morgan AR, et al. A Narrative Review of Chronic Kidney Disease in Clinical Practice: Current Challenges and Future Perspectives. *Adv Ther*. 2022 Jan;39(1):33-43.

5. Kuehn BM. End-stage Kidney Disease Doubles. *JAMA*. 2022 Apr 26;327(16):1540.

6. Available at: <https://www.niddk.nih.gov/health-information/kidney-disease/kidney-failure/choosing-treatment>. Accessed January 30, 2025.

7. Available at: <https://www.niddk.nih.gov/health-information/health-statistics/kidney-disease>. Accessed January 27, 2025.

8. Drozdal S, Lechowicz K, Szostak B, et al. Kidney damage from nonsteroidal anti-inflammatory drugs-Myth or truth? Review of selected literature. *Pharmacol Res Perspect*. 2021 Aug;9(4):e00817.

9. Wu CC, Liao MH, Kung WM, et al. Proton Pump Inhibitors and Risk of Chronic Kidney Disease: Evidence from Observational Studies. *J Clin Med*. 2023 Mar 15;12(6).

10. Dasgeb B, Kornreich D, McGuinn K, et al. Colchicine: an ancient drug with novel applications. *Br J Dermatol*. 2018 Feb;178(2):350-6.

11. Andreis A, Imazio M, Casula M, et al. Colchicine efficacy and safety for the treatment of cardiovascular diseases. *Intern Emerg Med*. 2021 Sep;16(6):1691-700.

12. El Hasbani G, Jawad A, Uthman I. Colchicine: An Ancient Drug with Multiple Benefits. *Curr Pharm Des*. 2021;27(26):2917-24.

13. Itano S, Satoh M, Kadoya H, et al. Colchicine attenuates renal fibrosis in a murine unilateral ureteral obstruction model. *Mol Med Rep*. 2017 Jun;15(6):4169-75.

14. Kim S, Jung ES, Lee J, et al. Effects of colchicine on renal fibrosis and apoptosis in obstructed kidneys. *Korean J Intern Med*. 2018 May;33(3):568-76.

15. Kim HW, Joo YS, Yun HR, et al. Colchicine use and the risk of CKD progression: a multicentre nested case-control study. *Rheumatology (Oxford)*. 2022 Nov 2;61(11):4314-23.

16. Pisaniello HL, Fisher MC, Farquhar H, et al. Efficacy and safety of gout flare prophylaxis and therapy use in people with chronic kidney disease: a Gout, Hyperuricemia and Crystal-Associated Disease Network (G-CAN)-initiated literature review. *Arthritis Res Ther*. 2021 Apr 28;23(1):130.

17. Jankowski J, Floege J, Fliser D, et al. Cardiovascular Disease in Chronic Kidney Disease: Pathophysiological Insights and Therapeutic Options. *Circulation*. 2021 Mar 16;143(11):1157-72.

18. Carmena R, Ascaso JF, Redon J. Chronic kidney disease as a cardiovascular risk factor. *J Hypertens*. 2020 Nov;38(11):2110-21.

19. Upadhyay RK. Emerging risk biomarkers in cardiovascular diseases and disorders. *J Lipids*. 2015;2015:971453.

20. Nelson K, Fuster V, Ridker PM. Low-Dose Colchicine for Secondary Prevention of Coronary Artery Disease: JACC Review Topic of the Week. *J Am Coll Cardiol*. 2023 Aug 15;82(7):648-60.

21. Solomon DH, Liu CC, Kuo IH, et al. Effects of colchicine on risk of cardiovascular events and mortality among patients with gout: a cohort study using electronic medical records linked with Medicare claims. *Ann Rheum Dis*. 2016 Sep;75(9):1674-9.

22. Al-Atta A, Kuzemczak M, Alkhalil M. Colchicine for the prevention of ischemic stroke: An updated meta-analysis of randomized clinical trials. *Brain Circ*. 2021 Jul-Sep;7(3):187-93.

23. Nidorf M, Thompson PL. Effect of colchicine (0.5 mg twice daily) on high-sensitivity C-reactive protein independent of aspirin and atorvastatin in patients with stable coronary artery disease. *Am J Cardiol*. 2007 Mar 15;99(6):805-7.

24. Tardif JC, Kouz S, Waters DD, et al. Efficacy and Safety of Low-Dose Colchicine after Myocardial Infarction. *N Engl J Med*. 2019 Dec 26;381(26):2497-505.

25. Landau D, Shukri N, Arazi E, et al. Beneficiary Effects of Colchicine on Inflammation and Fibrosis in a Mouse Model of Kidney Injury. *Nephron*. 2023;147(11):693-700.

26. Guan T, Gao B, Chen G, et al. Colchicine attenuates renal injury in a model of hypertensive chronic kidney disease. *Am J Physiol Renal Physiol*. 2013 Nov 15;305(10):F1466-76.

27. Deftereos SG, Beerkens FJ, Shah B, et al. Colchicine in Cardiovascular Disease: In-Depth Review. *Circulation*. 2022 Jan 4;145(1):61-78.

28. Lin DS, Huang KC, Lin TT, et al. Effects of Colchicine on Major Adverse Limb and Cardiovascular Events in Patients With Peripheral Artery Disease. *Mayo Clin Proc*. 2024 Sep;99(9):1374-87.

29. Available at: <https://www.lifeextension.com/magazine/2020/8/colchicine-reduces-stroke-in-heart-attack-patients>. Accessed January 29, 2025.

30. Available at: <https://www.lifeextension.com/magazine/2015/3/in-the-news>. Accessed January 29, 2025.
31. Imazio M, Brucato A, Cemin R, et al. A randomized trial of colchicine for acute pericarditis. *N Engl J Med*. 2013 Oct 17;369(16):1522-8.
32. Available at: <https://www.lifeextension.com/magazine/2011/3/no-real-healthcare-cost-crisis>. Accessed January 30, 2025.
33. Kesselheim AS, Solomon DH. Incentives for drug development--the curious case of colchicine. *N Engl J Med*. 2010 Jun 3;362(22):2045-7.
34. Available at: <https://www.lifeextension.com/protocols/heart-circulatory/atherosclerosis-and-cardiovascular-disease>. Accessed February 2, 2025.
35. Weisberg LS, Zanger R. Minerals in dialysis therapy: an introduction. *Semin Dial*. 2010 Nov-Dec;23(6):547-8.
36. Jasleen B, Vishal GK, Sameera M, et al. Sodium-Glucose Cotransporter 2 (SGLT2) Inhibitors: Benefits Versus Risk. *Cureus*. 2023 Jan;15(1):e33939.
37. Sha S, Devineni D, Ghosh A, et al. Canagliflozin, a novel inhibitor of sodium glucose co-transporter 2, dose dependently reduces calculated renal threshold for glucose excretion and increases urinary glucose excretion in healthy subjects. *Diabetes Obes Metab*. 2011 Jul;13(7):669-72.
38. Tuttle KR, Brosius FC, 3rd, Cavender MA, et al. SGLT2 Inhibition for CKD and Cardiovascular Disease in Type 2 Diabetes: Report of a Scientific Workshop Sponsored by the National Kidney Foundation. *Diabetes*. 2021 Jan;70(1):1-16.
39. Layton AT, Vallon V. SGLT2 inhibition in a kidney with reduced nephron number: modeling and analysis of solute transport and metabolism. *Am J Physiol Renal Physiol*. 2018 May 1;314(5):F969-F84.
40. Ito H, Inoue H, Izutsu T, et al. Changes in the estimated glomerular filtration rate and predictors of the renal prognosis in Japanese patients with type 2 diabetes: A retrospective study during the 12 months after the initiation of tofogliflozin. *PLoS One*. 2023;18(9):e0292014.
41. Rigato M, Fadini GP, Avogaro A. Safety of sodium-glucose cotransporter 2 inhibitors in elderly patients with type 2 diabetes: A meta-analysis of randomized controlled trials. *Diabetes Obes Metab*. 2023 Oct;25(10):2963-9.
42. Jesus AR, A. Harrison B, Dore TM. Sodium Glucose Cotransporter Inhibitors for the Treatment of Diabetes. *Burger's Medicinal Chemistry and Drug Discovery*:1-30.
43. Neal B, Perkovic V, Mahaffey KW, et al. Canagliflozin and Cardiovascular and Renal Events in Type 2 Diabetes. *N Engl J Med*. 2017 Aug 17;377(7):644-57.
44. Piperidou A, Sarafidis P, Boutou A, et al. The effect of SGLT2 inhibitors on albuminuria and proteinuria in diabetes mellitus: a systematic review and meta-analysis of randomized controlled trials. *J Hypertens*. 2019 Jul;37(7):1334-43.
45. Belkin MN, Cifu AS, Pinney S. Management of Heart Failure. *JAMA*. 2022 Oct 4;328(13):1346-7.
46. Available at: <https://investor.lilly.com/news-releases/news-release-details/us-fda-approves-jardiance-treatment-adults-chronic-kidney>. Accessed January 29, 2025.
47. Available at: <https://www.kidney.org/press-room/fda-approves-new-drug-to-treat-diabetes-related-kidney-disease>. Accessed January 29, 2015.
48. Madero M, Chertow GM, Mark PB. SGLT2 Inhibitor Use in Chronic Kidney Disease: Supporting Cardiovascular, Kidney, and Metabolic Health. *Kidney Med*. 2024 Aug;6(8):100851.
49. Zaranonello D, Brunori G. The Role of Plant-Based Diets in Preventing and Mitigating Chronic Kidney Disease: More Light than Shadows. *J Clin Med*. 2023 Sep 22;12(19).
50. Heo GY, Koh HB, Kim HJ, et al. Association of Plant Protein Intake With Risk of Incident CKD: A UK Biobank Study. *Am J Kidney Dis*. 2023 Dec;82(6):687-97 e1.
51. Wathanavasin W, Kittikulnam P, Johansen KL. Plant-based diets in patients with chronic kidney disease. *Asian Biomed (Res Rev News)*. 2024 Feb;18(1):2-10.
52. Xu Y, Liu J, Han E, et al. Efficacy of coenzyme Q10 in patients with chronic kidney disease: protocol for a systematic review. *BMJ Open*. 2019 May 14;9(5):e029053.
53. Drovandi S, Lipska-Zietkiewicz BS, Ozaltin F, et al. Oral Coenzyme Q10 supplementation leads to better preservation of kidney function in steroid-resistant nephrotic syndrome due to primary Coenzyme Q10 deficiency. *Kidney Int*. 2022 Sep;102(3):604-12.
54. Mantle D, Hargreaves I. Coenzyme Q10 and Degenerative Disorders Affecting Longevity: An Overview. *Antioxidants (Basel)*. 2019 Feb 16;8(2):44.
55. Singh RB, Kumar A, Niaz MA, et al. Randomized, Double-blind, Placebo-controlled Trial of Coenzyme Q10 in Patients with End-stage Renal Failure. *Journal of Nutritional & Environmental Medicine*. 2009 2003/01/01;13(1):13-22.
56. Gokbel H, Turk S, Okudan N, et al. Effects of Coenzyme Q10 Supplementation on Exercise Performance and Markers of Oxidative Stress in Hemodialysis Patients: A Double-Blind Placebo-Controlled Crossover Trial. *Am J Ther*. 2016 Nov/Dec;23(6):e1736-e43.
57. Rivara MB, Yeung CK, Robinson-Cohen C, et al. Effect of Coenzyme Q(10) on Biomarkers of Oxidative Stress and Cardiac Function in Hemodialysis Patients: The CoQ(10) Biomarker Trial. *Am J Kidney Dis*. 2017 Mar;69(3):389-99.
58. Sadeghian M, Rahmani S, Jafarieh A, et al. The effect of curcumin supplementation on renal function: A systematic and meta-analysis of randomized controlled trials. *Journal of Functional Foods*. 2023 2023/01/01;100:105396.
59. Ali BH, Al-Salam S, Al Suleimani Y, et al. Curcumin Ameliorates Kidney Function and Oxidative Stress in Experimental Chronic Kidney Disease. *Basic Clin Pharmacol Toxicol*. 2018 Jan;122(1):65-73.
60. Available at: <https://www.endocrinologyadvisor.com/ddi/sglt2-inhibitors/>. Accessed January 29, 2025.
61. Bhatt DL, Szarek M, Steg PG, et al. Sotagliflozin in Patients with Diabetes and Recent Worsening Heart Failure. *N Engl J Med*. 2021 Jan 14;384(2):117-28.
62. Arao T, Sr., Okada Y, Kurozumi A, et al. A Comparative Study on the Efficacy and Safety of Dose Escalation of Luseogliflozin in Type 2 Diabetes Mellitus Patients With Poor Glycemic Control. *Cureus*. 2023 Feb;15(2):e35393.
63. Pingali U, Nutalapati C, Koilagundla N, et al. A randomized, double-blind, positive-controlled, prospective, dose-response clinical study to evaluate the efficacy and tolerability of an aqueous extract of Terminalia bellerica in lowering uric acid and creatinine levels in chronic kidney disease subjects with hyperuricemia. *BMC Complement Med Ther*. 2020 Sep 15;20(1):281.
64. Usharani P, Nutalapati C, Pokuri VK, et al. A randomized, double-blind, placebo-, and positive-controlled clinical pilot study to evaluate the efficacy and tolerability of standardized aqueous extracts of Terminalia chebula and Terminalia bellerica in subjects with hyperuricemia. *Clin Pharmacol*. 2016;8:51-9.
65. Desideri G, Castaldo G, Lombardi A, et al. Is it time to revise the normal range of serum uric acid levels? *Eur Rev Med Pharmacol Sci*. 2014;18(9):1295-306.
66. Available at: <https://www.cdc.gov/kidney-disease/php/data-research/index.html>. Accessed January 29, 2025.
67. Benoit SW, Ciccia EA, Devarajan P. Cystatin C as a biomarker of chronic kidney disease: latest developments. *Expert Rev Mol Diagn*. 2020 Oct;20(10):1019-26.
68. Skrabic R, Kumric M, Vrdoljak J, et al. SGLT2 Inhibitors in Chronic Kidney Disease: From Mechanisms to Clinical Practice. *Biomedicines*. 2022 Oct 1;10(10).

ADVANCED Milk Thistle

ULTIMATE SUPPORT
FOR YOUR LIVER



Advanced Milk Thistle contains standardized, top-grade potencies 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.

Item #01922

60 softgels

1 bottle \$21

4 bottles \$18.75 each



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

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.

Women's Bladder & Urinary Support

Many women need a little help when it comes to bladder and urinary health.¹

Women's Bladder Support contains three herbal extracts shown to support women's bladder and urinary functions:

- Horsetail
- Lindera
- Three-leaf caper

This three-herb blend can help maintain bladder comfort and normal urinary frequency—with women reporting positive results in a recent clinical study.²



Item #02513

60 vegetarian capsules

1 bottle **\$30**

4 bottles \$27.50 each



For full product description and to order **Women's Bladder Support**, call 1-800-544-4440 or visit www.LifeExtension.com

References

1. *BJU Int.* 2009 Aug;104(3):352-60.
2. *BMC Complement Altern Med.* 2018 Jan 31;18(1):42.

Urox® and Cratevox™ are trademarks of Seipel Group Pty Ltd. US Patent No's 9,452,191; 11,110,141.

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 want...
to get rewarded.



Get more from your healthy lifestyle with Life Extension's exclusive rewards program.

4% back on every purchase that you can use on any Life Extension® product or lab services

Unlimited FREE shipping in the U.S.—any size order

Exclusive savings including sneak peeks and flash sales

Rewards galore—get rewarded on your birthday month & for taking surveys

Premium content access to exclusive webinars and Premier's Facebook group

Costs \$49.95 a year...instant \$50 LE Dollar sign-up credit means zero cost to enroll.

LifeExtension.com/Premier

I want...
convenience & savings.



Life Extension's auto-delivery program makes it easy—and affordable—to stick to your health goals!

Easy to customize—Pick the day and frequency of shipments

Flexible—Pause, modify or cancel any time

Use for orders big & small—No minimum!

Standard shipping of your Autoship item(s) is always FREE anywhere in the U.S.

Customers save an average of 16%—You'll always get the best available price on Life Extension products automatically, even during a sale!

Free program—cancel anytime.

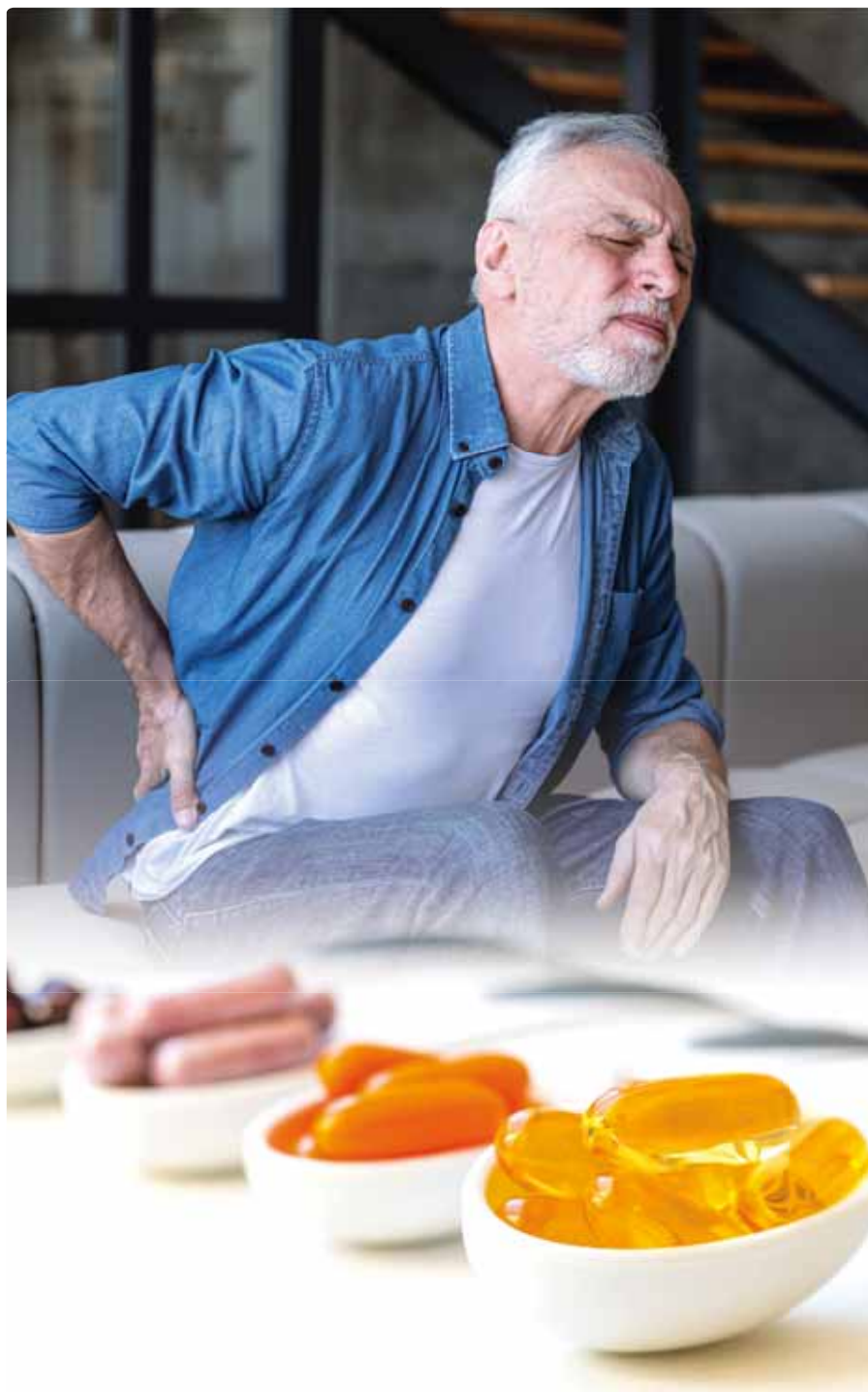
LifeExtension.com/AutoShip

I WANT...IT ALL!

Good news! You can have convenience, savings AND rewards with Life Extension. Enroll in both programs to maximize your value.

For more information call 1-855-867-9361

In the News



CoQ10 Shows Benefits for Chronic Kidney Disease Patients

Supplementation with coenzyme Q10 (CoQ10) has beneficial effects for patients with chronic kidney disease, according to the results of a systematic review of 12 independent studies.*

Pooled analysis showed that CoQ10 reduced markers of oxidative stress and inflammation (C reactive protein) in patients with chronic kidney disease. CoQ10 also significantly improved HbA1c (a marker of long-term glucose control) and QUICKI (a formula that measures insulin sensitivity).

These factors are important for patients with chronic kidney disease because oxidative stress and inflammation are key contributors to cardiovascular diseases, which are a leading cause of death among patients with end-stage renal disease.

Additionally, metabolic conditions like diabetes and obesity are more prevalent in patients with chronic kidney disease.

Editor's note: CoQ10 levels are lower in patients with chronic kidney disease undergoing dialysis. Studies have shown that CoQ10 supplementation can reduce cardiovascular events, improve mitochondrial function, and reduce oxidative stress in these patients.

* *Int Urol Nephrol.* 2022 Jan;54(1):173-184.

Diabetes Remission Greater in Patients Who Combine Drug with Calorie Restriction

The diabetes drug dapagliflozin (brand name Farxiga), combined with calorie restriction, led to greater remission rates in type II diabetics compared to calorie restriction alone, according to a study published in *The BMJ*.*

This double-blind, randomized, placebo-controlled trial included 328 type II diabetics 20 to 70 years old with a BMI greater than 25, who had type II diabetes for less than six years.

The subjects practiced calorie restriction while taking either dapagliflozin (**10 mg/day**) or a placebo.

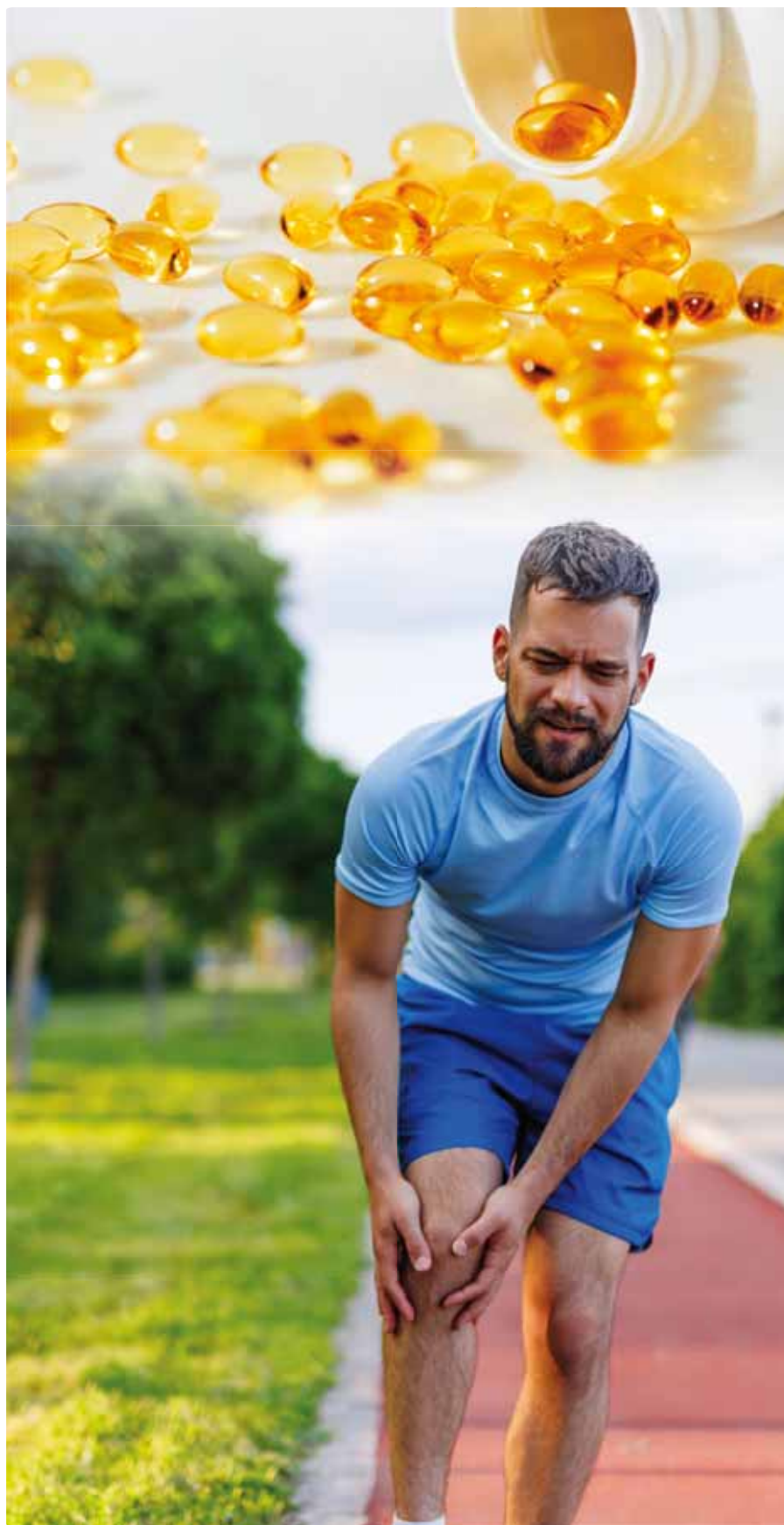
Over 12 months, **44%** of patients in the dapagliflozin group achieved diabetes remission, compared to **28%** in the placebo group. Diabetes remission was defined as maintaining glycated hemoglobin levels **<6.5%** and fasting plasma glucose levels **<126 mg/dL** after stopping all antidiabetic drugs for at least two months.

Editor's note: Dapagliflozin is one of several **SGLT2 inhibitor** drugs that you will learn more about in future issues of *Life Extension Magazine*®.

The dapagliflozin group also had greater reductions in body weight and HOMA-IR (a measure of insulin resistance), and greater improvements in body fat, systolic blood pressure, and metabolic risk factors.

* *BMJ*. 2025;388:e081820.





Joint Replacement Failure Associated with Insufficient Vitamin D Levels

Men and women who experienced failure of prior total joint replacements were found to have a high incidence of vitamin D **deficiency** in a study on 249 patients scheduled for revision arthroplasty (joint replacement revision surgery).*

The study enrolled people primarily scheduled for knee or hip replacements, and some scheduled for shoulder replacement.

Routine vitamin D use was reported by only **23%** of the patients, and **75%** of those people had sufficient levels.

Among those who did not use vitamin D only **19%** had sufficient levels, **28%** had insufficient levels, and **53%** were **deficient**.

Editor's Note: "We identified an alarming rate of vitamin D deficiency in patients scheduled to undergo revision total joint arthroplasty," the authors concluded. They added, "We recommend that vitamin D levels should generally be assessed in these oftentimes frail and vulnerable patients."

* *Nutrients*. 2024 Sep 11;16(18):3060.

Update: Dementia Prevention, Intervention, Care

The *Lancet* Commission 2024 update on dementia prevention, intervention, and care summarizes the latest research on **dementia** that has been published since the journal's 2020 report.*

The report shows evidence for adding two additional “modifiable” risk factors for dementia to the **12** previously shown.

The two risk factors added to this list: **sleep disturbances** and **vitamin D deficiency**.

According to the updated report, the **14** modifiable risk factors may help prevent or delay nearly **half** of all dementia cases.

These factors include low education, hearing loss, midlife hypertension, smoking, obesity, depression, physical inactivity, type II diabetes, excessive alcohol consumption, traumatic brain injury, air pollution, social isolation, untreated vision loss and high LDL cholesterol.

Editor's Note: “Key individual interventions include preventing and treating hearing loss, addressing vision loss and depression, engaging in cognitive stimulation throughout life, managing smoking, reducing and treating vascular risk factors (i.e. cholesterol, diabetes, obesity, and blood pressure), minimizing head injury, and promoting physical activity,” the report concluded.

* *Lancet*. 2024 Aug 10;404(10452):572-628.



© University of Rochester photo/Ken Huth



The Legacy of Dr. Loretta C. Ford

Dr. Loretta C. Ford, EdD, RN, PNP, FAAN, FAANP, a visionary leader whose pioneering work revolutionized healthcare and advanced the role of nurse practitioners worldwide passed away on January 22 at the age of 104, leaving behind an extraordinary legacy that has transformed the nursing profession and improved healthcare access.

As the co-founder of the nurse practitioner role in 1965, Dr. Ford's commitment to patient-centered care has paved the way for the more than 385,000 NPs licensed in the United States, of whom 13,233 are certified women's health nurse practitioners. Her profound impact is felt across healthcare systems, shaping the delivery of high-quality, accessible, and comprehensive care in rural and urban communities.

Recognizing the urgent need for greater healthcare access, she helped establish the first nurse practitioner program at the University of Colorado. This groundbreaking initiative set the foundation for the advanced practice nursing profession and has empowered generations of nurse practitioners to provide expert, compassionate care to those in need.

Don't Let **PMS** Cramp Your Style

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

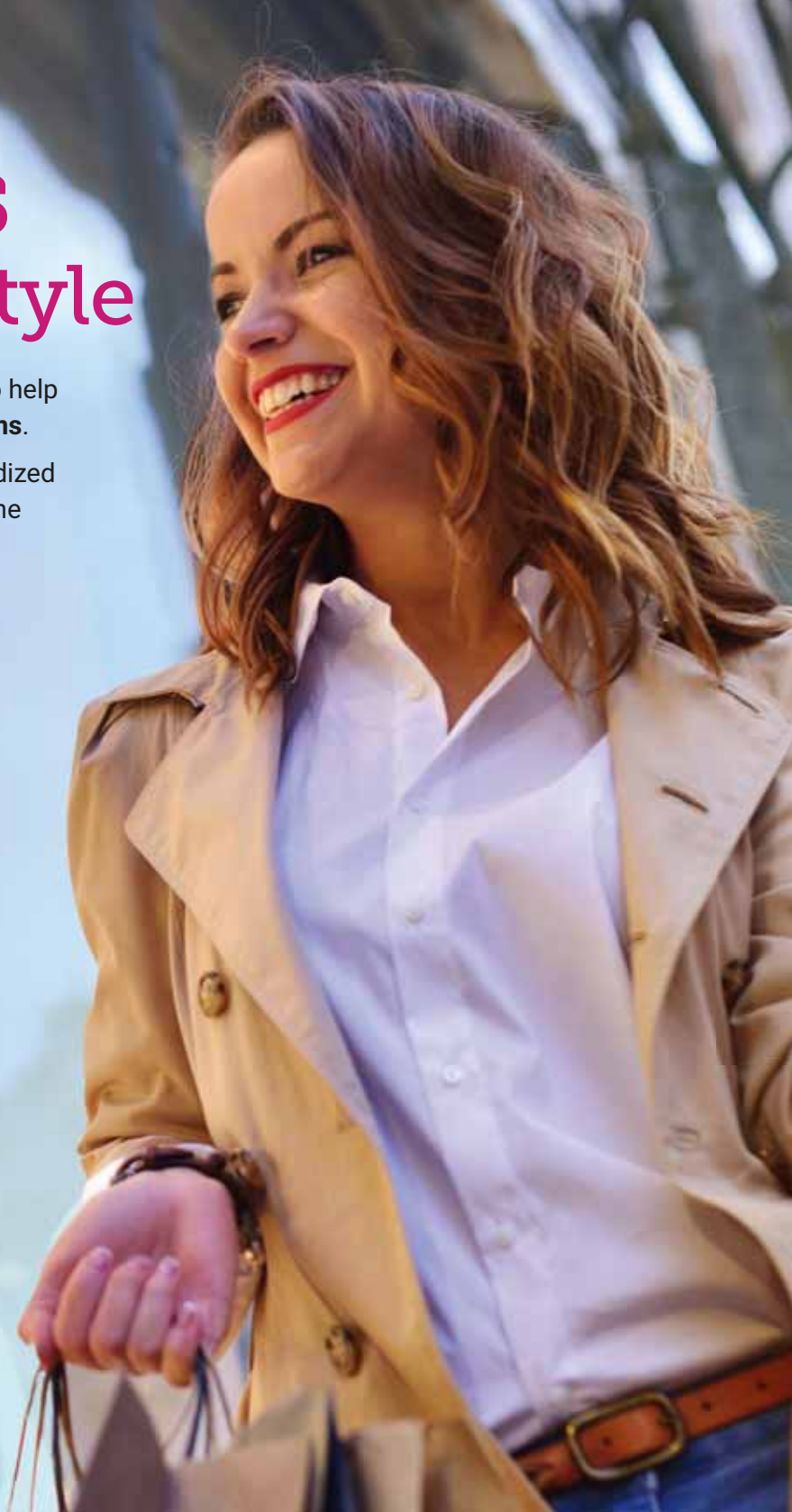
This formula includes a **ginger extract**, standardized to contain at least **26% gingeroids—five times** the amount in standard ginger.

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

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

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

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



NEW



Item #02537 | 60 vegetarian capsules

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

References

1. Open Acc J Comp & Alt Med. 2023;5(1):594-601.
2. Iran J Nurs Midwifery Res. 2010;15(Suppl 1):401-5.
3. J Womens Health Gend Based Med. 2000;9(2):131-9.

Ginfort® is a registered trademark of Olene Life Sciences Pvt. Ltd.

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

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

UP TO 45 TIMES GREATER BIOAVAILABILITY CURCUMIN



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

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

Item #02407

500 mg
60 vegetarian capsules

1 bottle **\$24.75**
4 bottles **\$22.75 each**



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

Support Healthy Aging with Benfotiamine

"I take it daily because it does help."

Spencer

VERIFIED CUSTOMER
REVIEW



Mega Benfotiamine provides a fat-soluble form of thiamine (vitamin B1) known as benfotiamine.

Benfotiamine helps support cellular health by promoting a balanced response to **advanced glycation end products (AGEs)**.^{1,2,3}

References

1. *Exp Gerontol.* 2018 Jul 15;108:118-24.
2. *J Gerontol A Biol Sci Med Sci.* 2018 Oct 8;73(11):1545-51.
3. *E J Clin Pharmacol.* 2000 June;56:251-257.

Item #00925
120 vegetarian capsules
1 bottle **\$22.50**
4 bottles \$20.25 each



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

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

VITAMIN D + VITAMIN K + SEA IODINE = Convenience + Cost Savings



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

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



Just one capsule daily provides:

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

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.

Item #02040
60 capsules
1 bottle **\$18**
4 bottles \$16.50 each



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

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.



CoQ10 Reduces Painful Migraines

BY BRENT GREEN

Migraine headaches affect over *one billion* people worldwide and have been labeled one of the most debilitating conditions.

In addition to intense **headaches**, they may cause nausea, hypersensitivity to light, and other neurological symptoms.¹⁻³

Clinical studies have shown that taking **coenzyme Q10 (CoQ10)** can *reduce* the **frequency**, **duration**, and **severity** of migraines, with or without other treatments.⁴

Scientists have found that **CoQ10** intake *lowers* levels of a peptide known as **calcitonin gene-related peptide** that has been linked to the development of migraine headaches.^{5,6}

Medications for migraines can be expensive and don't work for everyone. Coenzyme Q10 may be an effective addition or alternative.



The Burden of Migraines

Migraines are considered a **neurovascular disorder**, believed to be caused by abnormal brain activity that affects the blood vessels of the cranium.^{7,8}

Migraines are three times more common in women than men. In any given year, it is estimated that **18%** of women and **6%** of men will experience migraines.⁸ The lifetime risk of migraines in women is **30%**.³

Migraines cause moderate to severe **headaches** that often involve one side of the head. They can also be associated with symptoms including visual changes, nausea, vomiting, and hypersensitivity to light, sounds, or smells.^{7,8}

Migraines frequently interfere with work, socializing, or family life.¹ This is a particular problem for those who suffer from **chronic migraines**, defined as having headaches **15** or more days per month, with **eight** of those episodes being migraines.⁹ Chronic migraines are more likely to develop in individuals who overuse medications for treatment of acute headaches.⁸



Emerging Science on the Cause of Migraines

There may be *many* possible causes of migraines, and it is likely that there are important differences among different migraine-susceptible individuals, including genetic differences.¹⁰

However, a compound in the body known as **calcitonin gene-related peptide (CGRP)** has been found to play a large role in migraines, and is the target of some of the newer medications for the condition. Unfortunately, these **drugs** work in only half of patients.^{6,11}

CGRP is a neuropeptide-signaling compound that triggers a broad range of reactions in the brain. Research shows that in about **65%** of people, CGRP intravenous injections result in migraines, while **84%** develop headaches after some time, with or without migraine symptoms.¹¹

Some studies have shown that plasma CGRP levels are elevated in migraine sufferers during and between attacks.⁶

The nutrient compound **CoQ10**, which is produced by our own cells, has been found in one study to target the **CGRP** neuropeptide while reducing frequency, duration, and severity of migraines.⁵

Coenzyme Q10 Relieves Migraines

Coenzyme Q10 (CoQ10) is a powerful antioxidant that plays a vital role in cellular metabolism.

Levels of CoQ10 in the body are often lower than ideal. Aging and chronic illness are associated with diminished CoQ10. **Statin drugs**, prescribed to reduce cholesterol, further block its production.¹²⁻¹⁴ An older study even found that young people with **migraine** were CoQ10 **deficient**.¹⁵

Two clinical studies dating back to the early 2000s found that giving **CoQ10** to adults who suffer from migraine headaches, *regardless* of their initial CoQ10 levels, reduced the frequency of migraine attacks.^{16,17}

While CoQ10 can prevent migraine headaches when taken by itself, studies have shown it can also be effective as an add-on intervention in people receiving other migraine treatments.¹⁸⁻²⁰



How It Works

There are at least two ways that CoQ10 can help prevent migraines.

For one, CoQ10 has been found to have clinical **anti-inflammatory** effects and to reduce levels of the pro-inflammatory marker TNF-alpha.²¹ In one study in people with migraines, CoQ10 intake reduced levels of **TNF-alpha**, which plays an important role in migraine and chronic migraine risk.^{5,22}

CoQ10 has also been found to affect **CGRP**. In a randomized, controlled trial, subjects who suffered from migraines took either **400 mg of CoQ10** or a **placebo** daily for three months. Blood levels of **CGRP** were significantly *reduced* in those receiving CoQ10.⁵

In this study, CoQ10 supplementation significantly reduced the frequency, duration, and even the severity of **migraines**.

Summary

Migraine headaches affect a billion people worldwide and affect **women** three times as much as men.

Coenzyme Q10 (CoQ10) has been studied for many years as a treatment, or adjunct to medication, for migraine prevention.

Serious Relief from Migraines

- **Migraines** are a neurovascular condition that causes intense head pain and may result in vision problems, nausea and vomiting, and sensitivity to light, sound, and smells.
- **Coenzyme Q10 (CoQ10)** has long been recognized as a powerful antioxidant, anti-inflammatory, and key component of cellular metabolism.
- Multiple studies have shown that **CoQ10** levels are often low in migraine sufferers and that taking CoQ10 can help prevent migraine attacks.
- CoQ10 appears to work by reducing inflammation and lowering levels of a signaling compound called **CGRP** that triggers inflammation and pain perception in the brain.
- In clinical trials, taking oral CoQ10, either alone or with other migraine medications, can reduce the **frequency, duration, and severity** of migraine attacks.

Which Form of CoQ10 is More Effective?

There are two important forms of CoQ10—**ubiquinone** and **ubiquinol**.

Studies comparing the two often show that **ubiquinol** has *greater bioavailability*. In a randomized double-blind clinical trial on 10 men over the age of 55, two weeks of ubiquinol supplementation significantly increased overall CoQ10 to levels greater than supplementation with ubiquinone did.²³

But this doesn't necessarily mean that ubiquinone is of no benefit. Some people can achieve optimal levels with ubiquinone supplementation, but as they get older, ubiquinol may be required to achieve optimal levels.



Research has identified a pain-triggering compound called **CGRP** that is often elevated in people who suffer from regular migraines.

CoQ10 may reduce migraines by lowering inflammation and levels of **CGRP**. ■

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

References

- Ashina M, Katsarava Z, Do TP, et al. Migraine: epidemiology and systems of care. *Lancet*. 2021;397(10283):1485-95.
- Pescador Ruschel MA, De Jesus O. Migraine Headache. *StatPearls*. Treasure Island (FL): StatPearls Publishing Copyright © 2024, StatPearls Publishing LLC.; 2025.
- Available at: <https://americanmigrainefoundation.org/resource-library/migraine-facts/>. Accessed January 31, 2025.
- Talandashti MK, Shahinfar H, Delgarm P, Jazayeri S. Effects of selected dietary supplements on migraine prophylaxis: A systematic review and dose-response meta-analysis of randomized controlled trials. *Neurol Sci*. 2025;46(2):651-70.
- Dahri M, Tarighat-Esfanjeni A, Asghari-Jafarabadi M, Hashemilar M. Oral coenzyme Q10 supplementation in patients with migraine: Effects on clinical features and inflammatory markers. *Nutr Neurosci*. 2019;22(9):607-15.
- Wattiez AS, Sowers LP, Russo AF. Calcitonin gene-related peptide (CGRP): role in migraine pathophysiology and therapeutic targeting. *Expert Opin Ther Targets*. 2020;24(2):91-100.
- Available at: <https://medlineplus.gov/ency/article/000709.htm>. Accessed January 31, 2025.
- Available at: <https://www.merckmanuals.com/professional/neurologic-disorders/headache/migraine>. Accessed January 31, 2025.
- Mungoven TJ, Henderson LA, Meylakh N. Chronic Migraine Pathophysiology and Treatment: A Review of Current Perspectives. *Front Pain Res (Lausanne)*. 2021;2:705276.
- Available at: <https://www.migrainedisorders.org/migraine-disorders/migraine-causes/>. Accessed January 31, 2025.
- Russo AF, Hay DL. CGRP physiology, pharmacology, and therapeutic targets: migraine and beyond. *Physiol Rev*. 2023;103(2):1565-644.
- Deichmann R, Lavie C, Andrews S. Coenzyme q10 and statin-induced mitochondrial dysfunction. *Ochsner J*. 2010;10(1):16-21.
- Gutierrez-Mariscal FM, Arenas-de Larriva AP, Limia-Perez L, et al. Coenzyme Q(10) Supplementation for the Reduction of Oxidative Stress: Clinical Implications in the Treatment of Chronic Diseases. *Int J Mol Sci*. 2020;21(21).
- Martelli A, Testai L, Colletti A, Cicero AFG. Coenzyme Q(10): Clinical Applications in Cardiovascular Diseases. *Antioxidants (Basel)*. 2020;9(4).
- Hershey AD, Powers SW, Vockell AL, et al. Coenzyme Q10 deficiency and response to supplementation in pediatric and adolescent migraine. *Headache*. 2007;47(1):73-80.
- Rozen TD, Oshinsky ML, Gebeline CA, et al. Open label trial of coenzyme Q10 as a migraine preventive. *Cephalalgia*. 2002;22(2):137-41.
- Sandor PS, Di Clemente L, Coppola G, et al. Efficacy of coenzyme Q10 in migraine prophylaxis: a randomized controlled trial. *Neurology*. 2005;64(4):713-5.
- Sazali S, Badrin S, Norhayati MN, Idris NS. Coenzyme Q10 supplementation for prophylaxis in adult patients with migraine—a meta-analysis. *BMJ Open*. 2021;11(1):e039358.
- Shoeibi A, Olfati N, Soltani Sabi M, et al. Effectiveness of coenzyme Q10 in prophylactic treatment of migraine headache: an open-label, add-on, controlled trial. *Acta Neurol Belg*. 2017;117(1):103-9.
- Taha M, Abdulwahhab M, Mostafa A. The Effect of Coenzyme Q10 as a Prophylactic Treatment in Episodic Migraine. *Düzce Tıp Fakültesi Dergisi*. 2023;25(2):147-51.
- Zhai J, Bo Y, Lu Y, et al. Effects of Coenzyme Q10 on Markers of Inflammation: A Systematic Review and Meta-Analysis. *PLoS One*. 2017;12(1):e0170172.
- Sudershan A, Sudershan S, Sharma I, et al. Role of TNF-alpha in the Pathogenesis of Migraine. *Pain Res Manag*. 2024;2024:1377143.
- Zhang Y, Liu J, Chen XQ, Oliver Chen CY. Ubiquinol is superior to ubiquinone to enhance Coenzyme Q10 status in older men. *Food Funct*. 2018;9(11):5653-9.

Cry Out Loud

go ahead,
shed a tear.



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®**.

Item #01918
30 vegetarian capsules

1 bottle **\$13.50**
4 bottles \$12 each

For full product description and to order **Tear Support with MaquiBright®** call **1-800-544-4440** or visit **www.LifeExtension.com**

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.



Sweet DREAMS



Fast-Acting Liquid Melatonin is a popular way to enhance the absorption of melatonin for sleep onset support.

The nice-tasting, citrus-vanilla flavor enables convenient “drop” dosing of **Fast-Acting Liquid Melatonin** for occasional sleeplessness.

Item #02234 • 3 mg per 20 drops, 2 fl. oz

1 bottle \$9 • 4 bottles \$8.25 each



FOR OCCASIONAL SLEEPLESSNESS.

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

For full product description and to order **Fast-Acting Liquid Melatonin**, call 1-800-544-4440 or visit www.LifeExtension.com

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

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.



B SMART BODY & BRAIN

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.



Item #02419
60 vegetarian lozenges
1 bottle **\$8.25**
4 bottles \$7.50 each

For full product description and
to order **B12 Elite**,
call 1-800-544-4440 or visit
www.LifeExtension.com

PROBIOTIC FOR HEART HEALTH



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

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

- C-reactive protein
- Apolipoprotein B
- Fibrinogen

Item #01821 • 60 vegetarian capsules
1 bottle \$24 • 4 bottles \$21 each



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

References

1. Eur J Clin Nutr. 2012 Nov;66(11):1234-41.
2. Br J Nutr. 2012 May;107(10):1505-13.
3. Eur J Clin Nutr. 2012 Nov;66(11):1234-41.

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.

Re-Energize Heart and Brain Cells

Three Choices
of Superior
Ubiquinol CoQ10

"Super product!"
Richard
VERIFIED CUSTOMER
REVIEW



100 mg CoQ10



200 mg CoQ10



100 mg CoQ10 + 10 mg PQQ

Item #01426 • 100 mg, 60 softgels
1 bottle **\$42**
4 bottles \$37.50 each

Item #01431 • 200 mg, 30 softgels
1 bottle **\$39**
4 bottles \$35 each

Item #01733 • 100 mg, 30 softgels
1 bottle **\$33.75**
4 bottles \$29 each



#1 Rated
CoQ10 Products | 6 Time Winner!

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

Q+®, Kaneka Ubiquinol™, and the quality seal™ are registered or pending trademarks of Kaneka Corp.

[†]Ratings based on results of the 2024 ConsumerLab.com Survey of Supplement Users.
More information at www.consumerlab.com/survey.



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.

A man with a beard and blue eyes is looking into a large, oval mirror. He is holding a wooden comb to his hair, which is styled upwards. The background is a plain, light-colored wall.

Slow and Reverse **HAIR LOSS**





Saw
Palmetto



Black
Rice

BY MICHAEL DOWNEY

It might begin with a slight receding hairline or thinning of the hair. But one day, you look in the mirror, and it hits you: *You're going bald!*

You're not alone. Progressive hair loss or baldness affects about **80%** of older men.^{1,2} The question is: What can you *do* about it?

Hair replacement options are available but are expensive and do not always fulfill expectations of men experiencing significant hair loss.

As an alternative, scientists have identified **plant-derived** ingredients that target **hair loss** at, well, its *root*.

By targeting an *enzyme* that contributes to increased levels of DHT, these ingredients help restore **hair growth** and **fullness** and **reduce hair loss**.^{1,3}

In one study, **95%** of men taking a blend of two of these ingredients had improved hair growth.¹

In another trial, participants with mild-to-moderate hair loss who took a third plant extract saw a **29%** decrease in hair loss and a **5%** increase in hair density.³

Scientists have combined these ingredients into an **oral** formula for hair support, **reversal** of hair loss, and a **boost** of hair growth.

DHT and Baldness

The progressive hair loss known as **androgenetic alopecia**, is known as **male pattern baldness**.⁴

People with this condition usually have:⁴

- Heightened levels of the hormone **dihydrotestosterone (DHT)**, an androgen (male sex hormone),
- Elevated activity of **5-alpha reductase**, an enzyme that *converts* testosterone into **DHT**, and
- More abundant **androgen receptors** in areas of the scalp affected by hair loss.

An increase in **DHT** is associated with the miniaturization of hair follicles, which leads to hair loss and decreased hair density and, eventually, baldness.⁴



Current Medications

Scientists have long investigated ways to slow or reverse hair loss. Two commonly used FDA-approved treatments are available for pattern baldness: topical minoxidil and oral finasteride.^{5,6}

One topical baldness drug, **minoxidil (Rogaine®)**, targets blood flow to hair follicles to promote growth.

The other drug, **finasteride (Propecia®)**, is taken orally and is designed to inhibit **5-alpha reductase**, the enzyme that converts **testosterone** into **DHT**.³

These treatments require about **six months** of consistent application before noticeable improvements become apparent.⁵

Drug-Free Approaches

Scientists looking for a safer and drug-free way to support hair growth and density focused on two plant-derived formulas.

One formula combines standardized extracts of **black rice** and **prickly pear flower**.

Prickly pear was shown in lab studies to inhibit **5-alpha reductase**. Other cell studies demonstrated that, when combined, these extracts increased the viability of cells at the bottom of hair follicles that play a key role in **hair formation** and growth.¹

The other formula is a **saw palmetto oil** standardized to **2%-3% beta-sitosterol** and **85% total fatty acids**. Lab studies showed that this novel formula inhibited **5-alpha reductase** and provided anti-inflammatory and angiogenic (forming new blood capillaries) effects.³

Scientists tested each formula in **clinical trials**.

Black Rice-Prickly Pear Boosts Hair Growth

Men with mild-to-moderate male pattern baldness took either a placebo or **250 mg** of the **black rice-prickly pear** blend daily.¹

The progress of treatment was evaluated by high-resolution **imaging** called **phototrichogram**—a non-invasive evaluating tool for hair growth—and a self-assessment questionnaire. **High-resolution images** of the scalp were used by dermatologists to count the number of hairs per square centimeter and their thickness and length.

After **six months**, treated men had:¹

- **9.5%** increase in hair **density**,
- **28.2%** increase in anagen hair density (hairs in the **growing** phase),
- Increased hair **growth** scores in **95.1%** of subjects (vs. **34.1%** in the placebo group), and
- **75.6%** of individuals who reported overall satisfaction with improvements in hair growth and a decrease in hair loss.

The first positive results were observed within just **two months** by **63.5%** of treated subjects.¹

Saw Palmetto

In another clinical trial, participants with mild-to-moderate androgenetic alopecia took either a placebo or **100 mg** of **saw palmetto oil** daily.³

After **16 weeks**, the **treatment** group had a:³

- **5.17%** increase in hair **density** (vs. **3.23%** decrease in the placebo group),
- **29%** decrease in hair **shedding**, using a “comb test,” and
- **20.5%** decrease in hair **shedding**, using a “hair pull test.”

Improved **thickness** and appearance of hair shafts were reported by **50%** of treated subjects, but only **10.5%** of the placebo group.

An improvement in the amount of **hair covering the scalp**, and a smaller area of thinning hair, was reported by **33.3%** of treated subjects compared to only **10.5%** of the placebo group.

Blood tests confirmed that the treated group had an average **22.2%** reduced level of serum **DHT** in this study.³

Saw palmetto is well-tolerated and does not interfere with medications.⁷

These nutrient ingredients have been combined into a **single oral blend** to maximize the potential increase in hair growth and decline in hair loss.

What You Need To Know



Help Banish Baldness

- The **hair loss** and baldness that affects about **80%** of American men is associated with elevated levels of the hormone **dihydrotestosterone (DHT)**.
- In a clinical study of men with male pattern baldness, a blend of **black rice** and **prickly pear flower** extracts increased hair growth for a stunning **95%** of subjects.
- In another clinical study, oral **saw palmetto oil** decreased hair shedding by up to **29%** and increased hair density and new hair growth.
- These three ingredients have been combined into a single **oral** formula to optimize **hair growth** and reversal of hair loss.



Summary

About **80 million** Americans experience androgenetic alopecia, the most prevalent form of baldness, and its severity is on the rise.⁸ It is often linked to an increase in the hormone **dihydrotestosterone (DHT)**.

Scientists have identified **plant-derived** ingredients that lower DHT levels, reducing this key driver of hair loss.

In a clinical trial on a blend of **black rice** and **prickly pear flower** extracts, **95%** of treated men had increased hair growth within **six months**.

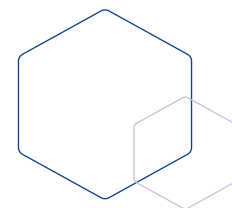
In another study, **50%** of participants taking **saw palmetto oil** reported improvement in **hair thickness** and **appearance** and **33.3%** had **new hair growth** in **16 weeks**.

A combination of all three ingredients may help prevent hair loss and optimize support for hair growth and fullness. ■

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

References

1. Nobile V. Efficacy of Oryza Sativa L. (Black Rice) and Opuntia Ficus Indica L. Blend in Men with Androgenetic Alopecia: A Randomized, Double-Blind, Placebo-Controlled Clinical Trial. *Journal of Cosmology & Trichology*. 2023;9(3).
2. Aukerman EL, Jafferany M. The psychological consequences of androgenetic alopecia: A systematic review. *J Cosmet Dermatol*. ;22(1):89-95.
3. 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.
4. Owecka B, Tomaszewska A, Dobrzeniecki K, et al. The Hormonal Background of Hair Loss in Non-Scarring Alopecias. *Biomedicines*. ;12(3).
5. Asfour L CW, Sinclair R. . *Male Androgenetic Alopecia*. National Library of Medicine; 2023.
6. Devjani S, Ezemma O, Kelley KJ, et al. Androgenetic Alopecia: Therapy Update. *Drugs*. ;83(8):701-15.
7. Available at: <https://www.nccih.nih.gov/health/saw-palmetto>. Accessed February 4, 2025.
8. Aggarwal I, Puyana C, Chandan N, et al. 42173 Racial and ethnic disparities in androgenetic alopecia clinical trials in the USA. *Journal of the American Academy of Dermatology*. 2023;89(3):AB214.



"Mainstay in my
prostate
health regimen."

Rick

VERIFIED CUSTOMER
REVIEW

PROSTATE HEALTH

The best way to keep
YOU in the picture.

Ultra Prostate Formula was created to help maintain prostate health. It contains a dozen ingredients to:

- Support healthy urination
- Promote healthy prostate function
- Support healthy prostate cell division

Ultra Prostate Formula is our most comprehensive *standardized*-ingredient prostate-health supplement.



Item #02029
60 softgels

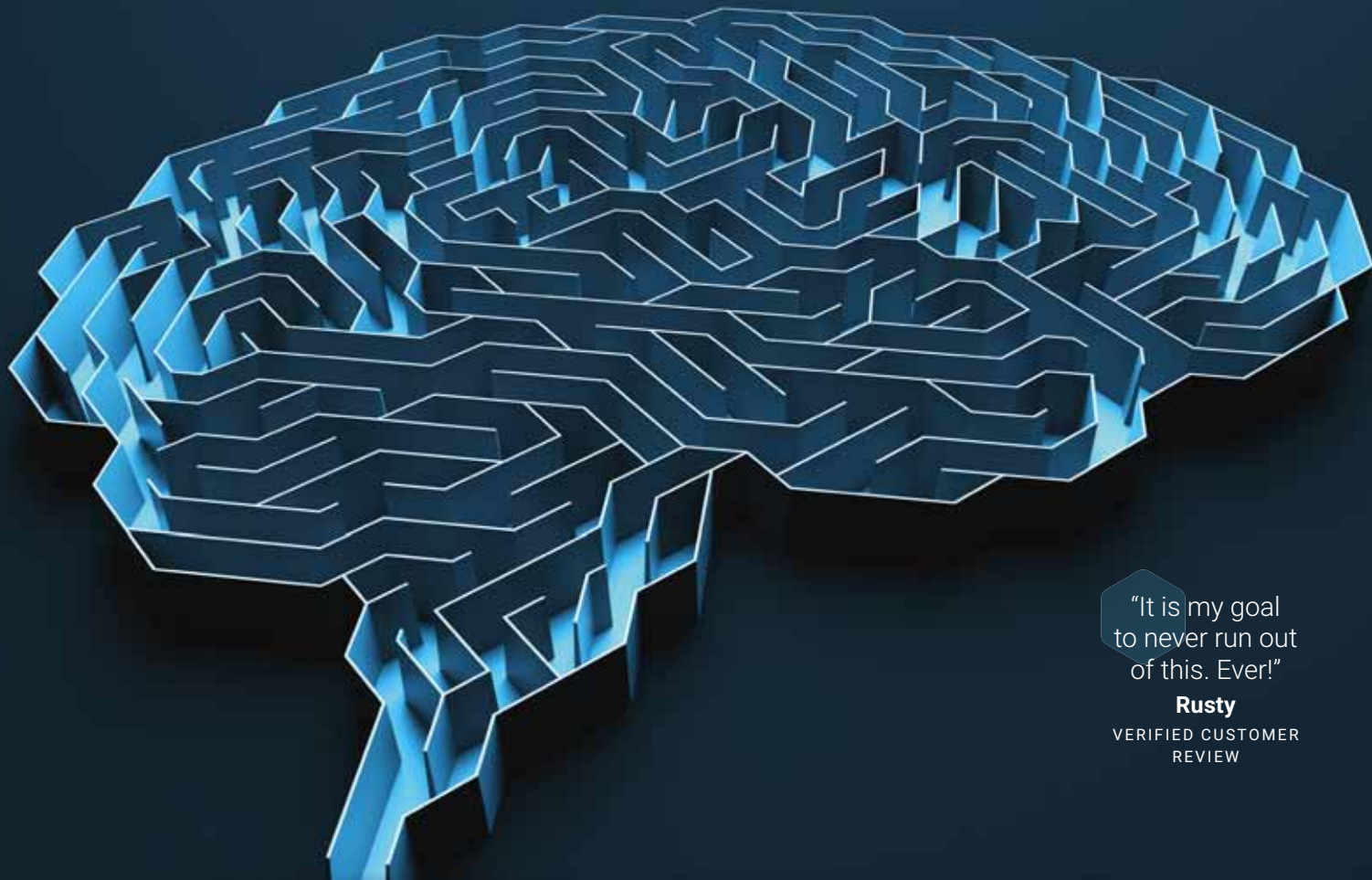
1 bottle **\$29.25**
4 bottles \$27 each



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

AprèsFlex® is a registered trademark of PLT Health Solutions—Laila Nutraceuticals LLC. HMRLignan™ is a trademark used under sublicense from Linnea S.A. Lyc-O-Mato® is a registered trademark of Lycored Corp. Graminex® is a registered trademark of Graminex LLC.

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.



"It is my goal
to never run out
of this. Ever!"

Rusty

VERIFIED CUSTOMER
REVIEW

NEURO-MAG[®]

THE SMART MAGNESIUM



Item #01603 • 90 vegetarian capsules
1 bottle **\$31.50** • 4 bottles \$28.50 each

SUPPORTS OVERALL COGNITIVE ABILITY

Neuro-Mag[®] Magnesium L-Threonate
helps maintain working
(short-term) memory, encourages
healthy processing speed, and
supports overall cognitive function.^{1,2}



Item #02032 • 93.35 grams of powder
1 jar **\$31.50** • 4 jars \$28.50 each

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

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

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.

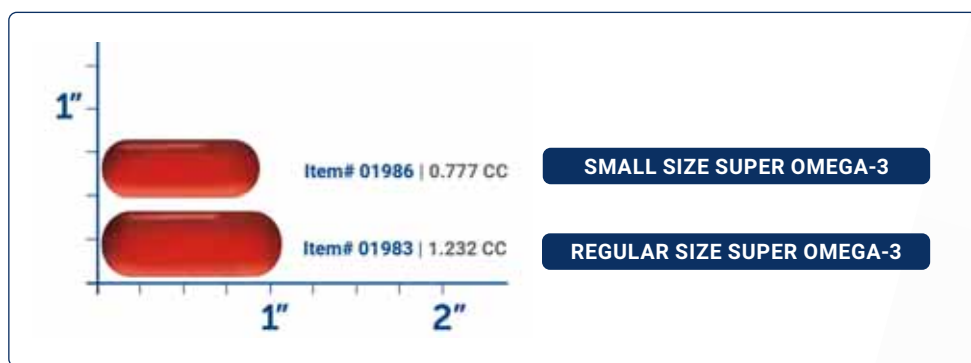
These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.

EASY-TO-SWALLOW

FISH OIL + OLIVE EXTRACT

Some people find it difficult to swallow normal-size fish oil softgels.

Life Extension resolves this by making small-size **Super Omega-3** softgels available as follows:



- **Super Omega-3** has the *highest* rating (5-star) from the **International Fish Oil Society IFOS*** for purity and potency.
- It also contains standardized **olive extracts** and **sesame lignans** to provide components of the famous **Mediterranean diet**.

Four easy-to-swallow **SUPER OMEGA** softgels provide:

Pure+™ Wild Fish Oil Concentrate	2000 mg
Yielding:	
EPA (eicosapentaenoic acid)	700 mg
DHA (docosahexaenoic acid)	500 mg
Polyphen-Oil™ Olive extract (fruit and leaf) [providing 19.5 mg polyphenols, 5.2 mg hydroxytyrosol/tyrosol, 4.4 mg verbascoside/oleuropein]	300 mg
Sesame seed lignan extract	10 mg

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

* 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.

"I really like this smaller size."

Kim

VERIFIED CUSTOMER
REVIEW



Item #01986

240 softgels

1 bottle **\$30**

4 bottles \$27 each



#1 Rated
Catalog | Internet Brand

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



Bodyguard *for Your* Brain

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

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

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

LITHIUM

(1000 mcg of lithium per tiny cap)

Item #02403

100 vegetarian capsules

1 bottle \$12

4 bottles \$10.50 each

Each bottle lasts 100 days.

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



GLUTEN
FREE

NON
GMO
LE CERTIFIED

VEGETARIAN
LE CERTIFIED

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

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

Hair so Nice, They'll Look Twice!

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

In a clinical trial, a proprietary blend of **black rice** (*Oryza sativa*) and **prickly pear** (*Opuntia Ficus Indica*) flower extracts helped to:¹

- Support hair health
- Promote hair fullness and density

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

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

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

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



GLUTEN
FREE

1
DAILY

NON
GMO
LE CERTIFIED

Item #02538
30 softgels

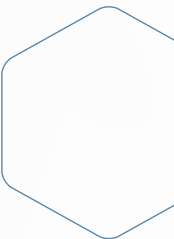
1 bottle \$21

4 bottles \$19 each

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

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.





BY JODY KELLY

The Anti-Aging Benefits of Fisetin

In recent years, **fisetin** has demonstrated promising health benefits and piqued the interest of many researchers.

Dozens of **human** trials are currently ongoing. Preclinical and early findings reveal exciting potential.

Fisetin has been found to act in multiple ways to **slow** certain **aging** processes and reverse deteriorations of function.

This can have profound effects. When elderly mice were given **fisetin**, their lifespan increased by about **10%**.¹

In two separate human trials, fisetin has been shown to improve outcomes in patients being treated for **stroke**² and reduce markers of systemic inflammation in **cancer** patients.³

Scientists developed a form of fisetin that improves its **bioavailability** by about **25-fold** compared to standard fisetin.⁴

A Leading Senolytic

Fisetin is a flavonoid found in small amounts in various plants, including strawberries, onions, and apples.⁵

It has attracted interest from scientists and aging experts due, in part, to its effects as a **senolytic**.^{6,7} Senolytics are compounds that help remove old, dysfunctional senescent cells from the body.⁸

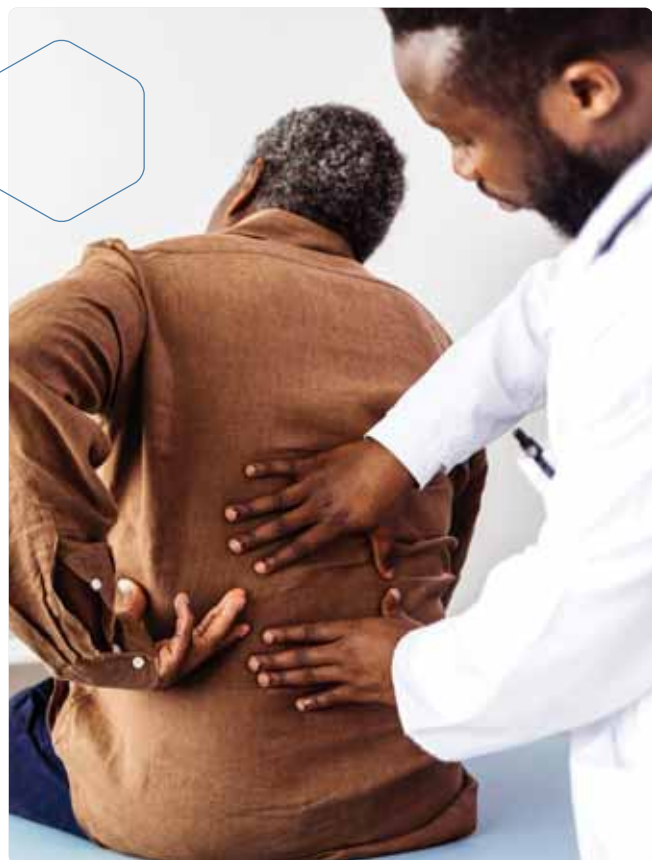
Cellular senescence is one of the drivers of aging and related disorders.⁸

That means **senolytics** have the potential to rejuvenate tissues throughout the body, slow certain aging processes, and reduce several age-related disease risks.^{8,9}

In a cell study, fisetin selectively eliminated approximately **70%** of all senescent cells, while doing no harm to healthy cells.⁶

In another study assessing **10 plant-derived** flavonoids head-to-head, fisetin was found to be the **most effective senolytic**.¹

In one animal study, these effects resulted in **extending lifespan** significantly. When fisetin was given to elderly mice, their life expectancy increased by about **10%** on average.¹



Other Anti-Aging Effects

Fisetin's remarkable **senolytic** ability has attracted a lot of attention, but it is of interest for other reasons as well.

In preclinical studies it has shown a range of additional promising effects, modulating multiple pathways associated with improved health and longer lifespan, including:

- **Cellular protection.** Fisetin stimulates the activity of **sirtuins** (cellular protector proteins).^{10,11} In some animal studies, boosting sirtuin activity has led to a longer and healthier lifespan.^{12,13}
- **Improved metabolic health.** Two proteins in cells are known to help regulate metabolism, **AMPK** and **mTOR**.¹⁴ Low AMPK activity¹⁵ and high mTOR¹⁶ activity are associated with metabolic disease, obesity, and insulin resistance. Fisetin *activates* AMPK¹⁷ and inhibits mTOR,^{18,19} which could support healthy metabolism.
- **Preventing harmful inflammation.** A protein complex known as nuclear factor-kappa B (NF-kB) promotes chronic inflammation, which is linked to rapid aging and chronic disease.²⁰ Fisetin has been shown to target this inflammation by inhibiting NF-kB activity.^{21,22}
- **Inducing cellular housekeeping.** Cells require regular cleaning and repair work to function optimally. This process is known as **autophagy**, and it wanes with age.²³ Fisetin *activates* autophagy, aiding cellular rejuvenation.²⁴
- **Reducing oxidative stress.** Oxidative stress contributes to nearly all chronic diseases.²⁵ Fisetin is a potent **antioxidant**, scavenging harmful free radicals and enhancing each cell's innate antioxidant defenses.²⁶

Human Studies

Human studies of fisetin are mostly in their preliminary stages. But two clinical trials have shown results:

INFLAMMATION AND CANCER

Chronic **inflammation** is a major player in the formation, growth, and spread of **cancer**, influencing immune response and reducing the efficacy of drug treatment.



What You Need To Know

A Key to Healthy Aging

- Fisetin is perhaps the most potent plant-derived senolytic, capable of removing harmful senescent cells and extending lifespan in cell and animal models.
- In clinical studies, fisetin lowers inflammation in cancer patients and enhances outcomes in stroke victims when added to standard of care.
- In preclinical studies, fisetin has shown an ability to protect cells against injury, support metabolic health, and improve heart and brain health.
- A specific methodology for blending fisetin with galactomannan fiber boosts bioavailability more than 25-fold compared to regular fisetin.

In a placebo-controlled trial, patients being treated for **colorectal cancer** who took **100 mg of fisetin** daily for seven weeks had significant reductions in markers of systemic **inflammation**. There was also a *reduction* in levels of enzymes tied to cancer spread and **metastasis**.³

STROKE

Treatment of ischemic stroke with clot-dissolving medication can improve outcomes, but only when rapidly initiated after symptom onset.²⁷

Fisetin has demonstrated neuroprotective and anti-inflammatory properties in preclinical models of ischemic stroke, potentially reducing tissue damage.^{28,29}

In a clinical study, stroke patients were categorized based on onset-to-treatment time. Those receiving standard care were randomly assigned to either a **fisetin** or **placebo** group.

The study found that fisetin **improved** treatment outcomes in patients who experienced a delay in receiving standard treatment. This was likely due to reduced inflammation, which was reflected in lower levels of several inflammatory markers.

Notably, administering fisetin to patients suffering an acute ischemic stroke extended the window for successful treatment from three to five hours.²

Potential in Other Chronic Diseases

Human trials for additional conditions are underway. But cell and animal studies indicate that **fisetin** intake may positively impact a wide range of diseases, including:

- **Cancer:** Fisetin has been shown in cell and animal models to reduce cancer formation, prevent metastasis, boost chemotherapy's effects, and interfere with the ability of cancer cells to grow and survive.³⁰⁻³⁴
- **Metabolic disease:** Fisetin's potential ability to improve metabolic health can help reduce body weight, improve insulin sensitivity and blood glucose levels, and prevent complications of obesity^{35,36} and metabolic disorders such as type II diabetes.^{35,37,38}

- **Cardiovascular disease:** Fisetin has demonstrated, in animal models, the potential to reduce the impact of acute ischemic injury to the heart muscle (this is what happens in heart attacks) and preserve heart function.³⁹⁻⁴¹ Its senolytic activity also improves blood vessel function.⁴²
- **Neurological disorders:** In various models, fisetin has protected brain tissue against the development and impact of Alzheimer's and Parkinson's-like changes, with similar results in other neurological conditions.^{43,44}

Improved Bioavailability

In its pure form, oral fisetin is difficult to **absorb** and hard for the body to use.

Scientists discovered that a specific method of com-
bining fisetin with **galactomannans**, a fiber found in fenugreek seeds, dramatically improves its absorption.

In a **human** study, this formulation resulted in about **25 times** greater **bioavailability** than standard fisetin.⁴

This allows more of this promising anti-aging compound to reach tissues and achieve its benefits throughout the body.



Summary

The compound **fisetin** is being widely studied for its ability to slow aging and prevent disease.

Early human studies show it can reduce **inflammation** in patients with cancer and improve outcomes after a stroke when added to standard care.

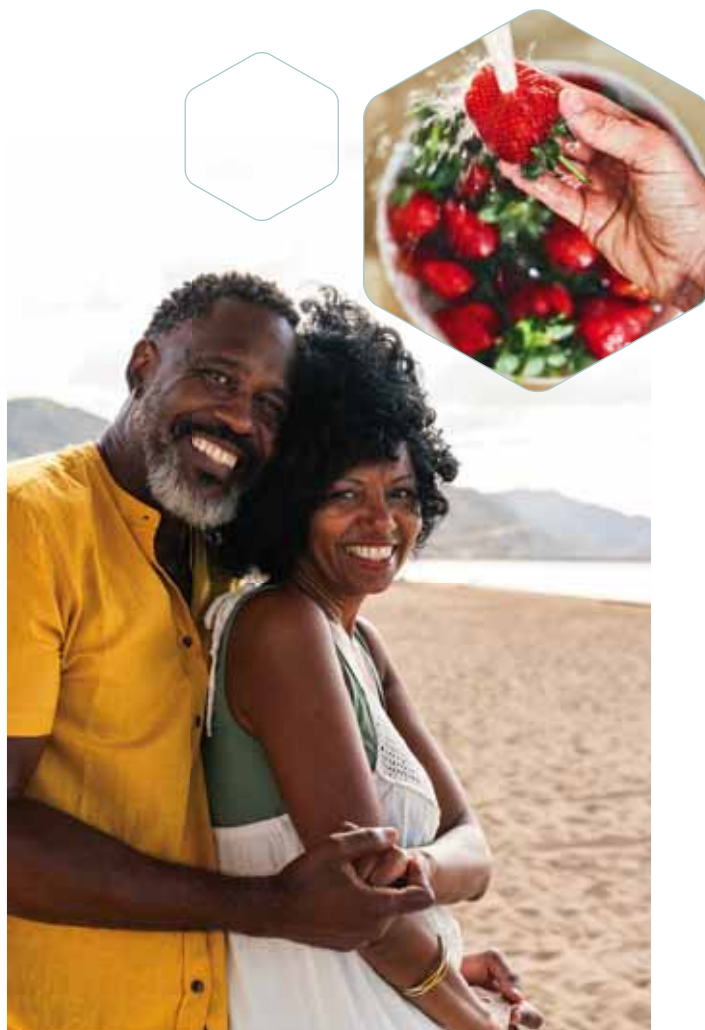
In cell and animal studies, fisetin has shown an ability to reduce **senescent cell burden** and **prolong lifespan**. It has also shown potential to help combat heart disease, neurological disorders, and metabolic disease. ■

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

References

1. Yousefzadeh MJ, Zhu Y, McGowan SJ, et al. Fisetin is a senotherapeutic that extends health and lifespan. *EBioMedicine*. 2018 Oct;36:18-28.
2. Wang L, Cao D, Wu H, et al. Fisetin Prolongs Therapy Window of Brain Ischemic Stroke Using Tissue Plasminogen Activator: A Double-Blind Randomized Placebo-Controlled Clinical Trial. *Clin Appl Thromb Hemost*. 2019 Jan-Dec;25:1076029619871359.
3. Farsad-Naeimi A, Alizadeh M, Esfahani A, et al. Effect of fisetin supplementation on inflammatory factors and matrix metalloproteinase enzymes in colorectal cancer patients. *Food Funct*. 2018 Apr 25;9(4):2025-31.
4. Krishnakumar IM, Jaja-Chimedza A, Joseph A, et al. Enhanced bioavailability and pharmacokinetics of a novel hybrid-hydrogel formulation of fisetin orally administered in healthy individuals: a randomised double-blinded comparative crossover study. *J Nutr Sci*. 2022;11:e74.
5. Park S, Kim BK, Park SK. Effects of Fisetin, a Plant-Derived Flavonoid, on Response to Oxidative Stress, Aging, and Age-Related Diseases in *Caenorhabditis elegans*. *Pharmaceuticals (Basel)*. 2022 Dec 8;15(12).
6. Zhu Y, Doornebal EJ, Pirtskhalava T, et al. New agents that target senescent cells: the flavone, fisetin, and the BCL-X(L) inhibitors, A1331852 and A1155463. *Aging (Albany NY)*. 2017 Mar 8;9(3):955-63.
7. Tavenier J, Nehlin JO, Houliand MB, et al. Fisetin as a senotherapeutic agent: Evidence and perspectives for age-related diseases. *Mech Ageing Dev*. 2024 Dec;222:111995.
8. Available at: <https://www.nia.nih.gov/news/does-cellular-senescence-hold-secrets-healthier-aging>. Accessed February 19, 2025.
9. Kirkland JL, Tchkonja T, Zhu Y, et al. The Clinical Potential of Senolytic Drugs. *J Am Geriatr Soc*. 2017 Oct;65(10):2297-301.
10. Bai X, Yao L, Ma X, et al. Small Molecules as SIRT Modulators. *Mini Rev Med Chem*. 2018;18(13):1151-7.
11. Singh S, Singh AK, Garg G, et al. Fisetin as a caloric restriction mimetic protects rat brain against aging induced oxidative stress, apoptosis and neurodegeneration. *Life Sci*. 2018 Jan 15;193:171-9.
12. Imai S, Guarente L. NAD⁺ and sirtuins in aging and disease. *Trends Cell Biol*. 2014 Aug;24(8):464-71.
13. Johnson S, Imai SI. NAD⁺ biosynthesis, aging, and disease. *F1000Res*. 2018;7:132.
14. Garza-Lombo C, Schroder A, Reyes-Reyes EM, et al. mTOR/AMPK signaling in the brain: Cell metabolism, proteostasis and survival. *Curr Opin Toxicol*. 2018 Apr;8:102-10.

15. Gauthier MS, O'Brien EL, Bigornia S, et al. Decreased AMP-activated protein kinase activity is associated with increased inflammation in visceral adipose tissue and with whole-body insulin resistance in morbidly obese humans. *Biochem Biophys Res Commun*. 2011 Jan 7;404(1):382-7.
16. Papadopoli D, Boulay K, Kazak L, et al. mTOR as a central regulator of lifespan and aging. *F1000Res*. 2019;8.
17. Liou CJ, Wei CH, Chen YL, et al. Fisetin Protects Against Hepatic Steatosis Through Regulation of the Sirt1/AMPK and Fatty Acid beta-Oxidation Signaling Pathway in High-Fat Diet-Induced Obese Mice. *Cell Physiol Biochem*. 2018;49(5):1870-84.
18. Syed DN, Adhami VM, Khan MI, et al. Inhibition of Akt/mTOR signaling by the dietary flavonoid fisetin. *Anticancer Agents Med Chem*. 2013 Sep;13(7):995-1001.
19. Jung CH, Kim H, Ahn J, et al. Fisetin regulates obesity by targeting mTORC1 signaling. *J Nutr Biochem*. 2013 Aug;24(8):1547-54.
20. Garcia-Garcia VA, Alameda JP, Page A, et al. Role of NF-kappaB in Ageing and Age-Related Diseases: Lessons from Genetically Modified Mouse Models. *Cells*. 2021 Jul 27;10(8).
21. Khan N, Syed DN, Ahmad N, et al. Fisetin: a dietary antioxidant for health promotion. *Antioxid Redox Signal*. 2013 Jul 10;19(2):151-62.
22. Peng HL, Huang WC, Cheng SC, et al. Fisetin inhibits the generation of inflammatory mediators in interleukin-1beta-induced human lung epithelial cells by suppressing the NF-kappaB and ERK1/2 pathways. *Int Immunopharmacol*. 2018 Jul;60:202-10.
23. Hansen M, Rubinshtein DC, Walker DW. Autophagy as a promoter of longevity: insights from model organisms. *Nat Rev Mol Cell Biol*. 2018 Sep;19(9):579-93.
24. Sun Y, Qin H, Zhang H, et al. Fisetin inhibits inflammation and induces autophagy by mediating PI3K/AKT/mTOR signaling in LPS-induced RAW264.7 cells. *Food Nutr Res*. 2021;65.
25. Pizzino G, Irrera N, Cucinotta M, et al. Oxidative Stress: Harms and Benefits for Human Health. *Oxid Med Cell Longev*. 2017;2017:8416763.
26. Naeimi AF, Alizadeh M. Antioxidant properties of the flavonoid fisetin: An updated review of in vivo and in vitro studies. *Trends in Food Science & Technology*. 2017 2017/12/01;70:34-44.
27. Powers WJ, Rabinstein AA, Ackerson T, et al. 2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. *Stroke*. 2018 Mar;49(3):e46-e110.
28. Zhang P, Cui J. Neuroprotective Effect of Fisetin Against the Cerebral Ischemia-Reperfusion Damage via Suppression of Oxidative Stress and Inflammatory Parameters. *Inflammation*. 2021 Aug;44(4):1490-506.
29. Gelderblom M, Leyboldt F, Lewerenz J, et al. The flavonoid fisetin attenuates postischemic immune cell infiltration, activation and infarct size after transient cerebral middle artery occlusion in mice. *J Cereb Blood Flow Metab*. 2012 May;32(5):835-43.
30. Imran M, Saeed F, Gilani SA, et al. Fisetin: An anticancer perspective. *Food Sci Nutr*. 2021 Jan;9(1):3-16.
31. Rengarajan T, Yaacob NS. The flavonoid fisetin as an anticancer agent targeting the growth signaling pathways. *Eur J Pharmacol*. 2016 Oct 15;789:8-16.
32. Pak F, Oztopcü-Vatan P. Fisetin effects on cell proliferation and apoptosis in glioma cells. *Z Naturforsch C J Biosci*. 2019 Nov 26;74(11-12):295-302.
33. Zhou C, Huang Y, Nie S, et al. Biological effects and mechanisms of fisetin in cancer: a promising anti-cancer agent. *Eur J Med Res*. 2023 Aug 25;28(1):297.
34. Rahmani AH, Almatroudi A, Allemaillem KS, et al. The Potential Role of Fisetin, a Flavonoid in Cancer Prevention and Treatment. *Molecules*. 2022 Dec 17;27(24).
35. Hu LF, Feng J, Dai X, et al. Oral flavonoid fisetin treatment protects against prolonged high-fat-diet-induced cardiac dysfunction by regulation of multicombed signaling. *J Nutr Biochem*. 2020 Mar;77:108253.
36. Choi MS, Choi JY, Kwon EY. Fisetin Alleviates Hepatic and Adipocyte Fibrosis and Insulin Resistance in Diet-Induced Obese Mice. *J Med Food*. 2020 Oct;23(10):1019-32.
37. Kan E, Kilickan E, Ayar A, et al. Effects of two antioxidants; alpha-lipoic acid and fisetin against diabetic cataract in mice. *Int Ophthalmol*. 2015 Feb;35(1):115-20.
38. Yi X, Dong M, Guo N, et al. Flavonoids improve type 2 diabetes mellitus and its complications: a review. *Front Nutr*. 2023 May-31;10:1192131.
39. Garg S, Khan SI, Malhotra RK, et al. The molecular mechanism involved in cardioprotection by the dietary flavonoid fisetin as an agonist of PPAR-gamma in a murine model of myocardial infarction. *Arch Biochem Biophys*. 2020 Nov 15;694:108572.
40. Long L, Han X, Ma X, et al. Protective effects of fisetin against myocardial ischemia/reperfusion injury. *Exp Ther Med*. 2020 May;19(5):3177-88.
41. Rodius S, de Klein N, Jeanty C, et al. Fisetin protects against cardiac cell death through reduction of ROS production and caspases activity. *Sci Rep*. 2020 Feb 19;10(1):2896.
42. Mahoney SA, Venkatasubramanian R, Darrah MA, et al. Intermittent supplementation with fisetin improves arterial function in old mice by decreasing cellular senescence. *Aging Cell*. 2024 Mar;23(3):e14060.
43. Maher P. Preventing and Treating Neurological Disorders with the Flavonol Fisetin. *Brain Plast*. 2021 Feb 9;6(2):155-66.
44. Ravula AR, Teegala SB, Kalakotla S, et al. Fisetin, potential flavonoid with multifarious targets for treating neurological disorders: An updated review. *Eur J Pharmacol*. 2021 Nov 5;910:174492.



DIGESTIVE UPSETS?

RELIEF
from
**After-Meal
Bloating**

Bloat Relief helps relieve occasional discomfort, such as gas and **bloating** following a meal.

Scientists have combined four **plant extracts** that target **underlying causes** of gastrointestinal discomforts:

- **Ginger root**
- **Artichoke leaf**
- **Fennel seed oil**
- **Curcumin**

For maximum benefit, take **one** softgel **twice daily** before your heaviest meals.



Item #02412 • 60 softgels

1 bottle **\$27.75** • 4 bottles \$25 each

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

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

Blueberry EXTRACT

Whole Blueberries provide health-boosting benefits shown to:

- Support heart health
- Maintain brain function
- Scavenge free radicals
- Help maintain DNA structure

Blueberry Extract Capsules provide beneficial compounds found in fresh blueberries, helping to support whole-body health in a simple, convenient form.

Item #01214

60 vegetarian capsules

1 bottle **\$17.25**

4 bottles \$16 each



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



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



ARMOR UP



Protect your cells with this powerful antioxidant and glutathione precursor.

Help your body fight back against free radicals—and encourage liver and respiratory health—with this easily absorbed immune health all-star.



Item #01534 • 600 mg • 60 capsules

1 bottle **\$11.25** • 4 bottles \$10 each

For full product description and to order **N-Acetyl-L-Cysteine**, call **1-800-544-4440** or visit **www.LifeExtension.com**

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



Let the Sunshine In



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

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

Item #01713 • 125 mcg (5000 IU) • 60 softgels

1 bottle \$7.50 • 4 bottles \$6.50 each



For full product description and to order **Vitamin D3**, call **1-800-544-4440** or visit **www.LifeExtension.com**

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.

Senolytic

ACTIVATOR® with BIO-FISETIN®



Item #02301

36 vegetarian capsules

1 bottle \$19.50

4 bottles \$18 each

(Each bottle lasts 3 months)

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

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

Larry

VERIFIED
CUSTOMER
REVIEW

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.

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.

* As compared to regular powder fisetin.

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.

Fisetin

The Healthy-Aging Flavonoid

Fisetin, a flavonoid found in strawberries and apples, is currently being studied for its effectiveness as a **senolytic** in humans.¹

Fisetin has low bioavailability due to its breakdown in the small intestines.

Bio-Fisetin® solves this problem by enclosing fisetin with a compound from the fenugreek herb.

A human trial showed **bioavailability** of this fisetin compound increased up to **25 times** compared to fisetin by itself.²

"Good stuff."

Scott

VERIFIED CUSTOMER
REVIEW

Item #02414
30 vegetarian capsules
1 bottle \$11.25
4 bottles \$10 each



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



References

1. *EBioMedicine*. 2018 Oct;36:18-28.
2. Available at: <https://pubmed.ncbi.nlm.nih.gov/36304817/>

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.

COMBAT BELLY FAT WITH AMPK

Studies show that *increasing AMPK* activity encourages cells to stop storing fat and start *burning* it for energy. So we've created AMPK Metabolic Activator to help trigger AMPK, causing your body to burn unwanted fat—particularly around your abdomen.



"Oh, I love this! I noticed my pants are looser and I can fit in my skinny jeans."

Adela

VERIFIED CUSTOMER REVIEW

Item #02207 • 30 vegetarian tablets

1 bottle \$28.50 • 4 bottles \$24 each

For full product description and to order **AMPK Metabolic Activator**, call 1-800-544-4440 or visit LifeExtension.com

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

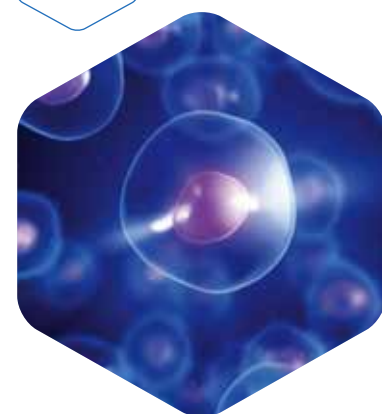
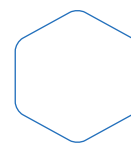
Actiponin® is a trademark of TG Biotech Co., Ltd.



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

What is NAD⁺?

BY LAURIE MATHENA



Scientists have been excited about continuing advances in natural compounds that help stem the aging process.

One of the most well-researched of these is **NAD⁺**, an important coenzyme that fights aging and disease at the cellular level.¹

Recently, news sources have reported that some celebrities are boosting **NAD⁺** as part of their longevity programs.²

However, many *Life Extension*[®] readers are far ahead of this recent trend, as we have been reporting on the potential life-extending benefits of **NAD⁺** since **2014**.

Potential Anti-Aging Therapy

When it comes to **NAD⁺** and longevity, there is a lot to be excited about.

NAD⁺ (nicotinamide adenine dinucleotide) is a coenzyme found abundantly in every living cell.³ It is vital for the functioning of various cells in maintaining healthy aging.⁴

It is critical for hundreds of cellular processes, like DNA repair, energy production, and preventing DNA damage.^{4,5}

It is also required for the normal function of over 300 *enzymes* and proteins⁴—one of which belongs to an important group of proteins called **sirtuins**.⁶

Boosting sirtuin levels is of interest in the fight against aging because low sirtuin activity has been tied to accelerated aging and risk for age-related issues.⁷

NAD⁺ levels are believed to decline with age.⁷ This is likely due to a decrease in synthesis or an increase in degrading enzymes or both. This decline in **NAD⁺** levels may contribute to age-related functional decline.⁸



NAD⁺ precursors are compounds that boost **NAD⁺** when taken orally. They are the raw ingredients our body uses to make its own **NAD⁺**.

Boosting **NAD⁺** production with **NAD⁺ precursors** has gained considerable attention as a potential anti-aging therapy.⁹

In two clinical trials, the **NAD⁺ precursor nicotinamide riboside (NR)** improved plasma **NAD⁺** levels and neuroimaging imaging biomarkers as well as cognitive measures.¹⁰

Indeed, one of the most well-studied **NAD⁺ precursors** is **nicotinamide riboside**.¹¹

An open-label non-randomized study in eight healthy individuals found that an ascending dosage supplementation of NR, starting with **250 mg NR/day** and building to **2,000 mg/day** by the eighth day, raised **NAD⁺** levels by two or three times, and was well tolerated.¹²

Extended Lifespan

A potential benefit of replenishing cellular **NAD⁺** is to delay some aspects of systemic aging.

For example, preclinical studies have indicated that boosting **NAD⁺** with nicotinamide riboside positively impacts physiological functions, aging, and disease. Supplementation has been shown to improve brain, heart, and metabolic health.¹³

Intriguingly, preclinical research has indicated that increasing **NAD⁺** levels with nicotinamide riboside can extend lifespan.¹⁴⁻¹⁶

In worms, nicotinamide riboside extended lifespan by **10%**.¹⁵

In mice that were the human equivalent of 70 years old, nicotinamide riboside extended median lifespan by about **5%**.¹⁶

Given the average American life expectancy of 76 years, this is the equivalent of approximately **four additional years** of lifespan.¹⁷

Clinical Trials

The benefits of boosting **NAD⁺** observed in preclinical studies have intrigued scientists, leading them to investigate whether these benefits translate to humans by supplementation with precursors such as **nicotinamide riboside (NR)**.¹⁸

- In a trial of 30 participants with newly diagnosed **Parkinson's disease**, 30 days of supplementation with **1,000 mg** of nicotinamide riboside not only significantly increased brain levels of **NAD⁺** (measured via magnetic resonance imaging), but it was also associated with decreases in markers of **inflammation**, as well as *mild clinical improvement* in symptoms of Parkinson's disease.¹⁹
- In another trial of 30 clinically stable **heart failure** patients with reduced ejection fraction, a twice daily dose of **1,000 mg NR** doubled the levels of **NAD⁺** from baseline and reduced markers of systemic inflammation.²⁰

- A daily dose of **1,000 mg** nicotinamide riboside for 21 days in 12 elderly men elevated **NAD⁺** levels in the muscles of participants as compared to placebo. A reduction in levels of inflammatory cytokines was also observed in the intervention group.²¹
- In a recent trial of 90 patients with peripheral artery disease (PAD), a condition in which narrowed arteries reduced blood flow to the legs, which can cause severe walking disability, participants were randomized to receive daily for six months:
 - a. nicotinamide riboside (**1,000 mg**),
 - b. nicotinamide riboside + resveratrol (**1,000 mg + 125 mg**), or
 - c. a placebo.

After six months, supplementation with **NR** increased the six-minute walking distance by **7 meters** (22.9 feet) as compared to a decrease of **10.6 meters** (34.7 feet) in the **placebo** group. In patients with at least **75%** adherence to the program, subjects taking **NR** increased their walking distance by **31 meters** (101.7 feet) more than the placebo group, while those receiving **NR** plus **resveratrol** had an increase of **26.9 meters** (88.2 feet) compared to placebo.²²

Although the **NR-alone** group showed the greatest numerical improvement in the six-minute walk test, this was not statistically significantly more than the **NR + resveratrol** group. Poor adherence to taking study medication in the **NR + resveratrol** group likely contributed to the results. In the **NR-alone** group **75%** were compliant compared to **52%** in the **NR + resveratrol** group. Among participants with **≥75%** adherence, both groups had similarly meaningful endurance-enhancing benefits.

Summary

Life Extension has been reporting on anti-aging interventions since 1980. More recently, many of these nutrients are gaining popularity among celebrities and other high-profile individuals interested in longevity.

NAD⁺ is a coenzyme important for energy production, DNA repair, and preventing DNA damage. Boosting levels with the **NAD⁺** precursor, nicotinamide riboside, has shown promise to possibly delay some aspects of systemic aging.

A mouse study of **NAD⁺** supplementation resulted in a lifespan increase that would be the equivalent of four years if translated to humans.

For those interested in boosting their **NAD⁺** levels, one of the most well-documented ways to accomplish this is through oral supplementation with the precursor, nicotinamide riboside, which has been tied to increased lifespan in preclinical studies.

The typical dose for health maintenance is **300 mg** of NR daily. •

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

References

- Poljsak B, Kovac V, Spalj S, et al. The Central Role of the NAD⁺ Molecule in the Development of Aging and the Prevention of Chronic Age-Related Diseases: Strategies for NAD⁺ Modulation. *Int J Mol Sci*. 2023 Feb 3;24(3).
- Available at: <https://www.dailymail.co.uk/health/article-13710259/Joe-Rogan-Kardashian-anti-aging-drug.html>. Accessed December 2, 2024.
- Amjad S, Nisar S, Bhat AA, et al. Role of NAD(+) in regulating cellular and metabolic signaling pathways. *Mol Metab*. 2021 Jul;49:101195.
- Covarrubias AJ, Perrone R, Grozio A, et al. NAD(+) metabolism and its roles in cellular processes during ageing. *Nat Rev Mol Cell Biol*. 2021 Feb;22(2):119-41.
- Chini CCS, Cordeiro HS, Tran NLK, et al. NAD metabolism: Role in senescence regulation and aging. *Aging Cell*. 2024 Jan;23(1):e13920.
- Imai S, Guarente L. NAD⁺ and sirtuins in aging and disease. *Trends Cell Biol*. 2014 Aug;24(8):464-71.
- Johnson S, Imai SI. NAD (+) biosynthesis, aging, and disease. *F1000Res*. 2018;7:132.
- Camacho-Pereira J, Tarrago MG, Chini CCS, et al. CD38 Dictates Age-Related NAD Decline and Mitochondrial Dysfunction through an SIRT3-Dependent Mechanism. *Cell Metab*. 2016 Jun 14;23(6):1127-39.
- Loreto A, Antoniou C, Merlini E, et al. NMN: The NAD precursor at the intersection between axon degeneration and anti-ageing therapies. *Neurosci Res*. 2023 Dec;197:18-24.
- Alghamdi M, Braid N. Supplementation with NAD⁺ Precursors for Treating Alzheimer's Disease: A Metabolic Approach. *J Alzheimers Dis*. 2024;101(s1):S467-s77.
- Sharma C, Donu D, Cen Y. Emerging Role of Nicotinamide Riboside in Health and Diseases. *Nutrients*. 2022 Sep 20;14(19).
- Airhart SE, Shireman LM, Risler LJ, et al. An open-label, non-randomized study of the pharmacokinetics of the nutritional supplement nicotinamide riboside (NR) and its effects on blood NAD⁺ levels in healthy volunteers. *PLoS One*. 2017;12(12):e0186459.
- Mehmel M, Jovanovic N, Spitz U. Nicotinamide Riboside-The Current State of Research and Therapeutic Uses. *Nutrients*. 2020 May 31;12(6).
- Belenky P, Racette FG, Bogan KL, et al. Nicotinamide riboside promotes Sir2 silencing and extends lifespan via Nrk and Uhr1/Pnp1/Meu1 pathways to NAD⁺. *Cell*. 2007 May 4;129(3):473-84.
- Fang EF, Scheibye-Knudsen M, Brace LE, et al. Defective mitophagy in XPA via PARP-1 hyperactivation and NAD(+)/SIRT1 reduction. *Cell*. 2014 May 8;157(4):882-96.
- Zhang H, Ryu D, Wu Y, et al. NAD(+) repletion improves mitochondrial and stem cell function and enhances life span in mice. *Science*. 2016 Jun 17;352(6292):1436-43.
- Available at: <https://www.cdc.gov/nchs/fastats/life-expectancy.htm>. Accessed February 10, 2025.
- Freeberg KA, Udovich CC, Martens CR, et al. Dietary Supplementation With NAD⁺-Boosting Compounds in Humans: Current Knowledge and Future Directions. *J Gerontol A Biol Sci Med Sci*. 2023 Dec 1;78(12):2435-48.
- Brakedal B, Dolle C, Riemer F, et al. The NADPARK study: A randomized phase I trial of nicotinamide riboside supplementation in Parkinson's disease. *Cell Metab*. 2022 Mar 1;34(3):396-407 e6.
- Wang DD, Airhart SE, Zhou B, et al. Safety and Tolerability of Nicotinamide Riboside in Heart Failure With Reduced Ejection Fraction. *JACC Basic Transl Sci*. 2022 Dec;7(12):1183-96.
- Elhassan YS, Kluckova K, Fletcher RS, et al. Nicotinamide Riboside Augments the Aged Human Skeletal Muscle NAD(+) Metabolome and Induces Transcriptomic and Anti-inflammatory Signatures. *Cell Rep*. 2019 Aug 13;28(7):1717-28.e6.
- McDermott MM, Martens CR, Domanchuk KJ, et al. Publisher Correction: Nicotinamide riboside for peripheral artery disease: the NICE randomized clinical trial. *Nat Commun*. 2024 Aug 12;15(1):6890.

A large magnifying glass with a black handle and a silver rim is positioned over a test tube filled with red liquid. The lens of the magnifying glass is focused on the text, which is superimposed over the red liquid. The background is white with scattered red blood cells. The text is in a clean, sans-serif font, with 'Preventive' in white, 'BLOOD TESTING' in bold white, and 'Gaining Widespread Acceptance' in white.

Preventive **BLOOD TESTING** Gaining Widespread Acceptance

BY RYAN JOHNSON



In February 2025, a systematic literature review found that **32%-66%** of Americans were undergoing at least the basic recommended preventive blood tests each year.¹

While the authors of this published report say this is still “suboptimal,” it represents a significant improvement over prior decades when relatively few people underwent blood screenings.¹

When doctors check blood levels of lipids, inflammatory markers, and kidney function, they’re looking for *early* warning signs of health issues that can be detected and corrected before irreversible damage manifests.

Life Extension long ago advocated for comprehensive annual blood testing to screen for a wide range of disease risk factors.

This article describes the most popular **blood test** panels utilized by our readers.



The Value of Blood Panels

Long before someone shows symptoms of a disease, **blood tests** can identify risk factors for its development, alerting patients and doctors to potential problems.

The most popular tests our readers have each year are the **Male** and **Female Blood Test Panels**. These panels screen for the most common conditions and identify risks for a wide range of diseases.

If abnormalities are found, doctors can initiate an appropriate response. Many concerns can be effectively managed with **dietary** and **lifestyle** changes or **medications**.

What To Test For

The **Male** and **Female Blood Test Panels** have been created to obtain maximum biomedical value at a consumer-friendly affordable cost.



All of the tests you see on this and the next three pages are included in the **Male** and **Female** Panels:

CHEMISTRY WITH LIPIDS

The **chemistry panel** is a group of tests that assess common **minerals**, as well as markers of **liver** and **kidney** function.

It includes a comprehensive **lipid panel** that measures different atherogenic factors, including total **cholesterol**, **LDL**, **HDL**, **triglycerides** and **apolipoprotein B**. The results can be used to estimate coronary heart disease risk and take steps to correct the risk factors detected.

For instance, elevated **apolipoprotein B** signals an increased risk of cardiovascular disease,²⁻⁴ while **liver**⁴ and **kidney function**³ tests can help reveal diseases that are reversible if caught in time.

COMPLETE BLOOD COUNT

The **complete blood count (CBC)** quantifies various immune cell subsets, red blood cells, anemia markers, and platelets.⁵

Abnormalities may indicate infectious disease, immune function disorders, blood disorders, clotting abnormalities, and nutritional deficiencies.⁵

FERRITIN

Iron is vital for transporting oxygen in the blood. Inadequate iron results in iron deficiency **anemia**.

Testing for **ferritin**, an iron-binding protein involved in storing iron in cells, measures the body's stored iron levels.⁶

FREE AND TOTAL TESTOSTERONE

In men, the hormone **testosterone** maintains reproductive function and supports healthy bone and muscle mass, libido, mood, and more. Levels decline with age, contributing to loss of libido, erectile dysfunction, depression, and frailty.⁷

Testosterone also plays an important role in endocrine function in women. Low testosterone can contribute to low libido, vaginal dryness, and other symptoms.⁷

It is best to measure both the **total testosterone** and **free testosterone** for a complete assessment.

DHEA-S

The hormone **dehydroepiandrosterone sulfate (DHEA-S)** is a precursor to sex hormones (estrogen, testosterone, DHT) and is an important aspect of

optimal hormone levels. It supports energy, immune function, healthy bone, and muscle mass while supporting stress response.^{8,9} It is the most abundant circulating steroid hormone in the body, and as such should be evaluated periodically.¹⁰

Levels of DHEA-S typically drop with age.⁹ Maintaining youthful levels may have **multiple significant** anti-aging benefits.¹¹

ESTRADIOL

Estradiol (E2) is the primary form of the hormone **estrogen** in women. Its secretion by the ovaries helps regulate reproductive function. Adequate estrogen helps maintain reproductive, bone, and vaginal health, along with skin elasticity, and more.¹²

Men also produce estrogen.¹³⁻¹⁵ Low levels can increase risk for osteoporosis and fractures and high levels can cause estrogenic effects in the male body.^{14,15}

It is important to maintain estrogen in a balanced state. For both genders, it should not be too high or too low, and it should be viewed in context with other hormones like testosterone, progesterone, and DHEA-S.

HOMOCYSTEINE

If the level of the amino acid **homocysteine** rises too high, it can significantly increase the risk of coronary artery disease.¹⁶ It is considered as an independent risk factor for coronary, cerebral and peripheral atherosclerosis. Some people have a genetic predisposition to have higher **homocysteine** levels and can take easy steps to lower it.¹⁷

C-REACTIVE PROTEIN

The **high-sensitivity C-reactive protein (hs-CRP)** test can measure the level of systemic inflammation. Persistently elevated CRP indicates chronic inflammation.¹⁸

By identifying inflammation early, patients and their doctors can make changes to counter it and reduce its damage.

When **CRP** is elevated, it indicates a higher risk of **heart** disease, **stroke**, **cancer** and **dementia**.¹⁹

THYROID-STIMULATING HORMONE

Low or high levels of thyroid hormones can lead to significant problems.

Hypothyroidism (low levels) can cause fatigue, weight gain, hair thinning, dry skin, and depression.²⁰

Hyperthyroidism (high levels) may cause hand tremors, rapid and irregular heartbeat, and weight loss.²¹



What You
Need
To Know

The Pluses of Blood Test Panels

- **Annual blood testing** can screen for specific diseases and identify risk factors for future illnesses.
- **Blood test panels**, specialized for males and females, help screen for a wide range of common threats to health.
- By identifying potential problems early, you and your doctor can initiate management to help prevent disease and minimize the impact of age-related conditions.

Testing **thyroid-stimulating hormone** is an important indicator of high or low thyroid hormone levels, which can typically be corrected with medication or thyroid-supportive herbs and nutrients.

VITAMIN D

Low **vitamin D** has been tied to increased risk for cognitive decline, cardiovascular disease, metabolic disease, cancer, and osteoporosis.^{22,23}

It is virtually impossible to achieve **optimal** vitamin D (**25-hydroxyvitamin D**) status without testing one's blood for it. For some people, just **2,000-3,000 IU** a day of vitamin D is needed, whereas others require **5,000-8,000 IU** of supplemental vitamin D daily.



We at **Life Extension** see vitamin D values that are too high and too low. When it is too low, often adding a few thousand IUs a day (with a heavy meal) usually enables optimal 25-hydroxyvitamin D to be achieved.

When **25-hydroxyvitamin D** levels are too high, such as over **100 ng/mL**, we alert the customer and advise them to cut back on vitamin D supplements until lower levels are confirmed on a follow-up vitamin D test.

Low levels are common in the general population and can be **increased** through oral intake of vitamin D.

HEMOGLOBIN A1C

Metabolic diseases, including metabolic syndrome and **type II diabetes**, are a major driver of accelerated age-related decline in health and can lead to other serious health problems.²⁴

A key component of metabolic disease is **elevated blood glucose**, which causes damage to tissues when the glucose binds to proteins in the body in a process called glycation.²⁵

Glucose levels may rise and fall throughout the day and fluctuate with food intake, making it difficult to see an overall effect from a single glucose test result. **Hemoglobin A1c (A1c)** overcomes this problem since it is a marker of long-term glucose control over the last two to three months.²⁶

Higher A1C levels indicate that glucose is persistently elevated in the blood and may indicate a need for dietary and lifestyle changes, medications, and nutrients.²⁵

INSULIN

Testing **insulin** also provides critical information about metabolic health.

When cells are sensitive to insulin, glucose and fasting insulin levels stay lower. With **insulin resistance**, insulin levels rise, which can lead to **type II diabetes**.

High insulin is one of the best and earliest signals of insulin resistance.²⁷ High insulin means the body is trying too hard to overcome **insulin resistance** in its *early* stages by secreting excessive amounts of insulin in an attempt to get more glucose into the cells.²⁸

A common oversight in medical practice today is testing for **glucose** and **A1c** but omitting **fasting insulin**.

Those in early diabetic stages with elevated **fasting insulin** may have normal levels of **glucose** and **A1c** because the insulin pushes down glucose and A1c, but only temporarily. As insulin resistance worsens, glucose and **A1C** will continue to increase until type II diabetes diagnosis manifests, which will torpedo healthy longevity.²⁹

APOLIPOPROTEIN B (ApoB)

Apolipoprotein B plays a role in allowing **LDL particles** to penetrate the arterial wall and trigger changes that lead to formation and progression of occlusive plaque, i.e., **atherosclerosis**.

Higher levels are tied to the development of **atherosclerosis**, which can lead to cardiovascular disease, that can result in heart attack and stroke.³⁰

The higher your ApoB, the higher your cardiovascular risk. There are several ways to reduce elevated ApoB that we discuss with customers who inquire.

MAGNESIUM

Hundreds of enzymatic reactions throughout the body require the mineral **magnesium** to function.³¹

Many people do not get enough in their diet. Low levels have been tied to cardiovascular disease, osteoporosis, cognitive dysfunction, and other problems.³¹ If blood levels are too low, the body may compensate for this by pulling magnesium out of other tissues to try to get levels in a better range. If it is pulled from the bone, this can weaken it; if pulled from other tissues, this can have negative effects on metabolism.³²

Mg



CORTISOL

Cortisol is a **new addition** to the **Male and Female Blood Test Panels** this year, highlighting its increasing relevance in comprehensive health assessments. It is a vital hormone for optimal functioning in life and is especially important in times of stress, both physical and emotional. Without it, the effects of stress would overwhelm the body and mind.^{33,34}

Studies show that elevated cortisol levels significantly increase mortality risk, with men facing a **63%** higher risk, women an **82%** higher risk,³⁵ and with a five-fold increase in cardiovascular-related deaths in both genders.³⁶

Like most hormones, cortisol needs to be in the right balance. Chronic stress, disease, and aging can disrupt cortisol regulation, which may be associated with numerous negative health outcomes, such as weight gain, metabolic disorders,³³ and progression of neurodegenerative diseases like Alzheimer's disease.³⁴

Cortisol is also vital for immune response. However, if cortisol remains persistently elevated, it can cause immune dysfunction as well as an increased risk of chronic diseases.³⁷ Cortisol levels are highest in the morning to help start the day, then generally decline as the day goes on.³⁴

Why Separate Panels for Men and Women?

Some tests are mostly relevant for one gender, which is why there are separate **Male** and **Female Blood Test Panels**.

The sex hormone **progesterone** can be heavily involved in women's health, while PSA screening applies to men as described in the following two paragraphs:

PROGESTERONE

The female panel tests levels of **progesterone**. This sex hormone is essential to female health, particularly the reproductive system.³⁸ The decline in progesterone levels during menopause can affect sleep. Progesterone also plays a role in improving sleep quality and mood symptoms, such as anxiety and depression.³⁹

PROSTATE SPECIFIC ANTIGEN

The male panel includes **prostate specific antigen (PSA)** testing. Elevated levels of this protein may indicate **benign prostatic hypertrophy** (enlarged prostate), prostatitis or **prostate cancer**.⁴⁰

Summary

Regular **blood testing** measures risk factors for common diseases, allowing problems to be identified early so steps can be taken to correct them. Blood testing can reveal issues long before they develop into serious diseases.

Annual **Male and Female Blood Test Panels** are an effective way to stay on top of your health, helping to flag concerns before they lead to illness. ■

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

References

1. Le QA, Kiener T, Johnson HA, et al. Adherence to recommended blood-based screening tests for cancer and chronic diseases: A systematic literature review. *Prev Med*. 2025 Feb;191:108213.
2. German CA, Shapiro MD. Assessing Atherosclerotic Cardiovascular Disease Risk with Advanced Lipid Testing: State of the Science. *Eur Cardiol*. 2020 Feb;15:e56.
3. Narva AS, Bilous RW. Laboratory Assessment of Diabetic Kidney Disease. *Diabetes Spectr*. 2015 Aug;28(3):162-6.
4. Lala V ZM, Minter DA. Liver Function Tests. *StatPearls [Internet]*. 2024.
5. Seo IH, Lee YJ. Usefulness of Complete Blood Count (CBC) to Assess Cardiovascular and Metabolic Diseases in Clinical Settings: A Comprehensive Literature Review. *Biomedicines*. 2022 Oct 25;10(11).
6. Daru J, Colman K, Stanworth SJ, et al. Serum ferritin as an indicator of iron status: what do we need to know? *Am J Clin Nutr*. 2017 Dec;106(Suppl 6):1634S-9S.
7. Rojas-Zambrano JG, Rojas-Zambrano AR, Rojas-Zambrano AF, et al. Benefits of Testosterone Hormone in the Human Body: A Systematic Review. *Cureus*. 2025 Feb;17(2):e78785.
8. Alemany M. The Roles of Androgens in Humans: Biology, Metabolic Regulation and Health. *Int J Mol Sci*. 2022 Oct 8;23(19).
9. Samaras N, Samaras D, Frangos E, et al. A review of age-related dehydroepiandrosterone decline and its association with well-known geriatric syndromes: is treatment beneficial? *Rejuvenation Res*. 2013 Aug;16(4):285-94.
10. Neunzig J, Bernhardt R. Dehydroepiandrosterone sulfate (DHEAS) stimulates the first step in the biosynthesis of steroid hormones. *PLoS One*. 2014;9(2):e89727.
11. Nawata H, Yanase T, Goto K, et al. Mechanism of action of anti-aging DHEA-S and the replacement of DHEA-S. *Mech Ageing Dev*. 2002 Apr 30;123(8):1101-6.
12. Hariri L RA. Estradiol. *StatPearls Publishing*. 2024.
13. Russell N, Grossmann M. MECHANISMS IN ENDOCRINOLOGY: Estradiol as a male hormone. *Eur J Endocrinol*. 2019 Jul;181(1):R23-R43.
14. Weber TJ. Battle of the sex steroids in the male skeleton: and the winner is. *J Clin Invest*. 2016 Mar 1;126(3):829-32.
15. Available at: <https://www.niams.nih.gov/health-topics/osteoporosis-men>. Accessed 08/23/2024.
16. Unadkat SV, Padhi BK, Bhongir AV, et al. Association between homocysteine and coronary artery disease-trend over time and across the regions: a systematic review and meta-analysis. *Egypt Heart J*. 2024 Feb 27;76(1):29.
17. Kumar A, Palfrey HA, Pathak R, et al. The metabolism and significance of homocysteine in nutrition and health. *Nutr Metab (Lond)*. 2017;14:78.
18. Available at: <https://www.hopkinsmedicine.org/health/treatment-tests-and-therapies/assessing-cardiovascular-risk-with-c-reactive-protein>. Accessed February 20, 2025.
19. Banait T, Wanjari A, Danade V, et al. Role of High-Sensitivity C-reactive Protein (Hs-CRP) in Non-communicable Diseases: A Review. *Cureus*. 2022 Oct;14(10):e30225.
20. Chaker L, Bianco AC, Jonklaas J, et al. Hypothyroidism. *Lancet*. 2017 Sep 23;390(10101):1550-62.
21. Schneider SA, Tschaidse L, Reisch N. Thyroid Disorders and Movement Disorders-A Systematic Review. *Mov Disord Clin Pract*. 2023 Mar;10(3):360-8.
22. Ruggiero C, Tafaro L, Cianferotti L, et al. Targeting the Hallmarks of Aging with Vitamin D: Starting to Decode the Myth. *Nutrients*. 2024 Mar 21;16(6).
23. Wang H, Chen W, Li D, et al. Vitamin D and Chronic Diseases. *Aging Dis*. 2017 May;8(3):346-53.
24. Zhang K, Ma Y, Luo Y, et al. Metabolic diseases and healthy aging: identifying environmental and behavioral risk factors and promoting public health. *Front Public Health*. 2023;11:1253506.
25. Rabbani N, Thornalley PJ. Protein glycation - biomarkers of metabolic dysfunction and early-stage decline in health in the era of precision medicine. *Redox Biol*. 2021 Jun;42:101920.
26. American Diabetes Association Professional Practice C. 6. Glycemic Goals and Hypoglycemia: Standards of Care in Diabetes-2025. *Diabetes Care*. 2025 Jan 1;48(Supplement_1):S128-S45.
27. Available at: <https://www.hopkinsmedicine.org/health/conditions-and-diseases/metabolic-syndrome>. Accessed February 20, 2025.
28. Available at: <https://www.cdc.gov/diabetes/about/insulin-resistance-type-2-diabetes.html>. Accessed February 20, 2025.
29. Available at: <https://www.uptodate.com/contents/clinical-presentation-diagnosis-and-initial-evaluation-of-diabetes-mellitus-in-adults>. Accessed February 25, 2025.
30. Behbodikhah J, Ahmed S, Elyasi A, et al. Apolipoprotein B and Cardiovascular Disease: Biomarker and Potential Therapeutic Target. *Metabolites*. 2021 Oct 8;11(10).
31. Barbagallo M, Veronese N, Dominguez LJ. Magnesium in Aging, Health and Diseases. *Nutrients*. 2021 Jan 30;13(2).
32. Castiglioni S, Cazzaniga A, Albisetti W, et al. Magnesium and osteoporosis: current state of knowledge and future research directions. *Nutrients*. 2013 Jul 31;5(8):3022-33.
33. Russell G, Lightman S. The human stress response. *Nat Rev Endocrinol*. 2019 Sep;15(9):525-34.
34. Knezevic E, Nenic K, Milanovic V, et al. The Role of Cortisol in Chronic Stress, Neurodegenerative Diseases, and Psychological Disorders. *Cells*. 2023 Nov 29;12(23).
35. Schoorlemmer RM, Peeters GM, van Schoor NM, et al. Relationships between cortisol level, mortality and chronic diseases in older persons. *Clin Endocrinol (Oxf)*. 2009 Dec;71(6):779-86.
36. Vogelzangs N, Beekman AT, Milaneschi Y, et al. Urinary cortisol and six-year risk of all-cause and cardiovascular mortality. *J Clin Endocrinol Metab*. 2010 Nov;95(11):4959-64.
37. Sic A, Cvetkovic K, Manchanda E, et al. Neurobiological Implications of Chronic Stress and Metabolic Dysregulation in Inflammatory Bowel Diseases. *Diseases*. 2024;12(9):220.
38. Sundstrom-Poromaa I, Comasco E, Sumner R, et al. Progesterone - Friend or foe? *Front Neuroendocrinol*. 2020 Oct;59:100856.
39. Maki PM, Panay N, Simon JA. Sleep disturbance associated with the menopause. *Menopause*. 2024 Aug 1;31(8):724-33.
40. David MK LS. Prostate Specific Antigen. *StatPearls [Internet]*. 2022.

Regular
blood tests
identify
problems
early.



Comprehensive Blood Tests at Low Lab Sale Prices

MALE PANEL

ORGAN FUNCTION

Kidney: creatinine,
BUN, uric acid, BUN/creatinine ratio

Liver: AST, ALT, LDH,
GGT, bilirubin, alkaline phosphatase
Blood proteins: albumin, globulin,
total protein

VITAMIN D

(25-hydroxyvitamin D)

CARDIAC MARKERS

C-Reactive Protein (high sensitivity)
Apolipoprotein B (ApoB)
Homocysteine
Total Cholesterol
LDL (low-density lipoprotein)
HDL (high-density lipoprotein)
Triglycerides

GLUCOSE PROFILE

Insulin
Hemoglobin A1c
Glucose

HORMONES

Free and Total Testosterone
DHEA-S
Estradiol (an estrogen)
TSH (thyroid function)
Cortisol

NEW

MINERALS

Magnesium (serum)
Ferritin (measure of iron status)
Calcium
Potassium
Phosphorus
Sodium
Iron
Chloride

COMPLETE BLOOD COUNT (CBC)

Immune Cells including:
lymphocytes, monocytes, eosinophils,
neutrophils, basophils
Red Blood Cells including:
hemoglobin, hematocrit, MCV, MCH, MCHC, RDW
Platelets

CANCER MARKER

PSA (Prostate Specific Antigen)

FEMALE PANEL

ORGAN FUNCTION

Kidney: creatinine,
BUN, uric acid, BUN/creatinine ratio

Liver: AST, ALT, LDH,
GGT, bilirubin, alkaline phosphatase
Blood proteins: albumin, globulin,
total protein

VITAMIN D

(25-hydroxyvitamin D)

CARDIAC MARKERS

C-Reactive Protein (high sensitivity)
Apolipoprotein B (ApoB)
Homocysteine
Total Cholesterol
LDL (low-density lipoprotein)
HDL (high-density lipoprotein)
Triglycerides

GLUCOSE PROFILE

Insulin
Hemoglobin A1c
Glucose

HORMONES

Progesterone
Free and Total Testosterone
DHEA-S
Estradiol (an estrogen)
TSH (thyroid function)
Cortisol

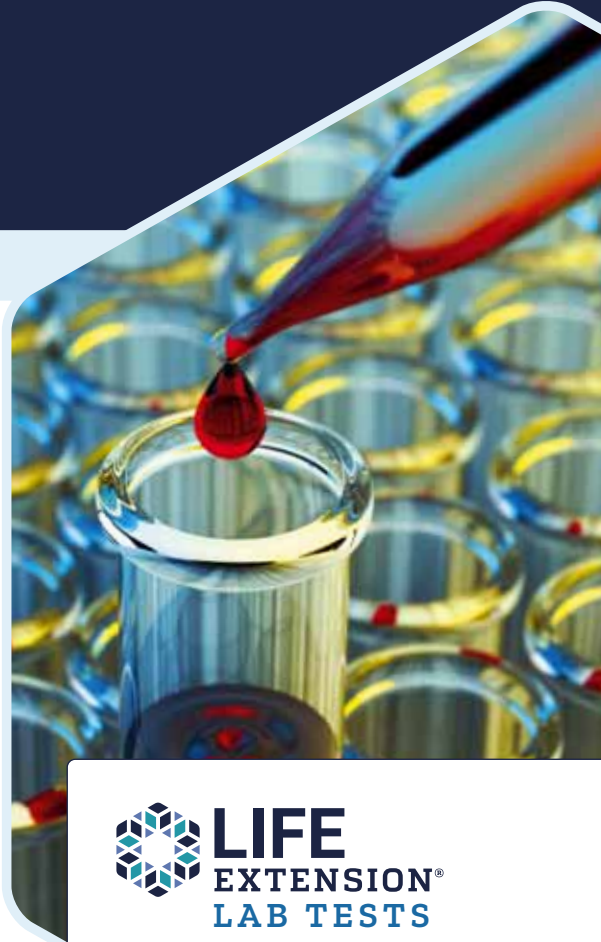
NEW

MINERALS

Magnesium (serum)
Ferritin (measure of iron status)
Calcium
Potassium
Phosphorus
Sodium
Iron
Chloride

COMPLETE BLOOD COUNT (CBC)

Immune Cells including:
lymphocytes, monocytes, eosinophils,
neutrophils, basophils
Red Blood Cells including:
hemoglobin, hematocrit, MCV, MCH,
MCHC, RDW
Platelets



Commercial labs charge around **\$2,800** for blood tests needed to evaluate cardiac, inflammatory, immune, and other degenerative risk factors.

Life Extension offers these same tests for **\$243** when the **Male** or **Female Panel** is ordered during the annual Lab Test Sale.

This represents a savings of about **90%** compared to commercial labs.

Regular Price: \$325
Sale Price: \$243

LAB TEST SALE
ENDS JULY 7, 2025

To obtain these extensive **Male** or **Female Panels** at these low prices, call **1-800-208-3444** or visit www.LifeExtension.com/sales/lab-tests to order your requisition forms.

After you order and receive our form, you can visit a blood-draw facility we suggest at your convenience in your area or the **Life Extension Health & Wellness Market** in Ft. Lauderdale.

Lab tests are available in the continental United States and Anchorage, AK, only. Not available in Maryland.

Restrictions apply in MA, NY, NJ, and RI. Kits not available in PA. The Lab Test Sale expires on July 7, 2025.

Menopause *Relief*

**For Hot Flashes and 10 Other
Menopause Discomforts**

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

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

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

**ESTROGEN
FREE**

GLUTEN
FREE

1
DAILY

NON
GMO
LE CERTIFIED

VEGETARIAN
LE CERTIFIED



Item #02204

30 enteric-coated
vegetarian tablets

1 bottle **\$18.75**

4 bottles \$16.75 each

Broccoli

BY LAURIE MATHENA



Broccoli consumption has **tripled** over the past 30 years worldwide.¹

This surge in popularity is likely due to research uncovering the many health-promoting benefits of this cruciferous vegetable.

Broccoli contains compounds unique to cruciferous vegetables called **glucosinolates**. During chewing and digestion, these are broken down into active compounds like **sulforaphane**, which has been extensively studied for its anti-cancer properties.²

Higher intake of cruciferous vegetables like **broccoli** has been associated with lower incidence of stomach,³ breast,^{2,4} and colorectal cancers.^{2,5}

One hospital-based observational study found that people who consumed more than one serving of cruciferous vegetables like broccoli, particularly in raw form, had **40% lower odds of pancreatic cancer**, compared to those who ate less than half a serving per week. Each additional serving per week was associated with additional **7%-15%** lower odds of getting pancreatic cancer.⁶

Consuming broccoli could also help slow the progression of prostate cancer.

In a randomized, double-blind study involving men on active surveillance for prostate cancer, participants were given **300 mL** of broccoli soup per week for 12 weeks. They were randomized into three groups: one received soup alone, while the other two consumed broccoli soup with three and seven times the glucoraphanin content of the control, respectively. Researchers found that consuming broccoli soup affected gene expression in a way that could help reduce the risk of cancer progression. The results were **more promising** in men who consumed broccoli soup with three and seven times the glucoraphanin content of the control in a dose-dependent manner.⁷

Broccoli can be enjoyed raw, roasted, stir-fried, boiled, or steamed. However, one study showed that all cooking—*except for steaming*—led to significant decreases in many of broccoli's key health-promoting compounds, including chlorophyll, soluble protein, and glucosinolates.⁸

In one **in vitro** study, steaming broccoli was shown to improve its bile acid-binding ability compared to the raw vegetable. This has the potential to help lower the risk of heart disease and cancer, but more research in humans is needed.⁹

References

1. Das P. Yours Truly Broccoli. *Science and Culture*. 2021;87:109-14.
2. Syed RU, Moni SS, Break MKB, et al. Broccoli: A Multi-Faceted Vegetable for Health: An In-Depth Review of Its Nutritional Attributes, Antimicrobial Abilities, and Anti-inflammatory Properties. *Antibiotics (Basel)*. 2023 Jul 7;12(7).
3. Morrison MEW, Joseph JM, McCann SE, et al. Cruciferous Vegetable Consumption and Stomach Cancer: A Case-Control Study. *Nutr Cancer*. 2020;72(1):52-61.
4. Zhang NQ, Ho SC, Mo XF, et al. Glucosinolate and isothiocyanate intakes are inversely associated with breast cancer risk: a case-control study in China. *Br J Nutr*. 2018 Apr;119(8):957-64.
5. Borgas P, Gonzalez G, Veselkov K, et al. Phytochemically rich dietary components and the risk of colorectal cancer: A systematic review and meta-analysis of observational studies. *World J Clin Oncol*. 2021 Jun 24;12(6):482-99.
6. Morrison MEW, Hobika EG, Joseph JM, et al. Cruciferous vegetable consumption and pancreatic cancer: A case-control study. *Cancer Epidemiol*. 2021 Jun;72:101924.
7. Traka MH, Melchini A, Coode-Bate J, et al. Transcriptional changes in prostate of men on active surveillance after a 12-mo glucoraphanin-rich broccoli intervention—results from the Effect of Sulforaphane on prostate CAncer PrEvention (ESCAPE) randomized controlled trial. *Am J Clin Nutr*. 2019 Apr 1;109(4):1133-44.
8. Yuan GF, Sun B, Yuan J, et al. Effects of different cooking methods on health-promoting compounds of broccoli. *J Zhejiang Univ Sci B*. 2009 Aug;10(8):580-8.
9. Kahlon TS, Chiu MC, Chapman MH. Steam cooking significantly improves in vitro bile acid binding of collard greens, kale, mustard greens, broccoli, green bell pepper, and cabbage. *Nutr Res*. 2008 Jun;28(6):351-7.



Over 250 Labs to choose from.
Find Out if You're at Risk for Heart Disease,
Cancer, Alzheimer's, Diabetes & More.



1-2-3 EASY How it works:

ORDER

Call 1- 800-208-3444 or visit
www.LifeExtension.com/sales/lab-tests

DRAW

For your blood draw, bring the requisition we send you to your nearest LabCorp location. Nearest locations are included with your requisition papers.

At-Home tests (denoted by *) are collected in the convenience of your home.

REVIEW

Go over results **for free** with our Wellness Specialists by calling 1-800-226-2370. You may wish to review them with your doctor as well.

IT'S THAT SIMPLE! DON'T DELAY! CALL TODAY!

For Our Local Customers:

For those residing in the Ft. Lauderdale, Florida, area, blood-draws are also performed at the **Life Extension Health and Wellness Market** from 9 a.m. to 2 p.m. Monday through Saturday. Simply purchase the blood test and have it drawn with no wait! Our address is:

**900 NORTH FEDERAL HIGHWAY
FT. LAUDERDALE, FL, 33304**

Terms and Conditions

This lab-test service is for informational purposes only and no specific medical advice will be provided. National Diagnostics, Inc., and **Life Extension** contract with a physician who will order your test(s), but will not diagnose or treat you. Both the physician and the testing laboratory are independent contractors and neither National Diagnostics, Inc., nor **Life Extension** will be liable for their acts or omissions. Always seek the advice of a trained health professional for medical advice, diagnosis, or treatment. When you purchase a blood test from Life Extension/National Diagnostics, Inc., you are doing so with the understanding that you are privately paying for these tests. There will be absolutely no billing to Medicare, Medicaid, or private insurance.

Annual Lab Test SALE Through July 7, 2025

Save
25%
on ALL
Lab Tests

REGULAR
PRICE SALE
PRICE

MALE AND FEMALE PANELS

- **MALE PANEL (LC322582)** **NEW** Now includes **Cortisol** ~~\$325~~ **\$243**
CBC/Chemistry/Lipids Panel • DHEA-S • PSA (prostate-specific antigen) • Homocysteine • C-Reactive Protein (high sensitivity) • ApoB • Free Testosterone • Total Testosterone • Estradiol • TSH for thyroid function • Vitamin D (25-hydroxyvitamin D) • Hemoglobin A1c • Insulin • Magnesium
- **FEMALE PANEL (LC322535)** **NEW** Now includes **Cortisol** ~~\$325~~ **\$243**
CBC/Chemistry/Lipids Panel • DHEA-S • Estradiol • Homocysteine • ApoB • C-Reactive Protein (high sensitivity) • Progesterone • Free Testosterone • Total Testosterone • TSH for thyroid function • Vitamin D (25-hydroxyvitamin D) • Hemoglobin A1c • Insulin • Magnesium

HEART HEALTH

- **CARDIO CORE ESSENTIALS (LC100086)** ~~\$89~~ **\$66.75**
Essential cardiovascular risk factors provide a low-cost analysis of your heart and vascular function. CBC • Chem/Metabolic Panel • Lipid/Cholesterol Profile • ApoB • C-Reactive Protein (high sensitivity)
- **NMR LIPOPROFILE® (LC123810)** ~~\$99~~ **\$74.25**
The NMR Lipoprofile® directly measures LDL particle size and number as well as HDL particle number, total cholesterol, and triglycerides. It also provides a calculation of one's risk of insulin resistance by assessing abnormalities in lipoprotein markers.
- **NMR LIPOPROFILE PLUS* (LC100049)** ~~\$269~~ **\$201.75**
In-depth analysis of cardiovascular risk markers including: NMR LipoProfile, C-Reactive Protein, **Myeloperoxidase**, and **Oxidized LDL**.
- **OXIDIZED LDL (LC123023)** ~~\$75~~ **\$56.25**
Oxidized low-density lipoprotein (LDL) cholesterol is one of the main causes of the formation of atherosclerotic plaque in the arterial wall. This blood test measures levels of oxidized LDL.
- **MYELOPEROXIDASE (MPO)* (LC123006)** ~~\$99~~ **\$74.25**
The myeloperoxidase (MPO) test measures levels of an enzyme that oxidizes low-density lipoprotein (LDL) cholesterol, which could lead to increased arterial plaque formation.
- **OMEGA-3 INDEX COMPLETE* (LC100066)** ~~\$99~~ **\$74.25**
Beneficial for everyone! People not taking omega-3/fish oil should check their baseline Omega-3 Index to see if it is in the desirable or concerning range. Those taking Omega-3/fish oil supplements should take the test to see if they need to adjust their dosage. You want to target a range of **8%-12%** for your Omega-3 Index score.

CONDITION-SPECIFIC TESTS

- **PERSONALIZED AMINO ACID HEALTH ASSESSMENT* (LC100090)** ~~\$299~~ **\$224.25**
An in-depth analysis of amino acid metabolism provides insight into various health concerns, such as maldigestion, GI dysbiosis, neurological issues and more, with a personalized report of diet and supplementation suggestions. Provided as an at-home urine collection kit.
- **ENVIRONMENTAL POLLUTANTS PROFILE*† (LC100089)** ~~\$149~~ **\$111.75**
Toxic pollutants affect our bodies in several different ways. This test helps assess possible exposure to several common environmental pollutants by measuring their urinary metabolites.

Know YOUR NUMBERS



NEW Now Includes *H. Pylori Stool Antigen*

	REGULAR PRICE	SALE PRICE
GI360™ *† STOOL ANALYSIS (LC100088) Best and most advanced assessment of microbiome dysbiosis, diversity and digestive health, the GI360™ provides the most information about gut and microbiome health. Contains all the tests included in the CPP and CSAP along with cutting-edge markers of microbiome diversity and dysbiosis.	\$539	\$404.25
TOXIC METALS PANEL (FECAL)*† (LC100076) The results of fecal elemental analysis can help you identify and eliminate dietary exposure to toxic metals, while also assessing the body's natural excretion of metals. The panel tests Antimony, Arsenic, Beryllium, Bismuth, Cadmium, Copper, Lead, Mercury, Nickel, Platinum, Thallium, Tungsten, and Uranium.	\$170	\$127.50
NEUROTRANSMITTER PANEL-COMP.*† (LC100085) Serotonin, Dopamine, Epinephrine, Norepinephrine, GABA, Glutamate, Glycine, Histamine, PEA, DOPAC, 3-MT, Normetanephrine, Metanephrine, 5-HIAA, Tryptamine, Tyrosine, Tyramine, Taurine. Alterations in neurotransmitters play a significant role in contributing to symptoms such as cognitive disorders, depression, anxiety, diminished drive, fatigue and sleep difficulties, craving, addictions, pain, and more.	\$295	\$221.25
OPTIMAL WELLNESS GENETIC INSIGHTS PROFILE* (LC100097) Analyzes genetics in 7 key areas of health (methylation, neurotransmitters, mitochondrial health, detoxification, inflammation, and more) and provides genetically targeted nutritional suggestions.	\$299	\$224.25
APOE GENETIC TEST FOR ALZHEIMER'S AND CARDIAC RISK* (LC100059) This simple at-home cheek swab reveals your ApoE genotype and association with risk of Alzheimer's and cardiovascular disease.	\$149	\$111.75
FOOD SENSITIVITY PANEL-ELITE*† (LC100096) This in-depth food sensitivity assessment measures both IgG and IgA response to 240 foods.	\$449	\$336.75
GUT BARRIER PANEL* (LC9000004) Measure immune response (IgG/C3d & IgA) to three key GI markers associated with intestinal permeability and leaky gut: Candida, Zonulin, and Occludin.	\$165	\$123.75

NEW TESTS

INFLAMMATION PANEL (LC900010) The Inflammation Panel combines the most important and clinically relevant markers of systemic inflammation for the best insight into the body's inflammatory response. CRP - GlycA - Galectin-3 - ANA	\$155	\$116.25
PERSONALIZED HAIR GROWTH GENETICS PROFILE* (LC900014) Determine an optimal and genetically personalized hair regrowth treatment protocol with this innovative test.	\$239	\$179.25
TOXIC & ESSENTIAL METALS PROFILE* (24-HOUR URINE) (LC900013) Deep dive into both the body's toxic metal burden and nutritional status. Measures 20 toxic and 18 nutritional elements.	\$169	\$126.75
TRUHEALTH EPIGENETIC HEALTH STATUS PROFILE* (LC900011) Epigenetics-based functional nutritional status and health risk assessment for 110+ markers.	\$499	\$374.25
H. PYLORI STOOL ANTIGEN TEST*† (LC900012) Check for presence of <i>H. Pylori</i> , a cause of many gastrointestinal concerns (also included in GI360).	\$165	\$123.75

WHOLE-BODY HEALTH

MALE ELITE PANEL* (LC100016) CBC/Chemistry/Lipids Panel • Free and Total Testosterone • Estradiol • Total Estrogens • DHEA-S • Progesterone • Pregnenolone • TSH • DHT • FSH • LH • Free T3 • Free T4 • Reverse T3 • IGF-1 • SHBG • Free and Total PSA • Vitamin D 25-OH • hs-CRP • Ferritin • TIBC • Homocysteine • Insulin • Hemoglobin A1c • Cortisol • ApoB • Magnesium	\$575	\$431.25
MALE BASIC HORMONE PANEL (LC100012) DHEA-S • Estradiol • Total and Free Testosterone • PSA	\$75	\$56.25
FEMALE ELITE PANEL (LC100017) CBC/Chemistry/Lipids Panel • Free and total Testosterone • Estradiol • Total Lipids • Estrone • DHEA-S • Progesterone • Pregnenolone • DHT • FSH • LH • TSH • Free T3 • Free T4 • Reverse T3 • IGF-1 • SHBG • Vitamin D 25-OH • hs-CRP • Ferritin • TIBC • Homocysteine • Insulin • Hemoglobin A1c • Cortisol • ApoB • Magnesium	\$575	\$431.25
FEMALE BASIC HORMONE PANEL (LC100013) DHEA-S • Estradiol • Total and Free Testosterone • Progesterone	\$75	\$56.25
WEIGHT LOSS PANEL-COMPREHENSIVE (LC100028) CBC/Chemistry/Lipids Panel • DHEA-S • Free and Total Testosterone • Estradiol • Progesterone • Cortisol • TSH • Free T3 • Free T4 • Reverse T3 • Insulin • Hemoglobin A1c • Vitamin D 25-hydroxy • Ferritin • C-reactive protein (high sensitivity)	\$275	\$206.25
HEALTHY AGING PANEL-COMPREHENSIVE (LC100026) CBC/Chemistry/Lipids Panel • C-reactive protein (high sensitivity) • Vitamin B12 • Folate • Homocysteine • Vitamin D 25-hydroxy • Hemoglobin A1c • TSH • Free T3 • Free T4 • Ferritin • Urinalysis • ApoB • Insulin	\$249	\$186.75
COMPLETE HORMONE & METABOLITES PROFILE (HUMAP)*† (LC900001) Comprehensive assessment of hormones and their metabolites. This urine test helps assess how your body metabolizes hormones, providing insight into endogenous hormone secretion, supplemental hormone utilization, enzyme activity, oxidative stress.	\$299	\$224.25

CBC/CHEMISTRY/LIPIDS PANEL

These **CBC/Chemistry/Lipids Panel** tests are included in the popular **Male and Female Panels**, and other panels on this page so you don't have to order them separately.

CARDIOVASCULAR RISK

Total Cholesterol • HDL Cholesterol • LDL Cholesterol Triglycerides
Cholesterol/HDL Ratio • Estimated CHD Risk • Glucose

LIVER FUNCTION

AST (SGOT) • ALT (SGPT) • LDH • Total Bilirubin • Alkaline phosphatase

KIDNEY FUNCTION

BUN • Creatinine • BUN/Creatinine Ratio • Uric Acid

BLOOD PROTEINS

Total Protein • Albumin • Globulin • Albumin/Globulin Ratio

BLOOD COUNTS

Red Blood Cell Count • White Blood Cell Count • Eosinophils
Neutrophils (Absolute) • Lymphs (Absolute) • Eos (Absolute)
Baso (Absolute) • RDW • Monocytes (Absolute) • Monocytes
Lymphocytes • Platelet Count • Hemoglobin • Hematocrit
MCV • MCH • MCHC • Neutrophils

BLOOD MINERALS

Calcium • Potassium • Sodium • Chloride • Iron

The sale price for the **CBC/Chemistry/Lipids Panel** alone is **\$26.25**.
(LC381822)

This is NOT a complete listing of LE lab test services.

Call **1-800-208-3444** for additional information.

Lab tests available in the continental United States and Anchorage, AK only.
Restrictions apply in NY, NJ, RI, and MA. Not available in MD. Kits not available in PA.

* This test is packaged as a kit.
† Not available in NY.

ACTIVE LIFESTYLE & FITNESS

01529	Creatine Capsules
02020	Super Carnosine
02532	Creatine & Acetyl-L-Carnitine Energy Plus
02023	Tart Cherry with CherryPURE®
02186	Wellness Bar - Chocolate Brownie
02518	Wellness Bar - Peanut Butter Chocolate Chip
02246C	Wellness Code® Advanced Whey Protein Isolate Vanilla
02221	Wellness Code® Muscle Strength & Restore Formula
02127	Wellness Code® Plant Protein Complete & Amino Acid Complex
02261C	Wellness Code® Whey Protein Concentrate Chocolate
02260	Wellness Code® Whey Protein Concentrate Vanilla
02243C	Wellness Code® Whey Protein Isolate Chocolate
02242	Wellness Code® Whey Protein Isolate Vanilla

AMINO ACIDS

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

BLOOD PRESSURE & VASCULAR SUPPORT

01824	Advanced Olive Leaf Vascular Support
02004	Arterial Protect
56885	Natto Activ Cardiovascular & Respiratory Support
02320	NitroVasc™ Boost
01953	Pomegranate Complete
00956	Pomegranate Fruit Extract
02024	Triple Action Blood Pressure AM/PM
02102	VenoFlow™

BONE HEALTH

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

BRAIN HEALTH

01524	Acetyl-L-Carnitine
01974	Acetyl-L-Carnitine Arginate
02419	B12 Elite
02510	Brain Fog Relief
01659	CDP Choline
02321	Cognitex® Alpha GPC
02396	Cognitex® Elite

02397	Cognitex® Elite Pregnenolone
01540	DMAE Bitartrate
02006	Dopa-Mind™
02413	Dopamine Advantage
01658	Ginkgo Biloba Certified Extract™
01527	Huperzine A
00020	Lecithin
02101	Memory Protect
00709	Migra-Eeze™
01603	Neuro-Mag® Magnesium L-Threonate Caps
02032	Neuro-Mag® Magnesium L-Threonate Powder
00888	Optimized Ashwagandha
01676	PS (Phosphatidylserine) Caps
02406	Quick Brain Nootropic™
01327	Vinpocetine

CHOLESTEROL MANAGEMENT

01828	Advanced Lipid Control
01910	CHOL-Support™
01304	Theaflavins Standardized Extract
00372	Vitamin B3 Niacin Capsules

DIGESTION SUPPORT

02412	Bloat Relief
02514	Easy Fiber
01736	Effervescent Vitamin C - Magnesium Crystals
02021	Enhanced Super Digestive Enzymes
02022	Enhanced Super Digestive Enzymes and Probiotics
02033	EsophaCool™
01737	Esophageal Guardian
01706	Extraordinary Enzymes
02533	Food Sensitivity Relief with Diamine Oxidase
02100	Gastro-Ease™

ENERGY MANAGEMENT

01628C	Adrenal Energy Formula • 60 veg capsules
01630C	Adrenal Energy Formula • 120 veg capsules
00972	D-Ribose Powder
01473	D-Ribose Tablets
01900	Energy Renew
01544	Forskolin
01805	Ginseng Energy Boost
01869	Mitochondrial Basics with PQQ
01868	Mitochondrial Energy Optimizer with PQQ
01904	NAD+ Cell Regenerator™ • 100 mg, 30 veg capsules
02344	NAD+ Cell Regenerator™ 300 mg, 30 veg capsules
02348	NAD+ Cell Regenerator™ and Resveratrol Elite™
01500	PQQ Caps • 10 mg, 30 vegetarian capsules
01647	PQQ Caps • 20 mg, 30 vegetarian capsules
00889	Rhodiola Extract
02003	Thyroid Support Complex

EYE HEALTH

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

FISH OIL & OMEGAS

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

FOOD

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

GLUCOSE MANAGEMENT

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

HEART HEALTH

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

HORMONE BALANCE

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

IMMUNE SUPPORT

02302	Bio-Quercetin®
02410	Black Elderberry + Vitamin C
02433	Echinacea Elite
01961	Enhanced Zinc Lozenges
02425	Immune Packs with Vitamin C & D, Zinc and Probiotic
02005	Immune Senescence Protection Formula™
01681	Lactoferrin (Apolactoferrin) Caps
02426	Mushroom Immune with Beta Glucans
01903	NK Cell Activator™
01394	Optimized Garlic
01309	Optimized Quercetin
01811	Peony Immune
01708	Reishi Extract Mushroom Complex
01906	Standardized Cistanche
01561	Zinc Lozenges

INFLAMMATION HEALTH SUPPORT

01639	5-LOX Inhibitor with AprèsFlex®
02324	Advanced Curcumin Elite™ Turmeric Extract, Ginger & Turmerones
01709	Black Cumin Seed Oil
02310	Black Cumin Seed Oil and Curcumin Elite™
02467	Curcumin Elite™ Turmeric Extract 30 veg capsules
02407	Curcumin Elite™ Turmeric Extract 60 veg capsules
01804	Cytokine Suppress® with EGCG
02223	Pro-Resolving Mediators
56886	Restore Activ Joint Muscle & Tissue
01203	Specially-Coated Bromelain
00407	Super Bio-Curcumin® Turmeric Extract

JOINT SUPPORT

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

KIDNEY & BLADDER SUPPORT

- 00862 Cran-Max® Cranberry Whole Fruit Concentrate
- 01424 Optimized Cran-Max®
- 01921 Uric Acid Control
- 01209 Water-Soluble Pumpkin Seed Extract

LIVER HEALTH & DETOXIFICATION

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

LONGEVITY & WELLNESS

- 00457 Alpha-Lipoic Acid
- 01625 AppleWise
- 02414 Bio-Fisetin®
- 01214 Blueberry Extract
- 01438 Blueberry Extract and Pomegranate
- 02270 DNA Protection Formula
- 02431 Essential Youth - L-Ergothioneine
- 02119 GEROPROTECT® Ageless Cell™
- 02415 GEROPROTECT® Autophagy Renew
- 02401 GEROPROTECT® Stem Cell
- 02211 Grapeseed Extract
- 02527 Healthy Aging Powder
- 00954 Mega Green Tea Extract (decaffeinated)
- 00953 Mega Green Tea Extract (lightly caffeinated)
- 01513 Optimized Fucoidan with Maritech® 926
- 02230 Optimized Resveratrol Elite™
- 01637 Pycnogenol® French Maritime Pine Bark Extract
- 02210 Resveratrol Elite™
- 02301 Senolytic Activator®
- 01208 Super R-Lipoic Acid
- 01919 X-R Shield

LUNG HEALTH

- 02512 Healthy Lungs

MEN'S HEALTH

- 02538 Hair Growth for Men
- 02209 Male Vascular Sexual Support
- 00455 Mega Lycopene Extract
- 02306 Men's Bladder Support
- 02515 Men's Vitality Packs
- 01789 PalmettoGuard® Saw Palmetto and Beta-Sitosterol
- 01790 PalmettoGuard® Saw Palmetto/Nettle Root Formula and Beta-Sitosterol
- 01373 Prelox® Enhanced Sex for Men
- 01940 Super MiraForte with Standardized Lignans
- 02500 Testosterone Elite
- 01909 Triple Strength ProstaPollen™

- 02029 Ultra Prostate Formula

MINERALS

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

MISCELLANEOUS

- 00577 Potassium Iodide

MOOD & STRESS MANAGEMENT

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

MULTIVITAMINS

- 02199 Children's Formula Life Extension Mix™
- 02354 Life Extension Mix™ Capsules
- 02364 Life Extension Mix™ Capsules without Copper
- 02356 Life Extension Mix™ Powder
- 02355 Life Extension Mix™ Tablets
- 02357 Life Extension Mix™ Tablets with Extra Niacin
- 02365 Life Extension Mix™ Tablets without Copper
- 02292 Once-Daily Health Booster • 30 softgels
- 02291 Once-Daily Health Booster • 60 softgels
- 02313 One-Per-Day Tablets
- 02317 Two-Per-Day Capsules • 60 capsules
- 02314 Two-Per-Day Capsules • 120 capsules
- 02316 Two-Per-Day Tablets • 60 tablets
- 02315 Two-Per-Day Tablets • 120 tablets
- 02428 Whole Food Multivitamin

NERVE & COMFORT SUPPORT

- 02202 ComfortMAX™
- 02303 Discomfort Relief

PERSONAL CARE

- 02322 Hair, Skin & Nails Collagen Plus Formula
- 01278 Life Extension Toothpaste
- 00408 Venotone
- 02252 Youthful Legs

PET CARE

- 01932 Cat Mix
- 01931 Dog Mix

PROBIOTICS

- 01622 Bifido GI Balance
- 01825 FLORASSIST® Balance
- 02421 FLORASSIST® Daily Bowel Regularity
- 02125 FLORASSIST® GI with Phage Technology
- 01821 FLORASSIST® Heart Health
- 02250 FLORASSIST® Mood Improve
- 02208 FLORASSIST® Immune & Nasal Defense
- 02120 FLORASSIST® Oral Hygiene
- 02203 FLORASSIST® Prebiotic
- 02505 FLORASSIST® Probiotic Women's Health

SKIN CARE

- 02423 Daily Skin Defense
- 01938 Shade Factor™
- 02129 Skin Care Collection Anti-Aging Serum
- 02130 Skin Care Collection Day Cream
- 02131 Skin Care Collection Night Cream
- 02096 Skin Restoring Ceramides
- 02528 Vegan Pro Collagen

SLEEP

- 01512 Bioactive Milk Peptides
- 02300 Circadian Sleep
- 01511 Enhanced Sleep without Melatonin
- 02234 Fast-Acting Liquid Melatonin
- 01669 Glycine
- 02308 Herbal Sleep PM
- 01722 L-Tryptophan
- 01668 Melatonin • 300 mcg, 100 veg capsules
- 01083 Melatonin • 500 mcg, 200 veg capsules
- 00329 Melatonin • 1 mg, 60 capsules
- 00330 Melatonin • 3 mg, 60 veg capsules
- 00331 Melatonin • 10 mg, 60 veg capsules
- 00332 Melatonin • 3 mg, 60 veg lozenges
- 02201 Melatonin IR/XR
- 01787 Melatonin 6 Hour Timed Release
300 mcg, 100 veg tablets
- 01788 Melatonin 6 Hour Timed Release
750 mcg, 60 veg tablets
- 01786 Melatonin 6 Hour Timed Release
3 mg, 60 veg tabs
- 01721 Optimized Tryptophan Plus
- 01445 Quiet Sleep Melatonin • 5 mg, 60 veg capsules
- 02502 Rest & Renew
- 02526 Serene Sleep

VITAMINS

- 01533 Ascorbyl Palmitate
- 00920 Benfotiamine with Thiamine
- 01945 BioActive Complete B-Complex
- 00102 Biotin
- 00084 Buffered Vitamin C Powder
- 02229 Fast-C® and Bio-Quercetin®
- 02075 Gamma E Mixed Tocopherol Enhanced with

Sesame Lignans

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

WEIGHT MANAGEMENT & BODY COMPOSITION

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

WOMEN'S HEALTH

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

Aging can Wait

Support for a Healthy Lifespan



In recent years, three nutrients have emerged as having healthy **lifespan-enhancing** potential:

Taurine

Functions via a range of *anti-aging* mechanisms¹⁻⁵

Lithium

In epidemiological studies higher dietary intake of lithium (drinking water) is associated with lower risk of mortality.⁶⁻⁸

Spermidine

In epidemiological studies, higher intake correlates with longer healthspan.⁹⁻¹¹ A one-year study showed that a diet enhanced with **spermidine** daily supports healthy memory scores.¹²

Consumers have used some of these **nutrients** for decades, albeit at lower dosages than what may be optimal for healthy aging.

New Healthy Aging Powder provides the following in one scoop:

- **Taurine** 5,000 mg
- **Lithium** 2,000 mcg
- **Spermidine** 3,000 mcg
(0.2% standardization from 1,500 mg Wheat germ extract)

These nutrients may promote **healthy aging** by supporting cardiovascular health, exercise performance, and cognitive function.

Item #02527 • 7.41 oz.
1 jar \$27

4 jars \$25.50 each

The full dose is one scoop daily mixed with water or juice.



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

References:

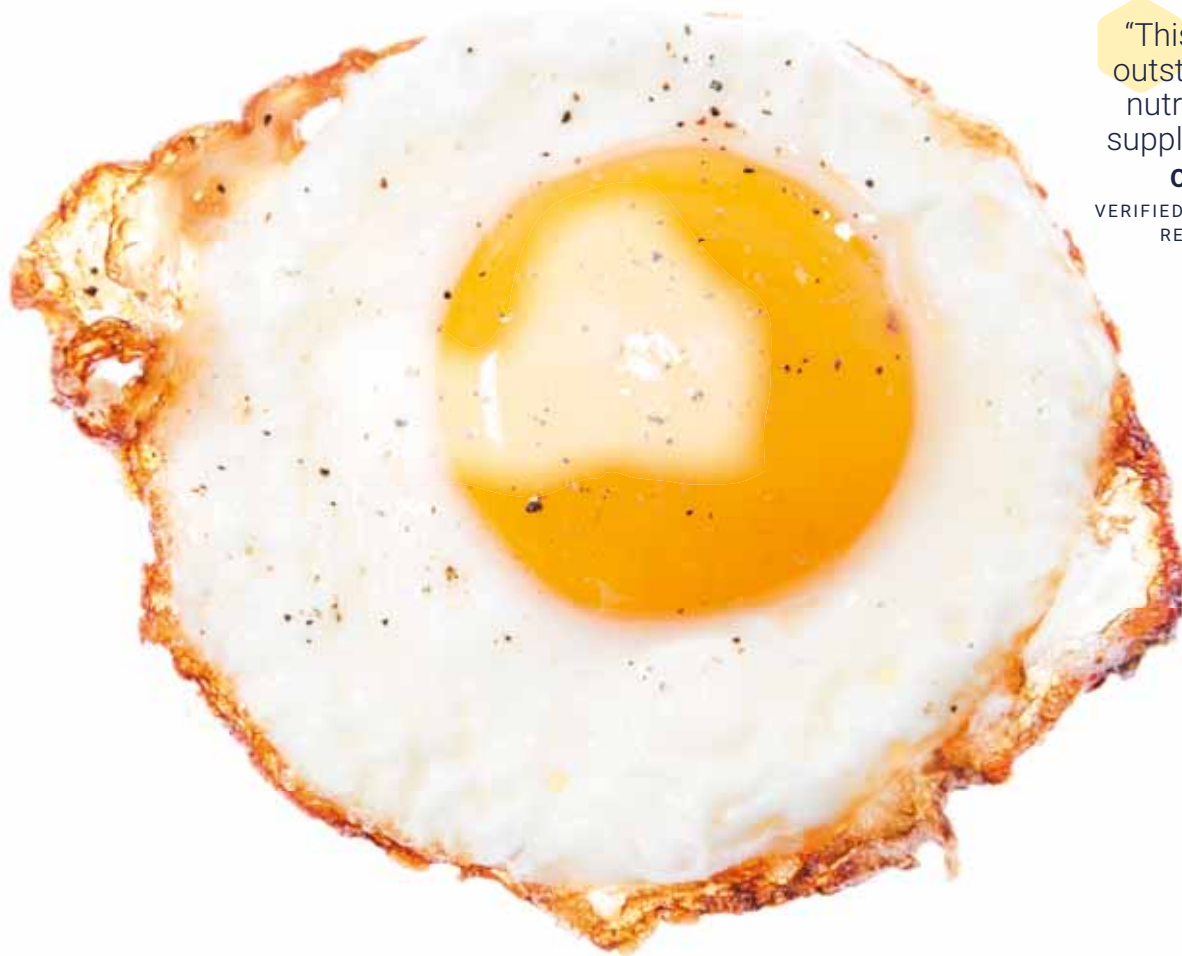
1. *Adv Exp Med Biol.* 2017;975 Pt 1:67-77.
2. *Science.* 2023 ;380(6649) :eabn9257.
3. *Eur J Pharmacol.* 2020 Oct 15;885:173533.
4. *Nutrients.* 2020 Sep 17;12(9).

5. *Nutrition.* 2022 Sep;101:111706.
6. *J Alzheimers Dis.* 2018;61(1):425-34.
7. *Appl Physiol Nutr Metab.* 2018 Apr;43(4):412-4.
8. *Eur J Nutr.* 2011 Aug;50(5):387-9.

9. *Am J Clin Nutr.* 2018 Aug 1;108(2):371-80.
10. *Front Public Health.* 2022;10:949170.
11. *Cell Rep.* 2021 Apr 13;35(2):108985.
12. *Wien Klin Wochenschr.* 2021 May;133(9-10):484-91.

Contains wheat.

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.



"This is an outstanding nutritional supplement."

Olga

VERIFIED CUSTOMER
REVIEW

Feeling Fried?

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™ formulas help maintain *healthy* levels of NAD⁺.

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.

*



* For pricing available to readers of this magazine, call 1-800-544-4440 or visit LifeExtension.com/NAD

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



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

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



The Science of a Healthier Life®

PO BOX 407198
FORT LAUDERDALE, FLORIDA 33340-7198



IN THIS EDITION OF *LIFE EXTENSION MAGAZINE*®



7 END-STAGE KIDNEY DISEASE DOUBLES

Chronic **kidney** disease incidence is surging. Innovative use of existing medications can improve patient outcomes.



28 COQ10 AND MIGRAINES

Human studies show that **CoQ10** *reduces* **migraine** frequency, duration, and severity.



38 SLOW AND REVERSE HAIR LOSS

In a clinical trial, scientists identified **two plant** extracts that increased **hair growth** for **95%** of men with male pattern baldness.



48 ANTI-AGING EFFECTS OF Fisetin

In preclinical studies, **fisetin** *reduces* **senescent cell** burden and *prolongs* **lifespan**. Dozens of **clinical trials** are investigating **fisetin's** potential age-delaying effects.



61 WHAT IS NAD⁺?

Boosting cellular **NAD⁺**, which helps **repair DNA**, may *delay* aspects of **systemic aging**.



64 PREVENTIVE BLOOD TESTS GAIN WIDE ACCEPTANCE

Record numbers of Americans now have at least the basic blood tests done annually. Comprehensive testing can identify risk factors *early* so corrective steps can be taken.

VISIT US ONLINE AT LIFEEXTENSION.COM