



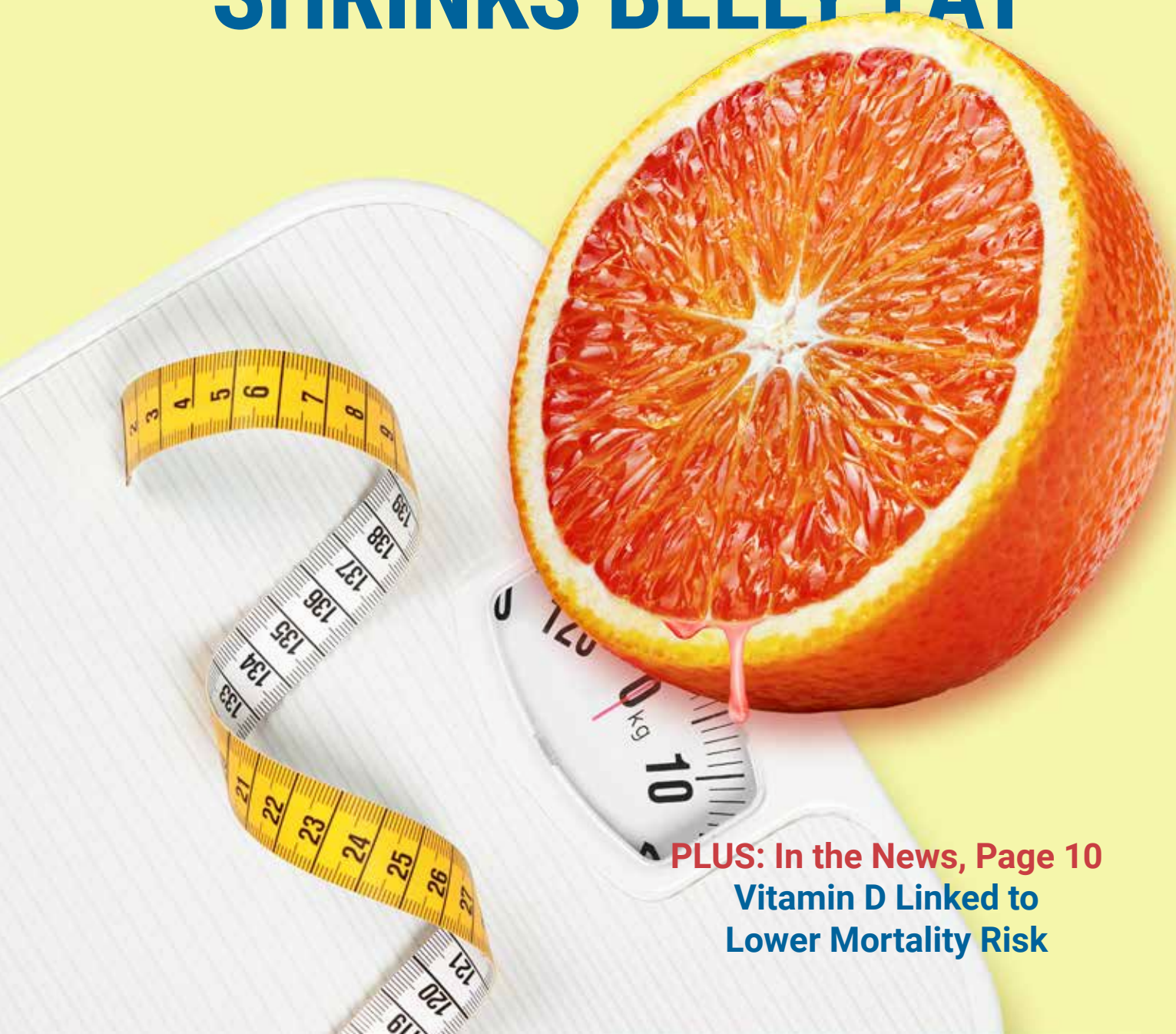
The Science of a Healthier Life®

March/April 2023

FEATURE ARTICLES

- 24 Protect Against Dopamine Deficit
- 30 Boost Immunity to Combat Infection
- 22 Pomegranate Promotes Heart Health
- 56 Age-Reversal Update
- 64 Improve Lung Function
- 72 Quercetin Reduces Vascular Risks

New Citrus Extract SHRINKS BELLY FAT



PLUS: In the News, Page 10
Vitamin D Linked to
Lower Mortality Risk

45 Times Greater Bioavailability CURCUMIN



These products are available
at fine health food stores
everywhere.

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

Item #02407

60 vegetarian capsules

Same 500 mg potency of patented **turmeric**
and **fenugreek blend** with added benefits of
ginger and other **turmeric** actives.

Item #02324

30 softgels



*Than unformulated curcumin

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.



"It helps my memory."

Dave

VERIFIED CUSTOMER REVIEW

NEURO-MAG[®]

THE SMART MAGNESIUM

Supports Improvement
in Overall Cognitive Ability*



With age, **synapses** that connect our brain cells don't function as optimally.

Formulated by **MIT** scientists, **Neuro-Mag[®] Magnesium L-Threonate** has been shown to support **synaptic density** and other structural components of the brain.



Item #01603

90 vegetarian capsules



Item #02032

Net wt. 93.35 g (0.206 lb or 3.293 oz)

These products are available at fine health food stores everywhere.

* *Gerontology*. 1996;42(3):170-80.

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.

Maintain Endothelial
Plaque Stability with

ARTERIAL PROTECT



Arterial Protect can help stabilize endothelial plaque and promote healthy blood flow throughout the body.*

Just one capsule a day provides the patented French Maritime **pine bark extract** along with standardized **Centella asiatica** extract.

Item #02004

30 vegetarian capsules



This product is available at
fine health food stores everywhere.

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

Pycnogenol® and Centellicum® are registered trademarks of Horphag Research and the use of this product is protected by international patents.

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

B12

B12

B

SMART

Body & Brain

B12

B12

B12

"Felt a renewed energy."

Alan

VERIFIED CUSTOMER REVIEW

BIOACTIVE FORMS OF VITAMIN B12

Only two **bioactive** coenzyme forms of vitamin B12 can be used directly by the body and brain.

This **B12 Elite** provides both:

ADENOSYLCOBALAMIN

- Active in brain cell mitochondria.
- Preclinical evidence suggests that it may support already healthy levels of dopamine.
- Supports cellular energy production.

METHYLCOBALAMIN

- Supports cognition within brain cells.
- 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



This product is available at fine health food stores everywhere.

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

Good Health BEGINS IN THE MOUTH

Life Extension® Toothpaste contains ingredients that promote healthy teeth and gums.

- **COENZYME Q10** for protection against harmful molecules
- **GREEN TEA** that is rich in protective catechins
- **HYDROGEN PEROXIDE** to thoroughly clean teeth and gums
- **ALOE VERA** to facilitate natural healing^{1,2}
- **XYLITOL** a natural sweetener that won't decay teeth³
- **FOLIC ACID** for healthier and more resilient gums⁴
- **LACTOFERRIN** to support healthy oral hygiene⁵
- **SQUALANE** derived from olives and rich in vitamin E
- **FLOURIDE-FREE**



Item #01278

4 oz. tube

References

1. *J Indian Soc Periodontol.* 2011 Jul;15(3):205-9.
2. *Br J Dermatol.* 2001 Oct;145(4):535-45.
3. *J Am Dent Assoc.* Jan 2013; 144(1): 21-30.
4. *J Clin Periodontol.* 1984 Oct;11(9):619-28.
5. *Ann Stomatol (Roma).* 2011 Mar-Jun; 2(3-4):10-8.

This product is available at fine health food stores everywhere.

REPORTS



ON THE COVER: PAGE 16

CITRUS EXTRACT REDUCES BODY FAT

In human trials, a new **moro orange** extract **decreased** waist circumference up to **2.79 inches**.



10 IN THE NEWS

Low testosterone associated with cardiovascular disease risk; deficient vitamin D doubles mortality risk in older adults; omega-3 fatty acids improve immunotherapy; higher intake of vitamins A, C, and E cut glaucoma risk.

24 PROTECT AGAINST DOPAMINE DEFICIT

Inhibiting MAO-B impedes **dopamine** breakdown, protecting brain structures and improving mood.

30 FEEL BETTER FASTER

Human studies show that **elderberry**, **zinc**, and **vitamin C**, taken in the *early* stages of a cold or flu, can *activate* the body's **immune** functions and *shorten* the duration of the illness.

38 POMEGRANATE PROMOTES HEART HEALTH

Nutrient-dense **pomegranate** protects the **heart** and **endothelium**. In a clinical study pomegranate substantially *reduced* **arterial plaque**.

48 AGE-REVERSAL UPDATE

Advances in the sciences of **age-delay** and **age-reversal** were presented at the annual **RAADfest 2022** conference by William Faloon.

64 IMPROVE LUNG FUNCTION

Clinical studies show that specific **plant-derived** ingredients *improve* breathing capacity and lung function.

72 QUERCETIN IMPROVES METABOLIC HEALTH

Quercetin, found in certain plants, can *improve* metabolic age while *reducing* cardiovascular risk factors.

82 MAINTAIN YOUTHFUL URINARY FLOW

European men utilize plant extracts documented in **clinical trials** to *reduce* **urinary** discomforts and improve **prostate** function.

WELLNESS PROFILE

92 WILLIAM SHATNER DEFIES AGING

Ultra-healthy at age 91, William Shatner, Star Trek's Captain Kirk, engages in a host of personal life-extending practices and attitudes.



A tasty way to get your Omega-3s!

Now there's a fun and flavorful way to get your daily fish oil—without the fishy aftertaste!

Life Extension's® **NEW**

Omega-3 Fish Oil

Gummy Bites deliver a high dose of omega-3s with a delicious, tropical fruit flavor.

Plus, they're completely sugar-free.*

Item #02508 • 30 gummy bites



*Not a low-calorie food.

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.

Sign up & Save!

Get exclusive offers, plus never miss out on the Sales, Specials, and **NEW** Life Extension® product launches.



**Sign up for our Wholesale
texting program!**

View Terms & Privacy:
<https://www.lifeextension.com/texting>

Editorial

Editor-in-Chief • Philip Smith
Executive Managing Editor • Renee Vermeulen
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
Art Director • Alexandra Maldonado

Chief Medical Officer

Steven Joyal, MD

Chief Scientific Officer

Andrew Swick, MS, PhD

Scientific Advisory Board

Richard Black, DO • John Boik, PhD • Aubrey de Grey, PhD
Deborah F. Harding, MD • Steven B. Harris, MD • 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 • Jonathan V. Wright, MD • Xiaoxi Wei, PhD

Contributors

Michael Downey • William Faloon • Chancellor Faloon • Chase Faloon
Laurie Mathena • William Patel • Richard Stevens

Advertising

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

Vice President of Sales and 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

H₂O Scams Exposed!

FREE Report

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

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

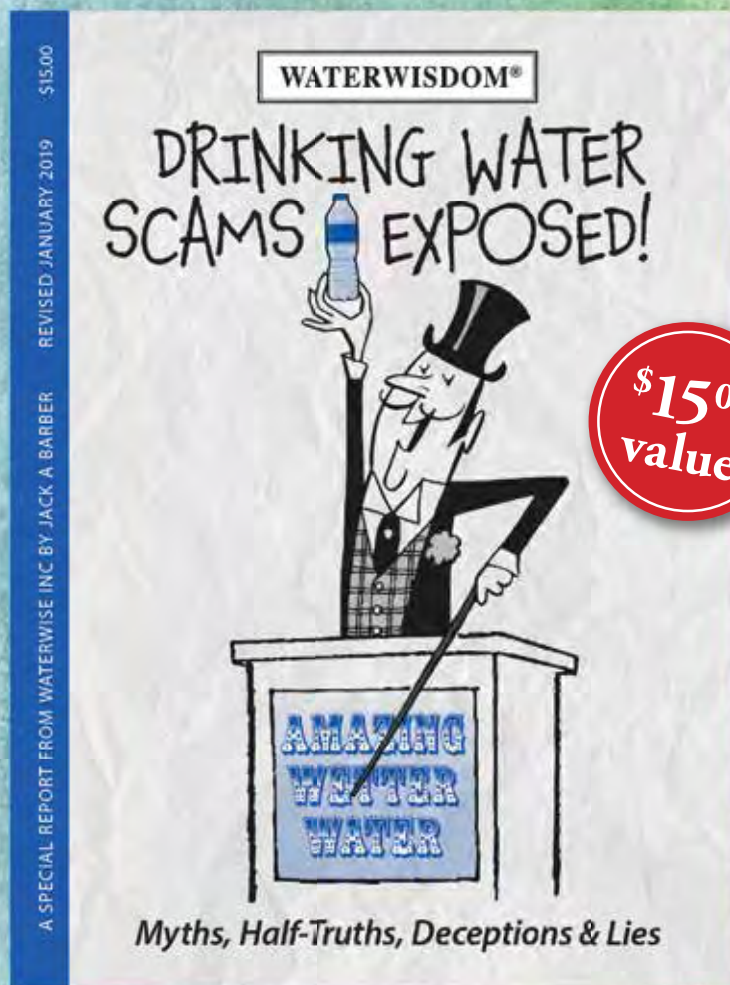
*Learn about the wise alternative to buying bottled and **save 70% or more.***

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

WATERWISE®
Purity Since 1977
Purification Systems



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



Waterwise water purifiers are recommended by:

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

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

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

LEXT

Name _____

Address _____

City _____ State _____ Zip _____

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

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

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

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

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

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

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

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

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

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

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

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

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

Garry F. Gordon, MD, DO, is a Payson, Arizona-based researcher of alternative approaches to medical problems that are unresponsive to traditional therapies. He is president of the International College of Advanced Longevity Medicine.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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



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



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



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



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



Steven B. Harris, MD, has participated in groundbreaking hypothermia, cryothermia, and ischemia research. His research interests include antioxidant and dietary-restriction effects in animals and humans.



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

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



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



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



Michael D. Ozner, MD, FACC, FAHA, is a board-certified cardiologist who specializes in cardiovascular disease prevention. He serves as medical director for the Cardiovascular Prevention Institute of South Florida and is a noted national speaker on heart disease prevention. Dr. Ozner is also author of *The Great American Heart Hoax*, *The Complete Mediterranean Diet* and *Heart Attack Proof*. For more information visit www.drozner.com.



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



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



In the News

Reduced Testosterone Levels Associated with Greater Risk of Cardiovascular Disease

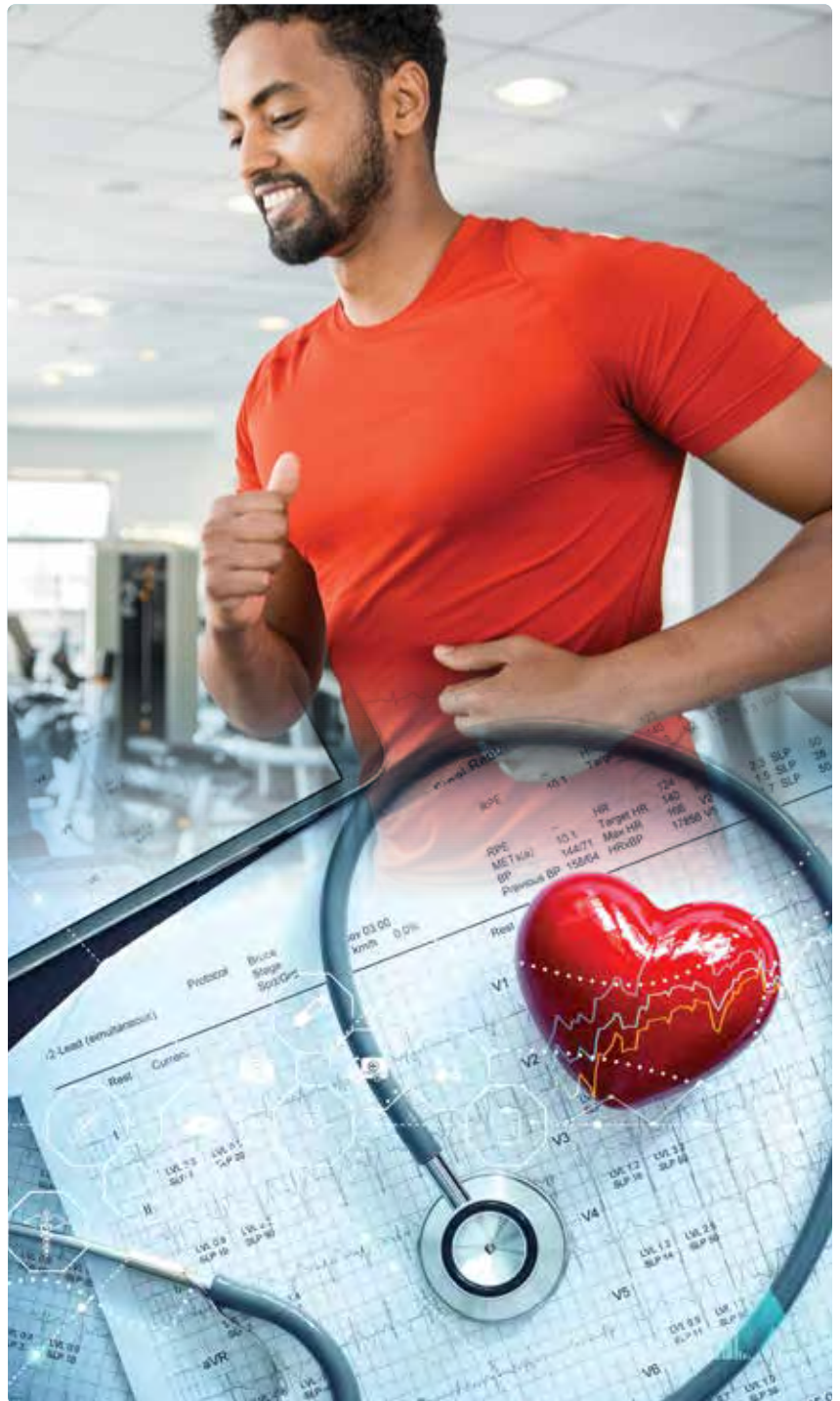
A retrospective cohort study suggests that decreased testosterone levels in young males is associated with increased risk of developing **cardiovascular disease**.*

The investigators used two risk assessment tools to predict the 10-year cardiovascular risk of 1,253 men between the ages of **30** and **79**.

In men aged 30-49, cardiovascular incidence was more pronounced, with a **16%** and **20%** increased risk of disease with low testosterone levels estimated by two risk assessment tools.

Editor's Note: The association between increased cardiovascular risk and low testosterone was consistent in all participants.

* *Front Cardiovasc Med.* 2022 Apr 14;9:869251.





Improving Vitamin D Levels in Older Age is Linked to Lower Risk of All-Cause Mortality

The benefits of correcting and maintaining vitamin D deficiency accrue even in older age, according to the results of a study published in *BMC Geriatrics*.*

The participants included 1,362 individuals in the Chinese Longitudinal and Health Longevity Survey, aged **60** to **113** whose serum vitamin D levels were measured in 2012 and 2014. Mortality data were collected in 2018. Deficient vitamin D levels were detected among **67.5%** of the participants in 2012 and **68.4%** in 2014.

During follow-up, 420 deaths occurred. Individuals who were deficient in vitamin D in 2012 and 2014 had more than twice the **mortality risk** than those who maintained higher levels.

Among participants who maintained sufficient vitamin D or were deficient in 2012 and not deficient in 2014, the risk of dying was **30%** and **53% lower**, respectively, compared to participants who were deficient at both points in time.

This highlights the need to address vitamin D deficiency in older individuals to support longevity and healthy aging.

Editor's Note: The greatest benefit associated with improved vitamin D status was found among women and those people who were 80 years of age or older, the "oldest old."

* *BMC Geriatr* 22, 245 (2022).

Omega-3 Fatty Acids Could Improve Immunotherapy

Findings from a study done on mice, reported at the American Society for Investigative Pathology's annual meeting, revealed a benefit for adding omega-3 fatty acids to cancer-fighting immunotherapy.*

The mice were fed either a standard diet, a diet enhanced with omega-3, or a diet high in omega-6, beginning 10 days before injecting them with tumor cells. One week after the injections, the animals were given either immunotherapy, an anti-inflammatory therapy, both therapies, or no therapy.

Compared to a standard diet, the addition of omega-3 fatty acids resulted in more robust response to the treatment compared to the animals that received immunotherapy or immunotherapy plus anti-inflammatory therapy alone.

Mice that received both cancer therapies and the high omega-3 diet had up to **67% less** tumor growth than animals that received no cancer therapies and a standard diet.

An **omega-6**-enhanced diet was associated with significant acceleration of the growth of one tumor type. The typical American diet is loaded with **omega-6** fats and deficient in **omega-3s**.

Editor's Note: Immunotherapy involves harnessing the body's immune system to combat cancer or other diseases. Supplementation with Omega-3 PUFA may enhance its effect. This combination is predicted to revolutionize cancer therapy.

* Available at: <https://www.eventscribe.net/2022/EB2022/index.asp?posterTarget=466274>. Accessed November 4, 2022



Greater Intake of Vitamins A, C, and E Associated with Lower Glaucoma Risk

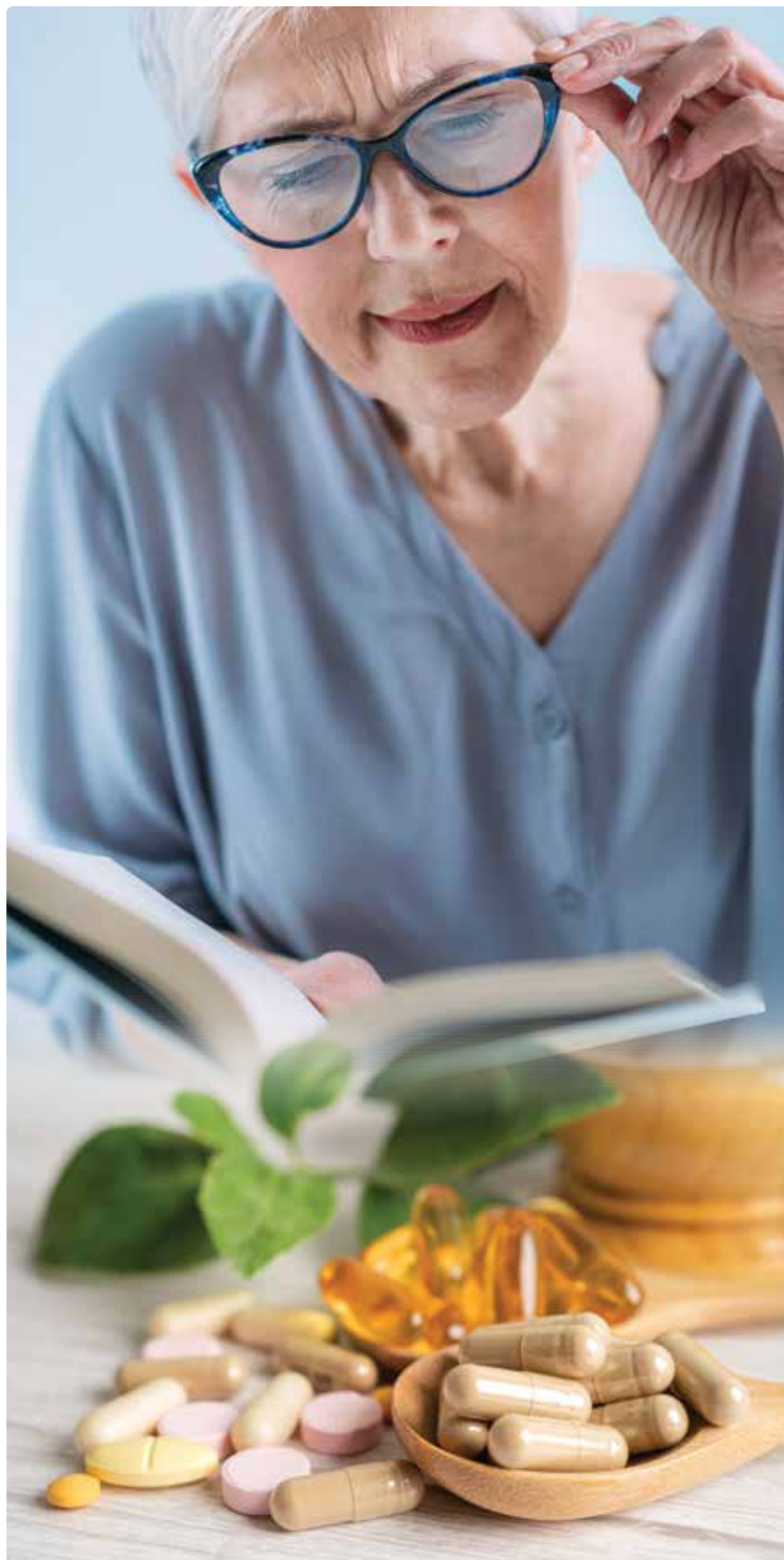
A study presented at the American Academy of Ophthalmology Annual Meeting found an association between *higher* intake of vitamins A, C, and E, and a lower risk of glaucoma.*

A total of 18,669 participants completed questionnaires every other year, providing information about food and supplement intake, and other factors. During a 12-year average follow-up, 266 new cases of glaucoma occurred.

Those who consumed high amounts of vitamins A, C, and E during follow-up had an adjusted **47% lower** risk of developing glaucoma in comparison with those who consumed low amounts.

Editor's Note: The protective effect was observed only when higher amounts of all three vitamins were consumed in combination.

* Available at: <https://www.aao.org/newsroom/news-releases/detail/combination-of-vitamins-may-help-prevent-glaucoma>. Accessed Nov. 4, 2022.



Low-Cost
Biologically
Active

B

COMPLEX



Enzymatically Active Vitamins

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)**, which is up to **7 times more** bioavailable than folic acid.*



Item #01945

60 vegetarian capsules

This product is available at fine health food stores everywhere.



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

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

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.



PQQ

FOR A VIBRANT YOU



If you want to be young at heart—and of mind—you need to have plenty of cellular energy. Your mitochondria supply that energy, but as you age, mitochondrial function begins to decline.

PQQ (*pyrroloquinoline quinone*) can support the growth of brand-new mitochondria, you'll have all the vim and vigor you need...and then some!

Item #01647 •

30 vegetarian capsules



This product is available at fine health food stores everywhere.

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

TURN "ON" YOUR
CELLULAR ENERGY



NAD⁺

CELL REGENERATOR™

WITH NEW

RESVERATROL ELITE™

NAD⁺ Cell Regenerator™ and Resveratrol Elite™

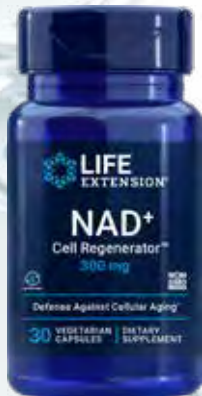
Item #02348

30 vegetarian capsules

Resveratrol activates longevity proteins called **sirtuins**.

NAD⁺ enables cellular **sirtuins** to **function**.

NAD⁺ Cell Regenerator™ and Resveratrol Elite™ combines **300 mg** of **nicotinamide riboside** with bioavailable **resveratrol** and **quercetin**.



NAD⁺ Cell Regenerator™

NAD⁺ Cell Regenerator™

Item #02344

30 vegetarian capsules

For those already taking resveratrol, we offer **NAD⁺ Cell Regenerator™** that provides **300 mg** of **nicotinamide riboside**.



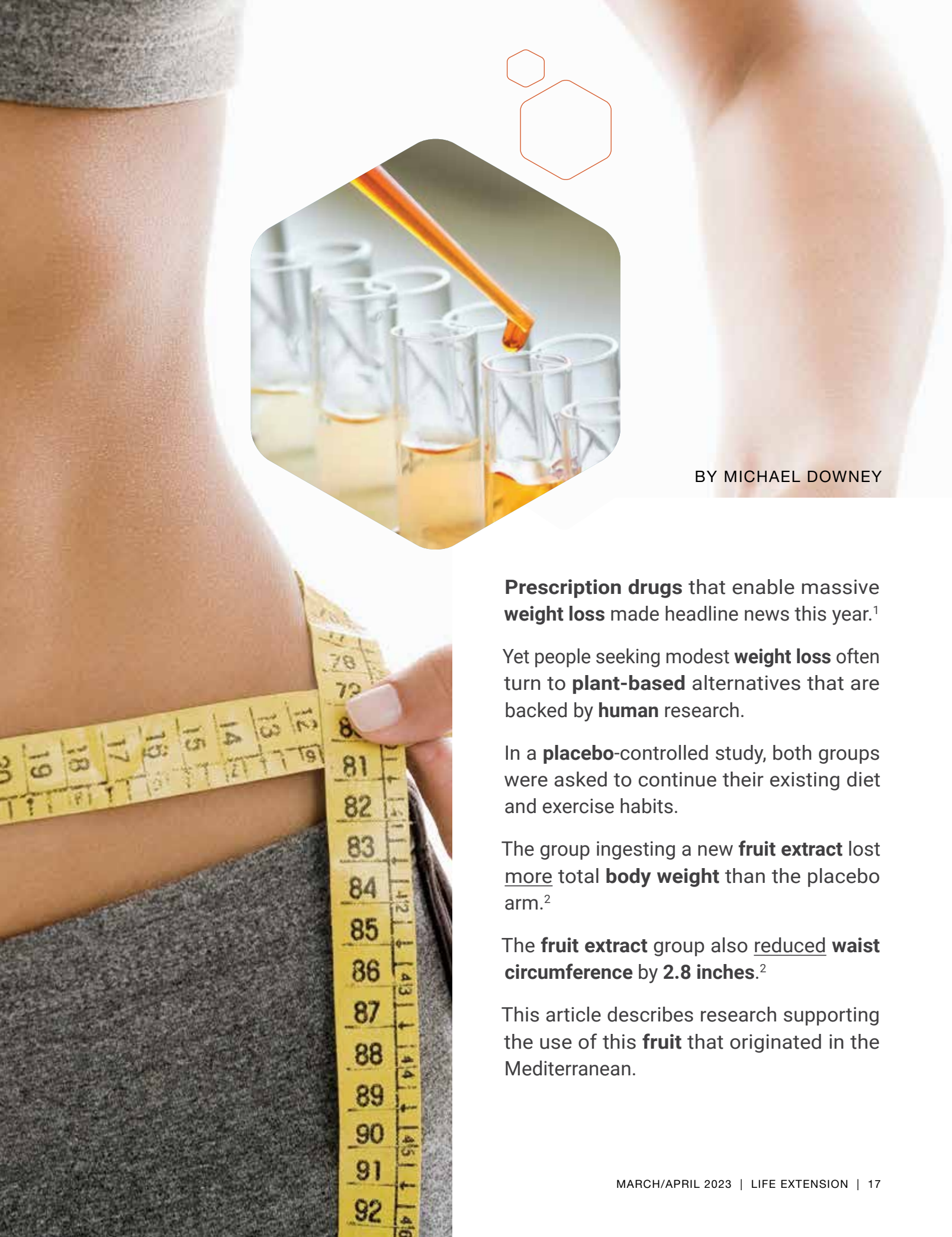
These products are available at fine health food stores everywhere.

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

Shed Belly Fat—

THE MEDITERRANEAN WAY





BY MICHAEL DOWNEY

Prescription drugs that enable massive **weight loss** made headline news this year.¹

Yet people seeking modest **weight loss** often turn to **plant-based** alternatives that are backed by **human** research.

In a **placebo**-controlled study, both groups were asked to continue their existing diet and exercise habits.

The group ingesting a new **fruit extract** lost more total **body weight** than the placebo arm.²

The **fruit extract** group also reduced **waist circumference** by **2.8 inches**.²

This article describes research supporting the use of this **fruit** that originated in the Mediterranean.

Dangers of Abdominal Fat

More than **70%** of U.S. adults are **overweight** or **obese**.³

But not all body fat is the same. Certain types, such as **abdominal fat**, pose the greatest threat.

Excess body weight around the abdomen, or abdominal obesity, keeps our bodies in an **inflammatory** state that has been associated with increased risk of metabolic abnormalities.⁴

A review paper published in the *Archives of Medical Science* concluded that:⁴

“Sustained inflammation is considered a strong risk factor for developing many diseases including CVDs [cardiovascular diseases], metabolic syndrome, diabetes, and cancer.”

Readers of this publication have been educated for decades about the dangers of chronic **inflammation** and strategies to combat it.

The “Moro Orange”

Searching for a way to promote healthy **weight loss**, scientists have investigated compounds known as **anthocyanins**.

Evidence from preclinical studies suggests that diets enriched in **anthocyanins** can improve glucose tolerance and **insulin sensitivity**.⁵

Anthocyanins are pigments found in red, blue, and purple color **fruits** and in the “**moro orange**.”⁵

The **moro orange** fruit is believed to have originated at the beginning of the 19th century in Sicily, as a result of a natural bud interaction with another orange type.⁵

Anthocyanins from **moro oranges** have been shown to help decrease **weight** and **adipose tissue** (fat) by regulating metabolism of fatty acids.⁷



FAT CELLS

One study showed that when healthy, overweight adults supplemented with a **moro orange** juice **extract** rich in **anthocyanins** it resulted in significant reductions in **body mass index** (BMI) compared with taking a placebo.³



Beneficial Compounds in Moro Orange

Scientists have concluded that the **anti-obesity** effect of **moro orange** juice in animal studies is so significant, it *cannot be explained by anthocyanin content alone*.

Moro orange contains other health-promoting compounds, including:⁶

- Flavonoids
- Carotenoids
- Hydroxycinnamic acids

These and other **moro orange** components may work **together** to inhibit **fat storage**.⁶

Research on mice demonstrated that intake of **moro orange juice**.⁸

- **Reduced fat accumulation** by about **50%**,
- **Decreased adipocyte size**, and
- **Regulated gene expression** of adipose tissue (modulated gene expression changes caused by a high-fat diet).



WHAT YOU NEED TO KNOW

Weight-Loss Benefits of Moro Orange

- Clinical studies show that **moro orange extract** can reduce weight by an average of **4.2%** and decrease dangerous **belly fat**, when combined with exercise and a reduced-calorie diet.
- Moro orange is high in **anthocyanins**, which some data have linked to weight loss, along with an array of other beneficial compounds.

Weight Loss in Humans

Scientists set out to assess **moro orange's** potential for weight loss in **humans**.

In a clinical study, researchers instructed 60 overweight individuals to take **400 mg** of **moro orange juice extract** once daily. They were also asked to continue with their existing diet and exercise habits.²

Compared to **placebo**, those who took the **moro orange** extract for **12 weeks** reduced their:

- **Weight** by **4%** (vs. **0.5%** with placebo),
- **BMI** by **1.11 kg/m²** (vs. **0.15 kg/m²** with placebo),
- **Waist circumference** by **2.79 inches** (vs. **0.31 inches** with placebo), and
- **Hip circumference** by **2.35 inches** (vs. **0.27 inches** with placebo).

Losing Weight and Fat

For greater validation, a clinical trial was designed that involved 136 overweight but healthy **humans**, followed for a longer period of **six months**.⁹

This time, the volunteers were asked to consume **500** fewer calories daily and walk for **30 minutes**, three times a week.

Those who took **400 mg** of **moro orange extract** once daily, on average reduced:⁹

- **Weight** by **4.2%** (vs. **2.2%** with placebo),
- **BMI** by **1.2 kg/m²** (vs. **0.6 kg/m²** with placebo),
- **Waist circumference** by **1.5 inches** (vs. **0.7 inches** with placebo),
- **Fat mass** by **7.5%** (vs. **5.7%** with placebo),
- **Abdominal fat mass** by **11.3%** (vs. **6.1%** with placebo),
- **Visceral fat mass** (between abdominal organs) by **12.4%** (vs. **9.0%** with placebo), and
- **Subcutaneous fat mass** (just under the skin) by **9.4%** (vs. **6.4%** with placebo).

Overall, **36%** of those in the **moro orange** group had a **weight loss** of *more than 5%*, compared to **22.5%** of the **placebo** group.⁹

To put the waist-size reduction of **1.5 inches** into perspective, the notches on a belt are usually about one inch apart, making this a reduction of *well more than one belt notch*.

Evidence is clear that **moro orange extract** can be a vital part of a healthy weight-loss program.

Summary

The **moro orange** has been found to help reduce weight and dangerous **abdominal fat**.

It is high in anthocyanins and other compounds that may work together to promote weight loss.

Human studies found that **moro orange extract** safely reduced **waist circumference** by **1.5 to 2.79 inches**. •

References

1. Jastreboff AM, Aronne LJ, Ahmad NN, et al. Tirzepatide Once Weekly for the Treatment of Obesity. *N Engl J Med*. 2022 Jun 4.
2. Titta L, Trinei M, Stendardo M, et al. Blood orange juice inhibits fat accumulation in mice. *Int J Obes (Lond)*. 2010 Mar;34(3):578-88.
3. Cardile V, Graziano AC, Venditti A. Clinical evaluation of Moro (Citrus sinensis (L.) Osbeck) orange juice supplementation for the weight management. *Nat Prod Res*. 2015;29(23):2256-60.
4. Available at: <https://www.cdc.gov/nchs/fastats/obesity-overweight.htm>. Accessed June 29, 2022.
5. Ellulu MS, Patimah I, Khaza'ai H, et al. Obesity and inflammation: the linking mechanism and the complications. *Arch Med Sci*. 2017 Jun;13(4):851-63.
6. Azzini E, Giacometti J, Russo GL. Antiobesity Effects of Anthocyanins in Preclinical and Clinical Studies. *Oxid Med Cell Longev*. 2017;2017:2740364.
7. Grosso G, Galvano F, Mistretta A, et al. Red orange: experimental models and epidemiological evidence of its benefits on human health. *Oxid Med Cell Longev*. 2013 2013/05/02;2013:157240.
8. de Lima LP, de Paula Barbosa A. A review of the lipolytic effects and the reduction of abdominal fat from bioactive compounds and moro orange extracts. *Heliyon*. 2021 Aug;7(8):e07695.
9. Briskey D, Malfa GA, Rao A. Effectiveness of "Moro" Blood Orange Citrus sinensis Osbeck (Rutaceae) Standardized Extract on Weight Loss in Overweight but Otherwise Healthy Men and Women—A Randomized Double-Blind Placebo-Controlled Study. *Nutrients*. 2022;14(3):427.



Support **Healthy** **Cell DNA** with Super Absorbable **TOCOTRIENOLS**

***Tocotrienols** promote **HEALTHY DNA** function*



**Super Absorbable
Tocotrienols**

Item #01400
60 softgels

This product is available at fine health food stores everywhere.



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

THREE WAYS TO SUPPORT STRONG BONES

CUSTOMIZE YOUR **BONE HEALTH** PROGRAM

1. **Bone Restore** helps maintain healthy bone density with three different forms of **calcium** plus vitamin D3 and magnesium, boron, zinc, manganese, and silicon.
2. **Bone Restore with Vitamin K2** is the same formula as Bone Restore plus **200 mcg of vitamin K2**.
3. **Bone Restore Elite** is the same formula as Bone Restore plus **45,000 mcg of vitamin K2**.

"I feel I am
being proactive
in keeping my
bones strong."

Sonia
VERIFIED CUSTOMER
REVIEW



Bone Restore
Item #01726

120 capsules



Bone Restore with Vitamin K2
Item #01727

120 capsules



Bone Restore Elite with Super Potent K2
Item #02416

120 capsules

These products are available at fine health food stores everywhere.



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



LESS FAT AROUND THE MIDDLE

A Mediterranean fruit has been demonstrated to support **healthy fat loss** in humans.*

A 3-month placebo-controlled trial asked participants to continue with their existing diet and exercise habits. Daily ingestion of **400 mg** extract from the **moro orange** produced on average:¹

- Lower **waist** circumference by **2.79 inches**
- Reduced overall **weight** by **4.0%**
- Decreased **hip circumference** by **2.35 inches**

References

1. *Nat Prod Res.* 2015;29(23):2256-60.
2. *Nutrients.* 2022;14(3):427.

A 6-month placebo-controlled trial asked participants to consume 500 fewer daily calories and walk for 30 minutes, three times a week. The group taking **400 mg** each day of **moro orange extract** produced on average:²

- Lower **waist** circumference by **1.54 inches**—*more than one full belt notch*
- Decreased **abdominal fat** by **11.3%**
- Reduced overall **weight** by **4.2%**

This product is available at fine health food stores everywhere.

Mediterranean Weight Management comes in tasty, vegetarian gummies with a natural blueberry flavor and **no added sugar**.

Each gummy provides **400 mg** of a proprietary extract of **moro orange**.

The suggested dose is two gummies once daily. Each bottle of the **new Mediterranean Weight Management** gummies provides a 30-day supply.

Item #02506

60 vegetarian gummies

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

Morosil® is a registered trademark of Bionap S.r.l.

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.

Increase the “Feel-Good” Neurotransmitter

BY LAURIE MATHENA



Many people accept brain fog, slower brain speed, and lack of motivation as a normal part of aging.

It doesn't have to be.

Cognitive changes can occur due to an increase in an *enzyme* called **MAO-B** (monoamine oxidase B) in the brain.

MAO-B breaks down *dopamine*, a neurotransmitter that is central to many aspects of **cognitive functioning**.¹

Overactivity of MAO-B also produces **toxic compounds** that damage brain cells and contribute to **neurodegenerative** risks.^{1,2}

Research has shown that *inhibiting* MAO-B reduces **cognitive decline**.^{1,2}

In animal studies, lowered MAO-B activity is associated with **increased longevity**.³⁻⁶

Preclinical evidence has revealed that **phellodendron tree bark** is an **inhibitor** of **MAO-B**.⁷

By preserving healthy **dopamine** levels, **phellodendron bark** may help maintain clear thinking, cognitive function, and motivation—while reducing potential risk for neurodegeneration.

What is Dopamine?

Dopamine is a **neurotransmitter** that carries signals—chemical “messages”—between brain cells.¹

It is sometimes called the “feel-good” neurotransmitter. It also plays a role in various aspects of **cognitive functioning**, including attention, motivation, and movement.^{8,9}

The levels of **dopamine** decline by about **13%** each decade after age 45.¹⁰ A meta-analysis of 95 studies including 2,611 healthy adults concluded that activity in the brain’s dopamine system decreases by an average of **3.7%–14.0%** per decade age.¹¹

Low dopamine levels are associated with depression, lack of motivation and pleasure, and symptoms of drug withdrawal.^{2,8}

Loss of dopamine function has also been shown to play a major role in the development of some neurodegenerative diseases.¹²

How MAO-B Overactivity Damages the Brain

One potential underlying cause of low brain dopamine levels is an increase in the enzyme **MAO-B**, which breaks down dopamine.¹

MAO-B activity *increases* in the brain as we age.¹³

As MAO-B increases, highly **toxic byproducts** are formed that can damage brain cells.² This damage has been linked to brain deterioration and development of age-related neurodegenerative diseases, including **Parkinson’s** and **Alzheimer’s**.

Researchers have hypothesized that when MAO-B activity is **normal**, these toxic byproducts are largely neutralized by antioxidant defenses.^{2,13,14}

Inhibiting MAO-B overactivity *prevents* some of the breakdown of dopamine that occurs with aging.

The dopamine system is complex, including not only dopamine levels but also multiple types of dopamine receptors and transporters, all of which vary across different brain regions.¹¹

Phellodendron Inhibits MAO-B

Scientists have identified, in pre-clinical models, **phellodendron tree bark** as one of the strongest and most selective plant-derived **MAO-B inhibitors**.^{7,15}

One study found that **phellodendron** inhibited activity up to **5.6-fold**. This is comparable to **deprenyl**, an MAO-B-inhibiting drug used to treat Parkinson’s and depression.⁷

The ability of **phellodendron** to inhibit MAO-B means it has the potential to maintain dopamine levels *and* block the neurotoxic effects of the enzyme’s overactivity.

Phellodendron Protects Cognitive Function

Phellodendron has **neuroprotective** properties that go beyond MAO-B inhibition.¹⁶⁻¹⁸

In one cell model of **Alzheimer’s disease**, phellodendron extract protected against **beta-amyloid toxicity**,¹⁷ which is commonly seen in the brains of people with Alzheimer’s.

In a rodent model, phellodendron protected against **neuroinflammation**, amyloid production, and other changes associated with Alzheimer’s.^{18,19}





In humans, these mechanisms could help maintain **cognitive function** into older age.

Summary

With age, overactivity of the enzyme **MAO-B** occurs in the brain.

This may result in *reduced* levels of the critical neurotransmitter **dopamine**.

MAO-B also produces toxic compounds that damage brain cells and contribute to the risk for neurodegenerative diseases.

Phellodendron bark extract can *inhibit* MAO-B activity.

This may help maintain **dopamine levels** and prevent the neurotoxicity associated with MAO-B overactivity. Studies also show that phellodendron has other **neuroprotective** properties.

Those who take MAO-B-inhibiting drugs like **deprenyl** do not need to take **phellodendron**. Phellodendron is not a substitute for physician-prescribed medications. •

References

- Behl T, Kaur D, Sehgal A, et al. Role of Monoamine Oxidase Activity in Alzheimer's Disease: An Insight into the Therapeutic Potential of Inhibitors. *Molecules*. 2021 Jun 18;26(12).
- Finberg JPM, Rabey JM. Inhibitors of MAO-A and MAO-B in Psychiatry and Neurology. *Frontiers in Pharmacology*. 2016 2016-October-18;7.
- Kitani K, Kanai S, Ivy GO, et al. Assessing the effects of deprenyl on longevity and antioxidant defenses in different animal models. *Ann N Y Acad Sci*. 1998 Nov 20;854:291-306.
- Kitani K, Minami C, Isobe K, et al. Why (--) deprenyl prolongs survivals of experimental animals: increase of anti-oxidant enzymes in brain and other body tissues as well as mobilization of various humoral factors may lead to systemic anti-aging effects. *Mech Ageing Dev*. 2002 Apr 30;123(8):1087-100.
- Knoll J, Dallo J, Yen TT. Striatal dopamine, sexual activity and lifespan. Longevity of rats treated with (-)deprenyl. *Life Sci*. 1989;45(6):525-31.
- Knoll J, Miklya I. Longevity study with low doses of selegiline/(-)-deprenyl and (2R)-1-(1-benzofuran-2-yl)-N-propylpentane-2-amine (BPAP). *Life Sci*. 2016 Dec 15;167:32-8.
- Zarmouh NO, Messeha SS, Elshami FM, et al. Natural Products Screening for the Identification of Selective Monoamine Oxidase-B Inhibitors. *European J Med Plants*. 2016 May;15(1).
- Available at: <https://www.nih.gov/news-events/nih-research-matters/dopamine-affects-how-brain-decides-whether-goal-worth-effort>. Accessed November, 21, 2022.
- Blum K, Oscar-Berman M, Barh D, et al. Dopamine Genetics and Function in Food and Substance Abuse. *J Genet Syndr Gene Ther*. 2013 Feb 10;4(121).
- Knoll J. Deprenyl (selegiline): the history of its development and pharmacological action. *Acta Neurol Scand Suppl*. 1983;95:57-80.
- Karrer TM, Josef AK, Mata R, et al. Reduced dopamine receptors and transporters but not synthesis capacity in normal aging adults: a meta-analysis. *Neurobiology of Aging*. 2017 2017/09/01;57:36-46.
- Klein MO, Battagello DS, Cardoso AR, et al. Dopamine: Functions, Signaling, and Association with Neurological Diseases. *Cell Mol Neurobiol*. 2019 Jan;39(1):31-59.
- Kumar MJ, Andersen JK. Perspectives on MAO-B in aging and neurological disease: where do we go from here? *Mol Neurobiol*. 2004 Aug;30(1):77-89.
- Naoi M, Maruyama W, Inaba-Hasegawa K. Type A and B monoamine oxidase in age-related neurodegenerative disorders: their distinct roles in neuronal death and survival. *Curr Top Med Chem*. 2012;12(20):2177-88.
- Mazzio E, Deiab S, Park K, et al. High throughput screening to identify natural human monoamine oxidase B inhibitors. *Phytother Res*. 2013 Jun;27(6):818-28.
- Sun Y, Lenon GB, Yang AWH. Phellodendri Cortex: A Phytochemical, Pharmacological, and Pharmacokinetic Review. *Evid Based Complement Alternat Med*. 2019;2019:7621929.
- Xian YF, Lin ZX, Ip SP, et al. Comparison the neuroprotective effect of Cortex Phellodendri chinensis and Cortex Phellodendri amurensis against beta-amyloid-induced neurotoxicity in PC12 cells. *Phytomedicine*. 2013 Jan 15;20(2):187-93.
- Kim Y JI, Lee S. . Effects of Phellodendron amurense extract on the Alzheimer's disease model. *Journal of Physiology & Pathology in Korean Medicine*. 2005;19:130-8.
- Lee B, Sur B, Shim I, et al. Phellodendron amurense and Its Major Alkaloid Compound, Berberine Ameliorates Scopolamine-Induced Neuronal Impairment and Memory Dysfunction in Rats. *Korean J Physiol Pharmacol*. 2012 Apr;16(2):79-89.

Slow Down Aging

Life Extension® carnosine is available in three different formulas to allow you to customize your longevity program.



Carnosine, a unique dipeptide that can inhibit **glycation** throughout the body, helping to slow normal aging processes.



Super Carnosine provides the same strong potency of carnosine plus luteolin to inhibit inflammatory factors and fat soluble vitamin B1 (benfotiamine) to further impede glycation reactions.



Mitochondrial Energy Optimizer with PQQ contains same optimal dose of carnosine plus, R-lipoic acid, taurine, benfotiamine, and PQQ to provide broad-spectrum support.

Item #01829

60 vegetarian capsules

Life Extension® was the first to introduce high-dose (**500 mg**) carnosine back in **1999**.

Item #02020

60 vegetarian capsules

Carnosine has been shown to help protect against several normal **aging** processes.

Item #01868

120 vegetarian capsules

Each formula provides high doses of carnosine to ensure sustained benefits.

These products are available at fine health food stores everywhere.

Bio-Enhanced® is a registered trademark of Geronova Research, Inc.



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
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.

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

This product is available at fine health food stores everywhere.

(1,000 mcg of lithium per tiny cap)

Item #02403

100 vegetarian capsules

Each bottle lasts 100 days.



**GLUTEN
FREE**

**NON
GMO
LE CERTIFIED**

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

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 improves my mental focus."

Brenda

VERIFIED CUSTOMER REVIEW

DOPAMINE

The "FEEL GOOD" Neurotransmitter

Dopamine, the "feel good" neurotransmitter, regulates motivation, mood, movement, and cognitive function.

With age, dopamine levels *decline* due to the increase of the **MAO-B enzyme**.

Amur Cork Tree (Phellodendron bark) can help *preserve dopamine* by *inhibiting MAO-B* activity.

Dopamine Advantage provides **500 mg** of **Amur Cork Tree** and **500 mcg** of **Vitamin B12** in each capsule.

Feel Better,
THINK
More Clearly



Item #02413

500 mg • 30 vegetarian capsules

This product is available at fine health food stores everywhere.



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





Feel Better *FASTER* During COLDS & FLU

BY MICHAEL DOWNEY

Colds and **flu** can make anyone miserable.

They pose a particular risk to **older adults**, who have reduced **immune** responses.^{1,2}

Human studies show that three nutrients, taken in the *early* stages of a cold or flu, can *activate* **immune** functions to ***change the course of the illness.***³⁻⁶

These nutrients can reduce the **duration** and **severity** of the cold or flu, making people feel better faster and decreasing the danger to older adults.

Protection Against Colds and Flu

Over **one billion colds** occur in the U.S. each year,⁷ typically lasting about seven days.⁸

Up to **20%** of Americans contract the **flu** each year, which can lead to sometimes-fatal complications including **pneumonia**—particularly in older adults.⁷

Flu vaccines don't protect against **colds**⁷ and don't even protect against all the strains of **flu virus**.⁹

In human studies, scientists have demonstrated that **elderberry**, **zinc**, and **vitamin C** can help target respiratory infections.³⁻⁶

- **Elderberry** extract was shown to resolve upper respiratory symptoms up to **four days earlier** than a placebo.^{4,5}
- **Zinc** lozenges were found to reduce duration of colds by up to **44%** and severity of symptoms by as much as **50%** when initiated soon after symptoms appear,³ and
- **Vitamin C** reduced duration of colds by **9.4%** overall and by **18%** in children.⁶

Supplementation should be started as soon as possible after symptoms begin.^{3,4,6,10} This strategy applies to all approaches including anti-viral flu drugs such as Xofluza® to get people back on their feet quickly.¹¹



Elderberry

Elderberries contain anthocyanins, which are plant pigments that have demonstrated immunomodulating, antioxidant, antiviral, and anti-inflammatory effects.^{5,12,13}

Elderberries' **antiviral** effects have been shown in two major reports:

- A systematic review of previous studies published in **2021** found that elderberry extract may safely **reduce** the **duration** of **flu** and **cold** infections and **reduce** the **severity** of colds.⁵
- An earlier meta-analysis of clinical trials showed that elderberry extract can significantly **reduce** the **duration** of illness in people with **flu** or **cold** infections.¹²

Cell culture studies found that **elderberry** and its extract had direct antiviral effects against **viral respiratory tract infections** such as colds and flu.

In high (in vitro) doses, **nearly 100%** of cells were protected against infection.^{14,15} The positive outcomes were observed even in the virulent form of flu virus that caused the **1918** Spanish flu pandemic (**H1N1**).¹⁵

Later studies demonstrated similar effects in **humans**. In one, people suffering from upper respiratory symptoms who used **elderberry extract** had their symptoms resolve **four days earlier** than those taking a **placebo**.⁴

Zinc

Zinc is critical to maintaining **immune system** strength. It helps with normal development and function of key immune components, including:¹⁶

- **Natural killer cells**, which kill virally infected cells and tumor cells,
- **Lymphocytes**, which produce antibodies and help control immune responses,
- **Neutrophils**, which travel to infection sites and ingest bacteria or viruses, and
- **Macrophages**, which surround and kill harmful microorganisms.

Zinc deficiency is common among the elderly.^{17,18} Data show that oral intake of zinc by the elderly boosts the stress response of **white blood cells**, enhancing immune response.¹⁹

WHAT
YOU
NEED
TO
KNOW

Zinc also seems to **coat the receptors** that **viruses** use to bind to cells. This means that viruses may be kept out of body cells, effectively **blocking** them from replicating out of control.²⁰

A meta-analysis of clinical trials evaluated the effects of taking more than **75 mg** of zinc per day, in the form of **zinc acetate lozenges** every few hours throughout the day, starting after the first sign of symptoms. Results of this analysis showed:

- Reduced **duration** of various cold symptoms by between **18%** to **54%**, and
- Colds themselves were reduced in duration by **42%**.

Vitamin C

Vitamin C enhances growth and survival of infection-fighting **immune cells** by:²¹⁻²³

- Helping to increase levels of antibody-producing lymphocytes,
- Boosting function of infection-engulfing neutrophils, and
- Supporting natural killer cell activity.

Scientists have also demonstrated broader immune benefits of **vitamin C**, including:^{23,24}

- Neutralization of excess **free radicals** caused by the immune system's fight against infectious organisms,²³
- Preclinically, increased **interferons** have been demonstrated; these are chemical signaling molecules the body produces to trigger immune mechanisms,²³
- Support for production of **collagen**, the protein that helps respiratory and digestive tract linings maintain an anti-infection barrier,²⁴ and
- Reduction of **histamine**, a pro-inflammatory compound that plays a role in infections and allergy symptoms.²⁴

A large review paper on **vitamin C** and infections found that vitamin C reduced **duration** of colds by **9.4%** on average (**8%** in adults, **18%** in children).⁶



Elderberry

Strengthen Your Immune System—Fast

- Respiratory infections, such as **colds** and **flu**, have the potential to be life-threatening for aging people.
- Research has found that **zinc**, **elderberry**, and **vitamin C** help support the immune system and can reduce the *severity* and *duration* of colds and flu when taken at the first sign of symptoms.
- **Zinc** lozenges have been shown to reduce duration of colds by an average of **42%**.
- **Elderberry** extract helps resolve upper respiratory symptoms up to **four days earlier** than a placebo.
- **Vitamin C** has been shown to reduce duration of colds by an average of **9.4%** overall and by **18%** in children.

Other studies have found that vitamin C reduces **duration**^{6,25,26} and **incidence**²⁷⁻²⁹ of colds. Some evidence has suggested greater benefit with *higher* doses and if intake begins right after symptom onset.⁸

The human body cannot produce or effectively store vitamin C. So, levels should be replenished **daily**.³⁰

In an analysis of two clinical trials scientists found that a combination of **1,000 mg** vitamin C plus **10 mg** zinc over five days of treatment, was more efficient in reducing symptoms of cold than a placebo.³¹ This may indicate the importance of a multi-nutrient strategy.

Along with **elderberry** and **zinc**, **vitamin C** can provide important **immune support**.

Summary

Colds and flu can pose a substantial risk to older adults due to age-related immune decline.

Clinical studies demonstrate that, when taken for a short course at the first sign of symptoms, **elderberry**, **zinc**, and **vitamin C** can support the immune functions and reduce the *severity and duration* of certain viral infections. •

References

1. Fujihashi K, Kiyono H. Mucosal immunosenescence: new developments and vaccines to control infectious diseases. *Trends Immunol.* 2009 Jul;30(7):334-43.
2. Montecino-Rodriguez E, Berent-Maoz B, Dorshkind K. Causes, consequences, and reversal of immune system aging. *J Clin Invest.* 2013 Mar;123(3):958-65.
3. Hemila H, Chalker E. The effectiveness of high dose zinc acetate lozenges on various common cold symptoms: a meta-analysis. *BMC Fam Pract.* 2015 Feb 25;16:24.
4. Zakay-Rones Z, Thom E, Wollan T, et al. Randomized study of the efficacy and safety of oral elderberry extract in the treatment of influenza A and B virus infections. *J Int Med Res.* 2004 Mar-Apr;32(2):132-40.
5. Wieland LS, Piechotta V, Feinberg T, et al. Elderberry for prevention and treatment of viral respiratory illnesses: a systematic review. *BMC Complement Med Ther.* 2021 Apr 7;21(1):112.
6. Hemila H. Vitamin C and Infections. *Nutrients.* 2017 Mar 29;9(4).
7. Available at: <https://www.nccih.nih.gov/health/flu-and-colds-in-depth#>. Accessed October 17, 2022.
8. Bucher A, White N. Vitamin C in the Prevention and Treatment of the Common Cold. *Am J Lifestyle Med.* 2016 May-Jun;10(3):181-3.
9. Available at: <https://www.cdc.gov/flu/weekly/index.htm>. Accessed November 9, 2022.
10. Douglas RM, Chalker EB, Treacy B. Vitamin C for preventing and treating the common cold. *Cochrane Database Syst Rev.* 2000 (2):CD000980.
11. Available at: <https://www.cdc.gov/flu/treatment/whatyoushould.htm#:~:text=Studies%20show%20that%20flu%20antiviral,hospital%20with%20more%20severe%20illness>. Accessed November 15, 2022.
12. Hawkins J, Baker C, Cherry L, et al. Black elderberry (*Sambucus nigra*) supplementation effectively treats upper respiratory symptoms: A meta-analysis of randomized, controlled clinical trials. *Complement Ther Med.* 2019 Feb;42:361-5.
13. Strugala P, Loi S, Bazanow B, et al. A Comprehensive Study on the Biological Activity of Elderberry Extract and Cyanidin 3-O-Glucoside and Their Interactions with Membranes and Human Serum Albumin. *Molecules.* 2018 Oct 8;23(10):2566.



14. Roschek B, Jr., Fink RC, McMichael MD, et al. Elderberry flavonoids bind to and prevent H1N1 infection in vitro. *Phytochemistry.* 2009 Jul;70(10):1255-61.
15. Available at: <https://www.cdc.gov/flu/pandemic-resources/1918-commemoration/1918-pandemic-history.htm>. Accessed 10/18/2022.
16. Available at: <https://pi.oregonstate.edu/mic/minerals/zinc>. Accessed October 17, 2022.
17. Barnett JB, Hamer DH, Meydani SN. Low zinc status: a new risk factor for pneumonia in the elderly? *Nutr Rev.* 2010 Jan;68(1):30-7.
18. Available at: https://www.todaysgeriatricmedicine.com/news/ex_013113.shtml. Accessed September 30, 2022.
19. Putics A, Vodros D, Malavolta M, et al. Zinc supplementation boosts the stress response in the elderly: Hsp70 status is linked to zinc availability in peripheral lymphocytes. *Exp Gerontol.* 2008 May;43(5):452-61.
20. Hirt M, Nobel S, Barron E. Zinc nasal gel for the treatment of common cold symptoms: a double-blind, placebo-controlled trial. *Ear Nose Throat J.* 2000 Oct;79(10):778-80, 82.
21. Huijskens MJ, Walczak M, Koller N, et al. Technical advance: ascorbic acid induces development of double-positive T cells from human hematopoietic stem cells in the absence of stromal cells. *J Leukoc Biol.* 2014 Dec;96(6):1165-75.
22. Huijskens MJ, Walczak M, Sarkar S, et al. Ascorbic acid promotes proliferation of natural killer cell populations in culture systems applicable for natural killer cell therapy. *Cytotherapy.* 2015 May;17(5):613-20.
23. Available at: <https://pi.oregonstate.edu/mic/vitamins/vitamin-C>. Accessed October 17, 2022.
24. Carr AC, Maggini S. Vitamin C and Immune Function. *Nutrients.* 2017 Nov 3;9(11).
25. Hemila H, Louhiala P. Vitamin C for preventing and treating pneumonia. *Cochrane Database Syst Rev.* 2013 Aug 8(8):CD005532.
26. Ran L, Zhao W, Wang J, et al. Extra Dose of Vitamin C Based on a Daily Supplementation Shortens the Common Cold: A Meta-Analysis of 9 Randomized Controlled Trials. *Biomed Res Int.* 2018;2018:1837634.
27. Van Straten M, Josling P. Preventing the common cold with a vitamin C supplement: a double-blind, placebo-controlled survey. *Adv Ther.* 2002 May-Jun;19(3):151-9.
28. Sasazuki S, Sasaki S, Tsubono Y, et al. Effect of vitamin C on common cold: randomized controlled trial. *Eur J Clin Nutr.* 2006 Jan;60(1):9-17.
29. Kim TK, Lim HR, Byun JS. Vitamin C supplementation reduces the odds of developing a common cold in Republic of Korea Army recruits: randomised controlled trial. *BMJ Mil Health.* 2022 Apr;168(2):117-23.
30. Available at: <https://ods.od.nih.gov/factsheets/VitaminC-HealthProfessional/>. Accessed November 11, 2022.
31. Maggini S, Beveridge S, Suter M. A combination of high-dose vitamin C plus zinc for the common cold. *J Int Med Res.* 2012;40(1):28-42.

Baby *your* Skin

Healthy skin. Comfortable joints. Both rely on collagen. Our **Collagen Peptides for Skin & Joints** formula:

- Stimulates production of collagen in the body
- Promotes skin elasticity, hydration, smoothness and suppleness
- Supports joint structure, comfort and flexibility
- Protects joint cartilage



Item #02408

343 grams of powder
(0.75 lb or 12 oz)

**MIX ONE SCOOP WITH WATER
OR BEVERAGE OF CHOICE**



GLUTEN FREE

**NON
GMO**
LE CERTIFIED

This product is available at fine health food stores everywhere.

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

BEAT BELLY FAT WITH **AMPK**



Studies show that *increasing* AMPK activity encourages cells to stop storing fat.

AMPK Metabolic Activator helps trigger cellular AMPK, enabling your body to burn unwanted fat—particularly around your abdomen.

Item #02207

30 vegetarian tablets

This product is available at fine health food stores everywhere.



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

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.

BLACK ELDERBERRY + VITAMIN C

Immune Support

Standardized **elderberry** extract helps support immune function.

Vitamin C promotes signaling proteins called **interferons** that further support immunity.

One daily serving (2 capsules) of **Black Elderberry + Vitamin C** provides a potent **600 mg** of **black elderberry** extract together with **200 mg** of **vitamin C**.

"Love this product, especially being a combo!"

Rhonda

VERIFIED CUSTOMER REVIEW

Item #02410

60 vegetarian capsules



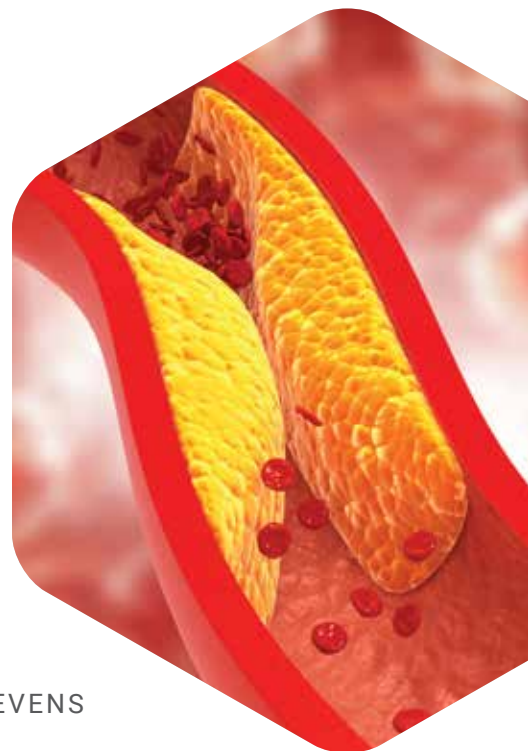
This product is available at fine health food stores everywhere.



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



HOW POMEGRANATE PROMOTES HEART HEALTH



BY RICHARD STEVENS



Pomegranate is a nutrient-dense food with compounds that promote **heart health**.¹⁻⁴

Preclinical and clinical studies show that pomegranate can improve blood flow,^{6,7} reduce arterial blood clots,⁵ and modestly lower cholesterol, triglycerides, and blood pressure.⁸

Most notably, pomegranate has been shown to help prevent and even reverse some of the blood vessel damage that can lead to **heart attack** and **stroke**.^{1,2,9,10}

A clinical study in patients with **atherosclerosis** found that **pomegranate** consumption substantially decreased thickness of **carotid artery** plaques.⁹

Fresh pomegranate fruit or juice can be high in fructose.¹¹ For those who want to avoid the sugar, **pomegranate extracts** provide an alternative.

A Nutritional Powerhouse

All parts of the pomegranate plant, including the fruit, leaves, peel, seeds, and flowers, are packed with beneficial compounds.

These include anthocyanins, flavonoids, and unique tannins (such as punicalagin).²

One of pomegranate's most impressive effects is its ability to protect **aging arteries** in multiple ways, including preventing and even reversing **endothelial dysfunction**.^{1,2}

Endothelial dysfunction refers to damage to the delicate inner lining of blood vessels. This dysfunction is an important contributor to **atherosclerosis**, the buildup of plaque in the arteries.^{10,12}

Atherosclerosis is responsible for a major share of deaths worldwide.^{13,14}

Improving Lipid Levels

Animal models have shown that **pomegranate** can reduce blood levels of total cholesterol, **LDL cholesterol**, and **triglycerides**.¹⁵⁻¹⁸

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

In **human** studies, pomegranate use significantly *reduces* blood levels of **oxidized LDL** and reduces **LDL aggregation**.^{19,21}

Restoring Blood Vessel Function

An important indicator of **endothelial dysfunction** is an impaired ability of blood vessels to **dilate** (widen) when necessary.^{10,22}

Pomegranate and its extracts *improve* the ability of the **endothelium** to promote arterial relaxation and dilation.^{6,7}

Nitric oxide is one of the body's main **vasodilators**, which means it induces the dilation of arteries.

In endothelial dysfunction, production of *nitric oxide declines*. Preclinical evidence shows that **pomegranate** can boost *nitric oxide* production and improve arterial dilation.²³⁻²⁶

Preventing Blood Clots

Endothelial dysfunction and atherosclerosis increase the risk of abnormal **blood clots**.

Most **heart attacks** and **strokes** are caused by clots forming inside diseased arteries, which reduces blood flow to the heart or brain.^{27,28}

Some of the same compounds contained in pomegranate that benefit arterial health also influence the function of **platelets**, the tiny cells in our blood that form clots.

Thromboxane A2, which is *reduced* by pomegranate, activates platelets and causes their aggregation.^{29,30}

In animal studies, pomegranate *reduced clotting* associated with platelets and other factors, even when exposed to stimuli that would normally cause their aggregation.^{5,29}



Improving Blood Pressure

High **blood pressure** is a major risk factor for atherosclerosis and is closely linked with endothelial dysfunction.³¹⁻³³

A class of drug used to lower blood pressure are the **ACE inhibitors**.

Preclinical and clinical research has demonstrated that, like these medications, pomegranate extracts can *inhibit* ACE activity.^{34,35} In fact, multiple clinical studies show that pomegranate is able to help reduce elevated blood pressure.⁸

In people with **high blood pressure**, two weeks of pomegranate intake decreased blood ACE activity by **36%**. In this study, pomegranate lowered systolic blood pressure by **5%**.³⁵

In other human studies, pomegranate consumption led to reductions in **systolic** and **diastolic** blood pressure.^{8,36,37}

In a study of subjects with **atherosclerosis** in the carotid artery, one year of pomegranate intake reduced **systolic blood pressure** by an average of **12%**.⁹

Those with **systolic blood pressure** levels chronically above **115-120 mmHg** should seek professional guidance on the appropriate medication and/or lifestyle intervention (such as weight loss) to safely achieve **optimal** blood pressure control.

Blood Glucose

Poor control of **blood glucose** levels is a powerful contributor to both endothelial dysfunction and to atherosclerosis.¹

In animal studies, **pomegranate extract** improved **insulin sensitivity** and reduced **fasting blood glucose** levels.^{38,39}

In studies of patients with **type II diabetes** or impaired glucose control, a single dose of pomegranate improved insulin sensitivity and blood glucose control.^{40,41}

Pomegranate may also protect against the damage that glucose causes to tissues, including arteries. A large part of this damage is due to **glycation**, when sugars bind to proteins and alter their function.⁴²

Punicalagin from pomegranate has been shown preclinically to *suppress* the **glycation** of proteins and prevent their accumulation, even in mice fed a **high-sugar** diet.⁴³

WHAT YOU NEED TO KNOW

Pomegranate Improves Endothelial Health

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

Those with less-than-optimal glycemic markers (glucose + A1C + fasting insulin) despite healthy diet and lifestyle should seek professional guidance on a range of medications that can lower excess blood sugar.

Reducing Atherosclerotic Plaques

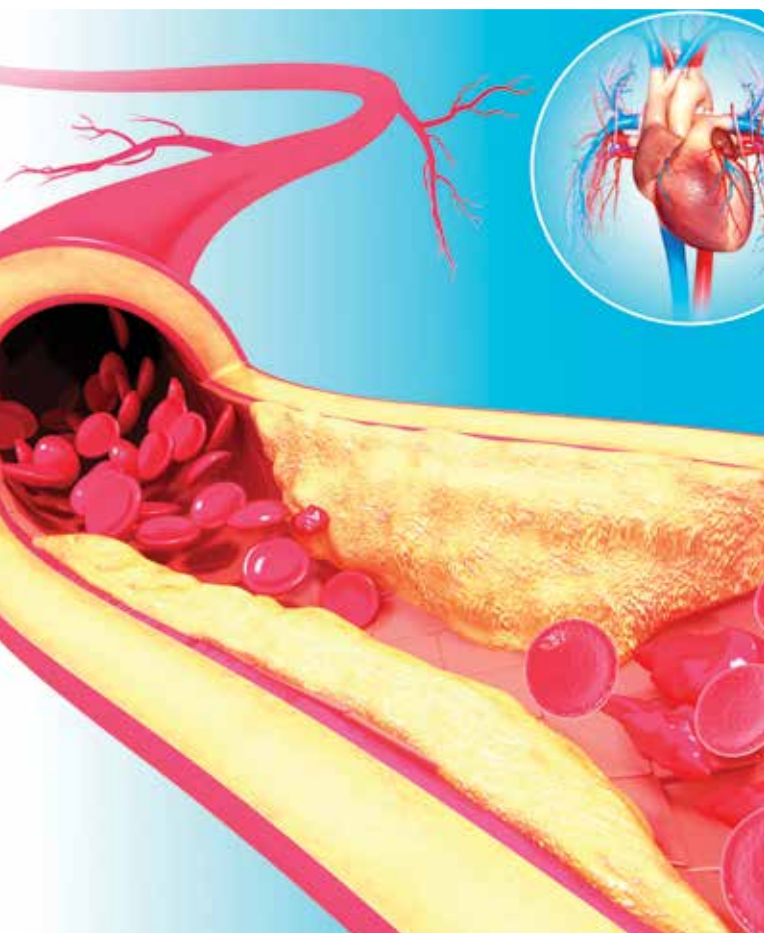
Pomegranate has a profound impact on blood vessel health.

In preclinical investigations, **punicalagin** and **pomegranate extract** have both been shown to help reverse endothelial dysfunction.^{44,45}

Animal models of accelerated **atherosclerosis** also show that pomegranate can prevent and reverse the progression of atherosclerotic plaque.

For example, rodent studies show that **pomegranate** helped maintain arterial health and significantly slowed progression of **atherosclerosis**.^{46,47} In a mouse study, pomegranate reduced the size of plaques by **44%**.²¹

Human trials have found striking effects on improving **cardiovascular disease** parameters.



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

In adults with ischemic **heart disease** (insufficient oxygen delivery and blood flow to the heart muscle), pomegranate significantly reduced the intensity, occurrence, and duration of **angina** (chest pain) episodes.⁴⁸ It also lowered the level of **troponin** in the blood, an acute marker of damage to the heart muscle.

Another study in patients with **heart disease** found that while exercise-induced **ischemia** (reduced blood flow) of the heart increased in a control group over three months, patients receiving **pomegranate juice** had a significant ischemia *decrease*.⁴⁹

These studies and others make it clear that pomegranate can help reduce risks for atherosclerosis and symptoms of heart damage in those with existing cardiac issues.

Summary

Pomegranate and its **extracts** have demonstrated abilities to prevent and reverse endothelial dysfunction, a blood vessel malfunction that contributes to **atherosclerosis**.

Pomegranate also improves blood pressure, glucose, lipid status, and abnormal clotting.

Through all these actions, pomegranate may reduce the risk of developing cardiovascular disorders and relieve symptoms in people with preexisting heart disease. •

References

1. Delgado NTB, Rouver WN, Dos Santos RL. Protective Effects of Pomegranate in Endothelial Dysfunction. *Curr Pharm Des.* 2020;26(30):3684-99.
2. Wang D, Ozen C, Abu-Reidah IM, et al. Vasculoprotective Effects of Pomegranate (*Punica granatum* L.). *Front Pharmacol.* 2018;9:544.
3. Kang SJ, Choi BR, Kim SH, et al. Beneficial effects of dried pomegranate juice concentrated powder on ultraviolet B-induced skin photoaging in hairless mice. *Exp Ther Med.* 2017 Aug;14(2):1023-36.
4. Emami Kazemabad MJ, Asgari Toni S, Tizro N, et al. Pharmacotherapeutic potential of pomegranate in age-related neurological disorders. *Frontiers in Aging Neuroscience.* 2022 2022-September-01;14.
5. Riaz A, Khan RA. Anticoagulant, antiplatelet and antianemic effects of *Punica granatum* (pomegranate) juice in rabbits. *Blood Coagul Fibrinolysis.* 2016 Apr;27(3):287-93.
6. Anwaier G, Lian G, Ma GZ, et al. Punicalagin Attenuates Disturbed Flow-Induced Vascular Dysfunction by Inhibiting Force-Specific Activation of Smad1/5. *Front Cell Dev Biol.* 2021;9:697539.

7. Roelofs EJ, Smith-Ryan AE, Trexler ET, et al. Effects of pomegranate extract on blood flow and vessel diameter after high-intensity exercise in young, healthy adults. *Eur J Sport Sci*. 2017 Apr;17(3):317-25.
8. Sahebkar A, Ferri C, Giorgini P, et al. Effects of pomegranate juice on blood pressure: A systematic review and meta-analysis of randomized controlled trials. *Pharmacol Res*. 2017 Jan;115:149-61.
9. Aviram M, Rosenblat M, Gaitini D, et al. Pomegranate juice consumption for 3 years by patients with carotid artery stenosis reduces common carotid intima-media thickness, blood pressure and LDL oxidation. *Clin Nutr*. 2004 Jun;23(3):423-33.
10. Xu S, Ilyas I, Little PJ, et al. Endothelial Dysfunction in Atherosclerotic Cardiovascular Diseases and Beyond: From Mechanism to Pharmacotherapies. *Pharmacol Rev*. 2021 Jul;73(3):924-67.
11. Available at: <https://fdc.nal.usda.gov/fdc-app.html#/food-details/167787/nutrients>. Accessed November, 25, 2022.
12. Davignon J, Ganz P. Role of endothelial dysfunction in atherosclerosis. *Circulation*. 2004 Jun 15;109(23 Suppl 1):II27-32.
13. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK507799/>. Accessed November, 23, 2022.
14. Available at: <https://www.hopkinsmedicine.org/health/conditions-and-diseases/atherosclerosis>. Accessed November, 23, 2022.
15. Bagri P, Ali M, Aeri V, et al. Antidiabetic effect of Punica granatum flowers: effect on hyperlipidemia, pancreatic cells lipid peroxidation and antioxidant enzymes in experimental diabetes. *Food Chem Toxicol*. 2009 Jan;47(1):50-4.
16. Hossain FLA. Effect of pomegranate (Punica granatum) peels and its extract on obese hypercholesterolemic rats. *Pakistan Journal of Nutrition*. 2009;8(8):1251-7.
17. Lei F, Zhang XN, Wang W, et al. Evidence of anti-obesity effects of the pomegranate leaf extract in high-fat diet induced obese mice. *Int J Obes (Lond)*. 2007 Jun;31(6):1023-9.
18. Neyrinck AM, Van Hee VF, Bindels LB, et al. Polyphenol-rich extract of pomegranate peel alleviates tissue inflammation and hypercholesterolaemia in high-fat diet-induced obese mice: potential implication of the gut microbiota. *Br J Nutr*. 2013 Mar 14;109(5):802-9.
19. Sohrab G, Ebrahimof S, Sotoudeh G, et al. Effects of pomegranate juice consumption on oxidative stress in patients with type 2 diabetes: a single-blind, randomized clinical trial. *Int J Food Sci Nutr*. 2017 Mar;68(2):249-55.
20. MacRae F Linton M, Patricia G Yancey, PhD, Sean S Davies, PhD, W. Gray Jerome, PhD, Edward F Linton, MD, Wenliang L Song, MD, Amanda C Doran, PhD, MD, and Kasey C Vickers, PhD. The Role of Lipids and Lipoproteins in Atherosclerosis. 2019.
21. Aviram M, Dornfeld L, Rosenblat M, et al. Pomegranate juice consumption reduces oxidative stress, atherogenic modifications to LDL, and platelet aggregation: studies in humans and in atherosclerotic apolipoprotein E-deficient mice. *Am J Clin Nutr*. 2000 May;71(5):1062-76.
22. Sun HJ, Wu ZY, Nie XW, et al. Role of Endothelial Dysfunction in Cardiovascular Diseases: The Link Between Inflammation and Hydrogen Sulfide. *Front Pharmacol*. 2019 2020-January-21;10:1568.
23. Delgado NT, Rouver WD, Freitas-Lima LC, et al. Pomegranate Extract Enhances Endothelium-Dependent Coronary Relaxation in Isolated Perfused Hearts from Spontaneously Hypertensive Ovariectomized Rats. *Front Pharmacol*. 2016;7:522.
24. Omar U, Alokbi A, Yousr M, et al. Punicalagin Induce the Production of Nitric Oxide and Inhibit Angiotensin Converting Enzyme in Endothelial Cell Line EA.hy926. *Universal Journal of Public Health*. 2016 09/01;4(5):268-77.
25. Ulfat M, Alokbi A, Yousr M, et al. Punicalagin Induce the Production of Nitric Oxide and Inhibit Angiotensin Converting Enzyme in Endothelial Cell Line EA.hy926. *Universal Journal of Public Health*. 2016 09/01;4:268-77.
26. Omar U, Alokbi A, Yousr M, et al. Punicalagin induce the production of nitric oxide and inhibit angiotensin converting enzyme in endothelial cell line EA.hy926. *Universal Journal of Public Health*. 2016;4(5):268-77.
27. Available at: <https://www.hopkinsmedicine.org/health/conditions-and-diseases/stroke/types-of-stroke>. Accessed November, 23, 2022.
28. Palasubramaniam J, Wang X, Peter K. Myocardial Infarction—From Atherosclerosis to Thrombosis. *Arteriosclerosis, Thrombosis, and Vascular Biology*. 2019;39(8):e176-e85.
29. Mattiello T, Trifiro E, Jotti GS, et al. Effects of pomegranate juice and extract polyphenols on platelet function. *J Med Food*. 2009 Apr;12(2):334-9.
30. Brainard BM. Antiplatelet Drugs. In: Silverstein DC, Hopper K, editors. *Small Animal Critical Care Medicine*. St. Louis: W.B. Saunders; 2015:877-82.
31. Buford TW. Hypertension and aging. *Ageing Res Rev*. 2016 Mar;26:96-111.
32. Gallo G, Volpe M, Savoia C. Endothelial Dysfunction in Hypertension: Current Concepts and Clinical Implications. *Frontiers in Medicine*. 2022 2022-January-20;8.
33. Poznyak AV, Sadykhov NK, Kartuesov AG, et al. Hypertension as a risk factor for atherosclerosis: Cardiovascular risk assessment. *Frontiers in Cardiovascular Medicine*. 2022 2022-August-22;9.
34. Dos Santos RL, Dellacqua LO, Delgado NT, et al. Pomegranate peel extract attenuates oxidative stress by decreasing coronary angiotensin-converting enzyme (ACE) activity in hypertensive female rats. *J Toxicol Environ Health A*. 2016;79(21):998-1007.
35. Aviram M, Dornfeld L. Pomegranate juice consumption inhibits serum angiotensin converting enzyme activity and reduces systolic blood pressure. *Atherosclerosis*. 2001 Sep;158(1):195-8.
36. Asgary S, Keshvari M, Sahebkar A, et al. Clinical investigation of the acute effects of pomegranate juice on blood pressure and endothelial function in hypertensive individuals. *ARYA Atheroscler*. 2013 Nov;9(6):326-31.
37. Asgary S, Sahebkar A, Afshani MR, et al. Clinical evaluation of blood pressure lowering, endothelial function improving, hypolipidemic and anti-inflammatory effects of pomegranate juice in hypertensive subjects. *Phytother Res*. 2014 Feb;28(2):193-9.
38. Harzallah A, Hammami M, Kepczynska MA, et al. Comparison of potential preventive effects of pomegranate flower, peel and seed oil on insulin resistance and inflammation in high-fat and high-sucrose diet-induced obesity mice model. *Arch Physiol Biochem*. 2016;122(2):75-87.
39. Sun YL, Zhou FM, Wang HR. Mechanism of pomegranate ellagic polyphenols reducing insulin resistance on gestational diabetes mellitus rats. *Am J Transl Res*. 2019;11(9):5487-500.
40. Banihani SA, Fashtaky RA, Makahleh SM, et al. Effect of fresh pomegranate juice on the level of melatonin, insulin, and fasting serum glucose in healthy individuals and people with impaired fasting glucose. *Food Sci Nutr*. 2020 Jan;8(1):567-74.
41. Banihani SA, Makahleh SM, El-Akawi Z, et al. Fresh pomegranate juice ameliorates insulin resistance, enhances beta-cell function, and decreases fasting serum glucose in type 2 diabetic patients. *Nutr Res*. 2014 Oct;34(10):862-7.
42. Yan SF, Ramasamy R, Naka Y, et al. Glycation, Inflammation, and RAGE. *Circulation Research*. 2003;93(12):1159-69.
43. Kumagai Y, Nakatani S, Onodera H, et al. Anti-Glycation Effects of Pomegranate (Punica granatum L.) Fruit Extract and Its Components in Vivo and in Vitro. *J Agric Food Chem*. 2015 Sep 9;63(35):7760-4.
44. Liu X, Cao K, Lv W, et al. Punicalagin attenuates endothelial dysfunction by activating FoxO1, a pivotal regulating switch of mitochondrial biogenesis. *Free Radic Biol Med*. 2019 May 1;135:251-60.
45. Vilahur G, Padro T, Casani L, et al. Polyphenol-enriched diet prevents coronary endothelial dysfunction by activating the Akt/eNOS pathway. *Rev Esp Cardiol (Engl Ed)*. 2015 Mar;68(3):216-25.
46. Salama AA, Ismael NM, Bedewy M. The Anti-inflammatory and Antiatherogenic In Vivo Effects of Pomegranate Peel Powder: From Waste to Medicinal Food. *J Med Food*. 2021 Feb;24(2):145-50.
47. Aviram M, Rosenblat M. Pomegranate Protection against Cardiovascular Diseases. *Evid Based Complement Alternat Med*. 2012;2012:382763.
48. Razani Z, Dastani M, Kazerani HR. Cardioprotective Effects of Pomegranate (Punica granatum) Juice in Patients with Ischemic Heart Disease. *Phytother Res*. 2017 Nov;31(11):1731-8.
49. Sumner MD, Elliott-Eller M, Weidner G, et al. Effects of pomegranate juice consumption on myocardial perfusion in patients with coronary heart disease. *Am J Cardiol*. 2005 Sep 15;96(6):810-4.



Triple Protection for Your Ticker

Endothelial Defense™ helps protect the inner linings of your **arteries** with:

- **Pomegranate** polyphenols extracted from the fruit, flower, and seed
- **SOD** (superoxide dismutase promoter) from melon (Extramel®)
- **Cardiose®** hesperetin extracted from sweet orange peels.

Item #02497

60 softgels



This product is available at fine health food stores everywhere.

Cardiose® is a registered trademark of INTERQUIM, S.A. d.b.a. Ferrer HealthTech. Extramel® is a registered trademark of Bionov. POMELLA® Extract is covered under U.S. Patent 7,638,640 and POMELLA® is a registered trademark of Verdure Sciences, Inc.

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.

POMEGRANATE

The Fruit of Life



Pomegranate Complete combines extracts from the **whole fruit, flower, and seed oil.**

Pomegranate plant compounds support **heart** health.



Item #01953

30 softgels



This product is available at fine health food stores everywhere.

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

LEARN, RETAIN and Think FAST!

QUICK BRAIN



Nootropics speed up information processing in the brain, resulting in **faster thinking**.

Quick Brain Nootropic provides extracts from **bacopa**, **gotu kola**, and a **lutein-zeaxanthin** blend that have **clinical support** for:

- **Cognitive enhancement** and processing **speed**
- **Learning** function
- Healthy **memory**

Just one capsule daily to help stay "in the zone."

This product is available at fine health food stores everywhere.



Item #02406

30 vegetarian capsules



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

Mary

VERIFIED CUSTOMER REVIEW



Liposomal-Hydrogel



This product is available at fine health food stores everywhere.

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

It also maintains *higher* vitamin levels throughout the day.¹

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

Item #02501

60 vegetarian tablets



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

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.



AGE-REVERSAL UPDATE

Highlights from 2021-2022

By William Faloon
Slides Designed By Chase Falcon

In October 2022, I gave the keynote talk to open a 4-day event where physicians and scientists presented findings on combatting **biological aging**.

My presentation was limited to 55-minutes.

I could have taken the entire day based on the abundance of new data to report.

I opened my talk by stating that there had been more advances in the fields of **age-delay** and **age-reversal** over the prior 12 months than in *any* one-year period in human history.

This article summarizes highlights of my presentation at the **Revolution Against Aging and Death** (RAADFest) conference held in San Diego on October 6-9, 2022.

Mainstream Media Coverage

The science of age reversal continues to garner favorable media coverage.

I presented a few of the many news outlets' reports on **regenerative medicine** advances including:

CBS News: Can we reset our biological clocks?

New Scientist: How to GROW YOUNGER

New York Times: Can a Magic Protein Slow the Aging Process?

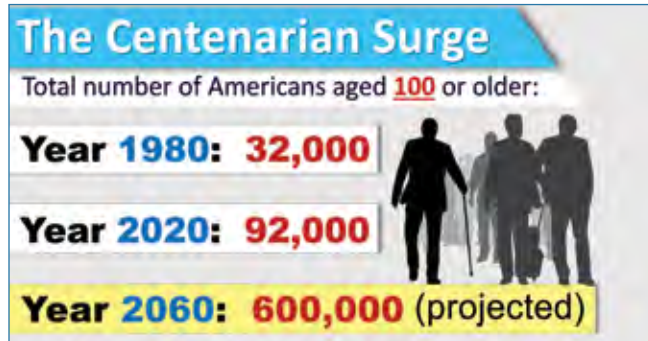
A Biological Renaissance

We are in the midst of a **biomedical renaissance** whereby human life spans are markedly improving.

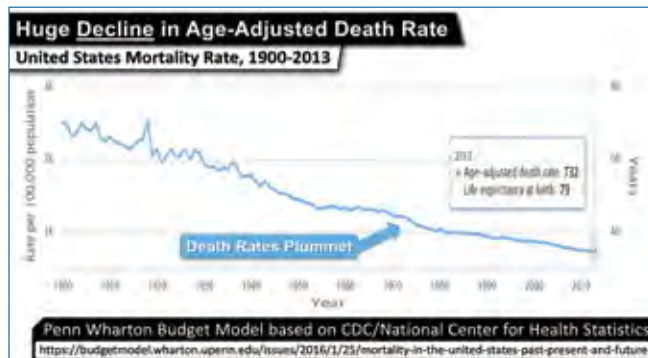
As with the **European Renaissance**, few people today understand the magnitude of the scientific gains.

Nearly **3 times more** Americans were alive **aged 100 and older** in **2020** compared to **1980**.

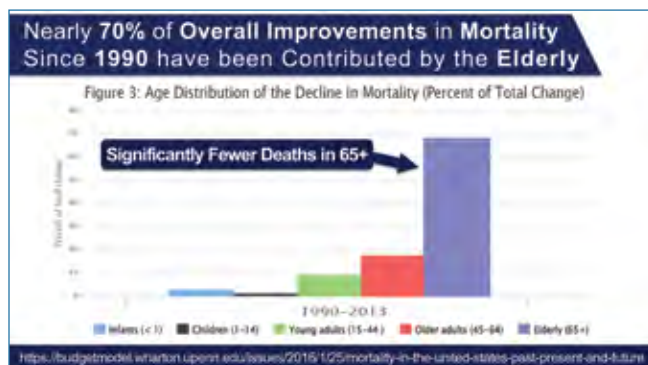
The number of American centenarians is expected to surge **7-fold higher** by **2060**.



The **age-adjusted** death rate has plummeted. This means the increase in **centenarians** is not only due to more people, but that **older people** are **living longer**.



And since year **1990**, nearly **70%** of mortality reductions have occurred in Americans over age 65. This reflects significant longevity gains in older segments of the American population. (Which includes a lot of our readers including me!)



Where you Live Determines How Long You May Live

I displayed a map showing a nearly **9-year disparity** in life expectancy between **Mississippi** and **Hawaii**.

I pointed out that people living in states where **healthier lifestyles** are practiced enjoy *longer* disease-free lifespans.



Much of this longevity disparity is attributable to dietary differences. I listed toxic foods to avoid on the next slide.



I present this list of **toxic foods** during many of my talks to reinforce healthier dietary practices.

Billionaires and Government Fund Age-Reversal Research

In **January 2022**, the *largest* **age-reversal** project in history was announced, with **\$3 billion** committed by billionaires (like Jeff Bezos and Peter Thiel) and the **National Institutes of Aging**.

This is a venture between the **federal government** and the **ultra-wealthy** seeking methods to delay and **reverse** aging!

As reported in **The Economist** January 22, 2022

A \$3 Billion Bet on Finding the Fountain of Youth

"they believe they have glimpsed the outline of an answer to the question of how to **reverse** the process of cellular aging. They have also recruited a **star-studded scientific cast** to help them track that answer down."

This list includes **4 Nobel prize winners**, including the discoverer of **Yamanaka factors**, Dr. Yamanaka himself.



Economist.com/science-and-technology/a-3bn-bet-on-finding-the-fountain-of-youth/21807244

Five months later (June 2022), **MIT** announced the Saudi Royal Family has started a nonprofit group that plans to spend up to **\$1 billion a year** to do "**research on the biology of aging and find ways to extend the number of years people live in good health.**"

As reported in **MIT Technology Review**

Saudi Arabia Plans To Spend \$1 Billion A Year Discovering Treatments To Slow Aging

The oil kingdom fears that its population is aging at an accelerated rate and hopes to test drugs to **reverse** the problem. First up might be the diabetes drug metformin.

THE SAUDI ROYAL FAMILY has started a not-for-profit organization called the **Hevolution Foundation** that plans to spend up to **\$1 BILLION A YEAR** of its oil wealth supporting basic research on the biology of aging and finding ways to extend the number of years people live in good health

<https://www.technologyreview.com/2022/06/07/1053132/saudi-arabia-slow-aging-metformin/>

Human Genome 100% Sequenced

In **2003**, scientists sequenced **92%** of the **human genome**. This caused the lay public to think the entire human genome had been sequenced.

In **March 2022**, scientists announced that **100%** of the **human genome** had been sequenced.

That means the gene editing therapies being studied now (such as **CRISPR**) may be used to combat virtually every disease, including **aging** itself.

As reported by **CNN** Mar. 31, 2022

Scientists sequence the complete human genome for the first time

- The Human Genome Project sequenced **92%** of the human genome (2003)
- Scientists struggled to decipher the remaining **8%**
- ~100 scientist team unveils **complete** human genome (2022)
- First time **human genome** has been sequenced in its entirety
- Fresh insights into cancer, birth defects and aging



<https://www.cnn.com/2022/03/31/health/first-complete-human-genome-sequence>

Human Trial using CRISPR Gene Therapy

A **monkey** trial published in **May 2021** showed a single **CRISPR** gene therapy injection lowered cholesterol by **60%** and kept it low. This same research transitioned into a **human** trial that initiated studies in **July 2022**—only a **14-month** gap between primate and human research!

Historically, it has taken much *longer* to transition successful animal research into clinical trials.

Rapid Transition from Animal Findings to Clinical Trials

"CRISPR cure for High Cholesterol enters first Human Trial"

May 2021 - One-time CRISPR shot lowers LDL cholesterol by **60%** in monkeys. The base edit knocks out the **PCSK9** gene, to enable more LDL to be removed.

July 2022 - Human trial launches using nanoparticles to deliver **CRISPR** genetic instructions to cells to knock out **PCSK9** in people with familial hypercholesterolemia.



August 2021, DOI: 10.1101/2021.07.14.451043

<https://clinicaltrials.gov/ct2/show/study/NCT05080888>

CRISPR technology has even advanced to the point of engineering stronger **immune T-cells** to kill more tumor cells as reported in **August 2022**. This might help enable aging humans to escape the lethal impact of **immune senescence**.

One Gene Edit Kills More Tumor Cells



CRISPR Engineers Stronger T Cells For Immunotherapy

Aug 25, 2022 <https://www.genengnews.com/t-cells/crispr-engineers-stronger-t-cells-for-immunotherapy>

Age Reversal in Live Mice

As researcher's zero in on rejuvenation strategies, a promising near-term solution is to use "**transcription factors**" to turn "on" pro-youth **genes** and turn "off" senescent-inducing genes.

Transcription factors **reprogram** the **genes** of old cells, so the old cells can transform into **young** cells.

The two slides on the next page help further explain "transcription factors".

Transcription factors are proteins that help turn specific **genes** "on" or "off" by binding to DNA.

Transcription factors that are **activators** boost a gene's transcription.

Transcription factors that are **repressors** decrease transcription.

Groups of transcription factors can **turn a gene on/off** in specific parts of the body.



Transcription factors can enable old cells to be reprogrammed into embryonic cells capable of developing into all tissues of the body.

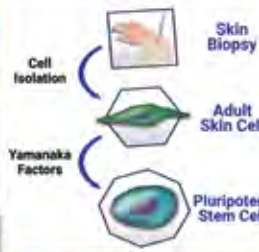
The Nobel Prize in Physiology or Medicine 2012

"For the discovery that mature cells can be reprogrammed to become pluripotent."

Four specific genes encode **transcription factors** that can convert somatic cells into pluripotent stem cells that can propagate indefinitely.

These transcription factors are called:

"Yamanaka Factors"



[nobleprize.org/prizes/medicine/2012/yamanaka](https://www.nobelprize.org/prizes/medicine/2012/yamanaka)

On **March 7, 2022**, the world awoke to an unprecedented announcement from the **SALK Institute**. Salk scientists had safely and effectively **reversed the aging process** in live mice by using **transcription factors**.

This generated headline news stories worldwide including Jimmy Fallon of **The Tonight Show** reporting that scientists had succeeded in "**reversing the aging process by making cells young again.**"

The following three slides provide highlights to describe how Yamanaka **transcription factors** were used to **reverse** aging in live mice.

The Salk Institute Reports: March 7, 2022

"Cellular rejuvenation therapy safely reverses signs of aging in mice"

Partial Cell Reprogramming – Safe

- Partial **cell reprogramming** in live (in vivo) mice
- OSKM ("Yamanaka") **transcription factors** used
- Longer administration yielded unique benefits
- **No** toxicity or increase in cancer detected



<https://www.nature.com/articles/s43587-022-00183-2>

<https://www.salk.edu/news-release/cellular-rejuvenation-therapy-safely-reverses-signs-of-aging-in-mice/>

Findings Reported in Nature: March 7, 2022

"Cellular rejuvenation therapy safely reverses signs of aging in mice"

Cell Rejuvenation in Live Mice

- Long-term cell reprogramming results in "**younger**" skin.
- Skin cells divide more rapidly.
- **Lower inflammation** and **reduced senescent-associated secretory phenotypes** in treated animals.
- No data collected on lifespan, exercise, memory, or muscle.



<https://www.nature.com/articles/s43587-022-00183-2>

<https://www.salk.edu/news-release/cellular-rejuvenation-therapy-safely-reverses-signs-of-aging-in-mice/>

Major Findings:

"they found that the mice, in many ways, resembled younger animals."

"In both the kidneys and skin, the epigenetics of treated animals more closely resembled epigenetic patterns seen in younger animals."



The Treatment Made The Mice's Cells Look Younger

<https://www.salk.edu/news-release/cellular-rejuvenation-therapy-safely-reverses-signs-of-aging-in-mice/>

Rewriting the Rules of Biology

Time-honored doctrine is that **cell aging** is irreversible and that old cells eventually degenerate and die.

In **2006**, that theory was turned upside down with the demonstration of *in vitro* **cell rejuvenation**.

In **2011**, cells from a **100-year human** were rejuvenated back to youth.

In **2022**, a similar technique (using Yamanaka transcription factors) was used to partially **reverse** aging in live animals.

Human trials are now being pursued.

The box below shows the timeline in the development of **cellular reprogramming** using transcription factors.

Cellular Reprogramming

→ Rewriting the Rules of Biology | <https://pubmed.ncbi.nlm.nih.gov/33627519>

- > **2006:** cell reprogramming demonstrates **cellular rejuvenation**.
- > **2011:** Rejuvenation induced in very old **human** cells (*in vitro*)
- > **2022:** 100% of Human Genome sequenced.
- > **2022:** Aging partially **reversed** in live mice (*in vivo*)
- > **2022:** Research underway to **rejuvenate old humans**.

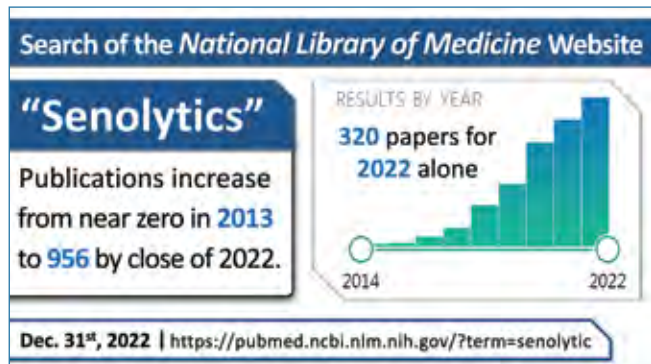
Prior biology doctrine: Cell **aging** irreversible...**rejuvenation** not possible.

Reducing the Senescent Cell Burden

For my keynote presentation, I planned on showing many new slides about **senolytics** (compounds that remove toxic **senescent cells** from the body).

Realizing there was insufficient time, I showed a chart from the **National Library of Medicine** that revealed near **zero** published papers about **senolytics** in **2013** and over **800** by mid-2022.

The chart below is updated to reflect all published studies that mention **senolytics** in **2022**.



A vaccine is being investigated that may enable one's aged immune system to remove senescent cells, thus eliminating the need for senolytic compounds.

A Vaccine Eliminates Senescent Cells

LongevityTechnology December 13th, 2021

David A. Sinclair AO PhD @dasilva13

Okay, this is a big deal: Vaccinations against aging work. Sure, it's a proof-of-principle study in a rapidly aging mouse, but there's little doubt this will be possible in us one day. Link 1/3

<https://www.longevitytechnology/a-vaccine-for-aging-that-eliminates-senescent-cells>

A book published in **2022** called "**Ageless**" described ways to achieve super-longevity including using senolytics. **Sanjay Gupta, M.D.** gave it a nice endorsement.

Senolytics described in new book.

"I don't think there is any kind of absolute cap on how long we can live."
— Dr. Andrew Steele
British Computational Biologist

"A fascinating look at how scientists are working to help doctors treat the aging process itself, helping us all to lead longer, healthier lives."
— Sanjay Gupta, MD

Ageless
The New Science of Getting Older Without Getting Old
Andrew Steele

June 5, 2022 | <https://doi.org/10.1210/clinem/dgac197>

Intermittent Fasting

Studies evaluating the broad-spectrum benefits of various forms of **time-restricted eating** continue to be largely consistent.

The potential value of intermittent fasting in cancer prevention is being continually corroborated as well as its role as possible adjuvant treatment.



Fasting-mimicking Diet and Anti-tumor Immunity

Cancer patients took up a 5 day, plant-based, calorie-restricted (low-carb/protein) diet.

It resulted in reduced median plasma glucose concentration by 18.6%, serum insulin by 50.7% and serum IGF-1 by 30.3%.

The reduced plasma glucose, insulin and IGF-1 was found to be crucial to down-regulating immunosuppressive myeloid cells and enhancing intra-tumor T cell cytotoxicity.

"...our results provide first evidence that five-day FMD produces systemic immunological effects that are associated with the activation of several antitumor immune programs at the tumor level in human cancers."

Jan. 12th, 2022 | <https://cancerdiscovery.aacrjournals.org/content/12/1/90>

Another study provided further validation of the general benefits of a fasting-mimicking diet in demonstrating significant **weight loss** and improvements in glycemic (diabetic) blood markers.

As Reported in the *Journal of Clinical Endocrinology & Metabolism*

Effects of 6 Month Periodic Fasting in Patients With Type 2 Diabetes & Diabetic Nephropathy

One week each month, modest low-carb, very low-protein diet:

A Diet Plan of:	Resulted in:
Day 1 ≈ 1100 calories	✓ 22 pounds of weight loss
Days 2–5 ≈ 700 calories	✓ 1.4% decrease in A1C
Day 6 ≈ Normal intake	✓ 59% improved insulin sensitivity
	✓ 67% of people reduced diabetic drug dose

June 5, 2022 | <https://doi.org/10.1210/clinem/dgac197>

Rapamycin

Several speakers presented the potential longevity benefits of **rapamycin**, a drug that has extended lifespan in virtually every model tested.

I focused on a newly identified mechanism of rapamycin, which is to reduce the error rate of cellular **protein synthesis** that occurs with normal aging.

The box below describes the importance of this finding.

Increased Fidelity of Protein Synthesis Extends Lifespan
Major Findings Published in Cell Metabolism November 2, 2021

The paper's authors emphasize that the baseline rate of error in protein synthesis can be hundreds of thousands of times more than the DNA mutation rate. Making it a major neglected aspect of aging.

"We show that anti-aging drugs such as rapamycin, Torin1, and trametinib reduce translation errors, and that rapamycin extends further organismal longevity in RPS23 hyper-accuracy mutants. This implies a unified mode of action for diverse pharmacological anti-aging therapies."

DNA
Mutations Very Rare

RNA
Mutates 40x More Often

PROTEIN
Added 25x More Errors

[https://www.cell.com/cell-metabolism/fulltext/S1550-4131\(21\)00417-4](https://www.cell.com/cell-metabolism/fulltext/S1550-4131(21)00417-4)

Two rapamycin **clinical trials** were described with results expected soon on the first of two **human** studies announced.

The primary outcome for the first study evaluates changes in **visceral fat** in response to **weekly** rapamycin doses of **5 mg** or **10 mg**. Secondary measures will assess **bone density** and other aging measures using blood tests as shown on the slide below.

March 5th, 2022 | National Institutes of Health - Clinicaltrials.gov listed study

Rapamycin Human Study Receives \$485,000 Funding

- ▶ Randomized, placebo-controlled trial into the safety/efficacy of rapamycin in reducing clinical measures of aging in an older adult population.
- ▶ Two differing doses: 5 mg or 10 mg of rapamycin one time a week or placebo.
- ▶ Primary Outcome Measure: Changes in visceral fat as measured by (DXA) scan.
- ▶ Secondary Outcomes: Range of clinical measures, e.g. bone density, blood tests, etc.
- ▶ > 50 people enrolled at \$360 each (original cost before donations was \$1,200).

Principal investigators: James Watson, M.D. and Sajad Zaizala, M.D.
Sponsor: AgelessRx Collaborator: University of California, Los Angeles

The second study being conducted at the **Mayo Clinic** will assess the effects of **rapamycin** on **cardiac function** in frail older adults.

Two registries have been established to enable people self-experimenting with **rapamycin** to report the benefits and any side effects they may be encountering.

The first slide on the next column describes a **Mayo Clinic** clinical trial that measures **cardiac function** effects of **rapamycin** given to frail older people.

The next two slides on the right side column describe the **rapamycin registries**.

May 24th, 2022 | National Institutes of Health – Clinicaltrials.gov listed study

Effect of Rapamycin to Improve Cardiac Function in Frail Older Adults

- ▶ To see if rapamycin will improve heart's ability to pump by improving oxygen consumption.
- ▶ Pilot, proof-of-concept study. Patients 60 years or older with invasively proven heart failure.
- ▶ Subjects with hsCRP levels $\geq 2\text{mg/L}$ will undergo treatment with open label rapamycin.
- ▶ Efficacy outcomes will be measured at baseline and at 6 months.
- ▶ Safety will be assessed by remote video monitoring.
- ▶ Rapamycin levels ($\leq 4\text{ng/mL}$) measured twice-a-month first month/ then monthly for 5 months.

Principal investigator: Mandeep Singh-----Sponsor: Mayo Clinic
<https://clinicaltrials.gov/ct2/show/NCT04996719>

Rapamycin.io
Rapamycin Human Longevity Open Registry >> 2022<<

"The Rapamycin Human Longevity Open Registry is a worldwide initiative to collect data on individuals using rapamycin for longevity through a series of online surveys in order to build the largest and most comprehensive global collection of information on this topic to date. It is the first online patient-driven registry for rapamycin usage, with individuals taking the drug driving the collection of data."

To Help Enhance Research Efforts VISIT: www.Rapamycin.io

University of Washington Rapamycin Study
<https://www.rapamycinstudy.org/>

"Our goal is to assess the impact of rapamycin use on healthy people and disseminate these findings for the benefit of everyone."

- Dr. Matt Kaeberlein, Dr. Jonathan An and Dr. Alan Green

This research has been funded by an Impetus Grant

A book about rapamycin was published in **2022** and serves as a primer for those not familiar with data showing that rapamycin **extends lifespan** in virtually every species tested.

The book (item #34189) costs \$14.95 and can be ordered by calling **1-800-544-4440** or logging on to www.LifeExtension.com

Up to 60% increase in life expectancy (in middle-aged mice)

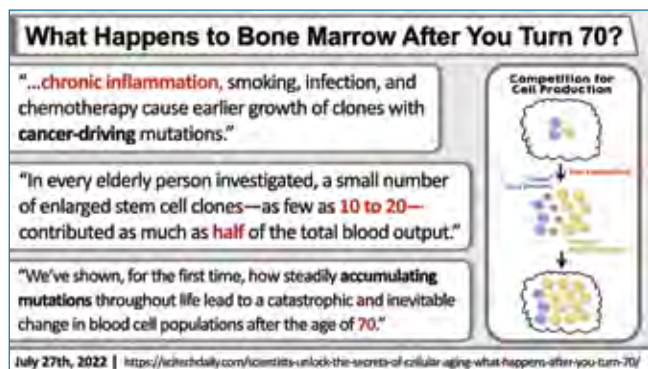
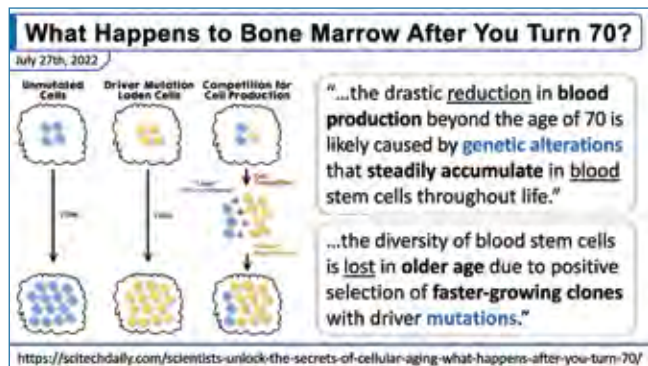
RAPAMYCIN
The Most Promising Life Extension Drug

Rapamycin, mTOR, Autophagy & Treating mTOR Syndrome

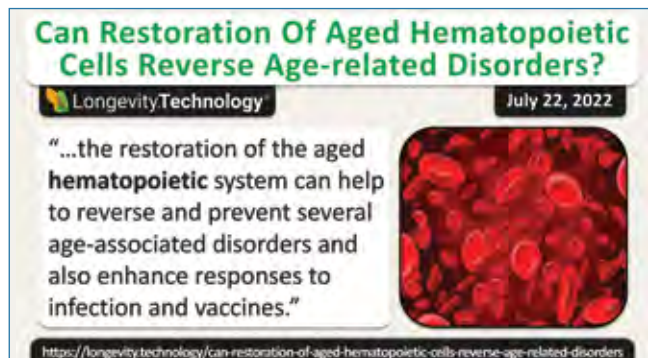
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6814615/>

Rejuvenating Aged Bone Marrow

Grim findings about what happens to bone marrow **stem cells** as we age are outlined on the following two slides. They were not shown during my time-limited talk at RAADFest.

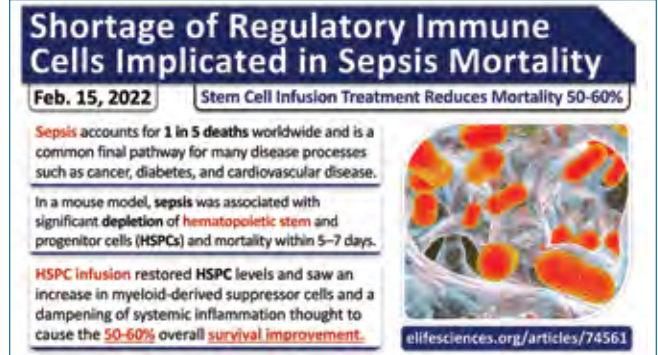


I then revealed encouraging news about what scientists are doing to combat loss of youthful **stem cell function** in aged **bone marrow**.

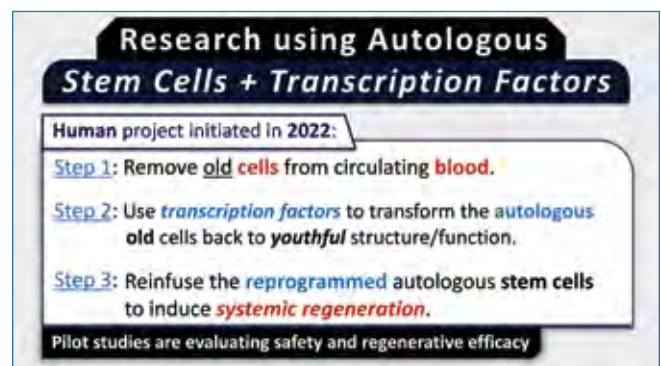


I presented a **2022** study (top of next column) showing that infusion of bone marrow (hematopoietic) **stem cells** into mice with sepsis markedly improved survival.

This approach is not yet available for **sepsis** patients, but research is being planned to help rejuvenate aged **human** bone marrow.



I next described human research initiatives that aim to regenerate human aged **hematopoietic** and **mesenchymal** stem cells with the objective of inducing **systemic rejuvenation**.

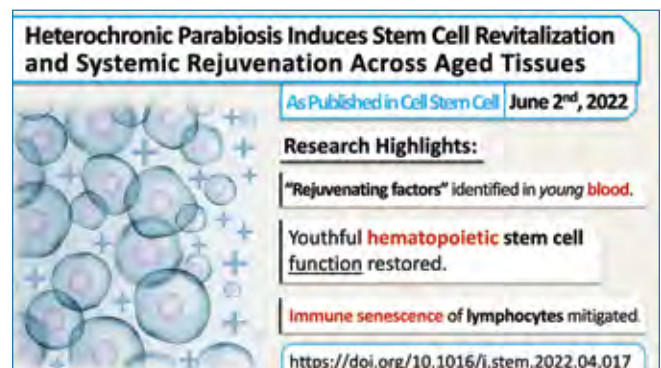


Regenerative Effects of Young Plasma

When **young blood** is continuously circulated into **old rodents** (parabiosis), multiple regenerative effects occur, and lifespans are often lengthened (as much as 10-12 human equivalent years).

One aspect of aging that **young blood** had not shown to improve was **immune senescence**.

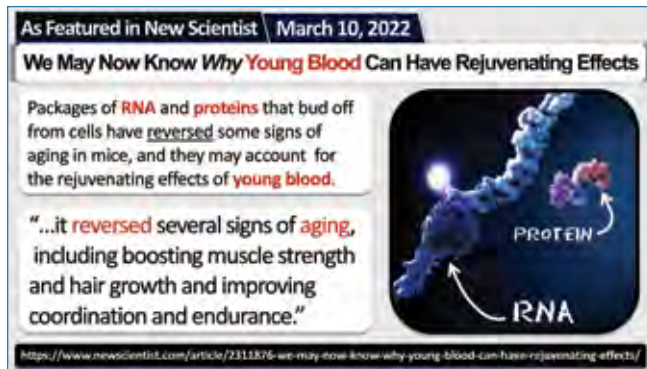
A **2022** study demonstrated for the first time restoration of **hematopoietic stem cell function** in response to parabiosis (young blood) therapy in rodents.



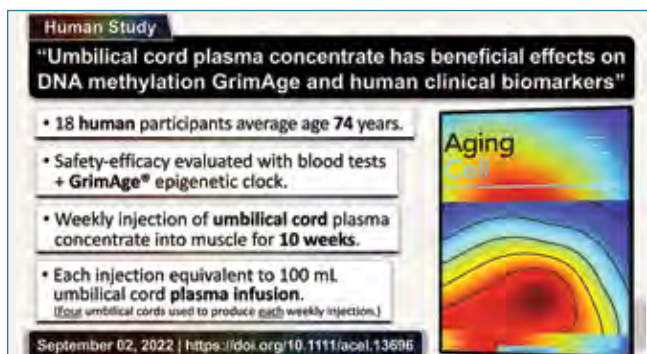
Continuously circulating **young blood** into old people is not practical.

What scientists have been doing is identifying factors in young blood that induce rejuvenation in older animals.

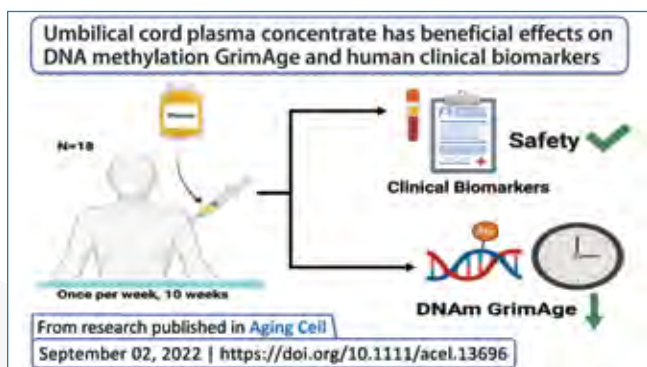
The beneficial microRNA and other proteins from **young blood** cells can then be synthesized to make them widely available to **reverse aging** processes in maturing **humans**.



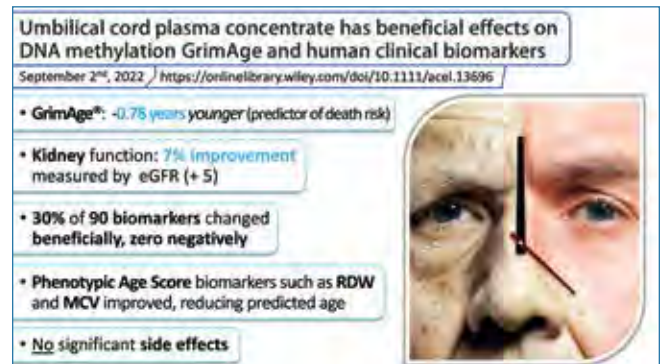
I next presented a study published in **September 2022** that I helped to fund. A concentrate from **human umbilical cord plasma** was injected into older people for 10 continuous weeks.



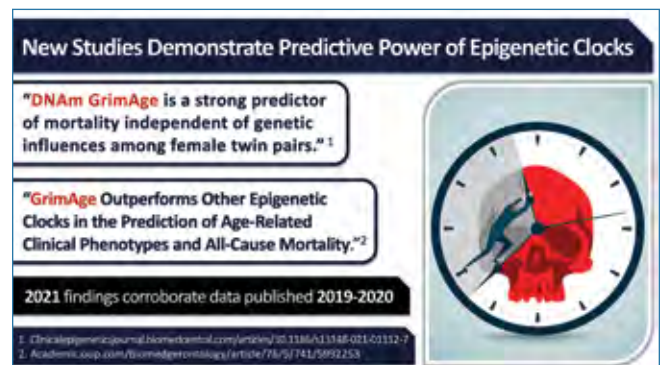
The objective of these studies is to identify the safety/efficacy of very young (umbilical cord) plasma and then synthesize the regenerative factors so that all elderly people will someday be able to enjoy varying degrees of rejuvenation.



This pilot study showed indicators of **age-reversal** after only 10-weeks of administering the concentrate derived from **umbilical cord plasma**.



For those not familiar with a blood test that measures biological aging, I created a slide (on this page) showing the predictive power of a test called **DNAm Grim Age**. This is currently an expensive test only available to researchers, but I explained later how one can obtain surrogate results at no charge with basic **blood tests**.



The Betterhumans Research Group

A nonprofit group (Betterhumans.org) that I help fund is making remarkable progress.

They have a team of scientists working around the clock to validate practical methods that elderly people can utilize to **reverse** indices of degenerative aging.

I encourage those with the wherewithal to make tax-deductible donations to contribute to Betterhumans.org group so they can initiate more age-reversal clinical research.

The slide at the top of the next column shows construction of Betterhumans new research facility.

The Betterhumans building you see on the next page is nearly finished now (beginning of 2023).



Therapeutic Plasma Exchange

Another method being studied to control **aging** is to undergo a process called “plasma apheresis” which is used in clinical practice today for autoimmune disorders.

On the main RAADFest stage, Dr. Kiprof acknowledged the recruitment campaign I organized to find study subjects for his ambitious clinical trial. The treatment is called **Therapeutic Plasma Exchange**.



Dr. Dobri Kiprof's research group (Lyfspan) is working with the prestigious **Buck Institute** on a study in which older people will undergo one of three different **apheresis protocols** to remove senile plasma proteins and replace them with fresh, healthy albumin plus immunoglobulins.



Offshore Medical Practices

A growing number of medical facilities are being established in Nassau, Bahamas due to its proximity to the United States and longstanding relationships that U.S. physician/scientists have maintained with their Bahamian counterparts.



The next slide on this page is a compound (former U.S. Consulate office of sorts) that the **Age-Reversal Network** group leased. It serves as a staging ground to plan potential age-reversal medical opportunities at several established clinics in The Bahamas. It also has free bedrooms for patients of these clinics to stay in who cannot afford hotel rooms.



Age Reversal Project – Bahamas

Those interested in medical treatments available in other countries should log on to: **www.age-reversal.net** and provide contact information to stay informed.

Lives Lost because of Over Regulation

The most tragic barrier delaying lifesaving progress is excess regulation of clinical (human) research.

On top of the next page is a slide that chronicles the multi-decade delay in recognizing the benefits of one drug (metformin):

Deadly Delays...Urgent Need for Reform

- England approves metformin: **1957**
- FDA approves metformin: **1994**
- **37-year delay** caused millions of American deaths.
- **65 years** later most people don't know metformin is **anti-aging** drug.

Regulatory Barriers Must be Abolished!



I created an online document to petition the **FDA** to remove bureaucratic roadblocks that are delaying regenerative medicine **clinical trials**. In many cases, the red tape is keeping promising human studies from even launching.

I ask readers to log on to: www.age-reversal.net/FDA to sign on to this petition that will be used to amend clinical trial requirements so that rapid-fire human studies can launch.

Bridging the Longevity Gap



Urgent Need to Reform Clinical Trial Regulations

Log on to: www.age-reversal.net/FDA to sign on to a petition to help amend clinical trial requirements.

Lethal Impact of Delayed Biomedical Technology

The slides on this page show the premature death of **Lyndon Johnson** (at age 64) and how similarly situated leaders of this country with **coronary artery disease** are living to age 76 and beyond because of advances in **biomedical technology**.

I then postulated that elderly people today are in the same predicament, i.e., we are **aging** to death when potential cures for biological aging may be less than a decade away.

My emphasis is the need to accelerate **rejuvenation research** with more **funding** and less governmental **regulation** over clinical trials.

Lyndon Johnson Prematurely Died Due to Technology Delay

- First **heart attack** age **46** (1955)
- Suffered **chronic angina** pain
- Resigned re-election age **59** (1968)
- Dead age **64** years (1973)

(Conventional treatments lacking in LBJ's era)



Alive Because of Biomedical Technology

Bill Clinton	George W. Bush	Dick Cheney
Coronary Bypass Age 58 In 2004	Coronary Stent Age 67 In 2003	Coronary Bypass Age 47 In 1998
Coronary Stent Age 63 In 2010		Coronary Stent Age 59 In 2000
		Ventricular Assist Age 69 In 2010
		Heart Transplant Age 71 In 2010



Age **76** Today Age **76** Today Age **81** Today

Bad News:
We are in similar predicament as **LBJ in 1955-1973**.

Good News:
Age-reversal science is rapidly advancing.

Lyndon Baines Johnson
1908-1973



Triumphs and Tragedies

The period from October 2021 to October 2022 was a year of scientific triumphs and needless tragedy.

We lost a dedicated long-term supporter to **type II diabetic** complications and I am determined to **STOP** these kinds of preventable tragedies.

A Needless Death

Vincent Stona
1955-2022



Dedicated RAADFest & Longevity Supporter



Urgent Need for Patient Empowerment

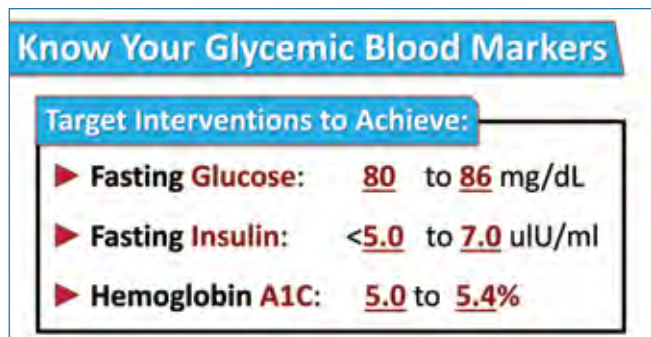


I emphasized during my talk that those with health problems who ignore my dietary and medication suggestions may fail to achieve their super-longevity objectives.

As much as I despise most elements of **Big Pharma**, every once in a while they develop a medication whose benefits outweigh side effect risks.

One of these is a drug class to reduce type II diabetic complications called **SGLT2 inhibitors**. I presented many slides on this class of drug that you can view at www.AgeReversal.net

If you have less than optimal **glycemic control**, I urge you to consider a **SGLT2 inhibitor** drug like **Jardiance®** in addition to **metformin**.



Know Your Glycemic Blood Markers

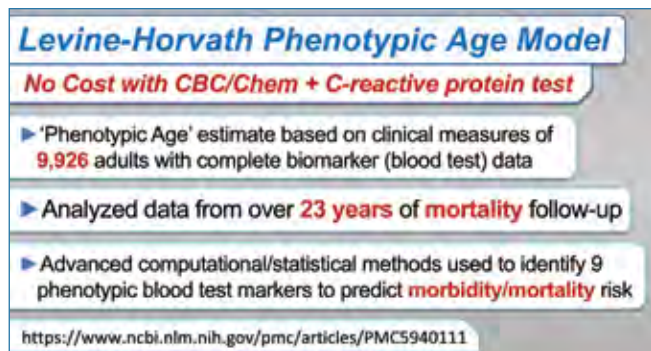
Target Interventions to Achieve:

- ▶ **Fasting Glucose:** 80 to 86 mg/dL
- ▶ **Fasting Insulin:** <5.0 to 7.0 uIU/ml
- ▶ **Hemoglobin A1C:** 5.0 to 5.4%

A Biological Age Estimate using Low Cost Blood Tests

A university research team has developed an algorithm to estimate one's **biological age** with results available from a **CBC/Chem + C-reactive protein** blood test.

Known as the **Levine-Horvath Phenotypic Age Model**, it was developed using blood test data to estimate future morbidity and mortality in nearly 10,000 people over a 23-year period.



Levine-Horvath Phenotypic Age Model

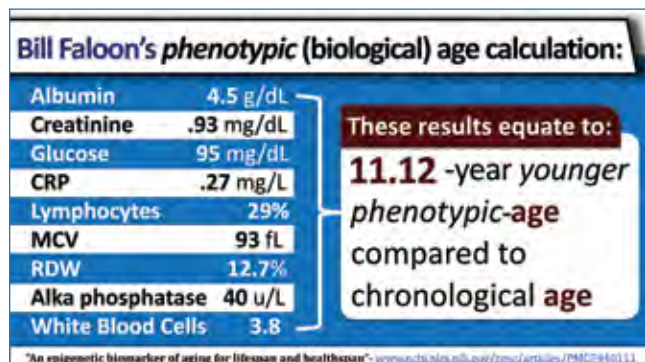
No Cost with CBC/Chem + C-reactive protein test

- ▶ 'Phenotypic Age' estimate based on clinical measures of **9,926** adults with complete biomarker (blood test) data
- ▶ Analyzed data from over **23 years** of **mortality** follow-up
- ▶ Advanced computational/statistical methods used to identify 9 phenotypic blood test markers to predict **morbidity/mortality** risk

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5940111>

This **Phenotypic Age Model** is not fully validated to predict biological aging at an individual level. Results from **comprehensive** blood test panels provide more reliable data in our opinion about one's future morbidity/mortality risks.

The slide below shows my score using calculations from the **Levine-Horvath Phenotypic Age Model**. It indicates my **biological age** to be about **11 years younger** than my chronologic age.



Bill Faloan's phenotypic (biological) age calculation:

Albumin	4.5 g/dL
Creatinine	.93 mg/dL
Glucose	95 mg/dL
CRP	.27 mg/L
Lymphocytes	29%
MCV	93 fL
RDW	12.7%
Alka phosphatase	40 u/L
White Blood Cells	3.8

These results equate to:
11.12 -year younger phenotypic-age compared to chronological age

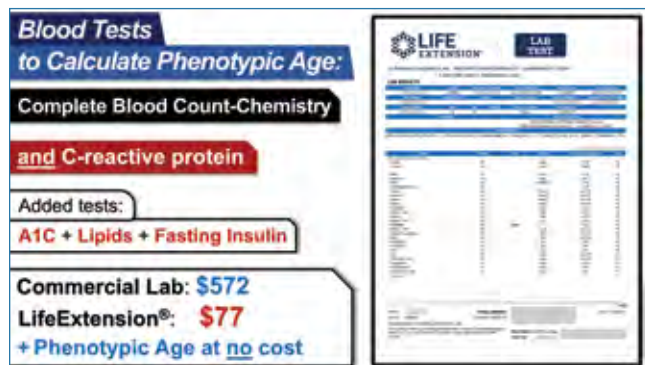
"An epigenetic biomarker of aging for lifespan and healthspan" - www.ncbi.nlm.nih.gov/pmc/articles/PMC2940111

This calculation is available at no extra cost for those who order a blood test panel that provides everything needed for the **Levine-Horvath** age model + fasting insulin, A1C, lipids, and other health measures.

Commercial labs charge over **\$500** for these tests, but readers of **Life Extension Magazine®** can obtain this test panel for only **\$77**.

Once you order this test, you are immediately sent a requisition and list of local blood draw centers throughout the U.S. Results come back quickly and will include the **Levine-Horvath** calculation of your **biological age**.

To order, call 1-800-208-3444 (24 hours) or log on to: www.LifeExtension.com/blood



Blood Tests to Calculate Phenotypic Age:

Complete Blood Count-Chemistry and C-reactive protein

Added tests:
A1C + Lipids + Fasting Insulin

Commercial Lab: \$572
LifeExtension®: \$77
+ Phenotypic Age at no cost

Note this surrogate measure of one's **biological age** is not the same as the **GrimAge** test described earlier in this article.

I continue to discuss the validity of the **Levine-Horvath Phenotypic Age Model** with experts in the field. What's nice about the Phenotypic Age Model is that its calculations are based on results from blood tests readers of this magazine already utilize on a regular basis.

Additional Topics in My Keynote Presentation

So far, I've presented less than half of the many areas of longevity research and practical applications that occurred since RAADfest 2021.

You can view my RAADfest presentation at: www.age-reversal.net (in video or PowerPoint format) that will cover:

- Massive weight loss with GLP-1 prescription drugs
- What is an Optimal diet? (Live 3 to 13 years longer)
- What's Behind Surging Deaths from Heart disease?
- Impossible become possible... Million Times Faster Computation
- Brain Implant Operates Digital Devices (Mind/Cloud interface)
- Elon Musk Predicts Humans can Live Forever
- Record numbers of Famous Dead Billionaires
- Lethal Impact of Elevated Glucose
- SGLT2 Inhibitor drugs protect kidneys, heart, and brain while lowering glucose and A1C.

Annual RAADfest Conference

RAADfest is a **nonprofit** conference whose purpose is to enable aging people to live in good health far *longer* than most anyone can imagine today.

This annual event enables people to stay informed and connect with many of the best doctors, scientists and thought leaders in the field.

RAADfest 2023 will be held in **Los Angeles**, California September 7-9, 2023.

RAADfest 2023 will begin Friday evening and continue all day Saturday with formal presentations going until 3 pm on Sunday. Informal gatherings will occur throughout the Friday-Sunday period.

The registration fee that includes two organic meals and cancellation insurance is **\$647** for LifeExtension readers. (Use code "LEF" to obtain this discounted registration price.)

To learn more or reserve your place at **RAADfest 2023**, log on to: www.Raadfest.com

In Summary...

It is a **privilege** and downright fun to interact with scientists on the front lines of regenerative medicine research.

Our mutual objective is to save **human** lives including our own.

Those interested in receiving email updates about research projects can register at no cost at: www.age-reversal.net

I conclude by asking those who are able to make charitable donations to the **Human Age Reversal Project**.

All donations will only be used to fund actual study costs and not salaries or overhead expenses.

Over **\$1 million** has been raised and nothing will be spent until multi-intervention age-reversal projects commence. (See the slide below.)

Welcome to our fantastic voyage!

For longer life,



William Faloon, Volunteer
Age Reversal Network*

*The Age Reversal Network is a public benefit group that consists of physicians, scientists, activists, and participants in regenerative medicine research. These individuals share a common desire to rejuvenate aged people. To receive free updates that are sent out every 3-4 weeks, log on to: www.age-reversal.net/join

Donate to Human Age Reversal Project

Fund Research with Tax-Deductible Donations

Human Age Reversal Project

Make checks payable to:

Human Age Reversal Project

3600 West Commercial Blvd.

Ft. Lauderdale, FL 33309



Or donate online at:

age-reversal.net/donate

Sweet DREAMS

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

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

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



Item #02234

3 mg • Net Wt. 2 fl. oz (59 ml)

For occasional sleeplessness.

This product is available at fine health food stores everywhere.



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

Our Most Complete Omega-3 **FISH OIL FORMULA**

Super Omega-3 provides higher EPA/DHA potencies PLUS components found in Mediterranean-style diets.

This advanced formula provides:

- 1. EPA/DHA Fish Oil**
(ultra pure/highly concentrated)
- 2. Olive polyphenols**
(to inhibit LDL oxidation)
- 3. Sesame lignans**
(to extend stability of DHA in the blood)
- 4. Astaxanthin**
(protects against lipid peroxidation)
- 5. Krill oil**
(a source of EPA/DHA)



Item #01988

120 softgels

This product is available at fine health food stores everywhere.

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

Essential Youth with L-Ergothioneine

*The 'Longevity'
Amino Acid*



Item #02431

30 vegetarian capsules

L-ergothioneine is an amino acid found in **mushrooms**.

Cell-based studies suggest that **L-ergothioneine** may support healthy longevity by:

- Protecting against **mitochondrial DNA** damage¹
- Delaying **telomere** shortening²
- Supporting **DNA function** in cells subjected to UV exposure³

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

This **5 mg** potency exceeds the **L-ergothioneine** contained in 2 cups of white button mushrooms, depending on growing conditions.^{4,5}

References

1. *Cell Death Differ.* 2010 Jul;17(7):1134-40.
2. *J Diet Suppl.* 2020 Dec 7:1-14.
3. *Free Radic Biol Med.* 2009 Apr 15;46(8):1168-76.
4. *FEBS Lett.* 2018 Oct;592(20):3357-66.
5. *Food Chem.* 2017 Oct 15;233:429-33.



This product is available at
fine health food stores everywhere.

ErgoActive® is a registered mark of Blue California.

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.

RESVERATROL *ELITE*™

UP TO **10** TIMES GREATER
BIOAVAILABILITY[†]

Hundreds of published studies describe **resveratrol's** potential **health** and **longevity** effects.

The challenge has been achieving significant sustained **blood levels** of **resveratrol**.

A new **resveratrol** solves this with a special *plant-based hydrogel* coating.

In a recent **human** trial*, this technology increased **bioavailability** by up to **10 times**.

This patented process **maximizes** resveratrol availability to your cells.



**MORE Bioavailability
at LOWER Cost!**

Resveratrol Elite™

Highly bioavailable
fenugreek **hydrogel resveratrol**
formula in one daily capsule.

Item #02210

30 vegetarian capsules

This product is available at fine
health food stores everywhere.



[†]Than unformulated resveratrol.

*ACS Omega. 2022 Apr 19;7(15):12835-45.

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.

A person with blonde hair tied back, wearing a white t-shirt and a red life vest, is seen from behind while kayaking on a vibrant turquoise lake. The person is holding a black paddle, with one blade visible in the air on the left side of the frame. The background features a range of rugged, snow-capped mountains under a clear blue sky. The sun is positioned high in the center of the frame, creating a strong lens flare effect that radiates across the sky and water. The water's surface is calm with gentle ripples, reflecting the bright light.

EASE BREATHING AND IMPROVE LUNG FUNCTION



BY MICHAEL DOWNEY

With age, lung function begins to decline.¹⁻³

The problem is further exacerbated by exposure to secondhand smoke and air pollution.

This decline threatens overall health, quality of life, and **lifespan**.²

Scientists have identified four **plant-derived** ingredients that can help counter this decline.

Human studies have validated significant improvements in **lung function**.



Saffron flower

*Boswellia
Serrata*

Over **40%** of Americans live in areas with poor air quality. Pollution levels correlate with increased rates of **lung disease**.⁴⁻⁶

For example:⁴

- Ohio has the country's **worst** air quality—and a **lung disease** prevalence of **15.5%**.
- Hawaii has the country's **best** air quality—and a **lung disease** prevalence of just **3.5%**.
- Lung symptoms of air pollution exposure can include coughing, breathing difficulties, congestion and worse.
- Excessive air pollution can result in development of respiratory conditions, including **asthma** and **chronic obstructive pulmonary disease (COPD)**.

Key Nutrients Can Help

Scientists have identified **four** plant-derived compounds that improve lung health as follows:⁷⁻¹⁶

- **Boswellia serrata** and **Aegle marmelos** improved breathing and lung function in *healthy adults* sensitive to pollution,⁸
- **Boswellia serrata**, **Aegle marmelos**, and **saffron** were shown to **improve** breathing ability in *asthmatics*,^{7,9,10} and
- In preclinical studies, **andrographolide** has been shown to **reduce** smoke-induced lung damage.¹⁴⁻¹⁶

BOSWELLIA-BAEL FRUIT BLEND

Boswellia serrata is a plant found in Arabia and India. It has shown benefits for several conditions, including **asthma**.¹⁷

Bael fruit is a shrub native to the Indian subcontinent and southeast Asia. Its fruit and seeds are used in traditional medicine for various disorders.¹⁸

An equal **blend** of extracts of these plants was shown, in a clinical trial, to *alleviate* asthma symptoms and to provide a clinically meaningful improvement in **lung health** parameters.⁷

In one study, scientists enlisted healthy adults with self-described **sensitivity to air pollution**.⁸

This trial included a group that took a **placebo**, while another group took **200 mg** daily of the **Boswellia-Bael** blend. After just three weeks, the group that received the **Boswellia-Bael** combination had some improved lung function. After **six weeks**, they had a:⁸

- **30.2%** improvement in **total air exhaled** during a spirometry test (which measures lung capacity, or how much air you can breathe into or out of your lungs),
- **16.4%** improvement in air forced out in the *first second*, a measure of air movement through larger airways, and
- **7.4%** improvement in **aerobic exercise capacity**, measured by average speed walked during a six-minute period (from **3.36 mph** to **3.5 mph**).

COPD and asthma can require use of inhalers for coughing, wheezing, or troubled breathing during a flare-up. For this reason, they are also called rescue drugs or rescue inhalers.

A second study investigated the effect of the same blend in subjects who suffered from mild to moderate **bronchial asthma**. One group took a placebo, while the other took **100 mg** of the **Boswellia-Bael** blend **twice** daily.⁷



Andrographis paniculata

The treatment group experienced improved breathing and reduced use of inhalers, including a:⁷

- **50.17%** improvement in **peak expiratory flow rate**, a measure of the maximum amount of air a person can push out of their lungs when exhaling forcefully, after eight weeks, and
- **44%** decrease in the use of a “rescue” **asthma inhaler** after four weeks.

The improvements were attributed to the extracts’ **anti-inflammatory** activity.⁷

SAFFRON

The spice **saffron** has long been used in traditional medicine for respiratory ailments and to counter inflammation, among other purposes.¹⁰

Eighty adults with mild to moderate **asthma** were enrolled in a placebo-controlled trial. After taking **50 mg of saffron** twice daily for **eight weeks**, the treatment group had:^{9,10}

- **50%** less waking at night due to asthma symptoms,
- **40%** less “rescue” inhaler use,
- **36.8%** less activity limitation, and
- **33.8%** less shortness of breath during the night.

Saffron also reduced biomarkers of **inflammation** (such as C-reactive protein).^{10,19-21} Animal data show that saffron has relaxing effects on the smooth muscle of the **trachea** (windpipe) as an additional mechanism of supporting breathing/lung function.¹⁹⁻²⁵

ANDROGRAPHOLIDE

The compound **andrographolide** is extracted from the stem and leaves of *Andrographis paniculata*. It has been used in traditional Indian medicine and is best known for supporting **immunity**.²⁶

Cell and animal models of smoke- or pollution-induced lung toxicity suggest that andrographolide may protect against **lung damage**. It appears to do so by:^{11,13-16}

- Inhibiting **DNA damage**,
- Protecting against **oxidative stress**, and
- Reducing **inflammation**.



WHAT
YOU
NEED
TO
KNOW

Breathe Easy as You Age

- Beginning around age 25-35, lung function begins to decline with each passing year. Respiratory health is further damaged by air pollution.
- Scientists identified **four** plant-derived ingredients that enhance lung health: *Boswellia serrata*, Bael fruit, saffron, and andrographolide.
- Human studies show that a blend of **Boswellia** and **Bael fruit extracts** improved breathing and boosted lung function in healthy individuals, as well as people with sensitivity to air pollution or those with asthma.
- A clinical study shows that **saffron** extract increased breathing capacity and reduced symptoms in those suffering from asthma.
- Preclinical data suggest that **andrographolide** could protect lungs against pollution and smoke.

A combination of **Boswellia-Bael blend**, **saffron**, and **andrographolide** may help protect lung function and promote better breathing well into older age.

Summary

Aging, declining lung function, and air pollution can damage **lungs** and cause breathing difficulties. Researchers have identified **four** plant-based ingredients that protect healthy lung function.

A blend of **Boswellia** and **Bael fruit** extracts was clinically shown to improve breathing and relieve asthma symptoms.

Saffron extract was clinically demonstrated to improve asthma.

Andrographolide was found in preclinical research to protect against lung damage from pollutants and smoke.

Together, these ingredients may help preserve vital lung function and breathing capacity. •

References

- Sharma G, Goodwin J. Effect of aging on respiratory system physiology and immunology. *Clin Interv Aging*. 2006;1(3):253-60.
- Bowdish DME. The Aging Lung: Is Lung Health Good Health for Older Adults? *Chest*. 2019 Feb;155(2):391-400.
- Available at: <https://www.lung.org/lung-health-diseases/how-lungs-work/lung-capacity-and-aging>. Accessed December, 7, 2022.
- Available at: <https://www.lung.org/research/trends-in-lung-disease/prevalence-incidence-lung-disease>. Accessed December, 7, 2022.
- Available at: <https://worldpopulationreview.com/state-rankings/air-quality-by-state>. Accessed December, 7, 2022.
- Available at: <https://www.npr.org/2022/04/21/1093205632/air-quality-pollution-state-of-air-report>. Accessed December, 7, 2022.
- Yugandhar P, Rao KM, Sengupta K. A novel herbal composition containing extracts of *Boswellia serrata* gum resin and *Aegle marmelos* fruit alleviates symptoms of asthma in a placebo controlled double-blind clinical study. *Phytother Res*. 2018 Jan;32(1):140-50.
- PLT. *Alviolife*. 2022.
- Zilaei M, Hosseini SA, Jafarirad S, et al. An evaluation of the effects of saffron supplementation on the asthma clinical symptoms and asthma severity in patients with mild and moderate persistent allergic asthma: a double-blind, randomized placebo-controlled trial. *Respir Res*. 2019 Feb 22;20(1):39.
- Hosseini SA, Zilaei M, Shoushtari MH, et al. An evaluation of the effect of saffron supplementation on the antibody titer to heat-shock protein (HSP) 70, hsCRP and spirometry test in patients with mild and moderate persistent allergic asthma: A triple-blind, randomized placebo-controlled trial. *Respir Med*. 2018 Dec;145:28-34.
- Tan WSD, Liao W, Peh HY, et al. Andrographolide simultaneously augments Nrf2 antioxidant defense and facilitates autophagic flux blockade in cigarette smoke-exposed human bronchial epithelial cells. *Toxicol Appl Pharmacol*. 2018 Dec 1;360:120-30.
- Liao W, Lim AYH, Tan WSD, et al. Restoration of HDAC2 and Nrf2 by andrographolide overcomes corticosteroid resistance in chronic obstructive pulmonary disease. *Br J Pharmacol*. 2020 Aug;177(16):3662-73.
- Luo W, Jia L, Zhang JW, et al. Andrographolide Against Lung Cancer-New Pharmacological Insights Based on High-Throughput Metabolomics Analysis Combined with Network Pharmacology. *Front Pharmacol*. 2021;12:596652.

How Breathing Problems Develop

Proper **lung function** is essential to overall health.² But starting around age **35**, lung function declines at a rate of **1%-2%** yearly.¹

That's because **aging** causes changes that can decrease lung capacity.³

- Diaphragm muscles weaken,
- The tissue that keeps airways open loses elasticity, making airways smaller, and
- Rib cage bones decrease in size, leaving less room for lungs to expand.

Deterioration of breathing capacity affects every cell in the body. This age-related decline may be accelerated by other factors, including inflammation and **air pollution**.

- Tan WS, Peh HY, Liao W, et al. Cigarette Smoke-Induced Lung Disease Predisposes to More Severe Infection with Nontypeable *Haemophilus influenzae*: Protective Effects of Andrographolide. *J Nat Prod*. 2016 May 27;79(5):1308-15.
- Yang D, Zhang W, Song L, et al. Andrographolide protects against cigarette smoke-induced lung inflammation through activation of heme oxygenase-1. *J Biochem Mol Toxicol*. 2013 May;27(5):259-65.
- Guan SP, Tee W, Ng DS, et al. Andrographolide protects against cigarette smoke-induced oxidative lung injury via augmentation of Nrf2 activity. *Br J Pharmacol*. 2013 Apr;168(7):1707-18.
- Ernst E. Frankincense: systematic review. *BMJ*. 2008 Dec 17;337:a2813.
- Available at: <https://hort.purdue.edu/newcrop/CropFactSheets/bael.html>. Accessed December, 7, 2022.
- Neamati A, Boskabady MH. Effect of *Crocus sativus* (Saffron) on Muscarinic Receptors of Guinea Pig Tracheal Chains. 2010.
- Boskabady MH, Aslani MR. Relaxant effect of *Crocus sativus* (saffron) on guinea-pig tracheal chains and its possible mechanisms. *J Pharm Pharmacol*. 2006 Oct;58(10):1385-90.
- Boskabady MH, Seyedhosseini Tamijani SM, Rafatpanah H, et al. The effect of *Crocus sativus* extract on human lymphocytes' cytokines and T helper 2/T helper 1 balance. *J Med Food*. 2011 Dec;14(12):1538-45.
- Nemati H, Boskabady MH, Ahmadzadeh Vostakolaei H. Stimulatory effect of *Crocus sativus* (saffron) on beta2-adrenoceptors of guinea pig tracheal chains. *Phytomedicine*. 2008 Dec;15(12):1038-45.
- Boskabady MH, Tabatabaee A, Byrami G. The effect of the extract of *Crocus sativus* and its constituent safranal, on lung pathology and lung inflammation of ovalbumin sensitized guinea-pigs. *Phytomedicine*. 2012 Jul 15;19(10):904-11.
- Byrami G, Boskabady MH, Jalali S, et al. The effect of the extract of *Crocus sativus* on tracheal responsiveness and plasma levels of IL-4, IFN- γ , total NO and nitrite in ovalbumin sensitized guinea-pigs. *J Ethnopharmacol*. 2013 May 20;147(2):530-5.
- Mokhtari-Zaer A, Khazdair MR, Boskabady MH. Smooth muscle relaxant activity of *Crocus sativus* (saffron) and its constituents: possible mechanisms. *Avicenna J Phytomed*. 2015 Sep-Oct;5(5):365-75.
- Okhuarobo A, Falodun JE, Erharuyi O, et al. Harnessing the medicinal properties of *Andrographis paniculata* for diseases and beyond: a review of its phytochemistry and pharmacology. *Asian Pac J Trop Dis*. 2014 Jun;4(3):213-22. doi: 10.1016/S2222-1808(14)60509-0.



"NAC is a powerful tool."

Maury

VERIFIED CUSTOMER REVIEW

TAP THE POWER OF N-ACETYL-L-CYSTEINE

TO SUPPORT IMMUNE FUNCTION

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

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

This product is available at fine health food stores everywhere.



Item #01534

600 mg • 60 capsules

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
Mitochondrial
Delivery System

"My gift to my heart."

Donna

VERIFIED CUSTOMER REVIEW



100 mg CoQ10

Item #01426

100 mg • 60 softgels



200 mg CoQ10

Item #01431

200 mg • 30 softgels



100 mg CoQ10 + 10 mg PQQ

Item #01733

100 mg • 30 softgels



These products are available at fine health food stores everywhere.

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

BREATHE EASY

Lung health is adversely impacted by aging and environmental exposures.

Healthy Lungs contains **four** plant-derived compounds to support **optimal lung** function:¹

- ***Boswellia serrata***^{1,2}
- **Bengal quince**,^{1,2}
- **Saffron**,^{3,4}
- **Andrographolide**¹

Studies have shown these nutrients can:

- Improve breathing capacity.
- Assist healthy adults sensitive to environmental exposure.¹
- Promote lung function.²⁻⁴



Healthy Lungs • Item #02512

30 vegetarian capsules

(one capsule per day)

This product is available at fine health food stores everywhere.

References: 1. PLT Study. 2022. Unpublished. Data on file. 2. *Phytother Res.* 2018 Jan;32(1):140-50.
3. *Respir Res.* 2019 Feb 22;20(1):39. 4. *Respir Med.* 2018 Dec;145:28-34.

AlvioLife® is a registered trademark of PLT Health Solutions-Laila Nutraceuticals 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.

Improve Metabolic Health with **QUERCETIN**





BY WILLIAM PATEL

Metabolic disorders can result in rapid onset of chronic illnesses.

Dietary factors, sedentary lifestyle, and poor gut health are contributors to poor metabolic health.¹⁻³

Scientists have learned that **quercetin**, found in plant foods, can *counter* metabolic dysfunction.⁴

A clinical study in older adults with **metabolic syndrome** found that **quercetin** reduced cardiovascular risk factors.⁵

What is Metabolic Syndrome?

Metabolic syndrome is a cluster of conditions that includes any three of the following:⁶

- Elevated blood pressure
- High blood sugar
- Large waist circumference
- Low HDL cholesterol
- High triglycerides

Individuals with **metabolic syndrome** are at increased risk of diabetes and its complications, cardiovascular disease, age-related disorders, and death.^{6,7}

Quercetin to the Rescue

Scientists have long been intrigued about why unprocessed, plant-based diets are protective against metabolic disease.

One nutrient, the flavonoid **quercetin**, is particularly prevalent in a wide range of fruits, vegetables, and medicinal plants. Hundreds of studies—in cell culture, animals, and humans—have documented the multiple properties of this nutrient.

Many of its effects in the body apply directly to metabolic health, reversing many of the changes present when metabolic health is not ideal.⁴

In a controlled clinical trial in older adults with **metabolic syndrome**, quercetin was shown to improve metabolic health, reduce cardiovascular risk factors, and decrease participants' metabolic age.⁵

Better Blood Glucose Control

Metabolic disease is usually thought to be caused by **insulin resistance** and insufficient blood **glucose control**.

The hormone insulin helps cells to take up and process nutrients from the diet, including sugars. In most metabolic diseases, cells fail to respond to insulin appropriately; this is called **insulin resistance**.^{8,9}

The result of **insulin resistance** is high **blood levels** of **glucose** that contribute to chronic degenerative diseases that accompany aging. That is why individuals with diabetes or the metabolic syndrome have *higher* rates of most chronic diseases.²

After-meal glucose spikes are damaging for all individuals, and likely more so for diabetics. These blood sugar surges are contributors to cellular and vascular damage and raise the risk of cardiovascular disease and premature death.

Quercetin has been shown to *improve glucose control* as shown on the following page:



WHAT YOU NEED TO KNOW

- Preclinical studies show **quercetin** helps activate cellular pathways—such as **AMPK**—that improve metabolism and reverse insulin resistance.^{4,10,11}
- A meta-analysis of randomized controlled trials revealed that **quercetin** supplementation for eight weeks or more, at a dosage of **500 mg** or higher, reduced fasting blood glucose. That same dose also reduced excess insulin concentrations.¹²
- Remarkably, even **one single dose** of quercetin has been demonstrated to exert a beneficial clinical effect in a study in type II diabetics. In a randomized, placebo-controlled trial, 24 diabetics already being treated with medication were given **400 mg** of quercetin before receiving a simple sugar. After the sugar dose, blood glucose was suppressed in those who received quercetin, compared to the placebo arm.¹³
- Another clinical trial found that long-term quercetin supplementation resulted in a significantly improved response (lower blood sugar spike) to an oral glucose tolerance test.⁵

Quercetin supplementation clearly resulted in improved glucose control and a healthier carbohydrate metabolism.

Improved Lipid Levels

Another prominent feature of metabolic disease is elevated levels of LDL cholesterol and triglycerides and reduced HDL cholesterol (the “good cholesterol”).² Like elevated blood glucose, these changes are contributors to cardiovascular disease.^{1,2}

Multiple human studies have shown the benefits of quercetin for lipid abnormalities.

In overweight and obese adults with early metabolic syndrome, **150 mg** of quercetin daily reduced **blood pressure** and oxidized **LDL cholesterol**.¹⁴

In healthy men, **150 mg** of quercetin daily for eight weeks decreased **waist circumference**, after-meal **systolic blood pressure** (top number), and after-meal **triglyceride** levels.¹⁵



Improve Metabolism with Quercetin

- Metabolic disorders are increasingly common, and scientists warn of a growing epidemic.
- Metabolic abnormalities include obesity, diabetes, the metabolic syndrome, abnormal blood lipid levels, and non-alcoholic fatty liver disease.
- All these related disorders dramatically increase the risk for age-related chronic diseases, from cancer to dementia.
- Scientists have found that quercetin—a flavonoid found in many plants—is protective of metabolic health.
- Clinical and preclinical studies show that supplementation with quercetin can benefit many aspects of metabolic disease, improving blood glucose control and lipid levels while protecting the liver and reducing inflammation and oxidative stress.

In a placebo-controlled trial in 110 patients with metabolic syndrome, aged 60-74, **240 mg** of quercetin daily for three months lowered **total** and **LDL cholesterol**.⁵

A randomized controlled trial found that daily supplementation with quercetin lowered total cholesterol, LDL cholesterol, and triglycerides, and raised HDL cholesterol.¹⁶

Protection of the Gut and Liver

Animal research has shown that quercetin can protect the liver from abnormal accumulations of fats and can improve lipid metabolism.¹⁷⁻²¹

Even in patients being treated for **non-alcoholic fatty liver** disease, quercetin supplementation has been found to improve liver health, reducing signs of liver damage and inflammation while improving lipid levels.²²

It may also improve the gut microbiome, the mix of bacteria that reside in the intestines. Quercetin may help shift the mix of these microorganisms into a healthier form. Such changes would be expected to reduce inflammation and “leaky gut” and to have the potential of improving the health of other organs as well, body wide.²³



Obesity and Metabolic Syndrome

Obesity adds to risks of metabolic disturbances. A prospective study assessing the mortality status of 6,678 healthy middle-aged men concluded that **metabolic syndrome** increased the risk of sudden death from **heart attack** by **68%**.⁷

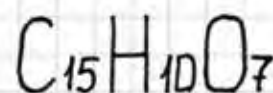
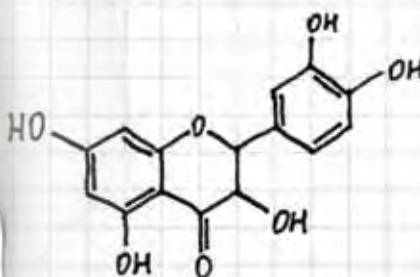
A trial of overweight and obese adults with early metabolic syndrome tendencies tested **150 mg** of quercetin daily. This modest dose reduced blood pressure and lowered levels of oxidized LDL cholesterol.²⁴

Not All Quercetin is the Same

Despite its wide-ranging benefits, quercetin is generally difficult for the body to fully absorb.

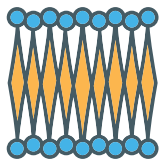
Looking to solve this problem, researchers discovered that when quercetin was surrounded by a plant-based **phytosome**, it became much more absorbable. In a clinical study, a **phytosome quercetin** provided **50 times** more bioavailability than regular quercetin for enhanced therapeutic benefits. So, for example, a **10 mg** dose of phytosome quercetin is the equivalent of a **500 mg** dose of regular quercetin.³⁰

Quercetin





METABOLIC SYNDROME



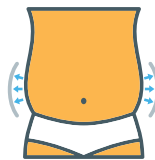
Lipid
Abnormalities



Hypertension



Insulin
Resistance



Visceral
Obesity



Type II
Diabetes



Low HDL
Cholesterol

Another clinical study found that the same dose of quercetin (**150 mg/day**) for eight weeks decreased waist circumference and *after-meal* systolic blood pressure, while also lowering *after-meal* triglyceride levels in a group of otherwise healthy men.¹⁵

Reduction in Inflammation & Oxidative Stress

Chronic inflammation and oxidative stress due to free radicals are major contributors to all chronic diseases, especially metabolic disease.

Quercetin provides potent activity against both issues. It reduces oxidative stress and promotes the expression of antioxidant enzymes so that the body can better protect itself.

At the same time, quercetin powerfully controls **inflammation** by modulating cell signaling pathways. Clinical and non-clinical studies have demonstrated that it decreases production of pro-inflammatory compounds and helps prevent **chronic inflammation**.²⁵⁻²⁸

Increased dietary intake of flavonoids such as quercetin may reduce the risk of chronic illnesses.²⁹

Summary

Metabolic disease is increasingly common. Abnormalities of metabolism manifest in several different conditions including diabetes, obesity, lipid abnormalities, and non-alcoholic fatty liver disease.

The epidemic of these disorders is expected to increase and will contribute to rapid aging and most chronic diseases.

Quercetin, a flavonoid found in several different fruits and vegetables, has a profound effect on metabolic health.

Studies show that supplementation with quercetin has positive effects on many aspects of metabolism, including improved blood glucose control, trimmer physique, improved blood lipid levels and gut health, and protection of the liver. •

References

- Deng X, Wang P, Yuan H. Epidemiology, risk factors across the spectrum of age-related metabolic diseases. *J Trace Elem Med Biol*. 2020 Mar 19;61:126497.
- Chen R, Safiri S, Behzadifar M, et al. Health Effects of Metabolic Risks in the United States From 1990 to 2019. *Front Public Health*. 2022;10:751126.
- Hosseini A, Razavi BM, Banach M, et al. Quercetin and metabolic syndrome: A review. *Phytother Res*. 2021 Oct;35(10):5352-64.
- Yi H, Peng H, Wu X, et al. The Therapeutic Effects and Mechanisms of Quercetin on Metabolic Diseases: Pharmacological Data and Clinical Evidence. *Oxid Med Cell Longev*. 2021;2021:6678662.
- Shatilo VB, Antonyuk-Shcheglova IA, Naskalova SS, et al. Quercetin effect on endogenous factors of cardiovascular risk and ageing biomarkers in elderly people. *Ageing and Longevity*. 2022;3(2):32-40.
- Available at: <https://www.heart.org/en/health-topics/metabolic-syndrome/about-metabolic-syndrome>. Accessed November, 14, 2022.
- Empana JP, Ducimetiere P, Balkau B, et al. Contribution of the metabolic syndrome to sudden death risk in asymptomatic men: the Paris Prospective Study I. *Eur Heart J*. 2007 May;28(9):1149-54.
- Reaven GM. Banting lecture 1988. Role of insulin resistance in human disease. *Diabetes*. 1988 Dec;37(12):1595-607.
- Available at: <https://www.niddk.nih.gov/health-information/diabetes/overview/what-is-diabetes/prediabetes-insulin-resistance?dkrd=hiscr0002>. Accessed November, 16, 2022.
- Dhanya R, Arya AD, Nisha P, et al. Quercetin, a Lead Compound against Type 2 Diabetes Ameliorates Glucose Uptake via AMPK Pathway in Skeletal Muscle Cell Line. *Front Pharmacol*. 2017;8:336.
- Eid HM, Nachar A, Thong F, et al. The molecular basis of the antidiabetic action of quercetin in cultured skeletal muscle cells and hepatocytes. *Pharmacogn Mag*. 2015 Jan-Mar;11(41):74-81.
- Ostadmohammadi V, Milajerdi A, Ayati E, et al. Effects of quercetin supplementation on glycemic control among patients with metabolic syndrome and related disorders: A systematic review and meta-analysis of randomized controlled trials. *Phytother Res*. 2019 May;33(5):1330-40.
- Hussain SA, Ahmed ZA, Mahwi TO, et al. Quercetin dampens postprandial hyperglycemia in type 2 diabetic patients challenged with carbohydrates load. *International Journal of Diabetes Research*. 2012;1(3):32-5.
- Egert S, Bosy-Westphal A, Seiberl J, et al. Quercetin reduces systolic blood pressure and plasma oxidised low-density lipoprotein concentrations in overweight subjects with a high-cardiovascular disease risk phenotype: a double-blinded, placebo-controlled cross-over study. *British Journal of Nutrition*. 2009;102(7):1065-74.
- Pfeuffer M, Auinger A, Bley U, et al. Effect of quercetin on traits of the metabolic syndrome, endothelial function and inflammation in men with different APOE isoforms. *Nutr Metab Cardiovasc Dis*. 2013 May;23(5):403-9.
- Talirevic E, Jelena S. Quercetin in the treatment of dyslipidemia. *Med Arh*. 2012;66(2):87-8.
- Krishna Mohan S, Jainu M. Effect of pioglitazone, quercetin, and hydroxy citric acid on the lipid profile and lipoproteins in experimentally induced non-alcoholic steatohepatitis (NASH). *Indian Journal of Pharmaceutical Education and Research*. 2014;48(1):32-8.
- Li X, Wang R, Zhou N, et al. Quercetin improves insulin resistance and hepatic lipid accumulation in vitro in a NAFLD cell model. *Biomed Rep*. 2013 Jan;1(1):71-6.
- Pisonero-Vaquero S, Martinez-Ferreras A, Garcia-Mediavilla MV, et al. Quercetin ameliorates dysregulation of lipid metabolism genes via the PI3K/AKT pathway in a diet-induced mouse model of nonalcoholic fatty liver disease. *Mol Nutr Food Res*. 2015 May;59(5):879-93.
- Ragab SM, Abd Elghaffar S, El-Metwally TH, et al. Effect of a high fat, high sucrose diet on the promotion of non-alcoholic fatty liver disease in male rats: the ameliorative role of three natural compounds. *Lipids Health Dis*. 2015 Jul 31;14:83.
- Zhu X, Xiong T, Liu P, et al. Quercetin ameliorates HFD-induced NAFLD by promoting hepatic VLDL assembly and lipophagy via the IRE1 α /XBP1s pathway. *Food Chem Toxicol*. 2018 Apr;114:52-60.
- Pryszazhnyuk V, Voloshyn O. Effects of comprehensive treatment with quercetin administration on biochemical blood parameters and pro- and anti-inflammatory cytokines in nonalcoholic fatty liver disease patients. *The Pharma Innovation Journal*. 2017;6:386-9.
- Porras D, Nistal E, Martinez-Florez S, et al. Protective effect of quercetin on high-fat diet-induced non-alcoholic fatty liver disease in mice is mediated by modulating intestinal microbiota imbalance and related gut-liver axis activation. *Free Radic Biol Med*. 2017 Jan;102:188-202.
- Egert S, Bosy-Westphal A, Seiberl J, et al. Quercetin reduces systolic blood pressure and plasma oxidised low-density lipoprotein concentrations in overweight subjects with a high-cardiovascular disease risk phenotype: a double-blinded, placebo-controlled cross-over study. *Br J Nutr*. 2009 Oct;102(7):1065-74.
- Li Y, Yao J, Han C, et al. Quercetin, Inflammation and Immunity. *Nutrients*. 2016 Mar 15;8(3):167.
- Javadi F, Ahmadvadeh A, Eghtesadi S, et al. The Effect of Quercetin on Inflammatory Factors and Clinical Symptoms in Women with Rheumatoid Arthritis: A Double-Blind, Randomized Controlled Trial. *J Am Coll Nutr*. 2017 Jan;36(1):9-15.
- Sajadi Hezaveh Z, Azarkeivan A, Janani L, et al. The effect of quercetin on iron overload and inflammation in γ -thalassemia major patients: A double-blind randomized clinical trial. *Complement Ther Med*. 2019 Oct;46:24-8.
- Sgrò P, Ceci R, Lista M, et al. Quercetin Modulates IGF-I and IGF-II Levels After Eccentric Exercise-Induced Muscle-Damage: A Placebo-Controlled Study. *Front Endocrinol (Lausanne)*. 2021;12:745959.
- Knekt P, Kumpulainen J, Jarvinen R, et al. Flavonoid intake and risk of chronic diseases. *Am J Clin Nutr*. 2002 Sep;76(3):560-8.
- Riva A, Ronchi M, Petrangolini G, et al. Improved Oral Absorption of Quercetin from Quercetin Phytosome®, a New Delivery System Based on Food Grade Lecithin. *Eur J Drug Metab Pharmacokinet*. 2019 Apr;44(2):169-77.



Broccoli

THE TREE OF LIFE

Just one daily **Optimized Broccoli and Cruciferous Blend** tablet provides cell-protective compounds found in fresh vegetables.

For maximum absorption each **enteric coated** tablet contains two layers:

- **Myrosinase** to release **sulforaphane** in the small intestine, in one layer
- **DIM** (3,3'-diindolylmethane) to promote healthy estrogen balance
- **Glucoraphanin** from broccoli, watercress, cabbage and rosemary (sulforaphane precursors), in the other layer

"I feel this has made the difference!
My hormones seem to be falling into place."

MJ

VERIFIED CUSTOMER REVIEW



Item #02368

30 enteric coated vegetarian tablets



This product is available at fine health food stores everywhere.

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

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



"I feel I am being
proactive in keeping
my bones strong."

Sonia

VERIFIED CUSTOMER REVIEW

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

Item #01727

120 capsules

This product is available at fine health food stores everywhere.

Caution: Those taking the anticoagulant drug Coumadin® (warfarin) should use Bone Restore without vitamin K2.

Fruitex B® and OsteoBoron® are registered trademarks of VDF Futureceuticals, Inc. U.S. patent #5,962,049.

Trans menaquinone-7 as K2VITAL®. K2VITAL® is a registered trademark of Kappa BioScience.

GLUTEN
FREE

NON
GMO
LE CERTIFIED

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

different is good



Quercetin: The immune support nutrient

Quercetin is a little bioflavonoid that's making big waves: Quercetin encourages your body's healthy immune response.

And even in the wonderful world of bioflavonoids, our Bio-Quercetin stands out: its phytosome casing makes it 50 times more absorbable than standard quercetin supplements.

Ultra-absorbable, once-daily Bio-Quercetin®.
Because being different is a good thing.



GLUTEN
FREE

1
DAILY

NON
GMO
LE CERTIFIED

Item #02302

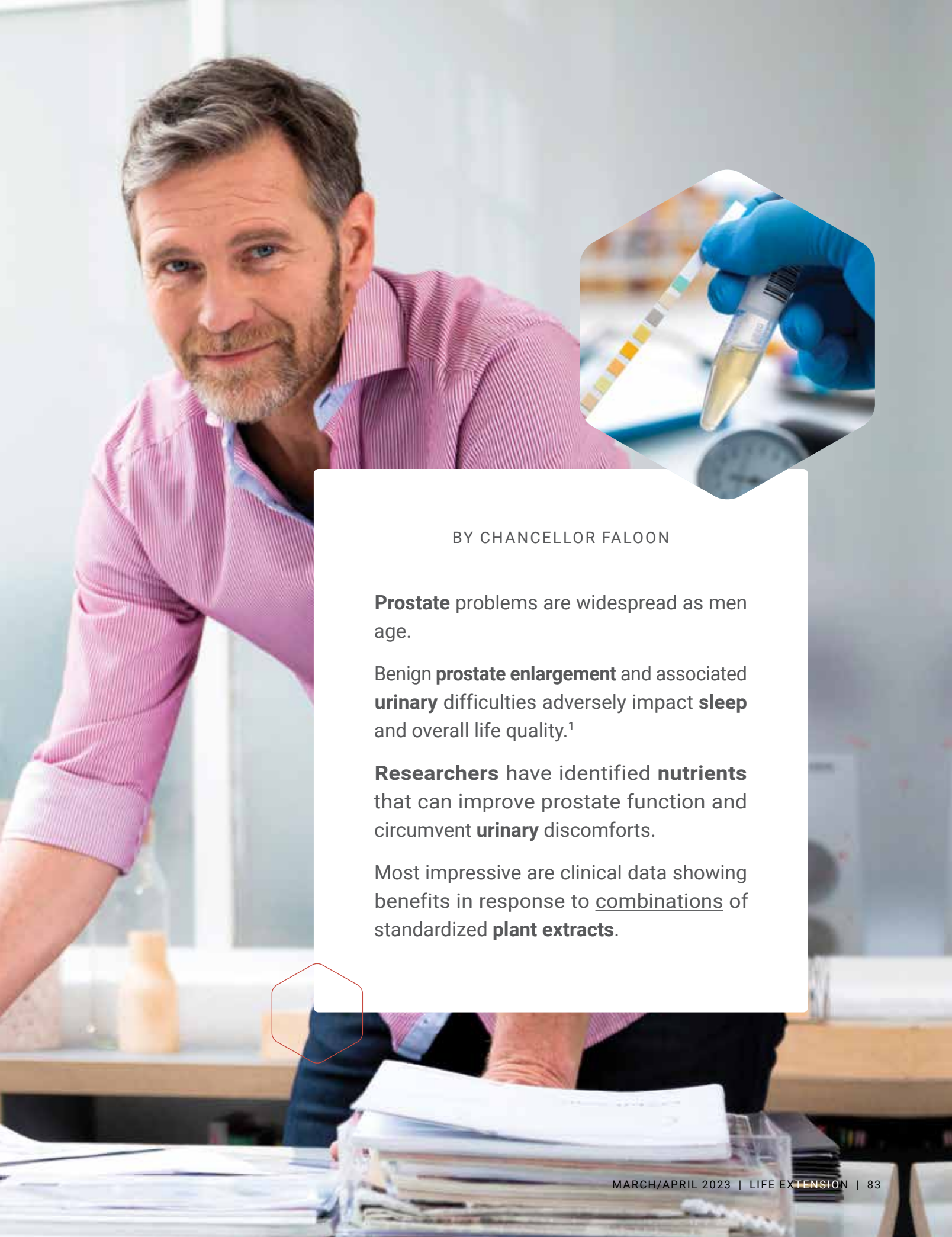
30 vegetarian capsules

This product is available at fine health food stores everywhere.

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

IMPROVE
URINARY FLOW
BY ENHANCING
**PROSTATE
FUNCTION**





BY CHANCELLOR FALOON

Prostate problems are widespread as men age.

Benign **prostate enlargement** and associated **urinary** difficulties adversely impact **sleep** and overall life quality.¹

Researchers have identified **nutrients** that can improve prostate function and circumvent **urinary** discomforts.

Most impressive are clinical data showing benefits in response to combinations of standardized **plant extracts**.

Consequences of an Aging Prostate

The **prostate** is a walnut-size gland located just below the bladder in men.¹

Prostate cancer is prevalent in aging males² but non-malignant prostate disorders are more widespread.¹

Benign prostate hyperplasia (BPH) affects about 8% of men in their 40s and gradually worsens to more than 80% as men age past 79 years.³

Those afflicted with BPH may experience **lower urinary tract symptoms**, including the sudden need to urinate, frequent urination, waking often during the night to urinate, difficulty urinating, and similar symptoms.⁴

Medications are available to alleviate BPH, but many men do not tolerate their side effects.

Several nutrients have been shown to reduce urinary symptoms *without* side effects.

SAW PALMETTO AND BETA-SITOSTEROL

Saw palmetto is a plant native to Florida and has long been used as a drug in Europe to alleviate urinary symptoms associated with BPH.⁵

A systematic review published in 2020 compared **saw palmetto extract** with the drug **tamsulosin** in over 1,000 men with **BPH**.⁶

After at least six months of treatment, **saw palmetto** showed comparable benefits to **tamsulosin** (with the exception of prostate volume), but *without* the common side effects of tamsulosin, like ejaculation disorders and decreased libido.

Saw palmetto's effects may be *enhanced* when its active component, **beta-sitosterol**, is extracted and taken with it. Beta-sitosterol is a compound that is believed to reduce levels of the hormone **dihydro-testosterone (DHT)**,⁷ which at high levels is linked to an **enlarged prostate**.⁸

In a randomized, controlled trial, men with **BPH** who took **500 mg** of beta-sitosterol-enriched **saw palmetto** oil daily for 12 weeks had significantly improved symptoms and reduced **PSA** (prostate specific antigen) levels.⁹ High PSA levels can indicate an enlarged prostate or possible prostate cancer.¹⁰

In another trial, patients with chronic **prostatitis** who took saw palmetto daily for 12 weeks had significantly improved urinary health scores, including reduced pelvic pain and discomfort.¹¹

Prostatitis, or inflammation of the prostate is frequently caused by bacterial infections. It may cause similar **urinary symptoms**, along with fever, sexual dysfunction, and pelvic pain.^{1,12}

NETTLE EXTRACTS

Extracts of the dwarf and stinging **nettle plants** can provide a range of prostate benefits.¹³

Nettle extracts exert anti-microbial effects to reduce **prostatitis** risk.¹⁴ They also enable some reduction in prostate size, improvement in urinary flow, and reduced residual urine in the bladder.^{15,16}

In a clinical trial, 60 men with **benign prostate hyperplasia** took either **stinging nettle root** extract



Saw Palmetto



Stinging Nettle



Pumpkin Seeds

or a **placebo** daily for 12 weeks. Those taking the **nettle extract** had reduced **inflammation** and improved **urinary health scores**.¹⁷

An evaluation was done of four randomized controlled studies of 922 patients with moderate-to-severe **prostate** symptoms. Findings from this analysis showed significantly more men responded positively to the combination of **saw palmetto** and **nettle extracts**, compared to **placebo**. The majority of those who responded experienced a reduction of one urination episode per night.¹⁸

A combination of **saw palmetto** and **nettle** extracts is popular in European medicine to improve urinary symptoms in aging men.¹⁹

PUMPKIN SEED

Pumpkin seeds have been used to promote urinary health around the world for centuries.²⁰

In one controlled clinical trial, the combination of **pumpkin seed** and **saw palmetto** oils resulted in an over **40%** reduction in **PSA** levels, compared to baseline. The improvement was evident after three months and continued throughout the one-year trial.

In this trial, supplementation with either pumpkin seed or saw palmetto oils or both, resulted in improvement in quality-of-life scores.²¹

PYGEUM AFRICANUM

The bark of *Pygeum africanum*, the African prune tree, contains compounds that support prostate and bladder health.

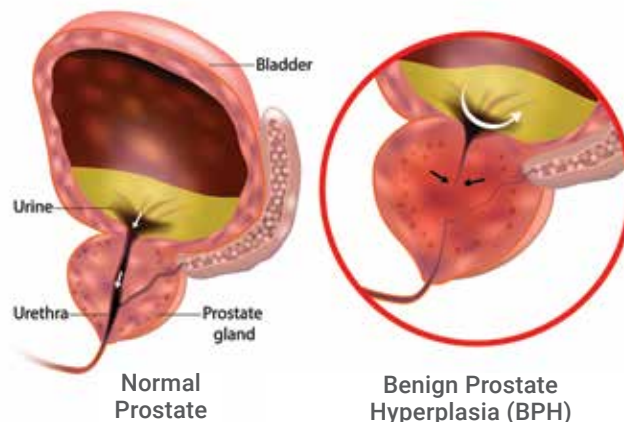
In a rigorous meta-analysis of **18** controlled trials, men taking **Pygeum** were more than twice as likely as placebo users to report an improvement in BPH symptoms.²²

In a **clinical trial** of men with **BPH**, taking *Pygeum* extract twice daily for two months, compared to baseline, resulted in a:

- **40%** improvement in prostate symptoms score,
- **31%** improvement in quality of life, and
- **32%** reduction in nocturnal urinary frequency.²³

Pygeum has been used in Europe for decades as a medication to improve urinary symptoms in men with BPH.²²

WHAT YOU NEED TO KNOW



Relief for Prostate Problems

- **Benign prostate hyperplasia** and **prostatitis** are common diseases of the prostate gland that are frequent causes of urinary problems in men.
- Multiple **plant extracts** and **compounds** have been shown to prevent and relieve symptoms of these diseases, without side effects that may come with medications, and may even reduce risk of **prostate cancer**.

BOSWELLIA

Boswellia serrata, also known as Indian frankincense, has been used for centuries in traditional Indian medicine to treat inflammatory conditions.

Preclinical research has shown that it can:

- Induce death in **prostate cancer** cells,^{24,25}
- Decrease formation of androgen receptors that many prostate cancers require to survive, and²⁶
- Inhibit the growth of blood vessels that tumors need to metastasize.²⁷

Clinical studies are needed to evaluate how these beneficial functional effects may impact prostate cancer risk and outcomes in aging men.

FLOWER POLLEN

Research suggests that **flower pollen** benefits the prostate by relaxing smooth muscle tissue in the urinary tract and potentially alleviating **lower urinary tract symptoms**.^{28,29}

One study found that a **ryegrass pollen extract** worked as well as six different drugs commonly used for **benign prostate hyperplasia**.³⁰

In a preclinical study, **flower pollen extract** reduced harmful activity of altered prostate cells, which suggested it could benefit **prostatitis** and have a possible **prostate cancer** preventative effect.³¹

NORWAY SPRUCE

Research has shown that *increased* dietary intake of **lignans**, polyphenols found in many plants, correlates with *reduced* **prostate cancer** risk.³²⁻³⁴

The **Norway spruce** contains particularly high amounts of lignans.

In preclinical studies, Norway spruce lignans reduced **prostate tumor** volume and increased the death of cancer cells. Other Norway spruce extracts reduced **lower urinary tract symptoms** in a model of chronic **prostatitis**.^{35,36}

In the body, lignans convert into a compound called **enterolactone**,³⁷ which may promote hormonal changes associated with lower prostate cancer risk.^{38,39}

An epidemiological study found that those with the *highest* **enterolactone** levels were **60%** less likely to have **prostate cancer** than those with low levels.³³

BORON

Boron is a mineral with benefits throughout the body.⁴⁰

Preclinical research in mice found that boron can decrease the size of existing **prostate tumors**.

In addition, a large survey showed that the risk of prostate cancer was **52% lower** in those whose daily boron intake averaged **1.8 mg** compared to those who consumed **0.9 mg** or less.⁴⁰



Pygeum Africanum



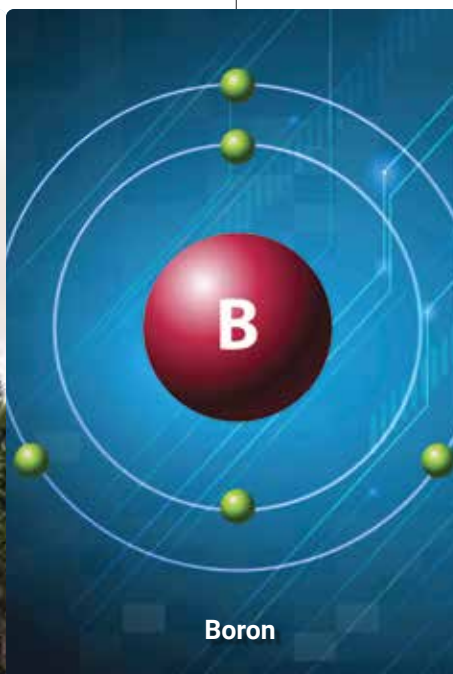
Boswellia



Ryegrass Flower Pollen



Norway Spruce



Boron



Lycopene

LYCOPENE

Lycopene is a carotenoid found in many plants, including tomatoes.⁴¹ One meta-analysis found that *higher* lycopene intake was associated with reduced risk of prostate cancer.⁴²

Other research has found that increased **lycopene** intake is associated with decreased prostate size,^{41,43} and reduced risk for prostate cancer development *and* progression.^{43,44}

Summary

Many men over **age 40** deal with persistent **urinary** discomforts mostly caused by **benign prostate hyperplasia** and sometimes **prostatitis**.

A large volume of published scientific data demonstrates benefits in response to certain nutrients individually.

Even more impressive is evidence showing significant results when these **plant extracts** are taken in combination.

Some of these nutrients possess mechanisms that may help protect against prostate cancer development. ●

References

1. Available at: <https://www.cancer.gov/types/prostate/understanding-prostate-changes#:~:text=The%20three%20most%20common%20prostate%20problems%20are%20inflammation,does%20not%20increase%20your%20risk%20of%20prostate%20cancer>. Accessed December, 1, 2022.
2. Siegel RL, Miller KD, Fuchs HE, et al. Cancer statistics, 2022. *CA: A Cancer Journal for Clinicians*. 2022;72(1):7-33.
3. Nimeh T, Magnan B, Almallah YZ. Benign Prostatic Hyperplasia: Review of Modern Minimally Invasive Surgical Treatments. *Semin Intervent Radiol*. 2016 Sep;33(3):244-50.
4. Devlin CM, Simms MS, Maitland NJ. Benign prostatic hyperplasia - what do we know? *BJU Int*. 2021 Apr;127(4):389-99.
5. Available at: <https://www.herbalgram.org/resources/expanded-commission-e/saw-palmetto-berry/>. Accessed December, 9, 2022.
6. Cai T, Cui Y, Yu S, et al. Comparison of Serenoa repens With Tamsulosin in the Treatment of Benign Prostatic Hyperplasia: A Systematic Review and Meta-Analysis. *Am J Mens Health*. 2020 Mar-Apr;14(2):1557988320905407.
7. Zamani P, Mokhtari O, Dehghanian F. Identification of Beta-Sitosterol and Stigmasterol as Possible Inhibitors of 5 Alpha-Reductase 1: An In-Silico Study. 2021;1(1):e121545.
8. Madersbacher S, Sampson N, Culig Z. Pathophysiology of Benign Prostatic Hyperplasia and Benign Prostatic Enlargement: A Mini-Review. *Gerontology*. 2019;65(5):458-64.
9. Sudeep HV, Thomas JV, Shyamprasad K. A double blind, placebo-controlled randomized comparative study on the efficacy of phytosterol-enriched and conventional saw palmetto oil in mitigating benign prostate hyperplasia and androgen deficiency. *BMC Urol*. 2020 Jul 3;20(1):86.
10. Available at: <https://www.cancer.org/cancer/prostate-cancer/detection-diagnosis-staging/tests.html#:~:text=About%2015%25%20of%20men%20with,prostate%20cancer%20is%20over%2050%25>. Accessed December, 9, 2022.
11. Zhang K, Guo RQ, Chen SW, et al. The efficacy and safety of Serenoa repens extract for the treatment of patients with chronic prostatitis/chronic pelvic pain syndrome: a multicenter, randomized, double-blind, placebo-controlled trial. *World J Urol*. 2021 Sep;39(9):3489-95.
12. Khan FU, Ihsan AU, Khan HU, et al. Comprehensive overview of prostatitis. *Biomed Pharmacother*. 2017 Oct;94:1064-76.

13. Mohammadi A, Mansoori B, Aghapour M, et al. Urtica dioica dichloromethane extract induce apoptosis from intrinsic pathway on human prostate cancer cells (PC3). *Cell Mol Biol (Noisy-le-grand)*. 2016 Mar 31;62(3):78-83.
14. Cai T, Mazzoli S, Becchi A, et al. *Serenoa repens* associated with Urtica dioica (ProstaMEV) and curcumin and quercetin (FlogMEV) extracts are able to improve the efficacy of prulifloxacin in bacterial prostatitis patients: results from a prospective randomised study. *Int J Antimicrob Agents*. 2009 Jun;33(6):549-53.
15. Safarinejad MR. Urtica dioica for treatment of benign prostatic hyperplasia: a prospective, randomized, double-blind, placebo-controlled, crossover study. *J Herb Pharmacother*. 2005;5(4):1-11.
16. Chrubasik JE, Roufogalis BD, Wagner H, et al. A comprehensive review on the stinging nettle effect and efficacy profiles. Part II: urticae radix. *Phytomedicine*. 2007 Aug;14(7-8):568-79.
17. Akbar Karami A, Sheikhsoleimani M, Reza Memarzadeh M, et al. Urtica Dioica Root Extract on Clinical and Biochemical Parameters in Patients with Benign Prostatic Hyperplasia, Randomized Controlled Trial. *Pak J Biol Sci*. 2020 Jan;23(10):1338-44.
18. Oelke M, Berges R, Schlafke S, et al. Fixed-dose combination PRO 160/120 of sabal and urtica extracts improves nocturia in men with LUTS suggestive of BPH: re-evaluation of four controlled clinical studies. *World J Urol*. 2014 Oct;32(5):1149-54.
19. Koch E. Extracts from fruits of saw palmetto (*Sabal serrulata*) and roots of stinging nettle (*Urtica dioica*): viable alternatives in the medical treatment of benign prostatic hyperplasia and associated lower urinary tracts symptoms. *Planta Med*. 2001 Aug;67(6):489-500.
20. Batool M, Ranjha M, Roobab U, et al. Nutritional Value, Phytochemical Potential, and Therapeutic Benefits of Pumpkin (*Cucurbita* sp.). *Plants (Basel)*. 2022 May 24;11(11).
21. Hong H, Kim CS, Maeng S. Effects of pumpkin seed oil and saw palmetto oil in Korean men with symptomatic benign prostatic hyperplasia. *Nutr Res Pract*. 2009 Winter;3(4):323-7.
22. Wilt T, Ishani A, Mac Donald R, et al. Pygeum africanum for benign prostatic hyperplasia. *Cochrane Database Syst Rev*. 2002;1998(1):CD001044.
23. Breza J, Dzurny O, Borowka A, et al. Efficacy and acceptability of tadenan (Pygeum africanum extract) in the treatment of benign prostatic hyperplasia (BPH): a multicentre trial in central Europe. *Curr Med Res Opin*. 1998;14(3):127-39.



24. Lu M, Xia L, Hua H, et al. Acetyl-keto-beta-boswellic acid induces apoptosis through a death receptor 5-mediated pathway in prostate cancer cells. *Cancer Res*. 2008 Feb 15;68(4):1180-6.
25. El Gaafary M, Büchele B, Syrovets T, et al. An γ -acetoxy-tirucallic acid isomer inhibits Akt/mTOR signaling and induces oxidative stress in prostate cancer cells. *J Pharmacol Exp Ther*. 2015 Jan;352(1):33-42.
26. Yuan HQ, Kong F, Wang XL, et al. Inhibitory effect of acetyl-11-keto-beta-boswellic acid on androgen receptor by interference of Sp1 binding activity in prostate cancer cells. *Biochem Pharmacol*. 2008 Jun 1;75(11):2112-21.
27. Saraswati S, Pandey M, Mathur R, et al. Boswellic acid inhibits inflammatory angiogenesis in a murine sponge model. *Microvasc Res*. 2011 Nov;82(3):263-8.
28. El-Khatib FM, Yafi NR, Yafi FA. Over-the-Counter Supplements and Men's Health. In: Yafi FA, Yafi NR, editors. *Effects of Lifestyle on Men's Health*. Academic Press; 2019:281-300.
29. Chambliss WG. A Critical Review of Graminex Flower pollen extract for Symptomatic Relief Of Lower Urinary Tract Symptoms (LUTS) in Men. 2010.
30. Li NC, Wu SL, Jin J, et al. [Comparison of different drugs on the treatment of benign prostate hyperplasia]. *Zhonghua Wai Ke Za Zhi*. 2007 Jul 15;45(14):947-50.
31. Locatelli M, Macchione N, Ferrante C, et al. Graminex Pollen: Phenolic Pattern, Colorimetric Analysis and Protective Effects in Immortalized Prostate Cells (PC3) and Rat Prostate Challenged with LPS. *Molecules*. 2018 May 11;23(5).
32. Low YL, Taylor JI, Grace PB, et al. Polymorphisms in the CYP19 gene may affect the positive correlations between serum and urine phytoestrogen metabolites and plasma androgen concentrations in men. *J Nutr*. 2005 Nov;135(11):2680-6.
33. Heald CL, Ritchie MR, Bolton-Smith C, et al. Phyto-oestrogens and risk of prostate cancer in Scottish men. *Br J Nutr*. 2007 Aug;98(2):388-96.
34. McCann SE, Ambrosone CB, Moysich KB, et al. Intakes of selected nutrients, foods, and phytochemicals and prostate cancer risk in western New York. *Nutr Cancer*. 2005;53(1):33-41.
35. Chen LH, Fang J, Li H, et al. Enterolactone induces apoptosis in human prostate carcinoma LNCaP cells via a mitochondrial-mediated, caspase-dependent pathway. *Mol Cancer Ther*. 2007 Sep;6(9):2581-90.
36. Konkol Y, Vuorikoski H, Tuomela J, et al. Galactoglucomannan-rich hemicellulose extract from Norway spruce (*Picea abies*) exerts beneficial effects on chronic prostatic inflammation and lower urinary tract symptoms in vivo. *Int J Biol Macromol*. 2017 Aug;101:222-9.
37. Lamblin F, Hano C, Fliniaux O, et al. [Interest of lignans in prevention and treatment of cancers]. *Med Sci (Paris)*. 2008 May;24(5):511-9.
38. Brooks JD, Thompson LU. Mammalian lignans and genistein decrease the activities of aromatase and 17 β -hydroxysteroid dehydrogenase in MCF-7 cells. *J Steroid Biochem Mol Biol*. 2005 Apr;94(5):461-7.
39. Yassin A, AlRumaihi K, Alzubaidi R, et al. Testosterone, testosterone therapy and prostate cancer. *Aging Male*. 2019 Dec;22(4):219-27.
40. Pizzorno L. Nothing Boring About Boron. *Integr Med (Encinitas)*. 2015 Aug;14(4):35-48.
41. Li N, Wu X, Zhuang W, et al. Tomato and lycopene and multiple health outcomes: Umbrella review. *Food Chem*. 2021 May 1;343:128396.
42. Chen P, Zhang W, Wang X, et al. Lycopene and Risk of Prostate Cancer: A Systematic Review and Meta-Analysis. *Medicine (Baltimore)*. 2015 Aug;94(33):e1260.
43. Mirahmadi M, Azimi-Hashemi S, Saburi E, et al. Potential inhibitory effect of lycopene on prostate cancer. *Biomed Pharmacother*. 2020 Sep;129:110459.
44. Zu K, Mucci L, Rosner BA, et al. Dietary Lycopene, Angiogenesis, and Prostate Cancer: A Prospective Study in the Prostate-Specific Antigen Era. *JNCI: Journal of the National Cancer Institute*. 2014;106(2).



RESTORE YOUTHFUL CELL ENERGY WITH **R-LIPOIC ACID**

Powerful **energizing** support to help reduce oxidative stress and body fat.

R-Lipoic Acid achieves **10-30 times** higher peak blood levels.



Item #01208

60 vegetarian capsules

Suggested dose is one to two capsules daily.

This product is available at fine health food stores everywhere.

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

CAUTION: If you are taking glucose-lowering medication, consult your healthcare provider before taking this product.

Bio-Enhanced® is a registered trademark of GeroNova Research, Inc.

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



BOOST YOUR FREE

TESTOSTERONE

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

Larry

VERIFIED CUSTOMER REVIEW

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

Testosterone Elite helps maintain healthy testosterone levels:†

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

**PLANT-BASED
NUTRIENTS**

Item #02500

30 vegetarian capsules



References

1. Rev Urol. 2004;6 Suppl 6(Suppl 6):S9-S15.
2. Am J Med. 2007 Oct;120(10):835-40.
3. Laila Nutraceutical Internal Study. Data on file. 2019.
4. Cell Biol Toxicol. 2020 Feb;36(1):31-49.
5. J Pharmacol Exp Ther. 2014 Nov;351(2):270-7.
6. J Agric Food Chem. 2012 Aug 29;60(34):8411-8.

This product is available at fine health food stores everywhere.

† This product is intended to support testosterone levels but does not contain testosterone.
Tesnor® is a trademark of Laila Nutra and Gencor.



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.

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.

"Mainstay in my
prostate
health regimen."

Rick

VERIFIED CUSTOMER
REVIEW



GLUTEN
FREE

NON
GMO
LE CERTIFIED

Item #02029

60 softgels

This product is available at fine health food stores everywhere.

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

William Shatner

Stem Cells and other Methods to Fight Aging

BY LAURIE MATHENA



William Shatner rose to fame in his role as Captain James T. Kirk on the TV series ***Star Trek*** in the 1960s.

Now, more than half a century later, the **91-year-old** actor has become the embodiment of the legendary phrase, *“live long and prosper.”*

His career as an actor, director, singer, and author spans seven decades, and includes a Golden Globe and two Emmy Awards.

He has written **30** books, recorded 8 albums, performed on Broadway, and has participated in more than 250 television shows, movies, and plays.

In recent years, his personal life has taken center stage.

Shatner is a well-respected breeder of world champion horses, and at age **89**, he rode one of his horses to an amateur World Champion title.

At **90**, Shatner became the oldest person ever to fly into space, traveling as a passenger on **Jeff Bezos’** spaceship, Blue Origin.

Now, at **91** years old, he maintains a zest for life and sharp wit that has left many people asking, what’s his secret?

Shatner's Longevity Secrets

William Shatner has a signature sense of humor that has become as synonymous with his name as Captain Kirk.

So, when asked his secret to a good, long life, it's hardly surprising that Shatner offered these words of wisdom:

"Don't die. That it; that's the secret," he said in his book, ***Live Long And...*** "Simply keep living and try not to slow down."

But a closer look at his life reveals that Shatner implements many key life-extending practices shared by the world's longest-living "**Blue Zone**" communities. This includes lifestyle habits like living with purpose, getting lots of natural movement, eating a more plant-based diet, and prioritizing family.

Most recently, he received a stem cell treatment designed to systematically deliver restorative factors throughout his body.

Shatner's therapy involved intravenous infusion of stem cells manufactured in Southern California.

Stem cell treatment has not been approved by the FDA for the treatment of any specific disease. Ongoing research has focused on treating immune disorders, metabolic diseases, neurological impairments, aging, and more.

When **Shatner** announced his **stem cell treatment** on the popular social media platform, Twitter, he said, "Is it possible to turn back the clock? I will let you know."

On **November 21, 2022**, an announcement was made by the **California Institute of Regenerative Medicine** that **\$8 million** additional dollars were allocated to conduct more **human** stem cell **research** initiatives.

Living Your Passion

Not long after receiving the stem cell therapy, Shatner became the oldest person to travel into space.

This 10-minute, 17-second journey changed his perspective on life.

"I was so thoroughly unprepared for this experience. It was among the strongest feelings of grief I have ever encountered," said Shatner in his new book ***Boldly Go***.

"Going into space made me so aware of how fragile our lives are here on Earth, how we need each other, and need to continue to strengthen bonds that connect us to each other. Because out there, there is no life. There is no us."

The journey was also physically demanding.

Traveling at more than 2,000 MPH, passengers experience 5.5 Gs of force—which feels like five times their body weight pressing on their chests, making it difficult to breathe or move.

Passengers must also be able to pass a fitness test prior to the flight, which consists of climbing seven flights of stairs in a minute and a half.

How has Shatner remained robust enough to endure such intense physical strain? He would likely say it's by riding his beloved horses.

November 21, 2022

UC San Diego Awarded \$8 million To Expand Stem Cell Human Trials

Alpha Stem Cell Clinic at UC San Diego is a network of **stem cell clinics** in California.

California Institute of Regenerative Medicine awarded Alpha **\$8 million** in additional funding to conduct **human** stem cell research.

This comes to **\$72 million** in recent funding from the **California Institute of Regenerative Medicine**.

Alpha Stem Cell Clinics:

City of Hope
ACT-1
CIRM Alpha Clinics
UC Davis Health
UCLA UCI
UC San Diego Health
UCSF Alpha Stem Cell Clinic

health.ucsd.edu/news/releases/Pages/2022-11-21-uc-san-diego-awarded-8m-to-expand-stem-cell-therapy-clinical-trials.aspx



Staying Active

"I ride two to three hours every morning that I'm not working—two to three days a week," Shatner said in an interview with the *LA Times*. "Riding is a stretching and strengthening exercise. It requires balance, expertise, finesse, and strength."

Horseback riding also gives him the *motivation* to keep himself fit.

"I wake up every morning thinking, **I've got to keep myself in shape to ride horses**," Shatner said. "If I am not sitting on a horse at least once or twice a week, it feels detrimental to my heart."

Riding horses has become one of Shatner's greatest passions—and it all began by accident. While attending a horse auction, he made a gesture that was mistaken for a bid.

Too embarrassed to back out of the purchase, Shatner went home with his first horse.

"That happy accident led to a part of my life that has brought me so much joy I can scarcely believe it; it sometimes makes me cry just to think about it," said Shatner. "Today, at **age 91**, I am a **better rider** than I've ever been."

Shatner has ranches in Kentucky and California, where he breeds and shows world-champion Saddlebred and Quarter horses. He regularly competes with these horses in riding and cart-driving competitions.

As recently as **2019**, Shatner won the title of **world champion** in the Amateur Roadster to Bike Championship at the Kentucky State Fair with one of his Saddlebred horses. He has also won reining awards showing his Quarter horses.

His passion for horses and people led him to start the Hollywood Charity Horse Show in 1990, a yearly fundraiser that supports local and national children's and veteran's charities.

According to Shatner, the charity raises \$400,000-\$500,000 per year, and **100%** of the donations goes to the 501c3 charities he has selected.

Family and Fun

In addition to horseback riding, Shatner exercises in the pool for 30 minutes a day, running in place and doing arm and leg exercises.

He also minds what he eats, saying, "I try to adhere to a more plant-based diet these days, with occasional exceptions, and if I am to fish, it must only be for food. Never for sport."

Shatner has a youthful wonder about life that pushes him to constantly try new things.

For example, when he was in his mid-80s, Shatner purchased his first electric bike for himself and his wife, Elizabeth, and they routinely go on 20- to 30-mile excursions.

An e-bike has a motor that assists you when you're pedaling.

"The e-bike got me outside and got me fitter," he told the *LA Times*. "Going up the hills is not a problem. I've got an arthritic back from all the horseback riding, my muscles are tender, yet I go back to my car when the bike ride's over and I feel perfect."

This has not only kept him active but has also provided an activity he can enjoy with his entire family.

Shatner regularly bikes with more than a dozen of his family members over the hills of Santa Barbara. With this new shared hobby, "a family that was always somewhat tight became a hugely cohesive group," explained Shatner to AARP.

Future Plans

For Shatner, remaining active—physically, professionally, and socially—is part of his unofficial longevity program.

"I know that good, healthy aging comes from not being solitary or brooding," he said in an article in *Newsmax*. "Say yes to the opportunities life is offering. Say yes to life, yes to dinner, yes to going out, and yes to something new. Because time is too short to lose one opportunity to sacrifice another."

He also continues to say yes to work.

Since turning 90, Shatner released the book, *Boldly Go*, he recorded a self-titled album called "Bill", was the star guest at the 2022 LA Comic Con, and he's working on a documentary detailing his trip into space.

He is also the host and executive producer of a documentary series on **The History Channel** called *UnXplained*, a non-fiction series that explores the mysteries of the world.

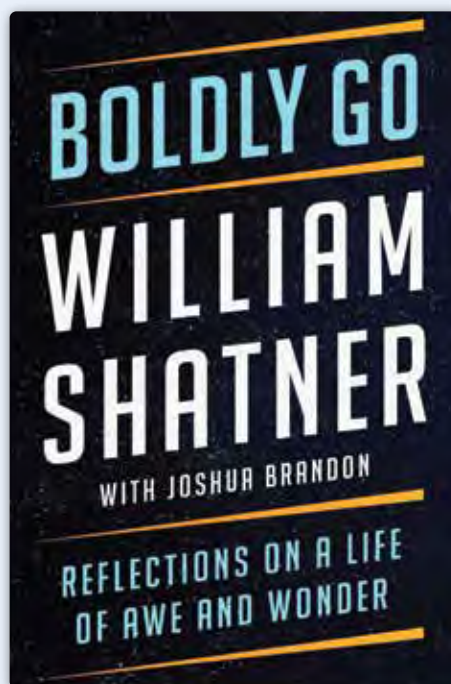
Shatner has been through many desperate times in his life—out of work, broke, divorced, living in his car with his dog.

Yet he never stopped pursuing the acting career he believed was his calling, and never took any of his successes for granted.

Perhaps that is why, now that he is in his ninth decade, Shatner has such a zest for life, a thirst for knowledge, and a deep appreciation of the world around him.

"If you allow yourself to be awed by life, to keep drinking in its limitless knowledge, to keep striving

for answers, to enjoy the beauty around us at every moment, to never stagnate... well, then you might find yourself living for a very long time, and, ideally, prospering," said Shatner. "Or, in the absence of the longevity and self-defined prosperity you seek, you might well find meaning, or even better, happiness." •



To order a copy of *Boldly Go*, call 1-800-544-4440 or visit www.LifeExtension.com

Item #34199 • Price: \$21

MORE

Two-Per-Day Offers You More Benefits Than Centrum®



50 times the VITAMIN B1
25 times the VITAMIN B6
12 times the VITAMIN B12
10 times the BIOTIN
10 times the SELENIUM
8 times the VITAMIN C
2.5 times the VITAMIN B3
2 times the VITAMIN D
3 times the VITAMIN E
2 times the ZINC



Why settle for **subpar** supplements?

Two-Per-Day Multivitamin Capsules

Item #02314 • 120 capsules (two-month supply)

Two-Per-Day Multivitamin Tablets

Item #02315 • 120 tablets (two-month supply)

Each bottle provides a two-month supply.

These products are available at fine health food stores everywhere.

Formula compared to Centrum® Silver® Adults 50+.



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.

NEW PRODUCTS

Breathe easy with this innovative new formula.

Breathing easy can be easier said than done—especially as you age. Healthy Lungs contains four botanical extracts scientifically studied to support respiratory function and healthy, open airways, including Boswellia and Indian Bael fruit for lung health; saffron extract, to help relax the airways and encourage healthy breathing patterns; and andrographolide, an

active compound in Indian echinacea that supports lung tissue health.



Item #02512
30 vegetarian capsules



A yummy way to get the omega 3s your body needs

Omega-3 fatty acids are essential for keeping your ticker healthy and your noggin sharp. But it's not always easy to eat enough fish or stomach the fishy aftertaste that is a drawback of many fish oil capsules and softgels. Our high-potency, sugar-free* gummies are a game-changer! Each tropical-flavored gummy bite delivers 300 mg of EPA and 225 mg of DHA—four times more than most gummies!

*Not a low-calorie food



Item #02508
30 Gummy Bites



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.

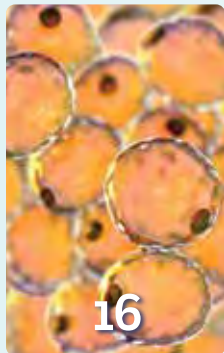


The Science of a Healthier Life®

PO BOX 407198
FORT LAUDERDALE, FLORIDA 33340-7198



IN THIS EDITION OF *LIFE EXTENSION* MAGAZINE®



16



24



30



38



48



92

© GETTY IMAGES / ETHAN MILLER / STAFF

16

CITRUS EXTRACT REDUCES BELLY FAT

In two human trials, a new citrus extract **decreased** waist circumference up to **2.79 inches**.

24

SOLUTIONS: PROTECT AGAINST DOPAMINE DEFICIT

Inhibiting an *enzyme* called MAO-B boosts brain **dopamine** levels, protecting neuronal structures, and improving mood.

30

FEEL BETTER FASTER

Studies show that **elderberry**, **zinc**, and **vitamin C**, taken in the *early* stages of a cold or flu, can *shorten* their duration.

38

POMEGRANATE AND HEART HEALTH

Pomegranate protects the **heart** and **endothelium**. In a clinical study pomegranate *reduced* **arterial plaque**.

48

AGE-REVERSAL UPDATE

Advances in the sciences of **age-delay** and **age-reversal** were presented at the annual **RAADfest 2022** conference by William Faloon.

92

HOW WILLIAM SHATNER DEFIES AGING

Ultra-healthy at age 91, **William Shatner**, Star Trek's Captain Kirk, engages in a host of personal life-extending practices and attitudes.