

COMBAT CONGESTIVE HEART FAILURE

LifeExtension[®]

LifeExtension.com

The ULTIMATE Source For New Health And Medical Findings From Around The World

April 2015

Blueberry Extends Life Span Beyond Calorie Restriction

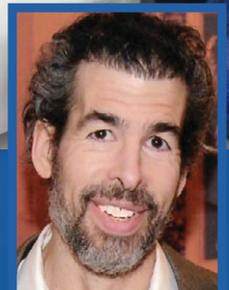


Lethal Impact of
CoQ10 Censorship

Cardio-Protective
Effect of Olive Oil

Reverse Fatty
Liver Disease

Snow Algae
Revives Aging Skin



PLUS— Rick
ROSNER

World Genius Reveals
His Longevity Strategy

OUR TWO-PER-DAY MULTIVITAMIN FORMULA Beats Centrum® 11 Ways.

Are You Getting The Maximum Potency From Your Daily Vitamin?

Life Extension® **Two-Per-Day** formulas are the highest-potency multivitamins on the market. In fact, they have the highest potencies of *any* science-based multivitamin formula that can fit inside two easy-to-take tablets or capsules — so you get the full-spectrum of vitamins, minerals, and essential nutrients ... at a very affordable price!

Compared to **Centrum®** (the the leading multi-vitamin), **Two-Per-Day** provides:

**Centrum®
Can't
Compete**

50 times more vitamin **B1**

12 times more vitamin **B12**

25 times more vitamin **B6**

20 times more **boron**

10 times more **biotin**

10 times more **selenium**

8 times more **vitamin C**

4 times more **vitamin D**

Twice as much **vitamin E**

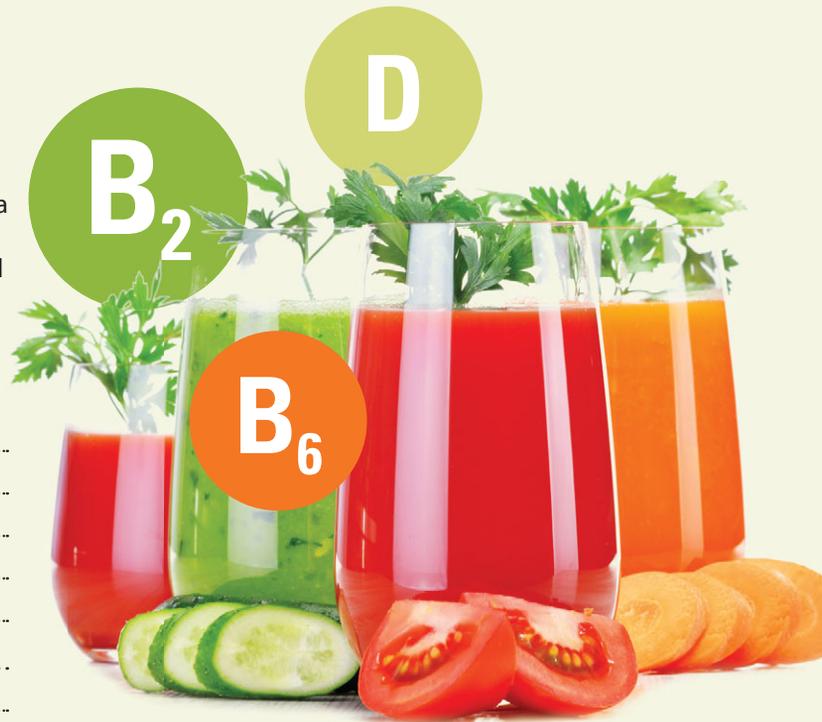
Twice as much **niacin**
(vitamin B3)

Twice as much **zinc**

And That's Just The Beginning.

Life Extension's **Two-Per-Day** formula also contains bioactive forms of vitamin B2 and B6, plus zinc citrate (for its superior absorption), boron, lycopene, alpha-lipoic acid), and natural mixed tocopherols — nutrients that help protect against lipid oxidation. And Two-Per-Day now contains NIAGEN®, the first commercially available form of *nicotinamide riboside*, to help combat the aging process.

Let's face it. When choosing a multivitamin, you should pick the one whose innovative formula is based on 35 years of clinical research and made with premium-quality ingredients. In other words, the very best. And the very best supplements *always* come from Life Extension.



Two-Per-Day Capsules

Item #01914 • 120 capsules (2 month supply)

	Retail Price	Member Price	You Save*
1 bottle	\$22	\$16.50	25%
4 bottles	\$20 each	\$15 each	31%



Two-Per-Day Tablets

Item #01915 • 120 tablets (2 month supply)

	Retail Price	Member Price	You Save*
1 bottle	\$20	\$15.00	25%
4 bottles	\$18 each	\$13.50 each	32%



To order **Life Extension Two-Per-Day Tablets** or **Two-Per-Day Capsules**, call **1-800-544-4440** or visit **www.LifeExtension.com**

For the complete list of ingredients, trademarks, cautions, references, dosage and use, please visit www.LifeExtension.com.

*Savings calculated per bottle off of single-bottle retail price.

NIAGEN® is a registered trademark of ChromaDex, Inc., Patents see: www.ChromaDexPatents.com.

Formula Compared to Centrum® Silver® Adults 50+ at time of printing.

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

REPORTS



38 OLIVE OIL'S CARDIOVASCULAR PROTECTION EFFECTS

Olive oil has been extensively studied as part of the heart-healthy Mediterranean diet. Researchers have identified specific compounds in **extra virgin olive oil** responsible for expression of genes that improve HDL function, inhibit atherosclerosis, and improve endothelial function.



48 HIDDEN LIVER DISEASE EPIDEMIC

Alcohol is often considered the main cause of liver disease. The true culprit, however, is now obesity. Today, about one in three Americans suffer from a largely silent condition that can progress to full-blown liver failure. Find out how to best protect against risks of **nonalcoholic fatty liver disease**.



60 SNOW ALGAE REVIVES AGING SKIN

Snow algae extract strengthens the aging skin barrier to restore rapid and natural skin hydration, while novel **peptides** boost collagen production to induce visible skin firmness and smoothness.



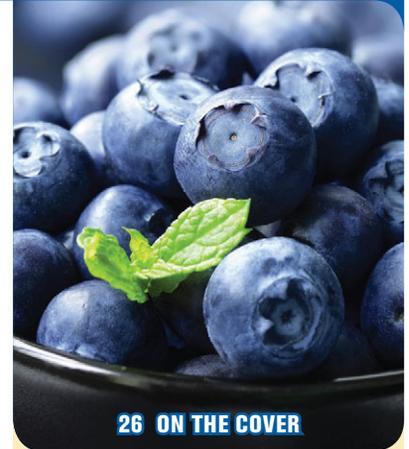
68 COQ10 PREVENTS CONGESTIVE HEART FAILURE

Patients diagnosed with congestive heart failure have been shown to have low levels of CoQ10, which can increase their chance of death by **50%** within five years. Using the proper **form** and **dose** of CoQ10 can reverse these underlying pathologies and promote cardiovascular health and longevity.



82 THE RISE OF FUNCTIONAL MEDICINE

The US spends nearly twice as much as other industrialized countries on healthcare (per capita) and yet ranks near the bottom in many measures. With options becoming more limited for conventional medicine, change is underway as the **Cleveland Clinic** announces a brave new initiative to embrace functional medicine.



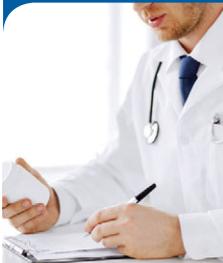
26 ON THE COVER

**BOOST LONGEVITY
BEYOND CALORIE RESTRICTION**

Blueberries delay the aging process by facilitating **DNA repair** and favorably modulating **genes** associated with aging. The ability to **repair DNA** is an essential longevity mechanism.

When added to a **calorie-restricted** diet, **blueberry polyphenols** significantly increased **life span** beyond that of calorie restriction alone.

DEPARTMENTS



7 AS WE SEE IT: COQ10 WARS

A large human study published late last year showed a **44% reduction** in **cardiovascular mortality** in heart failure patients who were properly using **CoQ10**. This same study showed a **42% reduction** in **all-cause mortality** in CoQ10 users compared to the control group. In this historical expose, **Life Extension**[®] reveals how the FDA's suppression of CoQ10 has resulted in more American deaths than all wars the United States has fought in combined.

19 IN THE NEWS

Mediterranean diet lengthens telomeres; metformin boosts lung cancer survival; zinc deficiency linked to DNA damage; low vitamin D levels linked to premature death; whey protects muscles during dieting; and much more.

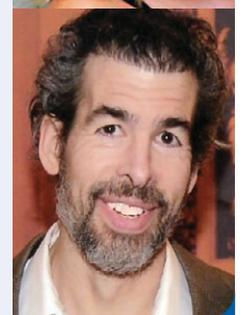


91 WELLNESS PROFILE

Personal trainer, herbalist, and holistic health counselor Debbie Sherrick believes optimum health begins with identification of each patient's individual needs. In an exclusive interview, she reveals her longevity-promoting approach to food, supplements, exercise, and emotional well-being.

95 AUTHOR INTERVIEW

Rick Rosner, credited with the world's second highest IQ and author of the upcoming *Dumbass Genius*, follows an extensive regimen of prescription and nonprescription supplements in an aggressive pursuit of science-based longevity.





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LIFE EXTENSION (ISSN 1524-198X) Vol. 21, No.4 ©2015 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. Subscription included as part of Life Extension Foundation membership. Mail subscriptions or address changes to: LE Publications, Inc., P.O. Box 407198, Fort Lauderdale, FL 33340-7198, USA. Or phone us toll-free at: 1-800-841-5433. Canada Subscriptions: Publications mail agreement number 40028967. Return undeliverable Canadian addresses to PO Box 503, RPO West Beaver Creek, Richmond Hill, ON L4B4R6. You will be sent your first issue within six weeks after LE Publications, Inc. receives your subscription fee. Periodicals Postage paid at Fort Lauderdale, FL and at additional mailing offices. **POSTMASTER:** Send address changes to Life Extension, P.O. Box 407198, Ft. Lauderdale, Florida 33340-7198, USA. Printed in USA. The articles in this magazine are intended for informational purposes only. They are not intended to replace the attention or advice of a physician or other health-care professional. Anyone who wishes to embark on any dietary, drug, exercise, or other lifestyle change intended to prevent or treat a specific disease or condition should first consult with and seek clearance from a qualified health-care professional. **LEGAL NOTICE:** Health claims contained in articles and advertisements in this publication have not been approved by the FDA with the exception of FDA approved qualified health claims for calcium, antioxidant vitamins, folic acid and EPA and DHA omega-3 fatty acids, and selenium as noted where applicable. Life Extension[®] 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.

Superior-Absorbing CURCUMIN



Curcumin has turned into a nutrition **superstar** because of the enormous health-promoting effects it provides for almost every organ system.^{1,2}

However, most curcumin extracts are neither well **absorbed** nor well retained in the body.

Life Extension®'s curcumin supplements utilize a patented preparation of curcumin that can reach up to **7 times higher** concentration in the blood than standard curcumin³

As the graphs on this page illustrate, the **400 mg** of curcumin in either of our formulas supply the body with the equivalent of **2,500 mg** of most commercial curcumin products.

In recent studies comparing the effects of standard curcumin against Life Extension's turmeric extracts, researchers observed:^{4,5}

- Nearly **twice** the support for immune health and approximately **2 times** the support for inflammatory issues.
- Almost **double** the free radical-fighting support. A separate study indicated that curcumin extract provided powerful support for heart health.

References

1. *Nat Sci Biol Med.* 2013 Jan-Jun;4(1):3-7.
2. *Biofactors.* 2013 Jan-Feb;39(1):2-13.
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4. *Int J Pharmacol.* 2009;5(6):333-45.
5. *Food Nutr Res.* 2009;48(3):148-52.
6. *J Med Food.* 2012 Mar;15(3):242-52.
7. *Cancer Chemother Pharmacol.* 2007;60:171-7.
8. Bioavailability study of BCM-95® in rats. Orcas International Inc.

TWO CURCUMIN FORMULAS TO CHOOSE FROM

Those who want a curcumin stand-alone can order a bottle of 60 vegetarian capsules of **Super Bio-Curcumin**® (Item # 00407) for \$38. If a member buys four bottles, the price is reduced to **\$26.25** per bottle. Each bottle lasts a typical user two months.

Those seeking additional support against cell changes that promote prolonged functional inflammatory issues may choose **Advanced Bio-Curcumin**® With Ginger & Turmerones.

While both of these formulas provide the superior **absorbing** curcumin, **Advanced Bio-Curcumin**® With Ginger & Turmerones also contains:

- **Turmerones** to increase the amount of curcumin inside cells.⁶
- **Ginger**, which provides complementary health benefits.
- **Phospholipids** that further enhance absorption.⁷

A bottle of 30 softgels of **Advanced Bio-Curcumin**® With Ginger & Turmerones (Item # 01808) retails for \$30. If a member buys four bottles, the price is reduced to **\$20.25** per bottle. The suggested dose for either of these highly **absorbable** curcumin supplements is one capsule daily.

CAUTION: Do not take if you have gallbladder problems or gallstones. If you are taking anticoagulant or antiplatelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product.

Bio-Curcumin® and BCM-95® are registered trademarks of Dolcas-Biotech, LLC. U.S. Patent Nos. 7,883,728, 7,736,679 and 7,879,373.

Compared with Plant-Bound Curcumin with Piperine³

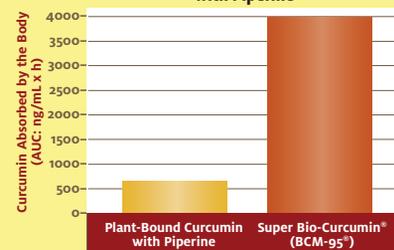


Chart 1. Super Bio-Curcumin® showed 6.3 times greater bioavailability (absorption and sustainability over eight hours) in humans compared with plantbound curcumin with piperine (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over eight hours).

Absorption of Super Bio-Curcumin® in Humans Compared with Conventional Curcumin³

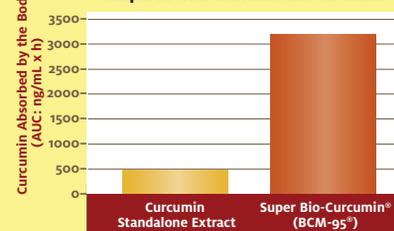


Chart 2. Super Bio-Curcumin® showed 6.9 times greater bioavailability (absorption and sustainability over eight hours) in humans compared with conventional curcumin (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over eight hours).

Absorption of Super Bio-Curcumin® in Rats Compared with Conventional Curcumin⁸

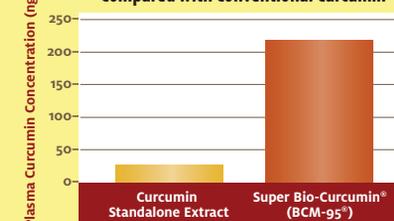


Chart 3. Bioavailability in rats fed with 7.8 times higher than conventional curcumin.

To order either of these products, call 1-800-544-4440 or visit www.LifeExtension.com

LifeExtension[®]

Magazine

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.

Anna M. Cabeca, DO, FACOG, ABAARM, is a board certified Gynecologist and Obstetrician, as well as board certified in Anti-Aging and Regenerative Medicine, an expert in Functional Medicine, and an expert in women's health. She specializes in bioidentical hormone replacement therapy and natural alternatives, successful menopause and age management medicine.

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.

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Michael R. Rose, MD, a board-certified ophthalmologist with the Rose Eye Medical Group in Los Angeles, CA, is on the staffs 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, is the regional coordinator of otolaryngology-head and neck surgery for the Bloomfield satellite of Henry Ford Health System (HFHS), Detroit, MI, co-director of the Tinnitus Center, and co-chair of the Complementary/Alternative Medicine Initiative for HFHS.

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



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*.



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.



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 anticancer drugs. He conducted his postdoctoral training at Stanford University Department of Statistics. He is currently president of New Earth BioMed, a nonprofit cancer research corporation that studies mixtures of natural products.



Frank Eichorn, 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 Castringius, Planegg, Munich. In his integrative approach to prostate cancer he is working 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.



It is with great sorrow that Life Extension® notes the passing of an esteemed member of our Scientific Advisory Board—Dr. Stanley W. Jacob.

Stanley W. Jacob, MD, was Gerlinger Distinguished Professor, Department of Surgery, Oregon Health and Science University. He authored 175 scientific articles and 15 books and held 3 patents, including the initial patent on the therapeutic implications of dimethyl sulfoxide (DMSO).



It is with great sorrow that Life Extension® notes the passing of Dr. Richard Kratz, an accomplished scientist and doctor. **Richard Kratz, MD, DSci**, was clinical professor of ophthalmology at the University of California, Irvine, and the University of Southern California, Los Angeles. Dr. Kratz pioneered the cataract-removal technique called phacoemulsification and developed intraocular lenses to replace the crystalline lens. He was recently involved in projects relating to glaucoma, cataract extraction, and facilitating eyesight for the totally blind.



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.

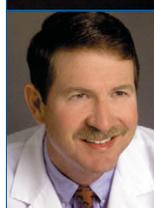


Dipnarine Maharaj MD, MB, ChB, FRCP (Glasgow), FRCP (Edinburgh), FRCPath, FACP

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.



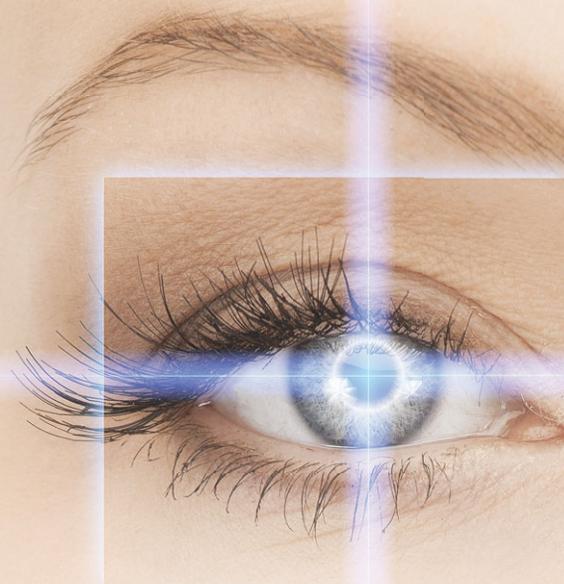
Michael D. Ozner, MD, FACC, FAHA, is a board-certified cardiologist who specializes in cardiovascular disease prevention. He serves as medical director for the Cardiovascular Prevention Institute of South Florida and is a noted national speaker on heart disease prevention. Dr. Ozner is also author of *The Great American Heart Hoax* and *The Miami Mediterranean Diet* (2008, Benbella Books). 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 11 books and publishes *Nutrition and Healing*, a monthly newsletter with a worldwide circulation of more than 100,000.

MacuGuard[®]

Provides
Powerful
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MacuGuard[®] Ocular Support with Astaxanthin maintains eye health in many ways:¹⁻⁷

- Supports lutein concentration in the eye
- Supports efficient absorption of lutein in the bloodstream
- Provides phospholipids to enhance lutein in the cell membrane
- Maintains zeaxanthin concentrations in the eye
- Provides *meso*-zeaxanthin, which is difficult to obtain from dietary sources
- Contains cyanidin-3-glucoside, shown to help with night vision.
- Provides astaxanthin to protect against free radical-induced DNA damage, which may play a protective role against eye fatigue.

Contains soybeans.

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MacuGuard[®] Ocular Support with Astaxanthin

Item #01886 • 60 softgels

	Retail Price	Member Price
1 bottle	\$42	\$31.50
4 bottles	\$38 each	\$28.50 each

Suggested dose is one softgel daily with a meal. Each bottle of **MacuGuard** provides a **two-month** supply.



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To order **MacuGuard[®] Ocular Support with Astaxanthin**, call **1-800-544-4440** or visit **www.LifeExtension.com**

CoQ10 Wars



BY WILLIAM FALOON

Congestive heart failure contributes to about **310,000** deaths each year in the United States.¹ Over **5.8 million** Americans suffer from this condition where the heart is unable to pump enough blood to meet the body's needs.²

A study published late last year evaluated **heart failure** patients that supplemented with higher dose **CoQ10** in addition to standard therapy. The results showed a **44% reduction** in cardiovascular **mortality** in the **CoQ10** group compared to the placebo arm receiving only standard therapy.³

When this study looked at deaths from **any** cause, those receiving **CoQ10** had a **42% reduction** in all-cause **mortality**.

Based on this study's findings, if **all** congestive heart failure patients properly supplemented with **CoQ10**, more than **120,000** American lives might be spared each year.

What's interesting about this study is that it showed that in order for CoQ10 to produce these robust lifesaving benefits, it had to be taken over an extensive period of time. Unlike cardiac drugs such as **beta-blockers** that produce an immediate effect,⁴ CoQ10 must build up inside one's cells in order to induce clinical improvements.

Health freedom activists may recall the **jihad** launched by the **FDA** in the **1980s-1990s** that resulted in product seizures and criminal charges brought against those selling CoQ10.^{5,6} As you're about to learn, the loss of life caused by the FDA's censorship is beyond astronomical.

This article will describe how to properly use **CoQ10** to achieve rapid benefits, and why it has taken so long for others to figure this out.



A lot of people think **coenzyme Q10** was discovered in **Japan** because that is where it was first approved as a drug to treat heart failure.⁷⁻⁹ The Japanese are one of the world's largest CoQ10 producers.^{8,10}

The reality is **CoQ10** was first isolated from beef hearts at the **University of Wisconsin in 1957**.⁹ This research was continued in collaboration with **Professor Karl Folkers**, who conducted research at Merck & Co., Inc. and later at Stanford Research Institute and the University of Texas at Austin.¹¹⁻¹⁴

Numerous positive findings on CoQ10 were published in the **1960s-1970s**.¹⁵⁻²⁰ It was not until **1983** when Americans first learned about **CoQ10** in an article published by the **Life Extension® Foundation**.²¹

The **FDA's** response was that **CoQ10** could not be legally sold because it was a **prescription drug** that required the agency's approval. The FDA went as far as to say that CoQ10 posed an imminent health hazard. Our CoQ10 was twice

seized and twice returned after we mounted two successful legal actions to thwart the FDA's attempt to ban consumer access to CoQ10.

The perverse regulatory structure that the **FDA** operates under created two problems. It allowed an American invention (CoQ10) to be monetarily capitalized on by the Japanese at the expense of American consumers. Far worse, the bureaucratic impediments erected against CoQ10 caused millions of American deaths, which we'll document at the end of this article.

Why CoQ10 Confused Cardiologists

Physicians in the US are used to drugs that provide an immediate effect. For instance, if a statin drug (such as Lipitor®) is prescribed, there is almost always a sharp drop in a patient's LDL cholesterol level. Antihypertensive drugs usually provide a quick blood pressure-lowering effect. Anticoagulant drugs (like

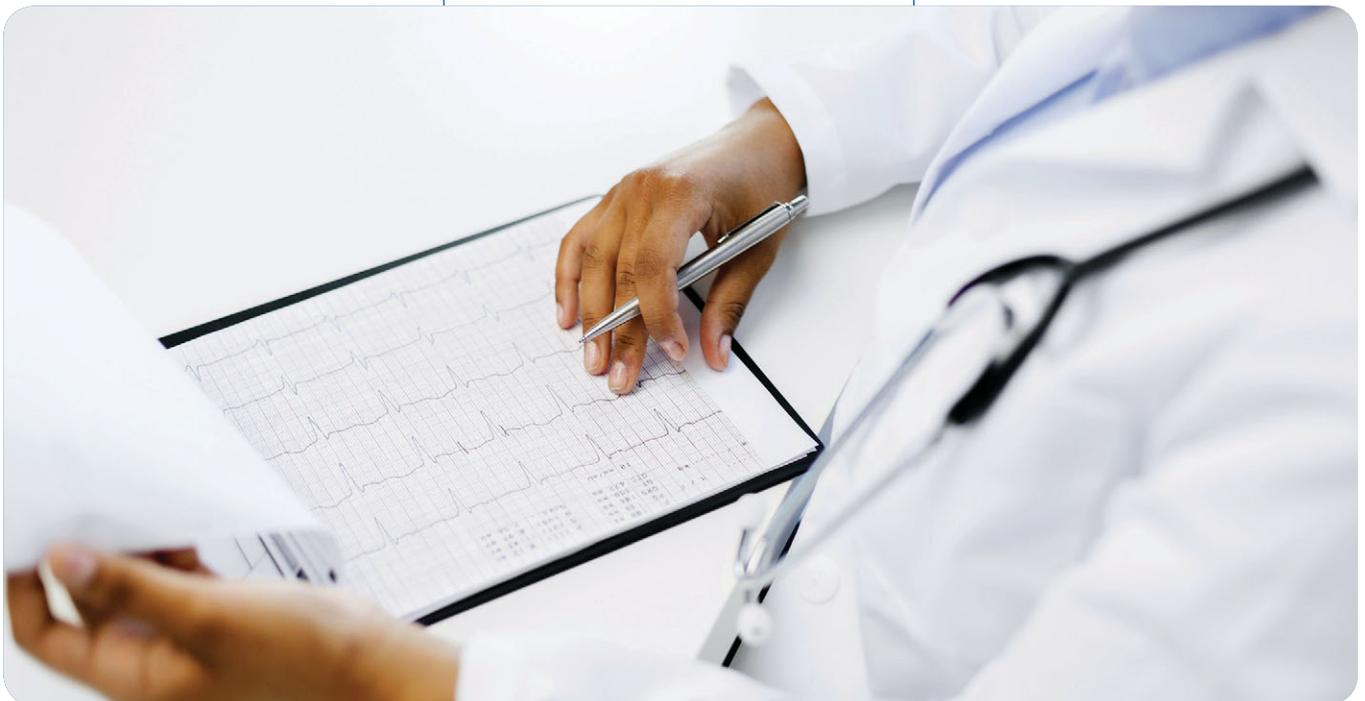
warfarin) quickly thin a patient's blood.

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 knee-jerk reaction by the mainstream was that CoQ10 has no meaningful clinical benefit.

The latest study confirmed that it takes a considerable period of time for CoQ10 levels to build up to a point where significant clinical benefits occur, such as a **42% reduction** in **all-cause** mortality. This study corroborates what was published decades ago in this magazine.

We at **Life Extension®** long ago discovered that low-dose CoQ10 administered to people with chronic disease did not provide needed benefit. It was clear that **higher** doses of more **absorbable** forms of CoQ10 were required.



Pioneering Work Of Peter Langsjoen, MD

Peter Langsjoen, MD, is considered one of the world's foremost experts in the use of CoQ10 to treat cardiac disease.²² He conducts his research and clinical practice in Tyler, Texas, and is a long-standing member of our **Scientific Advisory Board**.

What makes Peter 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.

As reported seven years ago in this publication, Dr. Langsjoen observed that patients with advanced heart failure often **fail** to achieve adequate blood (plasma) CoQ10 levels, even when using **high** doses of conventional CoQ10.²³

Dr. Langsjoen found that in response to the administration of **900 mg** of conventional **ubiquinone** CoQ10, advanced heart failure patients only increased their total CoQ10 blood levels to about **half** of what they should be.²³ In patients with congestive heart failure, much **higher** CoQ10 blood levels are needed to induce symptomatic and clinical improvements.

In healthy people, the ingestion of **900 mg** of conventional (ubiquinone) CoQ10 is expected to raise total blood levels rather substantially. Dr. Langsjoen postulated on the reason **ubiquinone fails** to significantly increase CoQ10 blood levels in critically ill patients. He has seen his advanced patients suffer **impaired absorption** caused from intestinal edema, which precludes optimal absorption of ubiquinone CoQ10.²³

Frustrated with the inability of even high doses of ubiquinone CoQ10 to meaningfully elevate



FDA Denied CoQ10 To Dr. Langsjoen's Patients

In **1992**, the **FDA** and **Texas Department of Health** raided **Austin Whole Foods** and other retail outlets to seize their CoQ10.³⁰

This severely affected the ability of Dr. Langsjoen's heart disease patients to access coenzyme Q10.

The basis for these raids was the FDA's contention that coenzyme Q10 was an unsafe food additive. Patients whose lives were being saved knew different.

The citizens revolted and protested the FDA seizures in every possible way. They alerted the news media, wrote hot letters to the FDA, congressmen, and senators, and phoned up the Texas Department of Health to protest. Sixty agitated patients and family members assembled at a local church to plan a strategy for keeping CoQ10 on the market.

An in-depth article about this raid and the impact it was having on Dr. Langsjoen's patients was the subject of a detailed article, titled **"Heartless Behavior,"** in the popular **Texas Monthly** magazine (June 1992 issue) which is still available online (<http://www.texasmonthly.com/content/heartless-behavior>).³⁰

After a monumental struggle, the **Texas Department of Health** backed down and patients were once again able to obtain CoQ10 (in Texas). For heart failure patients whose lives hung in the balance, the ordeal was beyond stressful.

Those with cardiac issues that would like to become a patient of Dr. Langsjoen can contact his clinical practice at the following address and phone:

Peter Langsjoen, MD
1107 Doctors Drive
Tyler, Texas 75701
Phone: 903-595-3778



blood levels, Dr. Langsjoen sought to evaluate the effects of a more **absorbable** form of CoQ10 called **ubiquinol**. Dr. Langsjoen evaluated advanced congestive heart failure patients that had been taking an average of **450 mg** per day of **ubiquinone** and changed them to an average of **580 mg** per day of **ubiquinol**.²³ The objective was to quickly elevate CoQ10 blood levels in these patients who were nearing cardiac death.

Dr. Langsjoen's results showed that **ubiquinol** increased mean plasma CoQ10 levels from **1.6 ug/mL** to **6.5 ug/mL**—a **4.06-fold** improvement over **ubiquinone**.²³ Previous published studies indicate that heart failure patients require higher CoQ10 blood levels to obtain significant clinical benefit.²⁴⁻²⁶ In order to achieve these higher therapeutic levels, Dr. Langsjoen found **ubiquinol** CoQ10 was required.

What's regrettable is how few cardiologists paid attention to Dr. Langsjoen's remarkable findings that could have saved the lives of their heart failure patients. Dr. Langsjoen went on to comment that he sees his best results when **ubiquinol** is initiated *early*

in the course of the disease, before severe damage to the heart muscle develops.

Robust Improvements In Cardiac Function

The **ejection fraction** test assesses the heart's pumping capacity by measuring how much blood is pumped after each beat compared with the amount of blood remaining in the heart.²³

Healthy people have an ejection fraction of **55-75%**, while those with **congestive heart failure** often have values of **20-40%**.²⁷⁻²⁹

In a study conducted by Dr. Langsjoen, the mean ejection fraction improved from a dangerously low **22%** up to **39%** in **ubiquinol**-treated patients who had follow-up echocardiograms.²³ This represented a recovery of up to **77%** in this critical measurement of cardiac output. The higher blood levels of CoQ10 and the improved ejection fractions were accompanied by remarkable clinical improvement in these advanced patients. Based on these findings, Dr. Langsjoen's scientific group concluded:²³

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

An Update From Dr. Langsjoen

At a meeting of Life Extension®'s **Scientific Advisory Board** on April 25, 2012, Dr. Langsjoen confirmed his previous findings and advised healthy older people who were not supplementing with CoQ10 to take between **300-400 mg** per day for the first month to fully saturate their cells, and then back down to a daily maintenance dose of **100-300 mg** per day. Dr. Langsjoen stated at this meeting that younger people with healthy digestive tracks could probably benefit equally with **ubiquinone** or **ubiquinol**, but as one ages they should consider **ubiquinol** as it **absorbs** far better into the bloodstream.

For patients with congestive heart failure, Dr. Langsjoen recommends continuous high doses of **ubiquinol** to maintain the **ejection fraction** at values that correspond with overall improvement in cardiac function. In these heart failure patients **200 mg** of **ubiquinol** twice per day is a good dose, reliably achieving therapeutic plasma levels of CoQ10 higher than **3.5 µg/mL**.

New Study Corroborates Dr. Langsjoen's Research

The study I discussed at the beginning of this article was published in the September 25, 2014, online edition of the *Journal of the American College of Cardiology: Heart Failure*. It described the effects of **300 mg** per day of **ubiquinone** given to a large group of chronic heart failure patients.

After **16 weeks** of administration of this dose and form of CoQ10, there were no significant changes in measures of **ejection fraction** compared to placebo.³

What the researchers discovered, however, is that when these chronic **heart failure** patients took **300 mg** per day of ubiquinone for **two years**, there was (compared to placebo) a remarkable:

- **44% reduction** in cardiovascular mortality.
- **42% reduction** in all-cause mortality.
- **45% reduction** in the number of hospital stays (some people consider hospitals worse than jail).
- **29% improvement** in the proportion of patients seeing a beneficial change in their NYHA classification (a composite measure of heart failure severity).

These findings are earth shattering! They reveal that more than **120,000** American lives could be saved each year with the use of a widely available dietary supplement. The authors of this study concluded:

“Long-term CoQ10 treatment of patients with chronic heart failure is safe, improves symptoms, and reduces major adverse cardiovascular events.”

These findings help corroborate Dr. Langsjoen's pioneering research where he used higher doses of a **superior-absorbing** ubiquinol **CoQ10** to achieve quicker improvements in cardiac ejection fraction. Dr. Langsjoen sees improved heart function in as early as three months and almost always by six months of treatment with **ubiquinol** at **200 mg** twice per day.

There are over **five million** Americans afflicted with congestive heart failure today. Many can't wait **two years** for a conventional CoQ10 supplement to improve their condition and slash their risk of dying. They need to initiate **400-600 mg** of **ubiquinol** daily to increase their heart's **ejection fraction** as soon as possible.

There is now solid evidence from a large, randomized multicenter published trial showing remarkable benefits when **300 mg** a day of **CoQ10** is added to standard treatment over a two-year period. What makes this finding interesting is that many heart failure patients in the past tried a relatively small CoQ10 dose and if an improvement in **ejection fraction** did not happen quickly, they and their doctor would have felt CoQ10 to be ineffective. This helps explain why conventional cardiology has been slow to catch on to CoQ10's lifesaving benefits.

As a **Life Extension**® member, you know how to accelerate these beneficial effects by taking the appropriate dose and form of CoQ10 to rapidly saturate cells throughout your body. To a patient suffering from chronic heart failure, this information is priceless!



Battles To Defend Against CoQ10 Prohibition

After we introduced CoQ10 in 1983, public demand for this nutrient soared. The FDA's response was to seek to ban it altogether because they deemed it to be a **prescription drug** that required government "approval" to be sold.

Companies selling CoQ10 were raided and individuals (including us) were placed under intense criminal investigation at enormous cost to taxpayers. In 1987, FDA agents accompanied by armed US Marshalls (with guns drawn) kicked down our doors and proceeded to seize every bottle of CoQ10, every one of our newsletters, and any

other nutrient (magnesium, fish oil, etc.) they deemed to be an "unapproved drug." We later filed suit against the FDA and won back all of the seized materials, though the supplements were spoiled and had to be discarded.

In 1990, the FDA conducted an armed raid against **Highland Laboratories** in Oregon and seized their CoQ10 and accompanying literature.⁴⁸ The owner of this company was criminally indicted and rather than face the expense and uncertainty of a trial, pled guilty and was placed on six months house arrest.⁴⁹

Frustrated that we continued to offer CoQ10, the FDA went to a state pharmacy board and declared that nutrients like CoQ10 posed an imminent threat to the public's health and therefore had to be embargoed from sale to the public. At the FDA's behest, pharmacy board inspectors placed embargoes on our CoQ10 and that of another



National Cancer Institute And CoQ10

Most people associate CoQ10 as having beneficial effects for the **heart, brain, and kidneys**. Overlooked is data showing that CoQ10 has protective effects against several forms of **cancer**.

According to the **National Cancer Institute's** position paper:³¹

"Interest in coenzyme Q10 as a therapeutic agent in cancer began in 1961, when a deficiency was noted in the blood of both Swedish and American cancer patients, especially in the blood of patients with breast cancer.³²⁻³⁴ A subsequent study showed a statistically significant relationship between the level of plasma coenzyme Q10 deficiency and breast cancer prognosis.³⁵ Low blood levels of this compound have been reported in patients with malignancies other than breast cancer, including myeloma, lymphoma, and cancers of the lung, prostate, pancreas, colon, kidney, and head and neck."^{32,36,37}

The **National Cancer Institute** goes on further to state:

"Some of the accumulated data show that coenzyme Q10 stimulates animal immune systems, leading to higher antibody levels,³⁸ greater numbers and/or activities of macrophages and T cells (T lymphocytes),^{38,39} and increased resistance to infection.⁴⁰⁻⁴² Coenzyme Q10 has also been reported to increase IgG (immunoglobulin G) antibody levels and to increase the CD4 to CD8 T-cell ratio in humans.⁴³⁻⁴⁵ CD4 and CD8 are proteins found on the surface of T cells, with CD4 and CD8 identifying helper T cells and cytotoxic T cells, respectively; decreased CD4 to CD8 T-cell ratios have been reported for cancer patients."^{46,47}

With a plethora of studies showing CoQ10's **heart** benefits, the data about its potential **anticancer** properties gets lost in the popular media.

supplier of CoQ10 in the same state. We prepared a 300-page lawsuit against the pharmacy board attesting to the safety and efficacy of CoQ10.

As a courtesy, we presented the lawsuit to the pharmacy board's attorneys and gave them the option of lifting the embargo before we filed the lawsuit. After reading the 300-page lawsuit that substantiated the safety and efficacy of CoQ10, the pharmacy board lifted the embargo against us (and the other company) and promised to never take the FDA's word at blind faith again. The state pharmacy board was clearly perturbed that the FDA deceived them about the safety of CoQ10.

We were later arrested at the behest of the FDA and fought a multiyear battle in which the US Attorney's Office eventually dismissed the charges that the FDA brought that sought to incarcerate us for life.

To this day, the FDA tries to censor claims that CoQ10 can benefit heart failure patients, despite overwhelming documentation that this nutrient markedly reduces death rates when properly used.

How Many Americans Have Needlessly Perished?

Based on findings published in the *Journal of the American College of Cardiology* late last year, CoQ10 can reduce overall death rates in patients with congestive heart failure by **42%**.

The number of lives that could be saved if every congestive heart failure patient properly supplemented with CoQ10 is potentially over **120,000** each year.

If you multiply the number of lives lost by the 30 years the FDA has been censoring infor-

American Deaths Caused By CoQ10 Censorship Compared To Major Wars

Premature Deaths Caused By CoQ10 Censorship (1984-2014)

3,600,000

Based on findings published in *Journal of the American College of Cardiology* (December 2014) showing all-cause mortality reduction of **42%** in CoQ10 supplemented heart failure patients.

Total Military Deaths For Every War Fought (Itemized Chart of Every War Below)

1,426,640

American Deaths From Every Major War

Revolutionary War	25,000
War of 1812	15,000
Mexican-American War	13,283
Civil War	750,000
World War I	116,516
World War II	405,399
Korean War	36,516
Vietnam War	58,209
War on Terror	6,717

mation about CoQ10, the total comes to over **3.6 million** dead Americans, which is more than all the American deaths suffered by all the wars this nation has ever fought.

The chart on this page documents the striking carnage caused by FDA censorship of CoQ10 com-

pared to all military conflicts the United States fought starting with the **Revolutionary War**.

Based on these staggering statistics, it's hard to argue why the FDA retains authoritarian power over the American citizenry. With universal access to websites, those Americans who wanted to trust

the FDA could easily log on to the FDA's website (www.fda.gov) to read the agency's position on a given nutrient, drug, or hormone. They could then compare what the FDA says with another government website (www.pubmed.gov) that provides easy access to published scientific papers.

For example, if one enters into PubMed the terms "**CoQ10 and congestive heart failure**," 11 new studies appeared in **2014** alone that further substantiate its efficacy. Yet the FDA continues to ignore this published scientific research by censoring health claims for **coenzyme Q10**.

A lot of Americans have tragically been killed in this country's many wars. Fear of terrorism has caused our government to spend trillions of dollars.

Too bad our leaders don't realize that amending the **Food, Drug and Cosmetic Act** to strip the FDA of its dictatorial power would save many more American lives and reduce healthcare cost outlays.

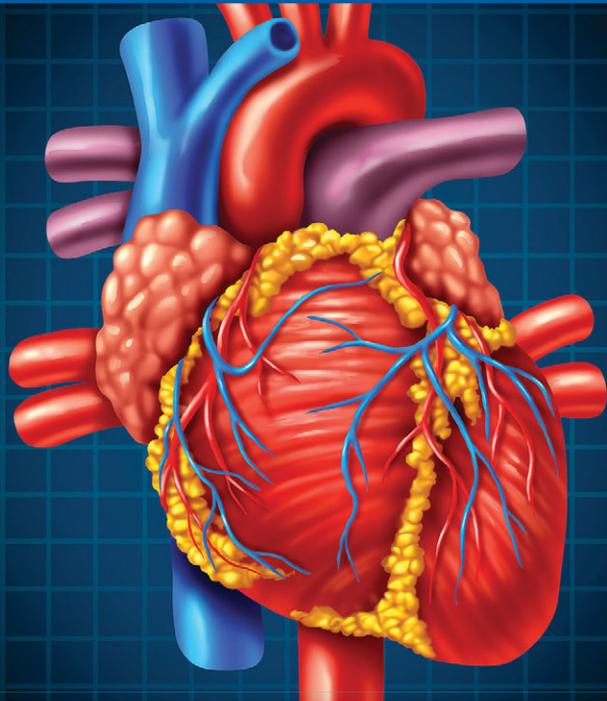
The numbers speak for themselves. If you ask which war caused the most American deaths, a person versed in history will name the **Civil War**. The harsh reality is that the **CoQ10 Wars** have resulted in far more American deaths.

This catastrophic loss of life will continue until science is allowed to replace authoritarian edict in determining medical treatment protocols.

For longer life,



William Faloon



Don't Abandon Conventional Heart Failure Treatment!

The dramatic mortality-reducing effect of CoQ10 should not tempt **heart failure** patients to abandon standard therapy that includes **ACE inhibitors** (such as enalapril), special **beta blockers** (such as carvedilol) and sometimes **spironolactone** (a mineralocorticoid-receptor antagonist).⁵⁰

In the hands of a competent cardiologist, there is now an arsenal of **drugs** that have caused a paradigm shift of improved survival in those stricken with chronic heart failure.

The **New England Journal of Medicine** (Sept 11, 2014) featured a review article of the massive improvements in survival that have occurred since **1986** when multidrug therapy is properly prescribed to heart failure patients.⁵¹

What makes the recent study described in this article so impressive is that heart failure patients who were fortunate enough to be in the group that received **CoQ10 with standard therapy** reduced their risk of cardiovascular deaths by **44%**. The **standard therapy-only** group, however, would have had markedly reduced cardiovascular mortality compared to no drug treatment.

What this means in a nutshell is that conventional cardiac drugs significantly reduce the rate of dying from heart failure, but when CoQ10 is added, there is an additional **44%** risk reduction.

We at **Life Extension®** do not hesitate to criticize the many FDA-approved drugs that are laden with harsh side effects and are only minimally effective. There are certain medications, however, with extensive track records of lifesaving efficacy that should not be avoided merely because of the many "bad actors" that litter the pharmaceutical marketplace.

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COMPLEMENTARY PROSTATE SUPPORT

In A Once-Daily Softgel



The majority of men find that their **prostate gland** undergoes significant changes as they age.¹ **ProstaPollen™** supports healthy urination patterns and prostate function.

Triple Strength ProstaPollen™ contains concentrated pollen extracts specifically selected for effective **prostate** support.²⁻⁴

Clinical studies have demonstrated that the flower pollen extracts in **Triple Strength ProstaPollen™** provide healthy support for aging **prostate glands**.²⁻⁴

Two fractions in **Triple Strength ProstaPollen™**—**G60™** (water-soluble) and **NAX™** (lipid-soluble)—support prostate health by helping to maintain smooth muscle tone in the prostate, bladder, and urethra.⁵

Life Extension® has long offered **pollen extracts** in the comprehensive **Ultra Natural Prostate** formula for maintaining healthy prostate function. For the first time, this new **Triple Strength ProstaPollen™** European extract is available to Americans, providing a more potent dose⁶ in a convenient once-daily softgel!

To order **Life Extension® Triple Strength ProstaPollen™**, call **1-800-544-4440** or visit **www.LifeExtension.com**

For men using Life Extension®'s **Ultra Natural Prostate** formula, additional prostate support benefits can be found by adding just one **Triple Strength ProstaPollen™** softgel daily.*

A bottle of 30 softgels of **Triple Strength ProstaPollen™** retails for \$28. If a member buys four bottles, the price is reduced to **\$18.75** per bottle.

The suggested dosage of one softgel of **Triple Strength ProstaPollen™** provides:

Graminex® Flower Pollen Extract™** (from rye)
triple strength concentrated blend **378 mg**
providing:
Graminex® G60™ (water-soluble fraction) (360 mg)
Graminex® NAX™ (lipid-soluble fraction) (18 mg)

** Graminex® is a registered trademark of Graminex LLC.

***Ultra Natural Prostate** contains 252 mg of original Graminex extract providing 60 mg of G60™ water-soluble fraction and 3 mg of NAX™ lipid-soluble fraction in two softgels. Men completely satisfied with the effects of the **Ultra Natural Prostate** formula may not need this new **Triple Strength ProstaPollen**.

References

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Item # 01909

Most Effective Form Of CoQ10

The unique benefits of the **ubiquinol** form of **CoQ10** have been further validated by studies published in **2014**.¹⁻¹²

CoQ10 supports **mitochondrial** energy production. A new study published in **2014** confirms previous research showing that **ubiquinol** activates mitochondrial functions to **slow aging** in the laboratory mouse model.¹²

Life Extension® improves this a step further by adding **shilajit** to its **ubiquinol** formulas. The result is a doubling of CoQ10 levels in **mitochondria**.¹³

When **CoQ10** and **shilajit** are combined, there is a **56% increase** in energy production in the **brain** and **144%** energy increase in muscle.¹⁴

Restoring youthful energy levels is why so many maturing people turn to **coenzyme Q10**. The most **absorbable** form of CoQ10 is **ubiquinol**.

The name of this advanced **ubiquinol/shilajit** formula is **Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™**.

Life Extension combines these two energizing ingredients into an exclusive **ubiquinol-shilajit** formula available in the following potencies...all at discounted prices:



Item # 01425

The retail price for 100 **50 mg** softgels of **Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™** is \$58. If a member buys four bottles, the price is reduced to **\$34.50** per bottle. If a member buys 10 bottles, the price is **\$31.50** per bottle. (Item # 01425)



Item # 01426

The retail price for 60 **100 mg** softgels of **Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™** is \$62. If a member buys four bottles, the price is reduced to **\$39** per bottle. If a member buys 10 bottles, the price is **\$36** per bottle. (Item # 01426)

Non-GMO



Item # 01431

The retail price for 30 **200 mg** softgels of **Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™** is \$62. If a member buys four bottles, the price is reduced to **\$39** per bottle. If a member buys 10 bottles, the price is **\$36** per bottle. (Item # 01431)

Non-GMO

To order Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support, call 1-800-544-4440 or visit www.LifeExtension.com

References

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



Item # 01208

Preserve Youthful CELLULAR ENERGY with Next-Generation LIPOIC ACID

Published studies have shown the critical importance of **lipoic acid** in supporting healthy mitochondrial function.

Unlike other forms of lipoic acid, **Super R-Lipoic Acid** is more bioavailable, stable, and potent, achieving 10-30 times higher peak blood levels than pure R-lipoic acid.¹ This unique **sodium-R-lipoate** can help you reach peak plasma concentrations within just 10-20 minutes² of supplementation.

Super R-Lipoic Acid provides more of the active "R" form of lipoic acid than any other supplement.

To order **Super R-Lipoic Acid**,
call 1-800-544-4440
or visit www.LifeExtension.com

A bottle of **Super R-Lipoic Acid** containing 60 vegetarian capsules retails for \$49. If a member buys four bottles, the cost is reduced to **\$33.75** per bottle. Each capsule contains **300 mg** of stabilized, Bio-Enhanced[®] **Super R-lipoic acid** supplying **240 mg** of **R-lipoic acid**. Suggested dose is one to two capsules daily.

References

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

Non-GMO.



IN THE NEWS

Cancer Treatment Benefits Of Metformin

Numerous studies link the antidiabetes drug **metformin** with reduced risk of cancer and potentially better treatment outcomes in cancer patients. Metformin functions as an activator of **AMPK** in cells throughout the body, and this mechanism is associated with reduced cancer risk. Two recent studies further corroborate the potential benefit of metformin in those stricken with cancer.

Research reported in *American Journal of Respiratory and Critical Care Medicine* reveals that the diabetes drug metformin significantly improves survival of lung cancer patients.*

For the study, researchers used data from the Surveillance, Epidemiology, and End Results (SEER) registry to identify 750 diabetic patients diagnosed with stage IV non-small cell **lung cancer**.

Median survival in the metformin group was **five** months, compared to **three** months in patients not treated with metformin. Analyses showed that metformin use was associated with a significant improvement in survival. Lung cancer patients typically have poor treatment outcomes and a median survival improvement of even **two** months is sometimes the basis for approving expensive new cancer drugs.

A second study in *Annals of Surgery* found that metformin use decreased the recurrence, all-cause mortality, and cancer-specific mortality rates among **gastric cancer** patients with diabetes who underwent gastrectomy.**

In this trial, researchers compared survival rates of a total of 1,974 gastric cancer patients—132 diabetic patients treated with metformin, 194 diabetic patients who were not treated with metformin, and 1,648 nondiabetic patients—who underwent curative gastrectomy. During a 6.2-year follow-up period, researchers noted that diabetic patients treated with metformin had a significantly better prognosis than those who were not, and each cumulative six months of metformin use was significantly associated with a decreased risk of recurrence, cancer-specific mortality, and all-cause mortality.

* *Am J Respir Crit Care Med*. 2014 Dec 18. [Epub ahead of print.]

** *Ann Surg*. 2015 Jan 8. [Epub ahead of print.]

Mediterranean Diet Associated With Longer Telomeres

According to an article published in the *British Medical Journal* and widely reported by CNN in early December, those who regularly eat a Mediterranean diet rich in polyphenols and anti-inflammatory compounds have longer telomeres and may live longer than those who don't.*

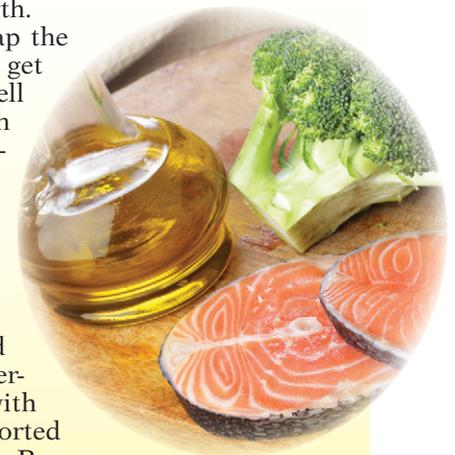
Researchers utilized data from 4,676 middle-aged participants in the ongoing Nurses' Health Study, which began enrolling subjects in 1976. Dietary questionnaires completed in 1980 were scored for adherence to a Mediterranean diet, which is characterized by a high intake of vegetables, fruits, nuts, legumes, grains, and olive oil. Blood samples collected from 1989 to 1990 were analyzed for white blood cell telomere length.

Telomeres, which cap the ends of chromosomes, get shorter every time a cell divides, so their length is thought to be a measure of a cell's aging. Stress and inflammation may also shorten people's telomeres, the researchers said in the study.

"Our findings showed that healthy eating, overall, was associated with longer telomeres," reported lead author Marta Crous-Bou, a postdoctoral fellow in the Channing Division of Network Medicine. "However, the strongest association was observed among women who adhered to the Mediterranean diet."

Telomeres have been the subject of a significant amount of recent research. Longer telomeres have been associated with a reduced risk of chronic diseases and increased life span.

* *BMJ*. 2014;349:g6674.



Three Nutrients Lower Alzheimer's Disease Risk

The *Journal of Alzheimer's Disease* reported positive results for a combination of three nutrients in the prevention of Alzheimer's disease in older individuals.*

The trial included 918 participants in the Tone Project, which enrolled men and women aged 65 years and older. Subjects were offered the choice of receiving nutritional supplementation, taking part in a two-year exercise program, or participating in both. Beginning in 2002, 171 men and women who elected to receive supplements were given capsules containing **290 mg EPA** and **203 mg DHA** from fish oil, **240 mg Ginkgo biloba** extract, and **84 mg lycopene** for three years. Neuropsychological testing was administered at the beginning of the study and at the first and second follow-up visits during 2004-2005 and 2008-2009.

Over follow-up, 76 subjects were diagnosed with Alzheimer's disease. Adherence to the supplement regimen was associated with a **31%** lower adjusted risk of the disease in comparison to no supplementation.

Editor's Note: Those engaging in the exercise regimen were associated with a **21%** lower risk of Alzheimer's disease compared with those who did not take part in the program. The benefit, however, was no longer observed after adjustment for a number of factors.

* *J Alz Dis.* 2014 Dec 16.



DNA Damage May Be A Marker Of Insufficient Zinc Status

A trial reported in *Nutrition Research* found a protective effect for zinc supplementation against DNA strand breaks.* This type of genetic damage is caused primarily by reactive oxygen species and can lead to further damage and consequent disorders if not repaired.

The study included 40 Ethiopian women believed to be of low zinc status due to decreased meat intake and high dietary phytate levels, which reduce zinc absorption. Plasma zinc levels were measured in blood samples collected at the beginning of the study. The women were given **20 mg** zinc or a placebo daily for 17 days. Comet assay of intracellular DNA strand breaks was conducted in cells collected at the beginning and end of the trial.



By the end of the study, comet tail measurement of DNA strand breaks decreased from an average of **39.7** to **30.0** in the supplemented group. **DNA repair** is an essential element of longevity and a number of nutrients that health conscious people supplement with today have been shown to help facilitate DNA repair.

Editor's Note: "Zinc deficiency in both *in vitro* and *in vivo* models is associated with increased oxidative stress and increased DNA damage," note Maya L. Joray of the University of Colorado Health Sciences Center and colleagues in their introduction to the article. "As a result of this relationship between cellular zinc levels and DNA damage, the comet assay, a method that measures DNA strand breaks in cells, may represent a sensitive functional tool to assess response to zinc supplementation."

* *Nutr Res.* 2015 Jan;35(1):49-55.

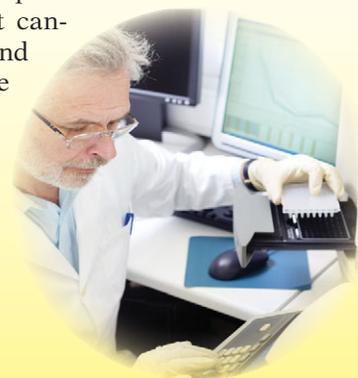
Cancer Deaths Down In United States

The annual American Cancer Society statistics report published in *CA: A Cancer Journal for Clinicians* reveals a **22%** decline in cancer mortality over the past two decades, which signifies a reduction in cancer deaths of over 1.5 million that would have otherwise occurred at previous rates.*

The data, obtained from the National Cancer Institute, the Centers for Disease Control and Prevention, and the National Center for Health Statistics, show a decrease that is mainly attributable to lower mortality due to breast, colon, lung, and prostate cancers. The rate of dying from breast cancer dropped **35%** from previous rates, and colorectal and prostate cancer deaths have been reduced by **47%**. Between 1990 and 2011, deaths from lung cancer decreased **36%** in men, and for women, the rate declined by **11%** from 2002 to 2011.

Editor's Note: The report's authors attribute the improvements to a reduction in the percentage of smokers in the US, and advances in prevention, detection, and treatment of cancer.

* *CA Cancer J Clin.* 2015 Jan 5;65(1):5-29.





Low Vitamin D Levels Linked To Greater Premature Mortality Risk

A study reported in the *British Medical Journal* has uncovered an association between genetically low vitamin D levels and an increased risk of mortality over follow-up among Danish men and women.*

The investigation included 95,766 participants in three studies. Over the study's median follow-up time of up to 19.1 years, 10,349 deaths occurred. After evaluating the association between 25-hydroxyvitamin D levels and mortality over the follow-up period, the researchers analyzed the relationship between genotypes that decrease plasma vitamin D and the risk of mortality.

"We can see that genes associated with low vitamin D levels involve an increased mortality rate of **30%** and, more specifically, a **40%** higher risk of cancer-related deaths," reported lead author Shoab Afzal. "An important factor in our study is that we have established a causal relationship."

**Br Med J.* 2014 Nov 19.

Whey Protein Helps Preserve Muscle During Weight Loss

An article in the *Journal of Nutrition* reports the outcome of a trial of overweight and obese individuals that found a protective role for whey protein supplementation against some of the loss of muscle that occurs with dieting.*

Researchers randomized 40 subjects to receive a 14-day, low-calorie diet supplemented with whey protein, soy protein, or the addition of carbohydrate providing a number of calories equal to that of the protein supplements. Myofibrillar protein synthesis (a measure of muscle maintenance) was assessed while fasting and following a meal, before and after the two-week diets.

Prior to the start of the diet, myofibrillar protein synthesis was found to be stimulated more following **whey** consumption in comparison with soy or carbohydrate ingestion. While all groups experienced a similar decline in myofibrillar protein synthesis while fasting, the decrease was less among those who received whey protein following a meal.

Editor's Note: Among those who received carbohydrates, the decrease in postprandial myofibrillar synthesis averaged **31%**, in comparison with only **9%** and in the group that received whey protein and soy. The **soy protein** group had a **28%** decrease in postprandial myofibrillar synthesis, clearly showing the benefit of **whey protein** over soy or carbohydrates in preserving muscle mass.

* *J Nutr.* 2014 Dec 17.



Resveratrol Can Protect Against Alcohol's Cancer-Causing Effect

Excess alcohol consumption can lead to an increased risk factor for certain kinds of cancers, said Robert Sclafani, PhD, and associates in *Advances in Experimental Medicine and Biology*, but resveratrol in red wine may potentially protect against the cancer-inducing effect of alcohol.*

"Alcohol bombards your genes," explained Dr. Sclafani. "Your body has ways to repair this damage, but with enough alcohol, eventually some damage isn't fixed. That's why excessive alcohol use is a factor in head and neck cancer. Now, resveratrol challenges these cells—the ones with unrepaired DNA damage are killed, so they can't go on to cause cancer. Alcohol damages cells and resveratrol kills damaged cells."

"When you look at epidemiological studies of head and neck cancer, alcohol is a factor, but by alcohol source, the lowest cancer incidence is in people who drank red wine," he observed. "In red wine, there's something that's blocking the cancer-causing effect of alcohol."

"Resveratrol takes out the cells with the most damage—the cells that have the highest probability of being able to cause cancer."

Editor's Note: Dr. Sclafani has plans to test the protective effect of resveratrol against head and neck cancer and other malignancies.

* *Adv Exp Med Biol.* 2015;815:333-48.

Study Reveals Low Bioavailability For Oral Ursolic Acid In Humans

The Life Extension® Foundation recently supported a clinical research initiative on how the human body responds and absorbs ursolic acid, a compound found throughout the plant kingdom that has been observed to have anticancer and anti-inflammatory effects.* This initial study is important since there is very little published literature available that provides data on the use of ursolic acid in humans.

Subjects were administered a single ascending oral dose of ursolic acid (100 mg, 500 mg, and 1,000 mg). Assessments were performed pre-dose and at various time points for each dose. No serious adverse events were observed however, statistical analysis of the data revealed that the bioavailability of ursolic acid in the body was low and variable. Probable explanations for these results include:

1. The oral dosage form is poorly water soluble with decreased absorption and rapid elimination,
2. Low bioavailability may be due to metabolism by the gut wall and liver with poor absorption by the intestine,
3. Metabolism of ursolic acid by the human gut microbiome may also lead to variability in the peak plasma levels in subjects.

Editor's Note: In other preclinical research, absorption was observed to be rapid with elimination also considered to be rapid. The results from these preclinical studies differed from the results from this clinical study, as the peak levels did not occur in the human subjects as expected. The findings from this clinical study were presented as a poster presentation at the recent Experimental Biology Scientific Conference in April 2014.

* Life Extension® Foundation. A Single Ascending Dose, Initial Clinical Pharmacokinetic & Safety Study of Ursolic Acid. Abstract Number 2544.

Pycnogenol® Reduces Cold Symptoms And Duration

An article published in *Panminerva Medica* reveals a benefit for Pycnogenol®, a standardized extract of French maritime pine bark, in relieving the length and symptoms of the common cold.*

The study included 70 adults who had not contracted a respiratory illness or received the influenza vaccine over the three previous months. An additional 76 untreated men and women served as controls. At the first sign of a cold, the treatment group was instructed to consume **50 mg Pycnogenol®** twice per day in addition to their preferred best management, while the control group was asked to rely upon best management alone.

Participants who supplemented with Pycnogenol® experienced symptoms for an average of three days, compared with four days among the controls. They also had a reduction in the number of days lost to work, less need for additional treatments, reduced complications and duration beyond four days, and shorter duration of all symptoms.

Editor's Note: "The significant effect of Pycnogenol® to treat nasal congestion and runny nose can be attributed to the extract's natural anti-inflammatory and antiedema qualities and for its ability to improve blood circulation," stated lead researcher Gianni Belcaro of Chieti-Pescara University in Italy. "These findings are supported by decades of research on Pycnogenol®'s ability to naturally boost the immune system."

* *Panminerva Med.* 2014 Dec;56(4):301-8.



Vitamin E Could Boost Pneumonia Protection

The Journal of Immunology reports findings that suggests a role for vitamin E supplementation in protecting against pneumonia.*

"Earlier studies have shown that vitamin E can help regulate the aging body's immune system, but our present research is the first study to demonstrate that dietary vitamin E regulates neutrophil entry into the lungs in mice, and so dramatically reduces inflammation, and helps fight off infection by this common type of bacteria," announced lead author Elsa N. Bou Ghanem, PhD.

Young and old mice were given a diet supplemented with or without extra alpha-tocopherol for four weeks prior to being infected with pneumonia. Two days following infection, older control animals had a thousand times greater bacterial burden, **2.2-fold** higher levels of neutrophil recruitment to the lung and a **2.25-fold** increased rate of lethal septicemia in comparison with younger mice. These effects were largely prevented in the vitamin E-supplemented older mice, which had levels of neutrophils in their lungs that were comparable to younger controls.

Editor's Note: "Our work provides a better understanding of how nutrition can play a role in modulating how the immune system responds to infection," co-senior author John M. Leong, MD, PhD, concluded. In cases of bacterial pneumonia, an excess number of neutrophils often attack the lungs and can contribute to a lethal inflammatory response.

* *J Immunol.* 2014 Dec 15.

ARE YOU TAKING THE OPTIMAL FORMS OF VITAMIN E?

According to the *Proceedings of the National Academy of Sciences*, alpha tocopherol (vitamin E) displaces critically important gamma tocopherol in the cells.¹ While **alpha tocopherol** inhibits free-radical production, **gamma tocopherol** is required to trap and neutralize existing free radicals.²

Prestigious scientific journals have highlighted **gamma tocopherol** as one of the most critically important forms of **tocopherols**, which includes d-alpha tocopherol (natural vitamin E) for those seeking optimal health benefits.

Most commercial vitamin E supplements contain little, if any, **gamma tocopherol**. They instead rely on **alpha tocopherol** as the primary ingredient. However, it is gamma tocopherol (not the alpha form) that quenches **peroxynitrite**, the free radical that plays a major role in the development of **age-related decline**.^{2,3}

SESAME LIGNANS: THE NATURAL VITAMIN E BOOSTER

Life Extension® has uncovered research suggesting that adding **sesame lignans** to gamma tocopherol may significantly enhance its beneficial effects. Sesame and its lignans have been shown to protect against oxidation and help maintain already-normal blood pressure.*

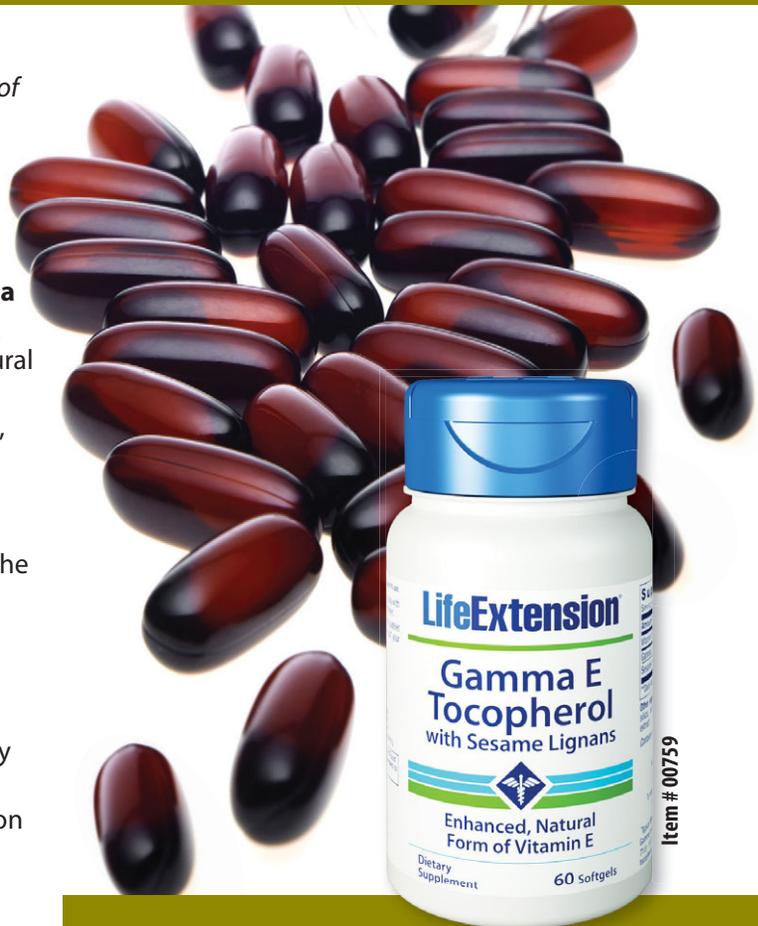
In a human study that combined **gamma tocopherol** with **sesame lignans**, gamma tocopherol/sesame was **25% more effective** than gamma tocopherol/tocotrienols in suppressing tissue measurements for free-radical and inflammatory damage.^{4,5}

Life Extension® fortified the popular **Gamma E Tocopherol** supplement with standardized **sesame lignans** extract long ago. Consumers thus obtain superior benefits at a much **lower cost**.

WORLD'S MOST COMPREHENSIVE VITAMIN E FORMULA!

The **Gamma E Tocopherol with Sesame Lignans** formula provides potent doses of critically important gamma **tocopherol** along with **sesame lignans** to augment its antioxidant effects. Suggested dose is one softgel once or twice daily.

The retail price for 60 softgels of **Gamma E Tocopherol with Sesame Lignans** is **\$32**. If a member buys four bottles, the price is reduced to only **\$21.75** per bottle.



Item # 00759

Each softgel of Gamma E Tocopherol with Sesame Lignans provides:

Vitamin E (as D-alpha tocopherol)	45 IU
Gamma E mixed tocopherols	359 mg
Sesame seed lignan extract	20 mg

Contains soybeans.

Antioxidant Vitamins & Cancer. Some scientific evidence suggests that consumption of antioxidant vitamins may reduce the risk of certain forms of cancer. However, the FDA does not endorse this claim because this evidence is limited and not conclusive.

NOTE: Those taking Super Booster with MacuGuard Ocular Support do not usually require additional gamma tocopherol.

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

References

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4. *J Nutr.* 1992 Dec;122(12):2440-6.
5. *Lipids.* 1995 Nov;30(11):1019-28.

To order **Gamma E Tocopherol with Sesame Lignans**, call **1-800-544-4440**
or visit **www.LifeExtension.com**

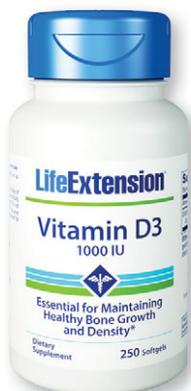
* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

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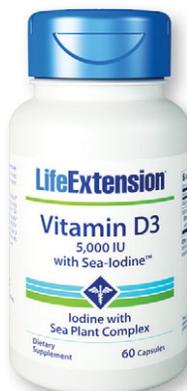
VITAMIN D3 SOFTGELS

For Superior Absorption

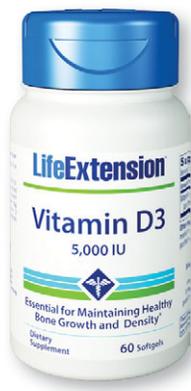
New research on the vital benefits of **vitamin D** emerges on a daily basis. Studies confirm that **optimal** levels of vitamin D are in the range of **50-80 ng/mL** of **25-hydroxyvitamin D**. **Life Extension®** has created a large selection of highly *absorbable* **vitamin D** supplements in softgels to help you to achieve your individual **vitamin D goals**. Keep in mind that you may already be getting **1,000-3,000 IU** of **vitamin D** in your current multi-nutrient formulas.



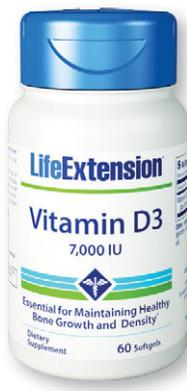
Vitamin D3 • 1,000 IU
250 softgels • Retail: \$12.50
Four-bottle Member Price: **\$8.44 ea.**
For most people, a **1,000 IU** potency is insufficient to attain optimal **vitamin D** blood levels. However, this potency may be suitable for smaller individuals who obtain **2,000-3,000 IU** in their multi-nutrient formulas (and children). **Item # 01751**
Non-GMO.



Vitamin D3 • 5,000 IU With Sea-Iodine™*
60 capsules (non-softgel) • Retail: \$14
Four-bottle Member Price: **\$9.38 ea.**
Most people, especially those seeking to reduce their salt intake, do not ingest enough iodine. Combining **5,000 IU** of **vitamin D3** with **1,000 mcg** of **iodine** into one capsule makes taking these two nutrients economical and convenient. *Due to the source of kelp, this product may contain fish and shellfish.* **Item # 01758**



Vitamin D3 • 5,000 IU
60 softgels • Retail: \$11
Four-bottle Member Price: **\$7.43 ea.**
For those already obtaining **1,000-3,000 IU** of **vitamin D** in their multi-nutrient formulas, this **5,000 IU** potency is what may be needed to achieve optimal blood levels. **Item # 01713**
Non-GMO.



Vitamin D3 • 7,000 IU
60 softgels • Retail: \$14
Four-bottle Member Price: **\$9.45 ea.**
Some people (such as those weighing more than 180 pounds) may require even more **vitamin D**. When combined with **1,000-3,000 IU** taken in a multi-nutrient formula, this **7,000 IU** softgel should enable these individuals to attain blood levels above **50 ng/mL**. **Item # 01718**



Vitamin D3 Liquid • 2,000 IU (Natural Mint Flavor)
1 ounce • Retail: \$28
Four-bottle Member Price: **\$18.75 ea.**
Great for travel and for those individuals who have difficulty absorbing enough vitamin D3 from softgels, this liquid vitamin D is ideal. **Item # 01732**
Also available without mint. (Item # 00864)

To order any of these high-potency vitamin D3 supplements, call 1-800-544-4440 or visit www.LifeExtension.com

Caution: Individuals consuming more than 2,000 IU/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxyvitamin 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.

*If you have a thyroid condition or are taking antithyroid medications, do not use without consulting your healthcare practitioner.

ZINC

Supports

Your First Line Of Defense

Research shows zinc deficiency is common in aging populations—and may contribute to the decline of **immune function**.¹ Zinc is vital to the functioning of more than 300 hormones and enzymes in the body.²

Zinc supports and maintains ...

- A healthy anti-inflammatory response³
- Protein and DNA synthesis⁴
- Insulin production⁵
- Thyroid and bone production^{6,7}
- Healthy function of the thymus gland⁸

Between **35-45%** of people over age 60 don't get the daily recommended requirement.⁹ A longstanding problem is that zinc absorption can be limited by certain plants and grains, which contain a compound called phytate.¹⁰

Life Extension® has developed a formulation combining the superior bioavailability of **zinc methionate**¹¹ along with **zinc citrate** to provide a potent **50 mg** dose of these **absorbable** forms of zinc in a single capsule.

OptiZinc® is a registered trademark of InterHealth Nutritionals, Inc.

Caution: Supplemental zinc can inhibit the absorption of copper. If more than **50 mg** of supplemental zinc is taken daily on a chronic basis, **2 mg** of supplemental copper should also be taken to prevent copper deficiency. Chronic ingestion of more than **100 mg** of zinc daily may be immunosuppressive for some aspects of T-cell and NK cell function.

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Blueberries *BOOST* *LONGEVITY*

Beyond Calorie Restriction

Cellular **DNA** endures relentless injury through internal and external factors.¹ A fundamental problem with **aging** is faulty **DNA repair**.² As we lose our ability to repair DNA, illness and death ensues. If we could perfect internal **DNA repair** processes, we would become incredibly resistant to degenerative disease.

Blueberry extracts have demonstrated robust **DNA repair** properties.

The **memory-boosting** and **brain-protecting** benefits of **blueberries** have long been a promising area of research.

Newer studies are showing that blueberries delay the aging process through a variety of mechanisms, including **repairing DNA damage** and favorably modulating **genes** associated with aging.³⁻⁷

The ability to **repair DNA** is an essential longevity mechanism. A fascinating laboratory study found that the compounds in **blueberries** could increase mean life span by **28%**. In humans, that is equal to over **22 years!**³

Particularly impressive is a study indicating that when added to a **calorie-restricted** diet, the compounds found in blueberries significantly increased **life span** beyond that of calorie restriction alone.

All of this adds up to a powerhouse fruit that could help us live longer and healthier.

Early Indications That Blueberries Promote Longevity

When scientists began investigating blueberries, they first discovered the fruit's impact on reducing the age-accelerating effects of oxidative stress on tissues.⁸⁻¹¹ Blueberries are unique among fruits with their ability to not only quench destructive oxygen free radicals, but also to directly modulate genes that impart cells with their own protective mechanisms. Those genes produce enzymes such as **superoxide dismutase** and **catalase** that endow cells with the ability to capture and detoxify free radicals, producing harmless water molecules instead.¹²⁻¹⁴

Blueberry constituents do much more than fight oxidation. Studies are now revealing the powerful ability of blueberry polyphenols to modulate genes associated with aging itself, such as the Methuselah gene, which can promote an extension of up to **35%** in the life span of fruit flies, a commonly studied organism in aging science.^{12,15,16}

Studies in no fewer than three different species illustrate the value of blueberries in decelerating the aging process to produce significantly longer life spans.

The simplest multicellular organism used in aging research is the roundworm *Caenorhabditis elegans*, a minute worm measuring about **1.3 mm** long, which is one of the most versatile animal models of aging.^{17,18}

Studies reveal that treating *C. elegans* worms with **blueberry polyphenols** increased the animals' mean life span by **28%**.³ In human terms, that's the equivalent of adding more than **22 years** to the life of a 79-year-old person (the mean life expectancy of a male child born today).



C. elegans worms are extremely sensitive to temperature variations, and blueberry treatment increased the animals' survival during acute heat stress.³ Treated worms also were much better able than nontreated animals to resist induced aging stresses.

Indeed, blueberry treatments can prolong the life of the classic laboratory organism, the insect *Drosophila melanogaster*, better known as the fruit fly. Flies fed on blueberry extracts lived on average **10%** longer than did control animals.¹² This increase was accompanied by an increase of multiple beneficial genes, including protective enzymes and reduction of age-shortening genes. These healthy effects were apparent when flies were treated with an herbicide called paraquat, which normally imposes fatal age-accelerating changes in the flies' metabolisms.^{12,19}

Life Span Extension Beyond Calorie Restriction

Of course, roundworms and insects are far removed from human beings, and studies that show benefits in such animals must be reproduced in higher organisms in order to be applicable to humans. That has recently been done in laboratory mice.

In one study, the polyphenols from blueberries, pomegranate, and green tea extracts were combined into a nutrient cocktail added to mouse chow and the effects on the animals' life span and biochemistry were examined.²⁰ Middle-aged mice were placed on one of three dietary patterns:

- Control mice were allowed to eat as much as they wanted;
- An "intermittent feeding" group was fed only every other day to simulate the life-extending properties of calorie restriction;
- A third group received the polyphenol mixture in addition to calorie restriction.

As expected, both the calorie-restricted and the calorie-restricted-plus-polyphenol groups significantly outlived the control animals. What was remarkable, however, was that the calorie-restricted group that also was fed the nutrient **polyphenols** significantly outlived those on calorie restriction alone.²⁰ This demonstrated the additive effect of the polyphenol mixture onto the known life-extending effect of calorie restriction. The brains of the polyphenol-supplemented animals showed reduction in the expressions of deleterious life-shortening genes.

What makes this study so noteworthy is that the longevity benefits of **calorie restriction** are so robust that it is difficult to improve on them. Yet adding extracts

from blueberry, pomegranate, and green tea enabled life span extension in a mammal greater than calorie restriction alone.

Of course, in this study it is difficult to discern which of the extracts (blueberry, pomegranate, or green tea) may have been responsible for the observed life-extending effects. All three are rich in the anthocyanins that individually extend the life spans of “lower” laboratory animals. They also have specific effects that counteract age-related diseases that contribute to shortening life spans.²⁰

Mechanisms Of Blueberries’ Life-Extending Properties

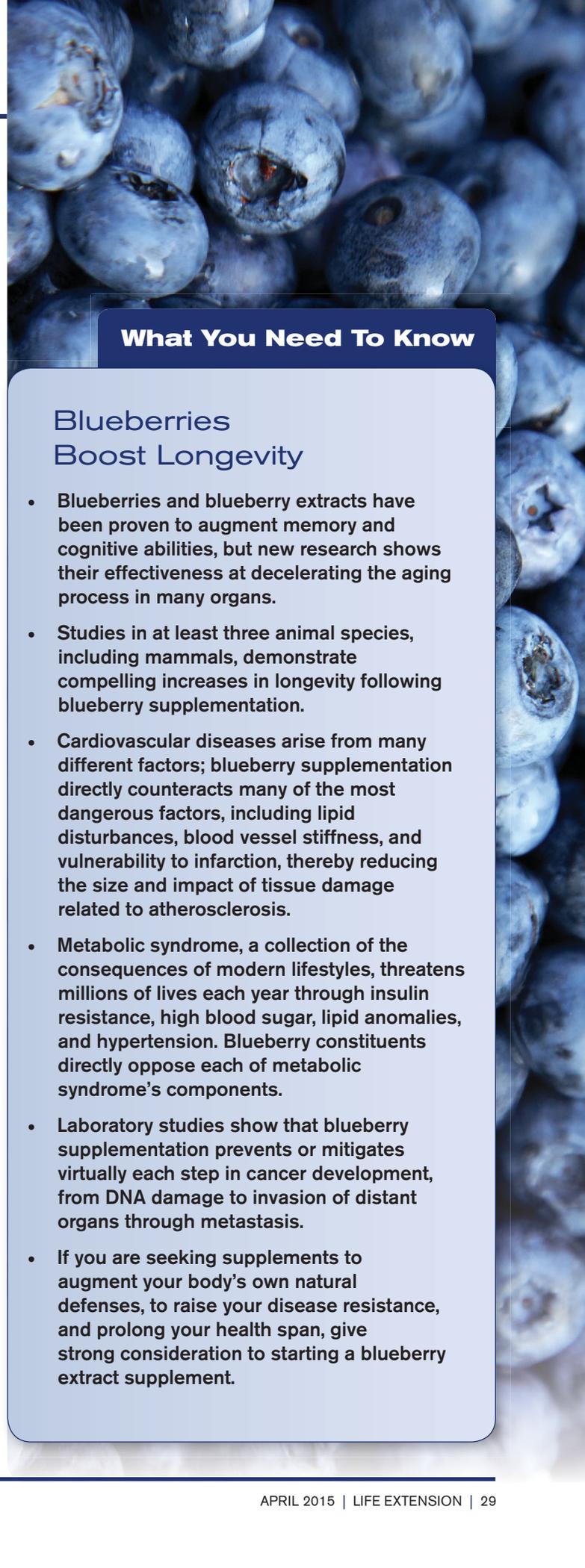
How do blueberries manage to prolong life and improve function so dramatically? We’re nowhere near a definitive answer, given the complexity of the berries’ biochemistry, but some key points are beginning to emerge, centered on the body’s own ability to repair itself.

Blueberries and their polyphenol components appear to be exceptionally good at promoting **repair of DNA strands** and at optimizing **immunity** at the cellular level.^{7,21,22} Both of these functions are essential for preventing senescent and environmental impacts that lead to cancer,^{23,24} cardiovascular disease,^{25,26} and loss of metabolic control,^{27,28} that underlies obesity and diabetes.

DNA, the molecular blueprint that contains instructions for all life functions, is a delicate molecule that, despite many protective mechanisms, readily suffers damage from oxidation, radiation, toxic chemicals,^{29,30} and other sources of stress. All living cells have evolved mechanisms to identify and repair broken DNA strands, which if left unrepaired, promote cancer and early cell death.³¹ Numerous studies now reveal that blueberry extracts both prevent DNA damage and promote its rapid and accurate repair.^{7,32-40}

Human Study Corroborates DNA Protection

In an impressive human study, healthy volunteers ingested either **300 grams** of ground blueberries or a control jelly with no blueberry components.⁴¹ Blood samples were taken before, and one, two, and 24 hours after the subjects took the study supplement. At the end of one hour, the amount of oxidation-induced DNA damage in blueberry-supplemented volunteers fell by **18%** compared with control subjects. What makes this study particularly impressive is that this single, albeit large, serving of blueberries was able to suppress this amount of DNA damage so quickly.



What You Need To Know

Blueberries Boost Longevity

- Blueberries and blueberry extracts have been proven to augment memory and cognitive abilities, but new research shows their effectiveness at decelerating the aging process in many organs.
- Studies in at least three animal species, including mammals, demonstrate compelling increases in longevity following blueberry supplementation.
- Cardiovascular diseases arise from many different factors; blueberry supplementation directly counteracts many of the most dangerous factors, including lipid disturbances, blood vessel stiffness, and vulnerability to infarction, thereby reducing the size and impact of tissue damage related to atherosclerosis.
- Metabolic syndrome, a collection of the consequences of modern lifestyles, threatens millions of lives each year through insulin resistance, high blood sugar, lipid anomalies, and hypertension. Blueberry constituents directly oppose each of metabolic syndrome’s components.
- Laboratory studies show that blueberry supplementation prevents or mitigates virtually each step in cancer development, from DNA damage to invasion of distant organs through metastasis.
- If you are seeking supplements to augment your body’s own natural defenses, to raise your disease resistance, and prolong your health span, give strong consideration to starting a blueberry extract supplement.



Protecting Against Ultraviolet DNA Damage

Ultraviolet (UV) light produces DNA damage that plays an important role in causing a variety of diseases.

When scientists exposed cells in culture first to UV light and then to blueberry extracts, they found **both** a reduction in reactive oxygen species *and* reduced DNA damage.⁴²

Closer examination showed that cells were protected even after DNA damage had occurred, the mechanism being related to decreased genetic expression of stress-induced signaling proteins. This study showed that blueberry anthocyanins protect DNA from damage and protect cells from the consequences of DNA damage that did occur.

Boosting Natural Killer Immune Cells

The actions of many immune system components decline with advancing age, in a degenerative process called **immunosenescence**.^{43,44} Controlling and slowing immune senescence is an attractive means of prolonging life and health. Blueberry extracts have been shown to have powerful anti-aging impacts on both cellular and molecular components of the aging immune system.

At the cellular level, blueberry extracts boosted the actions of **natural killer** (NK) cells charged with identifying and destroying abnormal cells such as those infected by viruses and those showing malignant changes.^{21,44,46}

At the molecular level, blueberry anthocyanins sharply decreased activation of **nuclear factor kappa-beta** (NFκβ), an inflammation-generating molecule associated with cancer,⁴⁷ heart disease,⁴⁸ and other manifestations of chronic inflammation.⁴⁹

Cardiovascular Health

Successful longevity requires more than just DNA repair and slowing immunosenescence. Increasing cardiac health and reducing the risk of cancer and diabetes are also part of the equation. Blueberry compounds play an active role in reducing these risks as well.

Increasing one's intake of berry polyphenols is a proven means of protecting the heart, blood vessels, and brain against cardiovascular diseases such as heart attack and stroke, which remain among the top causes of death in American adults.^{50,51}

Blueberries contain one of the highest concentrations of such polyphenols among common fruits, and these compounds have been shown to inhibit the dangerous **oxidation** of low density lipoproteins (LDL), the so-called "bad" cholesterol.⁵⁰ Lipid oxidation constitutes one of the first steps in developing "plaques" that grow and become cholesterol-filled, inflammatory lesions that ultimately block blood vessels.^{52,53}

In rats, a year-long diet regimen containing **2%** blueberry supplement following experimentally induced heart attacks (myocardial infarction, or MI, produced by tying off one of the heart's main arteries) was able to completely arrest expansion of the damaged area of heart tissue.⁵⁴ Expansion of the MI area⁵⁵ is a leading cause of the heart failure^{56,57} that so often follows a heart attack and produces much of the death and disability we associate with heart attacks. In this study, the death rate over the one year of the study was **22% lower** in the supplemented animals compared with the control group. Blueberry-supplemented animals' hearts showed less of the deleterious remodeling of the heart chambers that is also a hallmark of heart attack damage in humans.^{58,59}

Another seminal study in rats showed that a three-month blueberry-supplemented diet produced a **24%**

increase in a measure of the resistance of energy-releasing heart mitochondria to stress.⁶⁰ Remarkably, in animals then given a heart attack by tying off their coronary arteries, the size of the infarction (dead area) in the heart was **22% less** in the supplemented than in the control animals, while the number of inflammatory cells was reduced by an impressive **40%**.

When supplemented rats were put back on a regular diet (devoid of the blueberry extract), their infarcted (dead) heart lesions grew. When control rats were put on the blueberry supplement, their infarctions stopped expanding. This study indicates that if one suffers a blockage to their coronary artery when taking blueberry extract, the damage to their heart muscle will be lessened. If one suffers heart muscle damage from a coronary blockage, damage to their heart muscle might be halted if they initiate blueberry supplementation.

Blueberries and their polyphenols relax blood vessels, which in turn reduces blood pressure and may help to slow atherosclerosis. Human studies demonstrate reductions in both systolic (top) and diastolic (bottom) blood pressures.⁶¹ A decrease in systolic blood pressure is observed when animals are fed blueberry-supplemented diets, even when the diets are very high in fat.^{62,63} These effects could be related to blueberry polyphenol-induced modulation of **nitric oxide**, the signaling molecule that blood vessels use to relay information about blood flow and pressure, and to shift mineral ions such as potassium across cell membranes.^{62,64,65}

There's also growing evidence that blueberry polyphenols can induce favorable structural changes in blood vessel wall composition. This results in arteries becoming more elastic and less stiff, further reducing blood pressure and lowering atherosclerosis risk.^{50, 66}

These kinds of favorable vascular changes have been shown in human studies when blueberry polyphenols were administered to healthy people.⁶⁷ When a fairly high dose of **766 mg** total blueberry polyphenol intake was given to human subjects, blood vessels smoothly dilated within an hour of the dose. Another study showed that in sedentary adults, a blueberry supplement produced reductions in aortic systolic blood pressure and in aortic stiffness.²¹ All of these changes are highly desirable for prevention of atherosclerosis and cardiovascular disease in general.

Indeed, in humans, a sharp reduction in cardiovascular risk factors was shown in people with **metabolic syndrome**, the cluster of obesity, blood sugar intolerance, and lipid disturbances that tremendously increase risk of a heart attack or stroke.^{68,69} After eight weeks of either blueberry supplementation (either **50 grams** freeze-dried or **350 grams** fresh berries), or control, subjects had a modest **6** and **4%** reduction

in average systolic (top) and diastolic blood pressures, compared to smaller reductions of **1.5** and **1.2%** in control patients.⁶¹ Supplemented patients also showed a reduction in oxidized LDL cholesterol seen in the earlier animal studies.

Metabolic syndrome poses a major health threat for all of us, consisting as it does of the deadly combination of obesity with disturbances in metabolism of both fats and sugars. Blueberries and their extracts offer world-class protection in this area, as we'll now see.

Reversing Markers Of Type II Diabetes

The epidemic of obesity has spawned a similar global rise in type II diabetes, with the resulting deadly condition often referred to as "diabesity."⁷⁰ Coupled with the consequences of a high-fat diet and little exercise,⁷¹ these preventable conditions produce metabolic syndrome, (abdominal obesity, glucose intolerance or "prediabetes," elevated blood pressure, and abnormalities in lipid profile).⁵¹

Metabolic syndrome is now known to increase the risks for cardiovascular disease, diabetes, cancer, and neurodegenerative disorders. Inflammation is an inevitable characteristic of metabolic syndrome, which further increases the deadliness of its impact.^{69,72} Blueberries, with their high content of polyphenols, offer a potent and natural antidote to metabolic syndrome.



Should You Eat More Blueberries?

A growing number of human and animal studies supports the observations that blueberry extracts lower blood sugar, reduce blood lipid disturbances, improve the body's responses to insulin, and boost fat and glucose burning.^{76, 77} Studies also show that blueberries or blueberry extracts reduce the accumulation of fat molecules inside of growing fat cells while improving the inflammatory profile of experimental animals.^{76, 78}

Why not just eat the berries, and get the anthocyanins directly from your diet? For one thing, it would be prohibitively expensive, since whole-berry studies typically require **350 grams** (about three-fourths of a pound) of berries daily to achieve effects. Of greater concern, however, is the finding that whole blueberries supplemented to animals consuming a high-fat diet produced significant increases in body weight and body fat (including dangerous visceral, or "belly" fat), compared with nonsupplemented, high-fat fed controls.⁷⁹ On the other hand, the high-fat diet combined with **blueberry extract** high in anthocyanin content resulted in lower body weight gains and body fat compared with controls.

These findings were amplified and extended in a later study⁸⁰ in which blueberry juice was compared with an extract enriched in blueberry anthocyanins. High-fat fed mice gained weight and had reduced percentages of lean body tissue compared with those fed a normal control diet, and of course had higher blood sugar levels as well. Feeding the animals either blueberry juice or the anthocyanin-rich extract kept body weight gain to the same levels as those fed a normal diet, but only the **anthocyanin-rich extract** also decreased visceral fat and lowered blood glucose levels back to those seen in control animals. In addition, the function of insulin-producing pancreatic beta cells was restored to normal in the anthocyanin-fed group, but not in the group fed blueberry juice alone.

Eating too many whole blueberries can offset the incredible benefits conferred by the natural **polyphenols** they contain. The cost of blueberry extract is also quite low in comparison to the whole fruit.

At the cellular level, blueberry extracts (including those of root, stem, leaf, and fruit) appear to improve glucose transport into cells, a critical mechanism for lowering blood sugar.⁷³ Blueberry fruit extracts also enhance formation of new, insulin-producing pancreatic beta cells, which would otherwise die off as a consequence of high glucose levels.⁷³

Specifically, the researchers measured the critical ability of cells in the pancreas to produce insulin in response to high glucose levels in the bloodstream. Scientists have discovered that high blood glucose levels damage insulin-producing cells in the pancreas over time, but if these same cells are treated with blueberry stem, leaf, and fruit extracts, the number of viable cells increases.⁷³ This is a very desirable feature especially for people with early type II diabetes, in whom some sensitivity to native insulin production still remains.

Furthermore, the researchers tracked the source of the improved insulin response to a remarkable increase in replication of the remaining, growth-arrested beta cells by nearly **3-fold**. In addition, they found that blueberry extracts from stem, leaf, and fruit could prevent the glucose-induced toxicity and subsequent death of neuronal cells by up to **33%**. This finding has tremendous implications for prevention of neurodegenerative diseases such as Alzheimer's, which has been called "type III diabetes" to acknowledge the important role played by glucose toxicity.⁷⁴





The benefits of these effects can be seen in a human study, in which obese subjects, not yet diabetic, but with proven insulin resistance, consumed either a smoothie containing **22.5 grams** of blueberry bioactive molecules or a smoothie of equal nutritional value but without blueberries, twice daily for six weeks.⁷⁵ In the blueberry group, insulin sensitivity (the ability to remove glucose from the blood in response to insulin) rose to more than **4-fold** that of the plain smoothie group, even without significant changes in adiposity or energy intake. Simply put, blueberry supplementation gave this high-risk group of patients vastly better natural control of their blood sugar.

Other studies in animals reveal powerful effects of blueberries on the other components of metabolic syndrome as well. In obese rats on a high-fat diet, adding freeze-dried whole blueberries to the diet reduced not only blood sugar and insulin resistance, but also lowered abdominal fat mass and triglyceride levels in blood.

Blueberries And Cancer Prevention

With their powerful anti-inflammatory and gene regulatory properties, blueberries seem an ideal agent for preventing cancer. Human studies in cancer prevention are enormously difficult and time-consuming, but there is ample preclinical data available to support an important role for blueberries in the prevention of malignancies.

In addition to their unequalled content of bioactive anthocyanins and other polyphenols, blueberries are the single best source for *pterostilbene*, a close relative of resveratrol,⁸¹ which is also found in grape skins and other dark fruits.⁸²

Pterostilbene, a compound found in blueberries has been called a “hallmark” anticancer agent, based on its ability to fight malignant change in several tissues, while producing negligible toxicity.⁸²

Along with pterostilbene, the anthocyanins in blueberries exert a spectrum of effects all of which reduce the risk that a cell will become cancerous, and that an incipient cancer will grow, invade tissue, and metastasize to other body sites.⁸² Documented effects of blueberry bioactive molecules include:

- Prevention of DNA damage,^{7,32,35,83}
- Arrest or alteration of the cell proliferation cycle to reduce the growth rate of cancerous cells,^{7,82,84}
- Induction of the normal “programmed cell death” routine that is abnormal from malignant cells, allowing them to proliferate infinitely,^{7,83-88}
- Prevention of tissue invasion and inhibition of metastasis by down-regulating “protein-melting” enzymes used by cancer cells to invade.^{82,87-91}

Summary

Plants that live in challenging environments produce a wide array of stress-reducing nutrients to help them cope with extremes of temperature, humidity, nutrient availability, predators, and other threats. When humans consume those molecules, we get the benefit of that genetic stress resistance, which helps our bodies fight off major threats to our own well-being.

Blueberries, which grow in harsh, sandy soils, often in dry conditions and at high altitudes, contain the highest known concentrations of many such bioactive molecules. Research shows that, in addition to their ability to protect brain tissue and function from the ravages of aging, blueberries contribute to better health in most body systems.

Blueberries and their extracts now show promise in preventing and mitigating human cardiovascular disease, metabolic syndrome (which includes obesity, lipid disturbances, and hypertension), and cancer.

Daily supplementation with **standardized blueberry extracts** may help ward off life-shortening degenerative diseases currently treated with prescription drugs.

The most exciting finding, however, is that **blueberry-pomegranate-green tea** extracts may enable you to live significantly longer—even if you are already practicing **calorie restriction**. ●

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

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AMPK Activator

A NEW PARADIGM IN CONTROLLING AGING

AMPK is an *enzyme* that serves as the body's "**master regulating switch**." It inhibits multiple degenerative factors by *revitalizing* aging cells.¹

Found in every cell,^{2,3} **AMPK** promotes *longevity factors* that have been shown to extend life span in numerous organisms.^{1,4} Increasing AMPK signaling "turns off" many damaging effects of aging, thus enabling cells to return to their youthful vitality.⁵

Life Extension® scientists have compiled years of research to create **AMPK Activator**, a specialized *dual-extract formulation* that supports **AMPK** activation for health optimization. This natural formula supports AMPK enzymatic activities required to safely support a more youthful cellular environment.

Importance Of AMPK

Greater **AMPK** (*adenosine monophosphate-activated protein kinase*) activation has been shown to help target damaging factors of aging.⁵ Studies show **increased** AMPK activity supports reduced fat storage,⁶ new mitochondria production,⁷ and the promotion of healthy blood glucose and lipids already within normal range.⁴

Gynostemma Pentaphyllum

An extract of the plant *Gynostemma pentaphyllum* was traditionally used in Asian medicine to promote longevity and scientists now know why—*G. pentaphyllum* promotes **AMPK** activation!⁸⁻¹⁰ In one of many studies showing a wide variety of benefits, researchers documented a 1-inch reduction in **abdominal circumference** in overweight individuals who took **450 mg** daily of *G. pentaphyllum* extract for 12 weeks.¹¹

Trans-Tiliroside

Trans-tiliroside, extracted from plants such as **rose hips**, also boosts **AMPK** activation, but triggers different downstream metabolic benefits than *G. pentaphyllum*.¹²⁻¹⁴ Among its many benefits, a low equivalent dose of **56 mg** daily *trans-tiliroside* has been shown by researchers in preclinical studies to promote healthy blood glucose levels and body weight already within normal range.¹⁵

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To order AMPK Activator at low Super Sale prices,
call 1-800-544-4440 or visit www.LifeExtension.com

The suggested daily dosage of **AMPK Activator** is to take two capsules with the first meal of the day and one capsule with the second meal. Three capsules provide:

ActivAMP™ <i>Gynostemma pentaphyllum</i> extract	450 mg
Rose hip extract	1,119 mg
Standardized to <i>trans-tiliroside</i>	56 mg

Anti-Aging Discovery That Cannot Be Overlooked

Scientists uncovered the cell-energizing effect of **AMPK** in the 1970s. Since then, an exponential volume of data (over 7,500 published studies) documents the critical role that activated **AMPK** plays in maintaining life-sustaining cellular functions.

Those seeking to meaningfully extend their healthy life span should ensure they optimally activate their cellular **AMPK**. The reason this is so important is that in response to aging, excess calorie consumption, and/or low levels of physical activity, AMPK activity markedly declines.

A targeted way of **reversing** cellular depletion of this critical enzyme is to take the new **AMPK Activator** formula that comprises a dual-extract, plant-based formulation.

A bottle of 90 vegetarian capsules of the new **AMPK Activator** retails for \$48. If a member buys four bottles, the price is reduced to **\$33** per bottle.



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Blueberry Extract Boosts DNA Repair

Studies show that blueberries delay the aging process through a variety of mechanisms, including **repairing DNA damage** and favorably modulating **genes** associated with aging.^{1,2}

Chockfull of **anthocyanins**, the **blueberry** provides health-boosting benefits shown to:

- Enhance heart health³
- Maintain brain function^{4,5}
- Sustain healthy blood sugar levels already within normal range⁶
- Support smooth firm skin⁷
- Maintain a healthy weight⁸ and stable cholesterol levels already within normal range⁹

Blueberry extract is even more potent than the whole berry or juice, providing greater metabolic support throughout the entire body and without the excess sugar of raw fruit.¹⁰ Life Extension®'s **Blueberry Extract Capsules** consists of only concentrated **extracts** from **wild blueberries**, which possess up to **10 times** the nutritional capacity of cultivated berries.

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Blueberry Extract Capsules

Item #01214 • 60 vegetarian capsules

	Retail Price	Member Price
1 bottle	\$22.50	\$16.88
4 bottles	\$20 each	\$15 each



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To order **Blueberry Extract Capsules**, call **1-800-544-4440** or visit **www.LifeExtension.com**

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





Olive Oil

Offers Unique CARDIOVASCULAR PROTECTION

Olive oil has been pinpointed as a major source of the cardiovascular benefits long associated with a Mediterranean diet.^{1,2} A recent study of a healthy Mediterranean population showed that olive oil consumption accounted for as much as a **44% reduction** in cardiovascular deaths compared to those who didn't use olive oil.³

But did you know that if you're not consuming the right **type** or **amount** of olive oil, you might not be getting much benefit at all?

This is because different types of olive oil have varying amounts of **polyphenols**. Although olive oil's health benefits have historically been attributed to its high monounsaturated fatty acid content, new evidence suggests it's the **polyphenols** in olive oil, which have anti-inflammatory properties,⁴ that may contribute most to the oil's cardiovascular benefits.^{4,5}

Olive oil polyphenols have been shown to have direct actions in improving blood lipids and **endothelial function**, effects that support artery health and normal blood pressure.^{6,7} In turn, these benefits have been linked to reduced risk of heart attack, stroke, and sudden cardiac death.⁸⁻¹⁰

Now that we understand the specific components in olive oil that contribute to cardiovascular health, it gives new clarity to the **best type** of olive oil to consume and **how often** we should consume it to get the most benefit.

Beneficial Components Of Olive Oil

For years it was believed that olive oil's cardiovascular benefits were derived from its high monounsaturated fatty acid content. This would have made sense, since olive oil is one of the oils highest in monounsaturated fatty acid, primarily **oleic acid**, which has been shown to increase **high-density lipoprotein** (HDL or "good") cholesterol and decrease **low-density lipoprotein** (LDL or "bad") cholesterol.⁸

A decade ago, the FDA even credited olive oil's high monounsaturated fatty acid content as the underlying reason for the benefits associated with a study showing that consuming **2 tablespoons** of olive oil daily reduces the risk of coronary heart disease.

But there's a catch. If oleic acid were the main driver of olive oil's expansive cardiovascular benefits, we'd see the same benefits with other oils high in oleic acid, such as canola oil. This is not the case, however.⁵

More recently, a rapidly growing body of research suggests it is the **minor components** of olive oil—specifically **polyphenols**, which comprise just **1-2%** of the content of virgin olive oil—that may contribute most to the oil's beneficial effects.⁴ To break that down even further, **hydroxytyrosol** is one of the polyphenols that occurs in the highest amount in olive oil and has been shown to have important cardiovascular benefits.^{6,7}

A number of studies identify how olive oil polyphenols have direct actions in reducing cardiovascular disease risk.

Improves Lipid Profiles

One of the main ways that olive oil may reduce cardiovascular risk is by lowering total and LDL cholesterol. About a decade ago, in a study published in *Medical Science Monitor*, older adults who were given **2 tablespoons** of extra-virgin olive oil daily for six weeks had an average **31.5 mg/dL reduction** in their total cholesterol and a **30 mg/dL reduction** in LDL cholesterol.⁹ They also experienced a significant decline in their total-to-HDL and LDL-to-HDL ratios.¹¹



Cholesterol breaching the artery lining.

Since then, scientists have found strong clinical evidence that it's the **polyphenol** content in olive oil that plays a significant role in olive oil's ability to support healthy blood lipids.⁹ This was demonstrated by the **Euroolive Study**, a study specifically designed to assess olive oil's health benefits.

For the study, healthy men took **25 mL** (about 1½ tablespoons) of high-, moderate-, or low-polyphenol olive oil daily. After three weeks, consumption of high-polyphenol olive oil (virgin) reduced levels of **oxidized LDL cholesterol** by an average of **3.21 U/L**, whereas low-polyphenol (refined) olive oil didn't reduce oxidized LDL at all.¹²

Reducing oxidized LDL cholesterol levels is important because oxidized LDL is a very strong predictor of cardiovascular events, such as heart attack, even in apparently healthy individuals.¹³ When LDL is oxidized, it can easily enter the walls of the arteries, causing damage to the thin, interior lining of arteries called the **endothelium** and promoting **inflammation**, which are the early steps in **atherosclerosis**.¹³

The same Euroolive Study demonstrated that the polyphenols in olive oil increase beneficial HDL cholesterol. Those taking the high-polyphenol olive oil saw an average **1.74 mg/dL** increase in HDL cholesterol, while those consuming olive oil with a medium polyphenol content saw a **1.22 mg/dL** increase, and those consuming olive oil with a low-polyphenol content saw only a **0.98 mg/dL** increase in HDL cholesterol.¹⁰ To put this in perspective, a **1 mg/dL increase** in HDL has been associated with a **2-3% decrease** in coronary heart disease risk.⁹

The greater the polyphenol content, the greater its ability to increase HDL cholesterol levels.¹²

Is Your HDL Cholesterol Functioning Properly?

While most people are familiar with the importance of raising HDL cholesterol levels, fewer are aware of the importance of boosting HDL *function*. In reality, HDL's ability to reduce the risk of heart disease depends not only how much HDL is available, *but also on how well it functions*.¹⁴ Olive oil helps increase HDL *and* improves its function.

HDL's job is to remove bad cholesterol from white blood cells called *macrophages* so that it can be eliminated from the body through bile, thus lowering overall cholesterol. How well HDL carries out this function is called *HDL efflux capacity*.

A 2012 human clinical trial found that olive oil polyphenols *enhance* the expression of genes that trigger this process.¹⁵ Two years later, Spanish researchers published the first *direct evidence* that consuming polyphenol-rich olive oil enhances HDL function. In a crossover study, when European male volunteers consumed **25 mL** of polyphenol-rich olive oil daily for three weeks, they experienced a **3.05% increase** in *cholesterol efflux capacity*.¹⁶ In contrast, consuming a low-polyphenol olive oil was associated with a **2.34% decrease** in cholesterol efflux capacity.

The beneficial results seen in those consuming the polyphenol-rich olive oil diet may have been promoted by the increased number of polyphenols bound to HDL, protecting it from *oxidation*.¹⁶ Because oxidized HDL cholesterol is more rigid, it has a lower cholesterol efflux capacity.¹⁶

This same study showed that another way olive oil polyphenols help improve the function of HDL is by enhancing the *size of HDL particles*. This is beneficial because large HDL particles (called **HDL₂**) are better able to remove cholesterol from arterial plaque compared to small HDL particles (called **HDL₃**).¹⁶ The study showed that men who consumed polyphenol-rich olive oil had significantly higher HDL₂ levels and significantly lower HDL₃ levels.¹⁶

Endothelial Function

Another way olive oil exerts its beneficial cardiovascular effects is by improving *endothelial function* of arteries. Endothelial *dysfunction*, an early step on the path to coronary artery disease—and ultimately, heart attack and stroke—occurs when arteries are unable to perform in ways that help maintain healthy blood flow and normal blood pressure.¹⁷

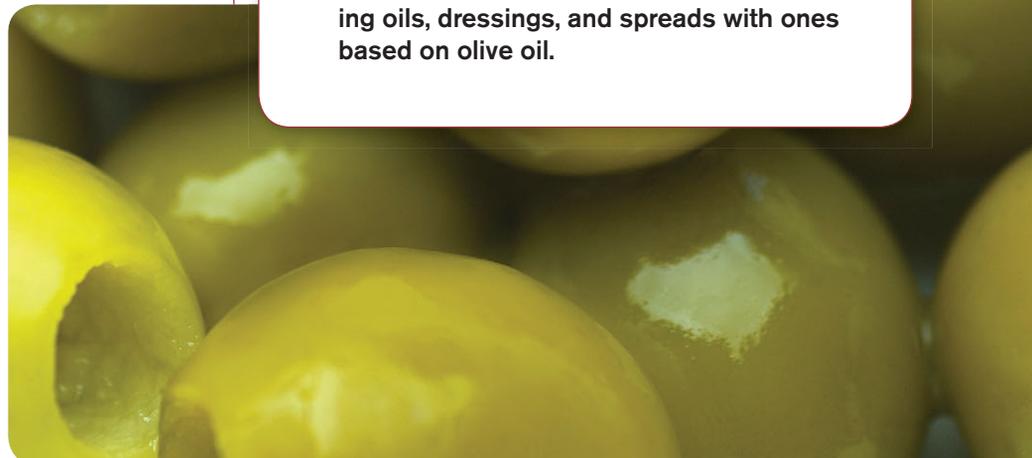
Endothelial dysfunction has not only been found in patients with coronary artery disease, but also in those with type II diabetes, hypertension, obesity, high cholesterol, and metabolic syndrome (a cluster of conditions that increase the risk of cardiovascular disease and diabetes).^{18,19}

In a 2013 double-blind clinical trial, US and Italian researchers found that consuming **30 mL** (2 tablespoons) of polyphenol-rich olive oil daily for four months significantly improved endothelial function in adults with atherosclerosis.²⁰

What You Need To Know

Olive Oil Provides Significant Cardiovascular Protection

- Although long recognized as a beneficial component of the Mediterranean diet, new evidence shows olive oil is a major driver, by itself, in reducing cardiovascular disease risk factors, including poor lipid profiles, hypertension, and endothelial dysfunction.
- The natural polyphenols in olive oil, such as hydroxytyrosol, perform specific actions that provide extensive cardiovascular protection beyond the monounsaturated fat the oil contains. Since most polyphenols are lost in the refining process, choose a high-polyphenol olive oil (virgin or extra virgin) rather than a refined one.
- In studies, benefits of olive oil intake are significantly greater at the upper end of intake, which is typically 2 tablespoons per day. That amount is doable if you make a concerted effort to replace cooking oils, dressings, and spreads with ones based on olive oil.





Tips For Maximizing Olive Oil Benefits

- **Opt for extra virgin olive oil.**²⁶ The olives used in extra virgin olive oil are of premium quality and processed with greater care and less refinement than regular olive oil. Generally, these superior forms of olive oil, such as virgin and extra virgin olive oils from the first pressing are highest in polyphenols—typically **150 to 350 mg/kg** of olive oil.¹² When olive oil is refined, many polyphenols are lost.³ Refined olive oil has a polyphenol level of just **2.7 mg/kg**.¹²
- **Seek quality olive oil.** The highest quality grade of olive oil is “extra virgin.”²⁷ Although adulteration has recently come to light as a significant problem in the olive oil industry, good options are available.²⁷ Review “Buyer’s Guide to Olive Oil” at extravirginity.com for guidance.
- **Cook with olive oil daily.** The cardiovascular benefits found in studies were attributed to daily use of olive oil. The American Olive Oil Producers Association considers extra virgin olive oil to be heat stable up to **410°F**, which covers most cooking.²⁸
- **Don’t view olive oil use as “all-or-nothing.”** Research has shown a gradual decreased risk of cardiovascular disease mortality as olive oil intake is increased, but small amounts are better than none.³
- **Consider extracted olive oil polyphenols.** Polyphenols (hydroxytyrosol, tyrosol, oleuropein, and verbascoside) extracted from olive plants can also be beneficial while saving calories.²⁹⁻³¹ One tablespoon of olive oil contains 125 calories.³² Extracted olive oil polyphenols are also available combined with omega-3 fatty acids, which provide the added benefit of triglyceride lowering.¹¹

Excitingly, olive oil improves endothelial function in as little as two hours after consumption.²⁰ However, plant polyphenols don’t stick around in the blood very long, so the study authors proposed that ingredients in olive oil likely alter the expression of long-term endothelial modulators, such as **nitric oxide synthase**.²⁰ Endothelial nitric oxide synthase is an enzyme that generates **nitric oxide (NO)**.²¹ Nitric oxide is a protective molecule that signals arteries to expand so blood can flow through more easily, thus lowering blood pressure.²²

Even more encouraging is evidence that polyphenols in olive oil can interact with a hereditary gene variant of endothelial nitric oxide synthase (the **NOS3 Glu298Asp polymorphism**, which is a risk factor for hypertension and coronary artery disease), to improve endothelial function after meals.¹⁹ So, even if genetics are not in your favor, olive oil may help.

Blood Pressure

Hypertension (high blood pressure) is a major risk factor for coronary heart disease, congestive heart failure, and stroke.²⁴ The most exciting news about olive oil’s effect on blood pressure isn’t simply that it helps reduce hypertension (which it does)—it’s that it does it *so well* that it could help eliminate the need for blood pressure drugs in some people.

In 2000, the first long-term study examined the effects of consuming a diet high in extra virgin olive oil might have on blood pressure and found that it could significantly decrease hypertension medication requirements.²⁴ In this crossover study, adults taking antihypertensive medication who were given olive oil for six months had a **48% decrease** in antihypertension medication requirements compared to only a **4% decrease** in antihypertension medication dosage requirements when consuming a diet high in polyunsaturated fat from sunflower oil, which does not have the same rich polyphenol content as olive oil.²⁴

As an added bonus, eight people following the olive oil-rich diet were eventually able to control their hypertension without any medication at all, while no one following the sunflower oil-rich diet was able to discontinue blood pressure medication.

Recent research has helped uncover at least part of the reason for olive oil’s effects on blood pressure—and it points right back to its polyphenol content. In a one-year study of participants in the PREDIMED (Prevention with the Mediterranean Diet) trial, which included adults 55 to 80 at high risk of heart disease, the researchers found that increased **extra virgin olive oil** intake, as part of a Mediterranean diet, decreased blood pressure through high **polyphenol** consumption.²⁵

Rather than relying only on dietary reports of participants' *extra virgin olive oil* consumption (which are historically unreliable), the researchers were able to confirm polyphenol intake by measuring *total polyphenol excretion* in the urine. Taking this one step further, the scientists were able to link increased *polyphenol* excretion (indicating increased total polyphenol intake) with increases in plasma *nitric oxide*, which, as described earlier, signals blood vessels to expand and relax, thus lowering blood pressure.

Summary

The benefits of olive oil not only come from its rich profile of monounsaturated fatty acids, but most likely even more so from the natural compounds, including polyphenols, that olive oil maximally possesses when unrefined.

Studies have shown that *polyphenols* in olive oil, including *hydroxytyrosol*, can help reduce oxidation of LDL cholesterol, thus helping to protect against atherosclerosis. Olive oil polyphenols have also been found to increase HDL cholesterol levels and improve its ability to remove cholesterol from arteries for transport to the liver and eventual elimination through the bile.

Adding another layer of cardiovascular support, polyphenol-rich olive oil has been found to improve the function of the endothelium of arteries, increasing release of nitric oxide, which signals blood vessels to relax and helps lower blood pressure. Research also suggests regular intake of high-polyphenol olive oil may help reduce requirements for blood pressure medication.

Because olive oil is a natural product, its polyphenol content is dependent upon a number of factors such as the age of the olives used, growing conditions, processing conditions, soil, temperature etc. Since *extra virgin olive oil* is the first pressing and uses the finest olives, it is assumed that this type of oil contains the highest polyphenol content.

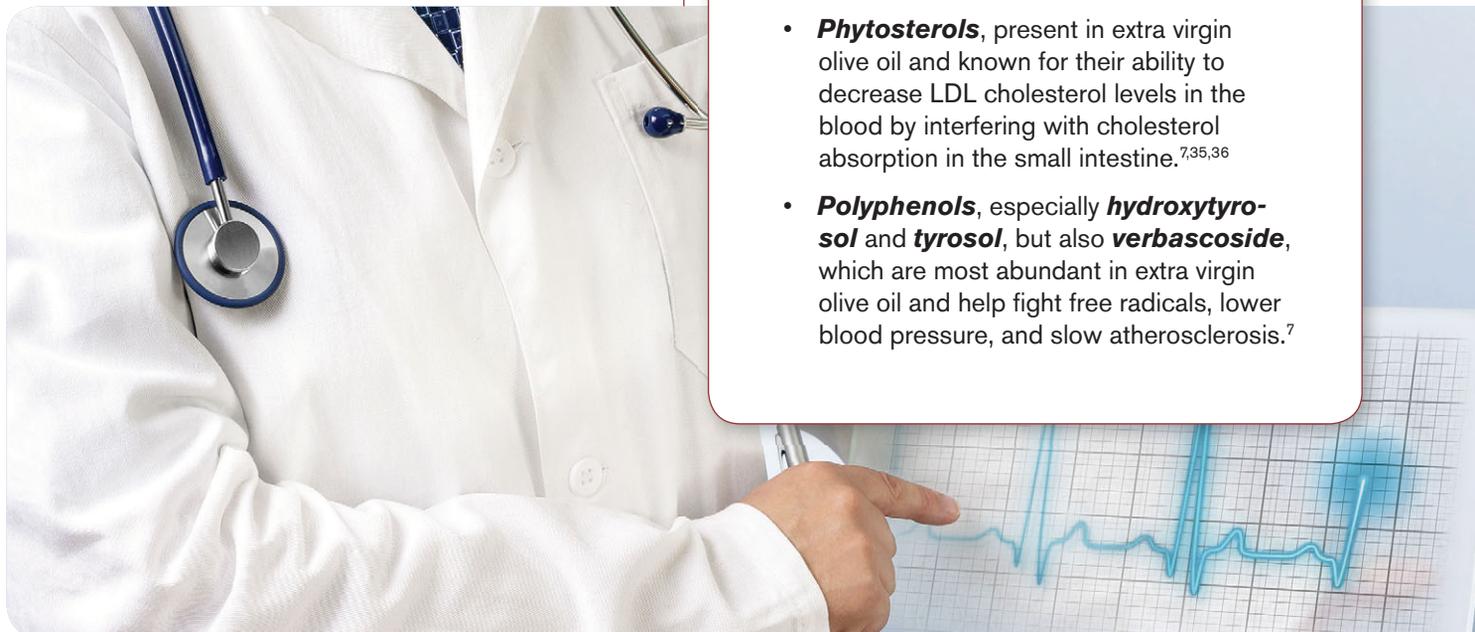
Health conscious individuals should thus use *extra virgin olive oil* whenever possible as part of their diet. High potencies of olive oil *polyphenols* have long been contained in dietary supplements used by most *Life Extension* members. ●

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

Heart-Healthy Components Of The Olive Leaf And Oil

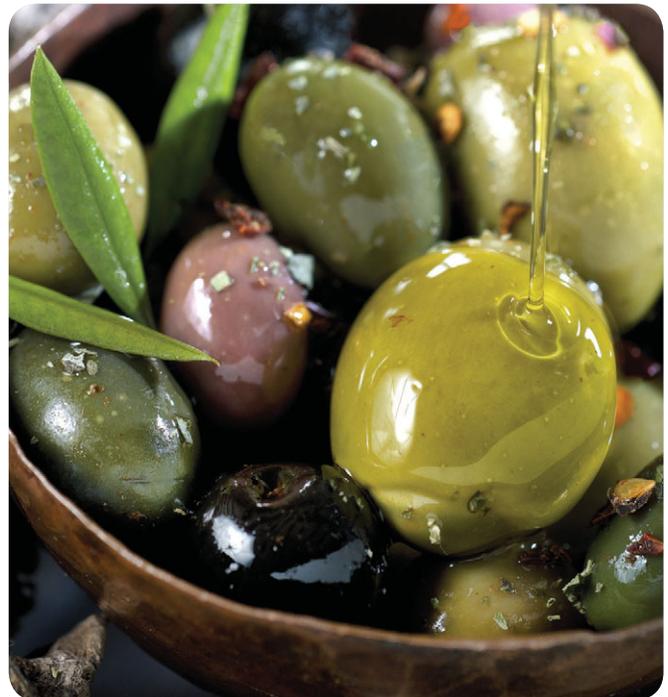
Although extra virgin olive oil's cardiovascular contributions to the Mediterranean diet were long attributed primarily to its rich monounsaturated fat content, we now know other components of the olive plant promote cardiovascular health even more. The following olive compounds are some of the most important for your heart:

- **Oleuropein**, which helps lower blood pressure, fight free radicals, and has anti-inflammatory effects.^{33,34} It is most abundant in olive leaves and is available as an extract in supplement form.⁷
- **Phytosterols**, present in extra virgin olive oil and known for their ability to decrease LDL cholesterol levels in the blood by interfering with cholesterol absorption in the small intestine.^{7,35,36}
- **Polyphenols**, especially **hydroxytyrosol** and **tyrosol**, but also **verbascoside**, which are most abundant in extra virgin olive oil and help fight free radicals, lower blood pressure, and slow atherosclerosis.⁷



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Magnesium and Brain Health

Profound loss of connections between nerve cells in the brain is one of the major hallmarks associated with **neurodegeneration** and memory impairment. Previous research has shown that **magnesium** is a critical factor in controlling **synaptic density**.¹

To combat this, an innovative form of magnesium called **Neuro-Mag™** has been developed. The *magnesium-L-threonate* contained in **Neuro-Mag™** has been shown to specifically target multiple areas of the aging brain. In fact, pre-clinical models show that the *magnesium-L-threonate* contained in **Neuro-Mag™** boosted levels of magnesium in spinal fluid by **15%** versus no increase from conventional magnesium.²

New Cognitive Benefits Revealed!

Although research into the role of magnesium in the brain dates back 70 years, scientists continue to uncover its comprehensive benefits for cognitive function.^{1,3} Studies using *magnesium-L-threonate* show this unique form of magnesium maintains the quantity of synaptic connections between brain cells and inhibits the dysregulation of signaling pathways.¹

Capsules or Powder...Value Priced

The suggested daily dose of three **Neuro-Mag™ Magnesium-L-Threonate Capsules** provides **2,000 mg** of **Magnesium-L-Threonate**. While supplying a modest **144 mg** of elemental magnesium, its superior absorption into the bloodstream and nervous system make it a preferred choice for maturing individuals to supplement with.

This same brain-health supporting magnesium is also available in a natural lemon flavor called **Neuro-Mag™ Magnesium-L-Threonate with Calcium and Vitamin D3 Powder**. In addition to its fresh lemon flavor, the one-scoop per day serving supplies the same amount of magnesium as the capsules plus **500 mg** of highly soluble calcium and **1,000 IU** of vitamin D3.

A bottle containing 90 vegetarian capsules of **Neuro-Mag™ Magnesium-L-Threonate** or a jar containing **30** scoops of **Neuro-Mag™ Magnesium-L-Threonate with Calcium and Vitamin D3 Powder** retails for \$40. If a member buys 4 units, the price is reduced to **\$27** per unit.

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To order **Neuro-Mag™ Magnesium L-Threonate Capsules** or Powder call 1-800-544-4440 or visit www.LifeExtension.com

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Item # 01602



Item # 01603

How Does Your Fish Oil Compare?

There are hundreds of **fish oil** brands on the commercial marketplace.

Only one brand incorporates lifesaving findings to provide optimal **omega-3** and **olive oil** benefits in one formula.

Studies published in **2014** confirm what *Life Extension*[®] espoused a decade ago when it introduced purified **fish oil** fortified with **olive polyphenols**.

Research clearly shows that a combination of **fish** and **olive oil** provides better effects than fish oil alone.¹⁻⁸ Yet most people today take **only** low-potency fish oil.

Sesame Improves Fish Oil's Benefits

When **sesame lignans** are supplemented with **fish oil**, the omega-3 benefits are augmented.^{9,10}

Sesame lignans help guard against **lipid peroxidation**, thereby extending the stability of **DHA** in the body. Sesame also directs fatty acids toward pathways that can help with **inflammatory** reactions.

Super Omega-3 contains purified **fish oil** and **olive fruit polyphenols** plus standardized **sesame lignans**.

5-Star Rated Purity, Potency, And Stability

To ensure the purest, most stable, and easy-to-tolerate fish oil, **Super Omega-3** is **molecularly distilled**. It enjoys the highest **5-star rating** for **purity, quality, and concentration** from the renowned **International Fish Oil Standards** (IFOS) program.¹¹

Obtain Super Omega-3 At Below Wholesale Prices

A bottle containing **120** softgels of **Super Omega-3** retails for **\$32**. The regular member price for a single bottle is **\$24**.

If a member buys four bottles of **Super Omega-3**, the cost per bottle drops to **\$21**.

When a member buys 10 bottles, the cost per bottle is reduced to **\$17.05**.

Non-GMO.

Note: While the health benefits of **omega-3s** from fish oil are universally recognized, the critical importance of **olive oil** in maintaining healthy **vascular** function remains largely overlooked.

Super Omega-3 provide the equivalent polyphenol content of **4 to 6 tablespoons** of **extra virgin olive oil**.

The daily dose (four regular size softgels) of **Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract** provides:

EPA (eicosapentaenoic acid)	1,400 mg
DHA (docosahexaenoic acid)	1,000 mg
Typical DPA (docosapentaenoic acid)	156 mg
Olive Extract (fruit and leaf) providing [39 mg polyphenols, 10.4 mg hydroxytyrosol/tyrosol, 8.8 mg verbascoside/oleuropein]	600 mg
Sesame Seed Lignan Extract	20 mg



Item # 01482

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To order **Super Omega-3**,
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or visit **www.LifeExtension.com**

Advanced Vascular Support Formula

Olive Leaf

WITH CELERY SEED EXTRACT



Advanced Olive Leaf Vascular Support with Celery Seed Extract is a unique, *dual-action* formulation containing two *bioactive compounds* that support optimal cardiovascular health.

1. **Olive Leaf extract** contains *oleuropein*, a natural compound that supports healthy blood pressure already within the normal range.

Researchers using **1,000 mg** per day of **olive leaf extract** in a controlled clinical trial documented an average **11 mm Hg** decline in systolic readings and a **4.8 mm Hg** drop in diastolic readings within eight weeks!¹

2. **Celery seed extract** contains *3-n-butylphthalide (3nB)*, which supports a healthy inflammatory response that is critical to maintaining a healthy circulatory system.² **Celery seed** also helps minimize the flow of calcium into the muscle cells lining blood vessels, promoting healthy blood pressure already within the normal range.^{3,4}

In a controlled clinical trial, researchers using an equivalent amount of active compounds as found in this **celery seed extract** documented an average **8.2 mm Hg** decline in systolic readings and **8.5 mm Hg** drop in diastolic readings—in just six weeks!⁵

While **olive leaf** and **celery seed extracts** show impressive support individually, **Advanced Olive Leaf Vascular Support with Celery Seed Extract** combines two bioactive compounds to provide **dual-action** vascular support.

The suggested daily dose of two vegetarian capsules of **Advanced Olive Leaf Vascular Support with Celery Seed Extract** provides:

Benolea® Olive extract (leaf)	1,000 mg
[standardized to 16% oleuropein (160 mg)]	
Celery3nB™ Celery seed extract	300 mg
[standardized to 42.5% phthalides (butylphthalide and sedanenolide (127.5 mg)]	

A bottle of 60 vegetarian capsules of **Advanced Olive Leaf Vascular Support with Celery Seed Extract** retails for \$36. If a member buys four bottles, the price is reduced to **\$24** per bottle.

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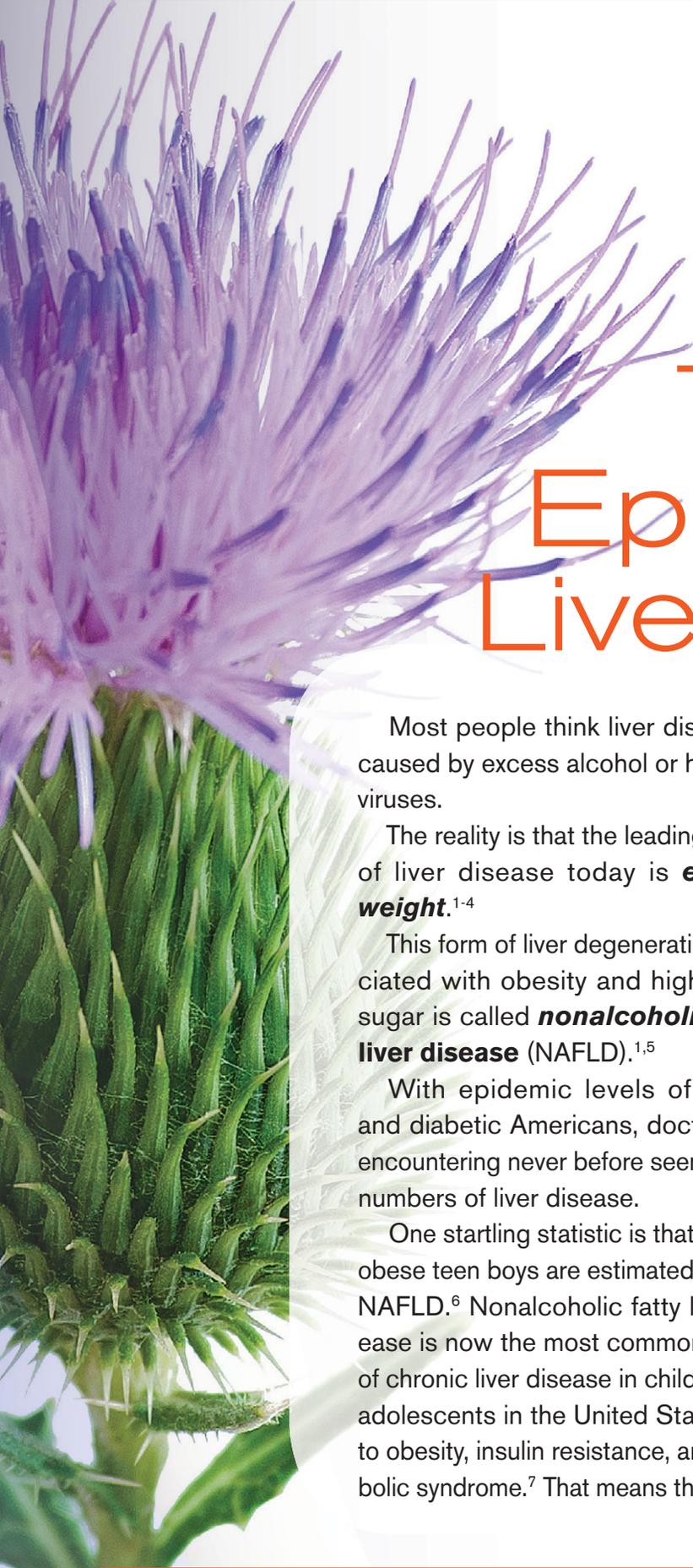


Item # 01824

To order **Advanced Olive Leaf Vascular Support with Celery Seed Extract**, call **1-800-544-4440** or visit www.LifeExtension.com

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





The Silent Epidemic Of Liver Disease

Most people think liver disease is caused by excess alcohol or hepatitis viruses.

The reality is that the leading cause of liver disease today is **excess weight**.¹⁻⁴

This form of liver degeneration associated with obesity and high blood sugar is called **nonalcoholic fatty liver disease (NAFLD)**.^{1,5}

With epidemic levels of obese and diabetic Americans, doctors are encountering never before seen record numbers of liver disease.

One startling statistic is that **48%** of obese teen boys are estimated to have NAFLD.⁶ Nonalcoholic fatty liver disease is now the most common cause of chronic liver disease in children and adolescents in the United States due to obesity, insulin resistance, and metabolic syndrome.⁷ That means that these

young lives might be shortened and compromised due to liver disease that will haunt them for the rest of their lives.

With no approved pharmacological treatments, lifestyle and dietary therapies remain the only hope for stemming the tide of NAFLD in children, adolescents, and adults.^{7,8}

Fortunately, compounds like **silymarin** found in the **milk thistle** plant have undergone extensive research for their ability to support liver health. A growing list of studies shows the ability of silymarin to protect against damage inflicted by **nonalcoholic fatty liver disease (NAFLD)**.

Silymarin has even been found to have the potential to reverse the dangerous progression of NAFLD that leads directly to **liver fibrosis** that destroys most of the liver's natural functions.

Milk Thistle Extract Prevents And Reverses Liver Disease

Nonalcoholic fatty liver disease (NAFLD) is caused by the excess accumulation of fat in the liver.

It currently affects a staggering **one in three** Americans and can lead to liver fibrosis, cirrhosis, and liver failure, while sharply raising the risk of liver cancer.^{1,9-11}

Due to the increasing prevalence and severity of fatty liver disease, its treatment should be an urgent priority in modern American healthcare. Yet surprisingly little attention is being given to the prevention of liver disease. Unfortunately, there are no good treatments for liver disease once it has become established. Physicians rarely focus on liver health except in advanced cases.

Liver disease is a major cause of disability and death worldwide, yet it often remains underdiagnosed and underinvestigated.¹² Similar to other degenerative diseases, much of the damage and destruction that contributes to liver disease is related to **inflammatory** and **oxidative** changes in the liver.¹³⁻¹⁵

That is precisely what makes **silymarin** such a potent agent for liver protection. Silymarin has a broad spectrum of anti-inflammatory,^{16,17} anticancer, and specific liver-protective effects that have been shown to guard against the broad spectrum of threats to the liver and other tissues.¹⁸⁻²²

Laboratory studies have uncovered numerous ways in which silymarin and its active constituent **silibinin** help protect the liver, including boosting the liver cells' own natural protective processes, while simultaneously decreasing a number of inflammatory mediators (these include iNOS, tumor necrosis factor alpha,^{23,24} interleukins-6²⁵ and 1 beta,^{26,27} cyclooxygenase-2 [COX-2], and nuclear factor kappa-beta [NF-kappaB]).^{28,29}

These beneficial properties are believed to be responsible for silymarin's ability to prevent, and in some cases reverse, liver disease—all of which represent inflammation-induced accelerated aging.^{30,31}

The Real/ Leading Cause Of Liver Damage

Liver disease was historically considered to be the result of excessive alcohol consumption. However, the single leading cause of liver disease is the direct result of excess weight.^{3,4,12,32} **Nonalcoholic fatty liver disease** (NAFLD) is closely associated with obesity and high blood sugar.¹

NAFLD is defined by the presence of excessive fat stores in liver cells, which normally contain very little fat. Between **30 to 50%** of adults in developed countries suffer from NAFLD—and most don't know it.^{1,9-11}

This is worrisome, since up to one-third of NAFLD patients will progress to a more severe condition known



as **nonalcoholic steatohepatitis**, or NASH.^{1,9,10} NASH is inflammation of the liver caused by excess fat. This type of liver injury leads directly to **liver fibrosis**, or scarring, which destroys most of the liver's natural functions.^{1,33} We also know that inflammation in general promotes cancer, which helps explain why NASH is now considered a major risk factor for **hepatocellular carcinoma**, the most common form of primary liver cancer.^{1,15,34}

Fortunately, silymarin's anti-inflammatory action makes it especially powerful against NAFLD, as evidenced from a broad range of laboratory and clinical studies.

Animal Studies

In a study published in *International Journal of Molecular Medicine*, silymarin treatment of obese, diabetic rats was shown to help prevent **liver fibrosis** by decreasing activation of **stellate cells**. These cells produce **fibrosis** (scarring of the liver) thereby indicating the beginning of liver failure.^{35,36} These antifibrotic effects are attributed to the ability of **silymarin** to disrupt inflammatory cytokines—particularly **TNF-alpha**, which is known to drive the progression of NAFLD to the more deadly NASH.³⁶⁻³⁸

Another study found that when rats fed a high-fat diet to develop NAFLD were supplemented with **silibinin**, they experienced a significant reduction in the features associated with NAFLD, including microscopic changes to the liver, insulin resistance, and dysfunction of glucose metabolism.¹⁹

In the same study, researchers incubated liver cells with fat to encourage them to fill with lipids (simulating NAFLD). Researchers found that the addition of **silibinin** to the culture reduced lipid accumulation, restored cells' viability, and lowered production of the protein *resistin*, a marker of insulin resistance, which is significantly associated with NAFLD and metabolic syndrome.

Other animal studies have shown a reduction in mean liver weight (a measure of fat accumulation) in mice whose NAFLD had progressed to dangerous NASH, demonstrating that milk thistle extracts can in fact reverse this deadly progression.³⁹

Human Studies

Human studies of **silymarin** in NAFLD are equally encouraging. The first such study, published just three years ago, examined vitamin E along with a complex called **silybin phytosome complex**, which consists of silybin plus **phosphatidylcholine**, a substance that enhances bioavailability. After just 12 months, the patients experienced significant improvements in markers of liver cell damage, glucose tolerance, and the microscopic structure of the liver; no such changes were seen in placebo recipients.⁸

Surprisingly, the **body mass index** (BMI) of the patients in the study, which had previously been ele-

vated, normalized in **15%** of treated subjects, but only in **2%** of placebo patients. In addition, when patients with **hepatitis C** infection were treated with the supplement, they showed improvement in markers of fibrosis, while no such change was seen in hepatitis C patients who received the placebo, a demonstration of the multiple targets on which silymarin and silybin can act.

In a similar study, when 72 patients with NAFLD took a supplement containing silymarin, blood markers of liver damage fell significantly by about **45%** in just *three months*.⁴⁰ During that time period, researchers also noted significant improvement in the ultrasound appearance of the liver before and after treatment.

But one of the most exciting studies came in late **2014**, when researchers published the first demonstration in humans of silymarin's potential to reverse NASH, the dangerous progression of NAFLD.⁴¹



MILK THISTLE FLOWER (SILIBUM MARIANUM)

What You Need To Know

Milk Thistle Extract Provides Liver Protection

- Threats to liver function include weight gain, poor blood sugar control, metabolic syndrome, toxins in food and the environment, and several dangerous viruses.
- One of the leading causes of liver disease today is nonalcoholic fatty liver disease (NAFLD), which while producing no symptoms, can progress to liver fibrosis, cirrhosis, and premature death.
- No drug is available to cure or even adequately treat liver disease once it develops.
- Silymarin, a flavonoid-rich extract of milk thistle plant seeds, has specific liver-protective properties.
- Studies show that silymarin fights oxidative damage and inflammation, with real impact on prevention of NAFLD and other liver diseases.
- Silymarin also directly blocks hepatitis C virus infection and may prevent virus replication.
- Early results show potential cancer-chemopreventive effects of silymarin in lab studies.
- Daily supplementation with silymarin from milk thistle might be a great way to maintain liver health and resistance to accelerated aging from metabolic syndrome, diabetes, and obesity.

NAFLD Emerges As A Pediatric Health Threat

A generation ago, most pediatricians were only vaguely familiar with the concepts of type II diabetes and nonalcoholic fatty liver disease (NAFLD). Children and adolescents were generally thought not to suffer from these “age-related” conditions.

Today, however, it is clear that all of these metabolic disruptions form part of the metabolic syndrome (obesity, lipid disturbances, elevated blood sugar, and hypertension), which leads directly to cardiovascular,⁶⁹ neurodegenerative,^{70,71} and malignant diseases,^{72,73} regardless of age. In other words, these conditions are not so much “age-related” as they are “age-accelerating.”^{74,75}

These changes are being brought to light by a host of alarming studies revealing a rapidly growing suspected prevalence of NAFLD in adolescents and even young children. In the period between 1988 and 1994, NAFLD prevalence was **3.9%** in those aged 12-19 years; by 2007-2010, prevalence was **10.7%** with that dramatic increase evenly distributed among all racial and ethnic groups and both sexes.⁶ Forty-eight percent of obese teen boys are estimated to have NAFLD,⁶ and NAFLD is now the most common cause of chronic liver disease in children and adolescents in the US, strongly associated with childhood obesity, insulin resistance, and metabolic syndrome.⁷

With no approved pharmacological treatments, lifestyle and dietary therapies remain the only hope for stemming the tide of NAFLD in children, adolescents, and adults.^{7,8}

In addition, studies have shown that supplementation with the milk thistle extract **silymarin** can protect against liver damage from NAFLD.^{39,76}

For the study, patients with existing NASH supplemented with **210 mg** of silymarin daily and underwent blood tests before and after treatment. After eight weeks, supplemented patients had a **58% reduction** in the liver enzyme ALT, while placebo recipients experienced a **38% reduction**, a significant difference; similar decreases were found in other liver enzyme markers.

(Note: Placebo patients often exhibit some benefit when participating in clinical studies because they initiate changes on their own, such as losing weight, due to the education they receive from the paperwork they sign and the physician interactions that occur. In other words, patients are told their poor lifestyle choices have created a life-threatening condition and many instinctively take steps to correct their problem.)



Given the lack of drug options for NAFLD, scientists have also attempted to evaluate drugs used in diabetes as a means of controlling the progress of the disorder. In one such study, silymarin proved superior to two such drugs (metformin and pioglitazone) in reducing blood markers of liver damage.³⁴

Obesity And Diabetes

In addition to having a direct impact on liver disease, silymarin has also been found to help battle conditions that can contribute to liver disease, including obesity and diabetes.

Underlying the epidemic of NAFLD in America is the epidemic of **obesity**, which is so closely related to development of type II diabetes⁴² that the two are commonly referred to as a single problem: **diabetes**.⁴³ Both diabetes and obesity contribute to **metabolic syndrome**, which accelerates aging by contributing to premature cardiovascular, neurodegenerative, and malignant diseases.⁴⁴⁻⁴⁷

Fortunately, silymarin is showing tremendous promise in protecting the liver against the age-accelerating impact of diabetes and metabolic syndrome. Studies of obese and/or diabetic animals show that silymarin and silibinin lower cellular and circulating levels of oxidative stress and inflammatory markers. These actions result in greater responsiveness to insulin, better glucose control, diminished fat production, better endothelial function (a risk factor for cardiovascular disease), and improved cognition,^{48,49} when compared with untreated animals.^{22,50-54}

But in one of the most remarkable animal studies to date, researchers found that silymarin can induce a *true reversal* of **diabetic neuropathy**, which is painful nerve damage caused by chronic blood sugar elevations.⁵⁵ This is an especially exciting development since diabetic neuropathy has so far proved resistant to conventional drug treatment.

Diabetes also damages kidney tissue and leads to impaired kidney function, a condition called **diabetic nephropathy**, which is a leading cause of kidney failure. In rat studies, silymarin treatment has been found to markedly restore kidney tissue damaged by diabetes and significantly improve impaired kidney function, largely by restoring diminished levels of natural enzyme systems.^{21,54}

Studies In Human Diabetics Reinforce Lab Findings

Studies published between 1997 and 2007 found that diabetic subjects taking **600 mg** a day of silymarin experienced numerous benefits, including significant decreases in fasting blood sugar, mean daily blood sugar, sugar in the urine, and long-term measures of glucose exposure (such as hemoglobin A1c), as well as in total insulin requirements in insulin-using patients.⁵⁶⁻⁵⁸ They also experienced improved liver function, as shown by decreases in triglycerides, total and LDL (“bad”) cholesterol, and enzyme markers of liver damage.⁵⁷

Studies have also found that silymarin can help enhance the benefits of standard diabetic drugs. For

example, in patients whose diabetes was poorly controlled on the prescription drug *glibenclamide*, the addition of **200 mg** a day of silymarin for 120 days produced improvements over the drug alone, while also significantly reducing body mass index (BMI).⁵⁸ And another study found that when silymarin was added to standard drugs for diabetic nephropathy (kidney disease), patients experienced improved urinary markers of kidney function, inflammation, and oxidative damage beyond that produced by the drug itself.⁵⁹

Silymarin Shows Early Promise Against Many Cancer Types

Key events in the development of cancer very often include **oxidative damage** to cells with resultant inflammation, followed by an accelerated rate of cell replication and a resistance to normal cell death (apoptosis).

These features of cancer represent target areas that might be vulnerable to treatment with silymarin. There is growing interest among oncologists to capitalize on the supplement’s strong safety record and evidence of effectiveness in laboratory studies.

Enhancing Silymarin With Phospholipids

Silymarin holds tremendous potential for treating and preventing chronic liver diseases. Unfortunately, the extract alone is poorly soluble in fat, which slows its transport across lipid-rich cell membranes and may diminish its availability to the body (bioavailability) following oral dosing.⁷⁷

This problem can be readily overcome by allowing the silybin components to form complexes with phospholipids, which are detergent-like molecules that facilitate the mixing of water- and fat-soluble compounds.^{8,77-79}

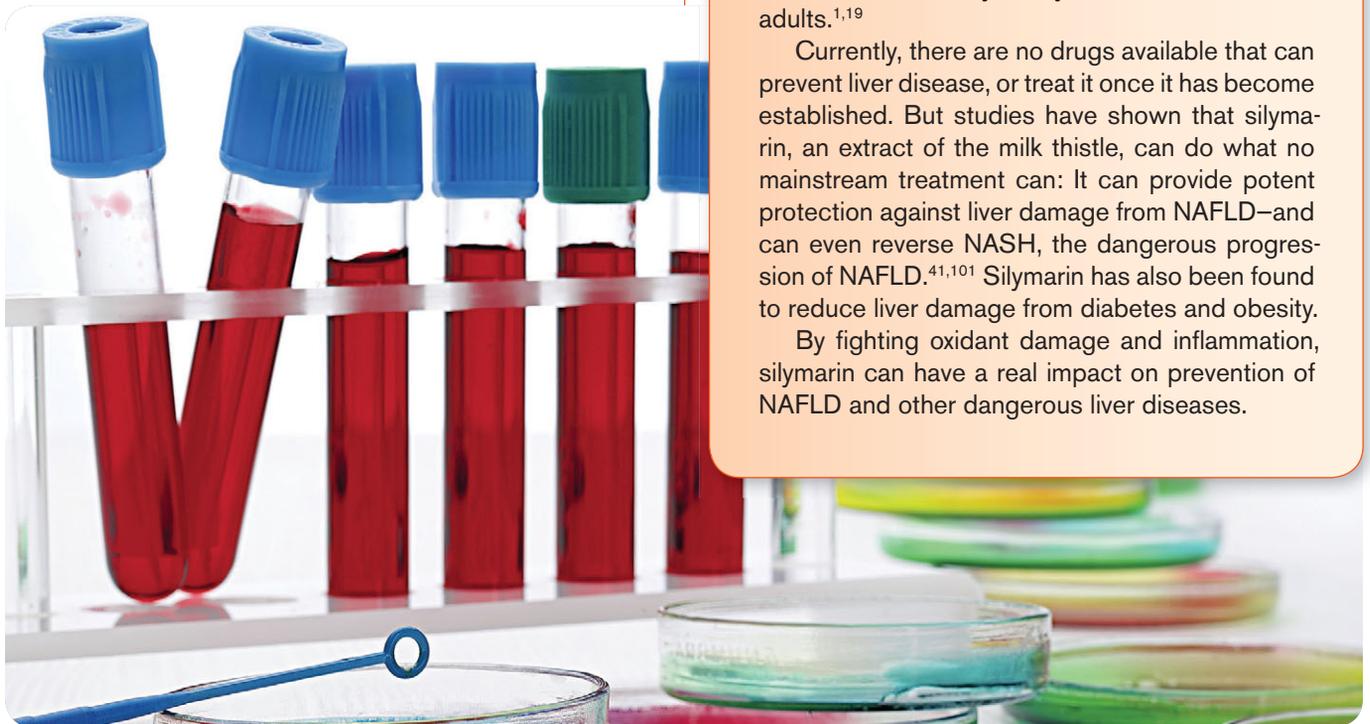
Studies in both animals and humans show that a complex of silybin plus the phospholipid **phosphatidylcholine** produces greater oral bioavailability than pure silybin and silymarin.^{78,79} The impact of this **phytosome** complex was demonstrated quantitatively in dogs, which showed increases in the maximum concentration of silybin by **2.7-fold** and in the total 24-hour accumulation of silybin by **3-fold**, and shortened the time to achieve maximum concentration to **60%** of that of silybin.⁸⁰



While no clinical data on silymarin as a cancer-preventive agent are yet available, the accumulation of basic laboratory findings is compelling and provides hope for the near future. For instance:

- Laboratory studies show that silymarin blocks proliferation in colon, lung, cervical, prostate, and ovarian cancer cell lines in culture.⁶⁰⁻⁶⁴
- Silymarin has been found to have a synergistic effect with known cancer chemotherapy drugs.⁶⁰
- Silymarin blocks the master inflammation-generating complex NF-kappaB, decreasing further signaling that is regulated by this inflammatory molecule.⁶¹
- Silymarin restores cancer cells' ability to die by apoptosis, which allows the body's own scavenging and surveillance systems to clean up and prevent further tumor growth.⁶¹⁻⁶³
- Silymarin can inhibit the invasiveness of certain types of cancer cells, a major step in limiting the severity of a malignancy.^{62,65}

Excitingly, when silibinin was orally administered in mice bearing human lung cancer grafts, it sharply decreased the overall volumes of the resulting tumors, even in tumors known to be resistant to standard chemotherapy.⁶⁶ Researchers found that silibinin prevented the transition from well-differentiated *epithelial* cells



Why The Liver Is So Important

It is impossible to overstate the liver's importance for health and longevity. Your liver processes the nutrients you need to survive and thrive from the food you eat. It manufactures scores of enzymes and other factors vital to blood clotting,⁸¹ to the immune system,⁸² and to metabolic control of blood sugar⁸³ and lipid levels.⁸⁴ It makes bile,⁸⁵ which helps you digest and absorb fats. It stores sugar safely, releasing it as required to sustain energy requirements.⁸⁵ It detoxifies the majority of chemical toxins we ingest, including alcohol⁸⁶ and most drugs.⁸⁷ It stores minerals, such as iron and copper, as well as certain vitamins.⁸⁸

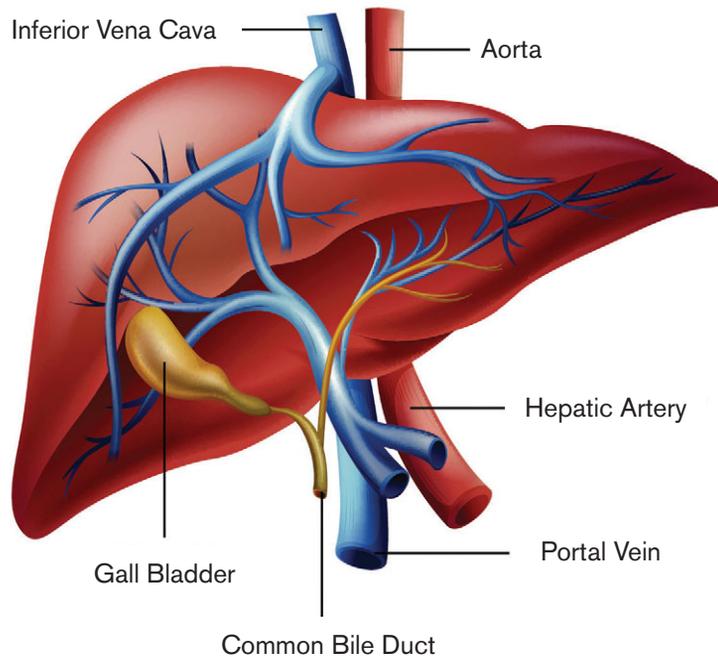
Unfortunately, your liver is under constant attack, especially from natural and artificial toxins.⁸⁹⁻⁹¹ Making matters worse, it is host to several potentially fatal viral infections, and also to **hepatocellular carcinoma**, a leading cause of cancer deaths.^{15,92-96}

Because **100%** of blood from the digestive tract goes straight to the liver for further processing, the liver is constantly exposed to high levels of fats, sugars, and potentially damaging chemicals from food.^{88,97,98} It is highly sensitive to fluctuations in blood sugar^{99,100} and especially to the effects of obesity, which conspire to produce a chronic liver condition called nonalcoholic fatty liver disease, a condition suffered by nearly one-third of American adults.^{1,19}

Currently, there are no drugs available that can prevent liver disease, or treat it once it has become established. But studies have shown that silymarin, an extract of the milk thistle, can do what no mainstream treatment can: It can provide potent protection against liver damage from NAFLD—and can even reverse NASH, the dangerous progression of NAFLD.^{41,101} Silymarin has also been found to reduce liver damage from diabetes and obesity.

By fighting oxidant damage and inflammation, silymarin can have a real impact on prevention of NAFLD and other dangerous liver diseases.

Human Liver Anatomy



to more motile, and potentially invasive, *mesenchymal* cells.^{67,68} This *epithelial-to-mesenchymal transition* is a requirement for many tumor types to develop and grow, so blocking it is a major advance.⁶⁶

Human studies of silymarin and cancer are in their infancy, but dose-finding studies have revealed safety and tolerability of the supplement while other studies show promise with encapsulating silymarin into tiny nanoparticles to markedly enhance its bioavailability to levels required for cancer treatment.^{61,64}

Summary

The epidemic of obesity and the metabolic syndrome are responsible for a growing threat to health and longevity: liver disease.

More than **30%** of Americans have dangerous accumulations of fat in their liver, a condition called **nonalcoholic fatty liver disease** (NAFLD). This condition is especially dangerous because it is often without symptoms—meaning most people are unaware they have this condition. This “silent” disease leads to potentially fatal liver conditions, including **nonalcoholic steatohepatitis** (NASH) and ultimately **fibrosis, cirrhosis, and liver failure**.

No medications are approved for prevention, or even treatment, of most liver disorders. That means that lifestyle and dietary changes provide the best hope for avoiding these debilitating and deadly

conditions. While weight loss and exercise are important, you can further tip the odds in your favor by supplementing with **silymarin**, the standardized extract of the milk thistle seed.

Studies show that silymarin and its active constituent **silibinin** provide potent protection against liver damage from NAFLD, in at least one case, genuinely reversing some of the more ominous findings. Silymarin has also been found to reduce liver damage from diabetes and obesity.

Finally, there is growing evidence that silymarin and its constituents have powerful anticancer capabilities that work on multiple cellular targets.

Silymarin is currently the best-studied and most effective means of protecting against chronic liver disease. ●

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

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Multiple Benefits Of Increasing NAD+ Cellular Levels

Nicotinamide riboside has been documented to help replenish cellular **NAD+** and in the process:

- Promote sirtuin (SIRT1 and SIRT3) gene activation,⁶
- Enhance growth and efficiency of mitochondria—supporting energy levels and physical performance,⁶
- Favorably modulate metabolism,⁶
- Contribute to neuronal health—supporting cognitive function during aging,⁹⁻¹¹
- Promote insulin activity—supporting healthy blood sugar in those within the normal range.⁶

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Life Extension® **NAD+ Cell Regenerator**™ contains the patented ingredient **NIAGEN**®, the first commercially available form of **nicotinamide riboside**.

The suggested daily dose of one **NAD+ Cell Regenerator**™ vegetarian capsule provides:

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European Milk Thistle Advanced Phospholipid Delivery, with **480 mg** of silymarin, is a unique complex that is absorbed **5 times** better than silymarin alone, and its concentration in the liver is **10 times** better.

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Snow Algae

And Novel Peptides

Revive Aging Skin

Snow algae thrive in frigid high mountain areas and have the unique ability to survive brutal changes in temperature.

When applied to living cells, **snow algae** activates a **longevity gene** and the enzyme **AMPK**, which in turn enhances **DNA repair**.^{1,2}

The ability to **repair DNA** is crucial for health and longevity. Most **Life Extension**[®] members take affirmative steps to internally boost **AMPK** cellular activity and turn on their **longevity genes**.

Researchers are now finding that topical application of **snow algae** produces a **restorative** effect to skin.

In addition, a group of novel **peptides** along with **hyaluronic acid** addresses a broad array of deleterious structural changes that occur in aging skin. The result is improved moisture, minimized wrinkles, and restoration of a more youthful outward appearance.

Rejuvenation Effects Of Snow Algae

For years, scientists have been intrigued with a phenomenon known as “red snow”^{3,4} that occurs every winter in high mountain areas around the world.

Red snow refers to the unique ability of **snow algae** to thrive in freezing temperatures with high ultraviolet radiation that would otherwise destroy most plants.

In the spring, cells of **snow algae** turn green due to energy production. They then turn red as winter approaches. This color change is related to the growing presence of **carotenoid** pigments that protect them against harmful UV rays.^{5,6}

Curious about this ability to survive extreme temperature changes, scientists cultivated snow algae in the laboratory and observed two specific anti-aging activities. At the cellular level, snow algae activates an important **longevity gene** (Klotho) and the cellular energy enzyme **AMPK** (*adenosine monophosphate-activated protein kinase*). Both of these mechanisms help facilitate **DNA repair**.²



When activated, AMPK acts to clear cellular debris that generate low-grade chronic inflammation and improves cellular stress resistance to slow down skin aging.¹ Snow algae has been shown to prevent the age-related decline in AMPK activity that accelerates the aging process. In an *in vitro* study conducted by scientists, snow algae stimulated AMPK activity by **105%** compared to a control in human skin cells.² And in another *in vitro* experiment, snow algae increased **collagen production** and inhibited destructing collagen enzymes by up to **47%** in human fibroblast cells.^{2,7} Together, these studies demonstrate the anti-aging effects of snow algae and its unique ability to improve the healthy longevity of skin cells.

Cumulative sun exposure, pollutants, cold, and wind all weaken the skin’s barrier function, robbing it of vital moisture.⁸⁻¹¹ Since snow algae can resist and adapt to these harmful environmental influences, researchers investigated whether its topical application would provide a similar benefit to human skin.

In a controlled clinical study, 21 human volunteers ranging in age from 30 to 57 applied **snow algae** extract to one half of their face and a **placebo** to the other half three times a day for only 21 days.¹² During the second week of the study, subjects spent time in the harsh climate of the Alpine mountains. The subjects’ skin was evaluated for transepidermal water loss prior to treatment, on day 14, and on day 21. The results showed that transepidermal water loss was **12%** lower on the side of the face in which snow algae was used, confirming an improvement in the skin’s barrier function.⁴ In addition, age spots were less visible in **67%** of treated subjects—after only **21 days!**²

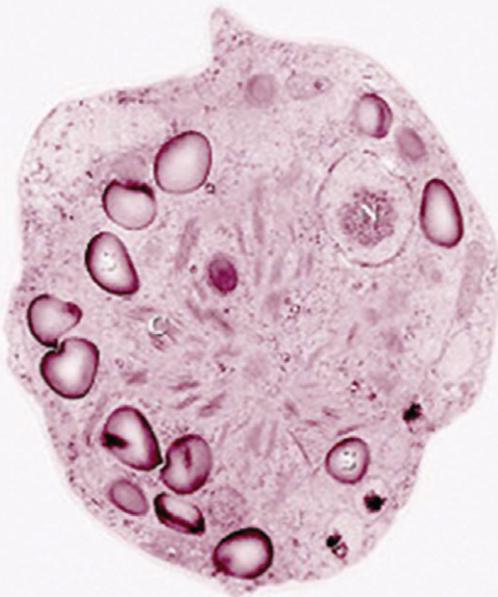
In a recent clinical trial, **snow algae** extract was applied twice a day to the inner side of the forearm of 20 women aged 40 to 60 years old, while their other forearm was treated with a **placebo**. Skin hydration was measured using a device called a Corneometer®, which determines the level of skin hydration. The snow algae-treated side showed a **10%** increase in skin hydration over the placebo side in just 14 days. This moisturizing effect was observed in **100%** of participants, thus demonstrating snow algae’s effectiveness as a hydrating compound.²

Novel Peptides Enhance Collagen Renewal

The smooth and plump appearance of youthful skin can be attributed to its large amounts of **collagen**, a key protein that holds skin together. As a major component of a fibrous framework known as the extracellular matrix, collagen provides structural support to the surrounding cells in the dermis.^{13,14}

What You Need To Know

SNOW ALGAE



With age and increased UV exposure, collagen production declines and its breakdown increases.^{15,16} This results in the appearance of wrinkles, fine lines, and sagging skin.¹⁷⁻¹⁹

A novel combination of **peptides** has been found to stimulate the synthesis of different types of collagen in the dermis and dermal-epidermal junction (DEJ), a surface area that connects the dermis to the epidermis above it.²⁰ This collagen-boosting effect enhances the ability of the dermis to retain water and properly hydrate the skin, leading to visible improvements in both smoothness and firmness.

This was apparent in a placebo-controlled trial in which a topical mixture containing the peptide **palmitoyl dipeptide-5** was shown to increase skin smoothness by **12.2%** and skin firmness by **10.8%** after just **two months** compared to a control.²⁰

Another innovative peptide that combats skin aging is **palmitoyl tripeptide-5**. This peptide has been shown to boost dermal collagen production through activation of latent tissue growth factor beta in turn exerting anti-wrinkle effects.²¹⁻²³

In a 12-week study, a serum containing **palmitoyl tripeptide-5** reduced fine wrinkles by **13%** and deep or coarse wrinkles by **30%** compared to baseline. This study also revealed significant improvements in several skin parameters including firmness, radiance, tone, and tactile roughness.²⁴

Other research shows immediate results from using topical **palmitoyl tripeptide-5**, with one study reporting a **20%** decrease in fine lines and **28%** reduction in deep wrinkles around the eyes *within minutes*

Novel Compounds Combat Skin Aging

- The age-related decline of the skin's matrix components and weakening of the epidermal barrier function contribute to moisture loss and a lack of hydration for the skin.
- Novel compounds have been identified that target these structural changes in aging skin, leaving it visibly smoother, softer, and younger looking.
- Snow algae strengthens the skin's barrier function. In a controlled clinical trial, the use of snow algae significantly increased skin hydration in 100% of participants in just two weeks!
- Novel peptides enhance the production of different types of collagen in the dermis and dermal-epidermal junction (DEJ) to boost skin smoothness and firmness.
- Palmitoyl tripeptide-5 improves the structural integrity of the dermis to diminish the appearance of wrinkles within minutes and after long-term use.
- Hyaluronic acid maintains adequate hydration in the different layers of the skin due to its ability to absorb 1,000 times its volume in water.

of initial application.²³ Together, these studies indicate that **palmitoyl tripeptide-5** improves the structural integrity of the dermis immediately and long term to fight the tell-tale signs of aging.

Hydrate With Hyaluronic Acid

Hyaluronic acid is a naturally occurring²⁵ polysaccharide that maintains skin hydration by acting as a powerful sponge and absorbing up to **1,000 times** its own volume in water.^{26,27} Its outstanding water-holding capacity adds both volume and thickness to the dermis. The latest research also suggests that hyaluronic acid helps hydrate the stratum corneum layer of the epidermis and, via the CD44 receptor, supports the skin's barrier function.^{28,29}

The aging process and damaging free radicals depletes the skin of **hyaluronic acid**. Replenishing this vital nutrient restores moisture that leaves aging skin softer, smoother, and younger looking.

Summary

It may surprise you to learn that drinking plenty of water each day is only half the battle for keeping aging skin hydrated, smooth, and young looking.

Scientists have identified compounds, including **snow algae** extract, **palmitoyl dipeptide-5**, **palmitoyl tripeptide-5**, and **hyaluronic acid**, that help correct structural changes in aging skin to improve moisture, minimize wrinkles, and restore a youthful appearance. ●

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

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Ceramides are essential for preserving healthy-looking skin.^{1,2} They play an important role in maintaining the skin's moisture balance and protecting the skin's surface.³

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Researchers have discovered that the ceramides naturally produced by young skin are identical to those present in **wheat**—and that these wheat-derived oils can be taken *orally*.

Life Extension® has brought together these skin-nourishing oils in a concentrated **oral formula** called **Skin Restoring Phytoceramides with Lipowheat®**.

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Restore Structural Support To Aging Skin

Aging skin loses structural **collagen** and water-binding **hyaluronic acid**,^{1,2} while **environmental** factors weaken the skin's protective outer barrier.³

The results of these changes are wrinkles, age spots, fine lines, and a dull, dry appearance.⁴⁻⁶

The **new Collagen Boosting Peptide Serum** helps inhibit these unsightly processes—supporting the skin's collagen structural support and maintaining its youthful hydration, which in turn firms, lifts, and contours dermal appearance.

REGENERATIVE EFFECTS OF SNOW ALGAE

The key to **Collagen Boosting Peptide Serum's** restorative power is its high concentration of **snow algae**, which comprises of resilient organisms that have been lab-cultivated and formulated into a serum format (instead of a cream) for maximum absorption. Snow algae help activate cellular **AMPK** and a key **longevity gene**.

In skin cells, the result is **increased collagen** production. Researchers recently observed that **snow algae** boosted skin **hydration** in **100%** of studied individuals—after just **14 days** of application.⁷

SUPPORTING PEPTIDES AND HYALURONIC ACID

Supporting these regenerative effects are **peptides** that stimulate the synthesis of **collagen** at the point where the dermis meets the epidermis above it. A clinical trial found that these **peptides** increased skin smoothness by **12.2%**, and firmness by **10.8%**, after **two months** of application.⁸

One peptide, **palmitoyl tripeptide-5**, further supports collagen production by activating “latent tissue growth factor beta.” A study showed that it reduced the appearance of deep wrinkles by **28%**—**within minutes** of application!⁹

Collagen Boosting Peptide Serum also contains **hyaluronic acid** to directly replenish falling hyaluronic acid levels—shown to restore the skin's ability to hold moisture and retain its softness and youthfulness.¹⁰

Due to its high-absorption serum format, applying just 2-3 drops of **Collagen Boosting Peptide Serum**, morning and night, to targeted areas of the face produces noticeable rejuvenation effects within weeks of first use.

A 1-ounce bottle of **Cosmesis Collagen Boosting Peptide Serum** retails for \$59. If a member buys two bottles, the price is reduced to **\$39** per bottle.



Item # 80156

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To order **Cosmesis Collagen Boosting Peptide Serum**, call 1-800-544-4440 or visit www.LifeExtension.com





CoQ10

COMBATS

Congestive Heart Failure

Congestive heart failure is one of the most devastating forms of cardiovascular disease.¹

More than 5.8 million people in the US are affected by congestive heart failure. If you're diagnosed with **congestive heart failure** today, you have a **50/50** chance of being dead within **five years**.¹

Those aren't good odds. But researchers have determined that with the help of **CoQ10**, you can beat these odds.

Mainstream medicine treats congestive heart failure with a barrage of medications including beta blockers, ACE inhibitors, diuretics, digoxin, nitrates, aldosterone antagonists, anticoagulants, and glucose-lowering drugs. These drug combinations have added considerable years of life to patients with congestive heart failure.²⁻⁷

Overlooked by most cardiologists, however, are published clinical studies showing that CoQ10 can dramatically improve treatment outcomes when properly used in conjunction with conventional treatments.

A recent international, multicenter study of patients with moderate-to-severe **heart failure** demonstrated, by the most conservative analysis, a **50%** reduction in major cardiovascular events (strokes, heart attacks, etc.) and a **44%** reduction in cardiovascular deaths, in response to CoQ10 supplementation.⁴

This dramatic outcome validates earlier studies demonstrating the utility of CoQ10 in managing heart disease. It also points to the potential role CoQ10 plays in the **prevention**, rather than treatment, of heart failure and other cardiovascular diseases.



What Is Congestive Heart Failure?

Congestive heart failure is the inability of the heart to pump sufficient blood to meet the needs of all organs in the body, and is frequently the result of other, preventable factors such as high blood pressure, diabetes, and coronary heart disease (which causes heart attacks).¹

Congestive heart failure results from a progressive weakening of the heart muscle, which is usually a result of insufficient production of ATP (adenosine triphosphate), the energy that fuels your heart.³⁴⁻³⁶ In a healthy heart with ample energy in the form of ATP, the heart muscle is well-developed and thick, and it effortlessly pumps blood out of the left ventricle into the aorta and out into the body.¹

But with inadequate ATP, which occurs from impaired energy transport, the robust heart muscle weakens and becomes flabby, resulting in relatively ineffective pumping action, so that blood pools in the heart.¹ We refer to this slowed and inefficient movement of blood in the heart as “congestive” heart failure. The major symptoms of congestive heart failure arise from this backup of blood in the weakened left ventricle.

CoQ10 Helps Prevent Heart Failure

CoQ10 has been shown to *prevent* underlying pathological disorders that produce heart failure. This includes reducing atherosclerosis risk factors, improving endothelial function, and protecting against heart damage.^{8,9} Here is a summary of the encouraging data supporting the role of CoQ10 in heart disease prevention:

CoQ10 Protects Against Arterial Occlusion

Atherosclerosis (“hardening of the arteries”) underlies virtually all heart attacks, strokes, and other blood vessel diseases.¹⁰⁻¹² There are numerous risk factors that are associated with the onset of atherosclerosis, including LDL oxidation, chronic inflammation, elevated blood glucose, elevated lipid levels, and disordered growth factor signaling.¹³⁻¹⁷ Published studies show that CoQ10 combats many of those risks. For example:

- Heart attack survivors who took **120 mg** a day of CoQ10 for one year reduced the rate of total cardiac events and nonfatal heart attacks by **45** and **46%**, respectively, compared to controls, while beneficial HDL cholesterol rose significantly.⁸
- When compared to patients on statins, those taking **60 mg** a day of CoQ10 favorably modified numerous atherosclerosis risk factors, including lipid profiles, platelet clumping, and oxidative stress.¹⁸
- In adults at intermediate risk for atherosclerosis who took a combination of CoQ10 (**120 mg** a day) and aged garlic extract (**1,200 mg** a day) for one year, atherosclerosis progression was **4-fold lower** compared with control subjects, while markers of atherosclerosis-promoting inflammation were significantly reduced.¹⁹
- CoQ10 helps prevent **low-density lipoprotein** (LDL) cholesterol from oxidizing and triggering arterial plaque formation.²⁰

CoQ10 Improves Endothelial Function

Dysfunction of the ultrathin cell layer lining arteries, the *endothelium*, is a major early risk factor for the development of atherosclerosis and cardiovascular disease.^{21,22} This *endothelial dysfunction* is especially prevalent in those with diabetes and/or lipid abnormalities.²³ Numerous studies have demonstrated that CoQ10 directly addresses multiple causes of endothelial dysfunction:

- In patients with diabetes, 12 weeks of supplementation with **200 mg** a day of CoQ10 significantly increased endothelial function in a major artery.²³
- In a group of men with known endothelial dysfunction, CoQ10 supplementation improved endothelial function **significantly** compared with baseline.²¹
- In patients with mild-to-moderate heart failure, **300 mg** a day of CoQ10 improved endothelial function **38%**, an effect comparable with that of exercise training.²⁴
- Blood vessel relaxation, a measure of endothelial function and blood flow, improved significantly in patients with known coronary artery disease at risk for heart attack who need optimal cardiac blood flow.²⁵

CoQ10 Protects Against Heart Damage

Coronary artery disease typically refers to the consequences of atherosclerosis of the coronary arteries, which are the arteries that supply blood and nutrients to the heart muscle itself. Early disease may appear as painful and ominous **angina** (chest pain), while more advanced disease produces **ischemia** (lack of blood flow), and eventually **infarction** (death of heart muscle) in a classical heart attack.²⁶ Numerous studies have shown that in the event of a heart attack, ample levels of CoQ10 may mitigate the amount of damage:

- During open-heart surgery, when the heart is briefly stopped and ischemia is a major risk, CoQ10 protected heart muscle pumping and cardiac output.²⁷
- In functioning hearts from old rats, pretreatment with CoQ10 improved recovery of heart function following stress.²⁸
- In human atrial heart muscle tissue, CoQ10 treatment abolished the decreased ability to recover from ischemia seen in older hearts, producing a recovery pattern similar to that in younger hearts; this effect was shown to be related to improved mitochondrial energy efficiency in the treated tissue.^{28,29}

- In humans undergoing elective heart surgery, patients treated with CoQ10 had lower levels of markers of heart damage, improved pumping action, and shorter hospital stays, compared with untreated controls.²⁸

CoQ10 And Cellular Energy

Some forms of cardiovascular disease involve energy mismanagement at the cellular level, weakening heart and blood vessel cells and leaving them incapable of proper function.³⁰⁻³³ This is especially true of congestive heart failure.

Despite its name, congestive heart failure is not a situation in which the heart stops beating. Rather, it results from a progressive weakening of the heart muscle, which is characterized by insufficient **ATP** (adenosine triphosphate) production.³⁴⁻³⁶

CoQ10 supplementation has repeatedly been shown to improve heart muscle function in patients with heart failure, supporting the scientific observation that heart failure is caused by a deficit in cellular energy.^{37,38} This includes improvement of heart muscle movement, increased cardiac output (the amount of blood pumped per minute), ejection fraction (proportion of blood pumped out with each stroke), and other technical measures.³⁹⁻⁴³

What You Need To Know

CoQ10 Treats And Prevents Heart Disease

- Cardiovascular disease remains the leading killer of American adults.
- In particular, congestive heart failure, which can arise from hypertension, atherosclerosis, endothelial dysfunction, and heart attacks, prematurely sickens otherwise healthy people.
- Some forms of cardiovascular disease involve some degree of energy mismanagement at the cellular level, leaving heart and blood vessel cells weakened and incapable of proper function.
- CoQ10 is essential for transferring energy from food into ATP molecules, the universal cellular energy currency.
- Studies show that supplementation with CoQ10 augments heart and vascular function, improves clinical status, and prevents further damage from cardiovascular disease.
- CoQ10 may represent the single most vital supplement that everyone should take to sustain and support cardiovascular energy management.



But are you taking the right amount—and the right type—of CoQ10 to extend your life span? Chances are, the answer is no.

Even fairly low doses of CoQ10 have been shown to reduce the symptoms associated with congestive heart failure. For example, in a three-month open study, an average daily dose of **100 mg** a day of CoQ10 improved symptoms in a large majority of patients, including swelling, blueness (cyanosis), difficulty breathing, heart palpitations, sweating, insomnia, vertigo, and nighttime urination. In fact, **54%** of patients experienced improvement in at least three such symptoms.⁴⁴

But those low doses can be deceiving because even though they improve symptoms, ultimately few meaningful benefits in terms of survival or improved functioning were shown at CoQ10 doses of **100 mg** a day.⁴⁴ This is especially true for people who already have *advanced* congestive heart failure (Class IV) because fluid build-up in the walls of their intestines reduces the amount of a given dose that can be absorbed into the bloodstream.⁴⁵

A study published in *The Clinical Investigator* shows us the difference that even modest increases in dosing makes: It demonstrated that an increased dose of CoQ10 produced more than just symptom reduction—it kept patients out of the hospital.

For this study, when patients with moderate-to-severe (class III and IV) heart failure took **2 mg/kg** a day (about **190 mg** a day in an average-sized man, and about **150 mg** a day for an average woman) of CoQ10 for one year, it significantly reduced hospitalization rates by **38%**.³⁸ In the same study, symptoms caused by fluid backing up into the lungs (pulmonary edema, “cardiac asthma”) were reduced by **61** and **51%**, respectively.

But even with those increased doses and beneficial results, we’re still falling short of CoQ10’s full life-extending potential. Changing long-term outcomes (like reducing mortality) clearly requires higher doses for longer periods.

CoQ10 And Longevity

To achieve benefits measured by longer life spans, you need to increase the dose and amount of CoQ10 *absorbed* into the bloodstream.

Surprisingly few studies have bothered to measure blood levels of CoQ10 in patients, a basic step in gauging the effectiveness of a dosing program. What we do know is that leaders in the field have demonstrated that blood levels of more than **3.5 micrograms/mL** are required to reliably produce improvements in cardiac function.^{24,46,47} Doses of standard CoQ10 (also called *ubiquinone*) of at least **240 mg** a day may produce such elevations in blood levels, while lower doses rarely do so.^{47,48}



New York Heart Association (NYHA) Functional Classification⁸¹

Class	Patient Symptoms
Class I (Mild)	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnea (shortness of breath).
Class II (Mild)	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnea.
Class III (Moderate)	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitation, or dyspnea.
Class IV (Severe)	Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.

The New York Heart Association (NYHA) Functional Classification system has become the standard for measuring symptoms that affect functioning related to heart failure.⁸¹

Symptoms Of Congestive Heart Failure

When blood flow through the heart becomes congested, blood backs up throughout the body. The result is an accumulation of fluid that is squeezed out of the capillaries,⁸² the tiniest of blood vessels found in all tissues.

The most evident symptoms of congestive heart failure reflect this process: As the lungs become heavy and fluid-filled, patients experience shortness of breath during normal, non-strenuous activities, and have trouble breathing when lying down; as fluid builds up in the abdomen and extremities, patients experience weight gain, with swelling of the feet, legs, ankles, or stomach.¹

Most patients also report feeling generally tired or weak, as the heart becomes less and less able to meet the body's demand for oxygen and nutrients.

CoQ10 supplementation helps restore the heart's normal energy economy, allowing heart muscle to regain its youthful strength, to resume its robust pumping action, and to reduce symptoms and disability induced by congestive heart failure.

A better way to achieve optimal blood levels of CoQ10 is to use a superior form of CoQ10 called *ubiquinol*. In one particularly impressive study, patients with severe heart failure (average of class IV) had mean CoQ10 levels of just **1.6 micrograms/mL** even though they were taking **450 mg** a day of standard CoQ10. Once they changed to an average of **580 mg** a day of *ubiquinol*, their blood CoQ10 levels shot up to **6.5 micrograms/mL** and their mean ejection fraction improved **77.3%** from baseline. In addition, their **NYHA class** improved from a mean of **class IV** to a mean of **class II**, demonstrating substantial improvement in their ability to carry out tasks of daily living.⁴⁵

Dramatic proof of the effectiveness of higher doses of standard CoQ10 for longer periods comes from the most recent large clinical trial, conducted by an international group of cardiologists.⁴⁹ In this study, patients with moderate-to-severe heart failure took either a placebo or **300 mg** a day of CoQ10 (in the lesser absorbable form called ubiquinone) for two years. Patient data was examined at 16 weeks (short term) and at the end of the study (long term). No meaningful changes were seen in any patients at the short-term data point (16 weeks) using the ubiquinone form of CoQ10.

In the same study, by the two-year mark, however, supplemented patients were half as likely to experience a major adverse cardiovascular event, compared with placebo recipients.⁴⁹ In addition, significantly more placebo patients died a **cardiovascular death** compared with supplemented subjects (**16** versus **9%**), while **deaths** from all causes were **18%** in placebo patients, and just **10%** in supplemented ones. The rate of heart failure-related **hospital stays** was also significantly lower in patients taking CoQ10 than in controls.

These studies indicate that making energy safely and abundantly available to heart muscle through CoQ10 supplementation at reasonable doses for a prolonged period is a powerful way to reduce the impact of congestive heart failure.

It is important to note here that in all studies, patients remained on their regular medications. This is important to emphasize as people with existing heart failure should use CoQ10 as a *long-term heart-strengthenener* and not as a replacement for prescription medications.

Potential Of CoQ10 In Noncardiac Disorders

Heart muscle and blood vessel cells are of course not the only tissues that require ample CoQ10 for efficient energy utilization. In reality, every cell in your body runs better when ample CoQ10 is available. This is especially true for the eyes, kidneys, and brain, which is why CoQ10 has shown such tremendous benefits for each of these organs.⁵⁰⁻⁵³

Fight Back Against Statin-Induced CoQ10 Deficiency

Mainstream medicine relies on drugs called **statins** to help lower cholesterol in an effort to prevent atherosclerotic heart disease. But a looming side effect of statins is that they deplete your heart muscle of CoQ10, in fact leaving you *more* vulnerable to congestive heart failure.^{83, 84}

Fortunately, as shown by recent studies, people taking statins can benefit from supplemental CoQ10 at **200 to 300 mg** a day.^{84, 85} Patients not only had improvements in CoQ10 levels and in natural free radical defense systems, but also had objective improvements in ejection fraction and in their NYHA functional classification as well.^{84, 85}



Ubiquinol: The Optimal Form Of CoQ10

Whenever tissues are deficient in CoQ10, their energy-providing mitochondria throughout the body suffer.⁸⁷ That's because CoQ10 is an essential component in the transfer of electrons, nature's tiniest unit of energy, from chemical bonds in food molecules to chemical bonds in the ATP molecules all tissues use as an immediate energy supply.^{88,89} CoQ10 deficiency has been found in a number of age-related disorders, prominently including heart failure.^{88,89}

Supplementing with CoQ10 has been found to be a highly effective means of increasing tissue CoQ10 activity, with improvements in function of heart muscle, brain cells, and other energy-intensive tissues. Increasingly, research is proving that not all forms of CoQ10 are the same; some are better absorbed than others. Better absorption means more benefit for you.⁸⁷

There's evidence indicating that CoQ10 in the form of **ubiquinol** may be a better-absorbed, more readily available form of the coenzyme, compared with the more common **ubiquinone**.⁸⁷ Ubiquinol is also the form of CoQ10 found naturally in the body, where it protects mitochondria and cell membranes.^{90,91}

Research supports the idea that ubiquinol has a faster and more powerful effect—that it is more **bioavailable**.⁹² Animal studies have found higher tissue levels of CoQ10 when ubiquinol is the supplement used, and in one study ubiquinol was the only form that could increase CoQ10 in brain mitochondria.⁸⁷ When CoQ10 was combined with the adaptogen shilajit, there was a **56%** increase in energy production in the brain.⁹³ The compounds in shilajit have been shown to stabilize CoQ10 in its ubiquinol form and help facilitate more efficient delivery of CoQ10 to the mitochondria.⁹³⁻⁹⁶ And a human study showed that both a single oral dose of **150** or **300 mg** of ubiquinol and long-term administration of ubiquinol were rapidly absorbed, and no safety concerns or laboratory abnormalities were seen.⁹⁷

Laboratory studies show that ubiquinol is highly effective in reducing the disastrous effects of shock induced by blood loss, a leading killer following major trauma.⁹⁸ The effect was attributed to ubiquinol's powerful ability to clean up products of oxidation and thereby decrease inflammatory changes.⁹⁹ Similarly, ubiquinol is the preferred supplement for use in certain forms of congestive heart failure.⁸⁸ And ubiquinol is showing great promise in a host of other conditions and health concerns for which oxidant damage is a major predisposing factor, such as male infertility due to weakened sperm,¹⁰⁰ blood markers of cardiovascular disease,⁹⁰ and autism in children.¹⁰¹ There is also animal evidence supporting ubiquinol supplementation to prevent trauma-associated kidney damage.¹⁰²

The beneficial effects of ubiquinol are so universal throughout the body that the compound is being explored for its effects on overall longevity. When age-accelerated mice (a model of human old age) were supplemented with high-dose ubiquinol (equivalent to about **1,680 mg** in humans), their performance on a treadmill was improved by more than **15%**, and they had a significant increase in their natural free radical defense systems, further adding to their protection against aging.¹⁰³ Revolutionary data published in mid-2014 showed that ubiquinol has a direct antiaging effect by supporting actions of the SIRT family of proteins that slow senescence through multiple biochemical activities.¹⁰⁴

All of us face the age-accelerating effects of poor mitochondrial function, oxidant damage, and inflammation that arise from deficient CoQ10 levels. For those who seek the extra added benefits of greater bioavailability and enhanced expression of anti-aging genes, reduced CoQ10 in the form of ubiquinol may be the answer.

Promising studies have demonstrated that CoQ10 protects cells in the eye—specifically the energy-intensive retina and the oxygen-exposed cornea.⁵⁴⁻⁶³ These effects may prevent common causes of blindness in old age, such as macular degeneration, glaucoma, and cataracts.

The kidney, like the eye, heart, and blood vessels, is an organ with tremendous blood flow, high oxygen exposure, and a crucial need for maximum energy efficiency. Studies in humans and animals reveal powerful protective effects of CoQ10 on kidney tissue structure and function, potentially adding years to the lives of people who might otherwise succumb to kidney failure.⁶⁴⁻⁷¹

The human brain is the body's largest consumer of oxygen and utilizer of energy. The major neurodegenerative diseases, including Alzheimer's, Parkinson's, ALS, and Huntington's, and many of their associated cognitive deficits, are beginning to show small signs of yielding to CoQ10 supplementation, at least in their earliest stages.⁷²⁻⁸⁰

Summary

Cardiovascular disease has many faces, but a central mechanism is **loss of energy** efficiency at the level of heart muscle and the coronary arteries that feed it.

CoQ10 is essential for transferring energy from food into ATP molecules, the universal cellular energy currency.

Studies show that CoQ10 levels are diminished in heart disease, particularly **congestive heart failure**. Supplementing with CoQ10 improves heart and vessel function in lab experiments, animal studies, and clinical trials.

If you suffer from existing heart disease, add a daily supplement of CoQ10, preferably the **ubiquinol** form, to your medication regimen after discussion with your doctor. If you are not yet a victim of overt cardiovascular disease, you are even better positioned to take advantage of CoQ10's preventive effects.

It is impossible to overstate the importance of CoQ10 supplementation in maintaining healthy bioenergetics in the heart, brain, kidney, eye, and other energy-intensive tissues. There is every reason to believe that regular CoQ10 supplementation will add to both your life span and your health span. ●

The High Cost Of Heart Disease

\$818 billion... That's the estimated annual cost, in the United States alone, for total direct medical costs of cardiovascular disease by 2030.⁸⁶

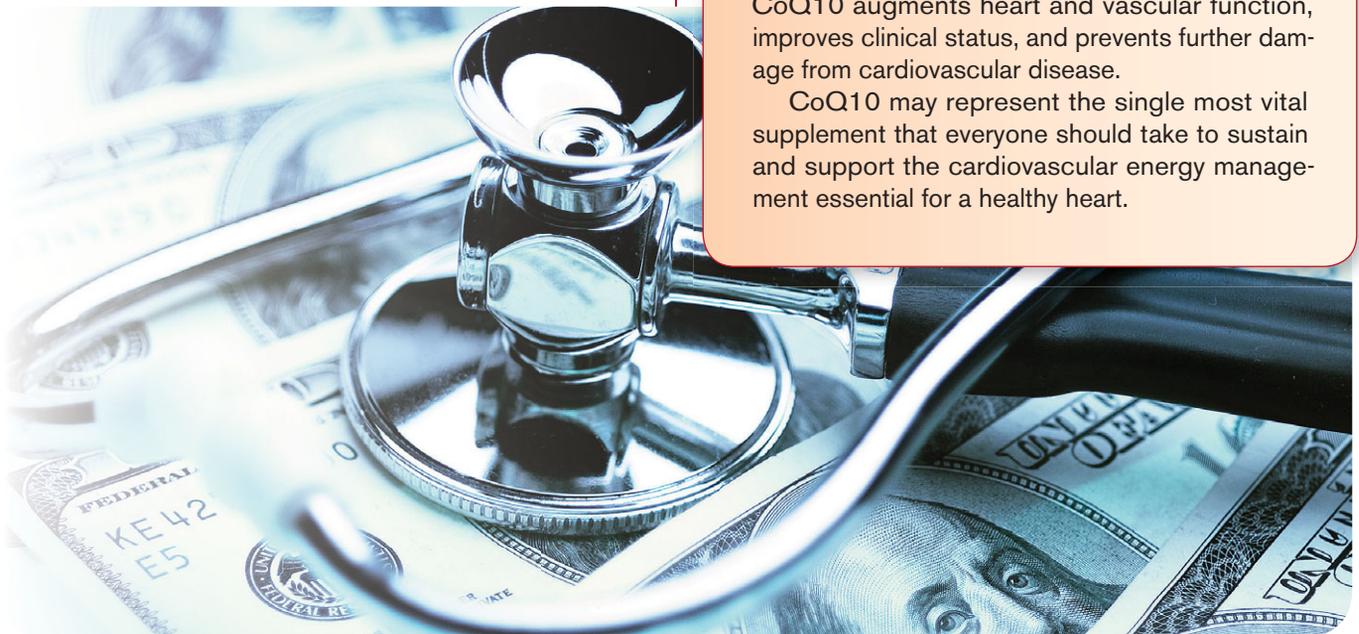
That represents a tripling, from about **\$273 billion**, over a 20-year period, and a failure of the American health system to accomplish a major goal, which is the reduction of heart attacks and strokes by a million patients by 2017.¹

During that time, real indirect costs from lost productivity will increase by **61%**, from **\$172 billion** to **\$276 billion**.⁸⁶ That's more than a **trillion dollars** a year in total.

With those kinds of figures, we can't afford to NOT get heart disease under control.

Studies show that supplementation with CoQ10 augments heart and vascular function, improves clinical status, and prevents further damage from cardiovascular disease.

CoQ10 may represent the single most vital supplement that everyone should take to sustain and support the cardiovascular energy management essential for a healthy heart.



Use Of Ubiquinol In Clinical Studies

Ubiquinol has now been shown to be important and effective in management of a number of chronic, age-related, oxidation-driven diseases, due to its potent effects in smoothing mitochondrial energy transfer and reducing the collateral damage to cells and tissues. For example:

- In diabetic retinopathy, a higher ratio of ubiquinol to ubiquinone was shown to be protective.¹⁰⁵
- In diastolic heart failure, or heart failure with relatively normal pumping ability in the heart, ubiquinol is in growing use to improve patient outcomes and improve the function of the heart's left ventricle during its relaxation phase, when it recovers from energy-intensive contractions.¹⁰⁶
- In men with impaired fertility due to weak or defective sperm, ubiquinol exerted favorable changes on sperm structure and motility, changes that favor fertility.¹⁰⁰
- In cardiovascular diseases, an early marker of dangerous oxidative damage to heart cells is a rise in levels of a normally intracellular enzyme called GGT; ubiquinol was shown in a human study to reduce GGT activity, probably through complex effects on gene expression.⁹⁰
- In autism, a childhood disorder thought to have roots in oxidative damage to brain tissue, ubiquinol supplementation improved communication with parents, verbal communication, game playing with other children, sleep, and food rejection, all common findings in autistic children.¹⁰¹

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

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Magnesium (as magnesium oxide)	300 mg
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Zinc (as zinc amino acid chelate)	2 mg
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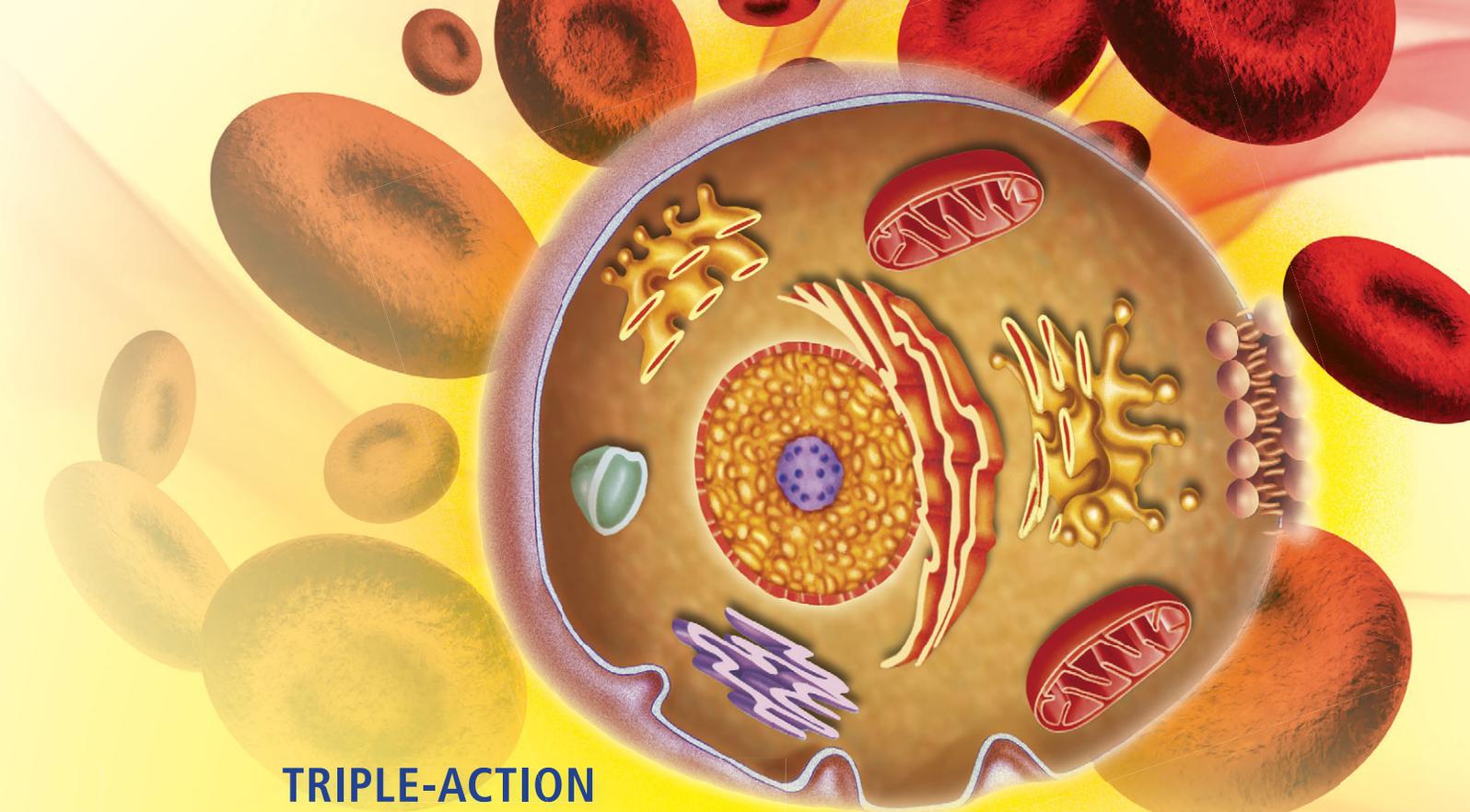
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Item # 01733





The Beginning Of The End Of The War On Medicine

For nearly 100 years, there has been a serious war going on between the proponents of allopathic (conventional) medicine and those who support natural or **functional medicine**. Functional medicine in the form of herbal,^{1,2} Ayurvedic, and Chinese medicine was dominant around the world for hundreds of years.³⁻⁵ Then, in the late 19th and early 20th centuries, the germ theory^{6,7} of disease began to take over, along with technological advances such as x-rays,⁸ the electron microscope,⁹ and the use of antibiotics.^{10,11}

A new breed of medical school emerged to teach future doctors how to utilize these new diagnostic tools, medicines, and operating procedures to defeat the external invaders of the body. Doctors became thoroughly convinced that most diseases were caused by germs, bacteria, viruses, or rogue cells that needed to be cut out, killed, or controlled by these new medical breakthroughs.¹¹

Natural medicine was dismissed as being outdated and unscientific. Medical schools stopped teaching this form of medicine and medical licenses were given only to those who graduated from the new medical schools that had been established across the country. Naturopathic doctors were branded as quacks, as were chiropractors, nutritionists, acupuncturists, and all of the other so-called natural medical practitioners.

But in the late 1940s and early 1950s, proponents of natural medicine started to push back. Under the unofficial leadership of Linus Pauling, a small group of scientists and doctors began treating brain-related illnesses, such as depression and schizophrenia,¹² with diet and nutritional supplements. They were pleased with the results of this new approach and Pauling eventually coined the treatment protocols as “orthomolecular psychiatry.”¹³⁻¹⁵

While Pauling and other pioneers, like Abram Hoffer,¹⁶ were making strides on brain-related disorders, the rest of the human body was also getting some attention. The hippy movement of the 1960s created a mini-groundswell of interest in nonconventional treatments. Nutrition and herbal remedies became the rage for these counterculture types. Others soon became believers as conventional medicine proved to be less successful than many had hoped for. Visits to naturopaths, chiropractors, and acupuncturists began to increase while reports of dangerous side effects from prescription medications continued to surface.

Early leaders in this holistic movement, such as Andrew Weil, Bernie Siegel, and Dean Ornish, emerged in the 1980s after publishing groundbreaking books. Another early leader was Joseph Pizzorno, who co-founded Bastyr University in 1978 to educate naturopathic doctors. It is now recognized as one of the premier schools in the world for natural medicine.

In the late 1970s and early 1980s there was also a movement to show that the brain and the body actually worked together for the benefit of the whole person. This flew directly in the face of over 400 years of traditional medical thinking, which started when French philosopher Rene Descartes declared that the human brain was totally separate and not relevant to the health of the human body.¹⁷ Many doctors have since disproved this theory and clearly established the connection between mind and body.¹⁸

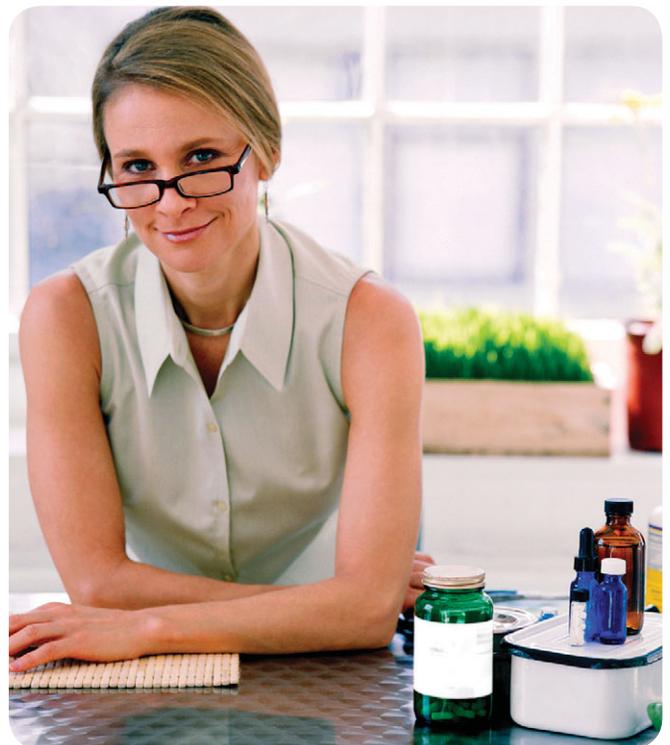
Another Step Forward

The nonconventional medical model has been called many things over the past 50 years, including:

- Natural
- Holistic
- Alternative
- Complementary
- Integrative
- Functional

Integrative and complementary became the key names in the early 1990s as efforts were beginning to bring the two medicines together in order to better meet the needs of a confused and frustrated public.

This effort at integration took a major step forward during the 1992 presidential campaign. Apparently, Ross Perot, a third-party candidate for president of the United States, asked Hans Nieper, a German physician, for some ideas on how to reform the American Health Care System. Dr. Nieper had gained considerable notoriety for his treatment of cancer and MS with totally natural substances. His reform proposal eventually made it into the hands of Bill Clinton who, after being elected, asked his close colleague Bill Richardson to put together legislation that would help to accelerate research into, and utilization of, these natural medicine protocols.



With the help of Senator Orrin Hatch of Utah, the legislation passed under the title “The Dietary Supplement Health and Education Act of 1994 (DSHEA).”¹⁹ This bill not only protected the right of people to use dietary supplements, it eventually led to funding for research on the efficacy of various nutritional supplements and natural treatments.²⁰

In the past 20 years, since those significant changes in policies were made at the national level, there have been many other changes in the medical paradigm. Evidence has been mounting that the conventional medical model was simply not working.

Dangerous Signs Of Failure

While natural and holistic medicine are getting a big positive push forward, equally negative developments are occurring regarding conventional medicine:

- The percentage of our GDP allocated to health-care expenditures is gradually increasing; it was **5.2%** in 1960²¹ and is estimated to reach nearly **20%** by 2021.²²
- The US spends nearly twice as much²³ as other industrialized countries on healthcare (per capita) and yet ranks near the bottom in practically every measure of population health.^{24,25}
- About **95%** of every healthcare dollar is spent on treatment and less than **5%** on prevention, despite the fact that over **70%** of many deadly diseases, such as type II diabetes, coronary artery disease, stroke, and colon cancer are preventable by lifestyle choices.^{26,27}
- An article in the *New England Journal of Medicine* reported that over \$100 billion was spent on balloon angioplasty and coronary artery bypass grafting (CABG) in 2007, yet only **3%** of bypass patients experienced prolonged life span.²⁸
- Prescription drugs cause 700,000 emergency room visits each year²⁹ and over 41,000 deaths.³⁰
- Recent evidence estimates that there are over 400,000 avoidable hospital deaths each year.³¹
- In the book *Death By Medicine* by Gary Null, et al., the total number of avoidable deaths by conventional medicine was placed at over 783,936 per year.³²



- Dr. David Eddy did a study on the scientific evidence behind conventional medical treatments. An article in *Business Week Magazine* in 2006 quoted Dr. Eddy’s study and declared that only **20 to 25%** of what was being done to treat patients has been proven effective.³³
- The *Journal of Clinical Evidence* reports that only **11%** of typical conventional medical treatments may be categorized as beneficial, by randomized controlled trials.³⁴

There are a few positive things to report on the conventional medicine front. In terms of acute care, there have been tremendous strides made in the technology related to operations. Surgery has become less invasive with higher rates of success for many operations.

However, there is still a problem related to the number of unnecessary operations being performed and prime examples include knee surgery, back surgery, angioplasty, and heart surgery. If unnecessary operations were eliminated, acute care could become the shining star for conventional medicine.



While conventional medicine was acquiring a very dismal track record on the treatment of chronic disease, the exact opposite pattern was emerging for holistic/functional medicine. Some examples include the following:

- A large study published in the British medical journal *Lancet Oncology* found that diet (plant-based), yoga, meditation, and lifestyle changes increased the length of telomeres. Shorter telomere length has been associated with conditions such as hypertension, obesity, diabetes, heart disease, and prostate cancer.³⁵
- The *Institute of Medicine* reported in the *Wall Street Journal* that a holistic approach to health care—which uses the best of conventional medicine along with alternative therapies like meditation, yoga, acupuncture, and herbal medicines—has been scientifically documented to be medically effective and cost effective.³⁶
- The book *Nutritional Medicine* has over 15,000 scientific references proving that healthy foods and nutritional supplements can prevent, and often reverse, nearly every chronic disease.³⁷

This pattern of strong evidence for holistic/functional medicine protocols has been reported in hundreds of articles in peer-reviewed journals and yet the money-driven medical establishment has been able to hold off this trend with some clever political spin tactics. They have consistently attacked natural medicine using orthodox medical associations while big pharma uses its enormous wealth to control Congress, large swaths of academia, and the media. Conventional medicine was thus able to make it appear that natural medicine was unscientific.

These tactics have weakened in the Internet era as more people are able to access information that is not controlled by the mainstream media and their big pharma advertisers.

The Beginning Of The End

Conventional medicine's house of cards is about to begin its big fall from grace with the recent announcement that the prestigious Cleveland Clinic is going "functional." President and CEO of the Cleveland Clinic Dr. Delos "Toby" Cosgrove recently announced a number of significant actions including:³⁸

- The establishment of the first functional medicine grand rounds titled "Functional Perspective on Food and Nutrition: The Ultimate Upstream Medicine,"
- Research to test functional medicine models head-to-head against conventional medicine for a number of chronic diseases, such as diabetes, asthma, and autoimmune diseases,
- The creation of a Wellness Institute and the appointment of the nation's first Chief Wellness Officer,
- Creation of a Chinese Herbal Therapy Clinic, one of the first of its kind in the country,
- The movement of the clinic's \$6.2 billion network of hospitals, family health centers, and outpatient clinics in a decidedly holistic direction.

This is the most significant push in the holistic direction by any mainstream health care network in the United States and much of the credit must go to Dr. Mark Hyman, who met with Dr. Cosgrove several times over the past two years. Dr. Hyman is the Chairman of the Board of The Institute of Functional Medicine and one of the true leaders in the functional medicine movement.

For two years, Dr. Cosgrove tried to bring Dr. Hyman to Cleveland. Dr. Hyman resisted the CEO's overtures and actually told him, "Toby, you don't want me there. Because if I go there I'm going to tell you that most of what you are doing is wrong; that in fact, you are harming people, that I would want to implement programs that are going to empty out half your hospitals and clear out most of your procedure rooms, and reduce hospital stays and doctor visits dramatically. Are you okay with that?" Dr. Cosgrove did not waiver in his commitment to the new direction and has moved ahead with Dr. Hyman's full support and assistance.³⁸

This dire pronouncement about conventional medicine is a very similar to a statement Dr. Hyman made at a US Senate hearing on health care a few years ago when he said:³⁹

“You will not solve the current healthcare crisis if you simply continue to do the wrong things better.”

The writing is on the wall, and conventional medicine should stop resisting change and start to embrace it. This is a battle that those who believe only in conventional medicine cannot win, and the more they resist, the more credibility and respect they will lose. This is truly the beginning of the end of the war in medicine. ●

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

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SUPPORT FOR THE AGING IMMUNE SYSTEM

DUAL-MECHANISM IMMUNE SENESCENCE FORMULA

As we age, our once-vigorous immune system begins to decline. The result is **immune senescence**, which has been linked to problematic outcomes in aging.¹

A vital immune system is composed of a healthy balance of **naïve T-cells** that attack new invaders and **memory T-cells** that attack previously known invaders. However, after a **naïve T-cell** attacks a new threat, it becomes a **memory T-cell**, which will only go after a threat that it remembers.^{2,3}

The result is that the delicate immune balance tips and we have a surplus of **memory T-cells** and a deficit of **naïve T-cells**. With this imbalance, our body is less able to defend itself against new invasions. This produces a less-vigilant immune system—or **immune senescence**.⁴

Life Extension® researchers have developed an innovative, *dual-mechanism* formula designed to combat **immune senescence**.

Immune Senescence Protection Formula™ is composed of two botanical compounds that support both adaptive (e.g. **naïve T-cells**) and innate (e.g. macrophages and neutrophils) immune response cells. Together, these nutrients work in a complementary fashion to rejuvenate both major arms of the aging immune system through unique mechanisms.

Cistanche Rejuvenates Aging Immune System

Scientists have discovered that the *echinacoside* compound found in **Cistanche** plant extract stimulates the development of **naïve T-cells** and leads to a lower amount of **memory T-cells**, thereby creating a more balanced immune response. **Cistanche** also increases Natural Killer (NK) cell activity—resulting in a **15%** life span increase in animal research!⁵

A 12-week human study of a dietary supplement containing standardized **Cistanche**, resulted in impressive gains in immune factors after supplementation. Subjects had significant improvements, including an **11.7%** increase in natural killer (NK) cell activity and a **20.2%** improvement in the ratio of CD4 to CD8 cells. An increased CD4/CD8 ratio is indicative of healthy, youthful immune function.⁶

Reishi Mushroom Combats Immune Senescence

The numerous bioactive components of the **Reishi** mushroom exert powerful effects that may reverse many of the factors of immune senescence.⁷

Reishi extracts boost the function of innate immune cells, the immune system's first line of defense.⁷⁻⁹

It has long been known that **Reishi's** unique polysaccharides, triterpenes, and other constituents¹⁰ enhance the body's hematopoietic stem cells, macrophages, and other crucial immune factors.¹¹⁻¹³ Animal research shows **Reishi** supports multiple aspects of immune function and longevity.¹⁴

Ultra-Potent, *Dual-Extract* Formulation

Now, both **Cistanche** and **Reishi** are available in one powerful, dual-extract formulation, specifically created for year-round support of the aging immune system!

Immune Senescence Protection Formula™ with standardized **Cistanche** and **Reishi** is our maximum dual-extract defense against immune senescence.

The suggested serving of two vegetarian capsules daily of **Immune Senescence Protection Formula™** provides:

Cistanche tubulosa extract (stem and leaf) [std. to 22% echinacosides (46.2 mg)]	210 mg
Reishi mushroom (<i>Ganoderma lucidum</i>) extract (Fruit body) [std to 13.5% polysaccharides (132.3 mg) and 6% triterpenes (58.8 mg)]	980 mg
Reishi mushroom (<i>Ganoderma lucidum</i>) spore	150 mg

A bottle of 60 vegetarian capsules of **Life Extension® Immune Senescence Protection Formula™** retails for \$40. If a member buys four bottles, the price is reduced to **\$27** per bottle.

Standardized *Cistanche*

For those seeking the effects of **Cistanche** only, **Life Extension®** has created a standalone **Standardized Cistanche** that contains the same echinacosides as in the **Immune Senescence Protection Formula™**. For a very low price, a member can obtain the recommended **210 mg** daily **Cistanche** dosage in a single, high-potency capsule providing a potent **46.2 mg** dose of echinacosides.

Standardized Cistanche provides powerful support against immune senescence.

The suggested dosage of one vegetarian capsule of **Standardized Cistanche** provides:

Cistanche tubulosa extract (stem and leaf) [std. to 22% echinacosides (46.2 mg)]	210 mg
Vitamin C (as ascorbyl palmitate)	2 mg

A bottle of 30 vegetarian capsules of **Life Extension® Standardized Cistanche** retails for \$20. If a member buys four bottles, the price is reduced to **\$12** per bottle.

To order **Life Extension® Immune Senescence Protection Formula™**, or **Standardized Cistanche** call **1-800-544-4440** or visit **www.LifeExtension.com**



Item # 01905



Item # 01906

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Scientists continue to find healthy benefits—including DNA protection—in cruciferous plants.

But it's not always easy to get in five servings of cruciferous vegetables a day—and even if you do, cooking can destroy many of the protective compounds found in **broccoli, Brussels sprouts, cauliflower, and cabbage.**

Life Extension®'s **Triple Action Cruciferous Vegetable Extract** combines vital plant extracts into a comprehensive formula to provide optimal DNA protection. Each capsule also contains:¹⁻⁹

- **Indole-3-carbinol (I3C) and di-indolyl-methane (DIM)** to encourage liver detoxification and modulate estrogen metabolism
- Bioactive **cruciferous** compounds like **glucosinolates** have favorable effects on healthy cell division
- **Apigenin**, a powerful plant flavonoid, that boosts cell protection¹⁻⁹

Those who want the additional benefits of *trans*-resveratrol can order **Triple Action Cruciferous Vegetable Extract with Resveratrol**. Each vegetarian capsule contains **20 mg** of *trans*-resveratrol in addition to the vegetable extract.

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Triple Action Cruciferous Vegetable Extract

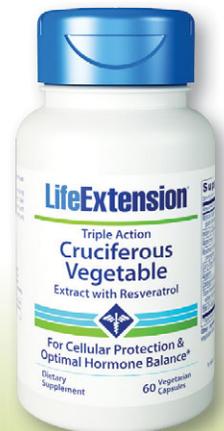
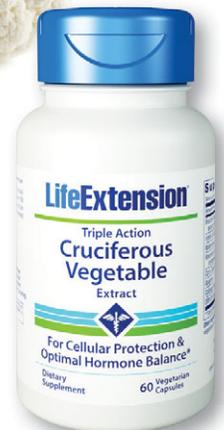
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To order Triple Action Cruciferous Vegetable Extract, call **1-800-544-4440** or visit **www.LifeExtension.com**

BY DONNA CARUSO



Life Extension[®] member Debbie Sherrick is nothing short of a dynamo. After more than 20 years as a personal trainer, she is now a certified holistic health counselor and herbalist who coaches clients about diet, lifestyle, weight loss, and codependency. In an exclusive interview with *Life Extension*[®] magazine, Sherrick talks about her background, what brought her to holistic health, and how she works with patients and promotes her own good health and longevity.

DEBBIE SHERRICK

Holistic Health
Care Practitioner

Origins

Sherrick's relationship with good health goes way back. "We grew all our own vegetables and Mom would freeze and can everything for the winter. We always had fresh grass-fed beef and fresh chickens and eggs from a neighbor. We rarely went to the store for anything," says Sherrick, who was raised in a large extended family in rural Indiana.

She says another key influence was her grandmother, who lived to be 100 and taught Sherrick the value of herbal healing. "Grandma Molly was an herbalist, but we thought she was like a voodoo practitioner," Sherrick explains. "She would make concoctions and people would come to her from all over with their ailments." Sherrick realized early on that herbs were like medicine, only more effective. She remembers her grandmother preparing a liquid from horseradish root and giving it to her for childhood asthma. "It was like fire," she recalls, "but it would bring up the phlegm. We rarely went to the doctor."

After moving to Florida with her parents, Sherrick began to forget these early life lessons and started to eat poorly. As a young bride with two children, she remembers eating lots of fast food and sugar, skipping breakfast, and even fainting one day in her kitchen. A friend referred her to a nutritionist who diagnosed the young woman with hypoglycemia and started her on a healthy eating plan of lean protein and shakes, herbs, and supplements.

“That’s when I said to myself, ‘Wow. I know this. What was I thinking? I know I need [good] nutrition. I know I need herbs and more raw and fresh foods. I’ve neglected taking care of myself.’”

Sherrick sees this moment as the start of her journey to becoming healthy and learning how to help others do the same.

When her second marriage ended many years later, Sherrick realized she needed to start taking care of herself and decided to become a personal trainer working out of her in-home gym. After much studying and reading, she began to develop the mind-body-

spirit approach she currently uses to treat a whole person. With degrees in exercise science and nutrition, a certificate in iridology, and an herbalist license, Sherrick began using a multidisciplinary program to help others get healthy.

A Total Approach

“I decided I wanted to work with the whole body,” Sherrick explains. Her strong belief that physical ailments affect the mind and vice versa led her to learn all she could about both.

Sherrick grew up in an alcoholic home, and that led her to understand how unexplored emotional issues can impact physical well-being. After years of trying to help people with nutrition and exercise alone, she realized this was not **100%** effective because many clients had childhood issues and addiction problems that were not being addressed. When she incorporated these into her work, she felt she was finally doing what she needed to do—and treat the whole person.

“My program involves food and supplements, plus helping people work with their doctor to get off prescription drugs, learn to handle stress, have healthy relationships, and deal with childhood and other emotional issues.

“You never arrive,” Sherrick states, “you get healthier and healthier and you have many tools to use, but it’s a lifetime’s work.”

How Sherrick Works

Sherrick aims to discover each patient’s individual needs and then strives to meet them. There is an initial 90-minute consultation where she reviews a client’s diet, genetics, nervous system, exercise, lifestyle, and current health, especially the digestive system, which she thinks is extremely important.

“A lot of people come because they think I’m going to give them something for their symptoms,” she explains. “They don’t think I’m going to look at their roots, their biology, and remove the cause



DEBBIE SHERRICK'S SUPPLEMENTS

- CoQ10
- Digestive enzymes
- Krill oil
- Curcumin
- Vitamin B complex
- Pantothenic acid (for adrenal support)
- Vitamin C
- Spirulina
- Vitamin D3

rather than treat the symptoms, which is generally their experience in visiting doctors.”

Sherrick also looks at the bloodwork her clients provide and may use a biofeedback program to assess body energy. “I want to teach people to take responsibility for their health,” she stresses. “Americans are trained not to take responsibility for their health. They believe [in] doctors and food companies and Western medicine. We don’t have *health* care. We have *sick* care.”

But Sherrick is now seeing positive changes happening in the health field. “In the last seven years, I have had more referrals from doctors,” she says. “There is more awareness and more belief [regarding whole-body healing], especially among young doctors.” She ascribes this to a recognition that holistic health approaches are more in demand, especially from Baby Boomers, and doctors are now exploring more preventive and alternative care.

Her Personal Regimen

Sherrick’s own healthcare regimen is a work in progress. She begins her day with a glass of purified water containing chlorophyll to put oxygen in her lungs, followed by probiotics to boost her immune system. Next comes 30 to 40 minutes of what she calls “quiet time,” the practice of visualization, breathing, and prayer.

This is followed by a breakfast shake of organic whey protein, fiber, coconut oil, organic berries, and Greek yogurt or almond butter, followed by supplements. Some supplements are taken regularly and others only when needed.

“If I’m feeling more stress, I’ll take more adaptogens and maybe more of the B vitamins,” Sherrick notes. “If I’m feeling a little run-down, I’ll take something extra for my immune system.”

If she feels she may be getting sick, Sherrick might add echinacea, garlic, ginger, elderberry, zinc, rose hips, olive leaf, capsicum, or colostrum. She also takes an herbal trace mineral product that includes dandelion, alfalfa, kelp, wheat grass and hops; food enzymes for the digestive system; krill oil for joints; turmeric for its anti-inflammatory properties; algae with spirulina, chlorella, and blue-green algae; and a calming formula with hops, valerian, and passionflower.

She then does 30 to 40 minutes of exercise, either at home or in a gym.

Living Longer

Sherrick’s number-one piece of advice for living longer is: “Keep moving and do not become sedentary.” Sherrick adds that nutrition is a major factor in a long and healthy life, and recalls a client who began working with her when he was in his 80s and died at age 101.

“I learned so much from him because he knew true health and knew about longevity,” she recalls. “He grazed, eating every two or three hours, mainly organic vegetables and fruits and lean grass-fed meat. He also had never been in a hospital, had a strong spiritual side, and never held a grudge.”

Sherrick also advocates an exercise program that gets you “a little winded and makes you breathe deeply,” plus finding emotional peace of mind.



Life Extension® Benefits

Sherrick loves being a member of Life Extension®, and praises their integrity as well as their free access to health advisors, which she calls “a tremendous service.” *Life Extension®* magazine articles are often helpful in her work, she adds, including “The Dangers of Using Antibiotics to Prevent Urinary Tract Infections,” which was published in the June 2014 issue. Sherrick quoted information from the article in her online newsletter since many of her clients suffer from this problem and have no idea how to treat it effectively.

“I love to educate people,” Sherrick concludes, “Knowledge is power.” ●

You can reach

Debbie Sherrick on her website at www.insideoutwellnesscoach.com.

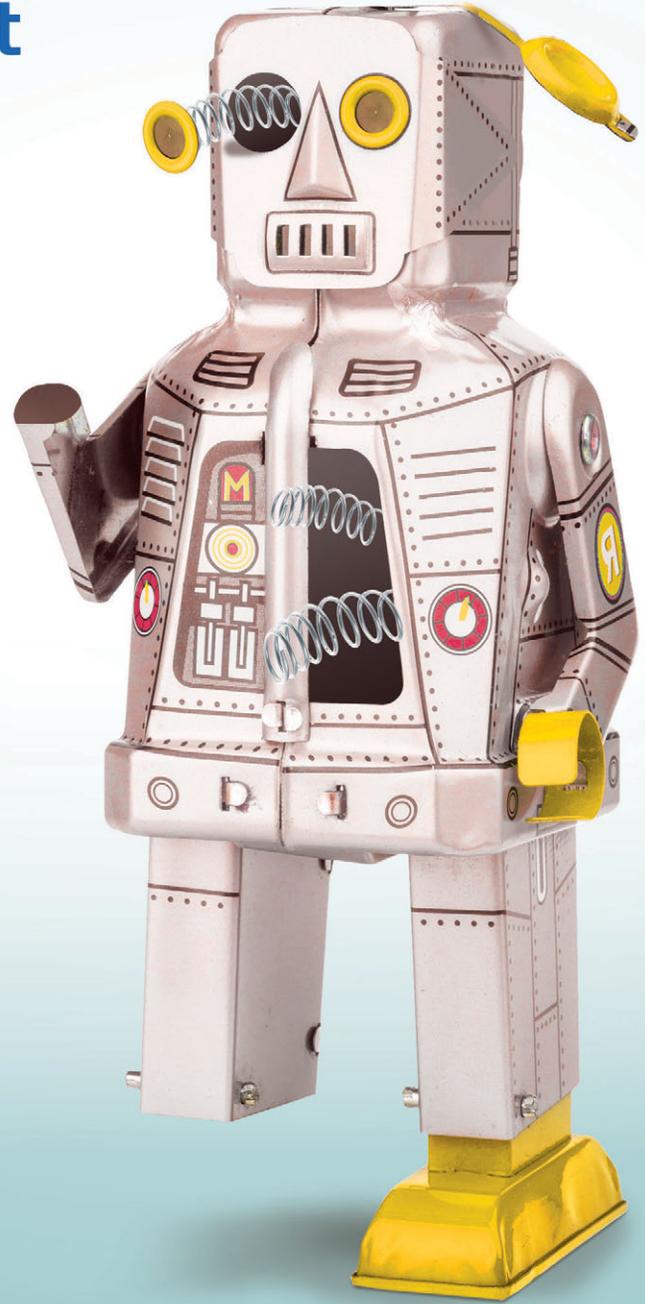
She helps clients both in person and through Zoom, a video system where she works face-to-face and screen-shares documents and other health information.

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

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BY MICHAEL DOWNEY

RICK ROSNER

World-Renowned Genius Describes His Longevity Program



Richard “Rick” Rosner is credited with having the world’s second-highest IQ. That ranking very likely under-represents his cognitive abilities.

This Life Extension® member has received the highest scores ever recorded on most of the IQ tests he has taken—and on the IQ test reputed to be the world’s most difficult, the Titan Test. Rosner attained the *only* perfect score ever recorded.

In this exclusive interview, Rick discusses his unique longevity program and his plans for a very long life.

LE: Rick, you’ve had an eclectic assortment of careers—bouncer, editor of the high-IQ-journal for the Mega society, nude model, quiz show contestant, TV show creator and producer, and comedy writer. Can you tell us about your current projects?

RR: [Recently], I became unemployed after 12 years writing for *Jimmy Kimmel Live!* But fortunately, I had a book proposal nearly ready to submit. The book, *Dumbass Genius*, is a memoir about all the ridiculous, non-genius stuff I’ve done. I also have a theory of the universe I’ve been working on for over 33 years that I laid out in a series of online interviews. And my web series starts shooting [soon].

LE: Aside from your television-writing career, you’re well known as the world’s second smartest person. How did you claim this title?

RR: [Actually], I’m listed as having the world’s second-highest IQ at the World Genius Directory (<http://psiq.org/>), which isn’t the same as being the world’s second-smartest person. I’ve taken more than 30 of the world’s most difficult IQ tests and earned the highest-ever score on about 20 of them... I really should have points subtracted from my IQ for wasting so much time on IQ tests.

LE: Your high-end IQ scores rose significantly over time, which seems unusual. How do you explain this?

RR: When I was a kid, my IQ scores never went much above 150, partly because tests themselves didn’t measure much above 150. Later, people created tests to measure ultra-high IQs, and I started scoring in the 170s, then 180s, and occasionally the 190s. Some studies suggest that certain aspects of intelligence decline about 1% a year after peaking in your late 20s. Scientists and mathematicians are said to often make their greatest contributions in their 20s and 30s. There are various possible reasons for this, but if it’s partly due to decline in brain function, I want to fight that with supplements.

LE: Do you think supplements have been making you smarter over the years?

RR: My intent has always been to keep the brain function I already have as long as possible. If I can avoid much of [the brain-function decline], then I'll have increased my intelligence relative to people my age. Until my mid-40s, I could get by with exercise and diet, but it's good that I discovered supplements because exercise and diet wouldn't be sufficient indefinitely. I feel as good in my mid-50s as I did in my mid-40s, and there must be a bunch of people who can't say that. What's the point of experience if your brain's too gummed-up to access it? PET scans of people with illnesses related to unhealthy eating and lack of exercise show dimmed-out brain function. Get them to clean up their act, and their brains light up again.

LE: How did you develop your supplement program? Based on what information?

RR: In the 80s, I started taking the standard vitamins—C and E—and sometimes whatever was on the half-price rack at vitamin stores, plus predigested protein to support weight training. In 2005, I read Ray Kurzweil and Terry Grossman's book, *Fantastic Voyage: Live Long Enough to Live Forever*, listing many of the 150 or so supplements Kurzweil takes, and I began building a serious supplement regimen. Since then, I've added more supplements based on Internet research and *Life Extension*® magazine articles. I'm currently taking about 40 different supplements. I want to maintain my ability to learn and think—I think healthy habits and supplements are my best shot at doing that.

LE: Do you think your program could help prevent dementia and Alzheimer's?

RR: I think it improves my chances. Nothing's certain... tomorrow I could be T-boned by a texting teen in an SUV. Alzheimer's doesn't run in my family and the only risk groups I belong to are being in my 50s and having taken a few head punches while working in bars. We may understand how to treat Alzheimer's in 15 years. I'm hoping that my regimen at least holds it off long enough for effective treatments to be developed.

LE: Please tell us about the prescription and nonprescription supplements you take to promote brain health.

RR: Supplements and habits that promote general health also promote brain health. The two cheapest, easiest daily rituals for general health are flossing and taking a half- or quarter-tablet of a baby aspirin each day for blood thinning and to fight inflammation. The only brain drug with an indisputable, immediate effect is coffee. Compounds I take for long-term brain maintenance include phosphatidylserine, Cognitex® from Life Extension®, DMAE, aminoguanidine, centrophenoxine, piracetam or aniracetam, and occasionally, vinpocetine.

LE: You take either piracetam or aniracetam. What has been your experience with these "smart drugs" (nootropics)?

RR: I took piracetam every workday for a few years. Then something happened with the FDA, and piracetam became more expensive, and you couldn't buy it on Amazon or eBay. So I switched to aniracetam. But I haven't been taking it much because I'm not writing jokes for TV right now, where you have to think fast. Now that my jokes are in tweet form,

I'm taking only six or seven brain supplements instead of eight or nine.

LE: Have you noticed that Cognitex® helps mental function?

RR: What I've noticed is no obvious cognitive decline. I'm getting to the age where people start becoming forgetful, but I experience no more forgetfulness than in the past. I think as clearly as ever. I don't know how, specifically, to account for this—I'd guess it's a combination of supplements, exercise, food discipline, and luck.

LE: Of all your supplements, methylene blue, which is a dye, has to be the most obscure. What are its benefits and how does it work?

RR: Methylene blue is my weirdest supplement. About five years ago, Phase II trials showed methylene blue had reduced progression of Alzheimer's and Parkinson's by **90%**. They're currently in Phase III trials. It has been used for over a century as a surgical dye, a malaria treatment, and an antifungal agent for fish. In brains that are breaking down, dead brain cells spit out sticky protein called amyloid, which chokes more cells, which spit out more amyloid. One way they think methylene blue works—if it does—is by acting on amyloid as a kind of detergent, making the strands less stuck-together and more [easily cleared] by natural brain processes. Because it's so unproven and I'm not in any dementia risk groups—except for some punches to the face as a bouncer—I don't take methylene blue every day. One fun thing is it turns your urine bright emerald green!

LE: You also take metformin, although you don't have diabetes. Can you explain its importance?

RR: Metformin is one of my favorite drugs/supplements. It helps your body use insulin more efficiently and reduces blood sugar spikes. Your body is kind of a slow cooker, and high blood sugar “cooks” you quicker. Along with resveratrol, metformin’s one of the few drugs that seem to act as a calorie-restriction mimetic. When you practice calorie restriction, your body switches into slower-aging mode. But calorie restriction isn’t much fun, so if you can trick your body into thinking it’s calorie-restricted, great! Resveratrol seems to do this. Unfortunately, when you take resveratrol orally, your liver knocks out most of it. This doesn’t happen with metformin. Studies show metformin may also reduce cancer risk.

LE: Explain why you take the prescription drug Avodart® (dutasteride).

RR: Avodart® knocks out DHT, a form of testosterone that makes your prostate blow up and your hair fall out. It seems to keep my hair attached to my head and my prostate in decent shape, despite my sit-down job, which can be hard on your prostate. Your body makes two forms of DHT and Avodart® knocks down both of them—Propecia® and Proscar® only block one form of DHT, so I prefer Avodart®. It seems to leave the rest of your testosterone alone—my level is in the mid-700s, which is good for a guy in his 50s.

LE: And the prescription drug metoprolol?

RR: Metoprolol is my beta-blocker. I’m one of those people whose blood pressure is tied to emotions. Because it’s an adrenalin blocker, it keeps me from getting overly worked-up. Without it, my blood pressure might be in the 130s

over 90s, especially in Los Angeles traffic. With metoprolol, it’s in the 100s over 60s—which is associated with longevity and not having the feeling your head’s gonna pop.

LE: Have you made supplement recommendations to others you know?

RR: I tell a lot of people to try fiber gummies and carb blockers, which help move food through your body without full absorption. Most people struggle not to take in more food than their bodies need. Fiber gummies and carb blockers can replace a bit of food discipline. Besides that, my enthusiasm for supplements is mostly inflicted on my wife and dog.

LE: In recent years, you started drinking coffee every day—for what benefits?

RR: Coffee’s the only brain drug that shows me on a daily basis that it works. I started drinking coffee about two-and-a-half years ago. [Now I can] work straight through the day with little fatigue. Coffee doesn’t make me smarter, but it makes me chattier—helpful for yelling out jokes [as a comedy writer]—and more focused.

LE: Do you think your rather extreme exercise routine slows body and brain aging?

RR: The amount of exercise I do isn’t particularly crazy—80 to 100 sets daily on weight machines. What’s crazy is that I have a [daily] circuit of five gyms, using my favorite machines at each. I’ve missed only 55 days at the gym in 30 years, the most recent missed day being January 20, 1991. Studies indicate working out has longevity benefits. I’d guess I’m at least a decade younger physiologically than chronologically. And working out helps me with stress



and focus. Working on a daily TV show, I had to support my health to help my concentration. I got more sleep, quit moonlighting, and dropped my body fat—which had crept to **12%**—back down to **6%**. I became increasingly productive and supplements helped me hold up under a hefty workload.

LE: Can you describe the thinking that led you to your comprehensive supplement routine?

RR: My main motivation has been to live as long as possible, to see all the cool science fiction stuff in the future. It *stinks* to be among the last few generations of people who are biologically obligated to age and die. There are people alive now who will still be alive 150 years from now, and if they’re alive in 2165, they have an excellent shot at living as long as they want. To live a very long time, you don’t need to live until everyone can live forever. You only need to live long enough that for every year you live, medical science can extend your life by yet another year. (I think that’s a Ray Kurzweil idea.)

Rick Rosner's Complete List Of Prescription And Nonprescription Supplements

The following list details Rosner's comprehensive supplements regimen—and includes his comments on the value of each.

Alpha lipoic acid and acetyl L-carnitine—For mitochondrial support.

Aminoguanidine—Reduces advanced glycation end products (AGEs). Basically, AGEs make you sugary and crunchy, like roast turkey skin. You don't want that.

AMPK Activator from Life Extension®—Helps keep blood sugar at optimum levels.

Aspirin—A half- or quarter-tablet of a baby aspirin daily for blood thinning and to fight inflammation.

Astragalus—May protect against shortening of telomeres.

Avodart®—Avodart® knocks out DHT, a form of testosterone that makes your prostate blow up and your hair fall out. [Warning: Women who may become pregnant and children should never take or even handle Avodart® capsules—which can be absorbed through the skin—because they can cause very serious birth defects; those taking Avodart® should avoid donating blood for at least six months after arresting treatment.]

Benfotiamine—A vitamin [B1] that reduces advanced glycation end products (AGEs).

Calcium—Strengthens bones, protects heart muscles.

Centrophoxine—General nootropic [smart drug] related to DMAE.

Coffee—Coffee's the only brain drug that shows me on a daily basis that it works.

Cognitex® from Life Extension®—I'm getting to the age where people start becoming forgetful, but I experience no more forgetfulness than in the past.

Curcumin—Anti-inflammatory. It may reduce incidence of cancer.

DMAE (dimethylethanolamine)—For healthy nerve membranes.

Fiber gummies and fat blockers—They help move food through your body without full absorption.

Glisodin®—May slow the graying of hair.

Glucosamine and chondroitin—I give it to our 16-year-old dog too.

Horse chestnut—Tones up your veins. I was born with terrible varicose veins.

L-carnosine—Reduces advanced glycation end products (AGEs).

Lycopene—May help protect heart and prostate.

Mangosteen/pomegranate/noni complex—[Full-spectrum fruit formula.]

Metformin—Metformin's one of the few drugs that act as a calorie-restriction mimetic.

Methylene blue—Phase II trials showed methylene blue (MB) had reduced progression of Alzheimer's and Parkinson's by **90%**.

Metoprolol—Metoprolol is my beta-blocker.

Mitochondrial Energy Optimizer from Life Extension®—Helps maintain mitochondrial function.

Comprehensive Multivitamin from Life Extension®.

N-acetyl cysteine (NAC)—For liver protection.

Omega-3 fish oil capsules—An essential brain food.

Phosphatidylserine—Preserves cognitive function, particularly memory.

Piracetam or aniracetam—[For] when you have to think fast. I wanted to give myself every mental resource.

Quercetin and bromelain—Anti-inflammatory.

SAME (S-Adenosyl methionine)—For liver protection

TMG (trimethylglycine)—For liver protection, reduces homocysteine.

CoQ10 (a formulation that features not only coenzyme Q10, but also vitamin E in its various forms of tocotrienols and tocopherols).

Vinpocetine—Occasionally, as a neuroprotectant and to increase cerebral blood flow.

Vitamin C—Helps fight oxidative stress.

Vitamin D3—Cancer inhibitor, may help prevent heart disease and supports the immune system.

Vitamin E with selenium and Gamma E—Selenium may reduce incidence of prostate cancer.

Vitamin K—Helps maintain proper blood clotting.

5-LOX Inhibitor from Life Extension®—Anti-inflammatory.

LE: Do you believe it's possible to substantially extend healthy human life span?

RR: Using existing medical knowledge, I believe you can give yourself a fair chance of making it to 100. I think someone who's obsessive about controlling all aging factors, even more than I do, might slow aging by 30% or more. Doing that across 60 years from age 20 to age 80, you might hit 80 with the physiological profile of an average 60-year-old person, with a one-in-four chance of making it to 100. And that's just using current knowledge and tech. We're on the verge of a biotech revolution. Some people wear fitness wristbands to monitor their physical activity—within 10 years, healthy people will wear monitors that read blood levels and offer



advice. Within 20 years, wearable monitors will medicate healthy people on a real-time basis. Gene therapy should roll back some of the more absolute aging limits. By century-end, we should see a few Baby Boomers or Gen Xers who've made it into their 130s.

LE: How did you develop your antiaging program, and what were your key findings?

RR: Like everyone, I use the Internet and try to separate reasonable information from fantasy. *Life Extension*[®] magazine is helpful. You always back up claims with a zillion studies. My findings? Don't always rely on your doctor—do your own research. Most doctors don't specialize in supplementation, and the normal ranges of blood-test values aren't always optimal. Look at many sources. On the Internet, it's hard to know if sources are accurate. Tell your doctor what you're doing. Floss and take aspirin. Watch your blood pressure—closer to 100/60 is probably better than 120/80. There are good blood pressure meds if you can't get your BP down [naturally]. Watch your blood glucose—80 or below is optimal.

Make your diet, exercise, and supplementation routine as easy as possible. If it's a pain, you'll likely quit. Stay up to date in your research. New findings come along all the time. Factor in cost-effectiveness factors...what I spend on supplements has to be thousands of dollars a year. You should be pooping frequently and easily. Fiber helps. I think fiber gummies are the easiest way to get it. Try carb blockers—if taken before meals, they prevent your body from absorbing about 25% of

carbs it normally would. Avoid fat blockers by peeling most cheese off your pizza—it'll still taste like pizza. Without being a nuisance, get your family involved. My wife, who loves to cook, learned to make healthy, tasty meals. I combine about 20 different supplements into capsules for our dog—she seems more alert since I increased the brain drugs in her dog pills. If you enjoy going out for meals with your significant other, try splitting an entrée.

LE: You're now 54. With your extensive program—how many more birthdays do you hope to have?

RR: My exemplar is Jack LaLanne, who made it to 96. But he didn't eat sugar for the last 80 years of his life—I'm not that disciplined. That'd give me 42 more years, during which time I hope medical science will come up with ways to add some bonus years to that.

LE: We hope so too. Thanks.

RR: Thank you.

Readers interested in Rosner's memoirs should watch for the release of his new book, *Dumbass Genius*, in 2016. Meanwhile, you can follow him on Twitter @dumbassgenius.

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

ULTIMATE eye HYDRATION

Maintaining eye support is essential for optimal eye health.

As we get older, our eyes become vulnerable to a variety of insults that can cause irritation and dry eye. With just a few drops of the proper eye lubricant, **eye irritation** stemming from **dryness** may be alleviated.

Brite Eyes provides a powerful dose of two well-established lubricants in every drop, soothing eye discomfort without irritation.

Hydroxymethyl-cellulose and **glycerin** are FDA-approved for ophthalmic use and are uniquely preserved with potent **antioxidants** and **anti-glycating** agents.

The **Brite Eyes** formula is buffered in a way to make it **soothing to the eye**. The suggested use of **Brite Eyes III** is to apply 1 to 2 drops in each eye every day.

Each box of **Brite Eyes III** contains two individual vials that provide **5 mL** each. The reason for putting **Brite Eyes** into individual vials is to reduce the risk of bacterial contamination. Having small vials also makes it convenient for consumers to keep **Brite Eyes** readily accessible at home, the office, in one's purse or pocket, and other places where access to a soothing eye drop is needed.

The retail price for a box containing two **5 mL** vials of **Brite Eyes III** is \$34. If a member buys four boxes, the price is reduced to **\$24 per box**.



To order **Brite Eyes III**, call 1-800-544-4440
or visit www.LifeExtension.com

Can a protein originally derived from a jellyfish improve your memory?

Scientists say, “Yes”!

Can a simple protein hold the key to improving your memory?

Researchers have discovered a protein that actually supports healthy brain function.*

For many years, researchers have known that the human brain loses cells throughout our lives, part of the natural process of aging. In fact, we lose about 85,000 brain cells per day, that is one per second, over 31 million brain cells every year! This impacts every aspect of your life...how you think and how you feel.

Recently, scientists made a significant breakthrough in brain health with the discovery that apocaequorin can support healthy brain function, help you have a sharper mind and think clearer.*

Supports Healthy Brain Function*

Apoaequorin is in the same family of proteins as those found in humans, but it was originally discovered in one of nature’s simplest organisms — the jellyfish.

Supports a Sharper Mind*

Now produced in a scientific process, researchers formulated this vital protein into a product called Prevagen®. Prevagen is clinically shown to help with mild memory problems associated with aging.*

Improves Memory*

This type of protein is vital and found naturally in the human brain and nervous system. As we age we

can’t make enough of them to keep up with the brain’s demands. Prevagen supplements these proteins during the natural process of aging to keep your brain healthy. Prevagen comes in an easy to swallow capsule. It has no known side effects and will not interact with your current medication.

Supports Clearer Thinking*

Just how well does Prevagen work? In a computer assessed, double-blinded, placebo controlled study, Prevagen improved memory for most subjects within 90 days.*

Try Prevagen® for yourself and feel the difference.

Item #01576
Prevagen 10 mg
Retail \$60
Member Price \$45



Item #01577
Prevagen ES 20 mg
Retail \$70
Member Price \$60

To order Prevagen, call 1-800-544-4440 or visit www.LifeExtension.com

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



Blood testing provides the ultimate information regarding correctable risk factors that may predispose you to disorders such as cancer, diabetes, cardiovascular disease, and more. Information about general health and nutritional status can also be gained through standard blood analysis. Standing behind the belief that blood testing is an essential component of any program designed to attain optimal health and longevity, *Life Extension*[®] offers this innovative and convenient service at a very affordable price. Not only is comprehensive blood testing an important step in safeguarding your health, it is a simple process from virtually anywhere in the United States.

Five Easy Steps:

1. Call 1-800-208-3444 to discuss and place your order with one of our knowledgeable health advisors. (This order form can also be faxed to 1-866-728-1050 or mailed). Online orders can also be placed at www.lifeextension.com.
2. After your order is placed, you will be mailed either a requisition form to take to your local LabCorp Patient Service Center or a Blood Draw Kit; whichever is applicable (Please note: If a blood draw kit is used, an additional local draw fee may be incurred.)
3. Have your blood drawn.
4. Your blood test results will be sent directly to you by Life Extension.
5. Take the opportunity to discuss the results with one of our knowledgeable health advisors by calling 1-800-226-2370; or review the results with your personal physician.

It's that simple! Don't delay—call today!

For Our Local Members:

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.

Blood Testing The Ultimate Information

MOST POPULAR PANELS

Life Extension Member Pricing

- COMPREHENSIVE PANELS**

○ MALE LIFE EXTENSION PANEL (LC322582) \$269
Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and-kidney function tests PLUS 20 additional tests. **CBC** includes immune (white) cell count, red blood cell count and platelet count. Also includes: **C-Reactive Protein**, **DHEA-S**, **Homocysteine**, **TSH for thyroid function**, **Free Testosterone**, **Estradiol**, **Total Testosterone**, **Vitamin D 25- hydroxy**, **PSA (prostate-specific antigen)**, **Hemoglobin A1c**
- FEMALE LIFE EXTENSION PANEL (LC322535) \$269**
Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and-kidney function tests PLUS 20 additional tests. **CBC** includes immune (white) cell count, red blood cell count and platelet count. Also includes: **C-Reactive Protein**, **DHEA-S**, **Homocysteine**, **TSH for thyroid function**, **Free Testosterone**, **Estradiol**, **Total Testosterone**, **Progesterone**, **Vitamin D 25- hydroxy**, **Hemoglobin A1c**
- WEIGHT LOSS PANEL-COMPREHENSIVE (LC100028) \$275**
CBC/Chemistry profile (see description at right), **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), and Ferritin.
- WEIGHT LOSS PANEL-BASIC (LC100027) \$130**
CBC/Chemistry profile (see description above right), **DHEA-S**, free and total Testosterone, Estradiol, Progesterone, Cortisol, TSH, Free T3, Insulin and Hemoglobin A1c.
- MALE HORMONE ADD-ON PANEL (LCADDM)* \$155**
Pregnenolone and Dihydrotestosterone (DHT)
 To provide an even more in-depth analysis of a man's hormone status, Life Extension has created this panel as an addition to the Male Life Extension Panel. This panel provides valuable information about a testosterone metabolite that can affect the prostate, and the mother hormone that acts as a precursor to all other hormones.
- FEMALE HORMONE ADD-ON PANEL (LCADDF)* \$125**
Pregnenolone and Total Estrogens
 To provide an even more in-depth analysis of a woman's hormone status, Life Extension has created this panel as an addition to the Female Life Extension Panel. This panel provides valuable information about total estrogen status, and the mother hormone that acts as a precursor to all other hormones.
- LIFE EXTENSION THYROID PANEL (LC304131) \$75**
TSH, T4, Free T3, Free T4.
- FEMALE COMPREHENSIVE HORMONE PANEL* (LC100011) \$299**
CBC/Chemistry Profile (see description above right), **DHEA-S**, Estradiol, Total Estrogens, Progesterone, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.
- MALE COMPREHENSIVE HORMONE PANEL* (LC100010) \$299**
CBC/Chemistry Profile (see description above right), **DHEA-S**, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.
- THE CBC/CHEMISTRY PROFILE (LC381822) \$35**
Note: This CBC/Chemistry Profile is included in many Life Extension panels. Please check panel descriptions.
CARDIOVASCULAR RISK PROFILE
 Total Cholesterol Cholesterol/HDL Ratio
 HDL Cholesterol Estimated CHD Risk
 LDL Cholesterol Glucose
 Triglycerides Iron
LIVER FUNCTION PANEL
 AST (SGOT) Total Bilirubin
 ALT (SGPT) Alkaline Phosphatase
 LDH
KIDNEY FUNCTION PANEL
 BUN BUN/Creatinine Ratio
 Creatinine Uric Acid
BLOOD PROTEIN LEVELS
 Total Protein Globulin
 Albumin Albumin/Globulin Ratio
BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE
 Red Blood Cell Count Monocytes
 White Blood Cell Count Lymphocytes
 Eosinophils Platelet Count
 Basophils Hemoglobin
 Polys (Absolute) Hematocrit
 Lymphs (Absolute) MCV
 Monocytes (Absolute) MCH
 Eos (Absolute) MCHC
 Baso (Absolute) Polynucleated Cells
 RDW
BLOOD MINERAL PANEL
 Calcium Sodium
 Potassium Chloride
 Phosphorus Iron
- COMPREHENSIVE THYROID PANEL (LC100018) \$199**
TSH, T4, Free T4, Free T3, Reverse T3, TPO, ATA
- FOOD SAFE ALLERGY TEST** (LCM73001) \$198**
 This test measures delayed (IgG) food allergies for 95 common foods.
- ADRENAL FUNCTION PANEL (LC100021) \$136**
DHEA-S, AM/PM Cortisol, Glucose, Insulin, Lipid Panel, RBC magnesium
- HEALTHY AGING PANEL-COMPREHENSIVE† (LC100026) \$249**
CBC/Chemistry profile (see description above), **C-reactive protein** (high sensitivity), **Vitamin B12**, **Folate**, **Homocysteine**, **Vitamin D 25-hydroxy**, **Hemoglobin A1c**, **TSH**, **Free T3**, **Free T4**, **Ferritin**, **Urinalysis**, **Fibrinogen**, and **Insulin**.
- HEALTHY AGING PANEL-BASIC† (LC100025) \$149**
CBC/Chemistry profile (see description above), **C-reactive protein** (high sensitivity), **Vitamin B12**, **Folate**, **Vitamin D 25-hydroxy**, **Hemoglobin A1c**, **TSH**, **Ferritin**, and **Insulin**.
- VAP™ TEST* (LC804500) \$90**
 The VAP™ cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid profile. Direct measurements, not estimations, are provided for total cholesterol, LDL, HDL, VLDL, and cholesterol subclasses.
- VAP™ PLUS* (LC100009) \$330**
VAP, C-Reactive Protein (high sensitivity), **Homocysteine**, **Fibrinogen**, **PLAC® Test (Lp-PLA2)**, **Vitamin D 25-hydroxy**.

* 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, requiring a finger stick performed at home.



Other Popular Tests and Panels Life Extension Member Pricing

- | | |
|--|--|
| <p><input type="radio"/> NUTRIENT PANEL[†] (LC100024) \$349
Vitamin B12, Folate, Vitamin D 25-hydroxy, Vitamin C, Vitamin A, Selenium, Zinc, CoQ10, and RBC magnesium.</p> <p><input type="radio"/> ENERGY PROFILE (LC100005) \$375
CBC/Chemistry Profile (see description previous page), Epstein-Barr Virus antibodies (IgG and IgM), Cytomegalovirus Antibodies (IgG and IgM), Ferritin, Total and Free Testosterone, DHEA-S, Free T3, Free T4, Cortisol, C-Reactive Protein (high sensitivity), Vitamin B12, Folate, Insulin.</p> <p><input type="radio"/> ANEMIA PANEL* (LC100006) \$86
CBC/Chemistry Profile (see description previous page), Ferritin, Total Iron Binding Capacity (TIBC), Vitamin B12, Folate, Reticulocyte Count.</p> <p><input type="radio"/> INFLAMMATION PANEL (LC100007) \$135
CBC/Chemistry Profile (see description previous page), C-Reactive Protein (high sensitivity), Sedimentation Rate, Rheumatoid (RA) Factor, Antinuclear Antibodies (ANA) Screen.</p> <p><input type="radio"/> THYROID ANTIBODY PROFILE (LC100004) \$99
Thyroid Antithyroglobulin Antibody (ATA) and Thyroid Peroxidase Antibody (TPO).</p> <p><input type="radio"/> CARDIAC PLUS* (LC100008) \$145
CBC/Chemistry profile (see description previous page), Vitamin D 25-hydroxy, C-Reactive Protein (high sensitivity), Fibrinogen, Homocysteine.</p> <p><input type="radio"/> Lp-PLA2 (PLAC[®] TEST) (LC123240) \$125
This test is used to aid in predicting risk for coronary heart disease, and ischemic stroke associated with atherosclerosis. Lp-PLA2 is a cardiovascular risk factor that provides unique information about the stability of the plaque inside your arteries.</p> <p><input type="radio"/> GLYCOMARK (LC500115) \$99
This test measures your average maximum glucose over the past two weeks and is an effective tool in monitoring postmeal glucose control.</p> <p>CANCER RISK TESTING</p> <p><input type="radio"/> IGF-1 (LC010363) \$75
High levels of IGF-1 (Insulin-like growth factor) are associated with breast and prostate cancer.</p> <p><input type="radio"/> NATURAL KILLER CELL SURFACE ANTIGEN (LC505016) NEW \$110
Natural Killer (NK) Cells are highly selective white blood cells found in our immune system. They patrol the body looking for cells that are infected with cancer or other viruses. This test measures the number of natural killer cells but it does not measure their activity.</p> <p><input type="radio"/> PSA (PROSTATE SPECIFIC ANTIGEN) (LC010322) \$31
Screening test for prostate disorders and possible cancer.</p> <p><input type="radio"/> GALECTIN-3 (LC004110) \$90
Increased concentrations of galectin-3 are prevalent in growing cancers such as prostate, ovarian and breast.</p> | <p>HORMONES</p> <p><input type="radio"/> DHEA-SULFATE (LC004020) \$61
This test shows if you are taking the proper amount of DHEA. This test normally costs \$100 or more at commercial laboratories.</p> <p><input type="radio"/> MALE BASIC HORMONE PANEL (LC100012) \$75
DHEA-S, Estradiol, Free and Total Testosterone, PSA</p> <p><input type="radio"/> FEMALE BASIC HORMONE PANEL (LC100013) \$75
DHEA-S, Estradiol, Free and Total Testosterone, Progesterone</p> <p><input type="radio"/> DIHYDROTESTOSTERONE (DHT)* (LC500142) \$99
Measures serum concentrations of DHT.</p> <p><input type="radio"/> ESTRADIOL (LC004515) \$33
For men and women. Determines the proper amount in the body.</p> <p><input type="radio"/> INSULIN FASTING (LC004333) \$25
Can predict those at risk of diabetes, obesity, heart and other diseases.</p> <p><input type="radio"/> PREGNENOLONE* (LC140707) \$116
Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.</p> <p><input type="radio"/> PROGESTERONE (LC004317) \$55
Primarily for women. Determines the proper amount in the body.</p> <p><input type="radio"/> SEX HORMONE BINDING GLOBULIN (SHBG) (LC082016) \$33
This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens.</p> <p>GENERAL HEALTH</p> <p><input type="radio"/> VITAMIN D (25OH) (LC081950) \$47
This test is used to rule out vitamin D deficiency as a cause of bone disease. It can also be used to identify hypercalcemia.</p> <p><input type="radio"/> FERRITIN (LC004598) \$28
Ferritin levels reflect your body's iron stores and is also a biomarker for insulin resistance.</p> <p><input type="radio"/> VITAMIN B12/FOLATE (LC000810) \$33
Measurements of B12 and Folate help evaluate your general health and nutritional status since the B vitamins are important for cardiac health as well as energy production.</p> |
|--|--|

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

Blood tests available only in the continental United States. Not available in Maryland.

For non-member prices call 1-800-208-3444

Certain restrictions apply for residents of MA, NY, NJ, RI, and PA. Customers in MA, NY, NJ, and RI will receive a blood draw kit, and an additional local blood draw fee may be incurred. PA customers must go to LabCorp for their blood draw; we are unable to send kits of any kind.

ORDER LIFE-SAVING BLOOD TESTS FROM VIRTUALLY ANYWHERE IN THE US!

TERMS AND CONDITIONS

This blood test service is for informational purposes only and no specific medical advice will be provided. National Diagnostics, Inc., and the Life Extension Foundation[®] 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 the Life Extension Foundation 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. I have read the above Terms and Conditions and understand and agree to them.

Signature of Life Extension Member _____

X _____

Life Extension Foundation Members only _____

MEMBER NO.

Male Female _____

Name _____

Date of Birth (required) / / _____

Address _____

City _____

State _____ Zip _____

Phone _____

Credit Card No. _____

Expiration Date / _____

Mail your order form to:

LifeExtension[®]
National Diagnostics, Inc.

3600 West Commercial Boulevard
Fort Lauderdale, FL 33309

Phone your order to: 1-800-208-3444

Fax your order to: 1-866-728-1050

PRODUCTS

AMINO ACIDS

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Branched Chain Amino Acids
D, L-Phenylalanine Capsules
Glycine Capsules
L-Arginine Capsules
Arginine/L-Ornithine Capsules
L-Carnitine Capsules
L-Glutathione, L-Cysteine & C
L-Glutamine Capsules
L-Glutamine Powder
L-Lysine Capsules
L-Tyrosine Tablets
Mega L-Glutathione Capsules
N-Acetyl-L-Cysteine Capsules
Optimized Carnitine with GlycoCarn®
Pharma GABA®
Super Carnosine Capsules
Taurine Capsules

BONE & JOINT HEALTH

ArthroMax® with Theaflavins and AprèsFlex®
ArthroMax® Advanced with UC-II® and
AprèsFlex®
Bone-Up™
Bone Restore
Bone Restore w/Vitamin K2
Bone Strength Formula w/KoAct™
Dr. Strum's Intensive Bone Formula
Fast Acting Joint Formula
Glucosamine Chondroitin Capsules

BRAIN HEALTH

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Brain Shield® Gastrodin
Cognitex® with Brain Shield®
Cognitex® with Pregnenolone &
Brain Shield®
Cognitex® Basics
Cognizin® CDP Choline Capsules
DMAE Bitartrate
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin Granules
Methylcobalamin Lozenges
Migra-Mag with Brain Shield®
Neuro-Mag™ Magnesium L-Threonate
Optimized Ashwagandha Extract
Phosphatidylserine Capsules
Prevagen®
Rhodiola Extract
Super Ginkgo Extract
Vinpocetine

DIGESTIVE

Bifido GI Balance
Carnosoothe w/PicroProtect
Digest RC™
Esophageal Guardian
Enhanced Super Digestive Enzymes
Extraordinary Enzymes
FlorAssist® Probiotic
Gutsy Chewy Digestive Tablets
Pancreatin
Regimint
Theralac Probiotics

DURK AND SANDY PRODUCTS

Blast™
Inner Power™

EYE CARE

Bilberry Extract
Brite Eyes III
Eye Pressure Support with Mirtogenol®
MacuGuard® Ocular Support
MacuGuard® Ocular Support with Astaxanthin
Solarshield Sunglasses
Super Booster w/MacuGuard® Ocular Support

FIBER

AppleWise Polyphenol
Fiber Food
TruFiber®
WellBetX PGX® plus Mulberry

FOOD

Rich Rewards™ Black Bean Vegetable Soup
Rich Rewards™ Spicy Cruciferous Vegetable Soup
Rich Rewards™ Cruciferous Vegetable Soup
Rich Rewards™ Lentil Soup
Rich Rewards™ Mung Bean Soup with Turmeric
Rich Rewards® Coffee
(Available in mocha, vanilla and decaffeinated)
Rich Rewards® Whole Bean Coffee

HAIR CARE

Dr. Proctor's Advanced Hair Formula
Dr. Proctor's Shampoo
Super-Absorbable Tocotrienols

HEART HEALTH

AppleWise Polyphenol
Advanced Lipid Control
Advance Olive Leaf Vascular Support
w/Celery Seed Extract
Aspirin (Enteric Coated)
Cardio Peak™ w/Standardized Hawthorn and Arjuna
Cho-Less™
D-Ribose Tablets
D-Ribose Powder
Endothelial Defense™ with
Full-Spectrum Pomegranate™
Fibrinogen Resist
Forskolin
Homocysteine Resist
Natural BP Management
Peak ATP® with GlycoCarn®
Policosanol
PROVINAL® Purified Omega-7
Pycnogenol® French Maritime Pine Bark Extract
Red Yeast Rice
Super Absorbable CoQ10™ with d-Limonene
Super Omega-3 EPA/DHA with Sesame
Lignans & Olive Fruit Extract
Super Omega with Krill & Astaxanthin
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with BioPQQ®
Super Ubiquinol CoQ10 with Enhanced
Mitochondrial™ Support
Theaflavin Standardized Extract
TMG Powder
TMG Liquid Capsules

HERBAL/PHYTO PRODUCTS

Artichoke Leaf Extract
Asian Energy Boost
Astaxanthin w/Phospholipids
Berry Complete
Blueberry Extract
Blueberry Extract w/Pomegranate
Butterbur Extract w/Standardized
Rosmarinic Acid
Calcium D-Glucarate
Enhanced Berry Complete with Acai
Full-Spectrum Pomegranate™
Grapeseed Extract with Resveratrol &
Pterostilbene
Huperzine A
Kyolic® Garlic Formula 102 + 105
Kyolic® Reserve
Mega Green Tea Extract
Mega Green Tea Extract (Decaffeinated)
Mega Lycopene Extract
Optimized Ashwagandha Extract
Optimized Garlic
Pomegranate Extract
Pycnogenol
Optimized Quercetin
Resveratrol with Synergistic Grape-Berry Actives

Rhodiola Extract
Silymarin
SODzyme™ with GliSODin®
Stevia Extract
Advanced Bio-Curcumin®
with Ginger & Turmerones
Super Bio-Curcumin®
Super Ginkgo Extract
Triple Action Cruciferous Vegetable Extract
Venotone
Whole Grape Extract

HORMONES

Advanced Natural Sex for Women® 50+
7-KETO® DHEA
DHEA
DHEA Complete
Liquid Melatonin
Melatonin
Melatonin Timed Release
Natural Estrogen with Pomegranate Extract
Pregnenolone
ProgestaCare for Women
Super Miraforte with Standardized Lignans

IMMUNE ENHANCEMENT

AHCC® (Active Hexose Correlated Compound)
Black Cumin Seed Oil
Black Cumin Seed Oil w/Bio-Curcumin®
Buffered Vitamin C Powder
Echinacea Extract
FlorAssist™ Probiotic
i26 Hyperimmune Egg
Immune Modulator w/Tinofend®
Immune Protect with PARACTIN®
Immune Senescence Formula™
Lactoferrin
NK Cell Activator™
Norwegian Shark Liver Oil
Optimized Fucoidan w/Maritech® 926
Peony Immune
ProBoost™ Thymic Protein A
Reishi Extract Mushroom Complex
RiboGen™ French Oak Wood Extract
Standardized Cistanche
Vitamin C w/Dihydroquercetin
Zinc Lozenges

INFLAMMATORY REACTIONS

Arthro-Immune Joint Support
ArthroMax® with Theaflavins
Boswellia
Bromelain (Specially-coated)
Cytokine Suppress™ with EGCG
DHA (Vegetarian Sourced)
Fast Acting Joint Formula
Ginger Force®
Krill Healthy Joint Formula
5-LOX Inhibitor w/AprèsFlex®
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Nervia®
Organic Golden Flax Seed
Serraflazyme
SODzyme™ with GliSODin® and Wolfberry
Super Omega-3 EPA/DHA with Sesame
Lignans & Olive Fruit Extract
Tart Cherry w/Standardized CherryPURE®
Zyflamend® Whole Body

LIVER HEALTH

Branch Chain Amino Acids
Certified European Milk Thistle
N-Acetyl Cysteine
Liver Efficiency Formula
European Milk Thistle
Hepatopro
SAME
Silymarin

MINERALS

Advanced Iodine Complete
Biosil
Bone Restore
Bone Strength Formula w/KoAct®
Bone-Up™
Boron Capsules
Calcium Citrate with D3
Chromium Ultra
Copper
Iron Protein Plus
Magnesium
Magnesium Citrate
Only Trace Minerals
Optimized Chromium w/Crominex® 3+
Sea-Iodine™
Selenium
Se-Methyl L-Selenocysteine
Strontium
Vanadyl Sulfate
Zinc High Potency
Zinc Lozenges

MISCELLANEOUS

Blood Pressure Monitor Arm Cuff
CR Way Edition Advanced Dietary Software

MITOCHONDRIAL SUPPORT

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Mitochondrial Basics w/BioPQQ®
Mitochondrial Energy Optimizer w/BioPQQ®
Optimized Carnitine with GlycoCarn®
Super Absorbable CoQ10™ with d-Limonene
Super Alpha Lipoic Acid with Biotin
Super R-Lipoic Acid
Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™

MOOD RELIEF

Adrenal Energy Formula
Bioactive Milk Peptides
L-Theanine
5 HTP
Enhanced Natural Sleep® w/ Melatonin
Enhanced Natural Sleep® w/o Melatonin
Natural Stress Relief
SAME
L-Tryptophan
Optimized Tryptophan Plus

MOUTH CARE

Advanced Oral Hygiene
Toothpaste
Xyliwhite™ Mouthwash

MULTIVITAMIN

Booster
Children's Formula Life Extension Mix™
Comprehensive Nutrient Packs Advanced
Life Extension Mix™ Capsules
Life Extension Mix™ Powder
Life Extension Mix™ Tablets
Life Extension Mix™ w/o Copper Capsules
Life Extension Mix™ w/o Copper Tablets
Life Extension Mix™ w/Extra Niacin
Life Extension Mix™ w/Extra Niacin w/o Copper
Life Extension Mix™ w/Stevia Powder
Life Extension Mix™ w/Stevia w/o Copper Powder
Life Extension One-Per-Day
Life Extension Two-Per-Day
Super Booster MacuGuard™ Ocular Support

PET CARE

Cat Mix
Dog Mix

PROSTATE & URINARY HEALTH

Optimized Cran-Max® with UTIRose™
5-LOXIN®
PalmettoGuard® Saw Palmetto w/Beta Sitosterol
PalmettoGuard® Saw Palmetto/Nettle Root
Formula w/Beta-Sitosterol
Pomi-T®
ProstaPollen™

Ultra Natural Prostate Formula
Water-Soluble Pumpkin Seed Extract

SKIN CARE

Advanced Lightening Cream
Advanced Peptide Hand Therapy
Advanced Triple Peptide Serum
Advanced Under Eye Serum with Stem Cells
Amber Self MicroDermAbrasion
Anti-Aging Mask
Anti-Glycation Serum
Anti-Aging Rejuvenating Face Cream with Coffee Extracts
Anti-Aging Rejuvenating Scalp Serum
Antioxidant Rejuvenating Foot Cream
Antioxidant Rejuvenating Foot Scrub
Antioxidant Rejuvenating Hand Cream
Antioxidant Rejuvenating Hand Scrub
Anti-Redness & Blemish Lotion
Bio-Collagen w/Patented UC-II®
Bioflavonoid Cream
Broccoli Sprout
Collagen Boosting Peptide Serum
Corrective Clearing Mask
DNA Repair Cream
Dual-Action MicroDermAbrasion
Essential Plant Lipids Reparative Serum
Face Master® Platinum
Face Rejuvenating Antioxidant Cream
Enhanced FernBlock® with Red Orange Complex
Fine Line-Less
Hair Suppress Formula
Healing Formula All-in-One Cream
Healing Mask
Hyaluronic Facial Moisturizer
Hydrating Anti-oxidant Face Mist
Hydroderm®
Lifting & Tightening Complex
Lycopene Cream
Melatonin Cream
Mild Facial Cleanser
Neck Rejuvenating Antioxidant Cream
Pigment Correcting Cream (Ultra) Rejuvenex®
Rejuvenex® Body Lotion
RejuvenexX® Factor Firming Serum
Rejuvenating Serum
Renewing Eye Cream
Resveratrol Anti-Oxidant Serum
Skin Lightening Serum
Skin Restoring Phytoceramides w/Lipowheat®
Skin Stem Cell Serum
Stem Cell Cream w/Alpine Rose
Ultra Rejuvenex®
Ultra RejuveNight® w/o Progesterone
Ultra Lip Plumper
Ultra Wrinkle Relaxer
Under Eye Refining Serum
Under Eye Rescue Cream
Vitamin C Serum
Vitamin D Lotion
Vitamin E-ssential Cream
Vitamin K Healing Cream
Youth Serum

SOY

Natural Estrogen w/Pomegranate
Super Absorbable Soy Isoflavones
Ultra Soy Extract

SPECIAL PURPOSE FORMULA

AMPK Activator
Anti-Alcohol Antioxidants w/HepatoProtection Complex
Benfotiamine w/Thiamine
Breast Health Formula
Butterbur Extract w/Standardized Rosmarinic Acid
Chlorella
Chlorophyllin
Green Coffee Extract CoffeeGenic®
CR Mimetic Longevity Formula
Cinsulin® w/InSea2®
and Crominex® 3+

European Leg Solution Diosmin 95
Fem Dophilus
Femmenessence MacaPause®
Migra-eeze™
NAD+ Cell Regenerator™
Nicotinamide Riboside
Natural Female Support
Optimized Resveratrol w/NAD+ Cell Regenerator™
Pecta-Sol®
Potassium Iodide
PQQ Caps with BioPQQ®
PteroPure®
Prelox® Natural Sex for Men®
Pyridoxal 5' - Phosphate
Sinus Cleanser
Tri Sugar Shield™

SPORTS PERFORMANCE

Creatine Capsules
DMG (N, N-dimethylglycine)
L-Glutamine Capsules
L-Glutamine Powder
Whey Protein Isolate
Whey Protein Concentrate

VITAMINS

Ascorbyl Palmitate Capsules
B12
Beta-Carotene
Biotin Capsules
Buffered Vitamin C Powder
Complete B Complex
Effervescent Vitamin C
Fast-C®
Folate & Vitamin B12
Gamma E Tocopherol w/Sesame Lignans
Gamma E Tocopherol/Tocotrienols
Inositol Capsules
Mega Lycopene Extract
Methylcobalamin
MK-7
No-Flush Niacin
Optimized Folate
Super Ascorbate C Capsules
Super Ascorbate C Powder
Super K w/Advanced K2 Complex
Tocotrienols w/Sesame Lignans
Vitamin B3 (Niacin) Capsules
Vitamin B6
Vitamin B12 Lozenges
Vitamin C
Vitamin D3
Vitamin D3 w/Sea-Iodine™
Vitamins D and K w/Sea-Iodine™
Vitamin E
Vitamin K2

WEIGHT MANAGEMENT

Advanced Anti-Adipocyte Formula w/Meratrim® & Integra Lean®
Advanced Natural Appetite Suppress
CalReduce Selective Fat Binder
CoffeeGenic® Green Coffee Extract
7-KETO DHEA
DHEA® Complete
Fucoxanthin Slim™
Garcinia HCA
HCAActive
Integra-Lean® African Mango Irvingia
Optimized Irvingia w/Phase 3™ Calorie Control Complex
Optimized Saffron with Satiereal®
Natural Glucose Absorption Control
Super Citrimax®
Super CLA Blend w/Guarana and Sesame Lignans
Super CLA Blend w/Sesame Lignans
Waist-Line Control™
Weight Management Formula
WellBetX PGX® plus Mulberry

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
A					
01524	ACETYL-L-CARNITINE - 500 mg, 100 veg. caps	\$34.00	\$25.50		
	Buy 4 bottles, price each	30.00	22.50		
01525	ACETYL-L-CARNITINE ARGINATE - 100 veg. caps	59.00	44.25		
	Buy 4 bottles, price each	50.99	38.24		
01628	ADRENAL ENERGY FORMULA - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01630	ADRENAL ENERGY FORMULA - 120 veg. caps	46.00	34.50		
	Buy 4 bottles, price each	42.00	31.50		
01828	ADVANCED LIPID CONTROL - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01521	ADVANCED ORAL HYGIENE - 60 mint lozenges	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00681	AHCC - 500 mg, 30 caps	59.98	44.99		
00457	ALPHA-LIPOIC ACID w/BIOTIN (SUPER) - 250 mg, 60 caps	37.00	27.75		
	Buy 4 bottles, price each	32.00	24.00		
01907	AMPK ACTIVATOR - 90 veg. caps	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01440	ANTI-ALCOHOL ANTIOXIDANTS w/HEPATOPRO - 100 caps	26.00	19.50		
	Buy 4 bottles, price each	23.00	17.25		
01509	ANTI-ADIPOCYTE FORMULA w/MERATRIM® & INTEGRA LEAN® (ADVANCED) - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
01625	APPLEWISE POLYPHENOL EXTRACT - 600 mg, 30 veg. caps	21.00	15.75		
	Buy 4 bottles, price each	19.00	14.25		
01039	ARGININE/ORNITHINE - 500/250, 100 caps	17.99	13.49		
00038	ARGININE/ORNITHINE POWDER - 150 grams	22.95	17.21		
	Buy 4 bottles, price each	19.00	14.25		
01624	(L)-ARGININE CAPS - 700 mg, 200 veg. caps	26.50	19.88		
	Buy 4 bottles, price each	23.25	17.44		
01617	ARTHROMAX® w/THEAFLAVINS & APRESFLEX® - 120 veg. caps	44.00	33.00		
	Buy 4 bottles, price each	40.00	30.00		
01618	ARTHROMAX® ADVANCED w/UC-II® & APRESFLEX® - 60 caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01404	ARTHRO-IMMUNE JOINT SUPPORT - 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
00919	ARTICHOKE LEAF EXTRACT - 500 mg, 180 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
01533	ASCORBYL PALMITATE - 500 mg, 100 veg. caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
00888	ASHWAGANDHA EXTRACT (OPTIMIZED) - 60 veg. caps	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
01805	ASIAN ENERGY BOOST - 90 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01066	ASPIRIN - 81 mg, 300 enteric coated tablets	6.00	4.50		
	Buy 4 bottles, price each	5.33	4.00		
01720	ASTAXANTHIN WITH PHOSPHOLIPIDS - 4 mg, 30 softgels	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
B					
00920	BENFOTIAMINE w/ THIAMINE - 100 mg, 120 veg. caps	\$19.95	\$14.96		
	Buy 4 bottles, price each	18.60	13.95		
00925	BENFOTIAMINE (MEGA) - 250 mg, 120 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		

SUB-TOTAL OF COLUMN 1

No.		Retail Each	Member Each	Qty	Total
01206	BERRY COMPLETE - 30 veg. caps	\$21.00	\$15.75		
	Buy 4 bottles, price each	18.67	14.00		
01496	BERRY COMPLETE w/ACAI (ENHANCED) - 60 veg. caps	29.00	21.75		
	Buy 4 bottles, price each	26.00	19.50		
00664	BETA-CAROTENE - 25,000 IU, 100 softgels	11.25	8.44		
01622	BIFIDO GI BALANCE - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01073	BILBERRY EXTRACT - 100 mg, 100 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01512	BIOACTIVE MILK PEPTIDES - 30 caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01631	BIO-COLLAGEN w/PATENTED UC-II® - 40 mg, 60 small caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
*01006	BIOSIL™ - 5 mg, 30 veg. caps	18.95	15.16		
*01007	BIOSIL™ - 1 fl oz	31.99	25.59		
00102	BIOTIN - 600 mcg, 100 caps	7.50	5.63		
	Buy 4 bottles, price each	6.50	4.88		
01709	BLACK CUMIN SEED OIL - 60 softgels	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
01710	BLACK CUMIN SEED OIL w/BIO-CURCUMIN® - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
01008	BLAST™ - 600 grams of powder	26.95	20.21		
70005	BLOOD PRESSURE MONITOR - ARM CUFF (large)	50.00	37.50		
70004	BLOOD PRESSURE MONITOR - WRIST (cuff)	69.95	52.46		
01214	BLUEBERRY EXTRACT - 60 veg. caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
01438	BLUEBERRY EXTRACT w/ POMEGRANATE - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01506	BONE FORMULA (DR. STRUM'S INTENSIVE) - 300 caps	56.00	42.00		
	Buy 4 bottles, price each	50.00	37.50		
01726	BONE RESTORE - 120 caps	22.00	16.50		
	Buy 4 bottles, price each	19.00	14.25		
01727	BONE RESTORE w/VITAMIN K2 - 120 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01725	BONE STRENGTH FORMULA w/KOACT® - 120 caps	45.00	33.75		
	Buy 4 bottles, price each	40.00	30.00		
00313	BONE-UP® - 240 caps	28.95	21.71		
	Buy 4 bottles, price each	27.21	20.41		
01379	BOOSTER - 60 softgels	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01980	BOOSTER w/MACUGUARD® OCULAR SUPPORT (SUPER) - 60 softgels	52.00	39.00		
	Buy 4 bottles, price each	48.00	36.00		
01661	BORON - 3 mg, 100 veg. caps	5.95	4.46		
	Buy 4 bottles, price each	5.25	3.94		
00202	BOSWELLA - 100 caps	38.00	28.50		
	Buy 4 bottles, price each	30.00	22.50		
01802	BRAIN SHIELD® GASTRODIN - 60 veg. caps	33.00	24.75		
	Buy 4 bottles, price each	30.00	22.50		
01253	BRANCHED CHAIN AMINO ACIDS - 90 veg. caps	19.50	14.63		
	Buy 4 bottles, price each	17.00	12.75		
01699	BREAST HEALTH FORMULA - 60 caps	34.00	25.50		
	Buy 4 bottles, price each	30.00	22.50		
00893	BRITE EYES III - 2 vials, 5 ml each	34.00	25.50		
	Buy 4 boxes, price each	32.00	24.00		

SUB-TOTAL OF COLUMN 2

No.		Retail Each	Member Each	Qty	Total
01203	BROMELAIN (SPECIALLY-COATED) - 500 mg, 60 enteric coated tablets Buy 4 bottles, price each	\$21.00 19.00	\$15.75 14.25		
00884	BUTTERBUR EXT. w/STANDARDIZED ROSMARINIC ACID - 60 softgels Buy 4 bottles, price each	44.00 39.60	33.00 29.70		
C					
01653	CALCIUM CITRATE w/VITAMIN D - 300 caps Buy 4 bottles, price each	\$24.00 21.25	\$18.00 15.94		
01651	CALCIUM D-GLUCARATE - 200 mg, 60 veg. caps Buy 4 bottles, price each	18.00 15.00	13.50 11.25		
***01823	CALREDUCE SELECTIVE FAT BINDER - 120 mint chewable tablets Buy 4 bottles, price each	45.00 38.00	33.75 28.50		
01700	CARDIO PEAK™ w/STANDARDIZED HAWTHORN & ARJUNA - 120 veg. caps Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
00916	CARNITINE w/GLYCOCARN® (OPTIMIZED) - 60 veg. caps Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
01532	L-CARNITINE - 500 mg, 30 veg. caps Buy 4 bottles, price each	15.00 13.20	11.25 9.90		
01258	CARNOSOOTHE w/PICROPROTECT™ - 60 veg. caps Buy 4 bottles, price each	29.95 27.00	22.46 20.25		
01687	CARNOSINE (SUPER) - 500 mg, 90 veg. caps Buy 4 bottles, price each	66.00 60.00	49.50 45.00		
01003	CAT MIX - 100 grams powder Buy 4 jars, price each	15.00 12.00	11.25 9.00		
01891	CHILDREN'S FORMULA LIFE EXTENSION MIX™ - 100 chewable tablets Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
00550	CHLORELLA - 500 mg, 200 tablets	23.50	17.63		
01571	CHLOROPHYLLIN - 100 mg, 100 veg. caps Buy 4 bottles, price each	24.00 20.00	18.00 15.00		
01359	CHO-LESS™ - 90 capsules	35.00	26.25		
01477	CHROMIUM ULTRA - 100 veg. caps Buy 4 bottles, price each	24.00 21.00	18.00 15.75		
01504	CHROMIUM W/CROMINEX® 3+ (OPTIMIZED) - 500 mcg, 60 veg. caps Buy 4 bottles, price each	9.00 8.00	6.75 6.00		
01503	CINSULIN® W/INSEA® AND CROMINEX® 3+ - 90 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
01906	CISTANCHE (STANDARDIZED) - 30 veg. caps Buy 4 bottles, price each	20.00 16.00	15.00 12.00		
01818	CITRIMAX® (SUPER) - 180 veg. caps Buy 4 bottles, price each	40.00 38.00	30.00 28.50		
00818	CLA BLEND w/SESAME LIGNANS (SUPER) - 1,000 mg, 120 softgels Buy 4 bottles, price each Buy 10 bottles, price each	36.00 33.00 26.33	27.00 24.75 19.75		
00819	CLA BLEND w/GUARANA & SESAME (SUPER) -1,000 mg, 120 softgels Buy 4 bottles, price each	42.00 38.33	31.50 28.75		
01896	COGNITEX® w/BRAIN SHIELD® - 90 softgels Buy 4 bottles, price each Buy 8 bottles, price each	60.00 52.00 48.00	45.00 39.00 36.00		
01897	COGNITEX® w/PREGNENOLONE & BRAIN SHIELD® - 90 softgels Buy 4 bottles, price each Buy 8 bottles, price each	62.00 53.00 50.00	46.50 39.75 37.50		
01421	COGNITEX® BASICS - 60 softgels Buy 4 bottles, price each Buy 12 bottles, price each	38.00 35.00 32.00	28.50 26.25 24.00		

SUB-TOTAL OF COLUMN 3

No.		Retail Each	Member Each	Qty	Total
01659	COGNIZIN® CDP CHOLINE CAPS - 250 mg, 60 veg. caps Buy 4 bottles, price each	\$36.00 34.00	\$27.00 25.50		
01735	COMPLETE B-COMPLEX - 60 veg. caps Buy 4 bottles, price each	10.00 9.00	7.50 6.75		
01998	COMPREHENSIVE NUTRIENT PACKS ADVANCED - 30 packs Buy 4 boxes, price each	90.00 82.00	67.50 61.50		
00119	COPPER CAPSULES - 2 mg, 100 caps	9.91	7.43		
00949	COQ10 w/ α-LIMONENE (SUPER-ABSORBABLE) - 50 mg, 60 softgels Buy 4 bottles, price each Buy 10 bottles, price each	25.00 22.00 20.00	18.75 16.50 15.00		
00950	COQ10 w/ α-LIMONENE (SUPER-ABSORBABLE) - 100 mg, 100 softgels Buy 4 bottles, price each Buy 10 bottles, price each	66.00 60.00 56.00	49.50 45.00 42.00		
01226	COQ10 (SUPER-UBIQUINOL) - 100 mg, 60 softgels Buy 4 bottles, price each Buy 10 bottles, price each	56.00 48.00 44.00	42.00 36.00 33.00		
01733	COQ10 w/BIOPOQ® (SUPER UBIQUINOL) - 100 mg, 30 softgels Buy 4 bottles, price each Buy 10 bottles, price each	54.00 44.00 40.00	40.50 33.00 30.00		
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -100 mg, 60 softgels Buy 4 bottles, price each Buy 10 bottles, price each	62.00 52.00 48.00	46.50 39.00 36.00		
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -50 mg, 100 softgels Buy 4 bottles, price each Buy 10 bottles, price each	58.00 46.00 42.00	43.50 34.50 31.50		
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -50 mg, 30 softgels Buy 4 bottles, price each	20.00 16.00	15.00 12.00		
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -200 mg, 30 softgels Buy 4 bottles, price each Buy 10 bottles, price each	62.00 52.00 48.00	46.50 39.00 36.00		
80154	COSMESIS ADVANCED LIGHTENING CREAM - 1 oz jar Buy 2 bottles, price each	65.00 57.00	48.75 42.75		
80155	COSMESIS ADVANCED PEPTIDE HAND THERAPY - 4 oz bottle Buy 2 bottles, price each	46.00 39.00	34.50 29.25		
80152	COSMESIS ADVANCED TRIPLE PEPTIDE SERUM - 1 oz bottle Buy 2 bottles, price each	65.00 57.00	48.75 42.75		
80140	COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS - .33 oz Buy 2 bottles, price each	49.00 42.00	36.75 31.50		
80139	COSMESIS AMBER SELF MICRODERMABRASION - 2 oz Buy 2 jars, price each	49.00 42.00	36.75 31.50		
80118	COSMESIS ANTI-AGING MASK - 2 oz Buy 2 bottles, price each	72.00 63.36	54.00 47.52		
80151	COSMESIS ANTI-AGING REJUVENATING FACE CREAM - 2 oz jar Buy 2 jars, price each	65.00 57.00	48.75 42.75		
80153	COSMESIS ANTI-AGING REJUVENATING SCALP SERUM - 2 oz bottle Buy 2 bottles, price each	46.00 39.00	34.50 29.25		
80134	COSMESIS ANTI-GLYCATION SERUM - 1 oz W/BLUEBERRY & POMEGRANATE EXTRACTS Buy 2 bottles, price each	33.00 31.35	24.75 23.51		
80133	COSMESIS ANTIOXIDANT FACIAL MIST - 2 oz Buy 2 bottles, price each	32.00 30.40	24.00 22.80		
80127	COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2 oz Buy 2 jars, price each	45.00 42.80	33.75 32.10		
80128	COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2 oz Buy 2 jars, price each	59.00 51.92	44.25 38.94		

SUB-TOTAL OF COLUMN 4

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
C CONTINUED					
80117	COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2 oz Buy 2 jars, price each	\$64.00 57.49	\$48.00 43.12		
80121	COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2 oz Buy 2 jars, price each	58.00 51.04	43.50 38.28		
80105	COSMESIS ANTI-REDNESS & ADULT BLEMISH LOTION - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80147	COSMESIS BIOFLAVONOID CREAM - 1 oz jar Buy 2 jars, price each	46.00 39.00	34.50 29.25		
80144	COSMESIS BROCCOLI SPROUT CREAM - 1 oz Buy 2 jars, price each	46.00 39.00	34.50 29.25		
80156	COSMESIS COLLAGEN BOOSTING PEPTIDE SERUM - 1 oz Buy 2 jars, price each	59.00 52.00	44.25 39.00		
80120	COSMESIS CORRECTIVE CLEARING MASK - 2 oz Buy 2 jars, price each	64.50 56.76	48.38 42.57		
80141	COSMESIS DNA REPAIR CREAM - 1 oz jar Buy 2 jars, price each	49.00 42.00	36.75 31.50		
80108	COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 oz Buy 2 bottles, price each	74.95 65.95	56.21 49.46		
80123	COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 oz Buy 2 jars, price each	69.50 61.16	52.13 45.87		
80107	COSMESIS FINE LINE-LESS - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80131	COSMESIS HAIR SUPPRESS FORMULA - 4 oz Buy 2 bottles, price each	59.00 51.92	44.25 38.94		
80137	COSMESIS HEALING FORMULA ALL-IN-ONE CREAM - 1 oz Buy 2 jars, price each	53.00 45.43	39.75 34.07		
80115	COSMESIS HEALING MASK - 2 oz Buy 2 bottles, price each	64.50 56.76	48.38 42.57		
80102	COSMESIS HEALING VITAMIN K CREAM - 1 oz Buy 2 bottles, price each	79.50 69.96	59.63 52.47		
80109	COSMESIS HYALURONIC FACIAL MOISTURIZER - 1 oz Buy 2 bottles, price each	58.00 51.04	43.50 38.28		
80110	COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 1 oz Buy 2 bottles, price each	58.00 51.04	43.50 38.28		
80138	COSMESIS HYDRATING ANTIOXIDANT FACE MIST - 4 oz Buy 2 bottles, price each	39.95 38.00	29.96 28.50		
80103	COSMESIS LIFTING & TIGHTENING COMPLEX - 1 oz Buy 2 tubes, price each	74.50 65.56	55.88 49.17		
80146	COSMESIS LYCOPENE CREAM - 1 oz jar Buy 2 jars, price each	28.00 25.40	21.00 19.05		
80135	COSMESIS MELATONIN CREAM - 1 oz Buy 2 jars, price each	33.00 27.10	24.75 20.33		
80114	COSMESIS MILD FACIAL CLEANSER - 8 oz Buy 2 bottles, price each	59.00 51.92	44.25 38.94		
80122	COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2 oz Buy 2 jars, price each	64.00 56.32	48.00 42.24		
80111	COSMESIS PIGMENT CORRECTING CREAM - 1/2 oz Buy 2 bottles, price each	74.00 65.12	55.50 48.84		
80106	COSMESIS REJUVENATING SERUM - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80150	COSMESIS RENEWING EYE CREAM - 1/2 oz Buy 2 jars, price each	65.00 57.00	48.75 42.75		

SUB-TOTAL OF COLUMN 5

No.		Retail Each	Member Each	Qty	Total
80142	COSMESIS RESVERATROL ANTI-OXIDANT SERUM - 1 oz Buy 2 bottles, price each	\$46.00 39.00	\$34.50 29.25		
80112	COSMESIS SKIN LIGHTENING SERUM - 1/2 oz Buy 2 bottles, price each	85.00 74.80	63.75 56.10		
80130	COSMESIS SKIN STEM CELL SERUM - 1 oz Buy 2 bottles, price each	74.00 69.00	55.50 51.75		
80143	COSMESIS STEM CELL CREAM W/ALPINE ROSE - 1 oz jar Buy 2 jars, price each	66.00 58.00	49.50 43.50		
80148	COSMESIS TIGHTENING & FIRMING NECK CREAM - 2 oz jar Buy 2 jars, price each	39.00 35.00	29.25 26.25		
80116	COSMESIS ULTRA LIP PLUMPER - 1/3 oz Buy 2 bottles, price each	64.00 56.32	48.00 42.24		
80101	COSMESIS ULTRA WRINKLE RELAXER - 1 oz Buy 2 bottles, price each	89.95 79.76	67.46 59.82		
80113	COSMESIS UNDER EYE REFINING SERUM - 1/2 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80104	COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80129	COSMESIS VITAMIN C SERUM - 1 oz Buy 2 bottles, price each	85.00 74.80	63.75 56.10		
80136	COSMESIS VITAMIN D LOTION - 4 oz Buy 2 bottles, price each	36.00 33.66	27.00 25.25		
80145	COSMESIS VITAMIN E-ESSENTIAL CREAM - 1 oz Buy 2 jars, price each	28.00 26.00	21.00 19.50		
80149	COSMESIS YOUTH SERUM - 1 oz Buy 2 bottles, price each	65.00 57.00	48.75 42.75		
00862	CRAN-MAX® - 500 mg, 60 veg. caps Buy 4 bottles, price each	17.50 15.00	13.13 11.25		
01424	CRAN-MAX® with UTIROSE™ (OPTIMIZED) - 60 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01529	CREATINE CAPSULES - 120 veg. caps Buy 4 bottles, price each	10.95 9.25	8.21 6.94		
01746	CREATINE WHEY GLUTAMINE POWDER - 454 grams (vanilla) Buy 4 jars, price each	30.00 27.00	22.50 20.25		
01429	CR MIMETIC LONGEVITY FORMULA - 60 veg. caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
*33840	CRWAY GREAT GLUCOSE CONTROL CD	98.00	82.00		
**CRWAY	CR WAY OPTIMAL HEALTH PROGRAM SOFTWARE	195.00	195.00		
00407	CURCUMIN® (SUPER BIO) - 400 mg, 60 veg. caps Buy 4 bottles, price each	38.00 35.00	28.50 26.25		
01808	CURCUMIN® w/GINGER & TURMERONES (ADVANCED BIO)-30 softgels Buy 4 bottles, price each	30.00 27.00	22.50 20.25		
01804	CYTOKINE SUPPRESS™ w/EGCG - 30 veg. caps Buy 4 bottles, price each	30.00 27.00	22.50 20.25		
D					
00658	7-KETO® DHEA METABOLITE - 25 mg, 100 caps Buy 4 bottles, price each	\$28.00 24.00	\$21.00 18.00		
01479	7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
01640	DHA (VEGETARIAN SOURCED) - 30 veg. softgels Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
00607	DHEA - 25 mg, 100 tablets (dissolve in mouth) Buy 4 bottles, price each	14.00 11.75	10.50 8.81		

SUB-TOTAL OF COLUMN 6

No.		Retail Each	Member Each	Qty	Total
01478	DHEA COMPLETE - 60 veg. caps Buy 4 bottles, price each	\$48.00 43.20	\$36.00 32.40		
00335	DHEA - 25 mg, 100 caps Buy 4 bottles, price each	18.00 15.00	13.50 11.25		
00454	DHEA - 15 mg, 100 caps Buy 4 bottles, price each	14.00 12.00	10.50 9.00		
00882	DHEA - 50 mg, 60 caps Buy 4 bottles, price each	19.00 17.00	14.25 12.75		
01689	DHEA - 100 mg, 60 veg. caps Buy 4 bottles, price each	24.00 22.00	18.00 16.50		
01358	DIGEST RC - 30 tablets Buy 4 boxes, price each	19.95 17.00	14.96 12.75		
01272	DIGESTIVE ENZYMES (ENHANCED SUPER) - 100 veg. caps Buy 4 bottles, price each	18.95 16.00	14.21 12.00		
01671	D,L-PHENYLALANINE CAPSULES - 500 mg, 100 veg. caps Buy 4 bottles, price each	18.75 16.00	14.06 12.00		
01540	DMAE BITARTRATE - 150 mg, 200 veg. caps Buy 4 bottles, price each	18.00 15.00	13.50 11.25		
00059	DMG - 125 mg, 60 tablets Buy 4 boxes, price each	24.80 22.69	18.60 17.02		
01570	DNA PROTECTION FORMULA - 60 veg. caps Buy 4 bottles, price each	34.00 32.00	25.50 24.00		
00544	DOG MIX - 100 grams powder Buy 4 jars, price each	19.50 16.00	14.63 12.00		
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA - 2 oz Buy 4 bottles, price each	39.95 32.00	29.96 24.00		
00320	DR. PROCTOR'S HAIR FORMULA SHAMPOO - 8 oz Buy 4 bottles, price each	24.95 22.00	18.71 16.50		
00899	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 2.4 oz Buy 4 jars, price each	39.95 38.95	29.96 29.21		
E					
01528	ECHINACEA EXTRACT - 250 mg, 60 veg. caps Buy 4 bottles, price each	\$14.35 12.50	\$10.76 9.38		
01498	ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™ - 60 softgels Buy 4 bottles, price each	56.00 52.00	42.00 39.00		
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® - 60 veg. caps Buy 4 bottles, price each	54.00 48.00	40.50 36.00		
00625	EPA/DHA (MEGA) - 120 softgels Buy 4 bottles, price each	19.95 18.00	14.96 13.50		
01737	ESOPHAGEAL GUARDIAN (Berry flavor) - 60 chewable tablets Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 - 600 mg, 30 veg. tabs Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01706	EXTRAORDINARY ENZYMES - 60 caps Buy 4 bottles, price each	26.00 24.00	19.50 18.00		
01514	EYE PRESSURE SUPPORT w/MIRTOGENOL® - 30 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
F					
01054	FACE MASTER® PLATINUM	\$199.00	\$199.00		
00965	FAST-ACTING JOINT FORMULA - 30 caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
01717	FAST-C® w/DIHYDROQUERCETIN - 120 veg. tabs Buy 4 bottles, price each	26.00 24.00	19.50 18.00		

SUB-TOTAL OF COLUMN 7

No.		Retail Each	Member Each	Qty	Total
20053	FEM DOPHILUS® - 30 caps	\$25.95	\$19.46		
20055	FEM DOPHILUS® - 60 caps	39.95	29.96		
01064	FEMMESENCE MACAPAUSE® - 120 veg. caps	34.99	26.24		
01728	FERNBLOCK® w/RED ORANGE COMPLEX (ENHANCED) - 30 veg. caps Buy 4 bottles, price each	42.00 38.00	31.50 28.50		
01670	FIBER FOOD CAPS - 200 veg. caps Buy 4 bottles, price each Buy 10 bottles, price each	16.00 14.00 13.00	12.00 10.50 9.75		
00718	FIBRINOGEN RESIST™ - 30 veg. caps Buy 4 bottles, price each	49.00 44.00	36.75 33.00		
01749	FLAX SEED (ORGANIC GOLDEN GROUND) - 14 oz.	11.67	8.75		
01821	FLORASSIST® HEART HEALTH PROBIOTIC - 60 caps Buy 4 bottles, price each	32.00 28.00	24.00 21.00		
01825	FLORASSIST® PROBIOTIC - 30 liquid caps Buy 4 bottles, price each	32.00 28.00	24.00 21.00		
01939	FOLATE (OPTIMIZED) (L-METHYLFOLATE) 1,000 mcg - 100 veg. tablets Buy 4 bottles, price each	19.00 17.00	14.25 12.75		
01841	FOLATE + B12 CAPS - 200 veg. caps Buy 4 bottles, price each	10.50 9.50	7.88 7.13		
01544	FORSKOLIN - 10 mg, 60 veg. caps Buy 4 bottles, price each	16.00 14.00	12.00 10.50		
01513	FUCOIDAN w/MARITECH® 926 (OPTIMIZED) - 60 veg. caps Buy 4 bottles, price each	36.00 33.00	27.00 24.75		
00993	FUCOXANTHIN-SLIM™ - 90 softgels Buy 4 bottles, price each	44.00 39.00	33.00 29.25		
G					
00559	GAMMA E TOCOPHEROL/TOCOTRIENOLS - 60 softgels Buy 4 bottles, price each	\$42.00 37.00	\$31.50 27.75		
00759	GAMMA E TOCOPHEROL w/SESAME LIGNANS - 60 softgels Buy 4 bottles, price each	32.00 29.00	24.00 21.75		
01394	(OPTIMIZED) GARLIC - 200 veg. caps Buy 4 bottles, price each	24.95 21.00	18.71 15.75		
**01228	GINGER FORCE® - 60 softgels	31.95	23.96		
01658	GINKGO BILOBA CERTIFIED EXTRACT™ - 120 mg, 365 veg. caps Buy 2 bottles, price each	46.00 43.50	34.50 32.63		
01648	GINKGO EXTRACT 28/7 (SUPER) - 120 mg, 100 veg. caps Buy 4 bottles, price each	29.00 26.50	21.75 19.88		
00756	GLA WITH SESAME LIGNANS (MEGA) - 60 softgels Buy 4 bottles, price each	19.50 18.00	14.63 13.50		
00345	(L) GLUTAMINE CAPSULES - 500 mg, 100 caps Buy 4 bottles, price each	14.95 13.50	11.21 10.13		
00141	(L)-GLUTAMINE POWDER - 100 grams Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
00522	GLUCOSAMINE/CHONDROITIN CAPSULES - 100 caps Buy 4 bottles, price each	38.00 32.00	28.50 24.00		
01541	GLUTATHIONE, CYSTEINE & C - 100 veg. caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
00314	L-GLUTATHIONE (MEGA) - 250 mg, 60 caps	39.64	29.73		
01669	GLYCINE - 1,000 mg, 100 veg. caps Buy 4 bottles, price each	12.00 10.80	9.00 8.10		
01091	GRAPE EXTRACT w/RESVERATROL (WHOLE) - 60 veg. caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		
01411	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE - 100 mg, 60 veg. caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		

SUB-TOTAL OF COLUMN 8

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
G CONTINUED					
01604	GREEN COFFEE EXTRACT COFFEGENIC® - 200 mg, 90 veg. caps Buy 4 bottles, price each	\$22.00 20.00	\$16.50 15.00		
01620	GREEN COFFEE EXTRACT COFFEGENIC® - 400 mg, 90 veg. caps Buy 4 bottles, price each	32.00 28.00	24.00 21.00		
00953	GREEN TEA EXTRACT (MEGA) - lightly caffeinated - 100 veg. caps Buy 4 bottles, price each	30.00 24.00	22.50 18.00		
00954	GREEN TEA EXTRACT (MEGA) - decaffeinated - 100 veg. caps Buy 4 bottles, price each	30.00 24.00	22.50 18.00		
01545	GUTSY CHEWY DIGESTIVE (CITRUS FLAVOR) - 8 tablets	11.50	8.63		
01546	GUTSY CHEWY DIGESTIVE (WILD BERRY FLAVOR) - 8 tablets	11.50	8.63		
H					
01074	5 HTP - 100 mg, 60 caps	\$27.95	\$20.96		
01738	HCA (GARCINIA) - 90 veg. caps Buy 4 bottles, price each	17.00 15.00	12.75 11.25		
29754	HCACTIVE - 90 caps (Jarrow)	30.00	22.50		
01393	HEPATOPRO - 900 mg, 60 softgels Buy 4 bottles, price each	50.00 46.00	37.50 34.50		
01435	HOMOCYSTEINE RESIST - 100 veg caps Buy 4 bottles, price each	24.00 21.60	18.00 16.20		
01527	HUPERZINE A - 200 mcg, 60 veg caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
00661	HYDRODERM® - 1 oz Buy 2 bottles, price each	79.95 65.33	59.96 49.00		
I					
*01060	i26® HYPERIMMUNE EGG - 140 grams powder	\$54.99	\$46.75		
01704	IMMUNE MODULATOR W/TINOFEND® - 60 veg. caps Buy 4 bottles, price each	17.00 15.00	12.75 11.25		
00955	IMMUNE PROTECT W/PARACTIN® - 30 veg. caps Buy 4 bottles, price each	29.50 26.55	22.13 19.91		
01905	IMMUNE SENESCENCE PROTECTION FORMULA™ - 60 veg. caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
01049	INNERPOWER™ - 530 grams powder	42.00	31.50		
01674	INOSITOL CAPSULES - 1,000 mg, 360 veg. caps Buy 4 bottles, price each	62.00 58.00	46.50 43.50		
01292	INTEGRA-LEAN® AFRICAN MANGO IRVINGIA - 150 mg, 60 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01248	IODINE COMPLETE (ADVANCED) - 180 tablets	46.00	36.50		
01677	IRON PROTEIN PLUS - 300 mg, 100 caps Buy 4 bottles, price each	28.00 26.00	21.00 19.50		
01492	IRVINGIA W/PHASE 3™ - 120 veg. caps CALORIE CONTROL COMPLEX (OPTIMIZED AFRICAN MANGO) Buy 4 bottles, price each	56.00 48.00	42.00 36.00		
J, K					
00056	JARRO-DOPHILUS EPS™ - 60 veg. caps	\$22.95	\$17.21		
01759	JARRO-DOPHILUS EPS™ - 30 caps	39.95	29.96		
01724	K w/ADVANCED K2 COMPLEX (SUPER) - 90 softgels Buy 4 bottles, price each	30.00 27.00	22.50 20.25		
01600	KRILL HEALTHY JOINT FORMULA - 30 softgels Buy 4 bottles, price each	32.00 29.00	24.00 21.75		
01050	KRILL OIL PHOSPHOMEGA™ - 60 softgels	33.95	25.46		
00316	KYOLIC® GARLIC FORMULA 102 - 200 veg. caps	26.45	19.84		
00214	KYOLIC® GARLIC FORMULA 105 - 200 caps	27.45	20.59		
00789	KYOLIC® RESERVE - 600 mg, 120 caps	27.95	20.96		

SUB-TOTAL OF COLUMN 9

No.		Retail Each	Member Each	Qty	Total
01681	LACTOFERRIN (APOLACTOFERRIN) CAPS - 60 caps Buy 4 bottles, price each	\$52.00 48.00	\$39.00 36.00		
00020	LECITHIN - 16 oz. granules Buy 4 jars, price each	15.00 12.50	11.25 9.38		
01955	LIFE EXTENSION MIX™ - 315 tablets Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 69.50	73.50 64.50 52.13		
01957	LIFE EXTENSION MIX™ W/EXTRA NIACIN - 315 tablets Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 69.50	73.50 64.50 52.13		
01954	LIFE EXTENSION MIX™ - 490 caps Buy 4 bottles, price each Buy 10 bottles, price each	110.00 98.00 85.00	82.50 73.50 63.75		
01956	LIFE EXTENSION MIX™ POWDER - 14.81 oz Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 72.00	73.50 64.50 54.00		
01965	LIFE EXTENSION MIX™ - 315 tablets w/o copper Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 69.50	73.50 64.50 52.13		
01967	LIFE EXTENSION MIX™ W/EXTRA NIACIN 315 tablets w/o copper Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 69.50	73.50 64.50 52.13		
01964	LIFE EXTENSION MIX™ - 490 caps w/o copper Buy 4 bottles, price each Buy 10 bottles, price each	110.00 98.00 85.00	82.50 73.50 63.75		
01966	LIFE EXTENSION MIX™ POWDER - 14.81 oz w/o copper Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 72.00	73.50 64.50 54.00		
01608	LIVER EFFICIENCY FORMULA - 30 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01639	5-LOX INHIBITOR W/APRESFLEX® - 100 mg, 60 veg. caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01678	L-LYSINE - 620 mg, 100 veg. caps Buy 4 bottles, price each	9.00 8.00	6.75 6.00		
00455	LYCOPENE EXTRACT (MEGA) - 15 mg, 90 softgels Buy 4 bottles, price each	35.00 30.00	26.25 22.50		
M					
01885	MACUGUARD® OCULAR SUPPORT - 60 softgels Buy 4 bottles, price each	\$22.00 19.80	\$16.50 14.85		
01886	MACUGUARD® OCULAR SUPPORT w/ASTAXANTHIN - 60 softgels Buy 4 bottles, price each	42.00 38.00	31.50 28.50		
01459	MAGNESIUM CAPS - 500 mg, 100 veg. caps Buy 4 bottles, price each	12.00 10.00	9.00 7.50		
01682	MAGNESIUM CITRATE - 160 mg, 100 veg. caps Buy 4 bottles, price each	9.00 7.50	6.75 5.63		
01668	MELATONIN - 300 mcg, 100 veg. caps Buy 4 bottles, price each	5.75 5.00	4.31 3.75		
01083	MELATONIN - 500 mcg, 200 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00329	MELATONIN - 1 mg, 60 caps Buy 4 bottles, price each	5.00 4.63	3.75 3.47		
00330	MELATONIN - 3 mg, 60 caps Buy 4 bottles, price each	8.00 6.88	6.00 5.16		

SUB-TOTAL OF COLUMN 10

No.		Retail Each	Member Each	Qty	Total
01786	MELATONIN TIME RELEASE - 3 mg, 60 veg. tabs Buy 4 bottles, price each	\$12.00 11.00	\$9.00 8.25		
00331	MELATONIN - 10 mg, 60 caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
00332	MELATONIN - 3 mg, 60 veg. lozenges Buy 4 bottles, price each	8.00 6.88	6.00 5.16		
01734	MELATONIN (Fast Acting Liquid) - 3 mg (Natural Citrus-Van) Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
01787	MELATONIN TIME RELEASE - 300 mcg, 100 veg. tabs Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
01788	MELATONIN TIME RELEASE - 750 mcg, 60 veg. tablets Buy 4 bottles, price each	8.00 7.00	6.00 5.25		
01536	METHYLCOBALAMIN - 1 mg, 60 veg. lozenges (vanilla) Buy 4 bottles, price each	9.95 8.00	7.46 6.00		
01537	METHYLCOBALAMIN - 5 mg, 60 veg. lozenges (vanilla) Buy 4 bottles, price each Buy 10 bottles, price each	32.00 25.00 23.00	24.00 18.75 17.25		
00709	MIGRA-EEZE™ (BUTTERBUR) - 60 softgels Buy 4 bottles, price each	29.50 26.33	22.13 19.75		
01800	MIGRA-MAG w/BRAIN SHIELD® - 90 veg. caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01522	MILK THISTLE (EUROPEAN) - 60 veg. caps Buy 4 bottles, price each	34.00 30.00	25.50 22.50		
01822	MILK THISTLE (EUROPEAN) - 60 softgels Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01817	MILK THISTLE (EUROPEAN) - 120 softgels Buy 4 bottles, price each	44.00 40.00	33.00 30.00		
01698	MIRAFORTE w/STANDARDIZED LIGNANS (SUPER) - 120 caps Buy 4 bottles, price each	62.00 56.00	46.50 42.00		
01769	MITOCHONDRIAL BASICS w/BIOPQQ® - 30 caps Buy 4 bottles, price each	52.00 42.00	39.00 31.50		
01768	MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ® - 120 caps Buy 4 bottles, price each	94.00 78.00	70.50 58.50		
00065	MK-7 - 90 mcg, 60 softgels Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
00451	MSM (METHYLSULFONYLMETHANE) - 1,000 mg, 100 caps Buy 4 bottles, price each	14.00 11.95	10.50 8.96		
N					
01534	N-ACETYL-L-CYSTEINE - 600 mg, 60 veg. caps Buy 4 bottles, price each	\$14.00 13.50	\$10.50 10.13		
01904	NAD+ CELL REGENERATOR™ - 100 mg, 30 veg. caps Buy 4 bottles, price each	34.00 26.00	25.50 19.50		
00066	NATTOKINASE - 60 softgels	25.50	19.13		
01807	NATURAL APPETITE SUPPRESS (ADVANCED) - 60 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
00984	NATURAL BP MANAGEMENT - 60 tablets Buy 4 bottles, price each	44.00 40.00	33.00 30.00		
01892	NATURAL ESTROGEN - 60 veg. tabs Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
01221	NATURAL FEMALE SUPPORT - 30 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01471	NATURAL GLUCOSE ABSORPTION CONTROL - 60 veg. caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		

SUB-TOTAL OF COLUMN 11

No.		Retail Each	Member Each	Qty	Total
01626	NATURAL SEX FOR WOMEN® 50+ (ADVANCED) - 90 veg. caps Buy 4 bottles, price each	\$59.00 45.33	\$44.25 34.00		
01444	NATURAL SLEEP® - 60 veg. caps Buy 4 bottles, price each	13.00 10.00	9.75 7.50		
01551	NATURAL SLEEP® w/ MELATONIN (ENHANCED) - 30 caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01511	NATURAL SLEEP® w/o MELATONIN (ENHANCED) - 30 caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01445	NATURAL SLEEP® MELATONIN - 5 mg, 60 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00987	NATURAL STRESS RELIEF - 30 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01121	NERVIA® - 60 softgels	49.95	37.46		
01603	NEURO-MAG™ MAGNESIUM L-THREONATE - 90 veg. caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
01602	NEURO-MAG™ L-THREONATE w/CALCIUM & VITAMIN D 225 grams - Lemon flavor Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
01903	NK CELL ACTIVATOR™ - 30 veg. tablets Buy 4 bottles, price each	45.00 42.00	33.75 31.50		
00373	NO-FLUSH NIACIN - 800 mg, 100 caps Buy 4 bottles, price each	19.00 17.00	14.25 12.75		
O					
01824	OLIVE LEAF VASCULAR SUPPORT w/CELERY SEED EXTRAT(ADVANCED) 500 mg, 60 veg. caps • Buy 4 bottles, price each	\$36.00 32.00	\$27.00 24.00		
01819	OMEGA WITH KRILL & ASTAXANTHIN (SUPER) - 120 softgels Buy 4 bottles, price each Buy 10 bottles, price each	45.00 42.00 33.00	33.75 31.50 24.75		
01483	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 60 softgels Buy 4 bottles, price each Buy 10 bottles, price each	18.00 16.00 12.50	13.50 12.00 9.38		
01482	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 120 softgels Buy 4 bottles, price each Buy 10 bottles, price each	32.00 28.00 22.73	24.00 21.00 17.05		
01484	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 120 enteric coated softgels Buy 4 bottles, price each Buy 10 bottles, price each	34.00 31.00 24.00	25.50 23.25 18.00		
01485	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 60 enteric coated softgels Buy 4 bottles, price each Buy 10 bottles, price each	20.00 18.00 14.00	15.00 13.50 10.50		
01619	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) (SMALL SOFTGEL) - 240 softgels Buy 4 bottles, price each Buy 10 bottles, price each	32.00 28.00 23.00	24.00 21.00 17.25		
01901	ONE-PER-DAY - 60 tablets Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01328	ONLY TRACE MINERALS - 90 veg. caps Buy 4 bottles, price each	15.00 12.50	11.25 9.38		

SUB-TOTAL OF COLUMN 12

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
P					
01789	PALMETTOGUARD® SAW PALMETTO w/BETA SITOSTEROL - 30 softgels	\$15.00	\$11.25		
	Buy 12 bottles, price each	12.00	9.00		
01790	PALMETTOGUARD® SUPER SAW PALMETTO/ - 60 softgels NETTLE ROOT W/BETA-SITOSTEROL	28.00	21.00		
	Buy 4 bottles, price each	26.00	19.50		
	Buy 12 bottles, price each	24.00	18.00		
00073	PANCREATIN - 500 mg, 50 caps	13.22	9.92		
01323	PEAK ATP® WITH GLYCOCARN® - 60 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	50.00	37.50		
00342	PECTA SOL-C® MODIFIED CITRUS PECTIN - 454 grams powder	109.95	82.46		
01080	PECTA SOL-C® MODIFIED CITRUS PECTIN - 270 veg. caps	79.95	59.96		
01811	PEONY IMMUNE - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
00673	PGX™ PLUS MULBERRY (WELLBETX®) -180 veg. caps	34.95	26.21		
00865	PHARMA GABA® - 60 chewable tablets	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01676	PHOSPHATIDYLSERINE CAPS - 100 mg, 100 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	48.00	36.00		
01436	POLICOSANOL - 10 mg, 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	15.00	11.25		
01423	POMEGRANATE™ (FULL-SPECTRUM) - 30 softgels	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
00956	POMEGRANATE EXTRACT - 30 veg. caps	19.50	14.63		
	Buy 4 bottles, price each	17.55	13.16		
01797	POMI-T® - 60 veg. caps	33.33	25.00		
	Buy 4 bottles, price each	30.00	22.50		
00577	POTASSIUM IODIDE - 1 box, 14 tablets	6.95	5.21		
	Buy 4 boxes, price each	5.25	3.94		
01500	PQQ CAPS W/BIO-PQQ® - 10 mg, 30 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	18.00	13.50		
	Buy 10 bottles, price each	16.00	12.00		
01647	PQQ CAPS W/BIO-PQQ® - 20 mg, 30 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	32.00	24.00		
	Buy 10 bottles, price each	28.00	21.00		
00302	PREGNENOLONE - 50 mg, 100 caps	26.00	19.50		
	Buy 4 bottles, price each	22.00	16.50		
00700	PREGNENOLONE - 100 mg, 100 caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
***01373	PRELOX® NATURAL SEX FOR MEN® - 60 tablets	52.00	39.00		
	Buy 4 bottles, price each	48.00	36.00		
01576	PREVAGEN® - 10 mg, 30 caps	60.00	45.00		
01577	PREVAGEN® ES - 20 mg, 30 caps	70.00	60.00		
00525	PROBOOST THYMIC PROTEIN A™ - 4 mcg, 30 packets	59.95	44.96		
01441	PROGESTACARE FOR WOMEN - 4 oz cream	35.00	26.25		
	Buy 4 bottles, price each	32.00	24.00		
01898	PROSTATE FORMULA (ULTRA NAT) - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		
01909	PROSTAPOLLEN™ (TRIPLE ACTION) -30 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01742	PROTEIN-ISOLATE (WHEY) VANILLA - 1 lb. powder	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		

SUB-TOTAL OF COLUMN 13

No.		Retail Each	Member Each	Qty	Total
01743	PROTEIN-ISOLATE (WHEY) CHOCOLATE - 1 lb. powder	\$30.00	\$22.50		
	Buy 4 jars, price each	27.00	20.25		
01770	PROTEIN CONCENTRATE (New Zealand Whey) Vanilla - 520 gr	30.00	22.50		
	Buy 4 bottles, price each	26.60	19.95		
01771	PROTEIN CONCENTRATE (New Zealand Whey) Chocolate - 660 gr	30.00	22.50		
	Buy 4 bottles, price each	26.60	19.95		
01812	PROVINAL® PURIFIED OMEGA-7 - 30 softgels	27.00	20.25		
	Buy 4 bottles, price each	24.00	18.00		
01508	PTEROPURE® - 50 mg Pterostilbene 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
01209	PUMPKIN SEED EXTRACT (WATER-SOLUBLE) - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01587	PURE PLANT PROTEIN - Veg. Vanilla 540 grams powder	38.00	28.50		
	Buy 4 jars, price each	35.00	26.25		
01637	PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT -100 mg, 60 veg. caps	64.00	48.00		
	Buy 4 bottles, price each	60.00	45.00		
01217	PYRIDOXAL 5'-PHOSPHATE - 100 mg, 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	19.80	14.85		
Q, R					
01309	QUERCETIN (OPTIMIZED) - 250 mg, 60 veg. caps	\$22.00	\$16.50		
	Buy 4 bottles, price each	20.00	15.00		
01030	RED YEAST RICE (Bluebonnet)- 600 mg, 60 veg. caps	16.95	13.56		
00605	REGIMINT - 60 enteric-coated caps	19.95	14.96		
	Buy 4 bottles, price each	18.67	14.00		
01708	REISHI EXTRACT MUSHROOM COMPLEX - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01448	REJUVENEX® BODY LOTION - 6 oz	24.00	18.00		
	Buy 4 tubes, price each	19.80	14.85		
	Buy 8 tubes, price each	17.00	12.75		
01621	REJUVENEX® FACTOR FIRMING SERUM - 1.7 oz	65.00	48.75		
	Buy 2 bottles, price each	50.66	38.00		
	Buy 6 bottles, price each	38.52	28.89		
01220	REJUVENEX® (ULTRA) - 2 oz	52.00	39.00		
	Buy 2 jars, price each	48.00	36.00		
	Buy 4 jars, price each	44.00	33.00		
	Buy 8 jars, price each	39.93	29.95		
00676	REJUVENIGHT® (ULTRA) - 2 oz	39.95	29.96		
	Buy 4 jars, price each	36.00	27.00		
01410	RESVERATROL W/PTEROSTILBENE - 100 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01930	RESVERATROL W/NAD+ CELL REGENERATOR™ (OPTIMIZED) - 30 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	36.00	27.00		
01430	RESVERATROL w/SYNERGISTIC GRAPE-BERRY ACTIVES (OPTIMIZED) - 250 mg, 60 veg. caps	46.00	34.50		
	Buy 4 bottles, price each	41.33	31.00		
00889	RHODIOLA EXTRACT - 250 mg, 60 veg. caps	11.75	8.81		
	Buy 4 bottles, price each	10.58	7.94		
01900	RIBOGEN™ FRENCH OAK WOOD EXTRACT - 200 mg, 30 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
00972	(D) RIBOSE POWDER - 150 grams	27.50	20.63		
	Buy 4 jars, price each	24.75	18.56		

SUB-TOTAL OF COLUMN 14

No.		Retail Each	Member Each	Qty	Total
01473	(D) RIBOSE TABLETS - 100 veg. tabs Buy 4 bottles, price each	\$32.00 28.00	\$24.00 21.00		
01609	RICH REWARDS® BREAKFAST GROUND COFFEE - 12 oz. bag	13.00	9.75		
01730	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE - 12 oz. bag Natural Mocha	15.00	11.25		
01729	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE - 12 oz. bag Natural Vanilla	15.00	11.25		
01612	RICH REWARDS® BREAKFAST BLEND WHOLE BEAN COFFEE -12 oz. bag	13.00	9.75		
01610	RICH REWARDS® DECAFFEINATED ROAST GROUND COFFEE -12 oz. bag	14.00	10.50		
01712	RICH REWARDS™ BLACK BEAN VEGETABLE SOUP - 32 oz. bottle Buy 6 bottles, price each	13.00 12.25	9.75 9.19		
01530	RICH REWARDS™ CRUCIFEROUS VEGETABLE SOUP - 32 oz. bottle Buy 6 bottles, price each	11.95 11.25	8.96 8.44		
01531	RICH REWARDS™ (SPICY) CRUCIFEROUS VEGETABLE SOUP - 32 oz. bottle Buy 6 bottles, price each	11.95 11.25	8.96 8.44		
01705	RICH REWARDS™ LENTIL VEGETABLE SOUP - 32 oz. bottle Buy 6 bottles, price each	13.00 12.25	9.75 9.19		
01810	RICH REWARDS™ MUNG BEAN SOUP W/TURMERIC - 32 oz. bottle Buy 6 bottles, price each	13.00 12.25	9.75 9.19		
01208	R-LIPOIC ACID (SUPER) - 240 mg, 60 veg. caps Buy 4 bottles, price each	49.00 45.00	36.75 33.75		
00070	RNA CAPSULES - 500 mg, 100 caps Buy 4 bottles, price each	17.95 16.16	13.46 12.12		
S					
01432	SAFFRON w/SATIREAL® (OPTIMIZED) - 60 veg. caps Buy 4 bottles, price each	\$36.00 32.00	\$27.00 24.00		
00358	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 20 enteric coated tablets Buy 8 boxes, price each	16.00 14.00	12.00 10.50		
00557	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 20 enteric coated tablets Buy 6 boxes, price each	28.00 24.00	21.00 18.00		
01740	SEA-IODINE™ - 1,000 mcg, 60 veg. caps Buy 4 bottles, price each	8.00 7.20	6.00 5.40		
00046	SELENIUM - 2 oz dropper bottle	11.95	8.96		
01679	SE-METHYL L-SELENOCYSTEINE - 200 mcg, 100 veg. caps Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
00318	SERRAFLAZYME - 100 tablets Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00284	SHARK LIVER OIL (NORWEGIAN) - 1,000 mg, 30 softgels Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01684	SILYMARIN - 100 mg, 50 veg. caps Buy 4 bottles, price each	9.25 8.25	6.94 6.19		
01249	SINUS CLEANSER - 4 oz. bottle	25.00	18.75		
01596	SKIN RESTORING PHYTOCERAMIDES w/LIPOWHEAT® - 30 veg. liquid caps Buy 4 bottles, price each	25.00 23.00	18.75 17.25		
00961	SODZYME® w/GLISODIN® AND WOLFBERRY - 90 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
00657	SOLARSHIELD SUNGLASSES - 1 pair smoke color Buy 2 pairs, price each	12.99 11.50	9.74 8.63		
01097	SOY EXTRACT (ULTRA) - 150 veg. caps Buy 4 bottles, price each	87.00 78.00	65.25 58.50		
00432	STEVIA™ EXTRACT (BETTER) - 100 packets, 1 gram each	9.95	7.46		
00438	STEVIA™ ORGANIC LIQUID EXTRACT (BETTER) - 2 oz liquid	11.00	8.25		

SUB-TOTAL OF COLUMN 15

No.		Retail Each	Member Each	Qty	Total
01476	STRONTIUM - 750 mg, 90 veg. caps Buy 4 bottles, price each	\$20.00 18.00	\$15.00 13.50		
01649	SUPER ABSORBABLE SOY ISOFLAVONES - 60 veg. caps Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01778	SUPER SELENIUM COMPLEX - 200 mcg, 100 veg. caps Buy 4 bottles, price each Buy 12 bottles, price each	14.00 12.00 11.00	10.50 9.00 8.25		
T					
01723	TART CHERRY EXTRACT w/STANDARDIZED CHERRYPURE® - 60 veg. caps Buy 4 bottles, price each	\$22.00 20.00	\$16.50 15.00		
00199	TAURINE - 1,000 mg, 50 caps Buy 4 bottles, price each	8.95 8.00	6.71 6.00		
00133	TAURINE POWDER - 300 grams Buy 4 bottles, price each	20.00 16.88	15.00 12.66		
01304	THEAFLAVIN STANDARDIZED EXTRACT - 30 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01683	(L) THEANINE - 100 mg, 60 veg. caps Buy 4 bottles, price each	24.00 20.50	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 Buy 4 bottles, price each	14.00 11.00	10.50 8.25		
01859	TMG - 500 mg, 60 veg. liquid caps Buy 4 bottles, price each	13.00 12.00	9.75 9.00		
00781	TOCOTRIENOLS WITH SESAME LIGNANS - 60 softgels Buy 4 bottles, price each	38.00 36.00	28.50 27.00		
01400	TOCOTRIENOLS (SUPER-ABSORBABLE) - 60 softgels Buy 4 bottles, price each	30.00 28.00	22.50 21.00		
01278	TOOTH PASTE - 4 oz (Mint) Buy 4 tubes, price each	9.50 8.67	7.13 6.50		
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT - 60 veg. caps Buy 4 bottles, price each	24.00 22.00	18.00 16.50		
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT W/RESVERATROL -60 veg. caps Buy 4 bottles, price each	32.00 29.60	24.00 22.20		
01803	TRI SUGAR SHIELD™ - 60 veg. caps Buy 4 bottles, price each	36.00 32.00	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 Buy 4 bottles, price each	33.00 30.00	24.75 22.50		
01721	TRYPTOPHAN PLUS (OPTIMIZED) - 90 veg. caps Buy 4 bottles, price each	32.00 29.00	24.00 21.75		
01916	TWO-PER-DAY - 60 tablets Buy 4 bottles, price each	10.50 9.50	7.88 7.13		
01915	TWO-PER-DAY - 120 tablets Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01914	TWO-PER-DAY - 120 caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
00326	L-TYROSINE - 500 mg, 100 tablets	12.98	9.74		

SUB-TOTAL OF COLUMN 16

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
V					
00213	VANADYL SULFATE - 7.5 mg, 100 veg. tablets	\$15.00	\$11.25		
	Buy 4 bottles, price each	12.50	9.38		
00408	VENOTONE - 60 caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01327	VINPOCETINE - 10 mg, 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	14.00	10.50		
00372	VITAMIN B3 NIACIN - 500 mg, 100 caps	7.65	5.74		
	Buy 4 bottles, price each	6.65	4.99		
00098	VITAMIN B5 - 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
01535	VITAMIN B6 - 250 mg, 100 veg. caps	12.50	9.38		
	Buy 4 bottles, price each	11.00	8.25		
00361	VITAMIN B12 - 500 mcg, 100 lozenges	8.75	6.56		
	Buy 4 bottles, price each	7.25	5.44		
01634	VITAMIN C w/ DIHYDROQUERCETIN - 1,000 mg, 60 veg. tablets	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
00927	VITAMIN C w/ DIHYDROQUERCETIN - 1,000 mg, 250 veg. tablets	25.50	19.13		
	Buy 4 bottles, price each	23.25	17.44		
00084	VITAMIN C (BUFFERED) POWDER - 454 grams	23.95	17.96		
	Buy 4 bottles, price each	22.00	16.50		
01736	(EFFERVESCENT) VITAMIN C-MAGNESIUM CRYSTALS - 180 grams	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01732	VITAMIN D3 - 2,000 IU, 1 fl oz, Mint flavor	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01753	VITAMIN D3 - 1,000 IU, 90 softgels	7.00	5.25		
	Buy 4 bottles, price each	6.00	4.50		
01751	VITAMIN D3 - 1,000 IU, 250 softgels	12.50	9.38		
	Buy 4 bottles, price each	11.25	8.44		
01713	VITAMIN D3 - 5,000 IU, 60 softgels	11.00	8.25		
	Buy 4 bottles, price each	9.90	7.43		
01718	VITAMIN D3 - 7,000 IU, 60 softgels	14.00	10.50		
	Buy 4 bottles, price each	12.60	9.45		
01758	VITAMIN D3 w/SEA-IODINE™ - 5,000 IU, 60 caps	14.00	10.50		
	Buy 4 bottles, price each	12.50	9.38		
00864	VITAMIN D3 Liquid Emulsion - 2,000 IU, 1 oz.	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01741	VITAMINS D AND K w/SEA-IODINE™ - 60 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01763	VITAMIN E (NATURAL) - 400 IU, 100 softgels	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	26.00	19.50		
01225	VITAMIN K2 (LOW-DOSE) - 45 mcg, 90 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
X					
00409	XYLIWHITE™ MOUTHWASH - 16 oz	\$10.00	\$7.50		
W					
01902	WAIST-LINE CONTROL™ - 120 veg. caps	\$42.00	\$31.50		
	Buy 4 bottles, price each	38.00	28.50		
01826	WEIGHT MANAGEMENT FORMULA - 60 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		

SUB-TOTAL OF COLUMN 17

No.		Retail Each	Member Each	Qty	Total
Z					
01813	ZINC HIGH POTENCY - 50 mg, 90 veg. caps	\$7.95	\$5.96		
	Buy 4 bottles, price each	7.00	5.25		
01561	ZINC GLUCONATE/OXIDE LOZENGES - 18.75 mg, 60 veg. lozenges	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
01961	ZINC ACETATE LOZENGES (ENHANCED) - 18.75 mg, 30 veg. lozenges	12.00	9.00		
	Buy 2 bottles, price each	8.00	6.00		
***01051	ZYFLAMEND® WHOLE BODY - 120 softgels	64.95	48.71		

SUB-TOTAL OF COLUMN 18

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SUB-TOTAL COLUMN 2	
SUB-TOTAL COLUMN 3	
SUB-TOTAL COLUMN 4	
SUB-TOTAL COLUMN 5	
SUB-TOTAL COLUMN 6	
SUB-TOTAL COLUMN 7	
SUB-TOTAL COLUMN 8	
SUB-TOTAL COLUMN 9	
SUB-TOTAL COLUMN 10	
SUB-TOTAL COLUMN 11	
SUB-TOTAL COLUMN 12	
SUB-TOTAL COLUMN 13	
SUB-TOTAL COLUMN 14	
SUB-TOTAL COLUMN 15	
SUB-TOTAL COLUMN 16	
SUB-TOTAL COLUMN 17	
SUB-TOTAL COLUMN 18	

ORDER TOTALS

Sub-Total A (Sub-total of Columns 1 through 18)	
Postage And Handling (Any size order, contiguous U.S.)	\$5.50
C.O.D.s (Add \$7 for C.O.D. orders)	
Shipping	
GRAND TOTAL (Must be in U.S. dollars)	



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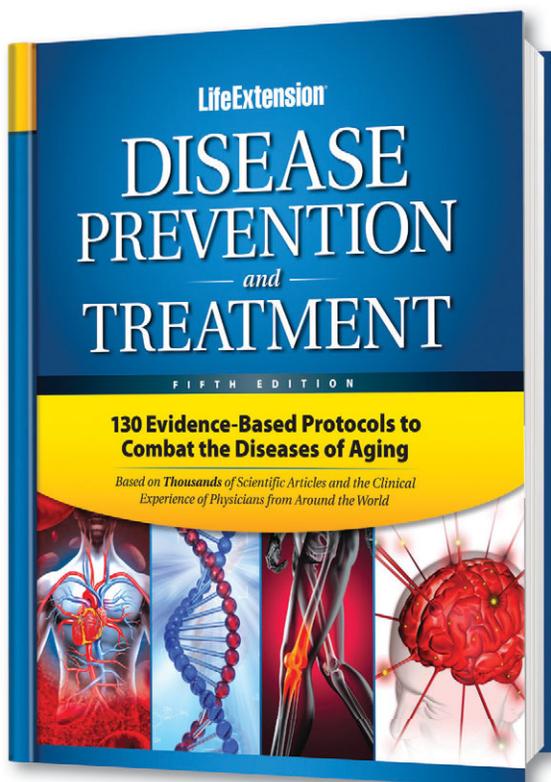
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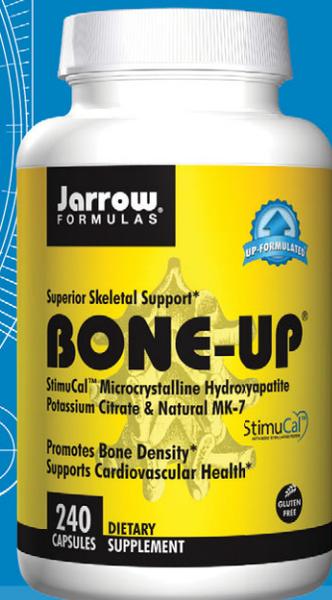
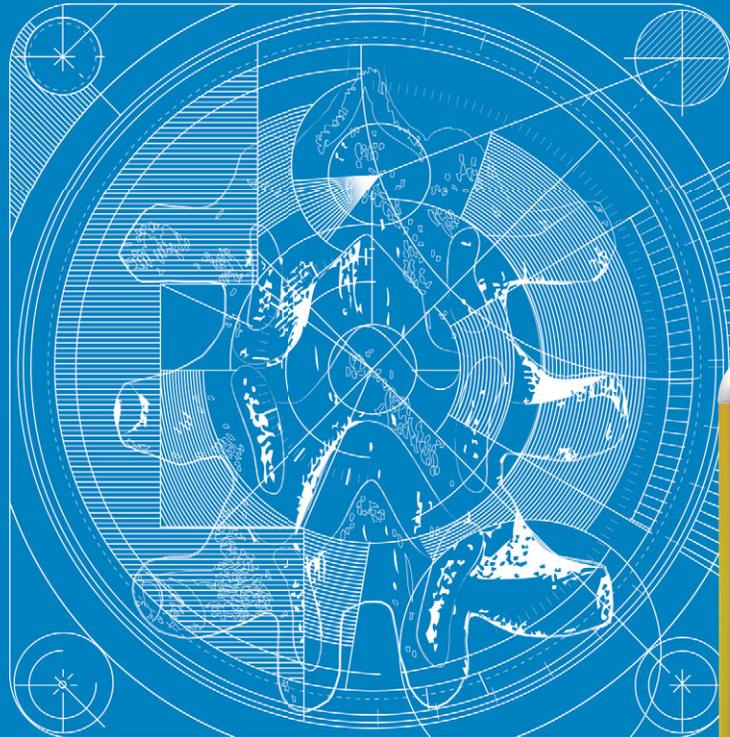
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Vitamin K2 (MK-4)	1,000 mcg
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Warning to Coumadin® (warfarin) Drug Users: Patients prescribed vitamin K-antagonist anticoagulant prescription drugs like warfarin should consult their physician before taking vitamin K supplements like Super K and Super Booster. There is evidence, however, that users of drugs like warfarin could benefit from a consistent low dose of supplemental K. Ask your doctor if you can take a low dose (**45 mcg** a day) of vitamin K2 in the long-acting MK-7 form for the purpose of stabilizing your INR levels and also protecting your body against long-term vitamin K deficit. Do not initiate any form of vitamin K supplementation without full cooperation of your treating doctor, as your doctor may need to increase your dose of warfarin to compensate for your vitamin K supplement. Life Extension® provides several forms of low-dose vitamin K for physician consideration.



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A published study shows a **44% reduction** in **cardiovascular mortality** in heart failure patients who properly used **CoQ10**. **Life Extension** reveals how the FDA's suppression of CoQ10 resulted in more American deaths than all wars the United States has fought in combined.



26 BOOST LONGEVITY BEYOND CALORIE RESTRICTION

Blueberries delay the aging process by facilitating **DNA repair**, an essential longevity mechanism. When added to a **calorie-restricted** diet, **blueberry polyphenols** significantly increased **life span**.



38 OLIVE OIL'S CARDIOVASCULAR PROTECTION EFFECTS

Researchers have identified specific compounds in **extra virgin olive oil** responsible for expression of genes that improve HDL function, inhibit atherosclerosis, and improve endothelial function.



48 HIDDEN LIVER DISEASE EPIDEMIC

Obesity, not alcohol, is the main cause of liver disease that affects one in three Americans. Find out how to protect against **nonalcoholic fatty liver disease**.



60 SNOW ALGAE REVIVES AGING SKIN

Snow algae extract strengthens the aging skin barrier to restore natural skin hydration, while novel **peptides** boost collagen production to induce visible skin firmness.



68 CoQ10 PREVENTS CONGESTIVE HEART FAILURE

Patients with congestive heart failure have low levels of CoQ10, which increases their chance of death by **50%**. The proper form and dose of CoQ10 can *reverse* these underlying pathologies.