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REPORTS

32 ENERGIZE YOUR BRAIN CELLS

PQQ energizes brain cells to improve working memory, boost cerebral blood flow, and limit glucose damage.

42 NEW WAY TO USE MELATONIN

Micronized melatonin provides **immediate-** and **extended-release** to help one *fall asleep*—and *stay asleep*.

54 WHOLE-BODY PROTECTION AGAINST SOLAR RAYS

A fern extract and other nutrients help block **UV-damage** to skin cells and support DNA repair.

64 FISH OIL REDUCES INFLAMMATORY FIRES

Chronic inflammation is involved in multiple disorders. Omega-3-rich **fish oil** rebalances the *eicosanoid* pathway to safely help reduce **inflammation**.

76 2017 “EXERCISE IS MEDICINE” CONFERENCE REPORT

Surprising new findings on the favorable effects of even moderate increases in physical activity.

DEPARTMENTS

7 AS WE SEE IT: COQ10 AND HEART FAILURE

The ***New England Journal of Medicine*** reports a **44% decrease** in sudden death of **heart failure** patients from **1995 to 2014**. Improved conventional care is partly responsible, but overlooked is explosive growth of **CoQ10** supplementation that occurred during this time frame.

15 IN THE NEWS

Vitamin D linked to lower diabetes risk; zinc suppresses esophageal cancer; soy reduces cancer treatment side effects; CoQ10 benefits diabetic patients.

87 HEALTHY EATING: INDIA COOKBOOK

Indian cooking uses a wealth of herbs and vegetables to create a delicious, healthy cuisine. In *India Cookbook*, historian and journalist Pushpesh Pant collects about 1,000 recipes from all of India's food regions.

93 SUPER FOODS: PURPLE CAULIFLOWER

Abundant in **anthocyanins**, **purple cauliflower** helps fight cardiovascular disease and provides anti-cancer properties.

95 PROFILE: GILLEAN MCLEOD: THIS FASHION MODEL IS A BABY-BOOMER ROLE MODEL

At 62, model and fashion stylist Gillean McLeod exemplifies how baby boomers can embody radiant health, beauty, and happiness without spending a fortune on personal gyms or cosmetic surgery.

22 ON THE COVER

KILL HARMFUL BACTERIA TO IMPROVE INTESTINAL HEALTH

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Monday-Friday 9 am-8 pm,
Saturday 9 am-6 pm, Sunday 11 am-5 pm

Publisher • LE Publications, Inc.

Editorial

Editor-in-Chief • Philip Smith
Executive Managing Editor • Renee Price
Medical Editor • Hernando Latorre, MD, MSc
Senior Copy Editor • Laurie Mathena
Senior Staff Writer • Michael Downey
Associate Writer • Garry Messick
Creative Director • Robert Vergara
Art Director • Alexandra Maldonado

Chief Medical Officer

Steven Joyal, MD

Scientific Advisory Board

Örn Adalsteinsson, PhD • Richard Black, DO • John Boik, PhD • Aubrey de Grey, PhD
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Michael D. Ozner, MD, FACC • Jonathan V. Wright, MD, Xiaoxi Wei, PhD

Senior Vice President Product Development and Scientific Affairs

Andrew Swick, PhD

Contributors

Ben Best • Michael Downey • Garry Messick • Brian Parker
Clyde Pepper • Kyle Roderick

Advertising

Vice President of Marketing • Rey Searles • rsearles@lifeextension.com
National Advertising Manager • Tamu Mills • 404-347-1755

Vice President of Sales and Business Development

Ron Antriasian • rantriasian@lifeextension.com • 781-271-0089

Circulation & Distribution

Life Extension • 3600 West Commercial Blvd., Fort 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 • Wellness email: wellness@LifeExtension.com

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LIFE EXTENSION (ISSN 1524-198X) Vol. 24, No. 7 ©2018 is published monthly except bi-monthly in April by LE Publications, Inc. at 3600 West Commercial Blvd., Fort Lauderdale, FL 33309-3338. LE Publications, Inc. All rights reserved. Published 13 times a year. Subscription rate: \$40 per year in the United States. US \$47 in Canada. US \$60 in other countries. Mail subscriptions or address changes to: LE Publications, Inc., P.O. Box 407198, Fort Lauderdale, FL 33340-7198, USA. Or phone us toll-free at: 1-800-841-5433. Canada Subscriptions: Publications mail agreement number 40028967. Return undeliverable Canadian addresses to PO Box 503, RPO West Beaver Creek, Richmond Hill, ON L4B4R6. You will be sent your first issue within six weeks after LE Publications, Inc. receives your subscription fee. Periodicals Postage paid at Fort Lauderdale, FL and at additional mailing offices. POSTMASTER: Send address changes to Life Extension, P.O. Box 407198, Ft. Lauderdale, Florida 33340-7198, USA. The articles in this magazine are intended for informational purposes only. They are not intended to replace the attention or advice of a physician or other health-care professional. Anyone who wishes to embark on any dietary, drug, exercise, or other lifestyle change intended to prevent or treat a specific disease or condition should first consult with and seek clearance from a qualified health-care professional. LEGAL NOTICE: Health claims contained in articles and advertisements in this publication have not been approved by the FDA with the exception of FDA approved qualified health claims for calcium, antioxidant vitamins, folic acid and EPA and DHA omega-3 fatty acids, and selenium as noted where applicable. Life Extension[®] does not endorse any of the businesses or the products and/or services that may appear in advertisements for non-Life Extension branded products or services contained in Life Extension magazine[®] except to state that they are advertisers who may have paid Life Extension for placement of an advertisement in this publication. Life Extension disclaims any and all responsibilities or warranties as to the accuracy of information contained in advertisements for non-Life Extension branded products or services. For Canadian customers send change of address information and blocks of undeliverable copies to P.O. Box 1051, Fort Erie, ON L2A 6C7.

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

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

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

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

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

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

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

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

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

Carmen Fusco, MS, RN, CNS, is a research scientist and clinical nutritionist in New York City who has lectured and written numerous articles on the biochemical approach to the prevention of aging and degenerative diseases.

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 hemapoetic 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, AZ-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.

Prof. Francesco Marotta, MD, PhD, of Montena Leone 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 hon. res. professor, Human Nutrition Dept, TWU, USA. He is the author of over 130 papers and 400 congress lectures.

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

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

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

Herbert Pardell, DO, FAAIM, practices internal medicine at the Emerald Hills Medical Center in Hollywood, FL. He is a medical director of the **Life Extension Foundation**.

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, CA.

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.

Paul Wand, MD, Fort Lauderdale, FL, is a clinical neurologist with special expertise in treating and reversing diabetic peripheral neuropathy and brain injuries from various causes.

Scientific Advisory Board



Örn Adalsteinsson, PhD, is chairman of the **Life Extension®** Scientific Advisory board. He holds a master's and doctorate from the Massachusetts Institute of Technology (MIT). He has specialized in human therapeutics including vaccines, monoclonal antibodies, product development, nutraceuticals, formulations, artificial intelligence, hormones, and nutritional supplementation. He has also authored articles and contributed to peer-reviewed publications and served as an editor for the *Journal of Medicinal Food*.



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 obtained 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 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.



Frank Eichhorn, MD, is a urologist specializing in prostate cancer for 10 years. He has a private practice in Bad Reichenhall, Germany, and is prostate cancer consultant at the Urologische Klinik Castrangius, Planegg, Munich. In his integrative approach to prostate cancer he works together with an international network of experts to improve treatment outcomes for prostate cancer patients with a special focus on natural and translational medicine.



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 new University of Central Florida Medical School.



Steven B. Harris, MD, is president and director of research at Critical Care Research, a company that grew out of 21st Century Medicine in Rancho Cucamonga, CA. Dr. Harris participates 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
Dr. Dipnarine Maharaj is the Medical Director of the South Florida Bone Marrow Stem Cell Transplant Institute 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.



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 over 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.

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BY WILLIAM FALOON

CoQ10 and Heart Failure

The number of Americans with **heart failure** is projected to rise by **46%** over the next twelve years.¹

The result will be **8 million** people in the United States suffering from a condition in which their heart is too weak to pump blood throughout the body.

One reason for the increase in failing hearts is that more people are surviving **heart attacks**. Damage inflicted by heart attacks can create **heart failure** in later life.

Growing epidemics of obesity and diabetes along with the aging population are contributing to this **heart failure** epidemic.

Encouraging news was published last year in the ***New England Journal of Medicine***. A review of clinical trials spanning the period of **1995** to **2014** found a **44% decline** in sudden death rates among **heart failure** patients.²

The authors of this study attribute this striking **44% decrease** to improvements in conventional treatment. We at **Life Extension®** agree that there have been remarkable advances in conventional protocols.

What the analysis published in the ***New England Journal of Medicine*** overlooked is the explosive growth in **coenzyme Q10** use that occurred during the period corresponding with the **44% decrease** in **heart failure** death rates.

To put this into perspective, a survey published in **March 2015** found that **71%** of cardiologists recommend **coenzyme Q10** to at least some of their patients. This same survey showed that CoQ10 was the **top supplement** suggested overall by **cardiologists**.³

Tying this together was a study published in **December 2014** showing that when **CoQ10** was added to

conventional therapy, there was a **44% reduction** in cardiovascular mortality amongst **heart failure** patients.⁴

To summarize, the ***New England Journal of Medicine*** published a study in **2017** showing remarkable reductions in **heart failure** mortality, but failed to mention that **CoQ10** is rapidly emerging as part of **standard** therapy.

This article will review data that further validate the importance of **CoQ10** in maintaining heart health.



Human research involving **CoQ10** has surged in recent years based on findings that it may spare hundreds of thousands of Americans from premature death.

These studies seek to identify specific **mechanisms** by which CoQ10 protects against cardiovascular risk factors.

One such study was conducted on patients admitted to the Coronary Care Unit of Juntendo University hospital in Japan.

This study measured CoQ10 **blood levels** within 24 hours of admission. Patients who died in the hospital had **22% lower CoQ10** levels compared to those who survived. This study also found:⁵

- Low CoQ10 was an **independent** predictor of in-hospital death;
- Lower CoQ10 levels were associated with higher **C-reactive protein**;
- Patients taking statins had **21% lower** CoQ10 levels.

A separate interventional study was done on patients undergoing elective **stenting** therapy for coronary artery occlusion. Fifty of these patients received **300 mg** of **CoQ10** twelve hours before the procedure and 50 received **placebo**.

There was a significant reduction in **C-reactive protein** levels in the **CoQ10** group relative to the **placebo** arm of this study.⁶

C-reactive protein is an **inflammatory** factor that can serve as a marker for post-surgical complications. This is especially relevant to newly **stented** coronary arteries that are inflamed from **atherosclerosis** and invasive **stenting** to reopen them.

Preserving Cognitive Function

Heart failure patients suffer diminished blood flow to the brain, along with other pathologies that impede cognitive functions.

An observational study analyzed blood samples from 40 healthy controls and 36 heart failure patients and found:

- Heart failure patients had worse attention and executive function.
- Lower CoQ10 blood levels predicted worse performance on attention tests.

The authors of this study speculated that:

*"...increasing plasma CoQ10 levels may be a reasonable first step in improving cognitive function in older HF [heart failure] patients."*⁷

Combating Insulin Resistance

Normal aging, diabetes, and obesity contribute to cellular

resistance to insulin. The result is chronically elevated **glucose** and **insulin** blood levels.

Excess glucose and insulin contributes to virtually every degenerative disorder.

In a randomized controlled trial of overweight and diabetic patients with coronary heart disease (aged 40 - 85 years), 30 patients received **100 mg** of CoQ10/day for eight weeks and 30 received placebo.

The results showed that **CoQ10** supplementation reduced serum **insulin** levels and improved **insulin resistance**.

Pancreatic beta-cell function also improved in the CoQ10 arm of the study which enables more efficient insulin production.⁸

Reducing Lipoprotein (a)

There are sophisticated blood tests that measure types of cholesterol beyond **LDL** and **HDL**.

One such test is **lipoprotein (a)**.

The **Copenhagen City Heart Study** found that individuals with plasma **lipoprotein (a)** above **104 nmol/L** had an increased risk for **heart attack**.^{9,10}



In a systematic review of seven randomized controlled trials, **CoQ10** supplementation led to statistically significant reductions in **lipoprotein (a)** levels.¹¹

This review also found that higher **CoQ10** doses corresponded with greater **lipoprotein (a)** lowering.

CoQ10 and Selenium

During a four-year trial, 219 elderly individuals received daily supplementation with **200 mg** of CoQ10 and **200 mcg** of selenium.

These **CoQ10-selenium** supplemented individuals were compared with 222 participants that received **placebo** and 227 participants that received no treatment.

In participants with the lowest baseline selenium levels, supplementation with **CoQ10** and **selenium** cut cardiovascular mortality by **50%**.¹²

Heart Transplant Patients

The advent and improvement of heart transplant technology has given new leases on life to those with end-stage heart failure.

Yet heart transplant surgery involves life-long complications from immune suppressing drugs and other side effects. There are not enough **donor hearts** to meet the rising needs of heart failure patients.

A growing volume of data suggests that **heart failure** patients can gain precious life-years by boosting their **coenzyme Q10** blood levels.

An interesting study analyzed tissue from patients undergoing heart transplant surgery versus tissue from non-failing donor hearts.



Tissue from **failing** hearts showed significantly lower **CoQ10** levels compared with non-failing donor hearts.¹³

While these findings are not surprising, they add to the wealth of clinical data supporting the benefits of **coenzyme Q10** in those suffering with congestive heart failure.

Results From Huge Meta-Analysis

A meta-analysis of 14 randomized controlled trials involving 2,149 **heart failure** patients revealed that **CoQ10** supplementation decreased mortality by **31%** compared with **placebo**.¹⁴

This same analysis showed that **exercise capacity** improved more in the CoQ10 subjects than in the placebo group.

Ejection fraction did not improve in this analysis. One reason may be data we published in **2008** showing that heart failure patients require **higher** doses of the **ubiquinol** form of **CoQ10** to improve this measure of heart pumping capacity (i.e., ejection fraction).¹⁵

Robust Improvements in Cardiac Function

The **ejection fraction** test assesses how much blood is pumped after each beat compared with the amount of blood remaining in the heart.¹⁶

Healthy people have an ejection fraction of **55%-75%**, while **heart failure** patients often have values of **20%-40%** (or less).^{16,17}

In a study we reported on ten years ago, mean **ejection fraction** improved from a low **22%** up to **39%** in **ubiquinol-treated** patients who had follow-up echocardiograms.¹⁵ This finding represented a recovery of up to **77%** in this measure of cardiac output.

To obtain these results, the study author (Peter Langsjoen, MD) identified heart failure patients with suboptimal CoQ10 levels and supplementing with an average dose of **450 mg** per day of **ubiquinone**. Patients were then switched to an average dose of **580 mg** per day of **ubiquinol** to maintain higher levels.

In response to these **higher** CoQ10 blood levels, increases in **ejection fraction** were accompanied by remarkable **clinical**

improvements in advanced heart failure patients. Based on these findings, the Dr. Langsjoen's study group concluded:¹⁵

"Ubiquinol has dramatically improved absorption in patients with severe heart failure and the improvement in plasma CoQ10 levels is correlated with both clinical improvement and improvement in measurement of left ventricular function."

What CoQ10 Dose Should Healthy Aging People Take?

Peter Langsjoen, MD, is one of the world's foremost experts in the use of CoQ10 to treat cardiac disease. He conducts his research and clinical practice in Tyler, Texas, and is a long-standing member of our **Scientific Advisory Board**.

What makes Dr. Langsjoen unique among cardiologists is that he **measures** his patients' CoQ10 blood levels to ensure they are **absorbing** enough of the

CoQ10 he prescribes to induce a clinical response.

For healthy older people who are not supplementing with CoQ10, Dr. Langsjoen suggests starting off with **300-400 mg** per day for the first month to fully saturate your cells. People can then back down to a daily maintenance dose of **100-200 mg** per day to maintain high cellular CoQ10 levels.

Dr. Langsjoen prefers **ubiquinol** as it **absorbs** far better into the bloodstream than ubiquinone.

For optimal **absorption**, take your CoQ10 with the heaviest meal of the day as either form of CoQ10 **absorbs** much better in the presence of a fatty meal.

CoQ10 Wars

Before we published an article about CoQ10 in **1983**, Americans had no idea that it was widely used in **Japan** to treat heart disease.

The **FDA** reacted to our publication and subsequent sales of coenzyme Q10 with armed raids and threats of substantial jail time. FDA was determined to ban all Americans access to this life-saving nutrient.

Why CoQ10 Initially Confused Cardiologists

Physicians are used to **drugs** that provide immediate effects.

For instance, if a statin drug (such as Lipitor®) is prescribed, there is almost always a sharp drop in a patient's LDL cholesterol. Antihypertensive drugs usually provide a quick blood pressure-lowering effect. Anticoagulant drugs (like warfarin) quickly thin a patient's blood.

These kinds of **fast-acting** drugs are what doctors and the FDA are accustomed to evaluating.

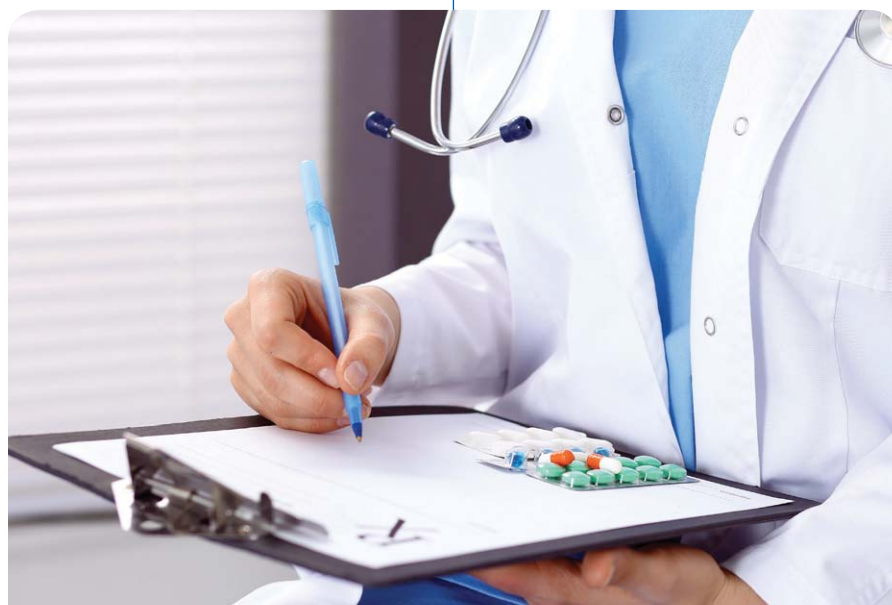
When **CoQ10** came along, it seldom met mainstream medicine's expectation of a pronounced and immediate effect, especially in patients with **congestive heart failure**.

So the initial reaction by the mainstream was that CoQ10 had no meaningful clinical benefit.

A study published in **December 2014** showed that it takes considerable time (up to two years) for conventional CoQ10 supplements to build up in the heart for significant clinical benefits to occur, such as a **42%** reduction in **all-cause** mortality.⁴

This is why cardiologist Peter Langsjoen often prescribes high doses (**600 mg/day**) of **ubiquinol** to his **heart failure** patients, as they don't have the luxury of waiting to build optimal levels of this critical cell energy factor.

We at **Life Extension**® long ago discovered that low-dose CoQ10 administered to people with chronic disease does not provide needed benefit. The evidence clearly indicated that **higher** doses of more **absorbable** forms of CoQ10 are required.



If you enter the terms “**coenzyme Q10 and heart failure**” into www.pubmed.gov, you can read several hundred published papers that attest to its efficacy.

A majority of **cardiologists** now recommend CoQ10 to certain patients and it can be widely found on pharmacy store shelves.

We won the battle to keep CoQ10 (and other nutrients) legally available. Most Americans, however, do not know how to optimally use CoQ10, especially as it relates to reversing clinical measures of **heart failure**.

Readers of *Life Extension Magazine*®, on the other hand, are kept informed on peer-reviewed published scientific studies that go unreported by the mainstream media.

The information provided in this article should enable many more healthy life-years in those stricken with heart failure.

For longer life,



William Faloon, Co-Founder
Life Extension Buyers Club

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Vitamin D linked to Lower Diabetes Risk

A recently published study examined the possible association between higher levels of plasma **25-hydroxyvitamin D** and lower risk of type II diabetes, in view of past reports suggesting this link.*

The researchers focused on a cohort of 903 adults with vitamin D levels at what they described as the high end of normal, above **32 ng/mL**, because there had previously been no adequate data in that range.

The subjects were free of diabetes or prediabetes from 1997 to 1999 during testing at the National Institutes of Health Lipid Research Centers clinic. Over subsequent years, through 2009, subjects were tested for fasting plasma glucose and oral glucose tolerance, as well as vitamin D levels.

Ultimately, there were 47 diabetes cases and 337 cases of prediabetes. Compared to levels of vitamin D below **30 ng/mL**, subjects with **higher** vitamin D blood levels had a lower risk of developing type II diabetes.

Those with the highest vitamin D levels, above **50 ng/mL**, had the lowest risk. This is the blood level (over 50 ng/mL) typically seen in people who supplement with **3,000 IU to 8,000 IU** a day of **vitamin D3** with a meal containing some fat.

Editor's Note: This study tested for an association between vitamin D and lower diabetes risk, but did not establish a causal relationship. The researchers encourage further study to determine if high doses of vitamin D might prevent type II diabetes or the transition of prediabetes to diabetes.

**PLoS One*. 2018 Apr 19;13(4):e0193070.

Zinc May Inhibit Esophageal Cancer Growth

A promising avenue for preventing or treating esophageal cancer is suggested by a recent study that shows **zinc** can impede progression of the disease.*

While a link between zinc deficiency and esophageal cancer had already been noted in previous studies, the mechanism underlying the mineral's apparent anticancer effects was previously unknown.

The study, led by Zui Pan of the College of Nursing and Health Innovation at the University of Texas at Arlington, found that zinc inhibits the growth and proliferation of esophageal cancer cells by blocking a particular calcium channel that is known to contribute to cancer growth.

Zinc was not found to have the same effect on healthy cell lines.

Compared to other types of cancer, the prognosis for esophageal cancer is generally poor, with a five-year survival rate for only **20%** of cases. Pan and fellow researchers are optimistic that zinc supplementation could be a viable approach for prevention and/or treatment of the disease.

Editor's Note: Study leader Zui Pan remarks: "Our study, for the first time to our knowledge, reveals that zinc impedes overactive calcium signals in cancer cells, which is absent in normal cells, and thus zinc selectively inhibits cancer cell growth."

Those being treated for esophageal cancer should ensure they are obtaining **25-50 mg** of zinc each day.

* *FASEB J.* 2018 Jan;32(1):404-416.

Soy, Vegetables Could Reduce Cancer Treatment Side Effects

An article appearing in *Breast Cancer Research and Treatment* reported an association between greater consumption of **soy** foods and **cruciferous vegetables** and a lower risk of experiencing side effects from breast-cancer therapy.*

The study included 173 non-Hispanic Caucasian and 192 Chinese-American breast-cancer survivors. Dietary intake data was obtained from responses to mailed questionnaires. Telephone interviews obtained information concerning treatment-related symptoms, including joint problems, fatigue, hair loss or thinning, memory problems and menopausal symptoms.

Consuming **24 grams** per day or more of soy was associated with a **49%** lower risk of experiencing menopausal symptoms and a **57%** lower risk of fatigue compared to no soy.

In comparison with subjects whose intake of cruciferous vegetables was less than **33 grams** per day, consuming **70.8 grams** or more was associated with half the risk of menopausal symptoms. The associations were significant for Caucasian breast-cancer survivors.

Editor's Note: It was suggested that isoflavones occurring in soy and glucosinolates in cruciferous vegetables could be responsible for the reduction in symptoms observed in the study.

* *Breast Cancer Res Treat.* 2018 Apr;168(2):467-479.

CoQ10 Benefits Diabetic Patients

A trial reported in the *Journal of the American College of Nutrition* found improvement in glucose metabolism as well as a decrease in oxidative stress and advanced glycation end products (AGEs) among individuals with diabetic nephropathy (kidney damage caused by diabetes) who received coenzyme Q10 (**CoQ10**) compared to those who received a placebo.*

The trial included 50 participants with diabetic nephropathy who, for 12 weeks, received either **100 mg** of CoQ10 per day or a placebo. Blood samples collected before and after the treatment period were analyzed for insulin, hemoglobin A1c, plasma malondialdehyde (MDA, a marker of lipid peroxidation) and AGEs.

At the end of the trial, participants who received CoQ10 had lower serum insulin, less insulin resistance, less oxidative stress, and lower levels of AGEs compared to levels measured before treatment, while the placebo group failed to experience improvements in these factors.

Editor's Note: AGEs are proteins or fats that become glycated during exposure to glucose, which can damage tissue.

* *J Am Coll Nutr.* 2018 Mar-Apr;37(3):188-193.

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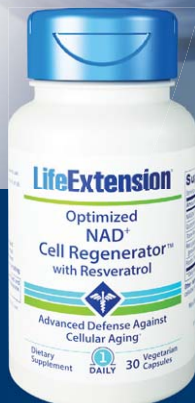
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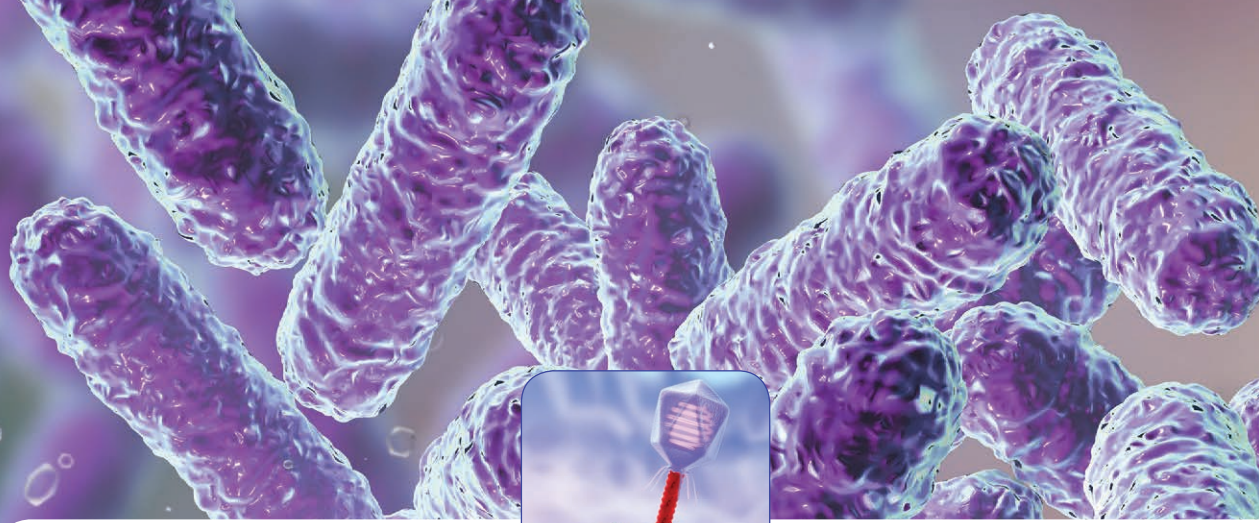
Note: **EGCG** is the acronym for **epigallocatechin gallate**, which is the polyphenol in green tea that has demonstrated the most robust health benefits.



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

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Phages

Improve Intestinal and Immune Health

People are surprised to learn that about **70%** of the human immune system resides in the gut (known as the **gut microbiome**).

The **immune system** relies on the presence of healthy *intestinal bacteria* to protect the body from illness.^{1,2}

Age, poor diet, medications, and stress can upset the delicate balance of good to bad bacteria.³

An *imbalanced* gut microbiome contributes to autoimmune disorders, metabolic syndrome, diabetes, chronic fatigue, nonalcoholic fatty liver disease, obesity, and more.⁴⁻¹²

Life Extension® readers understand the value of taking a quality **probiotic** to help balance the **microbiome** and strengthen the immune system.

Incorporating **bacteriophages** with a **probiotic** takes this intestinal health strategy a step further.

Bacteriophages *selectively* target specific, harmful bacteria while leaving beneficial microbes to flourish. This was pioneered in Europe before the advent of **antibiotics**.¹³⁻¹⁵

Bacteriophages are especially beneficial when used in conjunction with **probiotics** because they act like advanced troops to clear the way for **beneficial bacteria** to flourish.

Laboratory studies show that when **probiotics** and **phages** are used in combination, **beneficial bacteria** grow to **thousands of times** their baseline rate.^{16,17}

How Gut Bacteria Affects the Entire Body

The microbiome comprises the trillions of microorganisms that live in the human gut.¹⁸ Today we know that the microbiome plays a critical role in health and disease.

The increased consumption of processed carbohydrates, meats, fats, preservatives, and other additives can alter our microbiome.¹⁹⁻²¹ In addition, antibiotic overuse kills both healthy and bad bacteria.²²⁻²⁴ As a result, our gut microbiome becomes disrupted and imbalanced.

Over time, an **imbalance** in the ratio of good to bad bacteria can trigger the development of chronic diseases in multiple areas of the body—not just those associated with the gut.⁴⁻¹²

We also recognize that allergic disorders, asthma, and even obesity are related to an unhealthy population of intestinal bacteria.^{25,26}

Fortunately, you can do something about it. By shifting your gut microbiome toward a more balanced, healthy profile, you can induce a positive impact on your overall health and well-being.¹⁸

Boosting Probiotics with Phage Therapy

A unique treatment known as **phage** therapy uses **bacteriophages** to selectively *reduce* harmful bacteria, making way for beneficial probiotic organisms to flourish. Using probiotics along with bacteriophages can quickly and effectively rebalance the gut microbiome.²⁷

Bacteriophages are submicroscopic packages of DNA or RNA enclosed in a protein envelope, and each one is chosen for its ability to attach to a unique strain of *unwanted* bacteria in the intestines. In other words, they *selectively* target specific, harmful bacteria, while leaving beneficial microbes to flourish.

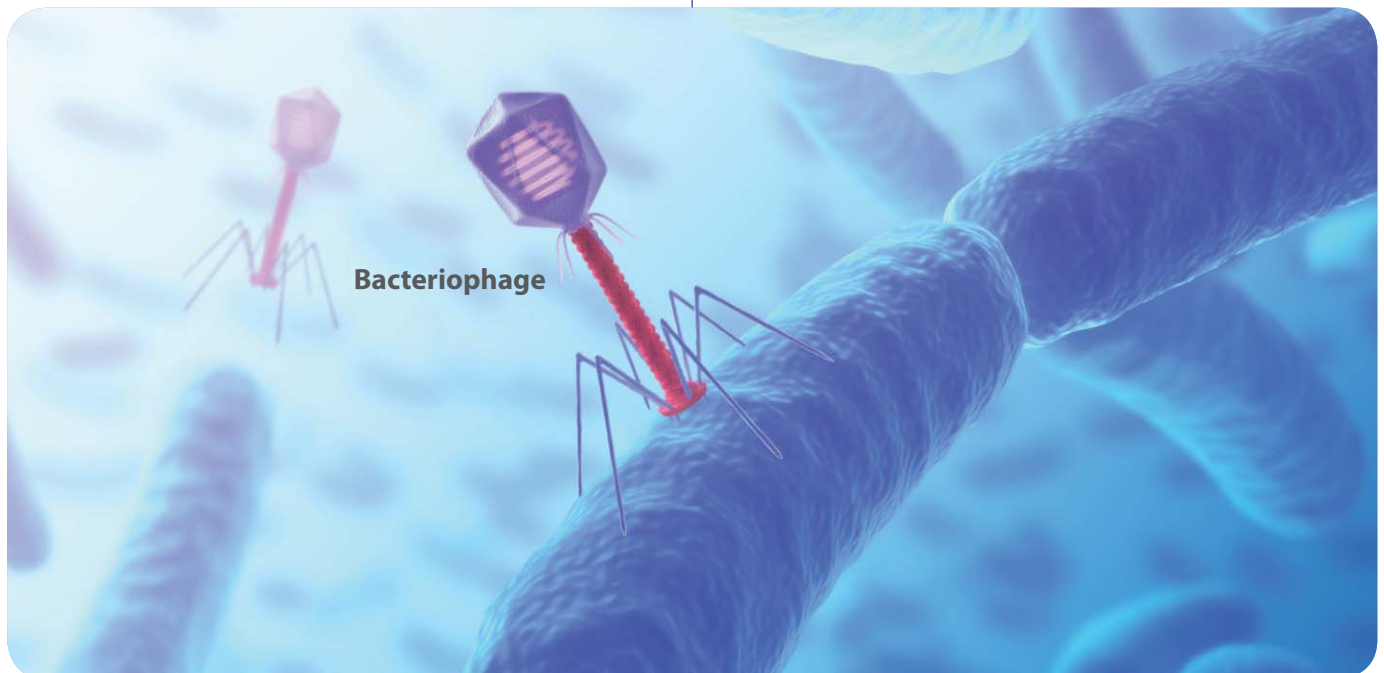
The Long History of Phage Therapy

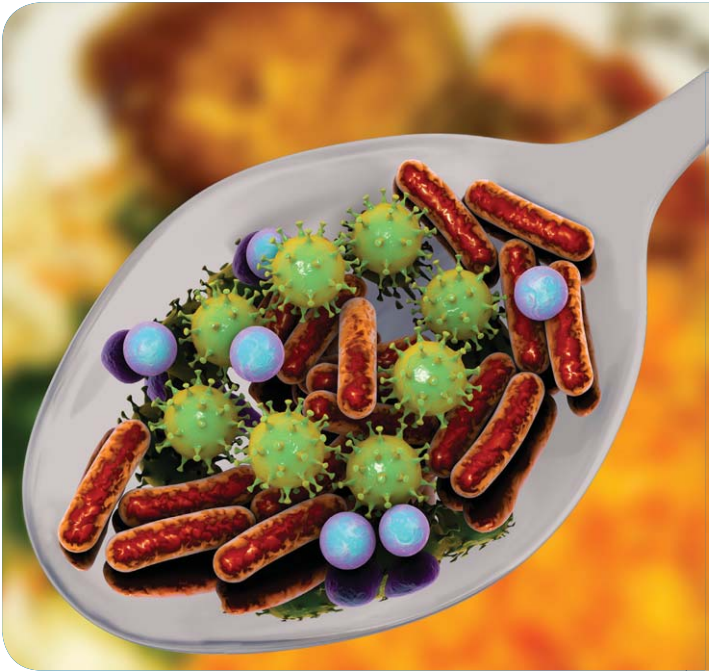
Using phages to control bacterial illnesses was pioneered in Eastern Europe before World War I.¹³⁻¹⁵

By the 1940s, industrial giants such as Eli Lilly and L'Oréal had developed bacteriophage “cocktails” for treating infections, but the advent of antibiotics quickly stole the spotlight (even though the effectiveness of **phages** was never in question).²²

We’ve come to recognize that one of the key drawbacks to antibiotics is that they employ a *mass-killing* technique that eliminates both detrimental and *healthy* bacteria, leaving us vulnerable to attack by other organisms.²⁸ In direct contrast to antibiotics, bacteriophages specifically eliminate only the detrimental bacteria while leaving healthy bacteria untouched.

Because of these targeted actions, the food industry now uses **bacteriophages** to control disease-causing organisms.²⁹⁻³¹ Many of these **phages** are classified by the FDA as **GRAS** (generally recognized as safe) and are commonly used for controlling bacteria ranging from *Listeria* in cheese and *E. coli* in meat, to *E. coli* on food-contact surfaces, to *Salmonella* in food.





What You Need to Know

Using Phage Therapy to Boost Probiotics

- Supplementation with potent **probiotics** is essential to supporting health throughout the body.
- Now, safe **bacteriophages** are available that *selectively* kill off undesirable bacteria, making room for beneficial bacteria to grow.
- Studies show that taking probiotics with *targeted* phages removes competing, unhealthy microbes to allow the beneficial probiotics to attain huge numbers.
- This approach can powerfully optimize digestive health and overall wellness by balancing the digestive tract microbiome.

A **phage cocktail** is effective within **hours**, not days, and in very small doses.¹⁶ As an added benefit, it functions not only in the large intestine, where bacterial imbalance (dysbiosis) is a problem, but also in the small intestine, where undesirable **bacterial overgrowth** can occur.

Animal studies have validated the benefits of using **probiotics** and **phage** therapy together. For example, when combined with a probiotic in an animal model, there was an exponential increase in beneficial bacteria with a parallel decrease in unfriendly flora such as *E. coli*.³²⁻³⁴

Let's examine more of the remarkable findings on this novel therapy.

Bacteriophage Potency

Scientists established the efficacy of bacteriophages in promoting healthy bacteria in a series of lab experiments.

In the first study, culture dishes were prepared with a beneficial bacterium (*Bifidobacterium longum*) along with competitive *E. coli* bacteria.

E. coli can be found in our gut, and although most strains are harmless, some can cause disease, and they can crowd out beneficial organisms.

Scientists in this study also prepared an identical set of dishes except for the addition of a **bacteriophage** mixture. After just five hours, the difference was striking.¹⁶

In the dishes without the **bacteriophages**, there was little growth of the desirable *B. longum* organism,

indicating their inability to compete with *E. coli*. But in the dishes containing the **bacteriophages**, colonies of *B. longum* skyrocketed to more than **7,000 times** their numbers compared to petri dishes without the bacteriophage. This was a clear demonstration of how the bacteriophage selectively targeted the *E. coli*, making room for the beneficial bacteria to multiply.¹⁶

In a similar study, the beneficial bacteria *Lactobacillus acidophilus* was grown along with *E. coli*. As expected, the *E. coli* greatly suppressed growth of the *L. acidophilus*.

But when the **phage** cocktail was added, *L. acidophilus* thrived, reaching colony counts that were **20-fold higher** compared to the culture not receiving the bacteriophages. Similar results were observed when beneficial *B. bifidum* bacteria were tested.¹⁶

Switching gears, scientists tested the capacity of the common prebiotic **inulin** to stimulate the growth of the beneficial *Lactobacillus paracasei*. Used alone, inulin failed to ensure the survival of the desired organisms. But using the combination of **inulin** plus the **phage** mixture produced an astonishing **nine million-fold** increase in the growth of the beneficial *L. paracasei*.¹⁶

These initial lab findings demonstrated the value of the **phage** mixture in promoting the growth and survival of beneficial organisms. Now it was time for scientists to test its potency in live subjects.

Phage Cocktail Validated in Gastrointestinal Environment

Researchers next demonstrated the effectiveness—and safety—of a **phage** cocktail when used in the gut of living lab rodents. One group of mice was given the probiotic *B. longum* along with the disease-causing *E. coli* strain H10407. The second group received the same mixture but with the addition of a **phage** cocktail specifically designed to target *E. coli*.¹⁷

After just 24 hours, the phage-treated group experienced a clear reduction in *E. coli* along with an impressive increase in beneficial *B. longum* bacteria.

The **phage** group showed the following effects on *E. coli*:

- **10-fold decrease** of *E. coli* in the small intestine;
- **100-fold decrease** of *E. coli* in the large intestine;
- **100-fold decrease** of *E. coli* in fecal matter.

The **phage** subjects showed the following approximate effects for *B. longum*:

- **100-fold increase** of *B. longum* in the small intestine;
- **100-fold increase** of *B. longum* in the large intestine;
- **40-fold increase** of *B. longum* in fecal matter.

The **phage-treated** group had improved digestive function and no detrimental changes, establishing overall safety and benefit.

By contrast, mice treated with only *E. coli* and *B. longum*—without the added **phage** cocktail—became constipated with intestinal segments showing swelling, redness, and leaks compared with healthy animals.

With so much scientific investigation into the multiple health benefits of a balanced microbiome, **phage therapy** is rapidly emerging as a new method of enhancing the benefits of **probiotics**.

Summary

Our gut **microbiome** greatly affects your immune system and overall health.

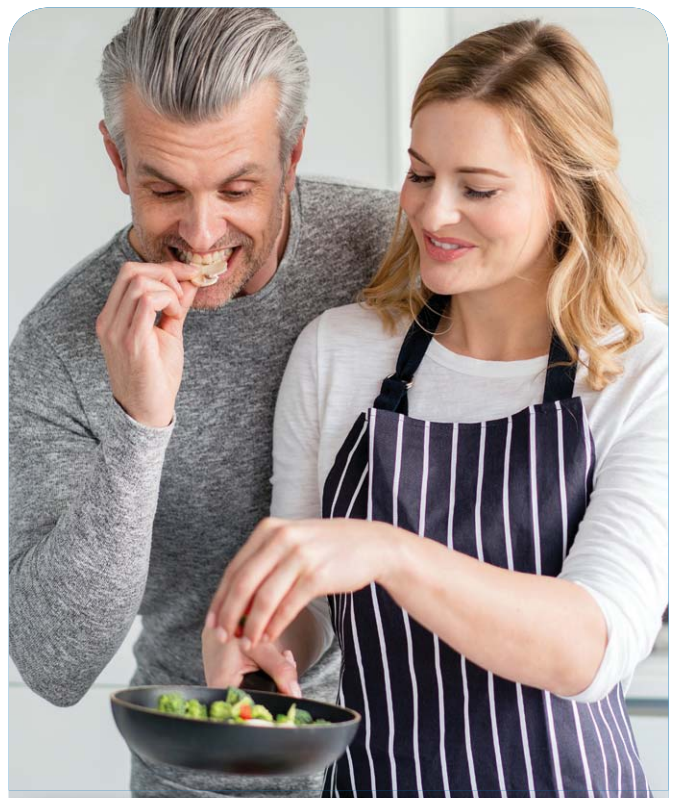
Probiotics have become popular to help balance intestinal flora.

Taking **bacteriophages** along with a **probiotic** *selectively* kills undesirable bacteria, making way for the good bacteria to survive and thrive.

When **probiotics** are accompanied by targeted **phage** therapy, beneficial bacteria multiply massively thanks to the removal of competing, unhealthy microbes.

Phage therapy shows promise in relieving the functional changes caused by gut microbiome imbalance. These may be especially valuable for aging individuals. ●

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



Proven Safety Record

Bacteriophages have been successfully used in numerous human clinical and therapeutic settings and have demonstrated an extremely strong safety profile.³⁵⁻³⁷ The reason for the very safe interaction between phages and human tissue likely results from human exposure to vast numbers of phages over the entire course of evolution. This naturally high human tolerance to bacteriophages contrasts sharply with the risks inherent in compounds that are relatively novel in human evolution—such as drugs.¹³

Superior Delivery System

Scientists have developed a powerful combination of **six** probiotic strains and **four** phages. But as beneficial as these six probiotics are, they have to be able to reach the intestines in order to work—and that requires remaining intact as they pass through the harsh, acidic environment in the stomach. This environment can limit the number of live microbes that reach their destination and, in turn, limit their beneficial effects.

A **dual-encapsulation** technology overcomes this problem by providing a **capsule-within-a-capsule**. The outer capsule contains the **phages**. The inner capsule contains the **probiotic** and remains intact longer to ensure that these bacteria reach the small intestine safely—delivering *unprecedented* numbers of live microbes to exactly where they are needed. This rebalances your microbiome to improve intestinal health and confers resistance to the bacterial imbalances that are associated with so many of the chronic degenerative diseases of aging.

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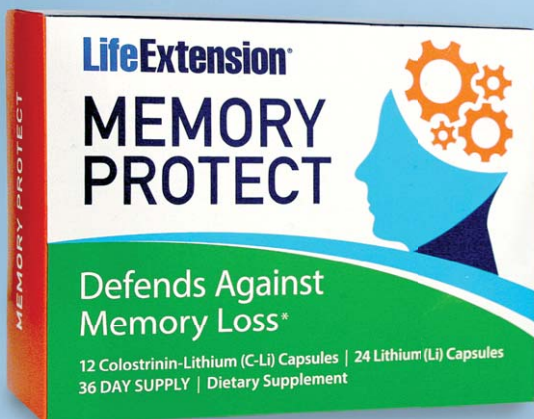
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CAUTION: Consult your healthcare provider before use if you are taking medication. Do not use if pregnant, lactating, or trying to become pregnant. Rare, mild and temporary anxiety and/or sleep disturbance may be experienced. **Contains milk.**

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Probiotic blend Phage blend

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- *B. lactis* BI-04
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- *L. paracasei* Lpc-37
- *B. longum* BB536®

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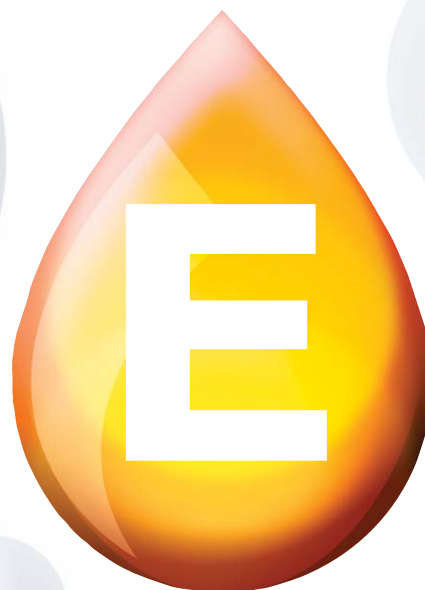
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- T4D - Myoviridae
- LL5 - Siphoviridae
- LL12 - Myoviridae

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PQQ

Reduces BRAIN AGING

Scientists have uncovered further evidence about the abilities of PQQ (*pyrroloquinoline quinone*) to help support the brain.

Generating excitement are three distinct ways that PQQ reduces brain aging including:

- Improved **brain blood flow**^{1,2}
- Reduced **neurotoxicity**³⁻⁶
- Protection against **sugar** damage.⁷

A study published in **2017** demonstrates that a formulation containing **PQQ** reduced evidence of **Alzheimer's disease** in the laboratory animal model.⁴



How PQQ Powers Better Brain Function

The human brain uses more **energy** than *any* other organ in the body.

We devote **20%-25%** of *all* energy to supporting brain function.⁸

This energy production is powered by **mitochondria**, the energy factories that convert food into the cellular fuel that powers our entire body.⁹

With age, some mitochondria tend to die off, and the ones that are left don't function as well.¹⁰ This results in an **energy crisis** that can have a devastating impact on brain function.

PQQ has been shown to reduce **brain aging** by helping existing mitochondria work more efficiently—and to promote the formation of **new** mitochondria.

Neurotoxicity Damages the Brain

Brain cells are damaged by chronic exposure to **toxins**, even at low doses.

Some toxins come from *outside the body*. For example, heavy metals, bacterial toxins, and environmental poisonings are all possible factors in neurodegenerative diseases like Parkinson's.¹¹⁻¹⁴

Other brain-damaging toxins form *within the body*. These include the abnormal proteins (like **tau** and **beta-amyloid**) that accumulate in brain tissue and contribute to the destruction of brain cells in senile disorders.^{4,15,16} The neurotransmitter **glutamate** is known to cause **excitotoxic** damage to brain cells with aging.^{3,16,17}

A **2017** animal study has now demonstrated that **PQQ** can help prevent the **neurotoxicity** that is so damaging to the brain.

Protecting Against Senile Pathologies

In a mouse model of Alzheimer's disease, mice were given a formulation containing **PQQ** and other ingredients (**green tea**, **blueberry** powder and extract, **carnosine**, **vitamin D**, and **grapeseed** extract) for 12 weeks. The researchers then compared their behavioral and neurological progress with similar, but unsupplemented, animals.⁴

The supplemented mice experienced benefits over their unsupplemented counterparts, including reduced motor deficits and reduced cognitive impairment. They also learned significantly faster and had better recall.⁴

When the researchers examined the mice's brains, they found significantly **smaller** deposits of toxic proteins in the brains of the supplemented animals indicative of protection against **neurotoxicity**.⁴

There were also compelling indications of improved **mitochondrial efficiency** in the supplemented mice.

This was evidenced by raised levels of ATP (energy) and oxygen utilization, and less oxidative stress, which damages mitochondria.⁴

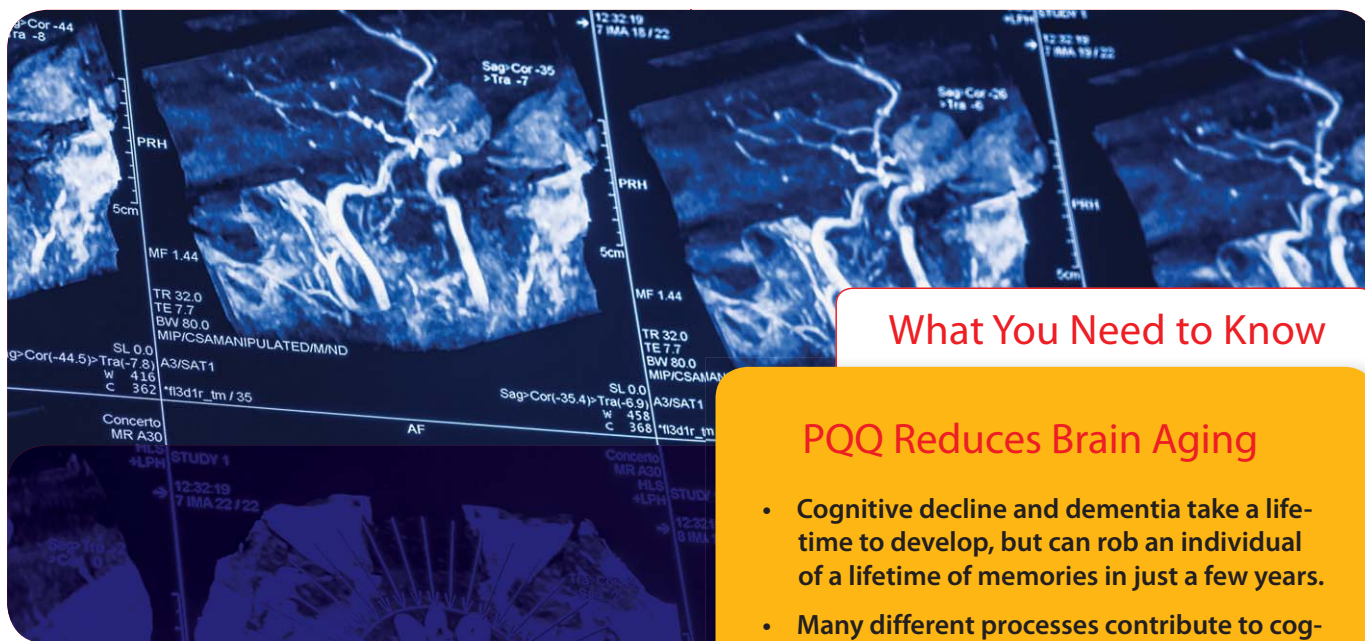
Overall, this study shows that PQQ, along with other ingredients, may contribute to beneficial effects on motor and cognitive function, largely through improving mitochondrial function and reducing toxic proteins in the brain.⁴

These findings add considerably to previous work done with a mouse model of Parkinson's disease. In this study, PQQ restored mitochondrial function in damaged brain cells and prevented brain-cell loss—effects that reduced the abnormal movements associated with Parkinson's.⁵

There's also evidence that PQQ can prevent glutamate-induced neurotoxicity in brain cells in culture, helping to quell the storm of chemical stresses that such "excitotoxicity" produces.^{3,6}

Together, these studies highlight PQQ's ability to interfere with brain cell toxicity and restore normal function.





PQQ Restores Brain Blood Flow

Because of the brain's constant energy requirements, it demands a substantial share of blood.

However, as we age, conditions like atherosclerosis, endothelial dysfunction, and other blood-vessel changes blunt blood flow to the brain. This can affect cognitive function, while leaving us vulnerable to acute loss of blood flow, which can result in a stroke.

Two human studies published in **2016** demonstrate that supplementing with PQQ has beneficial effects on brain blood flow and cognitive function.

In one randomized, placebo-controlled clinical trial, 41 healthy elderly subjects took **20 mg** of PQQ/day or a placebo.² Then they were tested for both cognitive function and brain blood flow using sophisticated near-infrared spectrometry.

After 12 weeks, the people taking PQQ experienced improvements in their working memory and in their ability to retain focus on tasks in the face of distractions. These benefits were likely produced by a **PQQ-induced** increase in **brain blood flow** to the relevant parts of the brain.²

A follow-up study demonstrated that taking **20 mg** of PQQ every day for 12 weeks boosted blood flow to the **right prefrontal cortex**. This is the area of the brain devoted to higher cognitive functions.

In addition, oxygen utilization in that area was significantly higher in supplemented people, a clear demonstration that PQQ was boosting energy extraction to fuel the improved cognitive performance.¹

These studies highlight the importance of PQQ in improving brain blood flow as an important step in slowing cognitive decline with aging.

What You Need to Know

PQQ Reduces Brain Aging

- Cognitive decline and dementia take a lifetime to develop, but can rob an individual of a lifetime of memories in just a few years.
- Many different processes contribute to cognitive decline, most of which are preventable if addressed far enough in advance.
- PQQ is showing tremendous promise at fighting age-related brain dysfunction.
- Studies show that PQQ acts on at least three different dementia-producing processes: neurotoxicity, declining brain blood flow, and glucose-induced vascular damage.
- Many of these beneficial effects can be traced back to PQQ's ability to boost mitochondria, the cell's energy factories that are particularly important for healthy brain function.
- Taking **20 mg** of PQQ is recommended for keeping these cognition-threatening processes at bay and slowing the age-related decline in cognitive function.

PQQ Protects Brain Tissue From Sugar Damage

People with type II diabetes have an increased risk of developing Alzheimer's disease. The connection is so strong that many scientists now refer to Alzheimer's as "type III diabetes."¹⁵

This is partly because chemical activity associated with increased **glucose levels** has now been directly tied to the formation of the toxic **tau** and **beta-amyloid** proteins associated with Alzheimer's and other neurodegenerative diseases.¹⁵



But sugar-induced damage takes place in many people, which means that non-diabetic individuals are at risk for neurodegeneration related to the harmful effects of chronic glucose exposure.^{18,19}

One of the most destructive effects of sugar on brain function is its impact on brain blood vessels. Long-term glucose exposure damages cells in the vessel lining (the **endothelial** layer) that are responsible for modulating blood flow and pressure.^{20,21}

A recent study has indicated that PQQ may protect against glucose-induced endothelial dysfunction in the brain.⁷

To determine this, researchers treated cultured brain endothelial cells with concentrated sugar solutions, which reduced the cells' ability to survive. Sugar exposure caused many cells to undergo programmed cell death (apoptosis), while raising the levels of reactive chemical stressors within cells.⁷ This is critical because the loss of brain cells plays a role in neurodegenerative diseases.^{22,23}

When PQQ was added to these sugar-laden **endothelial** cell cultures, there was:

- Reversal of cell damage
- Prevention of apoptosis
- Reduced formation of chemical stressors

Most of these beneficial effects could be traced to improvements in the function, and even the number, of **mitochondria** within endothelial cells.⁷

It is already known that PQQ can boost the production of new energy-producing mitochondria (this is called **mitochondrial biogenesis**). This study advances our knowledge of PQQ in this arena, and shows that such protection affords insurance against the sugar-induced vessel damage that can contribute to declining brain function.

Summary

PQQ is emerging as an important brain-protective nutrient. Studies now show that PQQ can protect brain tissue against toxic assault (neurotoxicity) from inside and outside the body.

PQQ boosts **brain blood flow**, in a direct counterattack on blood flow restrictions imposed by aging blood vessels.

PQQ can also limit the **glucose-induced damage** to brain blood vessels, a major contributor to dementia and other forms of cognitive decline.

Supplementing with **20 mg** of PQQ is recommended for keeping these cognition-threatening processes at bay and slowing age-related decline in cognitive function. ●

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

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Restore Youthful Cellular Energy with **PQQ**

PQQ (pyrroloquinoline quinone) activates genes involved in the production of cellular energy.¹⁻⁵

Studies show **PQQ** supports heart health and cognitive function, complementing CoQ10.^{6,7}

In fact, just **20 mg** per day of **PQQ** plus **CoQ10** promotes memory and attention in aging individuals.⁸

This is the **highest quality PQQ** available on the market today.

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Also available are **10 mg PQQ caps** (Item #01500)
and **100 mg Super Ubiquinol CoQ10** (Item #01733).

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20 mg PQQ Caps

This formulation contains **20 mg** of **PQQ** per capsule, which is the recommended daily dose.

Item #01647 • 30 vegetarian capsules

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Blueberry extract is *more potent* than the whole berry, providing greater metabolic support throughout the body and without the excess sugar of raw fruit.

Suggested dose is one capsule daily for most individuals.



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Milk thistle extract—rich in **silymarin**—is a powerful weapon to support liver health. Scientific studies demonstrate silymarin's ability to provide potent protection for your liver.^{1,2}

Life Extension®'s European Milk Thistle contains standardized, top-grade potencies of **silymarin**, **silybin**, **isosilybin A**, and **isosilybin B**, providing a full spectrum of liver-supportive compounds. This unique formula includes **phosphatidylcholine**, a nutrient that promotes better absorption of milk thistle extract.³

The **silymarin** contained in **European Milk Thistle** is absorbed nearly **5 times** better than silymarin alone, and its bioavailability to the liver is **10 times** better.

European Milk Thistle Advanced Phospholipid Delivery

Item #01922 • 60 Softgels

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1 bottle	\$28	\$21
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A close-up photograph of a woman with dark hair sleeping peacefully on a white pillow. Her eyes are closed, and she has a slight smile. Overlaid on the right side of the image is a semi-transparent graphic of a brain with various wave patterns and labels. Labels include '4 Hz', '4-7 Hz', 'Delta Wave', and 'Gamma W'. There are also molecular diagrams and a line graph with a jagged peak.

Benefits of Immediate- and Extended-Release **MELATONIN**



Many people have trouble falling and staying asleep, and sleep interruptions worsen with age.

A mouse study published in **2017** showed that **lack of sleep** can cause parts of **synapses**—the connections between brain cells—to break down, leading to cognitive issues.¹

Insufficient sleep is linked to diabetes, hypertension, heart attack, shortened telomeres, and premature death.²⁻⁵

In **1992**, **Life Extension®** introduced **melatonin** as an alternative to sleep medications. It has benefited many people who suffer from insomnia, but not all forms of sleep problems respond to melatonin.

For individuals who continue to have sleep issues, a **micronized melatonin** provides **immediate release** and **extended release** to help fall and stay asleep.

A Root Cause of Insufficient or Disrupted Sleep

The pineal gland acts as the body's central clock, telling the brain and other organs when it's time to rest.⁶⁻⁹

Pineal gland production of melatonin declines with age.^{3,6} Impaired melatonin production has been seen in chronic conditions like elevated blood sugar.¹⁰

This poses a health risk for millions of people, since low melatonin levels are associated with a potentially higher risk of neurodegenerative diseases,^{6,11} including Alzheimer's,¹² and a greater chance of stroke.¹³

Compounding the problem, lack of sleep itself—the result of inadequate melatonin—can cause a long list of its own negative health effects.

For Those Who Have Trouble Staying Asleep

Supplementing with melatonin can help keep circadian rhythms in tune. There are many forms of melatonin available. People can pick a formulation that works best for their nighttime needs.

For those with problems falling and then staying asleep, a new **dual-action** form of melatonin may resolve problematic issues.



Immediate-release melatonin can help one get to sleep faster and experience more restful and regenerative sleep.

For others, insufficient melatonin release throughout the night may result in difficulty staying asleep or difficulty getting back to sleep after awakening in the night. For these individuals, **extended-release** melatonin may support a full night of uninterrupted sleep.

Using **micronized melatonin** and a **proprietary encapsulation technology**, a new melatonin formula *gradually* delivers precise amounts of melatonin over a period of **7 hours**.¹⁴

In a double-blind, crossover study involving 12 elderly subjects who had complained of insomnia, participants took **extended-release melatonin** for three weeks. After a washout period, they then took a **placebo** for three weeks. The study authors concluded that:

“Controlled-release melatonin replacement therapy effectively improves sleep quality in this [elderly] population.”¹⁵

Many practitioners recommend starting with a low dosage of melatonin. Once one knows how one's body reacts to it, the dosage can be increased to suit the individual's needs. The total dose of a new **dual-action** formula is **1.5 mg**, comprised of:

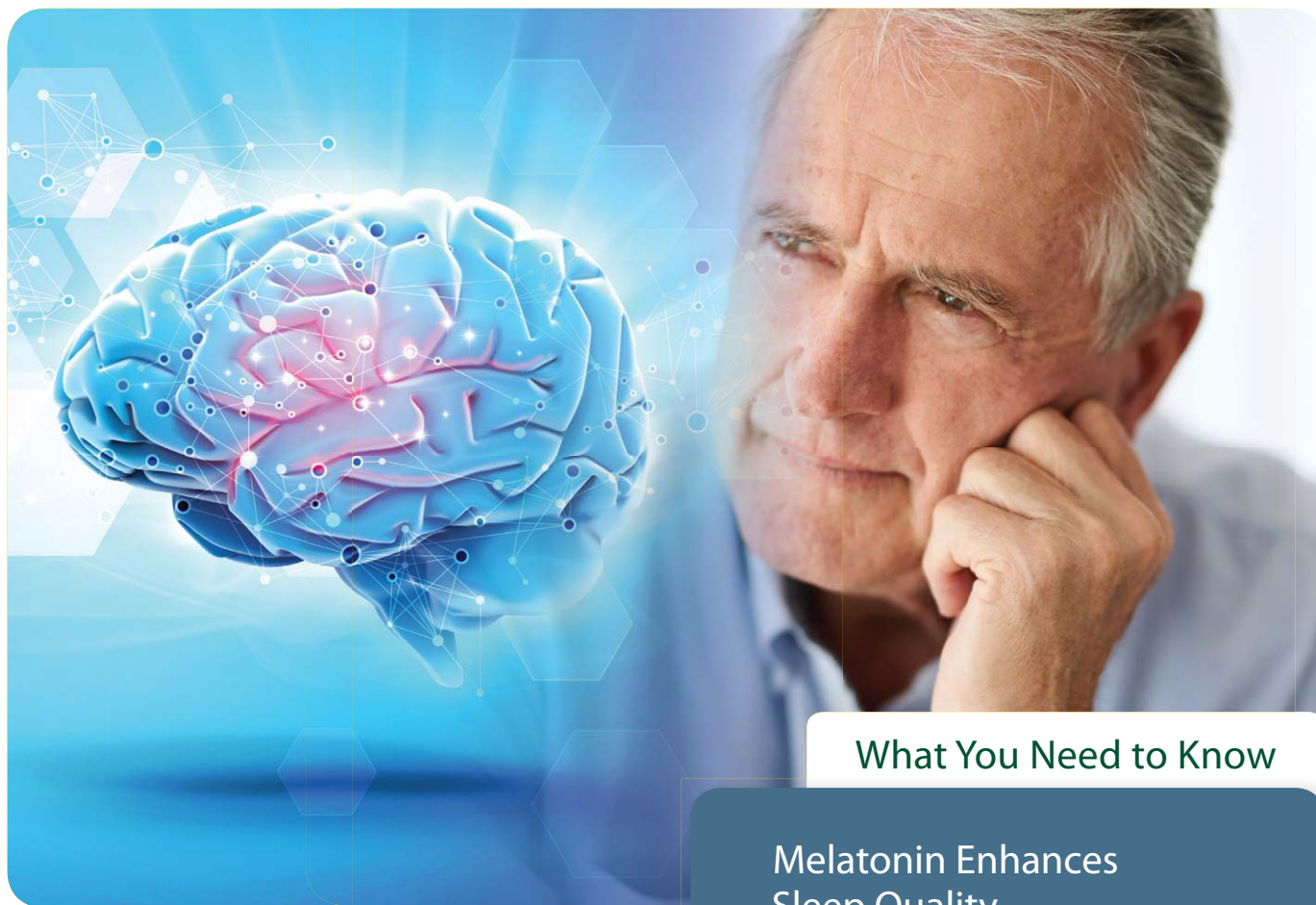
- **0.75 mg** of **immediate-release** melatonin
- **0.75 mg** of **extended-release** melatonin.

Since everyone's biochemistry and sleep patterns are different, it may take *trial and error* before the ideal dosage and supplement formulation is found, i.e. immediate, extended, liquid, or immediate/extended-release.

Wide-Ranging Health Risks of Poor Sleep

The effects of sleep inadequacy go far beyond simple fatigue or reduced endurance.¹⁶ They include:

- Decreased feeling of fullness, increased hunger and food consumption, weight gain, and a higher risk of obesity.^{17,18}
- Increased fine lines and wrinkles.¹⁹
- A shortening of telomeres⁵ (the chromosome “caps” that shorten with time and may serve as an indicator of aging²⁰).
- Enhanced susceptibility to stress and anxiety, which disrupts circadian rhythms, leading to poor sleep and (in a typical vicious cycle) more stress!²¹⁻²⁵



What You Need to Know

Melatonin Enhances Sleep Quality

- Inadequate sleep duration and quality might be caused by an age-related decline in melatonin levels.
- Prescription sleeping pills come with extensive side effects, addiction potential, and a higher risk of premature mortality.
- Melatonin supplementation has been clinically demonstrated to improve sleep onset, duration, and quality.
- For those who have difficulty staying asleep, *extended-release* melatonin can deliver a full night's sleep without interruptions.
- A new micronized melatonin is specially formulated to release **0.75 mg** of melatonin immediately to help one fall asleep fast, and another **0.75 mg** of melatonin over the next seven hours to help one stay asleep.

Neuroprotective Effect of Melatonin

Melatonin has been shown to protect the brain against oxidative stress and the neurodegeneration that occurs as a result of aging.²⁶

In addition, scientists are finding that the age-related decline in melatonin levels may be a critical factor in the age-related increase in neurodegenerative diseases.^{6,11,27}

Numerous animal studies have shown the brain-protective effects of melatonin, including: shrinking the size of the infarct, or damaged area, after a stroke, guarding against Alzheimer's disease and Parkinson's, and improving blood-brain barrier impairment and swelling after a brain injury.²⁸⁻³⁵

The **blood-brain barrier** is essential to neural function. Damage to it is considered an early event in the process of various neurological diseases.³⁶

Melatonin has been shown to preserve the integrity and permeability of the **blood-brain barrier** in old mice.³⁷ This study led a group of researchers to suggest that *"melatonin supplementation may help prevent neurological diseases through maintaining the integrity of [the blood-brain barrier] in old people."*³⁶

Do You Have Trouble Staying Asleep?

The secretion of **melatonin** declines with age, which can interfere with your ability to get to sleep. Supplementing with melatonin helps keep your circadian rhythm in tune.

- The **immediate-release** form of melatonin can help initiate sleep faster and induce more restful and regenerative sleep.
- For some people, the **liquid** form of melatonin achieves adequate results.
- But for others, reduced levels of melatonin at night may result in difficulty staying asleep or difficulty getting back to sleep after awakening in the night. For these individuals, **extended-release** melatonin supplements support a full night of uninterrupted sleep.
- A novel **immediate/extended-release** (IR/XR) melatonin supplement combines an immediate burst of melatonin to help initiate sleep—along with an extended-release dose to keep melatonin levels from falling during the night and to help one sleep. The total dose of this dual-action product is **1.5 mg**, comprised of **0.75 mg** of immediate-release melatonin and **0.75 mg** of extended-release melatonin. It is best to take one to two **1.5 mg** capsules, 30-120 minutes before desired sleep onset.

Since everyone's biochemistry and sleep patterns are different, it may take some trial and error before one finds the ideal dosage and supplement formulation—immediate, extended, liquid, or immediate/extended-release—to match individual body rhythm and sleep needs.

Migraine is a neurological disease which can dramatically impact quality of life. In a recent review of the literature, melatonin supplementation was found to be effective in preventing migraines and was superior to placebo in preventing cluster headaches. Melatonin may also play a role in preventing tension headaches.³⁸

Summary

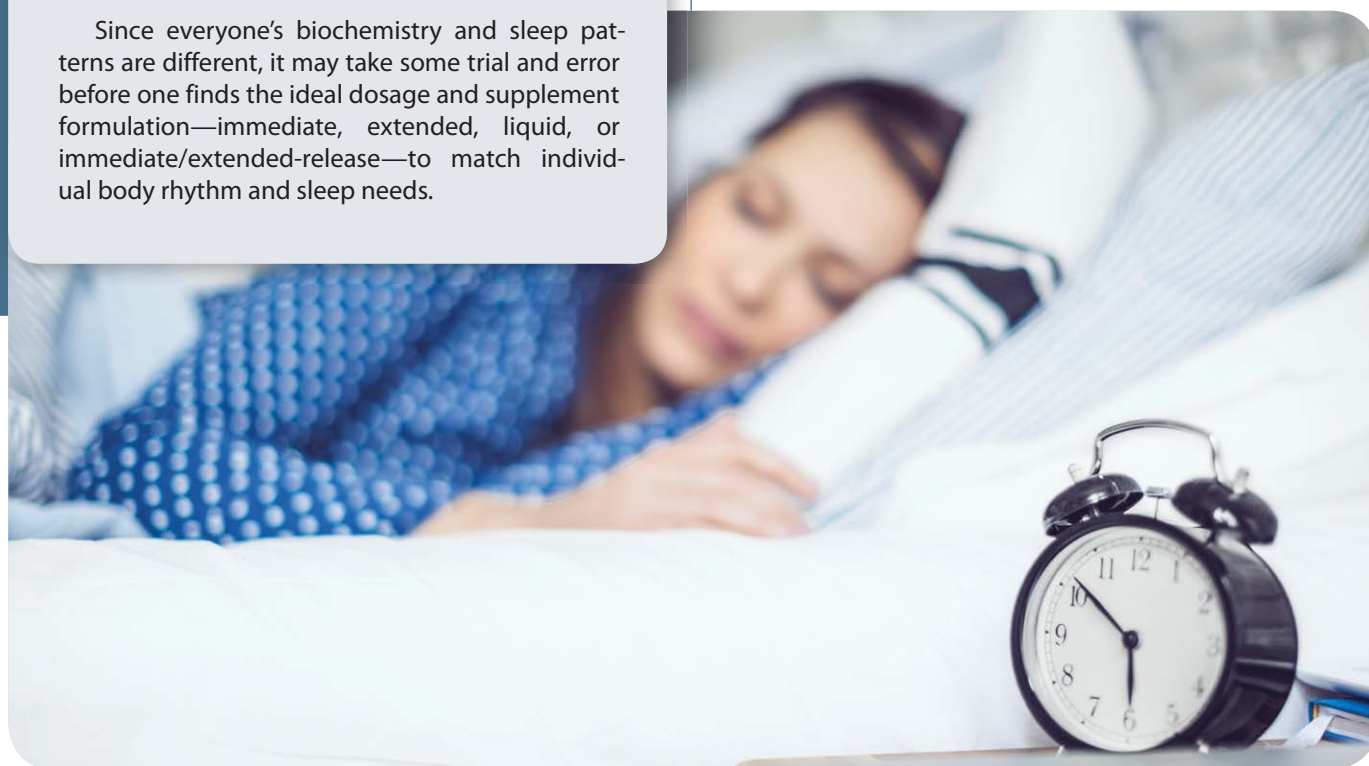
Inadequate sleep is associated with an increased risk of obesity, diabetes, cognitive decline, and stroke, shortened telomeres, and premature death.²⁻⁵

Prescription sleeping pills come with side effects, addiction risk, and increased risk of premature mortality.

Supplementation with melatonin is clinically shown in some studies to enhance onset, duration, and quality of sleep, but does not work for every kind of sleep problem.³⁹⁻⁴¹

A unique form of **micronized melatonin** has been developed that provides **immediate release** and **extended release** to help one fall asleep and stay asleep. ●

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





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Inadequate Sleep and Alzheimer's Risk

Excessive daytime sleepiness in elderly adults with normal cognitive function has been shown in a new study to be linked with the buildup of beta-amyloid in the brain.⁴²

The implications are cause for real concern, since the accumulation of *beta-amyloid* is a precursor to the development of Alzheimer's disease. This buildup begins before symptoms are apparent.

The study conducted by the Mayo Clinic included 283 subjects, average age of 77. Over a period of two years, the subjects' brains were measured for levels of *beta-amyloid*, and they regularly reported the amount of daytime sleepiness they experienced. Results showed that subjects who developed the highest amounts of *beta-amyloid* were also the ones who reported the most daytime drowsiness. The amyloid levels were particularly high in brain areas associated with memory, behavior, and emotion.

The researchers say their study is the first to specifically show that excessive daytime sleepiness in cognitively normal elderly people leads to a buildup of amyloid in the brain.

"We know that sleep is necessary to clear toxins and beta-amyloid in the brain," said study author Prashanthi Vemuri. "We also know that beta-amyloid causes sleep disruptions. So it's been a chicken-and-an-egg problem."⁴³

Dr. Richard Isaacson, director of the Alzheimer's Prevention Clinic at Weill Cornell Medicine and NewYork-Presbyterian was impressed with the study. "In fact," he said, "the findings will change the way I care for patients, as I will now proactively ask about excessive daytime sleepiness as one of many potentially modifiable risk factors for the disease."⁴³

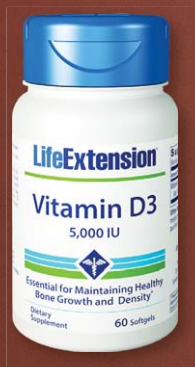
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Caution: Individuals consuming more than 2,000 IU/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxy vitamin D measurement. Do not exceed 10,000 IU per day unless recommended by your doctor. Vitamin D supplementation is not recommended for individuals with high blood calcium levels.

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

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MacuGuard® Ocular Support provides **lutein**, **trans-zeaxanthin**, and **meso-zeaxanthin** to help maintain structural integrity of the macula and retina.¹⁻⁵

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Item #01992 • 60 softgels

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1 bottle	\$25	\$18.75
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Each bottle lasts for two months.

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With age, the body's nocturnal peak of **melatonin** declines, making it harder to fall asleep and stay asleep.

Melatonin IR/XR is composed of two delivery forms of **melatonin**.

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MicroActive® Melatonin is a registered trademark of Bioactives LLC.

Melatonin does not resolve all types of sleep problems. Do not consume alcohol, drive, or operate machinery after taking this product. Keep out of reach of children. Do not exceed recommended dose. Please consult with your physician if you are undergoing treatment for a medical condition or if you are pregnant or lactating.

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Caution: Consult a physician or licensed, qualified healthcare professional before using these products if you have, or have a family history of, breast cancer, prostate cancer, or other hormone-sensitive diseases.



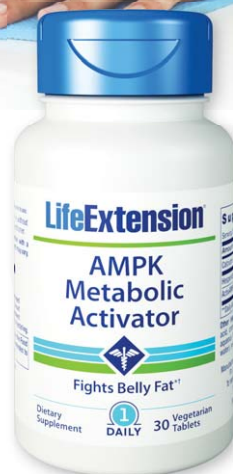
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Fight Systemic Aging



The plant compounds in **AMPK Metabolic Activator** help boost AMPK, a cell enzyme that mitigates mechanisms of aging and promotes vascular function while helping reduce belly fat.

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1
DAILY

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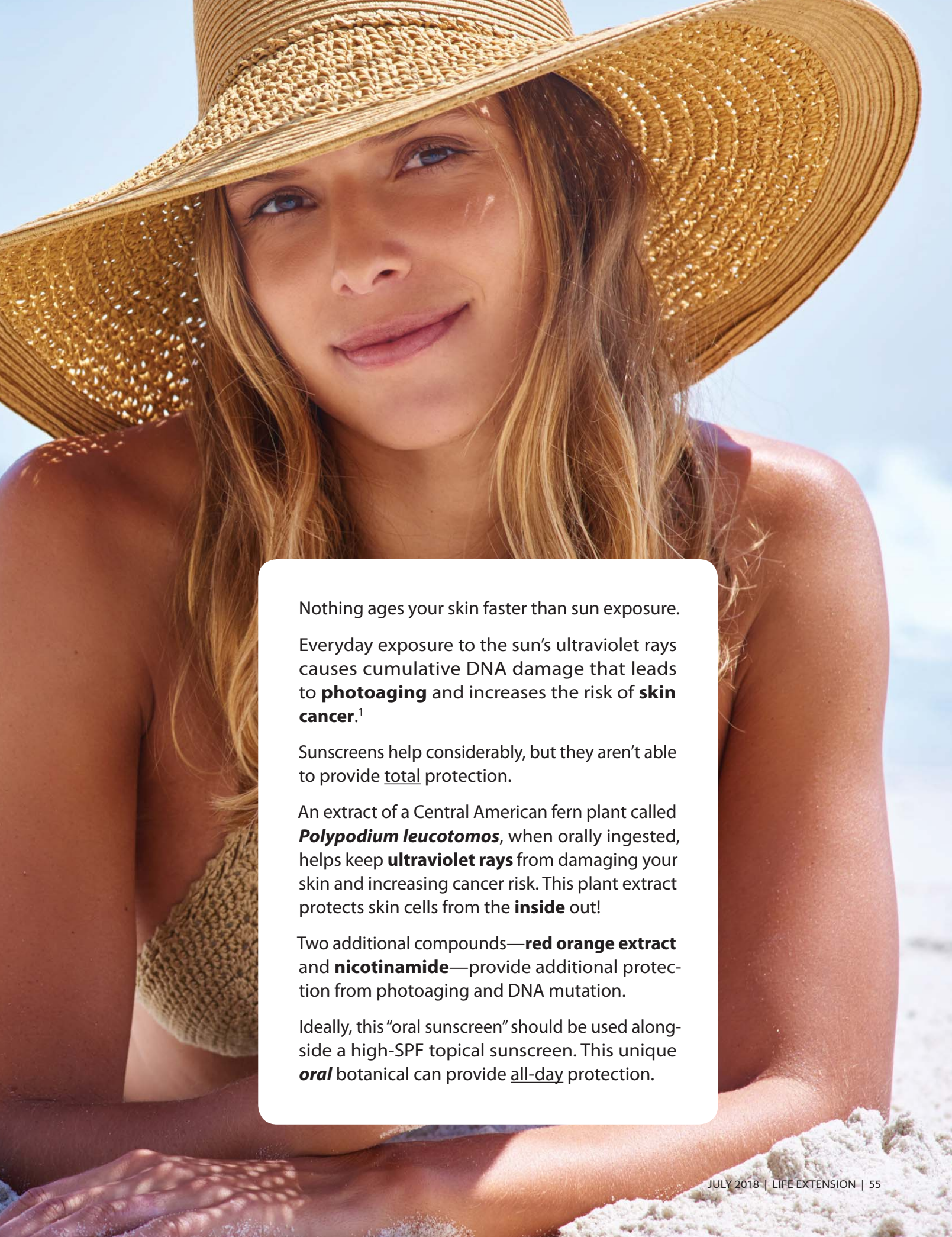
ActivAMP® is a registered trademark of Gencor.

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

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 Plant Extracts Can Protect Against Photoaging and Skin Cancer





Nothing ages your skin faster than sun exposure.

Everyday exposure to the sun's ultraviolet rays causes cumulative DNA damage that leads to **photoaging** and increases the risk of **skin cancer**.¹

Sunscreens help considerably, but they aren't able to provide total protection.

An extract of a Central American fern plant called ***Polypodium leucotomos***, when orally ingested, helps keep **ultraviolet rays** from damaging your skin and increasing cancer risk. This plant extract protects skin cells from the **inside** out!

Two additional compounds—**red orange extract** and **nicotinamide**—provide additional protection from photoaging and DNA mutation.

Ideally, this "oral sunscreen" should be used alongside a high-SPF topical sunscreen. This unique **oral** botanical can provide all-day protection.

Sun Exposure Destroys Skin Cells

While most people love the warm glow of sunlight on their skin, these rays are quite damaging. The sun's ultraviolet (UV) light damages skin DNA, suppresses a vital tumor-suppressor gene, and inhibits immune cells.¹⁻⁶

If left unchecked, this onslaught causes skin to **age faster** and boosts the risk of **skin cancer**.

Wearing sunscreen is important, but it doesn't provide total protection. It doesn't protect the scalp or eyelids, it may be rubbed off by perspiration or swimming, and most people don't use nearly enough to block the sun's rays. Although clothing is a good means of sun protection, UV rays can still penetrate some fabrics.⁷

A plant extract called ***Polypodium leucotomos*** offers an ideal complement to topical sunscreens. Because it is taken orally, it protects all skin areas evenly—and it won't wash or rub off.

Unlike sunscreens applied to the skin, *Polypodium leucotomos* extract is rich in polyphenols that inhibit oxidative stress and inflammation—while also protecting skin cells against DNA damage caused by ultraviolet radiation.⁸



Blocking Sun-Damage Mechanisms

Ultraviolet radiation causes photoaging and skin cancer because of how it impacts your DNA. This occurs through three mechanisms in particular:⁹⁻¹¹

- First, UV radiation causes initial DNA damage.
- Second, it stops damaged DNA from being removed.
- Third, it prevents damaged DNA from being repaired.

Scientists found that orally administered *Polypodium leucotomos* protected hairless mice that were exposed to UV radiation by inhibiting all three of these UV-damage mechanisms.¹²

It also helped combat inflammation of the skin.

Impressively, this study showed that *Polypodium leucotomos* helped reduce DNA damage during—and even **before**—UV exposure.¹²

Anti-Aging Effects

Researchers conducted lab studies on skin cells to investigate the extract's general **anti-aging** effects on skin elasticity and structure. They found that *Polypodium leucotomos* was able to:

- **Inhibit** enzymes that break down the elastin and collagen required for youthful-looking skin,^{13,14} and
- **Protect** cells that make the structural framework of skin tissue (the extracellular matrix and collagen).¹³

In other words, *Polypodium leucotomos* prevented the key underlying mechanisms involved in skin aging.

Human Clinical Trial

In a human study, healthy volunteers between 29 and 54 years old took **480 mg** of *Polypodium leucotomos* extract orally prior to being exposed to UV rays. Skin biopsies showed decreases in DNA damage—suggesting photoprotective effects on DNA.¹⁵

When subjected to a low dose of UV light, placebo participants had a **217% increase** in damaging DNA mutations, while *Polypodium*-supplemented participants had a striking **84% decrease**.¹⁵

Such DNA mutations and formation of damaging DNA photoproducts are the main cause of prematurely aged skin and skin cancer.^{11,16-19}

What You Need to Know

Sun Protection From the Inside Out

- The sun's ultraviolet rays damage DNA, accelerating **photoaging** of the skin and increasing the risk of skin cancer.
- Taken orally, a fern extract called *Polypodium leucotomos* inhibits UV-radiation damage and promotes DNA repair—two actions that help prevent premature skin aging and lower cancer risk.
- When combined with *Polypodium leucotomos*, nicotinamide and red orange extract provide even greater sun protection.
- This formulation can be taken orally each day to provide a powerful “internal sunscreen” to complement topical sunscreens by protecting all skin areas evenly—from *the inside*—without any fear that it will wash or rub off.
- In addition to this oral sunscreen, a high-quality topical sunscreen should be used for prolonged sun exposure.

When subjected to **higher** UV exposure, DNA mutations in the placebo group increased by **760%**. By contrast, these mutations increased by only **61%** in the *Polypodium*-supplemented group.¹⁵

These studies show that orally taken *Polypodium leucotomos* helps prevent an array of mechanisms involved in UV light-induced skin-cell damage.

Additional UV Protection

UV radiation reduces the production of ATP (*adenosine triphosphate*), the cellular energy which the body needs to *repair damaged DNA*.²⁰

For additional help in this area, we turn to a form of vitamin B3 called **nicotinamide**. Nicotinamide helps prevent UV-induced loss of cellular ATP. Protecting ATP (adenosine-triphosphate) helps promote *continuous DNA repair* mechanisms.²⁰

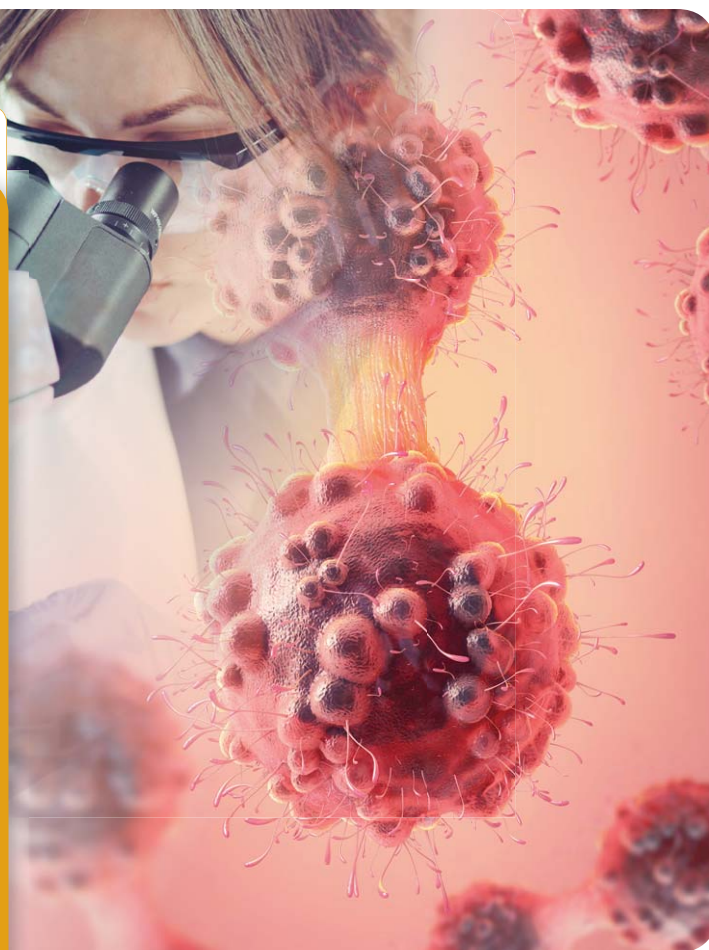
In one study, scientists pretreated skin cells with nicotinamide and then exposed them to UV radiation. The nicotinamide removed and replaced damaged DNA and significantly increased the number of cells undergoing **DNA repair**. It also reduced the production of damaging DNA photoproducts in cell cultures and in human skin.²¹

In addition, a clinical trial showed that nicotinamide can also protect against UV-induced **immune suppression**.²

These two actions—repairing DNA and protecting against immune suppression—contribute to nicotinamide's ability to reduce the risk of **skin cancer**.³

Nicotinamide's protective effects against cancer were seen in a clinical study of 386 healthy patients who had been diagnosed with at least two non-melanoma skin cancers in the previous five years. This put them in the “high-risk” category for future skin cancers.

The participants took **500 mg** doses of nicotinamide or placebo twice a day. After 12 months, the rate of new non-melanoma skin cancers in the supplemented group was reduced overall by **23%** compared to the controls.²²



A Third Pillar of Sun Defense

Red orange extract is a complement to *Polypodium leucotomos* because it provides protection against UV-induced inflammation and oxidative stress.

Red orange extract is obtained by a patented process from three pigmented varieties of *Citrus sinensis*. Its UV-protection benefits are due to its abundant anthocyanins, flavanones, and hydroxycinnamic acids.²³⁻²⁶

In a human study, oral supplementation with red orange extract reduced sunburn intensity by **35%**.²⁷ The number of lifetime sunburns is closely correlated with the development of skin cancers.²⁸

In another study, researchers applied red orange extract to skin cells and then exposed them to UV radiation. The extract significantly reduced UV-induced cell damage, inflammation, and cell death.²⁴

Summary

Everyday exposure to the ultraviolet rays of the sun causes cumulative DNA damage that massively accelerates **photoaging** of the skin and increases the risk of skin cancer.

Research shows that—taken **orally**—a fern extract called ***Polypodium leucotomos*** has protective effects against UV-induced damage to skin cells and supports DNA repair—two key mechanisms that lower cancer risk and help prevent premature skin aging.

Adding nicotinamide and red orange extract provides an even greater level of sun protection.

These nutrients can be taken orally to provide a baseline of protection against the sun's damaging effects and to complement topical sunscreens by protecting even hard-to-reach areas of the body.

They offer evenly distributed skin protection **from the inside**, and won't rub or wash off.

For prolonged exposure to UV radiation, this potent defense should be combined with a high-quality, high-SPF topical sunscreen for more complete protection. ●

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

How the Sun Damages Skin

Exposure to ultraviolet radiation starts a chain reaction of events that ends in either prematurely aged skin, skin cancer, or both.

1. First, UV radiation causes **DNA damage**. It triggers photochemical reactions that produce compounds known as **DNA photoproducts**.¹⁹ Photoproducts can then trigger DNA mutations, the main cause of prematurely aged skin and skin cancer.^{11,16-19}
2. UV radiation prevents the natural **DNA repair** of damaged cells. The photoproducts generated by the sun's rays alter a gene called **p53**. This vital tumor-suppressor gene is known as "the guardian of the genome."⁴⁻⁶

When DNA damage occurs, p53 activates DNA repair. If the damage to the DNA is irreparable, p53 initiates programmed cell-death (apoptosis) to eliminate the damaged cell.^{4,29} But when the p53 gene is mutated by UV light, it can no longer do its job. As a result, damaged cells do not undergo normal DNA repair, they escape apoptosis, and they start to multiply.³⁰

It's not surprising, then, that p53 is one of the most frequently mutated genes in human cancers.⁴

3. UV radiation inhibits the production of valuable ATP (*adenosine triphosphate*).^{16,20} Without adequate ATP levels, the body's repair systems cannot remove damaged DNA segments.^{31,32} Damaged cells can then continue to multiply.

These mechanisms result in ultraviolet radiation being the main cause of skin photoaging, as well as the main cause of skin cancer.¹¹

Orally taken *Polypodium leucotomos* combats UV radiation by promoting both DNA protection and repair.^{12,15}





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FISH OIL

Reduces the Fires of Inflammation

Many ill effects of **aging** are caused by *low-grade, chronic inflammation*.

These slow-burning internal fires damage tissues and underlie many cancers, vascular disorders, and dementias.

Inflammation is partially regulated through the **eicosanoid pathway**.

Age, poor diet, and other factors tip the balance of this pathway from **anti-inflammatory** to **pro-inflammatory**.

Omega-3-rich **fish oil** rebalances the **eicosanoid pathway** and safely helps reduce **inflammation**.





What is the Eicosanoid Pathway?

The **eicosanoid pathway** is a signaling pattern that regulates inflammation *when needed*.

The **eicosanoid pathway** helps *turn on* inflammation when it's needed and *turn it off* once it has done its job. This is accomplished through **signaling** molecules called **eicosanoids**.

There are two types of these signaling molecules—one that is **pro-inflammatory**, and one that is **anti-inflammatory**.

The **pro-inflammatory** signaling molecules are produced from **omega-6** polyunsaturated fatty acids, whereas the **anti-inflammatory** molecules are mostly produced from **omega-3** polyunsaturated fatty acids.¹⁻⁵

Omega-3 also produces three additional classes of signaling molecules—called **resolvins**, **protectins**, and **maresins**. These go beyond *suppressing* inflammation by also promoting healing and actively protecting against cellular damage.³⁻⁸

The *ratio* of omega-6 to omega-3 is a major factor in determining whether the eicosanoid pathway will produce predominantly **pro-inflammatory** or **anti-inflammatory** signals.

Our typical Western diet contains far more **omega-6** than **omega-3** fats—an imbalance that pushes our eicosanoid pathway towards **pro-inflammatory** signaling, resulting in chronic inflammation.²

Fish oil improves the ratio of omega-6 to omega-3 thus reducing the incidence of age-associated

inflammatory disorders—including cardiovascular, autoimmune, metabolic, and neurodegenerative diseases.

Inflammation-driven disease takes us down the road to premature disability and death. *Reversing* that inflammation with **EPA-** and **DHA-rich fish oil** represents a means of slowing certain aging processes.

In the next sections, we'll review the evidence showing how fish oil supplements can have a beneficial impact on inflammatory-related conditions.

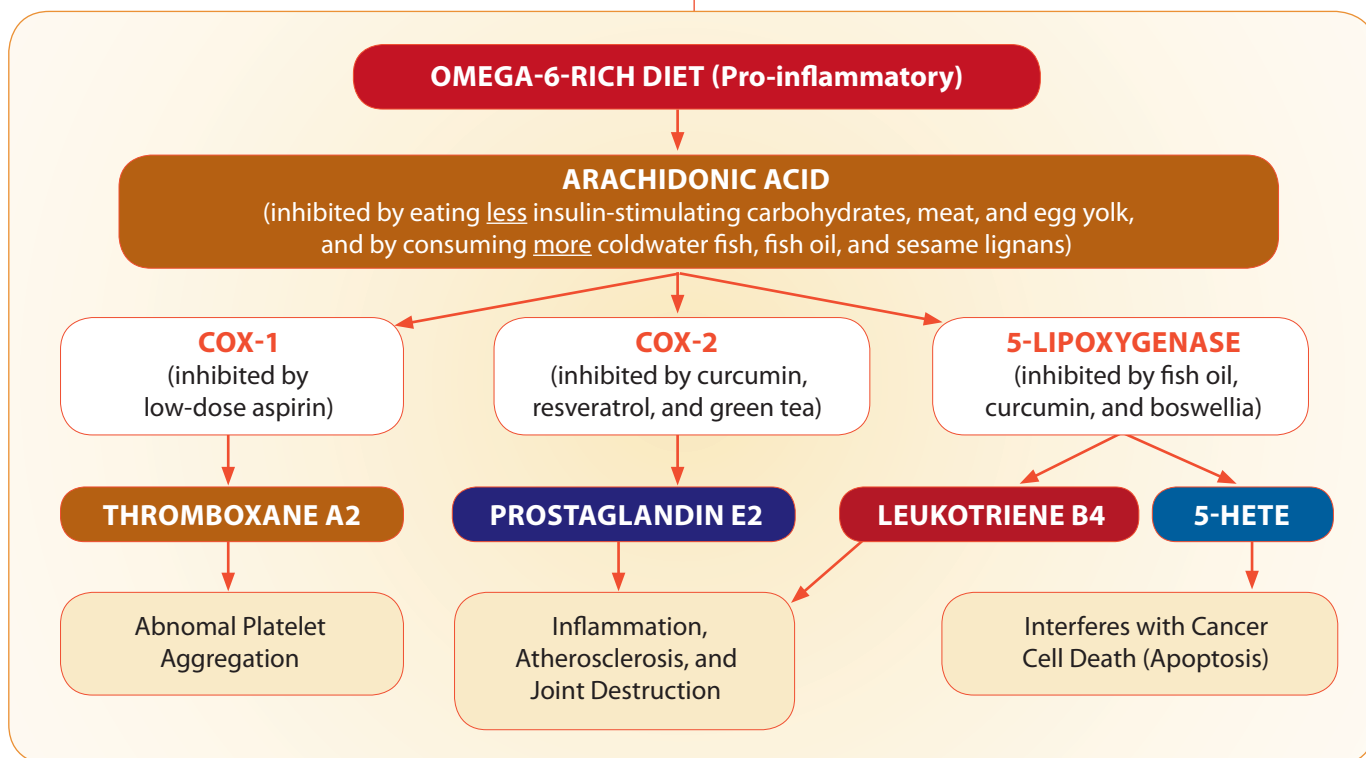
Cardiovascular Disease

Cardiovascular disease—which includes heart attacks, hypertension, strokes, atrial fibrillation, and heart failure—remains one of the leading killers worldwide.⁹

Inflammatory changes contribute to every point in the cascade of events that lead to cardiovascular catastrophe.

This includes promoting the development of atherosclerotic plaques and platelet clumping in arteries, as well as disrupting the electrical network of the heart itself.

Reducing the burden of inflammation is an important way to attack cardiovascular diseases before they become problematic. Fish oil/omega-3 supplementation is emerging as an important way to accomplish this task.



OMEGA-3 RICH DIET (Anti-inflammatory)

EPA

DHA

RESOLVINS

PROTECTINS

MARESINS

- Suppress inflammation • Promote healing
- Protect against cellular damage

Human studies show that populations that consume large amounts of oily fish have reduced incidence of and deaths from cardiovascular disorders. This is due in part to fish oil's ability to help lower triglycerides and reduce evidence of atherosclerosis.^{10,11} Omega-3 fish oil supplements have also been shown to improve **endothelial function** and stabilize **arterial plaques** (making them less likely to rupture and obstruct an artery).¹⁰

EPA and DHA omega-3s produce profound shifts from the pro-inflammatory **eicosanoids** to protective, anti-inflammatory, vessel-dilating eicosanoids.¹²

There has long been interest in the ability of omega-3 supplementation to reduce the risk of **atrial fibrillation**, which is a cardiac rhythm disturbance that affects up to a third of people with hypertension.¹³ Atrial fibrillation can increase the risk of strokes and death, and is associated with inflammatory changes in the heart's electrical system.¹³

Ultimately—and most importantly—fish oil consumption has been shown to reduce coronary heart disease-related deaths.¹¹

Neurodegenerative Disorders

Alzheimer's disease is the most prevalent neurodegenerative disorder. Inflammation plays a major role in its development.¹⁴

Omega-3s from fish oil are involved in both the reduction and resolution of inflammation through their impacts on the **eicosanoid pathway**—making them promising for the prevention of this debilitating disease.

Growing evidence indicates that, while DHA and EPA work together, they also have distinct individual influences on brain health.¹⁴ For example, EPA has been shown to improve symptoms of mood disorders (depression, anxiety), while DHA has a role in maintaining normal brain structures.¹⁴ Omega-3s cross the normally impermeable **blood-brain barrier**, making them available *directly* to brain cells.¹⁵



What You Need to Know

Fish Oil Reduces Chronic Inflammation

- Inflammation triggers a cascade of destructive changes in cell and tissue function that leave us vulnerable to diabetes, cardiovascular disease, neurodegeneration, and even losses of bone and joint integrity.
- New studies show that we can control the balance of the eicosanoid pathway, tipping it back towards a low-inflammation, pro-resolution state, by supplementing with fish oil rich in the omega-3 fatty acids EPA and DHA.
- Animal and human studies now demonstrate the usefulness of fish oil supplements rich in EPA and DHA in mitigating the impact of diabetes, cardiovascular disease, neurodegenerative conditions, and skeletal health.
- Fish oil can be considered a fundamental anti-aging supplement because of its potent regulation of the eicosanoid pathway.



female	
Androstenedione	$3.5-9 \times 10^{-9}$
Androsterone	$2.5-5 \times 10^{-9}$
Angiotensin	$1.7-10^{-7}$
Angiotensin II	$1.1-8.8 \times 10^{-11}$
Angiotensinogen	$1.2-3.6 \times 10^{-11}$
Bicarbonate	$5-5.7 \times 10^{-4}$
Bile acids	$2-30 \times 10^{-6}$
Bilirubin	$1-10 \times 10^{-6}$
Bilirubin metabolite	$1-10 \times 10^{-6}$
Biotin (Vitamin H)	$9-16 \times 10^{-9}$
Blood Urea Nitrogen	$6-23 \times 10^{-5}$
Bradykinin	7×10^{-11}
Bromide	$7-10 \times 10^{-4}$
Cadmium	1×10^{-9}
Calcium	$1.7-4.1 \times 10^{-3}$

Check Omega Blood Levels and Understand Your Risk

The typical Western diet today contains a vast excess of omega-6 fats (largely derived from poultry products and certain vegetable oils).^{41,42}

The optimum ratio of **omega-6 to omega-3** fats in the diet is roughly 4 to 1, though some proponents claim the ratio should be two omega-6s for each one omega-3. Shockingly, those who follow unhealthy modern Western diets often consume these fats in ratios as high as 25 (omega-6) to only 1 (omega-3).^{2,41}

Today we can determine our **omega-6 to omega-3 ratio** and much more through a finger stick test that can be ordered by calling **Life Extension®** at **1-800-208-3444** (24 hours).

Studies of blood cells from Alzheimer's disease patients show that supplementing with DHA and EPA for six months causes significant alterations in 19 genes involved in inflammation, neurodegeneration, and resolution of inflammation. This suggests that these beneficial fatty acids are regulating gene expression, which is a powerful **epigenetic** effect.¹⁶

Many of those changes result in increased production of three signaling molecules derived from omega-3s: *resolvins*, *protectins*, and *maresins*.¹⁷ As we learned earlier, these compounds have the dual benefit of resolving inflammation while also helping repair damaged tissue.

One way these omega-3-derived signaling factors afford protections is by increasing white blood cells' appetite for consuming *beta-amyloid*, the toxic protein found in the brains of those with neurodegenerative diseases, while also reducing inflammation in the brain.⁸

Levels of these *signaling* molecules are reduced in people with Alzheimer's disease and in those with minimal cognitive impairment (which commonly precedes Alzheimer's).^{8,17,18}

Omega-3 supplementation has been shown to beneficially support levels of these specialized molecules.¹⁷

One study showed that cognitive function in supplemented Alzheimer's patients was closely associated with higher levels of resolvins, protectins, and maresins. Another showed benefit only in those with mild cognitive impairment, a grim reminder that early intervention is critical.⁸

An encouraging study in **2016** showed that supplementing with **fish oil** directly impacts brain size and structure in people with mild cognitive impairment.¹⁹ While placebo recipients in this study had *decreased* volume of gray matter in brain areas associated with Alzheimer's disease, those taking the fish oil supplement (combined with aerobic exercise and cognitive stimulation) had unchanged, and in some cases *increased* volume of gray matter, the region of the brain involved in everything from memory and speech to emotions and decision-making.¹⁹

Those findings help explain results of an earlier study, in which Alzheimer's patients who supplemented with omega-3 had less decline in activities of daily living compared with placebo recipients. And when **lipoic acid** was added to the supplement, subjects showed even less decline in cognitive function.²⁰

Diabetes

Type II diabetes is a ballooning epidemic that follows directly in the path of obesity and inflammation-driven insulin resistance. Fish oil's ability to combat inflammation naturally protects against diabetes and its effects.

Animal research shows that fish oil supplementation *improves* metabolic factors associated with type II diabetes, including improving glucose tolerance (less insulin resistance) and decreased blood and liver lipid levels.²¹

Human studies have also demonstrated the benefits of omega-3s in diabetic patients. In one study, 30 obese type II diabetics took omega-3 supplements while following a protein-enriched diet with low glycemic-index carbohydrates. After 24 weeks, their **hemoglobin A1c** levels (a marker of chronic blood sugar elevation) diminished **11.1%**, their **waist circumference** was reduced by **1.3 inches**, and they experienced a significant reduction in **C-reactive protein** (CRP), the blood marker of inflammation.²²

Fish oil/omega-3 supplements also protect us against the inflammation-related *effects* of diabetes.

In patients with type II diabetes, taking **4,000 mg/day** of fish oil significantly *reduced* blood triglycerides and *improved* kidney function.²³ In an animal study, giving diabetic rats fish oil improved diabetes-associated cognitive deficit, suppressed inflammatory changes, and protected brain cells against destruction.^{23,24}

Another major effect of diabetes is an increase in cardiovascular disease. There's now strong evidence that diets high in omega-3 fish oil can reduce this deadly risk in diabetics by reducing artery-clogging platelet clumping and dangerous lipid elevations.²⁵ Studies also show that diabetics who consume higher amounts of fish oil/omega-3s have lower blood pressure and are up to **19%** less likely to die from cardiovascular disease.^{25,26}

Bone Health

Osteoporosis arises from an imbalance between the production of new bone and breakdown of older bone tissue.

The **eicosanoid pathway** can generate pro-inflammatory molecules created from certain omega-6 fatty acids, leading to inflammatory signals that can contribute to osteoporosis by promoting the activity of cells that break down bone (osteoclasts), while suppressing activity of those that produce new bone (osteoblasts).²⁷⁻³⁰

Omega-3 supplementation can help counteract this harmful effect, shifting the balance back towards healthier bones. This has been seen in animal studies, which have repeatedly shown that omega-3 supplementation reduces inflammation and protects against bone loss by reducing activity of osteoclasts. This tips the balance toward new bone formation by osteoblasts, and helps to prevent bone fractures.^{27,31-33}



A human study showed that omega-3 supplementation—combined with regular exercise—can reduce inflammatory changes and augment bone mineral density in postmenopausal women, the largest group at risk for osteoporosis.³⁴

Joint Health

Osteoarthritis is the most common cause of joint pain and disability in aging adults.³⁵ The condition involves destruction of joint cartilage and remodeling of the bone just below cartilage—both of which are driven by **chronic inflammation**.³⁶

Not surprisingly then, adults with higher omega-6 to omega-3 ratios have greater pain, functional limitations, and psycho-social distress compared to those with lower ratios.³⁷

Studies in dogs, which notoriously suffer from osteoarthritis, show that fish oil omega-3 supplementation significantly improves weight-bearing ability and lowers the need for other anti-inflammatory drugs.^{38,39}

A human study from Germany demonstrated that the combination of omega-3 (EPA plus DHA) and glucosamine sulfate reduced morning stiffness and pain in the hips and knees more effectively than glucosamine sulfate alone.⁴⁰

Summary

Chronic, low-grade inflammation is linked to age-related conditions as varied as type II diabetes, cardiovascular disease risk, cognitive decline, aching joints, and osteoporosis.

We can help control our **eicosanoid pathway** functions by supplementing with omega-3 fish oil.

The EPA and DHA found in fish oil shifts the eicosanoid pathway into producing **anti-inflammatory signals** that reduce inflammation. These omega-3s have also been shown to promote the production of recently discovered resolvins, protectins, and maresins, compounds that have the dual benefit of resolving inflammation while also helping repair damaged tissue.

Human and laboratory studies point to an important role of fish oil supplementation in preventing many inflammation-driven, age-associated disorders, including diabetes, cardiovascular disease, neurodegeneration, and even bone and joint disorders. ●

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

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

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BY BEN BEST

EXCLUSIVE CONFERENCE REPORT

2017 EXERCISE IS MEDICINE CONFERENCE

Aging is associated with the replacement of muscle by fat.

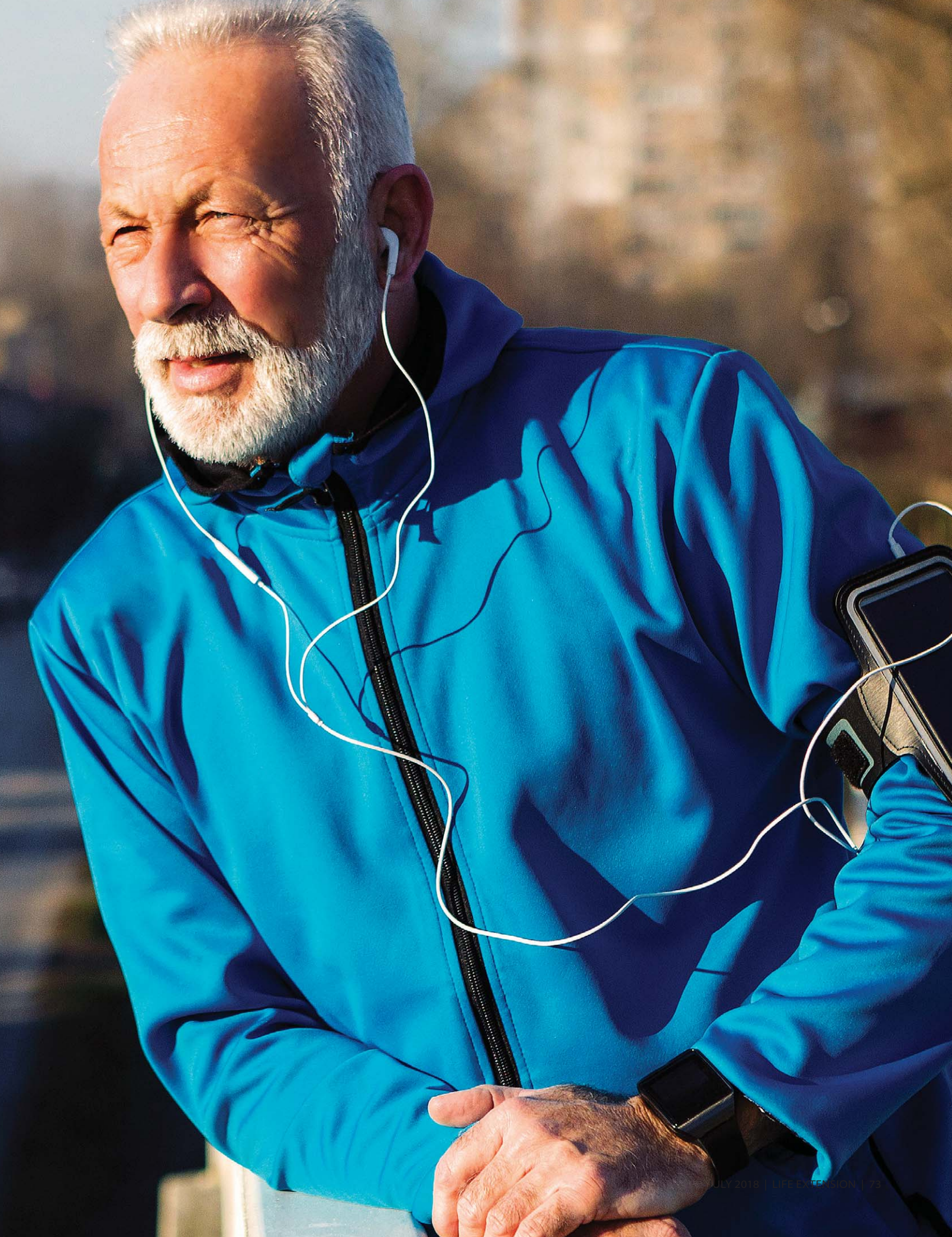
Waist circumference increases due to an increase in visceral fat, which causes chronic inflammation. Muscle loses quality and strength, contributing to the disabilities of old age.¹

Aging is also associated with increased insulin resistance and diabetes.

Physical inactivity accounts for many of these problems, which can be greatly reduced by **exercise**.

Exercise reduces blood glucose levels.

This report is based on the **Exercise is Medicine** conference held in Denver, Colorado, in June 2017. It reveals new findings on the favorable effects of even moderate increases in physical activity.



Fitness and Risk of Death

Robert Ross, Ph.D. (professor, Queen's University, Ontario, Canada) studies the health benefits of fitness.



People who are fit have a lower risk of death—even if they smoke and have elevated cholesterol and blood pressure—compared to unfit people that have none of those risk factors.²

Patients with **dyslipidemia** (elevated blood cholesterol and triglycerides) who are highly fit but are not taking statins have a substantially lower risk of dying than dyslipidemia patients taking statins who are unfit.³

Dr. Ross was chair of a 2016 American Heart Association Committee that issued a report showing that low cardiorespiratory fitness is a stronger predictor of death than smoking, high cholesterol, type II diabetes, or high blood pressure.⁴

Inactivity and Blood Vessel Health

Jaume Padilla, Ph.D. (assistant professor, University of Missouri) is concerned with the effects of physical activity on endothelial function.



Endothelial dysfunction refers to the reduced capacity of blood vessel walls (the endothelium) to dilate and thereby increase blood flow. Endothelial dysfunction is one of the early changes contributing to **atherosclerosis**,⁵ a narrowing of the arteries that increases the risk of heart attack and stroke.⁶ A 1% increase in endothelial function is associated with a

13% reduced risk of cardiovascular disease.⁷

Exercise prevents the decline of endothelial function that occurs with age.⁷

In one experiment, Dr. Padilla showed that only five days of reduced activity (from 10,000 steps per day to 5,000 steps per day) substantially reduced endothelial function in leg arteries.⁸

He also showed that engaging in exercise prior to prolonged sitting could **prevent** the endothelial dysfunction normally caused by sitting.⁹ Even fidgeting the legs for one minute out of every five can prevent the endothelial dysfunction caused by sitting.¹⁰

Finally, Dr. Padilla has also demonstrated that the endothelial dysfunction of leg arteries resulting from six hours of continuous sitting could be **reversed** by a 10-minute walk.¹¹

Exercise Against Aging

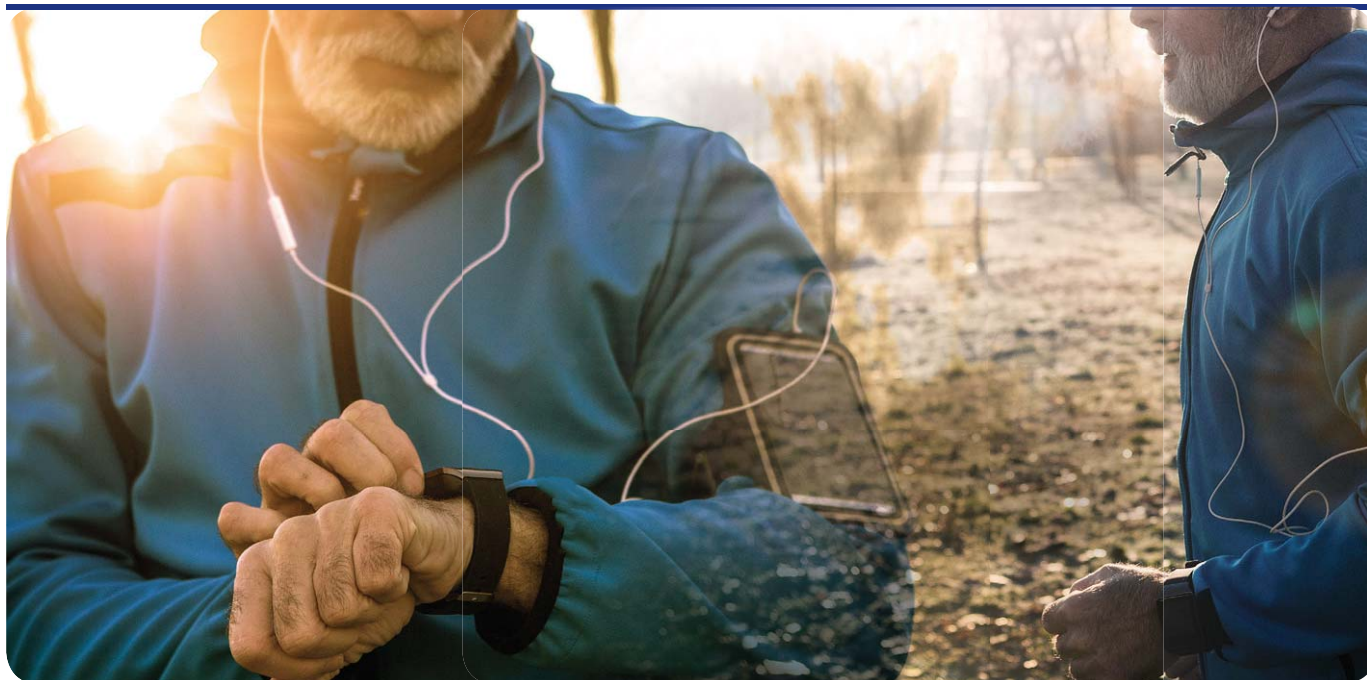
Brian Irving, Ph.D. (assistant professor, Louisiana State University) has an interest in the benefits of different types of exercise for the elderly. For example, resistance training, but not endurance training, has been shown to increase muscle size and mitochondrial density in the elderly.¹² Endurance training does, however, prevent mitochondria from becoming dysfunctional.¹³



Dr. Irving's team has shown that a **combination** of endurance and resistance exercise is the best way to improve cardiorespiratory fitness, muscle strength, and mitochondrial capacity.¹⁴

The team also demonstrated that the increase in **insulin resistance** that happens with aging is due to *increasing fat* rather than simply being an inevitable consequence of aging.¹⁵ Endurance exercise has been shown to increase insulin sensitivity.¹⁶





Exercise Capacity and Heart Health

Jonathan Myers, Ph.D. (health research scientist, Veteran Affairs Health Care System, Palo Alto, California) has established that **exercise capacity** is a better predictor of the risk of death than smoking, diabetes, high blood pressure, or other exercise test results.¹⁷



Myers

Exercise capacity is the maximum **metabolic equivalent (MET)** measured on exercise equipment. MET is the ratio of energy expended during an activity compared to the energy expended when a person is passive (such as watching television). Leisurely walking uses just over **2 METs** of energy, whereas jogging uses about **7 METs**.

Dr. Myers has also established that cardiorespiratory fitness (peak oxygen uptake during maximum exercise) is the best way to determine the exercise intolerance seen in heart failure patients.¹⁸

Exercise testing requires equipment and trained staff that are often not available in medical facilities. So Dr. Myers has been evaluating questionnaires that estimate exercise capacity in order to attempt to predict mortality.¹⁹

The single question, “How do you rate your cardiorespiratory fitness compared to your peers?” has proven to be very effective. Those who rated themselves lower than their peers have a **91%** greater chance of dying of cardiovascular disease compared to those who rate themselves higher than their peers.²⁰

High Intensity Interval Training

Martin Gibala, Ph.D. (professor, McMaster University, Ontario, Canada) studies the effects of **high-intensity interval training (HIIT)**. HIIT exercise involves alternating between a brief period of “all-out” effort for several seconds, and a period of resting recovery time.



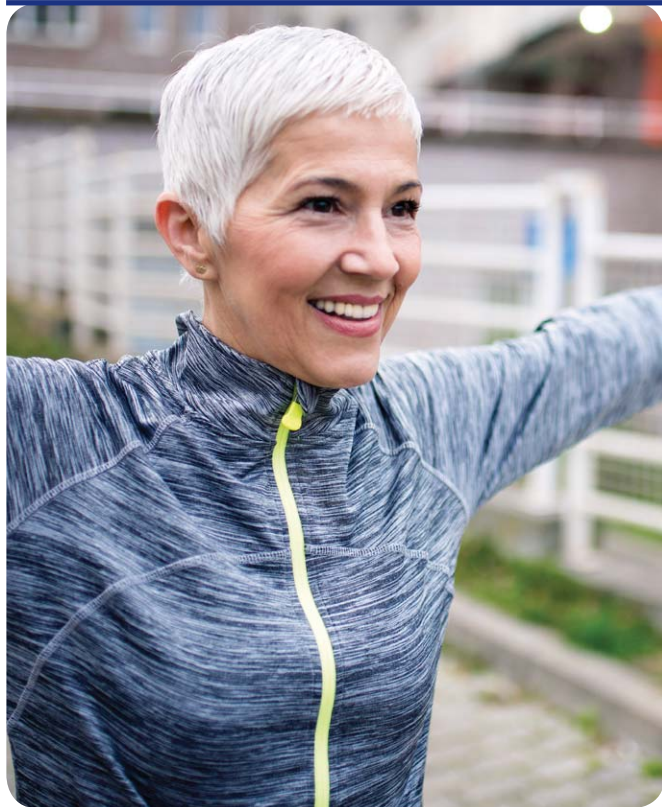
Gibala

Dr. Gibala conducted a study in which he compared 45 minutes of moderate intensity cycling with a HIIT protocol consisting of three 20-second “all-out” cycling efforts interspersed with 2 minutes of low-effort cycling. The two groups of previously inactive men exercised three times per week for 12 weeks.

The study showed that improvement in insulin sensitivity, cardiorespiratory fitness, and muscle mitochondrial content was the **same** for both groups, despite the fact that the moderate intensity cycling group spent **five times** more total time exercising than the HIIT group.²¹

A review of the literature showed that when overweight/obese people practiced HIIT for more than 12 weeks, they experienced a reduction in body fat, waist circumference, and blood pressure, and an increase in cardiorespiratory fitness.²²

Dr. Gibala has established that HIIT can be achieved by stair-climbing as effectively as on an exercise bike.²³



Benefits and Risks of Exercise

Barry Franklin, Ph.D. (professor, Wayne State University, Detroit, Michigan) is concerned with whether excessive exercise can be harmful.



Exercise reduces cardiovascular disease by improving the function of the heart²⁴ and blood vessels.²⁵ But excessive and vigorous exertion in those who have a poor cardiorespiratory condition and who are at increased risk of heart disease due to coronary artery disease or structural defects of the heart, has been shown to markedly increase the risk of sudden cardiac death and heart attack. Snow-shoveling is one confirmed cause of this, but any bout of excessive exercise in unfit, at-risk individuals can have this result.^{26,27}

Even in individuals without known heart disease, vigorous physical activity can increase the risk of acute heart attack and sudden cardiac death (SCD). This is because of the temporary stress placed on the heart by excessive exercise, making silent cardiac disease suddenly deadly when sedentary individuals overexert themselves.

This underlines the importance of beginning any program of physical activity gradually, with expert guidance, and only after a thorough evaluation of cardiovascular health and risk.

Exercise for Diabetes

Steven Malin, Ph.D. (assistant professor, University of Virginia) studies differences in insulin sensitivity, fat disposal, and the effects of exercise between individuals.



He has been particularly interested in the ability of the pancreas to compensate for insulin resistance.

In the early stages of insulin resistance, blood glucose levels do not change because the pancreas can increase insulin production to compensate for the fact that insulin resistance increases the difficulty of getting glucose into cells. But eventually the pancreas becomes unable to compensate, which results in higher blood glucose and lower levels of insulin.²⁸

Dr. Malin highlights the importance of cardiorespiratory fitness for glycemic control and its importance in the production of insulin by the pancreas.²⁹

Exercise for Cognitive Function and Depression

Ryan Olson, Ph.D. (assistant professor, University of North Texas) is concerned with exercise, depression, and cognitive function.



More than **15%** of the U.S. population will experience major depressive disorder at some point in their lifetime.³⁰ Dr. Olson's research suggests that depressed people ruminate about negative past experiences, and that the rumination contributes to cognitive impairment.³⁰

In an eight-week experiment in which depressed individuals did either stretching or endurance exercise, Dr. Olson found that endurance exercise reduced depressive symptoms by **58%**, whereas stretching only reduced the symptoms by **22%**.³¹ Endurance exercise also resulted in greater improvement in cognitive function.³¹

A 12-week study of depressed individuals compared the exercise equivalent of walking three miles per hour for 75 minutes per week with walking four miles per hour for 210 minutes per week. The greater amount of exercise resulted in greater improvement of cognitive function.³²

Christiane Wrann, Ph.D. (assistant professor of Medicine, Harvard Medical School) is interested in how exercise improves **cognitive function**. Exercise results in the creation of **new brain cells** in the area of the brain concerned with the formation of new memories.³³



A study of healthy elderly people showed that those who did **endurance exercise** for six months experienced increased brain volume in the prefrontal and temporal cortex, the brain areas that normally show the greatest age-related deterioration.³⁴

Dr. Wrann has been most interested in a protein called **irisin** that is secreted from muscle during exercise.³⁵ She has found that irisin release is caused by another exercise-induced protein, **PGC-1 alpha**, which is a primary stimulator of mitochondrial biogenesis.³⁶ Irisin reduces insulin resistance and obesity, and PGC-1 alpha has been shown to prolong lifespan in mice.³⁷

Exercise in Pregnancy

Michelle Motolla, Ph.D. (professor, Western University, Ontario, Canada) studies the effects of exercise on pregnant women. Dr. Mottola has shown that pregnant women who do not exercise are **2.5 times** more likely to give birth to an overweight infant, and **three times** more likely to develop high blood pressure.³⁸

Every 2.2 pounds above average birthweight is associated with a **12%** higher risk of dying from cardiovascular disease when the child becomes an adult.³⁹ Women who exercise while pregnant reduce the risk of having an overweight newborn.⁴⁰

Nearly half of the women who develop diabetes during pregnancy (called gestational diabetes) will have an overweight infant. These infants are likely to become

an obese, diabetic adult.⁴¹ Dr. Mottola has conducted a clinical trial showing that exercise during pregnancy reduced the incidence of gestational diabetes and prevented excessive weight retention in the mothers after they gave birth.⁴²

Concluding Remarks

Exercise can do much to reduce the disabilities of aging, prevent diabetes, and reduce the risk of dying from cardiovascular disease.

Physicians often find it easier to prescribe a pill rather than to prescribe exercise, despite the fact that exercise may be more effective. Patients also often find that it is more convenient to take a pill than to exercise.

Exercise is a medicine without the side effects of a drug. Too many people avoid experiencing the benefits of exercise at too great a cost. ●

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India Cookbook

Pushpesh Pant is a 71-year-old Indian who is an intellectual, a historian, a retired professor of international relations, and a journalist specializing in all things food related. His true vocation in life, however, is as an advocate for Indian cuisine.

That passion led directly to Pant writing *India Cookbook*, a huge 815-page compendium of about 1,000 recipes, collected from all ten of India's basic food regions.

Upon publication, *India Cookbook* was a major success, a best-seller that was heralded in the *New York Times* list of best cookbooks of the year.

"I was fortunate to have parents who recognized food can bring about change because it's a mood manipulator," says Pant. "Food becomes your body. It intoxicates you, poisons or revives you."

Pant explains that he was "taught to think of *all* Indian food as my cultural heritage," and he credits his mother for giving him a wide-ranging, secularist view of his native cuisine. When he was growing up, most families cooked meals that were strictly within their specific regional, religious, and caste traditions. But Pant's mother liked to create pan-Indian meals, which required her to regularly go to great lengths to collect the necessary, often far-flung ingredients.

In his comprehensive *India cookbook*, which is based on 25 years of research, Pant prefaces his recipes with a history of Indian food and an overview of India's food regions. He also provides a brief note on Ayurveda, the traditional Hindu system of medicine, and explains its relationship to diet.

Life Extension® here collects some sample recipes from Pant's monumental work. All feature ingredients known for their health benefits, such as nuts, turmeric, garlic, cumin, ginger, and tomatoes.

—Garry Messick

Bharwan Bhindi

Stuffed Okra

ORIGIN: Punjab • Preparation time: 30 minutes

Cooking time: 20-25 minutes • Serves 4

INGREDIENTS

500 g / 1 lb., 2 oz. okra, topped and tailed (trimmed), cut in half lengthways, then de-seeded.

Salt

For the filling

1 teaspoon ground turmeric
1 teaspoon ground black cardamom
1 teaspoon ground fennel
1 ½ teaspoons ground cumin
1 teaspoon ground black pepper
2 ½ tablespoons vegetable oil or ghee
1 tablespoon amchoor
1 teaspoon ground coriander
2 teaspoons chili powder
¼ teaspoon ground nutmeg
Pinch of salt

For the sauce

1 ½ teaspoons chili powder
½ teaspoon ground turmeric
4 tablespoons vegetable oil or ghee
125 g / 4 ½ oz. (1 small) onion, sliced
750 ml / 1 ¼ pints (3 ¼ cups) natural (plain) yogurt, whisked

To make the filling, mix all the ingredients together in a bowl. Fill the okra with equal quantities of the mixture and set aside.

To make the sauce, mix the chili powder and turmeric in a small bowl with 2 tablespoons water.

Heat the oil or ghee in a deep, heavy-based pan over low heat, add the onion and fry for 3-4 minutes, or until translucent and glossy. Add the chili powder mixture and stir-fry for about 3-4 minutes, or until all the moisture has evaporated, then add the stuffed okra, increase the heat to medium, cover and cook, stirring occasionally, for 7-8 minutes.

Remove from the heat, stir in the yogurt, and season with salt. Return to the heat and cook, stirring occasionally, but carefully, for about 5 minutes, or until the sauce is quite thick. Remove from the heat and adjust the seasoning, if necessary.

Kaju Khumb Makhane

Mushrooms with Cashew Nuts

ORIGIN: Rajasthan • Preparation time: 20 minutes

Cooking time: 30 minutes • Serves 4

INGREDIENTS

1 ½ teaspoons chili powder
1 teaspoon ground turmeric
1 teaspoon ground coriander
125 g / 4 ¼ oz. (½ cup) ghee
150 g / 5 oz. (1 medium) onion, grated
1 teaspoon kalonji (nigella) seeds
1 teaspoon cumin seeds
2 ½ tablespoons ginger paste (see next page)
1 ½ tablespoons garlic paste (see next page)
250 g / 9 oz. (1 large) tomato, chopped
175 ml / 6 fl oz. (¾ cup) natural (plain) yogurt, whisked
500 g / 1 lb. 2 oz. (7 cups) mushrooms, chopped
75 g / 2 ½ oz. (½ cup) cashew nuts, roasted
75 g / 2 ½ oz. lotus puffs
Salt
1 large sprig coriander (cilantro), chopped, to garnish

Put the ground spices in a small bowl, add 4 tablespoons water and mix together.

Heat the ghee in a large, heavy-based pan over medium heat, add the onions and fry for about 5-7 minutes, or until golden brown. Add the kalonji and cumin seeds and stir-fry for about 1 minute, or until they start to sputter. Add the ginger and garlic pastes and stir-fry for about 1-2 minutes, then add the ground spice mixture and stir-fry for 2 minutes. Add the tomatoes and fry for about 5 minutes, or until the oil separates out.

Remove the pan from the heat and slowly stir in the yogurt. Season with salt, then return to the heat and pour in about 250 ml / 8 fl oz. (1 cup) of water. Bring almost to a boil, then reduce the heat and simmer for a few minutes until the sauce thickens. Add the mushrooms and simmer for a further 5 minutes. Add the cashew nuts and lotus puffs and stir to mix well. Remove from the heat, adjust the seasoning, if necessary, and garnish with chopped coriander.

Subzi Panchmel Mixed Vegetables

ORIGIN: New • Preparation time: 25 minutes
Cooking time 10-12 minutes • Serves 4

INGREDIENTS

100 g / 3 ½ oz. (3 small) new (baby) potatoes
3 tablespoons mustard oil
2 onions, chopped
8 cloves garlic, chopped
10 baby corn
400 g / 14 oz. mushrooms, stalks removed
1 red (bell) pepper, cut into juliennes
1 yellow (bell) pepper, cut into juliennes
120 g / 4 oz. (1 small) tomato, puréed
1 ½ teaspoons coriander seeds, roasted, then
pounded in a mortar and pestle
1 teaspoon coarsely ground black pepper, roasted
1 x 2.5-cm / 1-inch piece fresh ginger, peeled and sliced
2 tablespoons chopped coriander (cilantro) leaves
Salt

Cook the potatoes in a medium-sized pan of water for about 10 minutes, or until soft. Drain and set aside.

Heat the oil in a large heavy-based pan over high heat, then reduce the heat to medium. Add the onions and fry for about 2 minutes, or until translucent. Add the garlic and fry for about 2-3 minutes, or until the onions turn light golden. Add the baby corn, potatoes, mushrooms, and peppers, then increase the heat to high and stir-fry for about 2 minutes, or until the baby corns are cooked. Add the puréed tomato and stir-fry for a further 1 minute to ensure that the purée coats the vegetables evenly. Sprinkle over the coriander seeds, pepper, ginger, and season with salt, then stir. Add the chopped coriander leaves and stir again. Remove from the heat and adjust the seasoning, if necessary.

Pisi Adrak Ginger Paste

ORIGIN: Pan-India • Preparation time: 20 minutes,
plus chilling time • Makes about 250 g / 9 oz.

INGREDIENTS

1 x 14-cm / 5 ½-inch piece fresh ginger, peeled and roughly
chopped

Put the ginger in a blender, add 3 tablespoons water and process to make a smooth paste. Transfer to a container and chill in the refrigerator. This paste can be stored for up to 3 days in the refrigerator.

Pisi Lehsun Garlic Paste

ORIGIN: Pan-India • Preparation time: 15 minutes,
plus chilling time • Makes about 200 g / 7 oz.

INGREDIENTS

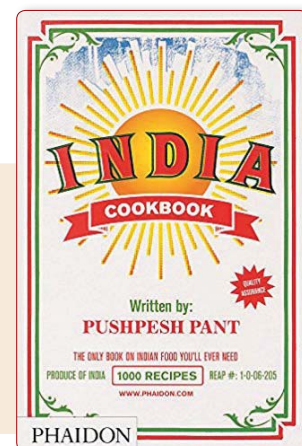
200 g / 7 oz. (about 5 heads) roughly chopped garlic

Put the garlic in a blender, add 3 tablespoons water and process to make a fine paste. Transfer to a container and chill in the refrigerator. This paste can be stored for up to 3 days in the refrigerator

If you have any questions on the
scientific content of this article, please call
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Reprinted from *India Cookbook*
(Phaidon 2010) by Pushpesh Pant.

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Purple Cauliflower

BY GARRY MESSICK

Cauliflower is a member of the Brassicaceae family of plants. As such, it's related to a number of other healthy foods, including kale, cabbage, broccoli, and Brussels sprouts.

In its most common form, white cauliflower, the vegetable has substantial nutritional value. Purple cauliflower adds an important ingredient to the mix. Let's take a closer look at this, as well as other benefits to be derived from this valuable vegetable.

Anthocyanins

Purple cauliflower's color is due to its high anthocyanin content. Anthocyanins are part of the flavonoid family of phenolic compounds. They are pigments that lend color to everything from blueberries to red wine, and are the reason leaves change color in autumn.

Research shows that anthocyanins may help fight cardiovascular disease. One study that followed over **34,000** postmenopausal women over a 16-year period found that those who ate anthocyanin-rich fruits on a weekly basis had significantly reduced risk of dying from coronary artery disease.¹ Another study found that anthocyanins were associated with lower arterial stiffness and significantly lower systolic blood pressure.²

Due to their status as oxidant reducers, as well as an ability to activate detoxifying enzymes, anthocyanins have also shown remarkable anti-cancer properties, including preventing cancer cell proliferation, inducing cancer-cell death, and inhibiting the formation of blood vessels that promote tumor growth.³

Glucosinolates

Cruciferous vegetables such as purple or white cauliflower are rich in the sulfur-containing compounds known as glucosinolates, which, among other benefits, have significant system-wide anti-inflammatory effects.⁴

Detoxification

Purple and other varieties of cauliflower contain the compounds gluconasturtiin, glucoraphanin, and glucobrassicin, which stimulate Phase II enzymes. These act as the body's natural oxidant reducers and support liver function by helping to prompt detoxifying enzymes that block damage from free radicals.⁵

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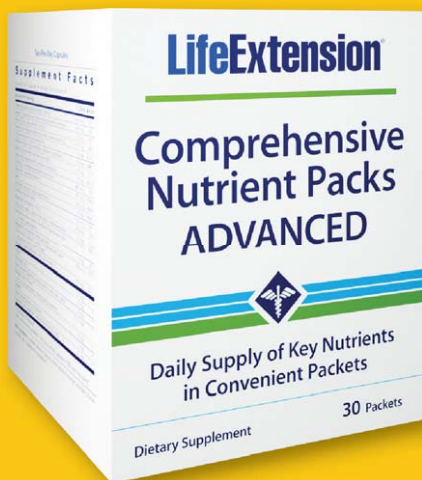
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**Gillean McLeod**

Gillean McLeod

This Fashion Model is a
Baby-Boomer Role Model

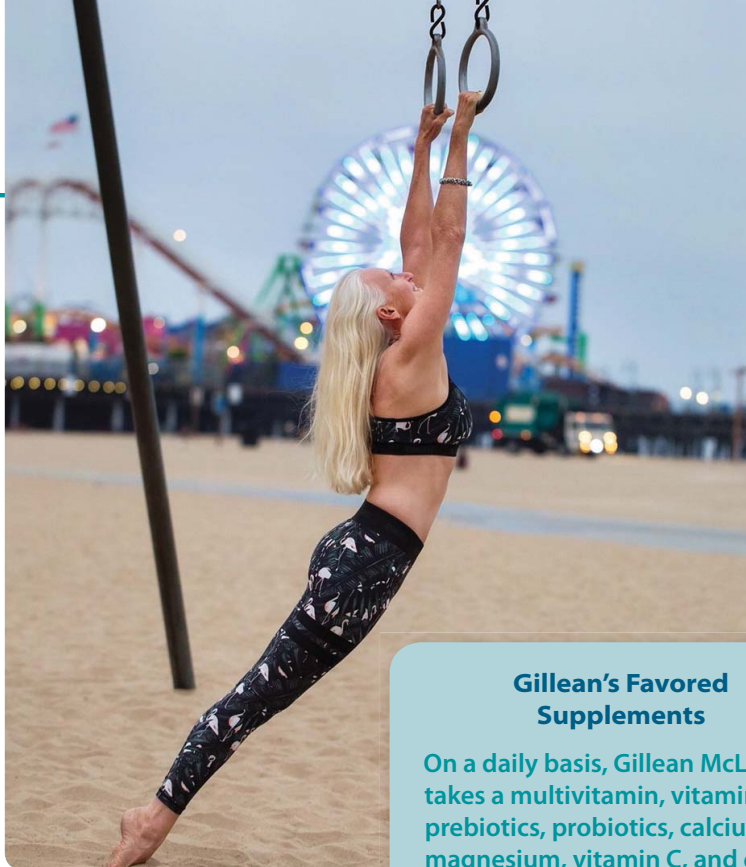
BY KYLE RODERICK

Having modeled in swimsuit and clothing campaigns for global fashion giants such as H & M, Uniqlo and Carolina Herrera, 62-year-old Gillean McLeod also works in the advertising industry as a fashion stylist for leading international brands like Adidas, Virgin America and Honda. One of the world's fittest fashionistas at any age, the statuesque McLeod stands 5 feet, 10 inches, and is distinguished by her waist-length mane of long, lush silver hair.

Based in Los Angeles where she hikes and swims outdoors year-round, McLeod is living proof that it's possible for baby boomers to embody radiant health, and happiness without spending a fortune on personal gyms, nutritionists, or cosmetic surgery. What's more, the fact that she's figured out a free and effective formula for optimal health and wellness after 60 makes her a role model for people of all ages.

"Staying strong, fit, and energetic is a multitasking, part-time job that I work at every day," McLeod says with a laugh. "But it's one that gets easier every year."

Having lived in Los Angeles for more than three decades, she says, "It seems perfectly natural to pursue a healthy lifestyle, because there are endless free and enjoyable opportunities for doing so. My main goal in taking care of myself is to feel energized and strong rather than conforming to some media-induced beauty ideal."



Gillean's Favored Supplements

On a daily basis, Gillean McLeod takes a multivitamin, vitamin D, prebiotics, probiotics, calcium, magnesium, vitamin C, and extra zinc during autumn and winter.

McLeod exemplifies how easy it can be to stay in shape at any age.

"As I live near a city park that's equipped with a full circuit of strength-training machines, I can get in a workout any time I want, plus do a little bird watching," she explains.

"Sometimes, there are hawks and green parrots flying nearby while I'm working on the parallel bars pulling my knees up to my chest. It's such a blast to work out in a free outdoor gym where exercising feels playful and fun, as opposed to the typical indoor fitness center where it's noisy, hot and crowded, and people are waiting impatiently for you to get off the machines."

When she models or does fashion styling in other cities, McLeod Googles public parks and adult playgrounds and then heads off to the great outdoors.

"Check out your city's parks and adult-scaled playgrounds," she suggests. "Some of them even have heated swimming pools."

Fortunately for her, McLeod's local park has a pool where she does lap swimming.

"I've always been a swimmer," she says. "I was born in Indonesia and grew up in the tropics swimming every day, loving the backstroke and competing on teams and essentially living in my bathing suit." Now she swims a mile and a half, four times a week and occasionally takes swimming lessons through the park's master's program.

"At the age of 50, I learned how to do the butterfly, a stroke that I never imagined mastering. It feels so exhilarating to finally be doing that butterfly kick. I'm not a fast swimmer," McLeod confesses, "but I pride myself on my endurance."

McLeod's lifelong love of swimming made her the star of H & M's global swimsuit ad campaign for 2016.

"The photographer chose to shoot me before I even had a chance to get my hair and make-up done," she recalls.

When H & M posted the image of McLeod suited up and smiling on Instagram, the portrait generated 200,000 likes in one week plus

hundreds of comments thanking the company for choosing a fit and mature woman rather than the typical teenage, super-skinny swimsuit model. As McLeod says, "That image went viral and became a news story around the world. Everyone from *Time* magazine to *The Hollywood Reporter* to the British newspaper *The Telegraph* interviewed me about how this breakthrough ad campaign was showing how older women can still be strong, confident and fit in later life."

Another key reason why McLeod feels so comfortable in her swimsuit is that she has been toning and strengthening her body in Pilates classes for the past ten years. When her work schedule permits, she takes four advanced classes a week at The Moving Joint in West Los Angeles. Extolling the virtues and holistic benefits of this form of exercise, she says, "Pilates is more than just a physical regimen, it's also a mind-body and breathing discipline. All the focused breathing helps calm down your nervous system."

McLeod loves this form of fitness so much that she even has her own Pilates Reformer machine.

"I work out on it after a long day of shooting in a concrete-floored photo studio or after unavoidably long car commutes, and it dissolves the stresses of the day and renews my energy."

"I put my legs in the Reformer straps and do leg circles for 25 minutes along with stretching exercises, and all the time I'm breathing rhythmically. The coordinated exercises and mindful breathing helps improve blood circulation, while activating my heart rate and rejuvenating my spine after a long drive."

Thanks to hiking trails in nearby canyons, McLeod gets plenty of heart-pumping exercise with panoramic views.

"If I have a free afternoon," she says, "I love to hike 2,600 feet up into the foothills of the San Gabriel Mountains so that I can see the Pacific Ocean and all the way to Catalina Island. I typically do a six-mile round-trip hike and take time to enjoy the lovely views."

For rejuvenation closer to home, McLeod heads to her backyard garden and pond, which abounds with aloes and other succulents, lime trees and native flowers.

"I grow a dozen different kitchen herbs, including three types of basil," she says. "I also typically plant tomatoes, peppers, kale and other vegetables in raised beds. I love to cook with the vegetables from my garden as well as share them with my neighbors."

McLeod's diet became vegetable-focused 30 years ago, after her toddler son ate some *E. coli*-tainted beef and ended up in the hospital fighting for his life.

"After my son recovered from that frightening and unforgettable experience, I stopped eating meat in restaurants and switched to cooking all organic foods for me and my family. Since then, I have only been eating organically raised chicken, organic bison and occasionally, wild caught fish."

Staples of her diet include green leafy vegetables such as kale, beans, lentils, and organic quinoa, as well as fresh-squeezed organic vegetable juice and bison bone broth.

"Bone broth feels very soothing and nourishing to me," she says. "I feel like it gives me energy and I drink this as often as possible, especially in winter."

Anything that saps energy, such as sugar, alcohol, and fried foods are absent from McLeod's diet.

"I felt that alcohol was tiring me out even only after a few drinks, so I gave it up entirely several years

ago," McLeod says. "It is a poison, after all. I drink mineral water when I'm socializing and never miss it."

Just as food nourishes the body and mind, "So does sleep," she says. "Getting a good night's rest is absolutely essential because I often travel for work and thus experience jet lag, nighttime hotel noise and early morning start times."

McLeod always carries clothespins for her styling work, since they come in handy for closing gaps in room curtains to create a darker bedroom. Another tip: "To muffle hallway noise and block light that may enter through gaps between the door and the floor, roll up towels and wedge them against the room door."

One hour or more before bedtime, McLeod switches off her electronic devices and takes a warm shower or bath to downshift into relaxation mode.

"iPhones, e-readers, computers and iPads emit, among other things, blue daylight spectrum light," she explains. "This is artificial light that convinces the body it's still daytime rather than bedtime. Working on e-devices before bedtime deceives the body into staying awake by blocking the hormone melatonin, which causes delays in sleep onset."

To ease into sleep at home, on an airplane or in a hotel room, McLeod does a variety of relaxation exercises featured on various relaxation response apps, which are available online.

"I like the 20-minute ones that slow you down and help you focus on breathing so that you drift off to sleep fully relaxed," she says. "Meditation has numerous clinically proven benefits that have been published in peer-reviewed medical journals. It's another form

of nourishment, a potential source of healing and a lifelong, free and life-enhancing tool that we can use anytime, anywhere."

Whenever we practice mindfulness and meditation and downshift into deep, relaxed breaths, McLeod says, "We turn off the automatic and hyper-reactive sympathetic nervous system, which triggers the fight-or-flight stress response, and activate our parasympathetic nervous system (PNS). This is the body system which soothes and helps us to relax."

When the PNS is activated through meditation or other means, heart rate and blood pressure drop, breathing slows down and deepens and the muscles relax.

"It's a fact that meditation promotes good digestion, supports immune function, enhances feelings of well-being and sends you off to sleep," McLeod says. "We're very lucky to live in an age when there are so many scientifically proven self-help health and fitness methods that we can learn about and practice." ●

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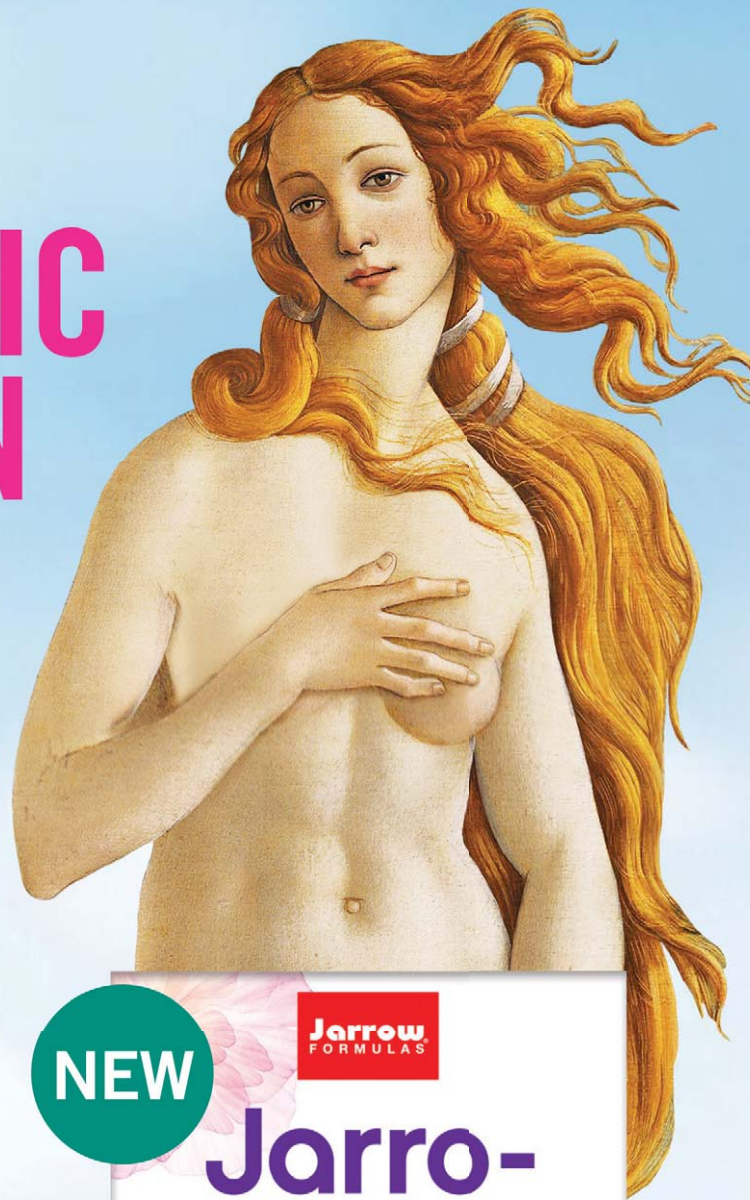
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Jarro-Dophilus® Women 5 Billion Per Capsule 30 Veggie Caps

Item # **52142** Retail Price **\$27.95** Your Price **\$20.96**

For full product description or to order Jarro-Dophilus® Women call 1-800-544-4440 or visit www.LifeExtension.com



Jarro-Dophilus® Women contains the clinically tested Astarte® strains which are protected by U.S. Patent 8,846,027 and European Patent 2,509,610. Astarte® is owned by HSO Health Care GmbH, Vienna, Austria, and licensed in the U.S. to Jarrow Formulas, Inc. Other international patents pending.

ASTARTE

*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.

Visit us at www.jarrow.com for more product information.

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TAKE THE
14 DAY
KENKOH
CHALLENGE

GET RELIEF FROM FOOT, LEG & BACK PAIN

Kenkoh® Revitalizes and Rejuvenates Your Whole Body!

A clinical study in a Japanese school of medicine concluded that Kenkoh massage footwear improves circulation, reduces swelling around the legs and ankles, and improves energy levels and mood.

MANY
ADDITIONAL
STYLES &
COLORS
AVAILABLE

Kenkoh®

"The Original Japanese Massage Sandal"

LEM.DiscoverKenkoh.com

1-800-336-6657

THE **Kenkoh** MASSAGE SANDAL IS UNIQUELY DESIGNED TO STIMULATE THOUSANDS OF NERVE ENDINGS IN THE FEET

- Nerves corresponding to organs and tissues are concentrated in the soles of the feet.
- Stimulating these nerves daily helps improve overall health.
- Orthotic arch support alleviates foot pain.

FOOT REFLEXOLOGY CHART



A FOOT MASSAGE WITH EVERY STEP

Kenkoh IS JAPANESE FOR HEALTH AND BEAUTY



Kyu-Kichi Yamanashi invented the Kenkoh massage sandal in Japan in 1962. He designed the unique foot bed to mimic two ancient healing techniques that saved his life: *Aodake-Fumi* (stepping on bamboo) and *Sokushindo* (Japanese reflexology), meaning "the path that leads to the heart."

Los Angeles Airport Marriott
September 7-9, 2018
Registration and more info at:
www.pcri.org/2018-conference | info@pcrri.org | 800.641.7274

18 PROSTATE CANCER CONFERENCE

THE #1 CONFERENCE FOR PATIENTS



THE LARGEST CONFERENCE FOR PATIENTS + CAREGIVERS

The annual PCRI Conference is a comprehensive educational experience for prostate cancer patients and caregivers. The conference, which is moderated by Mark Moyad, MD, consists of keynote presentations from leading doctors followed by live Q+A sessions. Extensive breakout sessions and support groups held throughout the weekend cover every relevant prostate cancer topic. You can expect to find specific information about your own case and become empowered to make the best decisions with the newest information.



REGISTER TODAY AT:
www.pcri.org/2018-conference

Use code LIFEEXTENSION for additional 10% discount!
Free Registration for US Veterans!

Registration is \$120
Register Before July 31st and
bring a friend for FREE!

[KEYNOTE TOPICS]

- Newly Diagnosed
- Diet & Exercise
- Sexual Dysfunction
- All Prostate Cancer Treatments
- Active Surveillance
- Treatment Side Effects
- Prostate Imaging

Give Your Multivitamin a BOOST!

GET THE COVERAGE YOU NEED.
Health Booster provides important vitamins you may be missing.



Once-Daily Health Booster

Item #02091 • 60 softgels • Two-month supply

	Retail Price	Your Price
1 bottle	\$54	\$40.50
4 bottles		\$38 each

Optimal potencies of vitamin K2, gamma tocopherol, lycopene, cholorphyllin, lutein, zeaxanthin and lots more in one softgel.



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

Caution: Avoid use during pregnancy. Consult your healthcare practitioner before using this product if you are taking anti-coagulant or anti-platelet medications or have a bleeding disorder. **Lyc-O-Mato®** is a registered trademark of Lycored, LTD. **LuteinPlus®** and **Mz®** are registered trademarks of NutriProducts Ltd., UK, licensed under U.S. Patent 8,623,428.

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.



1-2-3 EASY How it works:

ORDER

Call 1-800-208-3444 toll-free or visit
LifeExtension.com/LabServices.

DRAW

For blood tests, take your form to a local lab. Collect at home for saliva, breath, etc.

REVIEW

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

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

For Our Local Customers:

For those residing in the Ft. Lauderdale, Florida, area, blood-draws are also performed at the Life Extension Nutrition Center from 9:00 am to 2:00 pm Monday through Saturday. Simply purchase the blood test and have it drawn with no wait! Our address is:

**5990 NORTH FEDERAL HIGHWAY,
FT. LAUDERDALE, FL, 33308-2633**

Terms and Conditions

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

LifeExtension

Blood Testing

The Ultimate Information

YOUR
PRICE

\$35

○ CBC/CHEMISTRY PROFILE (LC381822) includes:

Lipid Profile:

Total cholesterol • Triglycerides
HDL cholesterol • LDL cholesterol (calc.)
VLDL cholesterol (calc.)
Total cholesterol/HDL ratio
Estimated Coronary Heart Disease risk

Liver Function:

Alkaline phosphatase • LDH (lactate dehydrogenase)
AST (aspartate aminotransferase)
ALT (alanine transaminase)
Total protein • Albumin • Globulin
Albumin/globulin ratio • Bilirubin

Electrolytes and Minerals:

Sodium • Potassium • Chloride
Calcium • Phosphorus • Iron

Blood Sugar:

Glucose

Kidney Function:

Uric acid • BUN (blood urea nitrogen)
Creatinine • BUN/creatinine ratio
eGFR (estimated glomerular filtration rate)

Complete Blood Count:

Red blood cell count • Hemoglobin
Hematocrit • MCV (mean corpuscular volume)
MCH (mean corpuscular hemoglobin)
MCHC (mean corpuscular hemoglobin concentration)
RDW (red blood cell distribution)
White blood cell count
Immune Cell Differentiation Count
Platelet count

○ NEUROTRANSMITTER BASIC PANEL** (LC100058)

Serotonin, Dopamine, Epinephrine, Norepinephrine, GABA, Glutamate, Glycine, Histamine, and PEA. Alternations in these nine neurotransmitters play a significant role in contributing to symptoms such as cognitive disorders, depression, anxiety, diminished drive, fatigue and sleep difficulties, cravings, addictions, pain and more! Not available in NY.

\$199

○ FOOD SAFE ALLERGY TEST – BASIC** (LCM73001)

This test measures delayed (IgG) food allergies for 95 common foods.

\$198

○ TOXIC METALS PANEL (FECAL) ** (LC100076)

The results of fecal elemental analysis can help you identify and eliminate dietary exposure to toxic metals, while also assessing the body's natural excretion of metals. The panel tests Antimony, Arsenic, Beryllium, Bismuth, Cadmium, Copper, Lead, Mercury, Nickel, Platinum, Thallium, Tungsten, and Uranium.

\$170

○ FOOD SAFE ALLERGY TEST – COMBO** (LCM73003)

This test measures delayed (IgG) food allergies to all 190 foods found in our Basic and Extended panels.

\$375

GENETIC TESTING

○ DNA GENETIC CANCER RISK PROFILE** (LC100057)

With only a saliva sample, you can identify your risk for 25 hereditary cancers by analyzing 98 genes from your DNA including the well-known BRCA1, BRCA2, TP53, and APC. Not available in NY and RI.

\$299

○ APOE GENETIC TEST FOR ALZHEIMER'S AND CARDIAC RISK ** (LC100059)

Apolipoprotein E (ApoE) is an important regulator of cholesterol and triglycerides levels in your blood and supports lipid transport and injury repair in your brain. Genetically, E4 is the strongest risk factor for developing Late Onset Alzheimer's disease. According to the National Institute of Health, inheriting a single copy of ApoE4 increases the risk of Alzheimer's disease by about three-fold. Inheriting two copies increases the risk by about 12-fold. In fact, almost 40% of AD patients have inherited an E4 allele.

\$149

○ PATHWAY FIT®- DNA WEIGHT MANAGEMENT (LC100067) **

Your DNA holds the blueprint to how your body responds to both food and exercise! This panel looks at 40+ genetic traits.

\$299

○ PAIN MEDICATION DNA INSIGHT® PROFILE (LC100069) **

This profile helps you understand your body's likely response to pain relief for 13 commonly prescribed pain medications.

\$299

○ MENTAL HEALTH DNA INSIGHT® PROFILE (LC100068) **

The Mental Health DNA Insight® profile helps you understand your body's likely response to 50+ psychiatric medications.

\$299



BLOOD TEST PANELS

	YOUR PRICE		YOUR PRICE
<p>○ MALE LIFE EXTENSION PANEL (LC322582) CBC/Chemistry Profile • DHEA-S • PSA (prostate-specific antigen) Homocysteine • C-Reactive Protein (high-sensitivity) • Apolipoprotein B (ApoB) Free Testosterone • Total Testosterone • Estradiol • TSH for thyroid function • Vitamin D (25-hydroxyvitamin D) • Hemoglobin A1c</p>	\$269	<p>○ NMR LIPOPROFILE® (LC123810) The NMR Lipoprofile® directly measures LDL particle size and number as well as HDL particle number, total cholesterol, and triglycerides. It also provides a calculation of one's risk of insulin resistance by assessing abnormalities in lipoprotein markers.</p>	\$99
<p>○ MALE ELITE PANEL (LC100016)* CBC/Chemistry Profile • Free and Total Testosterone • Total Estrogens Estradiol • DHEA-S • Progesterone • Pregnenolone • DHT • FSH • LH • TSH Free T3 • Free T4 • Reverse T3 • Free and Total PSA • IGF-1 • SHBG • HbA1c Vitamin D 25-OH • hs-CRP, ferritin • Homocysteine • Hemoglobin A1c Apolipoprotein B (ApoB)</p>	\$575	<p>○ WEIGHT LOSS PANEL-COMPREHENSIVE (LC100028) CBC/Chemistry Profile • DHEA-S • Free and Total Testosterone • Estradiol Progesterone • Cortisol, TSH • Free T3 • Free T4 • Reverse T3 • Insulin Hemoglobin A1c • Vitamin D 25-hydroxy • C-reactive protein (high sensitivity) Ferritin</p>	\$275
<p>○ MALE COMPREHENSIVE HORMONE PANEL (LC100010)* CBC/Chemistry Profile • DHEA-S, Estradiol • DHT • PSA Pregnenolone • Total and Free Testosterone • SHBG • TSH • Free T3 This panel now includes Free T4 and Cortisol with no increase in price!</p>	\$299	<p>○ HEALTHY AGING PANEL-COMPREHENSIVE (LC100026)* CBC/Chemistry Profile • C-reactive protein (high sensitivity) Vitamin B12 • Folate • Homocysteine • Vitamin D 25-hydroxy • Hemoglobin A1c TSH • Free T3 • Free T4 • Ferritin • Urinalysis • Fibrinogen • Insulin</p>	\$249
<p>○ MALE BASIC HORMONE PANEL (LC100012) DHEA-S • Estradiol • Total and Free Testosterone • PSA</p>	\$75	<p>○ ADRENAL STRESS PROFILE – SALIVA (LC100070) ** Check your red flags of adrenal imbalance. This panel contains Cortisol (x4), DHEA, SalA.</p>	\$159
<p>○ FEMALE LIFE EXTENSION PANEL (LC322535) CBC/Chemistry Profile • DHEA-S • Estradiol • Homocysteine C-Reactive Protein (high-sensitivity) • Progesterone • Free Testosterone Total Testosterone • TSH for thyroid function • Apolipoprotein B (ApoB) Vitamin D (25-hydroxyvitamin D) • Hemoglobin A1c</p>	\$269	<p>○ SIBO HOME BREATH KIT (LACTULOSE) (LC100063) ** SIBO stands for small intestinal bacterial overgrowth. Research shows that up to 70% or more of those diagnosed with IBS have SIBO.</p>	\$249
<p>○ FEMALE ELITE PANEL (LC100017)* CBC/Chemistry Profile • Free and total Testosterone • Total Estrogens Estradiol • Estrone • DHEA-S • Progesterone Pregnenolone • Apolipoprotein B (ApoB) DHT • FSH • LH • TSH • Free T3 • Free T4 • Reverse T3 • IGF-1 • SHBG • HbA1c Vitamin D 25-OH • hs-CRP • Ferritin • Homocysteine • Hemoglobin A1c</p>	\$575	<p>○ COMPREHENSIVE THYROID PANEL (LC100018) TSH, Total T4, Free T4, Free T3, Reverse T3, Thyroglobulin Antibody (ATA), Thyroid Peroxidase Antibody (TPO)</p>	\$199
<p>○ FEMALE COMPREHENSIVE HORMONE PANEL (LC100011)* CBC/Chemistry Profile • DHEA-S, Estradiol • Total Estrogens Progesterone • Pregnenolone • Total and Free Testosterone • SHBG TSH • Free T3 This panel now includes Free T4 and Cortisol with no increase in price!</p>	\$299	<p>○ THYROID PANEL WITH REVERSE T3 (LC100044) TSH, Total T4, Free T4, Free T3, Reverse T3</p>	\$120
<p>○ FEMALE BASIC HORMONE PANEL (LC100013) DHEA-S • Estradiol • Total and Free Testosterone • Progesterone</p>	\$75	<p>○ OMEGA-3 INDEX COMPLETE ** (LC100066) Beneficial for everyone taking omega-3/fish oil! You want to target a range of 8%-12% for optimal health.</p>	\$99

Blood tests available in the continental United States only. Restrictions apply in NY, NJ, RI, and MA. Not available in Maryland. Kits not available in Pennsylvania.



With Your Healthy Rewards, you earn **LE Dollars** back on every purchase you make — including blood tests! See www.LifeExtension.com/Rewards for details.

This is NOT a complete listing of LE blood test services. Call 1-800-208-3444 for additional information.

* This test requires samples to be shipped to the lab on dry ice for customers using a Blood Draw Kit and will incur an additional \$35 charge. If the customer is having blood drawn at a LabCorp facility, this extra charge does not apply.
** This test is packaged as a kit.

Amino Acids

Arginine/L-Ornithine Capsules
Arginine Ornithine Powder
Branched Chain Amino Acids
D,L-Phenylalanine Capsules
L-Arginine Caps
L-Carnitine
L-Glutamine
L-Glutamine Powder
L-Lysine
L-Taurine Powder
L-Tyrosine Powder
Super Carnosine
Taurine

Blood Pressure & Vascular Support

Advanced Olive Leaf Vascular Support
with Celery Seed Extract
Arterial Protect
Blood Pressure Monitor Arm Cuff
Endothelial Defense™ with Pomegranate
Complete and CORDIART™
Endothelial Defense™ with GliSODin®
Optimal BP Management
NitroVasc with CORDIART™
Pomegranate Complete
Pomegranate Fruit Extract
Triple Action Blood Pressure AM/PM
VenoFlow™

Bone Health

Bone Restore
Bone Restore-Sugar Free
Bone Restore with Vitamin K2
Bone Strength Formula with KoAct®
Bone-Up™
Calcium Citrate with Vitamin D
Dr. Strum's Intensive Bone Formula
Strontium Caps

Brain Health

Acetyl-L-Carnitine
Acetyl-L-Carnitine Arginate
Blast™
Brain Shield® Gastrodin
CocoaMind™
Cognitex® Basics
Cognitex® with Brain Shield®
Cognitex® with Pregnenolone & Brain Shield®
Cognizin® CDP-Choline Caps
DMAE Bitartrate (dimethylaminoethanol)
Dopa-Mind™
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin Granules
Memory Protect
Migra-Eeze™
Neuro-Mag® Magnesium L-Threonate
Optimized Ashwagandha Extract
PS (Phosphatidylserine) Caps
Vinpocetine

Cholesterol Management

Advanced Lipid Control
Cho-Less™
CHOL-Support™
Red Yeast Rice
Theaflavins Standardized Extract
Vitamin B3 Niacin Capsules

Digestion Support

Digest RC®
Effervescent Vitamin C - Magnesium Crystals
Enhanced Super Digestive Enzymes
Enhanced Super Digestive Enzymes
w/Probiotics
EsophaCool™
Esophageal Guardian
Extraordinary Enzymes
Gastro-Ease™

Ginger Force®
Pancreatin
Regimint
Tranquil Tract™
TruFiber™
WellBetX PGX plus Mulberry

Energy Management

Adrenal Energy Formula
Asian Energy Boost
D-Ribose Powder
D-Ribose Tablets
Forskolin
Mitochondrial Basics with PQQ
Mitochondrial Energy Optimizer with PQQ
NAD+ Cell Regenerator™
Optimized NAD+ Cell Regenerator™
with Resveratrol
PQQ Caps
Rhodiola Extract
RiboGen™ French Oak Wood Extract
Triple Action Thyroid

Eye Health

Astaxanthin with Phospholipids
Brite Eyes III
Certified European Bilberry Extract
Eye Pressure Support with Mirtogenol®
MacuGuard® Ocular Support
MacuGuard® Ocular Support with Astaxanthin
Tear Support with MaquiBright®

Fish Oil & Omegas

OMEGA FOUNDATIONS® Clearly EPA/DHA
OMEGA FOUNDATIONS® Mega GLA
with Sesame Lignans
OMEGA FOUNDATIONS® Omega-3 (EPA/DHA)
OMEGA FOUNDATIONS® Super Omega-3
EPA/DHA with Sesame Lignans &
Olive Extract
OMEGA FOUNDATIONS® Super Omega-3
Plus EPA/DHA with Sesame Lignans,
Olive Extract, Krill & Astaxanthin
OMEGA FOUNDATIONS® Provinal®
Purified Omega-7
OMEGA FOUNDATIONS® Vegetarian DHA
Organic Golden Flax Seed

Food

California Estate Extra Virgin Olive Oil
Kenyan Green Tea Crystal
Kenyan Purple Tea Crystal
Rainforest Blend Decaf Ground Coffee
Rainforest Blend Ground Coffee
Rainforest Blend Ground Natural Mocha Flavor
Rainforest Blend Natural Vanilla Flavor
Rainforest Blend Whole Bean Coffee
Stevia Sweetener

Glucose Management

CinSulin® with InSea2® and Crominex® 3+
Glycemic Guard™
Mega Benfotiamine
Tri Sugar Shield®

Heart Health

Aspirin (Enteric Coated)
BioActive Folate & Vitamin B12 Caps
Cardio Peak™ with Standardized
Hawthorn and Arjuna
Homocysteine Resist
Optimized Carnitine
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with PQQ
Super Ubiquinol CoQ10 with Enhanced
Mitochondrial Support™
TMG Powder
TMG Liquid Capsules

Hormone Balance

DHEA (Dehydroepiandrosterone)
Pregnenolone
Triple Action Cruciferous Vegetable Extract
with Resveratrol
Triple Action Cruciferous Vegetable Extract

Immune Support

AHCC®
Enhanced Zinc Lozenges
Immune Modulator with Tinofend®
Immune Protect with PARACTIN®
Immune Senescence Protection Formula™
Kinoko® Gold AHCC
Kinoko® Platinum AHCC
Kyolic® Garlic Formula 102
Kyolic® Reserve
Lactoferrin (apolactoferrin) Caps
NK Cell Activator™
Optimized Garlic
Optimized Quercetin
Peony Immune
ProBoost Thymic Protein A
Reishi Extract Mushroom Complex
Standardized *Cistanche*
Ten Mushroom Formula®
Zinc Lozenges

Inflammation Management

5-LOX Inhibitor with AprèsFlex®
Advanced Bio-Curcumin® with Ginger &
Turmerones
Black Cumin Seed Oil
Black Cumin Seed Oil with Bio-Curcumin®
Boswellia
Comfort Max™
Cytokine Suppress™ with EGCG
Serrafazyme
Specially-Coated Bromelain
Super Bio-Curcumin®
Zyflamend™ Whole Body

Joint Support

Arthro-Immune Joint Support
ArthroMax® Advanced with UC-II® & AprèsFlex®
ArthroMax® with Theaflavins & AprèsFlex®
ArthroMax® Elite
Bio-Collagen with Patented UC-II®
Fast-Acting Joint Formula
Glucosamine/Chondroitin Capsules
Krill Healthy Joint Formula
MSM (Methylsulfonylmethane)

Kidney & Bladder Support

Cran-Max® Cranberry Whole Fruit Concentrate
Optimized Cran-Max® with Ellirose™
Uric Acid Control
Water-Soluble Pumpkin Seed Extract

Liver Health & Detoxification

Anti-Alcohol with HepatoProtection Complex
Calcium D-Glucarate
Chlorella
Chlorophyllin
European Milk Thistle
Glutathione, Cysteine & C
HepatoPro
Liver Efficiency Formula
N-Acetyl-L-Cysteine
PectaSol-C®
Silymarin
SODzyme® with GliSODin® & Wolfberry

Longevity & Wellness

Alpha-Lipoic Acid
AppleWise Polyphenol Extract
Berry Complete
Blueberry Extract
Blueberry Extract with Pomegranate
DNA Protection Formula
Enhanced Berry Complete with Acai

GEROPROTECT® Ageless Cell™
 GEROPROTECT® Longevity A.I.™
 Grapeseed Extract with
 Resveratrol & Pterostilbene
 Mediterranean Whole Food Blend
 Mega Green Tea Extract (decaffeinated)
 Mega Green Tea Extract (lightly caffeinated)
 Optimized Fucoïdan with Maritech® 926
 Optimized Resveratrol
 Pycnogenol® French Maritine
 Pine Bark Extract
 Resveratrol with Pterostilbene
 RNA (Ribonucleic Acid)
 Super R-Lipoic Acid
 X-R Shield

Men's Health

Male Vascular Sexual Support
 Mega Lycopene Extract
 PalmettoGuard® Saw Palmetto with
 Beta-Sitosterol
 PalmettoGuard® Saw Palmetto/Nettle Root
 Formula with Beta-Sitosterol
 Pomi-T®
 Prelox® Enhanced Sex for Men
 Super MiraForte with Standardized Lignans
 Triple Strength ProstaPollen™
 Ultra Prostate Formula

Minerals

Boron
 Extend-Release Magnesium
 Ionic Selenium
 Iron Protein Plus
 Magnesium (Citrate)
 Magnesium Caps
 Only Trace Minerals
 Optimized Chromium with Crominex® 3+
 Sea-Iodine™
 Se-Methyl L-Selenocysteine
 Vanadyl Sulfate
 Zinc Caps

Miscellaneous

Potassium Iodide
 Solarshield® Sunglasses

Mood & Stress Management

Advanced Cortisol Balance
 Enhanced Stress Relief
 5 HTP
 L-Theanine
 SAME (S-Adenosyl-Methionine)

Multivitamins

Children's Formula Life Extension Mix™
 Comprehensive Nutrient Packs ADVANCED
 Life Extension Mix™ Capsules without Copper
 Life Extension Mix™ Capsules
 Life Extension Mix™ Powder without Copper
 Life Extension Mix™ Powder
 Life Extension Mix™ Tablets with Extra Niacin
 Life Extension Mix™ Tablets without Copper
 Life Extension Mix™ Tablets
 Once-Daily Health Booster
 One-Per-Day Tablets
 Two-Per-Day Capsules
 Two-Per-Day Tablets

Personal Care

Anti-Aging Rejuvenating Scalp Serum
 Biosil
 Dr. Proctor's Advanced Hair Formula
 Dr. Proctor's Shampoo
 European Leg Solution Featuring Certified
 Diosmin 95
 Hair, Skin & Nail Rejuvenation Formula
 w/VERISOL®
 Hair Suppress Formula
 Life Extension Toothpaste
 Venotone
 Xyliwhite Mouthwash

Pet Care

Cat Mix
 Dog Mix

Probiotics

Bifido GI Balance
 FLORASSIST® Balance
 FLORASSIST® GI with Phage Technology
 FLORASSIST® Heart Health
 FLORASSIST® Immune Health
 FLORASSIST® Mood
 FLORASSIST® Nasal
 FLORASSIST® Oral Hygiene
 FLORASSIST® Prebiotic
 FLORASSIST® Throat Health
 Jarro-Dophilus® for Women
 Theralac® Probiotics
 TruFlora® Probiotics

Skin Care

Advanced Anti-Glycation Peptide Serum
 Advanced Growth Factor Serum
 Advanced Lightening Cream
 Advanced Peptide Hand Therapy
 Advanced Triple Peptide Serum
 Advanced Under Eye Serum with Stem Cells
 Amber Self MicroDermAbrasion
 Anti-Aging Face Oil
 Anti-Aging Mask
 Anti-Aging Rejuvenating Face Cream
 Anti-Aging Rejuvenating Scalp Serum
 Anti-Glycation Serum with
 Blueberry & Pomegranate Extracts
 Antioxidant Facial Mist Hydrator
 Anti-Redness & Adult Blemish Lotion
 Collagen Boosting Peptide Serum
 Cucumber Hydra Peptide Eye Cream
 DNA Repair Cream
 Environmental Support Serum
 Essential Plant Lipids Reparative Serum
 Eye Lift Cream
 Face Rejuvenating Anti-Oxidant Cream
 Healing Formula
 Healing Vitamin K Cream
 Hyaluronic Facial Moisturizer
 Hyaluronic Oil-Free Facial Moisturizer
 Hydrating Anti-Oxidant Facial Mist
 Hydroderm
 Lifting & Tightening Complex
 Melatonin Advanced Peptide Cream
 Melatonin Cream
 Mild Facial Cleanser
 Multi Stem Cell Skin Tightening Complex
 Neck Rejuvenating Anti-Oxidant Cream
 Rejuvenex® Body Lotion
 Rejuvenex® Factor Firming Serum
 Resveratrol Anti-Oxidant Serum
 Shade Factor™
 Shade Factor™ Sunscreen Lotion
 Shade Factor™ Sunscreen Spray
 Skin Care Collection Anti-Aging Serum
 Skin Care Collection Body Lotion
 Skin Care Collection Day Cream
 Skin Care Collection Night Cream
 Skin Firming Complex
 Skin Lightening Serum
 Skin Restoring Phytoceramides with Lipowheat®
 Skin Stem Cell Serum
 Skin Tone Equalizer
 Stem Cell Cream with Alpine Rose
 Tightening & Firming Neck Cream
 Triple-Action Vitamin C Cream
 Ultimate MicroDermAbrasion
 Ultra Eyelash Booster
 Ultra Lip Plumper
 Ultra Rejuvenex®
 Ultra RejuveNight®
 Ultra Wrinkle Relaxer
 Under Eye Refining Serum
 Under Eye Rescue Cream
 Vitamin C Serum
 Vitamin D Lotion
 Vitamin E-ssential Cream
 Youth Serum

Sleep

Bioactive Milk Peptides
 Enhanced Sleep with Melatonin
 Enhanced Sleep without Melatonin
 Fast-Acting Liquid Melatonin
 Glycine
 L-Tryptophan
 Melatonin
 Melatonin IR/XR
 Optimized Tryptophan Plus
 Quiet Sleep Melatonin

Sports Performance

Creatine Capsules
 Plant Protein Complete & Amino Acid Complex
 Tart Cherry with CherryPure®
 Wellness Code™ Whey Protein Concentrate
 (Chocolate and Vanilla Flavor)
 Wellness Code™ Advanced Whey Protein
 Isolate (Vanilla Flavor)
 Wellness Code™ Whey Protein Isolate
 (Chocolate and Vanilla Flavor)

Vitamins

Ascorbyl Palmitate
 Benfotiamine with Thiamine
 Beta-Carotene
 BioActive Complete B-Complex
 Biotin
 Buffered Vitamin C Powder
 Fast-C® with Dihydroquercetin
 Gamma E Mixed Tocopherol Enhanced
 with Sesame Lignans
 Gamma E Mixed Tocopherol/Tocotrienols
 High Potency Optimized Folate
 Inositol Caps
 Liquid Emulsified Vitamin D3
 Liquid Vitamin D3
 Low-Dose Vitamin K2
 Methylcobalamin
 MK-7
 No Flush Niacin
 Optimized Folate (L-Methylfolate)
 Pantothenic Acid (Vitamin B-5)
 Pyridoxal 5'-Phosphate Caps
 Super Absorbable Tocotrienols
 Super K with Advanced K2 Complex
 Super Vitamin E
 Vitamin B12
 Vitamin B6
 Vitamin C with Dihydroquercetin
 Vitamin D3 with Sea-Iodine™
 Vitamin D3
 Vitamins D and K with Sea-Iodine™

Weight Management

7-Keto® DHEA Metabolite
 Advanced Anti-Adipocyte Formula
 Advanced Appetite Suppress
 AMPK Metabolic Activator
 CalReduce Selective Fat Binder
 DHEA Complete
 Garcinia HCA
 HCAActive™ Garcinia Cambogia Extract
 Integra-Lean®
 Mediterranean Trim with Sinetrol™ XPur
 Optimized Irvingia with Phase 3™ Calorie
 Control Complex
 Optimized Saffron with Satiereal®
 Super CLA Blend with Sesame Lignans
 Waist-Line Control™

Women's Health

Enhanced Sex for Women 50+
 Breast Health Formula
 Femmenessence MacaPause®
 Estrogen for Women
 Progesta-Care®
 Super-Absorbable Soy Isoflavones
 Ultra Soy Extract

		YOUR PRICE					
ITEM No.	PRODUCT	Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	QTY	Total
A							
01524	ACETYL-L-CARNITINE • 500 mg, 100 veg. caps	34.00	25.50	22.50			
01974	ACETYL-L-CARNITINE ARGINATE • 90 veg. caps	38.00	28.50	26.00			
01628	ADRENAL ENERGY FORMULA • 60 veg. caps	24.00	18.00	16.50			
01630	ADRENAL ENERGY FORMULA • 120 veg. caps	46.00	34.50	31.50			
01807	ADVANCED APPETITE SUPPRESS • 60 veg. caps	38.00	28.50	25.50			
02012	ADVANCED CORTISOL BALANCE • 30 veg. caps	45.00	33.75	30.00			
01828	ADVANCED LIPID CONTROL • 60 veg. caps	30.00	22.50	20.25			
00681	AHCC® • 500 mg, 30 caps	59.98	44.99				
24404	AHCC® (KINOKO® PLATINUM) • 750 mg, 60 veg. caps	84.95	63.71				
29727	AHCC® (KINOKO® GOLD) • 500 mg, 60 veg. caps	74.95	52.47				
00457	ALPHA-LIPOIC ACID W/BIOTIN • 250 mg, 60 caps	37.00	27.75	24.00			
02207	AMPK METABOLIC ACTIVATOR • 30 veg. tabs	38.00	28.50	24.00			
01509	ANTI-ADIPOCYTE FORMULA W/MERATRIM® & INTEGRA LEAN® (Advanced) • 60 veg. caps	39.00	29.25	27.00			
02140	ANTI-ALCOHOL w/HEPATOPRO COMPLEX • 60 caps	22.00	16.50	15.00			
01625	APPLEWISE 600 mg, 30 veg. caps	21.00	15.75	14.25			
01039	ARGININE/ORNITHINE • 500/250, 100 caps	17.99	13.49				
00038	ARGININE/ORNITHINE POWDER • 150 grams	22.95	17.21	14.25			
01624	(L)-ARGININE CAPS • 700 mg, 200 veg. caps	26.50	19.88	17.44			
02004	ARTERIAL PROTECT • 30 veg. caps	44.00	33.00	29.00			
01617	ARTHROMAX® W/THEAFLAVINS & APRÈSFLEX® 120 veg. caps	44.00	33.00	30.00			
01618	ARTHROMAX® ADVANCED W/UC-II® & APRÈSFLEX® 60 caps	36.00	27.00	24.00			
02138	ARTHROMAX® ELITE • 30 veg. tablets	30.00	22.50	20.00			
01404	ARTHRO-IMMUNE JOINT SUPPORT • 60 veg. caps	32.00	24.00	21.00			
01533	ASCORBYL PALMITATE • 500 mg, 100 veg. caps	22.50	16.88	15.00			
00888	ASHWAGANDHA EXTRACT (Optimized) • 60 veg. caps	10.00	7.50	6.75			
01805	ASIAN ENERGY BOOST • 90 veg. caps	24.00	18.00	16.50			
01066	ASPIRIN • 81 mg, 300 enteric coated tablets	6.00	4.50	4.00			
01923	ASTAXANTHIN WITH PHOSPHOLIPIDS • 4 mg, 30 softgels	16.00	12.00	10.50			
B							
01945	B-COMPLEX (Bio-Active Complete) • 60 veg. caps	12.00	9.00	8.00			
00920	BENFOTIAMINE W/ THIAMINE • 100 mg, 120 veg. caps	19.95	14.96	13.95			
00925	BENFOTIAMINE (Mega) • 250 mg, 120 veg. caps	30.00	22.50	20.25			
01206	BERRY COMPLETE • 30 veg. caps	21.00	15.75	14.00			
01496	BERRY COMPLETE (Enhanced) • 60 veg. caps	29.00	21.75	19.50			
00664	BETA-CAROTENE • 25,000 IU, 100 softgels	11.50	8.63				
01622	BIFIDO GI BALANCE • 60 veg. caps	20.00	15.00	13.50			
01873	BILBERRY EXTRACT • 100 mg, 90 veg. caps	36.00	27.00	24.00			
01512	BIOACTIVE MILK PEPTIDES • 30 caps	18.00	13.50	12.00			
01631	BIO-COLLAGEN W/PATENTED UC-II® • 40 mg, 60 small caps	36.00	27.00	24.00			
*01006	BIOSIL™ • 5 mg, 30 veg. caps	19.99	15.99				
*01007	BIOSIL™ • 1 fl oz	31.99	25.59				
00102	BIOTIN • 600 mcg, 100 caps	7.50	5.63	4.88			
SUBTOTAL OF COLUMN 1							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
01709	BLACK CUMIN SEED OIL • 60 softgels	16.00	12.00	10.50			
01710	BLACK CUMIN SEED OIL W/BIO-CURCUMIN® • 60 softgels	32.00	24.00	22.50			
01008	BLAST™ • 600 grams of powder	26.97	20.23				
70000	BLOOD PRESSURE MONITOR (ACCUFIT™) • med/lg cuff	79.99	49.99				
70004	BLOOD PRESSURE MONITOR • Digital wrist cuff	69.95	52.46				
02024	BLOOD PRESSURE (Triple Action AM/PM) • 60 veg. tabs	44.00	33.00	28.00			
01214	BLUEBERRY EXTRACT • 60 veg. caps	22.50	16.88	15.00			
01438	BLUEBERRY EXTRACT W/ POMEGRANATE • 60 veg. caps	30.00	22.50	20.25			
01506	BONE FORMULA (DR. STRUM'S INTENSIVE) • 300 caps	56.00	42.00	37.50			
01726	BONE RESTORE • 120 caps	22.00	16.50	14.25			
02123	BONE RESTORE • Chocolate, Sugar-Free • 60 chewable tabs	22.00	16.50	14.25			
01727	BONE RESTORE W/VITAMIN K2 • 120 caps	24.00	18.00	16.50			
01725	BONE STRENGTH FORMULA W/KOACT® • 120 caps	45.00	33.75	30.00			
00313	BONE-UP® • 240 caps	28.95	21.71	20.41			
01661	BORON • 3 mg, 100 veg. caps	5.95	4.46	3.94			
00202	BOSWELLA • 100 caps	38.00	28.50	22.50			
00984	BP MANAGEMENT (Optimal) • 60 tablets	44.00	33.00	30.00			
01802	BRAIN SHIELD® GASTRODIN • 300 mg, 60 veg. caps	33.00	24.75	22.50			
01253	BRANCHED CHAIN AMINO ACIDS • 90 caps	19.50	14.63	12.75			
01942	BREAST HEALTH FORMULA • 60 caps	34.00	25.50	22.50			
00893	BRITE EYES III • 2 vials, 5 ml each	34.00	25.50	24.00			
01203	BROMELAIN (Specially-coated) 500 mg, 60 enteric coated tablets	21.00	15.75	14.25			
C							
01963	CALCIUM CITRATE W/VITAMIN D • 200 veg. caps	18.00	13.50	12.50			
01651	CALCIUM D-GLUCARATE • 200 mg, 60 veg. caps	18.00	13.50	11.25			
01823	CALREDUCE SELECTIVE FAT BINDER 120 mint chewable tablets	45.00	33.75	28.50			
01700	CARDIO PEAK™ w/STANDARDIZED HAWTHORN & ARJUNA 120 veg. caps	36.00	27.00	24.00			
02018	CARNITINE (Optimized) • 60 veg. caps	30.00	22.50	20.00			
01532	L-CARNITINE • 500 mg, 30 veg. caps	15.00	11.25	9.90			
01829	CARNOSINE • 500 mg, 60 veg. caps	36.00	27.00	24.00			
02020	CARNOSINE (Super) • 500 mg, 60 veg. caps	40.00	30.00	27.00			
01932	CAT MIX • 100 grams powder	14.00	10.50	8.25			
02199	CHILDREN'S FORMULA LIFE EXTENSION MIX™ 120 chewable tablets	25.00	18.75	17.00			
00550	CHLORELLA • 500 mg, 200 tablets	23.98	17.99				
01571	CHLOROPHYLLIN • 100 mg, 100 veg. caps	24.00	18.00	15.00			
01359	*CHO-LESS™ • 90 capsules	37.50	37.50				
01910	CHOL-SUPPORT™ • 60 liquid veg. caps	48.00	36.00	32.00			
01504	CHROMIUM W/CROMINEX® 3+ (Optimized) 500 mcg, 60 veg. caps	9.00	6.75	6.00			
01503	CINSULIN® W/INSEAZ® AND CROMINEX® 3+ • 90 veg. caps	38.00	28.50	25.50			
01906	CISTANCHE (Standardized) • 30 veg. caps	20.00	15.00	12.00			
00818	CLA BLEND W/SESAME LIGNANS (Super) • 120 softgels	36.00	27.00	24.75	19.75		
02103	COCOAMIND™ • 14 packets	24.00	18.00	16.00			
SUBTOTAL OF COLUMN 2							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01896	COGNITEX® W/BRAIN SHIELD® • 90 softgels	60.00	45.00	39.00	36.00		
01897	COGNITEX® W/PREGNENOLONE & BRAIN SHIELD® 90 softgels	62.00	46.50	39.75	37.50		
01421	COGNITEX® BASICS • 60 softgels	38.00	28.50	26.25	24.00		
01659	COGNIZIN® CDP-CHOLINE CAPS • 250 mg, 60 veg. caps	36.00	27.00	25.50			
02202	COMFORTMAX™ • 30 day supply	44.00	33.00	29.00			
01945	COMPLETE B-COMPLEX (BioActive) • 60 veg. caps	12.00	9.00	8.00			
02298	COMPREHENSIVE NUTRIENT PACKS ADVANCED • 30 packs	90.00	67.50	61.50			
01949	COQ10 w/d-LIMONENE (Super-Absorbable) • 50 mg, 60 softgels	25.00	18.75	16.50	15.00		
01951	COQ10 w/d-LIMONENE (Super-Absorbable) 100 mg, 60 softgels	30.00	22.50	20.00			
01929	COQ10 (Super Ubiquinol) • 100 mg, 60 softgels	56.00	42.00	36.00	33.00		
01733	COQ10 w/PQQ (Super Ubiquinol) • 100 mg, 30 softgels	50.00	37.50	30.00	27.00		
01437	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 100 mg, 30 softgels	33.00	24.75	22.00			
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 100 mg, 60 softgels	62.00	46.50	39.00	36.00		
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 50 mg, 100 softgels	58.00	43.50	34.50	31.50		
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 50 mg, 30 softgels	20.00	15.00	12.00			
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 200 mg, 30 softgels	62.00	46.50	39.00	36.00		
00862	CRAN-MAX® • 500 mg, 60 veg. caps	17.50	13.13	11.25			
01424	CRAN-MAX® WITH ELLIROSE™ (Optimized) • 60 veg. caps	18.00	13.50	12.00			
01529	CREATINE CAPSULES • 120 veg. caps	10.95	8.21	6.94			
00467	CURCUMIN® (Super Bio) • 400 mg, 30 veg. caps	20.00	15.00	14.00			
00407	CURCUMIN® (Super Bio) • 400 mg, 60 veg. caps	38.00	28.50	26.25			
01924	CURCUMIN® W/GINGER & TURMERONES (Advanced Bio) 30 softgels	30.00	22.50	20.25			
01804	CYTOKINE SUPPRESS™ W/EGCG • 30 veg. caps	30.00	22.50	20.25			
COSMESIS							
80157	ADVANCED ANTI-GLYCATION PEPTIDE SERUM • 1 fl. oz	53.00	39.75	34.50			
80165	ADVANCED GROWTH FACTOR SERUM • 1 fl. oz	65.00	48.75	42.75			
80154	ADVANCED LIGHTENING CREAM • 1 oz	65.00	48.75	42.75			
80155	ADVANCED PEPTIDE HAND THERAPY • 4 oz	46.00	34.50	29.25			
80152	ADVANCED TRIPLE PEPTIDE SERUM • 1 fl. oz	65.00	48.75	42.75			
80140	ADVANCED UNDER EYE SERUM W/STEM CELLS • .33 fl. oz	49.00	36.75	31.50			
80139	AMBER SELF MICRODERMABRASION • 2 oz	49.00	36.75	31.50			
80158	ANTI-AGING FACE OIL • 1 fl. oz	59.00	44.25	39.00			
80118	ANTI-AGING MASK • 2 oz	72.00	54.00	47.52			
80151	ANTI-AGING REJUVENATING FACE CREAM • 2 oz	65.00	48.75	42.75			
80153	ANTI-AGING REJUVENATING SCALP SERUM • 2 fl. oz	46.00	34.50	29.25			
80134	ANTI-GLYCATION SERUM W/BLEBERRY & POMEGRANATE EXTRACTS • 1 fl. oz	33.00	24.75	23.51			
80133	ANTIOXIDANT FACIAL MIST HYDRATOR • 2 fl. oz	32.00	24.00	22.80			
80105	ANTI-REDNESS & ADULT BLEMISH LOTION • 1 oz	74.50	55.88	49.17			
80156	COLLAGEN BOOSTING PEPTIDE SERUM • 1 fl. oz	59.00	44.25	39.00			
SUBTOTAL OF COLUMN 3							

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
80169	CUCUMBER HYDRA PEPTIDE EYE CREAM • .5 oz	38.00	28.50	26.00			
80141	DNA REPAIR CREAM • 1 oz	49.00	36.75	31.50			
80167	ENVIRONMENTAL SUPPORT SERUM • 1 fl. oz	59.00	44.25	39.00			
80108	ESSENTIAL PLANT LIPIDS REPARATIVE SERUM • 1 fl. oz	74.95	56.21	49.46			
80163	EYE LIFT CREAM • 0.5 fl. oz	59.00	44.25	39.00			
80123	FACE REJUVENATING ANTIOXIDANT CREAM • 2 oz	69.50	52.13	45.87			
80137	HEALING FORMULA ALL-IN-ONE CREAM • 1 oz	53.00	39.75	34.07			
80102	HEALING VITAMIN K CREAM • 1 oz	79.50	59.63	52.47			
80109	HYALURONIC FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28			
80110	HYALURONIC OIL-FREE FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28			
80138	HYDRATING ANTIOXIDANT FACE MIST • 4 fl. oz	39.95	29.96	28.50			
80103	LIFTING & TIGHTENING COMPLEX • 1 oz	74.50	55.88	49.17			
80168	MELATONIN ADVANCED PEPTIDE CREAM • 1 oz	38.00	28.50	26.00			
80114	MILD FACIAL CLEANSER • 8 fl. oz	59.00	44.25	38.94			
80159	MULTI STEM CELL SKIN TIGHTENING COMPLEX • 1 fl. oz	59.00	44.25	39.00			
80122	NECK REJUVENATING ANTIOXIDANT CREAM • 2 oz	64.00	48.00	42.24			
80150	RENEWING EYE CREAM • 1/2 oz	65.00	48.75	42.75			
80142	RESVERATROL ANTI-OXIDANT SERUM • 1 fl. oz	46.00	34.50	29.25			
80166	SKIN FIRMING COMPLEX • 1 fl. oz (2 units \$34.50)	53.00	39.75				
80112	SKIN LIGHTENING SERUM • 1/2 fl. oz	85.00	63.75	56.10			
80130	SKIN STEM CELL SERUM • 1 fl. oz	74.00	55.50	51.75			
80164	SKIN TONE EQUALIZER • 0.4 fl oz	59.00	44.25	39.00			
80143	STEM CELL CREAM W/ALPINE ROSE • 1 oz	66.00	49.50	43.50			
80148	TIGHTENING & FIRMING NECK CREAM • 2 oz	39.00	29.25	26.25			
80161	TRIPLE ACTION VITAMIN C CREAM • 1 oz jar	59.00	44.25	39.00			
80162	ULTIMATE MICRODERMABRASION • 8 fl. oz	39.00	29.25	26.25			
80160	ULTRA EYELASH BOOSTER • 0.25 oz (2 units each \$39)	59.00	44.25				
80116	ULTRA LIP PLUMPER • 1/3 oz	64.00	48.00	42.24			
80101	ULTRA WRINKLE RELAXER • 1 oz	89.95	67.46	59.82			
80113	UNDER EYE REFINING SERUM • 1/2 fl. oz	74.50	55.88	49.17			
80104	UNDER EYE RESCUE CREAM • 1/2 oz	74.50	55.88	49.17			
80129	VITAMIN C SERUM • 1 fl. oz	85.00	63.75	56.10			
80136	VITAMIN D LOTION • 4 oz	36.00	27.00	25.25			
80145	VITAMIN E-ESSENTIAL CREAM • 1 oz	28.00	21.00	19.50			
80149	YOUTH SERUM • 1 oz	65.00	48.75	42.75			
D							
00658	7-KETO® DHEA METABOLITE • 25 mg, 100 caps	28.00	21.00	18.00			
01479	7-KETO® DHEA METABOLITE • 100 mg, 60 veg. caps	40.00	30.00	27.00			
01640	DHA (Vegetarian) • 30 veg. softgels	20.00	15.00	13.50			
00607	DHEA • 25 mg, 100 tablets (Dissolve in mouth)	14.00	10.50	8.81			
01478	DHEA COMPLETE • 60 veg. caps	48.00	36.00	32.40			
00335	DHEA • 25 mg, 100 caps	16.00	12.00	11.00			
00454	DHEA • 15 mg, 100 caps	14.00	10.50	9.00			
00882	DHEA • 50 mg, 60 caps	19.00	14.25	12.75			
01689	DHEA • 100 mg, 60 veg. caps	24.00	18.00	16.50			
SUBTOTAL OF COLUMN 4							

ITEM No.	PRODUCT	YOUR PRICE					QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	I		
30747	DIGEST RC® • 30 caps	19.95	14.96					
02021	DIGESTIVE ENZYMES (Enhanced Super) • 60 veg. caps	22.00	16.50	15.00				
02022	DIGESTIVE ENZYMES w/PROBIOTICS (Enhanced Super)•60 veg. caps	28.00	21.00	18.00				
01671	D, L-PHENYLALANINE • 500 mg, 100 veg. caps	18.75	14.06	12.00				
01540	DMAE BITARTRATE • 150 mg, 200 veg. caps	18.00	13.50	11.25				
02270	DNA PROTECTION FORMULA • 30 veg. caps	20.00	15.00	13.50				
01931	DOG MIX • 100 grams powder	18.00	13.50	11.25				
02006	DOPA-MIND™ • 60 veg. tabs	44.00	33.00	28.00				
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA • 2 oz	39.95	29.96	24.00				
00320	DR. PROCTOR'S HAIR SHAMPOO • 8 oz	24.95	18.71	16.50				
E								
01997	ENDOTHELIAL DEFENSE™ w/POMEGRANATE COMPLETE AND CORDIART™ • 60 softgels	68.00	51.00	46.50				
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® • 60 veg. caps	54.00	40.50	36.00				
02200	EPA/DHA (Clearly) • 120 softgels	30.00	22.50	20.00				
02033	ESOPHACOOL™ • 60 chewable tablets	12.00	9.00	8.00				
01737	ESOPHAGEAL GUARDIAN (Berry flavor) • 60 chewable tablets	36.00	27.00	24.00				
01894	ESTROGEN FOR WOMEN • 30 veg. tabs	30.00	22.50	20.00				
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 600 mg, 30 veg. tabs	20.00	15.00	13.50				
01706	EXTRAORDINARY ENZYMES • 60 caps	26.00	19.50	18.00				
02008	(CALIFORNIA ESTATE) EXTRA VIRGIN OLIVE OIL •500 ml (16.9 fl. oz)	33.00	24.75	22.50				
01514	EYE PRESSURE SUPPORT W/MIRTOGENOL® • 30 veg. caps	38.00	28.50	25.50				
F								
00965	FAST-ACTING JOINT FORMULA • 30 caps	39.00	29.25	27.00				
01717	FAST-C® W/DIHYDROQUERCETIN • 120 veg. tabs	26.00	19.50	18.00				
01064	FEMMENESSENCE MACAPAUSE® • 120 veg. caps	34.99	26.24					
02125	FLORASSIST® GI w/PHAGE TECHNOLOGY •30 liquid veg. caps	33.00	24.75	22.50				
01821	FLORASSIST® HEART HEALTH • 60 veg. caps	32.00	24.00	21.00				
02124	FLORASSIST® IMMUNE HEALTH • 30 veg. caps	26.00	19.50	18.00				
02120	FLORASSIST® ORAL HYGIENE • 30 lozenges	20.00	15.00	13.00				
01825	FLORASSIST® BALANCE • 30 liquid veg. caps	32.00	24.00	21.00				
02000	FLORASSIST® MOOD • 60 caps	33.00	24.75	22.50				
02208	FLORASSIST® NASAL • 30 veg. caps	36.00	27.00	24.00				
02203	FLORASSIST® PREBIOTIC •Natural Strawberry, 60 chewable tabs	20.00	15.00	13.00				
01920	FLORASSIST® THROAT HEALTH • 30 lozenges	20.00	15.00	13.50				
01913	FOLATE HIGH POTENCY (Optimized) • 5,000 mcg, 30 veg. tablets	18.00	13.50	12.00				
01939	FOLATE (Optimized) • 1,000 mcg, 100 veg. tablets	15.00	11.25	10.00				
01842	FOLATE + VITAMIN B12 (BioActive) • 90 veg. caps	12.00	9.00	8.00				
01544	FORSKOLIN • 10 mg, 60 veg. caps	16.00	12.00	10.50				
01513	FUCOIDAN W/MARITECH® 926 (Optimized) • 60 veg. caps	36.00	27.00	24.75				
G								
02070	GAMMA E MIXED TOCOPHEROL/TOCOTRIENOLS • 60 softgels	40.00	30.00	27.00				
02075	GAMMA E MIXED TOCOPHEROL w/ENHANCED SESAME LIGNANS • 60 softgels	32.00	24.00	21.75				
01394	GARLIC (Optimized) • 200 veg. caps	24.95	18.71	15.75				
02100	GASTRO-EASE™ • 60 veg. caps	44.00	33.00	30.00				
02119	GEROPROTECT® AGELESS CELL™ • 30 softgels	40.00	30.00	27.00				
SUBTOTAL OF COLUMN 5								

ITEM No.	PRODUCT	YOUR PRICE					QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	I		
02133	GEROPROTECT® LONGEVITY A.I.™ • 30 softgels	56.00	42.00	38.00				
01122	GINGER FORCE® • 60 liquid caps	34.95	26.21					
01658	GINKGO BILOBA CERTIFIED EXTRACT™ 120 mg, 365 veg. caps	50.00	37.50	33.00				
00756	GLA WITH SESAME LIGNANS (Mega) • 60 softgels	19.50	14.63	13.50				
00345	(L-) GLUTAMINE CAPSULES • 500 mg, 100 veg. caps	14.95	11.21	10.13				
00141	(L-) GLUTAMINE POWDER • 100 grams	22.00	16.50	15.00				
00522	GLUCOSAMINE/CHONDROITIN CAPSULES • 100 caps	38.00	28.50	24.00				
01541	GLUTATHIONE, CYSTEINE & C • 100 veg. caps	22.00	16.50	15.00				
02122	GLYCEMIC GUARD™ • 30 veg. caps	42.00	31.50	28.00				
01669	GLYCINE • 1,000 mg, 100 veg. caps	12.00	9.00	8.10				
01411	GRAPE SEED EXTRACT W/RESVERATROL & PTEROSTILBENE 100 mg, 60 veg. caps	36.00	27.00	25.50				
01620	GREEN COFFEE EXTRACT COFFEEGENIC® 400 mg, 90 veg. caps	32.00	24.00	21.00				
00953	GREEN TEA EXTRACT (Mega)•lightly caffeinated, 100 veg. caps	30.00	22.50	18.00				
00954	GREEN TEA EXTRACT (Mega)•decaffeinated, 100 veg. caps	30.00	22.50	18.00				
H								
01074	5 HTP • 100 mg, 60 caps	27.95	20.96					
02002	HAIR, SKIN & NAIL REJUVENATION FORM W/VERISOL® 90 tabs	32.00	24.00	22.00				
01738	HCA (Garcinia) • 90 veg. caps	17.00	12.75	11.25				
29754	HCACTIVE™ GARCINIA CAMBOGIA EXTRACT • 90 caps	30.00	22.50					
01393	HEPATOPRO • 900 mg, 60 softgels	50.00	37.50	34.50				
02121	HOMOCYSTEINE RESIST • 60 veg. caps	26.00	19.50	17.50				
01527	HUPERZINE A • 200 mcg, 60 veg. caps	40.00	30.00	27.00				
00661	HYDRODERM® • 1 oz	79.95	59.96	49.00				
I								
01704	IMMUNE MODULATOR W/TINOFEND® • 60 veg. caps	17.00	12.75	11.25				
00955	IMMUNE PROTECT W/PARACTIN® • 30 veg. caps	29.50	22.13	19.91				
02005	IMMUNE SENESENCE PROTECTION FORMULA™ •60 veg. tabs	40.00	30.00	27.00				
01674	INOSITOL CAPSULES • 1,000 mg, 360 veg. caps	62.00	46.50	43.50				
01292	INTEGRA-LEAN® AFRICAN MANGO IRVINGIA 150 mg, 60 veg. caps	28.00	21.00	18.00				
30731	IONIC SELENIUM • 300 mg, 2 fl. oz	13.69	10.27					
01677	IRON PROTEIN PLUS • 300 mg, 100 caps	28.00	21.00	19.50				
01492	IRVINGIA W/PHASE 3™ CALORIE CONTROL COMPLEX (Optimized African Mango)• 120 veg. caps	56.00	42.00	36.00				
J, K, L								
52142	JARRO-DOPHILUS® PROBIOTIC FOR WOMEN 30 enteric-coated veg. caps	27.95	20.96					
00056	JARRO-DOPHILUS EPS® • 60 veg. caps	23.95	17.96					
02034	K W/ADVANCED K2 COMPLEX (Super) • 90 softgels	30.00	22.50	20.25				
01600	KRILL HEALTHY JOINT FORMULA • 30 softgels	32.00	24.00	21.75				
01050	KRILL OIL (Jarrow)• 60 softgels	33.95	25.46					
00316	KYOLIC® GARLIC FORMULA 102 • 200 veg. caps	28.55	21.41					
00789	KYOLIC® RESERVE • 600 mg, 120 caps	30.15	22.61					
01681	LACTOFERRIN • 60 caps	44.00	33.00	30.00				
SUBTOTAL OF COLUMN 6								

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
00020	LECITHIN • 16 oz granules	18.00	13.50	12.00			
02255	LIFE EXTENSION MIX™ • 240 tablets	74.00	55.50	48.00	42.00		
02257	LIFE EXTENSION MIX™ W/EXTRA NIACIN • 240 tablets	74.00	55.50	48.00	42.00		
02254	LIFE EXTENSION MIX™ • 360 caps	78.00	58.50	50.00	44.00		
02256	LIFE EXTENSION MIX™ POWDER • 12.70 oz	72.00	54.00	46.00	40.00		
02265	LIFE EXTENSION MIX™ • 240 tablets w/o copper	74.00	55.50	48.00	42.00		
02264	LIFE EXTENSION MIX™ • 360 caps w/o copper	78.00	58.50	50.00	44.00		
01608	LIVER EFFICIENCY FORMULA • 30 veg. caps	18.00	13.50	12.00			
01639	5-LOX INHIBITOR W/APRÈSFLEX® • 100 mg, 60 veg. caps	22.00	16.50	15.00			
01678	L-LYSINE • 620 mg, 100 veg. caps	9.00	6.75	6.00			
00455	LYCOPENE (Mega) • 15 mg, 90 softgels	35.00	26.25	22.50			
M							
01992	MACUGUARD® OCULAR SUPPORT w/SAFFRON • 60 softgels	25.00	18.75	17.50			
01993	MACUGUARD® OCULAR SUPPORT w/SAFFRON & ASTAXANTHIN • 60 softgels	44.00	33.00	30.00			
01459	MAGNESIUM CAPS • 500 mg, 100 veg. caps	12.00	9.00	7.50			
01682	MAGNESIUM (CITRATE) • 160 mg, 100 veg. caps	13.00	9.75	8.50			
02107	(EXTEND-RELEASE) MAGNESIUM • 60 veg. caps	13.00	9.75	8.75			
02209	MALE VASCULAR SEXUAL SUPPORT • 30 veg. caps	24.00	18.00	16.00			
01908	MEDITERRANEAN TRIM WITH SINETROL™-XPUR 60 veg. caps	18.00	13.50	12.00			
02109	MEDITERRANEAN WHOLE FOOD BLEND • 90 veg. caps	44.00	33.00	30.00			
01668	MELATONIN • 300 mcg, 100 veg. caps	7.00	5.25	4.50			
01083	MELATONIN • 500 mcg, 200 veg. caps	18.00	13.50	12.00			
00329	MELATONIN • 1 mg, 60 caps	5.00	3.75	3.47			
00330	MELATONIN • 3 mg, 60 veg. caps	8.00	6.00	5.16			
00331	MELATONIN • 10 mg, 60 veg. caps	28.00	21.00	18.00			
00332	MELATONIN • 3 mg, 60 veg. lozenges	8.00	6.00	5.16			
02234	MELATONIN (Fast-Acting Liquid) • 2 fl. oz (Citrus-Vanilla)	12.00	9.00	8.25			
02201	MELATONIN IR/XR • 60 caps	12.00	9.00	7.50			
01787	MELATONIN TIMED RELEASE • 300 mcg, 100 veg. tabs	12.00	9.00	8.25			
01788	MELATONIN TIMED RELEASE • 750 mcg, 60 veg. tablets	8.00	6.00	5.25			
01786	MELATONIN TIMED RELEASE • 3 mg, 60 veg. tabs	12.00	9.00	8.25			
02101	MEMORY PROTECT • 36 day supply	24.00	18.00	16.00			
01536	METHYLCOBALAMIN • 1 mg, 60 veg. lozenges (vanilla)	9.95	7.46	6.00			
01537	METHYLCOBALAMIN • 5 mg, 60 veg. lozenges (vanilla)	32.00	24.00	18.75	17.25		
00709	MIGRA-EEZE™ (Butterbur) • 60 softgels	33.00	24.75	22.00			
01522	MILK THISTLE (European) • 60 veg. caps	34.00	25.50	22.50			
01922	MILK THISTLE (European) • 60 softgels	28.00	21.00	18.75			
01925	MILK THISTLE (European) • 120 softgels	44.00	33.00	30.00			
01940	MIRAFORTE w/STANDARDIZED LIGNANS (Super) • 120 veg caps	62.00	46.50	42.00			
01869	MITOCHONDRIAL BASICS w/PQQ • 30 caps	40.00	30.00	27.00			
01868	MITOCHONDRIAL ENERGY OPTIMIZER w/PQQ • 120 caps	68.00	51.00	45.00			
00065	MK-7 • 90 mcg, 60 softgels	28.00	21.00	18.75			
SUBTOTAL OF COLUMN 7							

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
00451	MSM (Methylsulfonylmethane) • 1,000 mg, 100 caps	14.00	10.50	8.96			
N							
01534	N-ACETYL-L-CYSTEINE • 600 mg, 60 veg. caps	14.00	10.50	9.25			
01904	NAD+ CELL REGENERATOR™ • 100 mg, 30 veg. caps	22.00	call for pricing				
02144	NAD+ CELL REGENERATOR™ NICOTINAMIDE RIBOSIDE 250 mg, 30 veg. caps	42.00	call for pricing				
02148	NAD+ CELL REGENERATOR™ W/RESVERATROL (Optimized) 30 veg. caps	48.00	call for pricing				
01603	NEURO-MAG® MAGNESIUM L-THREONATE • 90 veg. caps	40.00	30.00	27.00			
02032	NEURO-MAG® MAGNESIUM L-THREONATE 93.35 grams • Tropical Punch Flavor	38.00	28.50	26.00			
01990	NITROVASC w/CORDIART™ • 30 veg. caps	18.00	13.50	12.00			
01903	NK CELL ACTIVATOR™ • 30 veg. tablets	45.00	33.75	31.50			
00373	NO FLUSH NIACIN • 800 mg, 100 caps	19.00	14.25	12.75			
O							
01824	OLIVE LEAF VASCULAR SUPPORT w/CELERY SEED EXTRACT (Advanced) • 60 veg. caps	36.00	27.00	24.00			
01937	OMEGA-3 (EPA/DHA) • 120 softgels	20.00	15.00	13.50			
01988	OMEGA-3 PLUS EPA/DHA w/SESAME LIGNANS, OLIVE EXTRACT, KRILL & ASTAXANTHIN (SUPER) • 120 softgels	45.00	33.75	31.50	24.75		
01983	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 60 softgels	18.00	13.50	12.00	9.38		
01982	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 120 softgels	32.00	24.00	21.00	17.05		
01984	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 120 enteric coated softgels	34.00	25.50	23.25	18.00		
01985	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 60 enteric coated softgels	20.00	15.00	13.50	10.50		
01986	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 240 small softgels	32.00	24.00	21.00	17.25		
02092	ONCE-DAILY HEALTH BOOSTER • 30 softgels	30.00	22.50	20.00			
02091	ONCE-DAILY HEALTH BOOSTER • 60 softgels	54.00	40.50	38.00			
02213	ONE-PER-DAY • 60 tablets	23.00	17.25	16.00			
01328	ONLY TRACE MINERALS • 90 veg. caps	15.00	11.25	9.38			
P							
01789	PALMETTOGUARD® SAW PALMETTO W/BETA-SITOSTEROL 30 softgels	15.00	11.25	10.50	9.00		
01790	PALMETTOGUARD® SAW PALMETTO/NETTLE ROOT W/BETA-SITOSTEROL • 60 softgels	28.00	21.00	19.50	18.00		
*00342	PECTA SOL-C® MODIFIED CITRUS PECTIN • 454 grams powder	113.95	96.86				
*01080	PECTA SOL-C® MODIFIED CITRUS PECTIN • 270 veg. caps	82.95	70.51				
01811	PEONY IMMUNE • 60 veg. caps	36.00	27.00	24.00			
*00673	PGX® PLUS MULBERRY (WellBetX®) • 180 veg. caps	34.95	26.21				
01953	POMEGRANATE COMPLETE • 30 softgels	24.00	18.00	15.75			
00956	POMEGRANATE FRUIT EXTRACT • 30 veg. caps	19.50	14.63	13.16			
-01837	POMI-T® • 60 veg. caps	38.00	28.50	26.00			
00577	POTASSIUM IODIDE • 130 mg, 14 tabs	6.95	5.21	3.94			
01500	PQQ CAPS • 10 mg, 30 veg. caps	18.00	13.50	11.00	10.00		
01647	PQQ CAPS • 20 mg, 30 veg. caps	32.00	24.00	18.00	17.00		
00302	PREGNENOLONE • 50 mg, 100 caps	26.00	19.50	16.50			
00700	PREGNENOLONE • 100 mg, 100 caps	30.00	22.50	20.25			
SUBTOTAL OF COLUMN 8							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
*01373	PRELOX® ENHANCED SEX FOR MEN • 60 tablets	52.00	39.00	36.00			
00525	PROBOOST™ THYMIC PROTEIN A • 30 packets	66.60	49.95				
01441	PROGESTA-CARE® • 4 oz cream	36.39	27.29	25.72			
02029	PROSTATE FORMULA (Ultra) • 60 softgels	38.00	28.50	26.25	24.00		
01909	PROSTAPOLLEN™ (Triple strength) • 30 softgels	28.00	21.00	18.75			
02261	PROTEIN CONCENTRATE (Whey) Chocolate • 640 gram	30.00	22.50	19.95			
02260	PROTEIN CONCENTRATE (Whey) Vanilla • 500 grams	30.00	22.50	19.95			
02246	PROTEIN ISOLATE (Advanced Whey) Vanilla • 454 grams	30.00	22.50	19.50			
02243	PROTEIN ISOLATE (Whey) Chocolate • 437 grams	30.00	22.50	19.50			
02242	PROTEIN ISOLATE (Whey) Vanilla • 403 grams	30.00	22.50	19.50			
02127	PROTEIN (PLANT) COMPLETE & AMINO ACID COMPLEX • 15.87 oz 15.87 oz	34.00	25.50	23.00			
01812	PROVINAL® PURIFIED OMEGA-7 • 30 softgels	27.00	20.25	18.00			
01676	PS CAPS (Phosphatidylserine) • 100 mg, 100 veg. caps	54.00	40.50	36.00			
01209	PUMPKIN SEED EXTRACT (Water-soluble) • 60 veg. caps	20.00	15.00	13.50			
01637	PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT 100 mg, 60 veg. caps	64.00	48.00	45.00			
01217	PYRIDOXAL 5'-PHOSPHATE • 100 mg, 60 veg. caps	22.00	16.50	14.85			
Q, R							
01309	QUERCETIN (Optimized) • 250 mg, 60 veg. caps	22.00	16.50	15.00			
02169	RAINFOREST BLEND GROUND COFFEE • 12 oz. bag	13.00	9.75				
02173	RAINFOREST BLEND GROUND COFFEE Natural Mocha • 12 oz. bag	15.00	11.25				
02172	RAINFOREST BLEND GROUND COFFEE Natural Vanilla • 12 oz. bag	15.00	11.25				
02171	RAINFOREST BLEND WHOLE BEAN COFFEE 12 oz. bag	13.00	9.75				
02170	RAINFOREST BLEND DECAFFEINATED ROAST GROUND COFFEE 12 oz. bag	14.00	10.50				
01030	RED YEAST RICE (Bluebonnet) • 600 mg, 60 veg. caps	18.08	13.56				
00605	REGIMINT • 60 enteric-coated caps	19.95	14.96	14.00			
01708	REISHI EXTRACT MUSHROOM COMPLEX • 60 veg. caps	30.00	22.50	20.25			
01448	REJUVENEX® BODY LOTION • 6 fl. oz	24.00	18.00	14.85	12.75		
01621	REJUVENEX® FACTOR FIRMING SERUM • 1.7 oz	65.00	48.75	37.50			
01220	REJUVENEX® (ULTRA) • 2 oz	52.00	39.00	33.00	29.25		
00676	REJUVENIGHT® (ULTRA) • 2 oz	39.95	29.96	27.00			
01410	RESVERATROL W/PTEROSTILBENE • 100 mg, 60 veg. caps	36.00	27.00	24.00			
02230	RESVERATROL (Optimized) • 60 veg. caps	45.00	33.75	30.00			
00889	RHODIOLA EXTRACT • 250 mg, 60 veg. caps	14.00	10.50	9.00			
01900	RIBOGEN™ FRENCH OAK WOOD EXTRACT 200 mg, 30 veg. caps	36.00	27.00	24.75			
00972	(D) RIBOSE POWDER • 150 grams	27.50	20.63	18.56			
01473	(D) RIBOSE TABLETS • 100 veg. tabs	32.00	24.00	21.00			
01208	R-LIPOIC ACID (Super) • 240 mg, 60 veg. caps	49.00	36.75	33.75			
00070	RNA CAPSULES • 500 mg, 100 caps	17.95	13.46	12.12			
S							
01432	SAFFRON W/SATIEREAL® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
02175	SAME (S-ADENOSYL-METHIONINE) 200 mg, 30 enteric coated tablets	25.00	18.75	16.50			
02176	SAME (S-ADENOSYL-METHIONINE)	36.00	27.00	24.00			
SUBTOTAL OF COLUMN 9							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
	400 mg, 30 enteric coated tablets						
02174	SAME (S-ADENOSYL-METHIONINE) 400 mg, 60 enteric coated tablets	66.00	49.50	45.00			
01740	SEA-IODINE™ • 1,000 mcg, 60 veg. caps	8.00	6.00	5.40			
01879	SE-METHYL L-SELENOCYSTEINE • 200 mcg, 90 veg. caps	11.00	8.25	7.50			
00318	SERRAFLAZYME • 100 tablets	18.00	13.50	12.00			
01626	SEX FOR WOMEN 50+ (Enhanced) • 90 veg. caps	59.00	44.25	34.00			
01938	SHADE FACTOR™ • 120 veg. caps	44.00	33.00	30.00			
02110	SHADE FACTOR™ SUNSCREEN LOTION • 4 fl. oz	20.00	15.00	13.00			
02118	SHADE FACTOR™ SUNSCREEN SPRAY • 6 fl. oz	22.00	16.50	14.25			
01884	SILYMARIN • 100 mg, 90 veg. caps	14.00	10.50	9.50			
02129	SKIN CARE COLLECTION ANTI-AGING SERUM • 1.75 fl. oz	60.00	45.00	37.50			
02132	SKIN CARE COLLECTION BODY LOTION • 6 oz	28.00	21.00	18.00			
02130	SKIN CARE COLLECTION DAY CREAM • 1.65 oz	50.00	37.50	33.00			
02131	SKIN CARE COLLECTION NIGHT CREAM • 1.65 oz	39.00	29.25	27.00			
01596	SKIN RESTORING PHYTOCERAMIDES w/LIPOWHEAT® 30 liquid veg. caps	25.00	18.75	17.25			
01444	SLEEP (Quiet) • 60 veg. caps	13.00	9.75	7.50			
01445	SLEEP MELATONIN (Quiet) • 5 mg, 60 veg. caps	18.00	13.50	12.00			
01551	SLEEP w/ MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00			
01511	SLEEP W/O MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00			
00961	SODZYME® w/GLISODIN® & WOLFBERRY • 90 veg. caps	28.00	21.00	18.00			
00657	SOLARSHIELD® SUNGLASSES • Smoke color	12.99	9.74	8.63			
01097	SOY EXTRACT (ULTRA) • 150 veg. caps	76.00	57.00	50.00			
01649	SOY ISOFLAVONES (SUPER ABSORBABLE) • 60 veg. caps	28.00	21.00	18.75			
00432	STEVIA™ (Better) • 100 packets, 1 gram each	9.95	7.46				
00438	STEVIA™ ORGANIC LIQUID SWEETENER (Better) • 2 oz	11.00	8.25				
00987	STRESS RELIEF (Enhanced) • 30 veg. caps	28.00	21.00	18.00			
01476	STRONTIUM • 750 mg, 90 veg. caps	20.00	15.00	13.50			
01778	SUPER SELENIUM COMPLEX • 200 mcg, 100 veg. caps	14.00	10.50	9.00	8.25		
T							
02023	TART CHERRY W/CHERRYPURE® 60 veg. caps	20.00	15.00	14.00			
01827	TAURINE • 1,000 mg, 90 veg. caps	13.00	9.75	9.00			
02205	TEA CRYSTALS (Kenyan Green) • 14 stick packs	12.00	9.00	8.00			
02206	TEA CRYSTALS (Kenyan Purple) • 14 stick packs	18.00	13.50	12.00			
01918	TEAR SUPPORT w/MAQUIBRIGHT® • 60 mg, 30 veg. caps	18.00	13.50	12.00			
00133	L-TAURINE POWDER • 300 grams	20.00	15.00	12.66			
*13685	TEN MUSHROOM FORMULA® • 120 veg. caps	41.95	35.66				
01304	THEAFLAVIN STANDARDIZED EXTRACT • 30 veg. caps	18.00	13.50	12.00			
01683	(L) THEANINE • 100 mg, 60 veg. caps	24.00	18.00	15.38			
**01038	THERALAC® PROBIOTICS • 30 caps	47.95	35.96				
00668	THYROID FORMULA (Metabolic Advantage™) • 100 caps	21.95	16.46				
00349	TMG POWDER • 50 grams	14.00	10.50	8.25			
01859	TMG • 500 mg, 60 liquid veg. caps	13.00	9.75	9.00			
01400	TOCOTRIENOLS (Super-absorbable) • 60 softgels	30.00	22.50	21.00			
01278	TOOTH PASTE • 4 oz (Mint) tube	9.50	7.13	6.50			
SUBTOTAL OF COLUMN 10							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01917	TRANQUIL TRACT™ • 60 veg. caps	52.00	39.00	34.50			
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT 60 veg. caps	24.00	18.00	16.50			
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL • 60 veg. caps	32.00	24.00	22.20			
02003	TRIPLE ACTION THYROID • 60 veg. caps	36.00	27.00	24.00			
01803	TRI SUGAR SHIELD® • 60 veg. caps	36.00	27.00	24.00			
01386	TRUFIBER™ • 180 grams	32.95	24.71				
01389	TRUFLORA® PROBIOTICS • 32 veg. caps	42.95	32.21				
01722	L-TRYPTOPHAN • 500 mg, 90 veg. caps	33.00	24.75	22.50			
01721	TRYPTOPHAN PLUS (Optimized) • 90 veg. caps	32.00	24.00	21.75			
02216	TWO-PER-DAY • 60 tablets	12.00	9.00	7.50			
02215	TWO-PER-DAY • 120 tablets	23.00	17.25	15.50			
02217	TWO-PER-DAY • 60 caps	13.00	9.75	8.50			
02214	TWO-PER-DAY • 120 caps	24.00	18.00	16.00			
00326	L-TYROSINE • 500 mg, 100 tablets	13.50	10.13				
U, V							
01921	URIC ACID CONTROL • 60 veg. caps	24.00	18.00	16.50			
00213	VANADYL SULFATE • 7.5 mg, 100 veg. tablets	15.00	11.25	9.38			
02102	VENOFLOW™ • 30 veg. caps	52.00	39.00	36.00			
00408	VENOTONE • 60 caps	18.95	14.21	12.00			
01327	VINPOCETINE • 10 mg, 100 veg. tablets	18.00	13.50	10.50			
00372	VITAMIN B3 NIACIN • 500 mg, 100 caps	7.65	5.74	4.99			
02028	VITAMIN B5 • 500 mg, 100 veg. caps (Pantothenic Acid)	14.00	10.50	9.50			
01535	VITAMIN B6 • 250 mg, 100 veg. caps	12.50	9.38	8.25			
00361	VITAMIN B12 • 500 mcg, 100 lozenges	8.75	6.56	5.44			
01634	VITAMIN C w/DIHYDROQUERCETIN 1,000 mg, 60 veg. tablets	10.00	7.50	6.75			
00927	VITAMIN C w/DIHYDROQUERCETIN 1,000 mg, 250 veg. tablets	30.00	22.50	20.00			
00084	VITAMIN C POWDER (BUFFERED) • 454 grams	28.00	21.00	19.00			
01736	VITAMIN C-MAGNESIUM CRYSTALS (EFFERVESCENT) 180 grams	20.00	15.00	13.50			
01732	VITAMIN D3 • 2,000 IU, 1 fl. oz, Mint flavor	28.00	21.00	18.75			
01753	VITAMIN D3 • 1,000 IU, 90 softgels	7.00	5.25	4.50			
01751	VITAMIN D3 • 1,000 IU, 250 softgels	12.50	9.38	8.44			
01713	VITAMIN D3 • 5,000 IU, 60 softgels	10.00	7.50	6.50			
01718	VITAMIN D3 • 7,000 IU, 60 softgels	14.00	10.50	9.45			
01758	VITAMIN D3 W/SEA-IODINE™ • 5,000 IU, 60 caps	14.00	10.50	9.38			
00864	VITAMIN D3 LIQUID • 2,000 IU, 1 fl. oz	28.00	21.00	18.75			
02040	VITAMINS D AND K W/SEA-IODINE™ • 60 caps	24.00	18.00	16.50			
01863	VITAMIN E (Super) • 400 IU, 90 softgels	28.00	21.00	19.50	18.00		
01936	VITAMIN K2 (Low dose) • 45 mcg, 90 softgels	18.00	13.50	12.00			
W							
01902	WAIST-LINE CONTROL™ • 120 veg. caps	42.00	31.50	28.50			
X, Y							
01919	X-R SHIELD • 90 veg. caps	15.00	11.25	9.75			
SUBTOTAL OF COLUMN 11							

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
00409	XYLIWHITE™ MOUTHWASH • 16 oz	10.00	7.50				
Z							
01813	ZINC HIGH POTENCY • 50 mg, 90 veg. caps	9.00	6.75	6.00			
01561	ZINC LOZENGES • 60 veg. lozenges	9.00	6.75	6.00			
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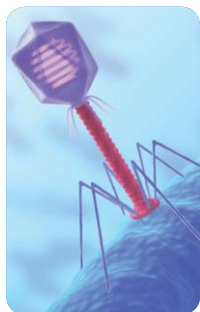
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WHAT'S INSIDE

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22 IMPROVE YOUR INTESTINAL HEALTH
Phages *selectively* target **harmful bacteria** such as ***E. coli*** to increase beneficial bacteria and improve immune health.



7 COQ10 AND HEART FAILURE
The ***New England Journal of Medicine*** reports a **44% decrease** in sudden death from **heart failure** from **1995 to 2014**.



54 WHOLE-BODY PROTECTION AGAINST SOLAR RAYS
A fern extract and other nutrients help block **UV-damage** to skin cells and support DNA repair.



42 NEW WAY TO USE MELATONIN
Micronized melatonin provides **immediate-** and **extended-release** to help one *fall asleep*—and *stay asleep*.



32 COMBAT BRAIN AGING
PQQ *energizes* brain cells to *improve* working memory, *boost* cerebral blood flow, and *limit* glucose damage.



64 FISH OIL REDUCES INFLAMMATORY FIRES
Omega-3-rich **fish oil** rebalances the *eicosanoid* pathway to help reduce persistent **inflammation**.