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August 2014

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**Banish Age Spots
and Hyperpigmentation**

**Plant-Derived
Natural Estrogens**

**Fatal Prostate
Cancer Linked
to Inflammation**

**Reishi Reduces Colon
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Item # 01208

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A bottle of **Super R-Lipoic Acid** containing 60 vegetarian capsules retails for \$49. If a member buys four bottles, the cost is only **\$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.

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CAUTION: If you are taking glucose lowering medication, consult your healthcare provider before taking this product. Bio-Enhanced[®] is a registered trademark of Geronova Research, Inc.

REPORTS



34 SAFE MANAGEMENT OF MENOPAUSAL SYMPTOMS

Women and their doctors have long searched for alternatives to conventional hormone drugs to treat menopausal symptoms. Studies show that natural plant-based extracts, **hops** and **lignan extract**, block menopausal discomforts such as hot flashes, irritability, and sexual problems. This combination may also provide anticancer, antimicrobial, anti-inflammatory, and immunomodulatory benefits.



44 LIGHTEN AGE SPOTS TO RESTORE SKIN UNIFORMITY

Aging skin overproduces *melanin* and unevenly deposits it, causing **age spots** and uneven tones that make skin appear older. Rigorous research reveals that a formulation of three natural compounds lightens age spots in **80%** of individuals, fades freckles for almost **90%** of participants, and reduces total areas of hyperpigmentation by **25%**.



52 TOCOTRIENOLS' LITTLE-KNOWN BENEFITS

Often overlooked by scientists and consumers, **tocotrienols** are a crucial component of the entire spectrum of vitamin E with their own unique health benefits. Researchers have shown that **tocotrienols** can create new artery formation after a stroke, protect vital brain circuitry, and improve pancreatic cancer survival in laboratory studies.



64 REISHI FIGHTS IMMUNE DECLINE

With aging, our immune system declines in a process called *immunosenescence*. A weakened immune system encourages deadly infection and disease. Scientists have confirmed that the medicinal mushroom **reishi** contains pharmacologically active compounds that bolster the immune system and help defend against age-induced immune decline.



GREEN TEA DEFENDS AGAINST ALZHEIMER'S DISEASE

Striking new scientific evidence reveals that **green tea** inhibits Alzheimer's disease by preventing *amyloid plaque* formation and creating new brain neurons—resulting in a **54%** reduction in the risk of cognitive decline. Neuroimaging scanning now demonstrates how **green tea** extract boosts activity in an area of the brain specifically used for working memory.

DEPARTMENTS



7 WHY SICK CARE COSTS SO MUCH

There is no real healthcare cost crisis as politicians claim. Instead, a marketplace dominated by pharmaceutical lobbyists use regulatory barriers to gouge the public with monopolistic prices. Deregulation would improve health care, lower costs, and eliminate the need for government-mandated insurance programs.



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Reducing calories lowers mortality risk; glucosamine increases life span; resveratrol improves glycemic measures; correcting vitamin D levels in women boosts weight loss; and more.



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Beta-blockers to reduce blood pressure can lead to chronic sleep disturbances by blocking melatonin production. Melatonin may correct this common problem that is often overlooked by physicians.

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Olive oil is vital in the disease-reducing Mediterranean diet and positively influences nearly **100** genes that control the aging process. Studies show that olive oil protects against Alzheimer's, osteoporosis, and skin aging.





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CoQ10, Shilajit, and PQQ

**Triple-Action
Mitochondrial Support!**



Item # 01733

Super Ubiquinol CoQ10 With BioPQQ® contains **shilajit** to increase coenzyme Q10 in mitochondria plus **PQQ** to support the generation of new mitochondria in aging cells. This **three-way** mitochondrial support strategy offers the following benefits:

1. SUPER UBIQUINOL CoQ10

CoQ10 is required to convert the fats and sugars you eat into cellular energy. The body's production of CoQ10 markedly declines with advancing age.

Scientific studies show that **absorption** of the **ubiquinol** form of CoQ10 is far greater than the ubiquinone form.¹

2. ENHANCED SUPPORT WITH SHILAJIT

PrimaVie® shilajit has been shown to **double** levels of **CoQ10** in mitochondria!¹ Combining CoQ10 and shilajit produced a **56% increase** in energy production in the brain—**40% better** than CoQ10 alone. And in muscle, there was a **144% increase** in energy production—**27% better** than CoQ10 alone.²

3. PQQ PROMOTES YOUTHFUL CELLULAR FUNCTION

- **PQQ** activates genes that promote the formation of *fresh mitochondria*.³
- **Mitochondrial DNA** is situated at the source of free radical production, but has relatively little protection from their damaging effects.⁴ PQQ powerfully boosts mitochondrial **antioxidant** defenses while promoting the generation of new mitochondria.^{3,5}

The optimal dose of **PQQ** is **20 mg** each day. Members taking **Mitochondrial Energy Optimizer, Mitochondrial Basics, or PQQ 10 mg caps** obtain this optimal PQQ dose when taking the new **Super Ubiquinol CoQ10 with PQQ**.

PQQ is an **essential nutrient**, meaning that your body cannot make it on its own. A wealth of research demonstrates that—alone and especially in combination with CoQ10—its unique nutritional profile supports heart health and brain function.⁶⁻⁸

The suggested dosage of one (1) softgel daily of **Super Ubiquinol CoQ10 With BioPQQ®** provides:

Ubiquinol (as Kaneka QH Ubiquinol®)	100 mg
PrimaVie® Shilajit fulvic acid complex	100 mg
BioPQQ® Pyrroloquinoline quinone disodium salt	10 mg

A bottle of 30 softgels of **Super Ubiquinol CoQ10 With BioPQQ®** retails for \$54. If a member buys four bottles, the price is reduced to **\$37.50** per bottle.

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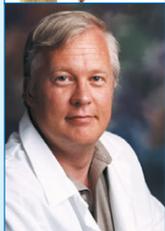
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THE POWER OF

Curcumin + Ginger



Item# 01808

HOW MUCH CURCUMIN ARE YOU ABSORBING?

Derived from the Indian spice turmeric, **curcumin** is acclaimed for its wide range of health-promoting effects on almost every organ system,^{1,6} while supporting the body's healthy inflammatory response.⁷

Most **curcumin** extracts are neither well absorbed nor well retained in the body.

Advanced Bio-Curcumin® with Ginger & Turmerones contains **BCM-95®**, a patented, bioenhanced preparation of curcumin that has been shown to reach up to **7 times higher** concentration in the blood than standard curcumin.⁸ In addition to the benefits of **BCM-95®** this advanced formula provides:

- **Turmerones:** botanical compounds that remain after curcumin is extracted, enhancing curcumin absorption and increasing the amount of curcumin inside cells.⁹
- **Ginger:** a close relative of curcumin with overlapping, complementary health benefits.
- **Phospholipids:** an emulsifying molecule that greatly enhances absorption.¹⁰

The suggested daily dosage of one softgel of **Advanced Bio-Curcumin® with Ginger & Turmerones** provides:

Turmeric Phospholipid Blend	630 mg
BCM-95® Bio-Curcumin Turmeric 25:1 extract (rhizome) [total curcuminoids complex with essential oils (380 mg)], Turmeric oil (rhizome) [providing 60 mg total turmerones], Phospholipids	
Ginger CO₂ extract (root) [providing 60 mg gingerols]	200 mg

Each softgel of **Advanced Bio-Curcumin® with Ginger & Turmerones** provides **400 mg** of **BCM-95® Super Bio-Curcumin**, plus an array of turmerones and phospholipids.

A bottle of 30 softgels of **Advanced Bio-Curcumin® with Ginger & Turmerones** retails for \$30. If a member buys four bottles, the price is reduced to **\$20.25** per bottle.

Contains soybeans.

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

To order Life Extension® Advanced Bio-Curcumin® with Ginger & Turmerones, 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.

Collapsing Within Itself



BY WILLIAM FALOON

Do you remember when your employer paid **100%** of health insurance premiums for you and your family?

This free health insurance was widely available in the **1980s** and usually covered **every** medical expense. Back in those days, you did not read about healthcare costs **bankrupting** individuals, municipalities, corporations, and potentially the **federal government**.

In the **1980s**, we at **Life Extension**[®] were a lone voice warning of economic turmoil unless medicine was radically **deregulated**.

The government's response to our **free-market** approach was multiple seizures of products and relentless attempts to jail us. This was done at the behest of those in the mainstream who did not want their government-protected profit machine interfered with.

Move forward 30 years and exorbitant healthcare costs dominate the financial news. Politicians are desperately trying to figure a way out of a crisis their predecessors created.

You may wonder why no one has come up with a real-world solution. Omitted from the debate are the monopolistic **pricing** powers that **regulations** bestow to healthcare providers.

These regulations (restrictions) preclude innovative competitors from entering the market, while creating mounds of burdensome bureaucracy.

Consumers pay for these **regulations** in the form of high prices, shortages, long waits, side effects, and inferior care.

Inherent inefficiencies within the former Soviet Union led to it collapsing within itself. These same ineptitudes exist with government-regulated medicine in the United States.

As we have exposed for **34** consecutive years, the cost of providing quality healthcare is a fraction of what is **charged** to individuals, insurance companies, and government programs by industries protected by authoritarian edict.

Our solution is quite simple. Tear down the **regulatory barriers** that cause medical costs to be so grossly inflated, and what appears to be a permanent **healthcare cost crisis** will disappear into the history books.



AS WE SEE IT

The media does some accurate reporting about outlandish medical prices, but the public quickly forgets the story. So we did some searching to see how many articles exposing medical-related price gouging we could find. The number was astronomical.

When one looks at the magnitude of medical price gouging, and how widespread it is, the reason that **healthcare** is today's leading political issue becomes brutally apparent.

The underlying cause of this financial catastrophe are antiquated **regulatory barriers** that impede the introduction of more cost-effective ways of delivering better medical care to consumers. These senseless regulatory barriers enable hyperinflated prices since those offering superior medicine at lower prices are not allowed in.

What *Life Extension* predicted in the **1980s** is happening before your eyes. Healthcare costs are spiraling beyond the affordability of the private and public sectors combined.

Markups Beyond Comprehension

A woman named Jeanne Pinder experienced medical price gouging first hand and uncovered numbers that even startled me.¹

What caused her to be curious was an anesthesia bill for **\$6,000** from one hospital that was **three-times higher** than the anesthesia bill from another hospital in the same timeframe. She then questioned why an anti-nausea drug (*ondansetron*) was billed by the hospital at **\$1,419**.

Jeanne found that the price of **ondansetron** from a local drug supplier was only **\$2.49**. This



indicated the hospital had marked up the price of this one drug by **569 times!**

Jeanne then did some meticulous research to find out what various insurance plans would pay for **ondansetron**. For the same drug Jeanne was billed **\$1,419**, the following insurance programs would pay:

Veterans Administration:	\$15.76
Michigan Blue Cross	
Blue Shield:	\$17.60
Medicare:	\$24.36

The hospital charged **\$1,419** for a drug that cost less than **\$3** to buy. Jeanne's investigation provides a real-world example of why healthcare costs have exploded beyond any real-world ability to afford.

Next time you're told more money has to come out of your paycheck or pension to cover increased medical insurance premiums, or your private insurance rates go up, understand this is a facade designed to enrich the chosen few in the entrenched medical establishment. It has no basis in economic reality.

New York Times Exposes Egregious Markups

The *New York Times* published an article last year titled "**How to Charge \$546 for Six Liters of Saltwater.**"²

This investigative report looked at what the manufacturer's price was for saline IV solution and what hospitals billed to patients or their insurance carrier. It turned out that some of the patients' bills included markups of **100 to 200 times** over the manufacturer's price, not counting separate charges for the administration of the IV solution.

How did the *New York Times* find out the saline cost? Manufacturers are required to report such prices annually to the federal government, which bases Medicare payments on the average national price plus **6%**. The limit Medicare would pay for one liter bag of normal saline was **\$1.07** last year. Yet a bill from a New York hospital charged a private insurance company **\$91** for a bag of saline that cost the hospital just **86 cents**.

What consumers forget is that private insurance companies hike insurance premiums based on these inflated drug charges.

Corrupt Lobbying Causes Asthma Drug Price To Soar

When an off-patent asthma drug went back on-patent, its price soared from **\$15** to **\$100**.³ The name of this old-line drug is **albuterol** and it is one of the most common asthma medications used.

The way this off-patent asthma drug got back on-patent provides a startling look into the insidious lobbying schemes behind today's inflated drug prices.^{3,4}

In order for albuterol to be readily inhaled into the bronchi, it requires a propellant. The propellant in all albuterol drugs was CFC (*chlorofluorocarbon*). CFC is the ozone-depleting agent that used to spew out of air conditioners, refrigerators, aerosol sprays, and many kinds of industrial equipment. CFC was banned from virtually all uses, but it was still permitted to be used in the small amounts contained in drugs like asthma inhalers until late last year.⁵

Pharmaceutical companies that lost patents on medications that used CFC wanted to regain a monopoly on this lucrative market. So they went to the extreme length of contributing **\$520,000** to a supposed environmental protection group to lobby the FDA to remove CFC from all drugs. This consortium also aggressively developed patented combinations of albuterol and other inhalants with new propellants that won FDA approval.⁶

This nefarious lobbying effort paid off. In 2005, the FDA approved an outright ban on many CFC-based inhalers starting in 2009.⁷ Subsequent bans took effect on other CFC drugs.^{7,8} Bear in mind that the consortium behind this lobbying scheme consisted of the same companies selling CFC-propelled drugs. They were effectively lobbying the FDA to ban their own drugs so they could monopolize the market with the new propellant versions they were patenting.⁶ CFC was the most effective

medical propellant and according to some scientists, when compared to global CFC emissions, the tiny quantity used in inhalers posed no significant negative impact on the ozone layer.⁶

The payoff for this deceptive lobbying campaign was a **6-fold increase** in the price that could be charged for the new patented albuterol that was inferior to the previous CFC version in delivering the drug to suffocating asthmatics.⁸

Schemes like this to rip off consumers are not exceptions. They are customary business practices of companies that routinely deceive the courts, Congress, and the FDA to deny generic competitors access to the market and stomp out the introduction of new medical products that could save lives and lower healthcare costs.

Do you see why there is no real healthcare cost crisis? There is instead a crooked marketplace dominated by lobbyists who use the government's **regulatory barriers** to gouge the public with monopolistic prices.



Analogizing This To Gas Prices

Just imagine if **Exxon**® wanted to monopolize the gasoline market and patented a less efficient way of refining crude oil into gasoline.

Then imagine Exxon® funds a fake environmental group to lobby the **EPA** (Environmental Protection Agency) to ban currently used refining methods. Exxon® would then monopolize the market with its patented refining method and be able to increase the retail price of gasoline from **\$3** a gallon to let's say **\$18**—the same **6-fold increase** that occurred with **albuterol**. This would force consumers to spend over **\$300** to fill their tank.

Since most people cannot afford a **\$300** gas tank fill, Exxon® would need to emulate pharmaceutical companies and persuade the **government** to use **tax dollars** to subsidize their artificially inflated prices. This would

force the government to set up a special website to determine which Americans were eligible for gasoline **subsidies** based on individual income levels.

Do you see what a mess this would create? There is no way that government could afford to subsidize these artificially inflated gas prices, nor could companies do so for their employees or unions for their members. Yet this is exactly what is happening with conventional medical costs. Prices are being corruptly inflated, and all Congress does is bicker as to who is going to pay it.

The harsh fact is that no one can afford to keep paying for something that is corruptly priced far beyond its free-market value. The fallout from this occurs before our eyes with the pending insolvencies of Medicare, Medicaid, municipal health plans, along with large swaths of the American economic landscape including the post office.

This Catastrophe Is Avoidable

Medical care is not a luxury. It becomes a necessity when one falls ill. Medical care is so essential that hundreds of different state and federal government programs have been created to regulate and pay for it.

Yet many of these government programs encourage fraud and force inefficiencies. The end result has become price gouging so severe that medical care has become unaffordable to society as a whole.

By way of example, the average annual cost per household for healthcare is around **\$20,000**.⁹ The average household, however, does not earn enough to part with **\$20,000**, so no tax and redistribution system is ever going to work in the long run.

Common sense **deregulation**, on the other hand, would force vast improvements in healthcare while dramatically lowering costs. Compare this to the electronic industry, which has seen exponential technological enhancements, but constantly plummeting prices.

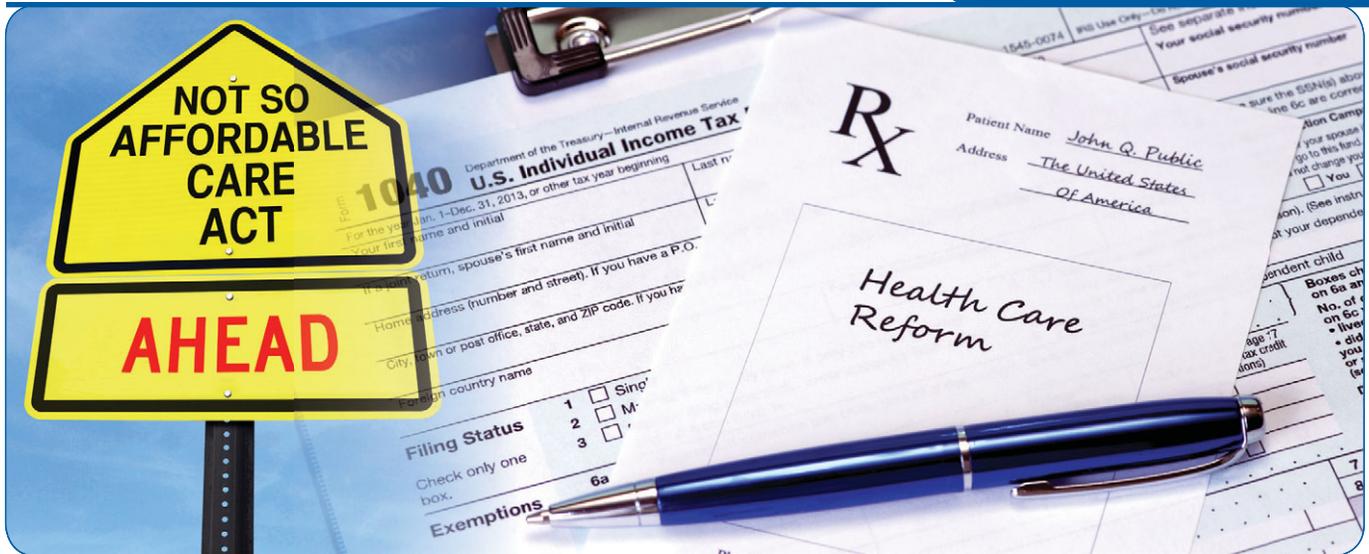
If these kinds of advances had ever been translated to the medical arena, cures for virtually every degenerative disease would likely have already occurred.

Fallacy Of Affordable Care Act

Proponents of **government-subsidized** healthcare fail to realize the **inflationary** impact it has on healthcare **prices**.¹⁰⁻¹²

When the **Medicare Modernization and Prescription Drug Act of 2003** was passed, it gave pharmaceutical companies free reign to charge the **federal**





government full retail price on prescription drugs covered by the Act.¹³ It should be no surprise that the **Medicare Modernization and Prescription Drug Act of 2003** was written and pushed into law by pharmaceutical lobbyists.

The **Affordable Care Act** passed in **2010** is deceptively named. **Premiums** and **co-pays** for typical people are high, while annual **deductibles** are **exorbitant**.¹⁴⁻¹⁶ My private health insurance premium in **1982** was only **\$780 per year** and paid full expenses for any hospital facility I chose in the United States. My **deductible** was virtually non-existent. The Affordable Care Act restricts where policy holders can get treatment, which can be a problem when a superior therapy is located outside one's community hospital network.

Under the current so-called "Affordable" Care Act, young people today are paying around **\$3,000 a year** in premiums for basic health insurance and are faced with **annual deductibles** of over **\$5,000!**^{17,18} A significant percentage of the population does not have **\$5,000-\$6,000** to cover their annual deductible, meaning the government-mandated insurance premiums they pay are often of little real-world value.

The more accurately defined "Unaffordable Care Act" has spawned fierce debate. When you see politicians attacking each other over how to best fund soaring sick care costs, remember that there is no real-world solution as long as the government grants *monopolistic* pricing power to conventional medicine. High medical prices would plummet in a *deregulated* environment, and the need for an "affordable" care act might become obsolete.

What You Can Do

The public is slowly recognizing the disconnection between medical costs and the inflated prices consumers are forced to bear. Media stories exposing overpriced healthcare are seen one day but often forgotten the next.

Politicians act oblivious to medical price gouging and can't stop arguing about where the money should come from to fund bloated healthcare costs. If Congress just investigated why American medicine is so expensive, they might understand the need to remove archaic *regulatory barriers* that underlie the problem.

Three years ago, my book *Pharmocracy* was published for the purpose of exposing the flaws in the current regulatory system that cause healthcare to be so overpriced. I want to encourage members to not waver in this battle and to send a hard copy of *Pharmocracy* to their Representative and two Senators.

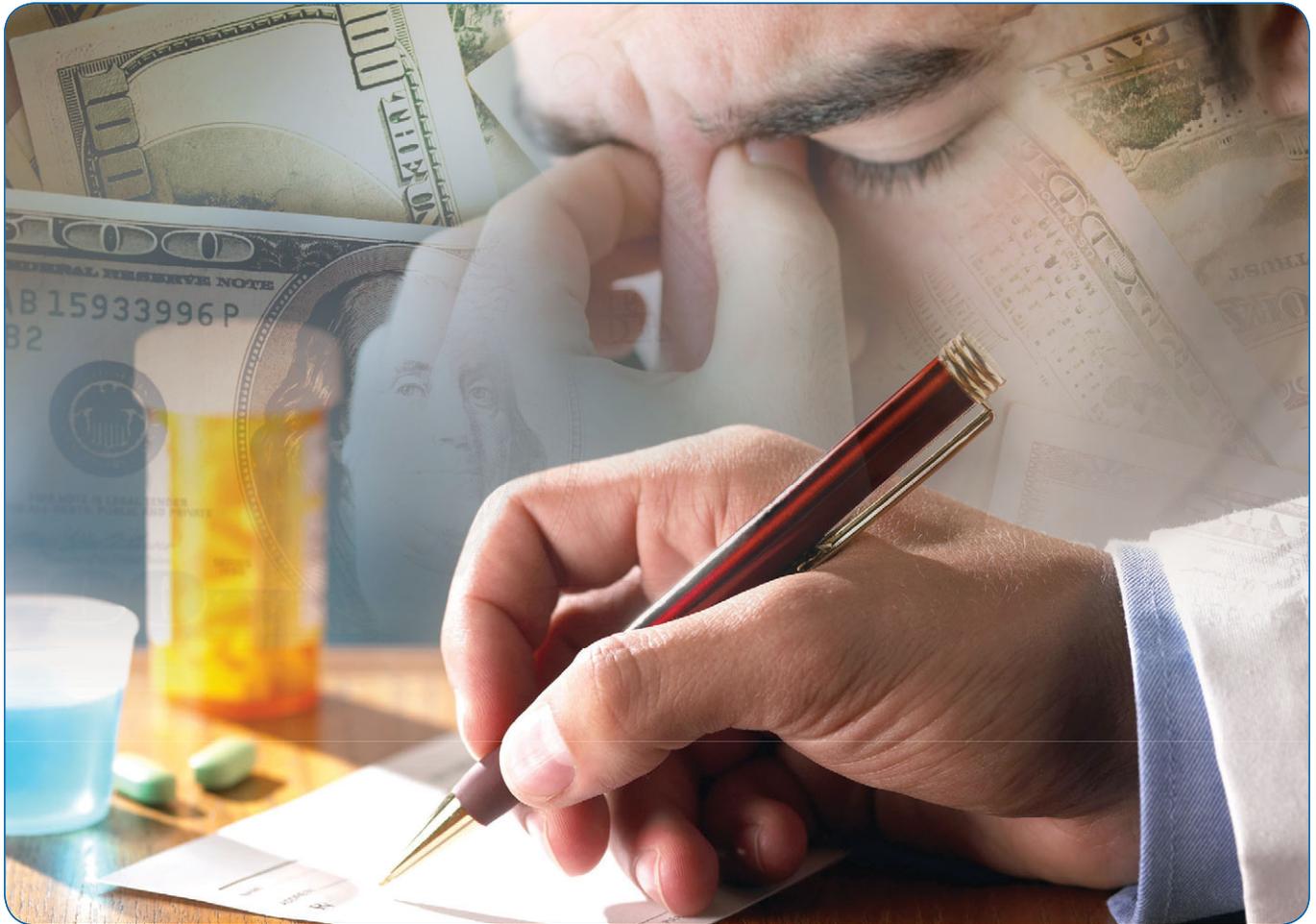
The cover price of *Pharmocracy* is **\$24**. If members want to purchase three or more copies, we're reducing it to just **\$5** per book, which include updates (like reprints of this article).

Rather than sit back and watch our nation financially flounder, I hope enough of our **200,000** members will order at least three copies of *Pharmocracy* and mail it, with the accompanying updated articles we'll include, to their Representative and two Senators.

For longer life,

William Faloon

P.S. Turn the page to order three hard copies of *Pharmocracy* for **\$5** each—**79%** off the cover price!



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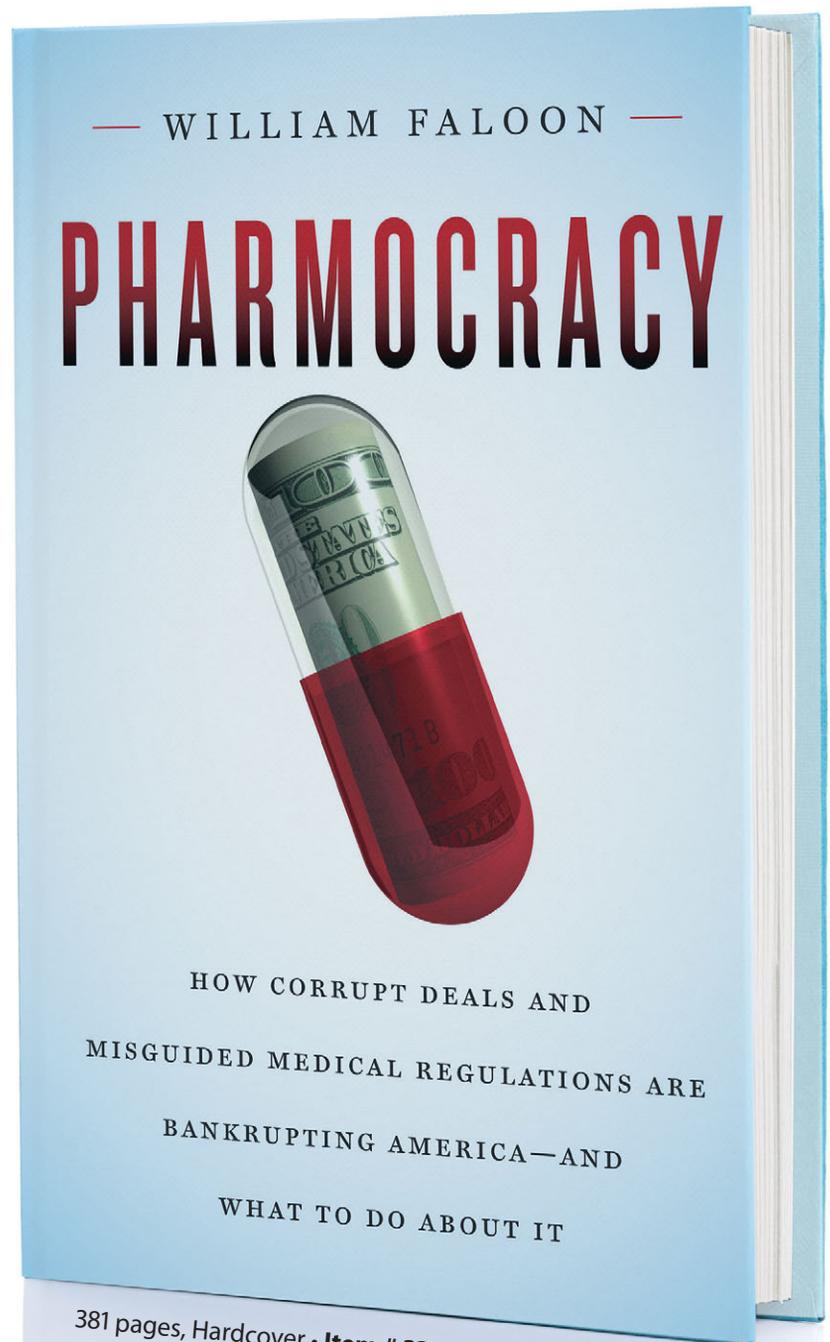
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Fight Back Against Our Corrupt and Inefficient Sick Care System

Pharmocracy provides factual documentation to reform our nation's broken healthcare system. It's more than 300 pages long because there are at least that many reasons why medicine costs far more than it should. Until now, no one has identified and compiled the quagmire of illogical regulations that cause healthcare to be so overpriced.

Implementing the free-market approaches described in **Pharmocracy** can spare Medicare and Medicaid from insolvency while significantly improving the health and productivity of the American public. This groundbreaking book provides an irrefutable and rational basis to remove the suffocating compulsory aspect of health-care regulation. It then documents how the free market can provide superior healthcare at far lower prices while better protecting consumers.

Pharmocracy provides a blueprint for motivated citizens to tear down the bureaucratic barriers that push healthcare costs beyond the financial reach of the typical American. You'll find no other book quite like it. We urge you to order three books now for only **\$5** a copy so that you can send them to your **Representative** and two **Senators**. Consider also giving **Pharmocracy** as gifts to spread the word about how to reform our inefficient and corrupt sick care system.



381 pages, Hardcover • Item # 33835Kit • Retail price \$24
Special Price (until Oct 1, 2014) when **three books**
are ordered: **\$5**—a **79% savings** off the cover price.

To order three or more copies of *Pharmocracy* for only \$5 each, call 1-800-544-4440 or visit www.lef.org/pharm today.

Enhanced Absorption With Phospholipids!

EYE PROTECTION FORMULA



Ocular Circulation Support

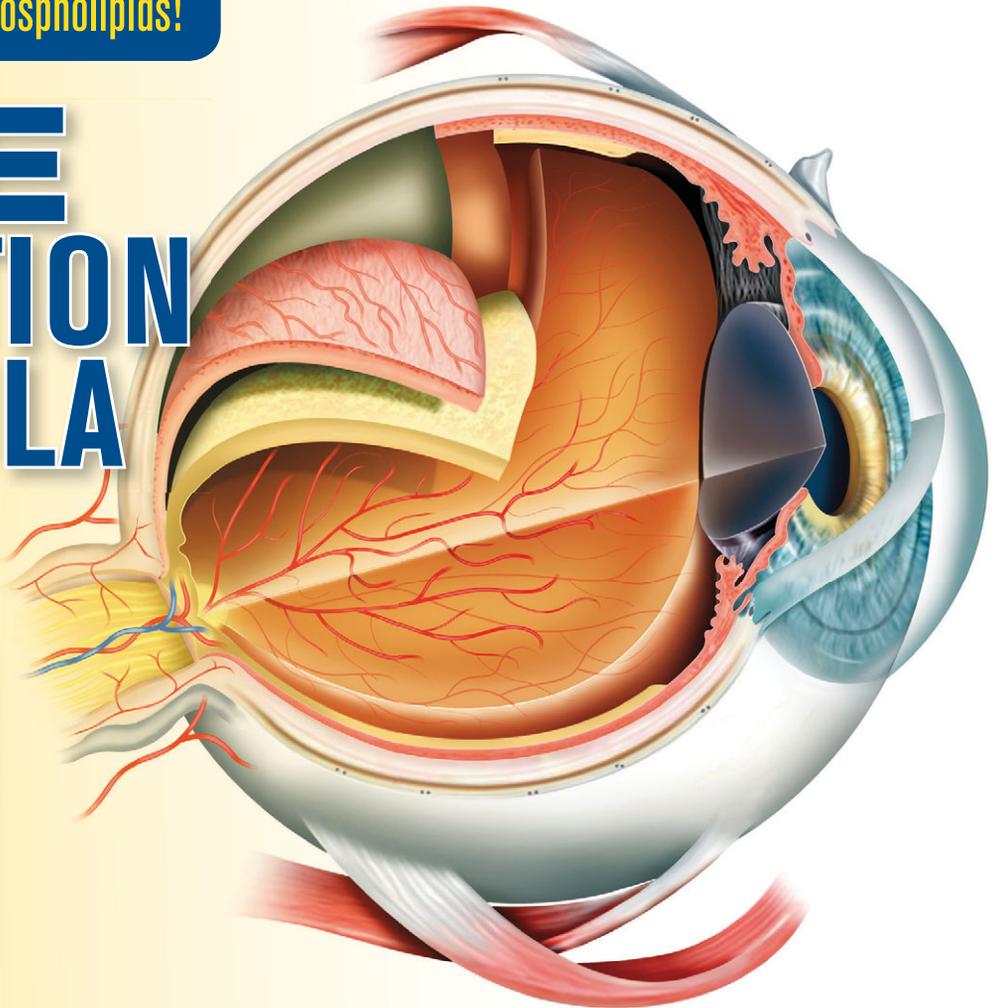
Lutein is one of the major components of **macular pigment** and it is essential to proper vision.¹ Eating large quantities of **lutein**- and **zeaxanthin**-containing vegetables can help provide the nutritional building blocks necessary to maintain the structural integrity of the macula. It's difficult, however, to increase systemic circulation of these important nutrients through food alone.² Now there is an easier way to bolster your eye integrity.

MacuGuard™ Ocular Support contains **phospholipids**, which are an integral part of the cell membrane. In addition to mixing well with other important fat-soluble components of the eye such as **lutein**, **phospholipids** have been shown to help support efficient **absorption** of dietary lutein in the blood stream as well.²⁻⁷

Phospholipids have been shown in scientific research to improve systemic circulation and accumulations of lutein in the retina of the eyes, making them a potent all-around weapon in your arsenal for eye health.^{6,7}

MacuGuard™ Ocular Support offers TRIPLE EYE PROTECTION:

- Supports concentration of **lutein** in the eye.
- Supports efficient **absorption** of lutein in the blood stream.
- Phospholipids enhance lutein in the cell membrane.
- Supports **zeaxanthin** concentrations in eye.
- Provides **meso-zeaxanthin** which is difficult to obtain from dietary sources.



Comprehensive Ocular Protection in One Daily Softgel

This formula provides ingredients that have been shown to promote healthy eyesight. Just one softgel of **MacuGuard™ Ocular Support** provides:

MacuGuard™ Carotenoid Phospholipid Blend	145 mg
Phospholipids, marigold extract (flower)	
[providing 10 mg free lutein, 4 mg <i>meso</i> -zeaxanthin & <i>trans</i> -zeaxanthin]	
C3G (Cyanidin-3-glucoside)	2.2 mg
[from European black currant extract (fruit)]	

The retail price for a bottle containing 60 softgels of **MacuGuard™ Ocular Support** is \$22. If a member buys four bottles, the price is reduced to **\$14.85** per bottle.

Contains soybeans.

LuteinPlus® and MZ® are registered trademarks of Nutriproducts Ltd., UK, licensed under US Patents 6,218,436 & 6,329,432.

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To order MacuGuard™ Ocular Support 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.



IN THE NEWS

Lower Vitamin D Levels Associated With Increased Coronary Artery Disease Severity

A study presented at the American College of Cardiology's 63rd Annual Scientific Session reveals the finding of a correlation between declining vitamin D levels and increasing coronary artery disease (CAD) severity in a study of Italian men and women.*

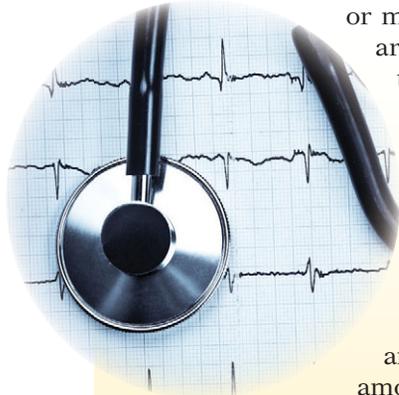
The study included 1,484 subjects undergoing coronary angiography to evaluate arterial blood flow, which is impaired among those with atherosclerosis. Diameter reduction of **50%** or more in at least one coronary artery was considered diagnostic of coronary artery disease. Deficient serum vitamin D levels, defined as **20 ng/mL** or less, were uncovered in **70.4%** of the subjects, among whom some were severely deficient with values of less than **10 ng/mL**.

The presence of coronary artery disease was **32%** higher among those with vitamin D deficiency, and nearly **twice as high** among subjects with severely deficient levels compared with those whose levels were normal.

Editor's Note: Among those with deficiency, the risk of severe coronary artery disease affecting several vessels was **20%** higher than that experienced by nondeficient subjects.

—D. Dye

* American College of Cardiology's 63rd Annual Scientific Session and Expo. Washington, DC, Apr 29-31, 2014.



High-Grade Prostate Cancer Associated With Chronic Inflammation

In an online article published April 18, 2014, in the journal *Cancer Epidemiology, Biomarkers & Prevention*, researchers at Johns Hopkins Kimmel Cancer Center reveal a link between chronic inflammation and a greater risk of high-grade prostate cancer.*

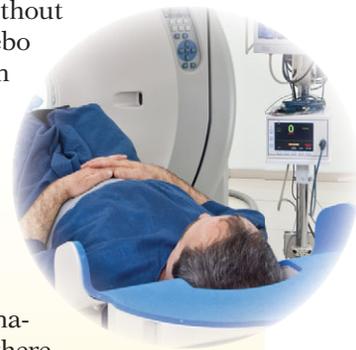
The study included 191 men with prostate cancer and 209 controls without the disease who received a placebo in the Prostate Cancer Prevention Trial, which evaluated the effect of finasteride on prostate cancer prevention. Biopsies conducted at the end of the study provided information on the presence of inflammation in benign prostate tissue.

Among men who had inflammation in one or more biopsy cores, there was a **78%** higher risk of having prostate cancer and more than **twice the risk** of aggressive disease in comparison with subjects who had no cores indicating inflammation.

Editor's Note: "What we've shown in this observational study is a clear association between prostate inflammation and prostate cancer, although we can't prove that inflammation is a cause of prostate cancer," senior author Elizabeth A. Platz, ScD, MPH, concluded. "I think there will be strategies going forward for either preventing inflammation or intervening when it occurs."

—D. Dye

* *Cancer Epidemiol Biomarker Prev.* 2014 Apr 18.



Reduced Vitamin D Levels Correlate With Greater Risk Of Fracture Among Women

A study presented at the World Congress on Osteoporosis, Osteoarthritis, and Musculoskeletal Diseases found a greater risk of fracture in older women with low levels of vitamin D measured over a five-year period compared to those with higher levels.*

Of the 1,044 women aged 75 years at the current study's initial visit, 715 attended the five-year follow-up examination. Serum vitamin D levels measured at both visits were categorized as low, intermediate, or high. Women whose vitamin D levels fell into the same category during both visits were considered to have consistently low, intermediate, or high levels of the vitamin. The subjects were followed for 10 years, during which time any fractures were documented.

While **20.6%** of women whose vitamin D levels measured consistently low experienced hip fracture, they occurred in just **9.9** and **6.9%** of those whose levels were consistently intermediate or high.

Editor's Note: "This study concludes that in the population sample of elderly women, vitamin D insufficiency sustained over five years was associated with increased 10-year risk of osteoporotic fracture," stated researcher Kristina Åkesson, of Lund University's Clinical and Molecular Osteoporosis Research Unit.

—D. Dye

* World Congress on Osteoporosis, Osteoarthritis, and Musculoskeletal Disease, Seville, Spain. Apr 4, 2014.



Glucosamine Extends Life Span In Mice

In May 2010, *Life Extension Update* reported findings from a study of supplement users that found a reduced risk of dying in association with the use of glucosamine and chondroitin over a five-year-period. Now, in this month's issue of *Nature Communications*, Michael Ristow and colleagues at the University of Jena offer a reason why.*



In an earlier study, Dr. Ristow found a reduction in life span among roundworms given a diet high in sugar, whereas impairment of carbohydrate metabolism resulted in improved survival. In the current research, the team found that the administration of glucosamine resulted in an increase in roundworm lifespan of over **5%** in comparison with no treatment. When glucosamine was given to 100-week-old mice, those receiving the compound experienced an increase in life span. Further investigation revealed that glucosamine increased the breakdown of amino acids, which is what occurs in the absence of dietary carbohydrates.

Editor's Note: In regard to supplements, Dr. Ristow said, "This may be considered a valid option, and yes, I have started taking glucosamine myself." He added that "diabetics should perform tight blood glucose control, especially during the first weeks."

—D. Dye

* *Nat Commun.* 2014 Apr 8;5:3563.

Health ABC Studies D

The April 2014 issue of the *Journal of the American Geriatrics Society* published findings derived from the Health, Aging, and Body Composition (Health ABC) study of a protective effect for higher vitamin D levels against cognitive decline over a four-year period.*

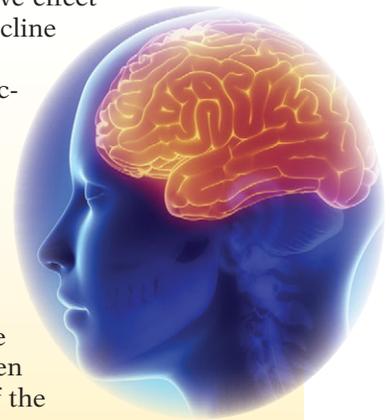
The current study included 2,777 well-functioning individuals between 70 to 79 years of age upon enrollment in Health ABC. Serum 25-hydroxyvitamin D levels were measured one year after enrollment, and cognitive function was evaluated at the beginning of the study and at four years.

Sixty-eight percent of the subjects had low vitamin D levels of less than **30 ng/mL**. The researchers observed an association between better cognitive test scores at the beginning of the study and higher vitamin D levels. When test scores at the end of the four-year period were analyzed, a greater decline was noted in association with low levels of vitamin D.

Editor's Note: Lead author Valerie Wilson, MD, Assistant Professor of Gerontology and Geriatric Medicine at Wake Forest Baptist Medical Center, concluded that "Although this study cannot establish a direct cause and effect relationship, it would have a huge public health implication if vitamin D supplementation could be shown to improve cognitive performance over time because deficiency is so common in the population."

—D. Dye

* *J Am Geriatr Soc.* 2014 Apr;62(4):636-41.





**Primate
Calorie-Restriction
Study Confirms
Longevity Benefits**

The April 2014 issue of *Nature Communications* published the outcome of a 25-year study conducted at the University of Wisconsin-Madison, which confirms a positive effect for calorie restriction in rhesus monkeys.* The finding contradicts conclusions drawn by National Institute of Aging researchers who reported a lack of a significant survival benefit in association with calorie restriction in a recent study.

Beginning at 7 to 14 years of age, 76 rhesus monkeys were given an unlimited control diet or one that contained **30%** fewer calories than daily amounts measured before the beginning of the study. At any time point over the course of the study, the animals allowed to eat as much as they desired had a **78%** higher risk of dying from any cause in comparison with those who received calorie-restricted diets. When age-related mortality was considered, non-restricted monkeys had a **2.9 times** greater risk of death in comparison with restricted animals.

Editor's Note: "We think our study is important because it means the biology we have seen in lower organisms is germane to primates," commented Dr. Richard Weindruch, professor of medicine at the School of Medicine and Public Health and one of the founders of the study. "We continue to believe that mechanisms that combat aging in calorie restriction will offer a lead into drugs or other treatments to slow the onset of disease and death."

—D. Dye

* *Nat Commun.* 2014 Apr 1;5:3557.

**Resveratrol Improves Glucose Control And
Insulin Sensitivity In Diabetics**

The results of a meta-analysis published in the *American Journal of Clinical Nutrition* indicate that supplementing with resveratrol, a compound found in red grapes and wine, could help improve glucose control and insulin sensitivity in men and women with diabetes without affecting glycemic measures in non-diabetics.*

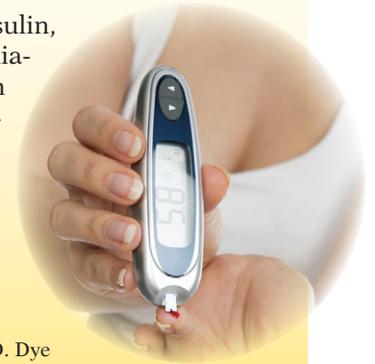
Researchers from Chongqing, China, selected 11 randomized, controlled trials of resveratrol supplementation that included a total of 388 participants for their analysis. Resveratrol dose ranged from **8** to **1,500 mg/day** for periods of two weeks to six months. Three of the trials involved diabetic subjects.

While resveratrol did not impact glucose, insulin, insulin resistance, or hemoglobin A1C in non-diabetics, these measures improved in those with diabetes. As potential mechanisms for resveratrol, authors Kai Liu and colleagues note that the compound has been shown to activate the expression of sirtuin 1, which benefits glucose control.

Editor's Note: Resveratrol also increases the expression of the insulin-dependent glucose transporter GLUT4 and activates glucose uptake in the absence of insulin.

—D. Dye

* *Am J Clin Nutr.* 2014 Apr 2.



**Correcting Low Vitamin D Levels Results
In Weight Loss
And Reduced Inflammation**

The *American Journal of Clinical Nutrition* published the results of a vitamin D supplementation trial which found that correcting low vitamin D levels in women resulted in weight loss and a significant reduction in C-reactive protein (CRP), a marker of inflammation.*

The trial included 218 overweight or obese postmenopausal women who had low serum 25-hydroxyvitamin D levels between **10 ng/mL** and **32 ng/mL**. The women were assigned to a 12-month reduced-calorie diet along with 225 minutes per week of aerobic activity, plus a daily placebo or **2,000 IU** vitamin D3.

Among women whose vitamin D3 became replete at a level of **32 ng/mL** or more, weight loss averaged **8.5 kg** (18.7 pounds), while those whose levels failed to reach this amount lost an average of **5.6 kg** (12.3 pounds). Vitamin D-replete women also experienced a significantly greater reduction in insulin levels, waist circumference, and body fat.

Editor's Note: In those whose adherence to the vitamin D regimen was high, there was an average decline in C-reactive protein of **1.18 mg/L**, while the placebo group experienced a reduction of **0.46 mg/L**. The finding indicates a significant decrease in inflammation in association with vitamin D supplementation.

—D. Dye

* *Am J Clin Nutr.* 2014 May;99(5):1015-25.



Compound Extends Life In Mouse Model Of Accelerated Aging

An article published in the *Proceedings of the National Academy of Sciences* reports the outcome of 25 years of research conducted by Douglas E. Vaughan, MD, Northwestern University Feinberg School of Medicine, and his colleagues identifying a drug that could one day prolong human life.*

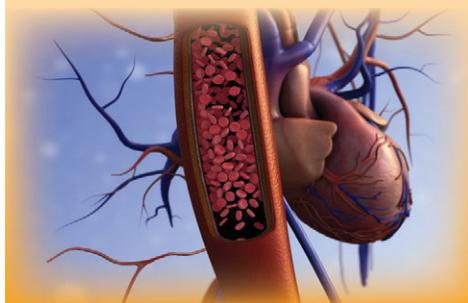
Acting on the knowledge of an age-related reduction in the ability of cells to secrete specific proteins, including one known as plasminogen activator inhibitor (PAI-1) related to cardiovascular disease, Dr. Vaughan explained that his team “made the intellectual leap between a marker of senescence and physiological aging. We asked: Is this marker for cell aging one of the drivers or mechanisms of rapid physiological aging?”

To find out, they added an experimental compound labeled TM5441 to the diet of mice deficient in the aging-suppressive gene *Klotho*. In addition to decreasing the activity of PAI-1, the *Klotho*-deficient animals lived four times longer than usual while maintaining healthy organ function.

Editor’s Note: Mice lacking *Klotho* rapidly develop osteoporosis, neurodegeneration, and other conditions, and die at a younger age than normal mice. When the *Klotho*-deficient mice were bred with PAI-1 deficient mice, similar benefits were observed.

—D. Dye

* *Proc Natl Acad Sci USA*. 2014 Apr 28.



Higher Vitamin D Levels May Increase Survival Rates For Breast, Lymphoma, And Colon Cancer Patients

The results of a meta-analysis published in the *Journal of Clinical Endocrinology & Metabolism* revealed that cancer patients with higher baseline vitamin D levels at the time of diagnosis have better survival rates and remain in remission longer than patients who are vitamin D deficient.*

Hui Wang and colleagues at the Chinese Academy of Sciences in Shanghai reached their conclusion after analyzing the results of 25 different studies that examined vitamin D levels and death rates in 17,332 cancer patients. The study found cancer patients with a **10 nmol/L** increase in 25-hydroxyvitamin D levels in their blood had a **4%** higher survival rate than those with lower levels.

The scientists say the strongest link between vitamin D levels and survival was detected in patients with breast, lymphoma, and colorectal cancer. There was less evidence of a link between vitamin D and survival in lung, gastric, prostate, leukemia, melanoma, and Merkel cell carcinoma patients, but available data were positive.

Editor’s Note: “Physicians need to pay close attention to vitamin D levels in people who have been diagnosed with cancer,” Professor Wang says. “Considering vitamin D deficiency is a widespread issue all over the world, it is important to ensure that everyone has sufficient levels.”

—A. Kessler



* *J Clin Endocrinol Metab*. 2014 April 29.

Low Vitamin D Levels Linked To High Prostate Cancer Risk

Men at risk of prostate cancer are more likely to develop an aggressive form of the disease if they are vitamin D deficient, reveals a study published in *Clinical Cancer Research*.*

Study author Rick Kittles, Department of Medicine, University of Illinois at Chicago, says that while 25-hydroxyvitamin D is known to impact the growth of both benign and malignant prostate cells, this is the first study to link vitamin D deficiency and biopsy outcomes in high-risk men.

Researchers examined data from 667 men aged 40 through 79 who had elevated PSA levels or other risk factors for prostate cancer. The men were also screened for vitamin D levels.

Normal vitamin D levels are in the range of **30 to 80 ng/mL**. Levels under **20 ng/mL** were typical among all men tested.

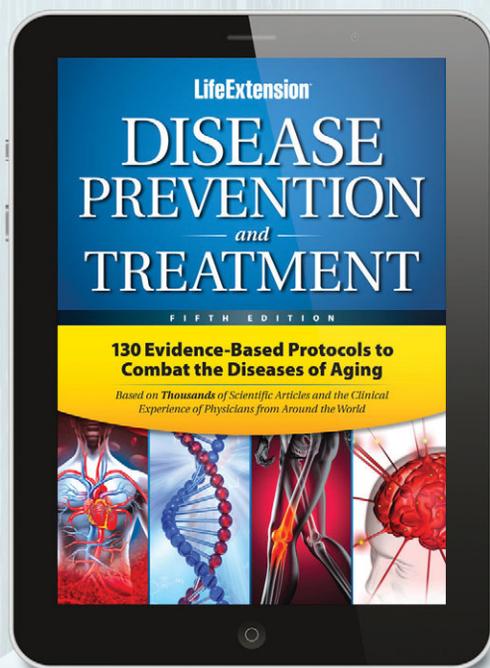
About **44%** of men with positive biopsies had low vitamin D levels. Among the men who tested positive for cancer after a biopsy, those with very low vitamin D levels—under **12 ng/mL**—had greater odds of more advanced and aggressive cancers than those with normal levels. And the lower the vitamin D level, the higher the risk.

Editor’s Note: “Vitamin D deficiency could be a biomarker of advanced prostate tumor progression in large segments of the general population,” said lead author Dr. Adam B. Murphy, of Northwestern University Feinberg School of Medicine. “More research is needed, but it would be wise for men to be screened for vitamin D deficiency and treated.”

—A. Kessler

* *Clin Cancer Res*. 2014, May 1;20: 2289-99.

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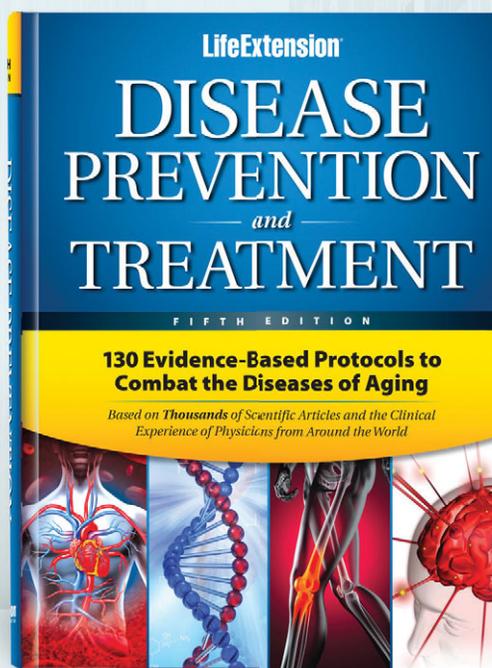


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The retail price of a bottle of 60 capsules of **ArthroMax[®] Advanced with UC-II[®] and AprèsFlex[®]** is \$36. If a member buys four bottles, the price is reduced to **\$24** per bottle.

References

1. *Wien Med Wochenschr.* 2002;152(15-16):373-8.
2. *J Ethnopharmacol.* 2006 Sep 19;107(2):249-53.

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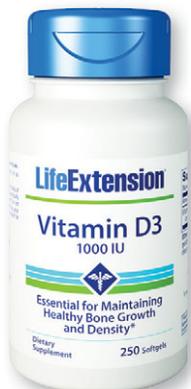
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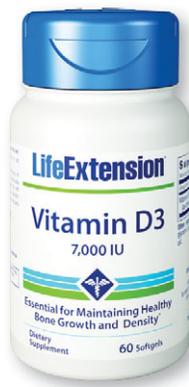


Vitamin D3 5,000 IU

60 softgels • Retail: \$11

Four-bottle Member Price: **\$7.43 ea.**

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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**



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1 ounce • Retail: \$28

Four-bottle Member Price: **\$18.75 ea.**

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

BY MICHAEL DOWNEY

HOW GREEN TEA PROTECTS AGAINST ALZHEIMER'S DISEASE

Green tea is well known for its defense against some of the most common and deadly diseases in America, including cardiovascular disease,¹⁻³ insulin resistance,⁴ obesity,⁵⁻⁷ autoimmune disorders,^{8,9} and cancer.¹⁰⁻¹⁴

Recent developments have uncovered one of green tea's most exciting benefits discovered to date: its potential to prevent—and possibly reverse—the effects of Alzheimer's disease and other forms of dementia.¹⁵⁻¹⁹

Alzheimer's disease occurs as a result of your brain cells being impaired, and eventually killed. This is partially caused by the buildup of toxic protein fragments called *amyloid-beta*.^{15,16}

Green tea gets to the root of Alzheimer's disease by three distinct mechanisms: preventing the formation of amyloid plaques, breaking down existing plaques, and creating critical new neurons in the brain.

As a result, green tea consumption has now been associated with a **54%** reduction in the risk of developing cognitive decline.²⁰

GREEN TEA & ALZHEIMER'S





And now, in an exciting development, scientists have used *neuroimaging scanning* for the first time in a human clinical setting to demonstrate that **green tea extract** boosts activity in an area of the brain specifically used for working memory.¹⁹

How Alzheimer's Disease Occurs

Alzheimer's disease is the **sixth** leading cause of death in America and the **fifth** leading cause of death in those 65 or older.²¹ A shocking **one in three** seniors dies with Alzheimer's or another form of dementia.²¹ Experts have recently predicted that the number of people living with dementia will nearly triple by 2050.^{22,23}

Alzheimer's disease is a progressive, devastating, and eventually fatal neurodegenerative brain disorder.^{24,25} It is caused when tightly bound protein sheets known as *amyloid* plaques slowly form in the brain. These plaques eventually create neuronal damage and loss. Then, deprived of their oxygen supply, brain cells begin to die.²⁶ Eventually, the result is memory and speech loss,²⁷ diminished motor skills,²⁸ and ultimately—death.²⁹

Amyloids are a complex of stable misfolded proteins, and no current drug therapies have been able to halt or reverse their deadly impact on the central nervous system.^{30,31} There are five drugs approved for Alzheimer's, but they only *partially* treat *some* of the symptoms and only *temporarily*—for about six to 12 months—and only for about *half* of the patients who take them.³² That's not a promising track record for these expensive pharmaceutical drugs.³³

Given this obvious void in either treating or preventing Alzheimer's, scientists have continued searching for natural interventions that would battle the disease at its root: by inhibiting the formation and accumulation of the *amyloid* plaques and blocking them from being toxic.



Scientists have found that green tea has three distinct actions that reduce neurodegeneration and protect against Alzheimer's by:

- **Preventing** formation of *amyloid* plaques that are characteristic of Alzheimer's disease,³⁴
- **Breaking down** existing *amyloid* plaques by disrupting early-stage and late-stage aggregation processes,¹⁵ and
- **Promoting** the production of **new neurons** (*neurogenesis*) in the adult hippocampus, the area of the brain responsible for converting memories from short-term to long-term.³⁵

Green Tea's Dramatic Impact On Neurodegeneration

Green tea (*Camellia sinensis*) contains *catechins*, which are naturally occurring, multifunctional compounds that have been found to have potent neuroprotective effects.^{36,37} Specifically, the powerful green tea catechin *epigallocatechin-3-gallate* (**EGCG**) has been found to lessen cognitive impairments induced by psychological stress in rodent research,³⁸ which suggests its potential to be an effective protector of brain neurons.³⁹ EGCG has been shown to cross the blood-brain barrier in mammals.^{40,41}

Laboratory investigations have revealed that—unlike other flavonoids—green tea compounds are able to *reduce* neurodegeneration.

When the catechins in green tea were scientifically tested in a wide array of cellular models of neurological diseases, they exhibited dramatic iron-chelating, free-radical-scavenging, and anti-inflammatory activities.⁴² They were also neuroprotective in models of both Alzheimer's and Parkinson's disease.⁴³

Further investigation of these promising compounds showed that they enhanced gene modulating and cell-signaling activities,⁴² favorably increased detoxifying enzymes and antioxidant enzymes,^{44,45} and protected DNA against oxidative damage.⁴⁶

Combating The Underlying Factors Of Alzheimer's

Green tea compounds have demonstrated additional actions on the factors involved in the development of Alzheimer's disease.

Studies on brain hippocampal cells of rats showed that green tea extract inhibited the formation of amyloid-beta *fibrils*, or fine fibers. This was a crucial finding because these amyloid fibrils are implicated in neuron death⁴¹ and Alzheimer's-related cognitive symptoms.⁴⁷

Amyloid-beta fragments (fibrils) require copper, iron, or zinc to aggregate into stable plaques.^{48,49} A **2013** study in the *Proceedings of the National Academy of Sciences* found that EGCG interfered with pathways involved in the binding of copper and zinc to amyloid-beta fragments, thus preventing the formation of larger, stable amyloid plaques.¹⁵

A **2010** study, documented in the *Proceedings of the National Academy of Sciences*, determined that the way EGCG stops the accumulation of amyloid-beta is by transforming amyloid fibrils into shapes that are stable and not toxic to cells.^{16,50} Sticky and toxic amyloid aggregates of varying shapes adhere to neurons by attaching themselves to misfolded proteins called *prions* on the cells' surfaces. The study found that EGCG changed the shapes of these amyloid fibrils so they could no longer bind to the prions.¹⁶

Once research determined the effect green tea had on the underlying factors involved in the process of developing Alzheimer's disease, scientists set out to determine if green tea compounds would block actual neurodegeneration in experimental animals and—more importantly—in healthy humans.

Green Tea Improves Age-Related Memory Problems

Amyloid-beta plaques affect rodent brains similarly to human brains in that the accumulation of amyloid-beta quickly leads to the development of Alzheimer's-like memory problems.^{51,52} This makes them especially valuable in Alzheimer's research.

Scientists administered EGCG into a group of mice with simulated aging to determine its effect on age-related memory loss.⁵³ For this study, researchers divided healthy male and female mice into four groups: The first group received *D-galactose* (a type of sugar that causes accelerated aging,⁵⁴ but no EGCG); the second and third groups received *D-galactose* plus two different doses of EGCG; the fourth group received a placebo.⁵³

As expected, the group injected with *D-galactose*—but not with EGCG—showed learning and memory impairment in a water maze test, compared to non-aged controls. This was not surprising considering similar impairment occurs in aging humans and Alzheimer's patients. In this aging-induced group, researchers also observed decreased activities of two powerful antioxidants, *total superoxide dismutase (T-SOD)* and *glutathione peroxidase (GSH-Px)*. And in the hippocampus, they noted increased levels of *malondialdehyde (MDA)*, a dangerous marker for oxidative stress. Cell death, or apoptosis, was also increased.⁵³



What You Need To Know

Green Tea Extract Battles Alzheimer's Disease

- Amyloid-beta accumulates in the brain and occupies, and often kills, nerve cells—resulting in Alzheimer's disease, the sixth leading cause of death in the US.
- A growing body of compelling evidence demonstrates that green tea extract greatly reduces the risk of Alzheimer's and other forms of dementia.
- Researchers found that the potent green tea compound EGCG prevents amyloid plaque buildup, breaks down existing amyloid plaques, and triggers production of *new neurons* in the adult hippocampus.
- In an exciting breakthrough, scientists have used MRI scanning in a human clinical setting to watch in real time the immediate boost in working-memory activity that green tea extract produces—confirming the potent neuroprotection of green tea molecules.



Green Tea—A Wide Range Of Health Dividends

Although tea comes in many varieties, evidence suggests that the healthiest choice may be green tea, due to its high concentration of powerful polyphenols.

Beneficial polyphenols make up roughly **30 to 40%** of green tea, as opposed to only **3 to 10%** of black tea. The polyphenols in tea are classified as *catechins*, and of the eight catechins in green tea, *epigallocatechin-3-gallate*, or EGCG, is the most active.⁶⁰

Green tea catechins scavenge oxygen-free radicals, restoring cells to health and reducing inflammation. Because inflammation underlies so many age-related afflictions, green tea may have a myriad of applications in preventing disease.^{61,62}

Findings from animal studies suggest that green tea polyphenols promote the repair of damaged DNA. Since DNA damage can lead to cancer, green tea may play an important role in preventing cancer.⁶³

The EGCG in green tea has been shown to produce *apoptosis* (cell death) in experimental prostate cancer, inhibit the growth of squamous cell carcinomas of the head and neck, inhibit the production and limit the invasion of experimentally induced breast cancers, reduce the incidence of carcinogen-induced lung cancers, and sensitize melanoma cells to growth inhibition by other agents.^{10-14,64}

Green tea is also well-known to provide substantial defense against an array of diseases, including cardiovascular,¹⁻³ insulin resistance,⁴ obesity,⁵⁻⁷ and autoimmune.^{8,9}

High-quality extracts are available that provide green tea compounds standardized to **45%** EGCG and **98%** polyphenols so individuals can derive the maximum benefit from green tea without having to drink numerous cups of tea each day.

The two groups that were injected with both *D-galactose* and **EGCG** showed almost the opposite response of the D-galactose-only group. These groups experienced marked improvement in memory and learning deficits, elevated T-SOD and GSH-Px activities, decreased MDA contents in the hippocampus, and reduced cell apoptosis. The researchers concluded: *“The results suggest that EGCG has potent neuroprotective effects on aging mice.”*⁵³

Green Tea Gets To The Root Of Alzheimer's

This finding indicated that EGCG provides neurons with strong protection against the cognitive and memory impairments associated with aging. Scientists next wanted to determine if these effects occurred as a result of inhibiting the accumulation of *amyloid* plaques.

So in late **2013**, researchers in China reporting in the journal *Molecular Neurobiology*, conducted a similar experiment—this time focusing specifically on the effects of EGCG on amyloid.⁵⁵

In order to test this, investigators administered EGCG daily to age-matched, male and female APP/PS1 mice.⁵⁵ (APP/PS1 transgenic mice are those that are genetically inclined to increased expression of *amyloid precursor protein* and amyloid-beta. They imitate the physical and behavioral changes of Alzheimer's disease and have early-onset Alzheimer's, and to a more intense degree, amyloid plaque buildup.)

As in the previous study, behavioral tests demonstrated that EGCG treatment had improved learning and memory impairment in the APP/PS1 mice, reduced the death of brain neurons, and significantly reduced hippocampal neurodegeneration after four weeks. However, this time scientists determined that EGCG also dramatically reduced the levels of *amyloid*

precursor protein and reduced the buildup of **amyloid-beta plaques** in the hippocampus.⁵⁵

Together, these impressive findings answered the question as to whether EGCG can block the accumulation of amyloid-beta plaques and other factors associated with the development of Alzheimer's disease symptoms.

But Chinese researchers posed another extremely tantalizing question: If EGCG can prevent changes associated with the death of hippocampal neurons in the development of Alzheimer's, could it also trigger the production of new hippocampal neurons—in effect *reversing* the effects of this disease?

Shockingly, the answer is yes.

Reverse The Effects Of Alzheimer's Disease

The production of new adult neurons, a process called **neurogenesis**, is the key feature of brain plasticity, which is critical to brain function as we age.¹⁷

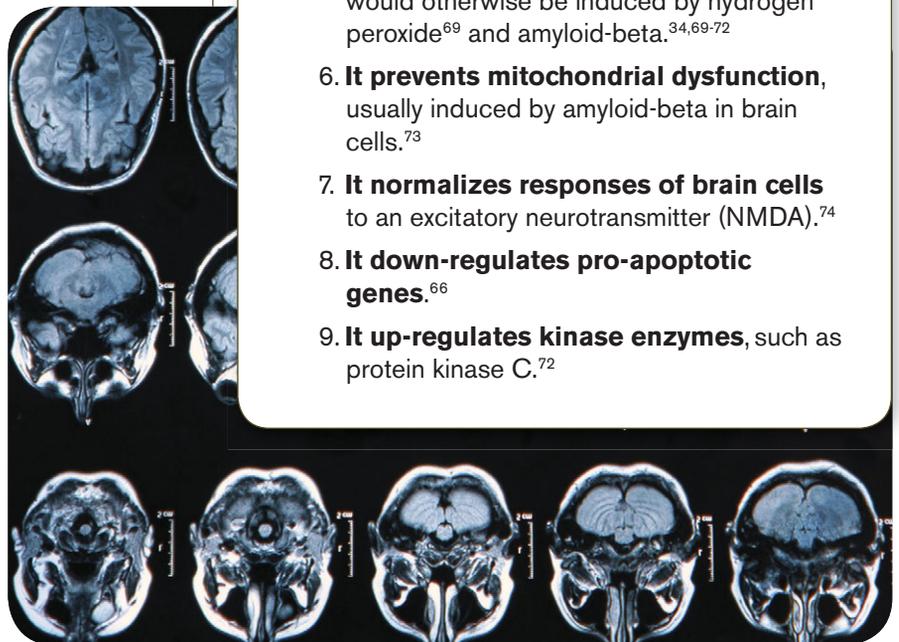
Producing new adult neurons in the hippocampus (the part of the brain that converts information from short-term to long-term memory⁵⁶) may serve as a new treatment strategy for early stage Alzheimer's or other forms of dementia.⁵⁷ That's why scientists focused their attention on the effects of EGCG on neurogenesis in this specific area of the mouse brain.¹⁷

Amazingly, both the *in vitro* and *in vivo* results of this study showed that EGCG boosts the production of **neural progenitor cells**, which are brain cells that can transform into various types of neural cells.^{17,58}

In order to determine if this increased brain-cell production would result in a direct boost in memory or spatial learning, the researchers gave one group of lab mice EGCG from green tea, while the other group was given a placebo containing no EGCG. The mice were subsequently trained for seven days to find a hidden platform.

The mice that were administered EGCG found the hidden platform substantially faster—indicating that EGCG's ability to enhance the production of *new* adult neurons had directly boosted learning and memory by improving object recognition and spatial memory.¹⁷

What's remarkable is that EGCG promotes the production of new neurons in the same area of the brain in which neurons are killed during the development of Alzheimer's disease!



How Green Tea Protects The Brain

EGCG is the most potent neuroprotective compound in green tea, as well as its most abundant polyphenol.⁶⁰

Initially, researchers wondered if green tea's beneficial effects on the brain occurred as a result of its antioxidant activity.⁶⁵ Although free-radical quenching may indeed play a part, a wealth of studies finally determined that EGCG's antioxidant activity could *not* fully explain its broad and powerful neuroprotective effects.⁶⁶

Scientists now realize that EGCG's neuroprotection works through multiple higher-level mechanisms. Through a significant number of *in vitro* studies, it appears that EGCG protects the brain via at least nine mechanisms:

1. **It interferes with the assembly of amyloid-beta proteins.**⁶⁷
2. **It inhibits the formation of amyloid-beta fibrils**, halting their aggregation to plaques.⁴¹
3. **It prevents the proper binding of copper and zinc**, which is required for the creation of stable amyloid-beta plaques.¹⁵
4. **It changes the shape of amyloid fibrils**, preventing them from binding to neuronal prions¹⁶ and transforming them into shapes that are not toxic to neurons.⁶⁸
5. **It inhibits the toxicity to neurons** that would otherwise be induced by hydrogen peroxide⁶⁹ and amyloid-beta.^{34,69-72}
6. **It prevents mitochondrial dysfunction**, usually induced by amyloid-beta in brain cells.⁷³
7. **It normalizes responses of brain cells** to an excitatory neurotransmitter (NMDA).⁷⁴
8. **It down-regulates pro-apoptotic genes.**⁶⁶
9. **It up-regulates kinase enzymes**, such as protein kinase C.⁷²

This study offers an exciting look into the potential to not only prevent—but *reverse*—the effects of Alzheimer's disease in the brain.

However, the real challenge was whether this effective green tea compound would deliver the same preventive effect to healthy humans.

Live Images Reveal Immediate Memory Enhancement

Data about the consumption of black, oolong, or green tea and cognitive function was obtained and examined for over 1,000 Japanese subjects age 70 or over during a period of four months. Analysis of the data revealed that consumption of 2 or more cups per day of green tea reduced the odds of cognitive impairment by **54%**, whereas those that consumed equal amounts of black or oolong tea had an odds reduction of only **13%**.²⁰

However, this was a cross-sectional study that did not provide hard scientific evidence of effectiveness. To achieve more definitive results, scientists use double-blind, placebo-controlled studies. Unfortunately, it is extremely difficult to conduct intervention studies that would continually monitor human volunteers for adherence and allow for the time required to sufficiently establish, through memory tests, whether green tea enhances memory and recall.

But in a recent study published in the *European Journal of Clinical Nutrition*, scientists performed the first neuroimaging study allowing them to see the real-time effects of green tea extract inside the human brain's working-memory area!¹⁹

On four separate occasions, with a one-week interval between sessions, healthy volunteers between 21 and 28 years old consumed either a placebo drink, a **250 mL**, or a **500 mL** combination drink containing green tea extract. The researchers used a feeding tube to rule out taste as a factor.

After consuming the drink, the subjects then performed a memory-stimulating task while researchers simultaneously monitored their brain function using functional magnetic resonance imaging, or fMRI, to zero in on the working-memory region.

Thanks to this imaging technique, rather than relying on possibly imperceptible differences in performance on a brief memory test following a

single dose or even a week of supplementation—scientists could watch the volunteers' working memories in action on a second-by-second basis.

Compared to placebo, the beverages containing green tea extract significantly **boosted** activity in the *dorsolateral prefrontal cortex*—the area of the brain used for working-memory processing.^{19,59} This small region allows the brain to simultaneously store and process information, and it facilitates complex cognitive tasks, such as language comprehension, reasoning, and learning.

Activity in this memory area was increased even further by the higher dose drink.¹⁹ This dose-related response backs up the cause-and-effect connection between green tea and improved memory processing.

Not only did this finding confirm green tea extract's immediate and significant enhancement of working-memory activity, the researchers noted that it also established for the first time the effectiveness of neuroimaging in observing green tea's instant impact on the human brain.¹⁹

Taken together, all of these findings indicate green tea extract's marked protection of brain neurons by inhibiting the formation of **amyloid-beta fibrils** and other processes associated with Alzheimer's disease and, possibly, by triggering the production of new brain **neurons**.



Summary

Amyloid-beta plaques slowly form in the brain and interfere with nerve cells, often killing them. The tragic result too often is Alzheimer's disease—the sixth leading cause of American deaths.

Accumulating evidence demonstrates that **green tea extract** may reduce the risk of Alzheimer's disease and other forms of cognitive decline by **54%**.

Studies show that the powerful green tea compound **EGCG** prevents formation of amyloid plaques, breaks down existing amyloid plaques, and promotes production of new neurons in the adult hippocampus.

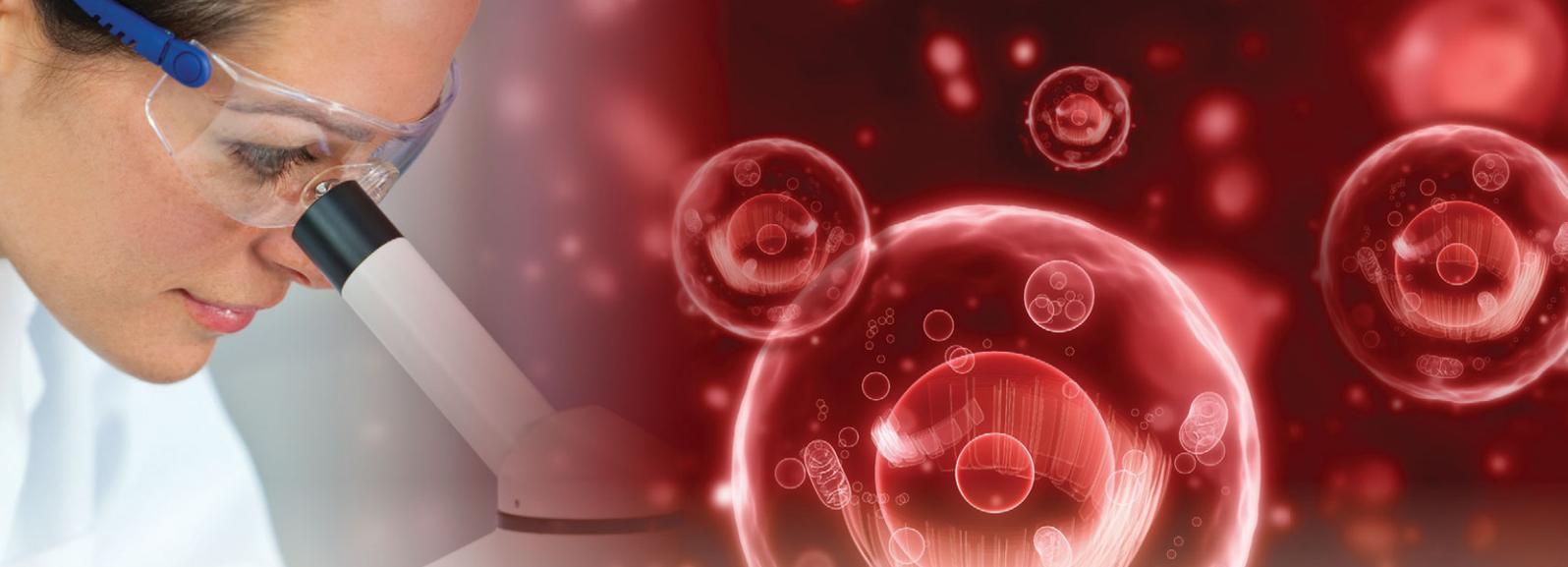
In an exciting development, scientists used MRI scanning for the first time in a human clinical setting to watch the immediate boost in **working-memory activity** that green tea extract produces—illustrating in real-time the potent neuroprotection of green tea compounds. ●

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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FIGHT BACK AGAINST AGING!

Aging is Characterized by Inflammation, Glycation, and Mitochondrial Decay

The loss of cellular vitality is caused by a number of factors, including mitochondrial problems, glycation, and free-radical reactions. Life Extension® members have access to a state-of-the-art nutritional formula called MITOCHONDRIAL ENERGY OPTIMIZER WITH BioPQQ® that helps protect delicate cellular structures and enables cells to perform life-sustaining metabolic processes.

Mitochondrial Energy Optimizer with BioPQQ® is designed to counteract age-related structural and functional changes by providing the following unique ingredients:

- **CARNOSINE:** As humans age, proteins in their bodies become **irreversibly damaged** by glycation reactions. Glycation is the cross-linking of proteins and sugar to form **non-functioning** structures called advanced glycation end products in the body, which can lead to alterations of normal cell function. Carnosine is not only a powerful **anti-glycating** agent, but it also protects **neurons** against reactive and cytotoxic protein carbonyl species associated with normal aging.¹⁻⁵
- **PQQ:** This breakthrough micronutrient has been shown to trigger **mitochondrial biogenesis**—the growth of **new** mitochondria in aging cells!⁶ PQQ also activates genes involved in protecting the delicate structures within the mitochondria.⁷⁻¹⁰
- **LUTEOLIN:** Systemic inflammation is involved in most undesirable consequences of aging. Culprits behind **inflammatory** reactions are pro-inflammatory **cytokines**, such as **interleukin-1** and **tumor necrosis factor-alpha**. Luteolin is a flavonoid that has been shown to help suppress these inflammatory cytokines.¹¹⁻¹⁶
- **BENFOTIAMINE:** Effectively modulates multiple destructive biochemical pathways that are induced by higher than desirable blood glucose levels. Human mortality studies indicate that **ideal** fasting glucose levels are between **74–85 mg/dL**. Yet many aging people have fasting glucose above **90 mg/dL**, which is less than optimal.¹⁶⁻¹⁹ Benfotiamine protects endothelial cell integrity from the effects of high glucose levels. In addition, benfotiamine exhibits direct antioxidative capacity and supports DNA function.²⁰
- **PYRIDOXAL 5'-PHOSPHATE:** Aging results in the formation of **advanced glycation end products** throughout the body. **Pyridoxal 5'-phosphate** is the active form of vitamin B6 that has been shown to protect against both lipid and protein **glycation** reactions.²¹⁻²⁴

- **R-LIPOIC ACID:** Destructive free-radical activity in the **mitochondria** plays a major role in the loss of cellular vitality. A **microencapsulated Bio-Enhanced® R-lipoic acid** facilitates youthful **mitochondrial energy output** while guarding against **free radicals**. Two forms of lipoic acid are sold on the supplement market, but **R-lipoic acid** is far more potent.²⁵⁻²⁸
- **ACETYL-L-CARNITINE ARGINATE:** The amino acid L-carnitine is required to transport fats into the **mitochondria** to be burned for cellular energy. **Acetyl-L-carnitine arginate** is a patented form of carnitine that also **supports neurites** in the brain.²⁹

Taking all of the individual ingredients in the **Mitochondrial Energy Optimizer with BioPQQ®** separately would be prohibitively expensive, but Life Extension® members obtain this comprehensive formula at substantial savings.

A bottle of **Mitochondrial Energy Optimizer with BioPQQ®** containing **120 capsules** retails for \$94. If a member buys four bottles, the price is reduced to **\$63** per bottle.

Just four capsules of Mitochondrial Energy Optimizer with BioPQQ® provide:

Carnosine	1000 mg
ArginoCarn® Acetyl-L-carnitine arginate DiHCl	675 mg
R-Lipoic acid (as microencapsulated Bio-Enhanced®)	150 mg
Benfotiamine	150 mg
Vitamin B6 (as pyridoxal 5'-phosphate)	100 mg
BioPQQ®	10 mg
Luteolin	8 mg
Calcium	230 mg



Item # 01768

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To order Mitochondrial Energy Optimizer with BioPQQ®, 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.

Comprehensive Pomegranate Protection!

FULL-SPECTRUM POMEGRANATE FORMULA

Few nutritional sources have gained as much scientific validation as **pomegranate**.¹

The vast majority of research has focused on extracts from the *fruit*. Only recently have scientists identified the synergistic action of compounds specific to other parts of the pomegranate—most notably its **seeds** and **flowers**.

The Next-Generation Pomegranate Formula

Life Extension® offers an advanced, cutting-edge pomegranate formula that brings together novel phytonutrients in a unique, high-potency blend.

Full-Spectrum Pomegranate™ combines standardized extracts from the **whole fruit and flower**, along with pomegranate **seed oil**, to support system-wide health. In addition to the highly absorbable antioxidant powerhouses found in pomegranate fruit,²⁻⁴ **Full-Spectrum Pomegranate™** augments these polyphenols with newly discovered biologically *active* compounds from other parts of the pomegranate plant.

These little-known nutrients include: **punicanolic acid** that provides cellular support to help with inflammation,⁵ and **pomegranate**, to combat age-related metabolic changes.⁶

This superior formula supplies the **complete** nutritional profile of the pomegranate plant. Just one softgel of **Full-Spectrum Pomegranate™** provides polyphenols equivalent to 12.3 ounces of pomegranate juice concentrate (or 30 pomegranates) *plus* a proprietary blend of **seed oil and flower extract**.

POMELLA® extract is covered under U.S. Patent 7,638,640 and POMELLA® is a registered trademark of Verdure Science, Inc.



One softgel of Full-Spectrum Pomegranate™ contains:

POMELLA® Pomegranate (<i>Punica granatum</i>) Extract (fruit) [std. to 30% punicalagins (120 mg)]	400 mg
PomComplete™ Pomegranate (<i>Punica granatum</i>) Blend [flower extract and seed oil (standardized to 22% (30 mg) punicic acid)]	137.5 mg

Full-Spectrum Pomegranate™

A bottle containing 30 softgels of **Full-Spectrum Pomegranate™** retails for \$24. If a member buys four bottles, the price is reduced to **\$15.75** per bottle. **Contains soybeans.**

To order Full-Spectrum Pomegranate™, call 1-800-544-4440 or visit www.LifeExtension.com

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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.

POWERFUL PROTECTION FOR A LOW PRICE GREEN TEA EXTRACT

Rich In EGCG For Optimal Health

Nearly 6,000 studies have been published on the broad-spectrum health benefits of **green tea**. Research shows that green tea favorably influences cardiovascular health, lipid clearance, glucose tolerance, healthy body weight, DNA repair, prostate and breast health, and healthy cell division.¹⁻⁷ Scientists have identified the polyphenol **EGCG** as the key compound for green tea's multi-modal health benefits.⁸

Life Extension® has created a high-potency, standardized **98% polyphenol green tea extract**. These highly concentrated **Mega Green Tea Extract Capsules** contain **725 mg** of either lightly caffeinated or decaffeinated **98%** standardized green tea extracts.

The retail price for **100** vegetarian capsules of **Mega Green Tea Extract** is **\$30**. If a member buys four bottles of **725 mg Mega Green Tea Extract** capsules, the price is reduced to **\$18 per bottle**. Each bottle will last over **three months** at the typical dose of one capsule daily.

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BY ALICIA NADIL

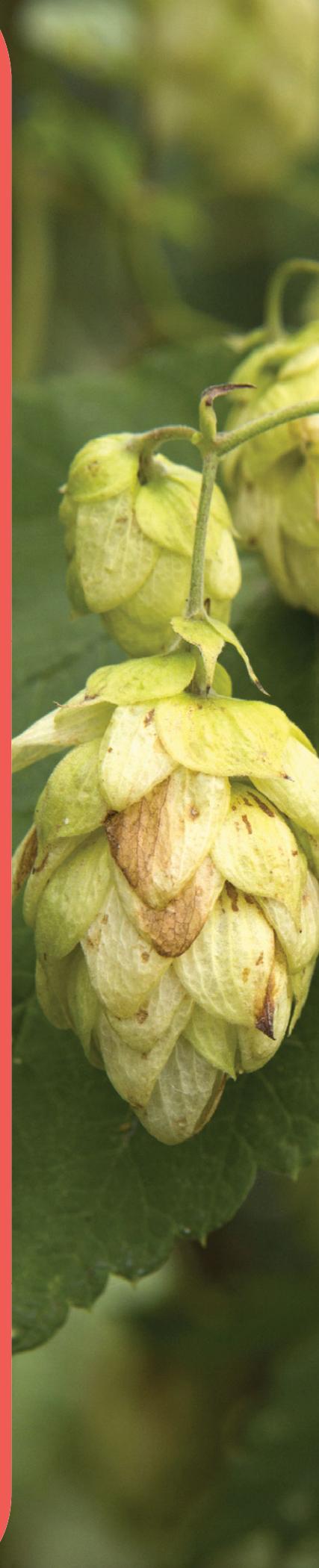
SAFELY MANAGE MENOPAUSAL SYMPTOMS

During menopause, a woman undergoes profound and extreme biochemical changes in all aspects of her body. It can be one of the most trying periods in a woman's life. Lasting up to 10 years, the menopausal transition includes well-known symptoms such as hot flashes, night sweats, mood swings, and sleep disturbances.¹⁻⁵ Menopause also increases the risk of heart attack and stroke,⁶ depression, osteoporosis, arthritis, dementia, and frailty.³

While the troubling symptoms of menopause gradually fade as a woman completes the menopausal transition, the health risks remain or grow larger. By World Health Organization estimates, **1.2 billion** women worldwide will be postmenopausal by the year 2030, making these health risks an impending public health disaster.³ And managing those symptoms is a clinical challenge, with few safe and effective options.²

Until the turn of the 20th century, the standard management of menopause included administration of equine **estrogens** derived from horse urine (**Premarin**[®]) and **progestin**; a synthetic female hormone that is different than natural **progesterone**.⁷

Fortunately, just when the risks of conventional hormone therapy were becoming evident⁸, data emerged showing that estrogen-like molecules from plant sources (*phytoestrogens*) could produce many of estrogen's favorable effects minus most of the harmful ones. A **2013** study showed that these phytoestrogens were effective at decreasing hot flashes, irritability, and sexual problems.⁹





Use of estrogen-like molecules from plant sources is growing increasingly popular, and intense scientific research has begun to reveal the remarkable effectiveness of plant extracts in achieving relief of menopausal symptoms, while at the same time providing protection against some of the very conditions that conventional hormone therapy is notorious for causing.¹⁰⁻¹³

Two important plant extracts lead the field in bioidentical hormone therapy for relief of menopausal symptoms. **Prenylflavonoid** molecules in **hops** include the most potent phytoestrogen discovered thus far,¹⁴⁻¹⁷ while **lignans** found in

the **Norway spruce** combine mild estrogenic actions with potential anticancer, antimicrobial, anti-inflammatory, and immunomodulatory activities that neatly fill the needs of women as they approach and transition through menopause.¹⁸

Women who are undergoing or nearing menopause, and who would like to prevent or mitigate menopausal symptoms such as hot flashes and sleep disturbances, are increasingly interested in natural **phytoestrogens** from hops and spruce as an alternative to mainstream hormone replacement therapy.

A Natural Solution For Menopausal Symptoms

Hops are the female flowers of the hop plant (*Humulus lupulus*). Their bitter, floral taste has been used for centuries as a flavoring and natural preservative in beer.^{14,19} But they also contain specialized glands that secrete powerful bioactive molecules with significant potential impact on human health.^{15,20}

Among these compounds is a molecule called *8-prenylnaringenin* (8-PN), which research suggests is the most potent known **phytoestrogen** (plant-derived estrogen-like molecule).^{14-16, 21-23} These estrogenic properties make **hops** and **8-PN** extremely attractive for use during menopause, when estrogen levels drop and produce the disquieting symptoms of menopause.²¹

The estrogenic properties of hops extracts, and particularly of 8-PN, are known to alleviate menopausal symptoms and disorders, including osteoporosis, hot flashes, and low sex drive.¹⁷ 8-PN is known to be rapidly and almost completely absorbed after oral dosing.²⁴

Studies in rats whose ovaries had been removed in order to produce experimentally-induced menopause show that the animals underwent hot flashes, just like women. Administration of either estrogen or 8-PN from hops was able to reverse these symptoms (measured as increased temperature of the tail skin).²⁵ Further studies revealed that this effect is at least partly the result of 8-PN binding to and activating estrogen receptors in tissues outside of the brain.²⁵



In a human study, women undergoing menopause took a hops extract standardized to **100** or **250 micrograms/day** of 8-PN or a placebo for 12 weeks. Even the lower dose of **100 micrograms** 8-PN was significantly superior to placebo at reducing symptoms of menopause after only six weeks, especially the hot flash score on a standardized menopause scoring scale.²⁶ A similar study, using **100 micrograms/day** of 8-PN, demonstrated significant reductions after eight weeks of therapy on the same scores, as well as a patient-reported visual scale of menopausal symptoms.²⁷

Hops Battle Breast Cancer

Hops extracts, rich in 8-PN, provide relief of troubling menopause-associated symptoms. In addition, hops extracts are now beginning to show important and promising benefits in the fight to prevent cancer, particularly cancers of the breast, which are most commonly dependent on estrogen for their growth.

The ability of hops as a *plant-derived* estrogen replacement therapy to prevent breast cancer is critical, especially since the mainstream's standard *animal-derived* estrogen replacement therapy has produced concerns regarding the risk of promoting such cancers due to excessive estrogen.

An important step in estrogen's initiation of cancer is its conversion into a number of active carcinogens by liver enzymes. These enzymes, normally part of the detoxification process for external toxins, act on estrogen to create *new* toxins that have DNA-damaging effects.¹¹

Hops, and its natural active constituent 8-PN, inhibited these kinds of dangerous enzymatic reactions, reducing the amount of cancer-inducing DNA damage and blocking the malignant transformation of human breast cancer cells in culture.^{11,28} Quite recently, 8-PN has also been shown to inhibit growth of colon cancer cells in culture.²⁹

Even more impressive anticancer effects are attributable to another hops-derived biomolecule, *xanthohumol*, a flavonoid that has been described as a "broad-spectrum" cancer-preventive substance because of its large numbers of potential targets and mechanisms of action.¹⁵ A closely related molecule, *isoxanthohumol*, also present in hops is capable of being converted to estrogen-like 8-PN by bacteria living in the intestine.^{14,23} Due to natural variations in the makeup of the intestinal bacteria in each woman, the amounts of protective 8-PN available from dietary sources may vary considerably, leaving **60%** or more of women with sub-optimal protection.^{14,23}

Can Drinking Beer Battle Breast Cancer?

With this discussion about hops, you might be wondering if drinking beer is a viable option for reducing the symptoms of menopause and preventing breast cancer. Unfortunately, the answer is no.

Since the concentration of beneficial hops molecules varies greatly between beer brands and styles, even regular beer consumption cannot guarantee adequate protection either against menopausal symptoms or against cancer.¹⁵ Beer also brings with it a sizable calorie load, and the alcohol content is not acceptable to many people.

Fortunately, hops extracts rich in 8-PN and xanthohumol are now available. Laboratory testing shows that these molecules accumulate in the liver and mammary glands following supplementation, where they induce important genetic control systems that protect cells.²¹ Following treatment with 8-PN and xanthohumol, breast cancer cells in culture showed decreased pro-oxidant production, improved mitochondrial function (a known factor in cancer prevention), and increased expression of the life-extending molecules called *sirtuins*.^{30,31}

There may be additional benefits to supplementing with hops extracts, even beyond menopause and cancer prevention. 8-PN was shown in a mouse model to prevent the atrophy of skeletal muscle (sarcopenia) that is so common in older adults. Such beneficial effects on muscle might help older adults retain their strength, which in turn may help to prevent falls and other traumatic events.³²

Hop extracts also show strong neuroprotective effects, promoting new brain cell growth and regeneration, and outgrowth of new *neurites*, the tiny spikes that brain and nerve cells use to contact and communicate with one another.¹⁶

Cut Hot Flashes In Half

The Norway spruce (*Picea abies*) produces abundant quantities of the plant lignan **7-hydroxymatairesinol**, or **HMR**. In the digestive tract, HMR is converted to an active compound called *enterolactone*.^{18,33-35} Both HMR and enterolactone are mild phytoestrogens, and as such, offer additional support for women undergoing menopausal transition.^{18,35,36}

In one important study, menopausal women supplemented with either **36** or **72 mg** of HMR lignan per day for eight weeks.³⁷ The supplement was readily absorbed and distributed in the women's bodies, raising 7-HMR levels in the blood by **191%** in the lower-dose group, and by **1,238%** in the higher-dose group. The higher dose also produced a **50%** reduction in the mean number of weekly hot flashes, from **28** to **14.3**.



What You Need To Know

Phytoestrogens Battle Menopausal Symptoms And Reduce Breast Cancer Risk

- During transition through menopause, falling estrogen levels produce a host of disquieting and disturbing symptoms that many women find nearly intolerable.
- Menopause has also been associated with major age-related diseases such as cardiovascular disease, stroke, cancer, dementia, and osteoporosis, as the protective effects of estrogen are withdrawn.
- Conventional treatment with estrogen derived from horse urine plus progesterone has been shown to be flawed; while effective at reducing symptoms, this treatment actually raises the risk of many chronic conditions, and is no longer routinely recommended.^{56,57}
- Treatment with estrogen-like compounds derived from plants (phytoestrogens) has been shown to be effective at improving many menopausal symptoms, and may provide protection against the very conditions that are aggravated by conventional treatment.
- Hops are an abundant source of the most potent known phytoestrogen, 8-prenylnarigenin, and other important women's health molecules.
- Norway spruce provides abundant amounts of the lignan 7-hydroxymatairesinol, a highly cancer-protective compound that also offers symptomatic relief of hot flashes and other menopausal complaints.

Safely Lower Breast Cancer Risk

In addition to drastically cutting the number of hot flashes, there is also exciting news about HMR lignan in the prevention of breast and other cancers. Several different epidemiological and laboratory studies have shown that diets rich in plant lignans are likely to reduce the risk of human breast cancer.³⁸ This is likely

Nutrients Proven To Ease Menopausal Symptoms

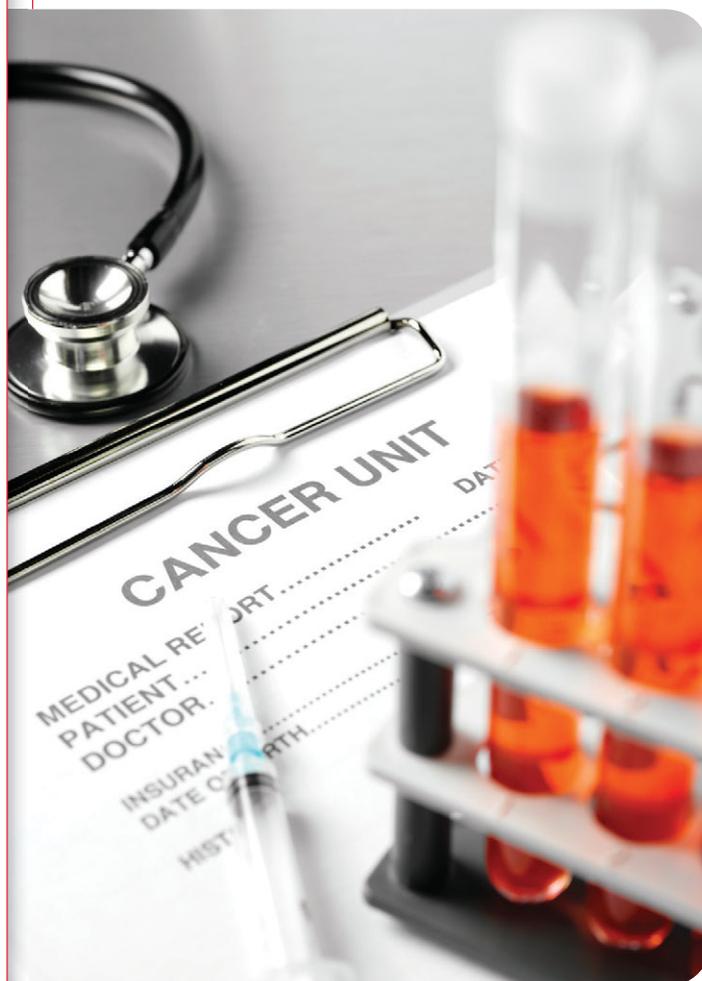
In addition to the benefits provided by phytoestrogens and other protective molecules in hops polyphenols (8-PN) and spruce lignans (HMR lignan), a handful of other nutrients have shown promise in easing the menopausal transition and protecting against breast cancer. Here is a brief summary of some of the most effective nutrients:

- *Cruciferous vegetables*, especially *broccoli*, are rich in biomolecules called *isothiocyanates*, which are potent inhibitors of liver enzymes that activate potential carcinogens, including estrogen. As a result, consuming cruciferous vegetables promotes breast health and can reduce the risk of breast cancer by as much as **40%**.⁴⁸ Eating large amounts of broccoli (more than a pound per day) shifts the important ratio of estrogen 2:16 hydroxy metabolites in favor of the protective 2-hydroxy molecule.⁴⁵ In order to get the most benefit, consider taking concentrated broccoli extracts.
- *Dong quai* has a long history of medicinal use in Asia for menopausal symptoms.⁴⁹ Modern studies reveal that extracts of the plant have estrogenic effects in menopausal rats, suggesting a mechanism of action for its ancient properties.⁴⁹ There is also some evidence that extracts may be useful in treating female arousal disorders, which are common around the time of menopause.⁵⁰
- *Vitex agnus-castus* (Chasteberry) contains compounds in both the berry and the leaf that have been shown to induce relief of common menopausal symptoms.^{51,52} Studies attribute these effects to activation of estrogen receptors, indicating that the plant has beneficial phytoestrogen properties.⁵³

due to the ability of HMR lignans to sharply reduce the concentrations of reactive oxygen species that damage DNA to trigger cancers, and also their ability to suppress inflammatory actions to slow promotion and progression of malignancies.³⁹

Studies in rats with experimentally induced breast cancer show that HMR, at a dose equivalent to **180 mg/day** in humans, decreases the number of growing tumors and increases the proportion of tumors that regress and stabilize.³³ A lower dose (equivalent to **56.4 mg/day** in an average human) given before experimental tumor induction was shown to reduce the size and growth of tumors, while the same dose given even after tumors were established inhibited their growth.³⁶

Other studies show that HMR helps inhibit tumor development in liver cancer cells and helps stop the spread of tumors in rats carrying liver cancers.³⁸ Toxicity studies have demonstrated no adverse effects at doses up to a human equivalent of **1,920 mg/day**, making HMR lignan a safe supplement.⁴⁰





How To Measure Breast Cancer Risk

Of special importance, a recent study demonstrated that when HMR lignan is combined with *indole-3-carbinol*, a beneficial compound in broccoli and other cruciferous vegetables,⁴¹ it produces a vital shift in the ways that natural estrogen is metabolized in a woman's body.⁴²

Although estrogen is a natural hormone produced by both women and men, it undergoes chemical changes through the actions of enzymes in the liver. One of those enzyme systems produces so-called **2-hydroxy** estrogen breakdown products, while the other produces **16-hydroxy** versions of the molecule.⁴³ The **2-hydroxy** version appears to offer protection against breast cancer,⁴⁴ while the **16-hydroxy** version remains powerful enough to raise a woman's chances of developing breast cancer.⁴⁵ The ratio of **2-hydroxy** to **16-hydroxy** molecules is therefore a good measure of a woman's breast cancer risk, with the higher the ratio (meaning more beneficial **2-hydroxy** and less dangerous **16-hydroxy**), the lower her risk.^{43,46} In the recent study, a breast health nutritional formula containing HMR lignan plus indole-3-carbinol was shown to be capable of shifting estrogen metabolism toward the **2-hydroxy** version and raising the 2:16-hydroxy ratio; an important step in minimizing the risk of breast (and possibly other) cancers.⁴² This is in line with other studies demonstrating that consumption of cruciferous vegetables nudges the 2:16-hydroxy ratio in a direction that favors protection from breast cancers.^{45,47}

Summary

Replacing estrogen lost to menopause was once relegated to taking unnatural-to-the-body **estrogen drugs** and dangerous synthetic **progestins** (which is not the same as **progesterone**). These pharmaceutical approaches are declining as maturing women insist on natural hormone replacement protocols.

Treatment with plant-derived, estrogen-like molecules called **phytoestrogens** and **natural progesterone** are showing great promise in relieving symptoms of the menopausal transition and at restoring some of the protection enjoyed by premenopausal women against cancer and other chronic conditions.⁵⁵

Extracts of hops and Norway spruce are rich in such phytoestrogens, as well as in other molecules that protect women against low-estrogen-induced conditions. These molecules have now been studied and appear to lead the field in the combination of symptom relief and protective effects.

Additional plant extracts, many of them in use for centuries in traditional medical systems, can add further symptomatic relief and disease-preventive effects. These natural plant derivatives are increasingly being made available in convenient combination formulations.⁵⁴ ●

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 Mechanisms for the Support of Healthy Blood Sugar Levels

Tri Sugar Shield™

Many aging individuals find themselves under assault from rising **blood sugar** levels.

Despite a healthy diet and exercise, blood sugar levels can rise due to a number of factors including excess **gluconeogenesis** whereby the liver produces glucose from protein. Another issue is the rapid conversion of any **starch**, including whole grains, into **glucose**. The result is that even health-conscious, active people can experience higher-than-desired blood sugar levels as they age.^{1,2}

An all-natural, **multi-pronged** approach has been designed to support the natural balance of key **glucose pathways!**

Tri Sugar Shield™ provides three plant-derived nutrients that—through their **rich array of complementary mechanisms**³⁻¹⁸—afford an **unrivaled** level of optimal, broad-spectrum support for healthy glucose metabolism in aging individuals within normal range.

MULTI-PRONGED APPROACH

Life Extension® Tri Sugar Shield™ contains the following three nutrients:

Sorghum Extract

Sorghum has long been cultivated in Asia (and now is grown in Africa, India, China, Australia, and the USA) and helps maintain healthy blood sugar levels, among those in the normal range, by modulating **four** different mechanisms:

- Balances the rate of sugar manufacture in the liver (*gluconeogenesis*).⁵
- Promotes insulin sensitivity.⁶
- Regulates *PPAR-gamma*, a metabolic thermostat controlling glucose metabolism.^{6,7}
- Regulates the enzyme *alpha-amylase*, which in turn controls the release of sugar found in starch.^{3,4}

Mulberry Leaf Extract

Mulberry leaf has been used in Chinese traditional medicine for centuries. Mulberry leaf extract targets **three** different mechanisms:

- Targets the *alpha-glucosidase* enzyme to regulate conversion of starch into glucose.⁸⁻¹⁰
- Supports glucose transporter *GLUT4* that moves glucose out of the bloodstream and into muscle and liver cells.^{11,12}
- Promotes insulin sensitivity.¹³

Phloridzin

Phloridzin is a natural polyphenol found in various fruit trees.¹⁴ Phloridzin helps maintain healthy blood sugar levels, among those in the normal range by:

- Targeting carrier protein *SGLT1*, in turn helping to block the absorption of glucose into the bloodstream.^{15,16}
- Targeting carrier protein *SGLT2*, in turn supporting glucose elimination via urine.^{17,18}

By targeting **all** of these diverse glucose pathways, **Life Extension® Tri Sugar Shield™** delivers the **widest possible support** to help naturally stabilize already healthy glucose levels!

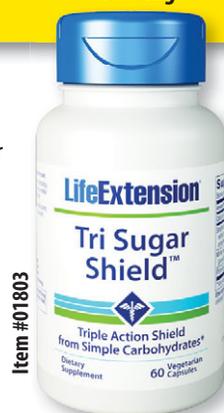
The suggested daily dose of **one** vegetarian capsule taken twice daily before the heaviest carbohydrate or sugar-containing meals/drinks of **Tri Sugar Shield™** provides:

Sorghum bran (<i>Sorghum bicolor</i>) extract [providing 540 mg proanthocyanidins (540 mg)]	600 mg
White mulberry extract (leaf) [providing 15 mg 1-deoxynojirimycin (DNJ) (15 mg)]	300 mg
Phloridzin [from apple extract (root bark)]	100 mg

A bottle of 60 vegetarian capsules of **Life Extension® Tri Sugar Shield™** retails for \$36. If a member buys four bottles, the price is reduced to **\$24** per bottle.

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Natural Relief Of MENOPAUSE SYMPTOMS

Women suffering menopausal symptoms are challenged to safely manage night sweats, hot flashes, moodiness, and depression.

Recently published studies in medical journals show that certain plant-based extracts can reduce menopausal discomforts and support healthy estrogen metabolism—during menopause and beyond.¹⁻⁸

Natural Estrogen combines a patented **hops extract** with **standardized lignans** and other compounds that have been shown to target menopause symptoms. The compounds in **Natural Estrogen** include:

- **Hops Extract:** Clinically shown to reduce frequency of hot flashes by **50%**¹ and improve various other menopausal discomforts.²
- **Lignan Extract:** Clinically shown to block some of estrogen's unwanted effects.³
- **Licorice Extract:** Clinically shown to reduce the severity and frequency of hot flashes.⁴
- **Broccoli Extract:** Found to modulate estrogens and maintain healthy cell division.⁵
- **Dong Quai:** Believed in Chinese medicine to help with menstruation and menopausal symptoms.⁶
- **Chasteberry Extract (*Vitex agnus-castus*):** Shown to support hormone and neurotransmitter balance, which is important for relief of menopausal symptoms.^{7,8}

Natural Estrogen...powerful nutritional support to help decrease menopausal complaints and maintain healthy estrogen metabolism!

The suggested daily dosage of **two** vegetarian tablets of **Natural Estrogen** provides:

Lifenol™ Hops (<i>Humulus lupulus</i>) extract (flower) [standardized to 0.12% 8-prenylnaringenin (144 mcg)]	120 mg
HMRlignan™ Norway spruce (<i>Picea abies</i>) lignan extract (knot wood) [standardized to 90% Hydroxy-matairesinol potassium acetate (50 mg)]	56 mg
Broccoli Super Concentrate Extract (plant) [standardized to 4% glucosinolates (12 mg)]	300 mg
NovaSoy® Soy Isoflavone concentrate [standardized to 40% isoflavones (55 mg)]	137.5 mg
Dong quai extract (root) [standardized to 1% ligustilide (0.25 mg)]	25 mg
Licorice extract (root)	25 mg
Vitex (<i>Vitex agnus-castus</i>) extract (fruit) [standardized to 5% flavonoids (1 mg)]	20 mg
Calcium (as dicalcium phosphate)	136 mg

A bottle of 60 vegetarian tablets of **Natural Estrogen** retails for \$38. If a member buys four bottles, the price is reduced to **\$25.50** per bottle.

Contains soybeans.

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Item # 01892

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

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Remove Dark Pigmentation Characteristic Of Aging Skin

Combating fine lines and wrinkles usually tops the list when it comes to retaining a youthful appearance, but ignoring an uneven skin tone and unwanted pigmentation can add years to your perceived age.

Over time, your picture-perfect complexion begins to display *hyperpigmentation* in the form of undesirable **dark patches**, unsightly brown and black growths, and mottling in the skin. An interesting research finding demonstrated that hyperpigmentation can make you look up to 20 years older!¹

Hyperpigmentation stems from enhanced production² and uneven distribution of *melanin*,³ the skin's predominant pigment. While *hydroquinone* remains the gold standard for treating this common condition,⁴ it has fallen out of favor due to published studies reporting its allergenic^{5,6} and carcinogenic properties.^{7,8} This has sparked interest in agents that have comparable skin-lightening effects to hydroquinone without the serious side effects.

In this article, you'll learn how three natural compounds work through multiple mechanisms to normalize melanin output and promote its even distribution in the epidermis for the appearance of even-toned, younger-looking skin.



Targeting Melanogenesis

As we age, melanin-synthesizing cells known as *melanocytes* become victim to excess sun exposure, inflammation, free radicals, and hormonal changes.^{9,10} This triggers melanocytes to overproduce **melanin**, resulting in its uneven distribution in the epidermis. The outward appearance of **hyperpigmentation** and **dark spots** soon follows, with some of the most common sites being the face, arms, back, and hands.^{1,11}

The process of melanin synthesis (*melanogenesis*) can be narrowed down to the following three steps, regardless of the initiating factors involved: An early rate-limiting step involves the transformation of L-tyrosine to L-DOPA through *tyrosinase* or *tyrosine hydroxylase*. Then a series of intramolecular transformations occur, continuing the process of melanogenesis. Finally, mature *melanosomes* are transferred to more superficial *keratinocytes*. There, melanin provides skin color and frontline protection against the damaging effects of UV rays.^{9,12} As we age, this process becomes *dysregulated*, causing the skin's outward appearance to develop unsightly **dark spots** and uneven areas of **hyperpigmentation**.

After rigorous research and testing, scientists have zeroed in on three ingredients that intervene in *melanogenesis* to favorably modulate *skin pigmentation*.

Alpha-Arbutin

Since the key enzyme tyrosinase is a regulator of melanogenesis, it is a prominent target to control melanin formation and improve age-related skin discoloration. Scientists have discovered that *alpha-arbutin*, a compound derived from the leaves of the bearberry plant, exhibits a strong inhibitory effect on tyrosinase.

This helps explain why a human skin model treated with alpha-arbutin decreased melanin synthesis by **60%** compared to a control.¹³

The ability of alpha-arbutin to dramatically decrease melanin production has translated into impressive findings in humans, with studies showing it has significantly faster skin-lightening effects than other commonly used agents. In one study of 80 participants, scientists compared the efficacy of alpha-arbutin against hydroquinone and kojic acid for decreasing hyperpigmentation. They found that topical application of alpha-arbutin increased skin lightness **60%** over hydroquinone, and **25%** over kojic acid. Both these results were observed after just one month!^{14,15}

Liver spots (age spots) are the visible consequences of chronic sun exposure. A three-month study revealed that more than **80%** of participants who topically applied a formulation of alpha-arbutin showed noticeable reductions in the appearance of liver spots.^{14,15}

Phyllanthus Emblica Extract

Phyllanthus emblica, also known as Indian gooseberry, has a long history in Ayurvedic medicine for treating a variety of health ailments, from gastrointestinal disorders to liver diseases.¹⁶ The latest research indicates that it can now add effective skin lightener to its already impressive resume.

In the laboratory, a standardized extract of *Phyllanthus emblica* displayed potent free-radical scavenging activity.¹⁷ Oxidative stress may be an early step in the activation of tyrosinase.¹⁸⁻²¹ It also binds to copper, which is required for tyrosinase function.¹⁷



BEARBERRY



GOOSEBERRY

In human studies, extracts of *Phyllanthus emblica* were superior to both vitamin E and the conventional skin lightener *magnesium ascorbyl phosphate* (MAP) in preventing and reversing UV-induced pigmentation.¹⁷ One study showed that human volunteers applying a topical preparation of *Phyllanthus emblica* twice daily for nine weeks had markedly lighter skin at the study's end compared to those applying MAP.¹⁷

Another study compared *Phyllanthus emblica* extract to hydroquinone for reducing upper arm hyperpigmentation. Subjects applied a topical application of either *Phyllanthus emblica* or hydroquinone twice daily to the designated area for six weeks. Researchers used the parameter *individual typology angle* (ITA°) to evaluate the intensity of skin pigmentation, with a higher ITA° signifying lighter skin. They found that treatment with *Phyllanthus emblica* extract significantly increased ITA° and was as effective as hydroquinone. This research demonstrates that *Phyllanthus emblica* provides similar skin-lightening properties to hydroquinone without the adverse effects.¹⁷

When investigators examined the impact of *Phyllanthus emblica* extract on freckles in 19 patients, they observed that **89.5%** of participants experienced significant fading of freckles in the facial area after just eight weeks.¹⁷

Niacinamide

While alpha-arbutin and *Phyllanthus emblica* extract inhibit melanin synthesis to lighten discolored areas of the skin, a derivative of niacin (vitamin B3) known as *niacinamide* operates through an entirely different mechanism to provide the same benefit.

Scientists found that niacinamide suppressed the transfer of melanin to nearby keratinocytes on the surface of the skin by up to **68%**.²² In other words, niacinamide blocked the accumulation of melanin in the epidermis that contributes to skin darkening.

In a double-blind clinical trial of 18 women aged 25-60, topical niacinamide was applied twice daily to one side of the face and placebo to the other for eight weeks. Compared to baseline, the treatment group reduced total area of hyperpigmentation by **25%** versus only **15%** in the placebo group. More subjects in the niacinamide group reported lighter skin than in the placebo group.²²

One of the most common and hard-to-treat skin disorders is *melasma*, a condition characterized by facial hyperpigmentation.²³ Although it affects both sexes, melasma occurs more frequently in women.²⁴ Eight weeks of topical niacinamide was shown to be nearly as effective as hydroquinone for treating melasma.



What You Need To Know

Melanin, Age-Related Skin Discoloration, And Pigment-Fading Compounds

- Melanin is the skin's color-providing pigment that offers protection against damaging UV rays.
- As we age, melanin-producing melanocytes become victim to chronic sun exposure, inflammation, free radicals, and hormonal changes.
- These factors increase activation of a key enzyme called tyrosinase. This leads to the overproduction of melanin, which causes its uneven distribution in the epidermis.
- The outward appearance of hyperpigmentation soon follows, typically as age spots, freckles, and melasma.
- As safety concerns mount for the traditional therapy hydroquinone, scientists have zeroed in on three safer alternatives.
- Alpha-arbutin increased skin lightness **60%** over hydroquinone and **25%** over kojic acid in human volunteers in one month.
- *Phyllanthus emblica* extract deactivates tyrosinase to enhance skin lightness and reduce the appearance of freckles.
- Niacinamide blocks melanin transfer to the outer layers of the skin, which has been shown to decrease facial hyperpigmentation and improve melasma.

Even better, niacinamide produced fewer side effects than its counterpart. This led the researchers to conclude that niacinamide was “an effective, integral, and safe therapeutic alternative in the melasma treatment.”²⁴

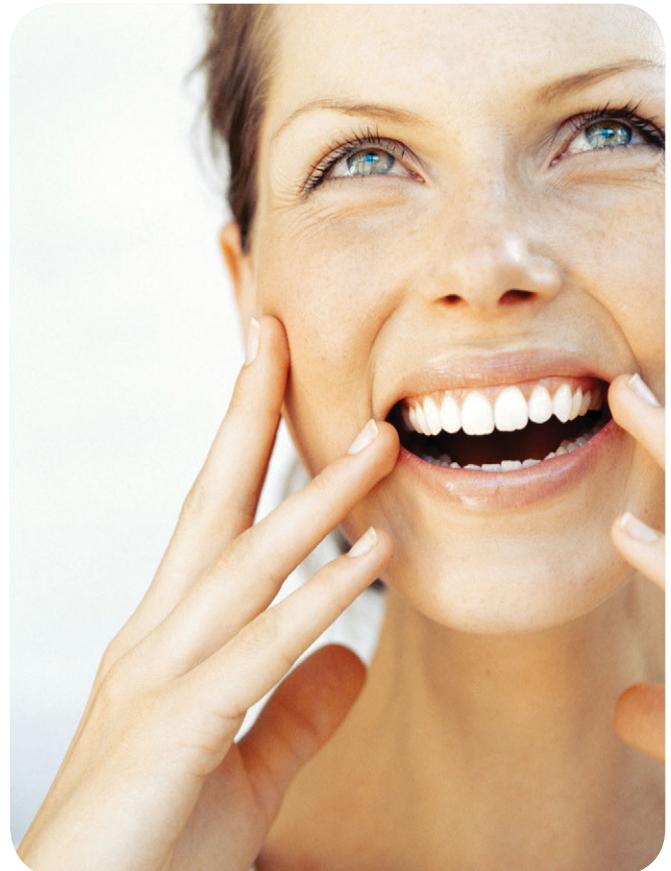
Summary

Marked changes in the skin's primary pigment melanin results in undesirable *hyperpigmentation* that can add years to your perceived age. Fortunately, a topical cream has been formulated with three natural compounds that show comparable skin lightening effects to hydroquinone without the serious side effects. Three ingredients, **alpha-arbutin**, ***Phyllanthus emblica*** extract, and **niacinamide**, beneficially modulate melanin synthesis and transfer to reduce the visual appearance of age spots, freckles, and melasma. This translates into more even-toned, radiant, younger-looking skin. ●

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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Protect Skin Against Sun Damage From Inside Your Body

Scientists have discovered that an extract of the fern *Polypodium leucotomos* helps inhibit cellular changes in the skin that can lead to premature aging due to sun exposure.¹

Taken orally, **Enhanced FernBlock® with Red Orange Complex** provides an **additional** layer of support for the body's ultraviolet light defenses.

Best of all, *Polypodium leucotomos* offers this protection from the inside out. The result is an oral photoprotective agent that provides uniform, systemic, total-body surface protection (including the eyes, lips, and the scalp), without the problems associated with sunscreen.^{2,3}

Oral Sun Defense

FernBlock® has shown remarkable effectiveness in promoting skin defenses against harmful solar radiation.^{1,4-7}

FernBlock® in this **oral** formulation works by promoting the body's ability to inhibit absorption of ultraviolet rays and to quench the free radicals that this type of radiation can generate.^{4,5} In one clinical study, *Polypodium leucotomos* offered significant protection against the sun's rays, even for those taking medication that causes increased sun sensitivity.⁸ The study subjects experienced an almost **three-fold** increase in the amount of time they spent in the sun.

Enhanced FernBlock® Formula

This product has been upgraded to contain **Red Orange Complex**, a standardized extract that is obtained from three **red orange** varieties—*Citrus sinensis* var. Moro, Tarocco, and Sanguinello.

The main active **phenolic** compounds include **anthocyanins**, **flavanones**, and **hydroxycinnamic acids**. It also includes vitamin C,⁹ which works together to support the body's natural photoprotection against ultraviolet radiation,^{10,11} by helping to balance the body's normal inflammation response,¹² free-radical defense mechanism, and healthy apoptotic (cell death) activity.¹³

In a controlled human trial, 15 days of **oral** supplementation with **Red Orange Complex** was demonstrated to **measurably** support natural skin defenses against ultraviolet radiation.¹¹

FernBlock® is a registered trademark of Industrial Farmaceutica Cantabria, S.A.

Note: This product is not a sunscreen.

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More Comprehensive Sun Protection

Enhanced FernBlock® with Red Orange Complex is designed to complement topical sunscreens for sun exposure. Taken orally, **FernBlock®** supplements the effectiveness of topical sunscreens by protecting the **entire skin surface** and has an obvious advantage in that it **cannot be removed by perspiring or bathing**.

If taken daily, just one capsule should provide everyday protection. Each vegetarian capsule of **Enhanced FernBlock® with Red Orange Complex** provides:

FernBlock® <i>Polypodium leucotomos</i> extract (leaf)	240 mg
Red Orange Complex (Sicilian red oranges – <i>Citrus sinensis</i> var. Moro, Sanguinello, and Tarocco) extract (fruit and peel)	100 mg
Vitamin C (as ascorbic acid from Red Orange Complex)	5.5 mg



Item # 01728

A bottle of 30 vegetarian capsules of **Enhanced FernBlock® with Red Orange Complex** retails for \$42. If a member buys four bottles, the price is reduced to **\$28.50** per bottle.

To order **Enhanced FernBlock® with Red Orange Complex**, 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.

REJUVENATING SCALP SERUM

With Argan Tree Extract

The scalp and hair follicles play a critical role in the health of the hair, and they're continually challenged by chemical, mechanical, and environmental stressors.

A novel plant extract derived from the rare **Argan** tree—enhanced by supporting compounds—protects and stimulates the activity of self-renewing **dermal stem cells**. This serves to moisturize the scalp, provide nutrients to every strand of hair, and sustain a strong hair growth cycle.^{1,2}

ARGAN OIL

The new **Rejuvenating Scalp Serum** contains **Argan oil**, which is unlike any other oil. It is a “dry” oil, easily absorbed by the skin so it leaves no residue or build-up on the hair or scalp. **Argan oil** has been shown to be exceptionally effective at targeting scalp skin cells to prevent dry scalp conditions, nourish hair follicles, and revive dull, tired, brittle hair.^{1,2}

The effectiveness of the **Argan oil** in **Rejuvenating Scalp Serum** is enhanced by **four** compounds:

1. **Procyanidin B-2** to support hair growth.³⁻⁵
2. **Biotin** to help support hair growth.⁶
3. **Copper** to support hair follicles.
4. **Tea extracts** to inhibit free radicals⁷ that cause dryness, itchiness, and dullness of the scalp.

SCALP AND HAIR HEALTH

The suggested use of **Rejuvenating Scalp Serum** is to massage **3-5** drops into the scalp each day. This will:

- Improve the health of the scalp.
- Actively nourish hair follicles.
- Promote natural hair growth cycle.
- Lock in moisture for a silky shine.
- Promote strong hair fibers.
- Improve hair texture and volume.

A 2-ounce bottle of Cosmesis **Rejuvenating Scalp Serum** retails for \$46. If a member buys two bottles, the price is reduced to **\$29.25** per bottle.

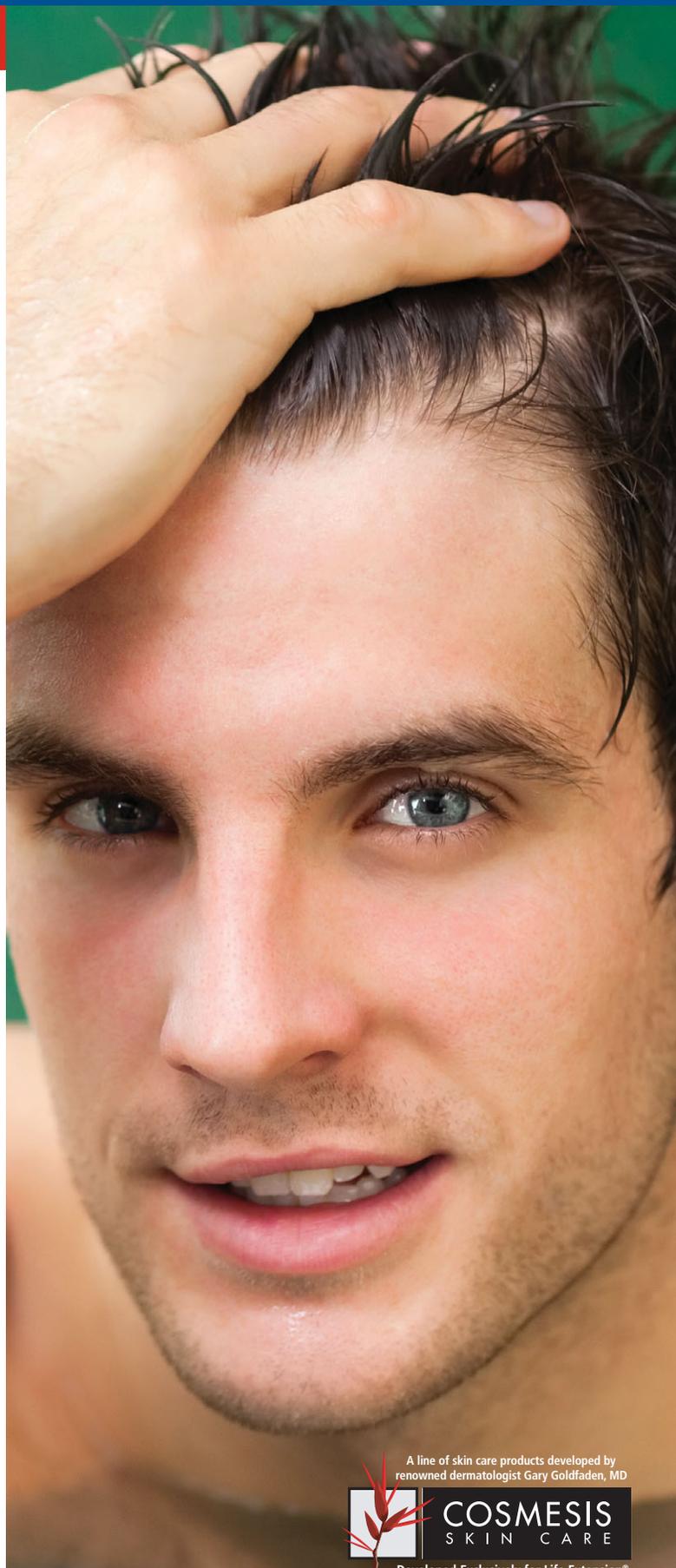
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To order Cosmesis Rejuvenating Scalp Serum, call 1-800-544-4440 or visit www.LifeExtension.com



Item # 80153



A line of skin care products developed by renowned dermatologist Gary Goldfaden, MD



COSMESIS
SKIN CARE

Developed Exclusively for Life Extension®

BANISH AGE SPOTS AND UNEVEN PIGMENTATION

Uneven skin color and age spots can make skin look old beyond its years.

Age spots and discoloration begin when *melanin*, the skin's predominant pigment, is overproduced¹ and unevenly distributed.² This is medically termed *hyperpigmentation*.

Cosmesis Advanced Lightening Cream contains three natural compounds that, in combination, correct skin tone and dark spots—resulting in younger-looking skin.³⁻⁷

1. Alpha-arbutin, derived from bearberry plant leaves, removes pigment from age spots and helps inhibit further melanin production (*melanogenesis*) by up to **60%**.³ In one clinical study, over **80%** of individuals who topically applied alpha-arbutin showed noticeable reductions in the appearance of age spots in just three months.^{4,5}

2. Indian gooseberry binds to copper, which inhibits an enzyme (*tyrosinase*) involved in melanin production.⁶ Scientists found that topical application of **Indian gooseberry** extract substantially faded facial freckles for **89.5%** of participants—after just eight weeks.⁶

3. Niacinamide—a derivative of vitamin B3 or niacin—evens out skin coloration via a different mechanism: It suppresses transfer of already produced melanin to the main cells on the skin surface (*keratinocytes*) by up to **68%**.⁷

In a double-blind clinical trial, topically applied niacinamide reduced total areas of hyperpigmentation by **25%** in eight weeks and subjects reported lightened skin.⁷

Cosmesis Advanced Lightening Cream incorporates all three of these compounds into one synergistic formula that noticeably evens out pigmentation for a youthful, radiant skin tone! It is excellent for all skin types and can be used daily.

A 1-ounce jar of **Cosmesis Advanced Lightening Cream** retails for \$65. If a member buys two jars, the price is reduced to **\$42.75** per jar.



Item # 80154

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To order Cosmesis Advanced
Lightening Cream, call 1-800-544-4440 or
visit www.LifeExtension.com

BY THOMAS ROSENTHAL

The Little-Known *Benefits Of* TOCOTRIENOLS

If your vitamin E supplement contains only **tocopherol** forms, you may not be getting all of the benefits this nutrient has to offer. While tocopherols are very important, they lack many of the synergistic benefits offered by their cousins, the **tocotrienols**.

Few people realize that vitamin E is composed of eight different compounds. Half of these are called **tocopherols**, which is the most common form of vitamin E. The other half are known as **tocotrienols**.

Scientists are discovering that **tocotrienols** provide valuable therapeutic and preventive options for the diseases of aging that tocopherols alone may not provide.

For example, researchers found that tocotrienols given to mice with pancreatic cancer significantly improved their survival. Only **10%** of animals in the control group survived for the study period while **70%** of those taking **tocotrienols** survived!¹ Pancreatic cancer is a particularly fast-moving and lethal form of cancer, and this study presents a promising new treatment option.

TOCOTRIENOLS





Beyond cancer, research is showing that **tocotrienols** have a place in reducing important risk factors for some of the most lethal chronic diseases. For example, tocotrienols have been found to promote new artery formation after a stroke, lower homocysteine levels, improve insulin sensitivity, protect vital brain circuitry, and even prevent bone loss.²⁻⁵

In addition, tocotrienols have powerful lipid-lowering, anticancer, and neuroprotective properties that tocopherols lack.^{6,7}

These recent investigations into this overlooked form of vitamin E are providing new strategies to fend off multiple risk factors to ensure optimal health.

Tocotrienols And Cancer

For many years, studies of vitamin E produced inconsistent results regarding its effect on cancer. It is now thought that this inconsistency was likely due to the widespread use of *alpha*-tocopherol alone in such studies.⁸ We now know that alpha-tocopherol has weak anticancer activity, while tocotrienols are more potent cancer-preventive agents.⁸⁻¹⁰

In a recent finding that stunned researchers, tocotrienol supplementation was found to dramatically extend the life span of mice with pancreatic cancer.⁸ Pancreatic cancer is among the most aggressive and deadly human cancers, with survival times typically counted only in months.^{11,12} The **2013** study showed that after 16 weeks of treatment, just **10%** of placebo-treated mice remained alive, while **30%** survived in a group treated with *gemcitabine*, a standard chemotherapy drug. However, a remarkable **70%** of mice had survived in the tocotrienol group. Combination treatment with *gemcitabine* and *tocotrienols* produced a remarkable **90%** survival rate.¹

Tocotrienols are the ultimate multi-targeting nutrient when it comes to cancer. Their actions affect

virtually every step in the progression of cancer.¹³ They share antioxidant effects with tocopherols, but there seems to be a considerable amount of anticancer action that is unrelated to antioxidant actions.^{13,14}

Proposed Mechanisms Of Tocotrienols In Cancer Prevention¹³

Effect	Result
Apoptosis (programmed cell death)	Tumor cell death
Cell cycle arrest	Slows tumor growth
Inhibit new blood vessel growth (angiogenesis)	Starves tumor of nutrients and oxygen
Inhibit HMG-CoA reductase enzyme	Inhibits metastasis ⁶⁵
Decreases expression of cancer causing genes	Prevents initiation of cancer
Increases the expression of genes that suppress cancer	Prevents initiation and progression of cancer

Proposed Mechanisms Of Tocotrienols In Cancer Prevention

Tocotrienols impact several factors that tumors need for their development and growth.

Tocotrienols have been shown to inhibit the growth of new blood vessels to rapidly growing tumors and inhibit growth and proliferation of cancer cells.^{9,15} Tocotrienols also sensitize cancer cells to the effects of standard chemotherapy, and astonishingly, appear capable of combating **cancer stem cells**, which are highly resistant to standard chemotherapy and contribute to cancer recurrences.⁹ They also blunt the impact of chemical carcinogens in animal studies.¹⁶

Tocotrienols also trigger **apoptosis**, which is the programmed cancer cell death that can prevent a tumor from ever getting a toe-hold in the body. Apoptosis is also vital in shrinking existing tumors, a factor that may account for the growing use of tocotrienols (alone or with conventional chemotherapy drugs) in patients with existing cancers.^{14,17}

Tocotrienols have another rather unusual mechanism for fighting cancer. They appear to block an enzyme that cancer cells need for invasion and metastasis. This enzyme, called *HMG-CoA reductase*, is the same enzyme blocked by statin drugs.² In fact, the combination of tocotrienols with the statin drug *atorvastatin* (**Lipitor**®) was recently shown to greatly increase inhibition of cancer cell growth.¹⁸



Tocotrienols For Cardiovascular Disease And Stroke

Tocotrienols offer many important complementary benefits to the tocopherol form of vitamin E, such as:

1. Improving Lipid Profiles

Tocotrienols help lower plasma cholesterol levels by blocking *HMG-CoA reductase*. This enzyme is a rate-limiting step in producing cholesterol, so blocking it is an effective means of lowering cholesterol levels. In fact, the common statin drugs used for lowering lipid levels also operate by inhibiting HMG-CoA reductase, although they do so by a different mechanism.^{4,19-21}

Human research shows that tocotrienol supplementation can lower total serum lipids by up to **23%**, total cholesterol by **30%**, and LDL (bad) cholesterol by **42%**. Not all human studies show this dramatic reduction in LDL and cholesterol.²² And animal studies demonstrate significant reductions in lipids, with the added benefit of reducing lipid oxidation; a precursor to the arterial damage that leads to stroke and heart attacks.²³

Tocotrienols also can lower dangerous forms of *apolipoproteins*, which are lipid-carrying proteins that can increase cardiovascular risk.²⁴ Alpha tocopherol has no effect on serum lipids.²⁵

2. Reducing Homocysteine

Tocotrienols have also been found to reduce blood levels of *homocysteine*, another important contributor to cardiovascular disease.

When scientists used a tocotrienol-rich fraction in a rat study to reduce plasma homocysteine and heart oxidative stress, they discovered that it proved more powerful than folate, the standard homocysteine-reducing vitamin.²

And in rabbits, tocotrienol supplementation after a high-fat diet significantly lowered a host of markers of both inflammation and heart muscle damage.²⁶

3. Protecting Against Ischemia

If a vessel does become blocked, tocotrienols offer potent resistance to the loss of blood flow known as *ischemia*, which is generally involved in the development of heart attack or stroke.²⁶ This was powerfully demonstrated in a study of rabbits, in which supplementation not only lowered their lipids, but also protected their heart muscle from damage by ischemia induced in the laboratory. This was especially true of the alpha- and gamma-tocotrienol, which reduced the area of heart muscle damage significantly.²⁶



Pancreatic cancer

What You Need To Know

Breakthrough Research On Tocotrienols

- Typical vitamin E supplements contain only alpha-tocopherol, the best known member of the eight-member vitamin E family.
- But tocopherols, while important nutrients, lack some of the additional benefits offered by their cousins, the tocotrienols.
- By virtue of small but important structural differences, tocotrienols can get more involved in profound biological processes, such as modulating gene expressions and regulating vital enzyme functions.
- Tocotrienols have potent anticancer and anti-diabetes abilities, as well as cardio-, neuro-, liver-, and bone-protective actions based on their unique functions in the body.
- It is now apparent that studies showing little or no effect from vitamin E supplementation failed in part because they used only alpha-tocopherol, rather than also including other tocopherols and tocotrienols.

4. Guarding Against Stroke-Related Brain Damage

Acute ischemic stroke (reduced blood flow to an area of the brain) remains a leading cause of death and disability worldwide.²⁷ Oral tocotrienols have been shown to protect against and minimize stroke-related brain damage in animal models.^{3,6,27,28} This protection is the result of several independent mechanisms. Tocotrienols work by:

- Slowing the conversion of *arachidonic acid* (the most abundant brain fatty acid) into pro-inflammatory molecules, thereby reducing the inflammation that arises after an acute stroke.^{28,29}
- Reducing the effects of specific oxidant damage-inducing molecules in brain tissue.³
- Increasing the recruitment of arterioles to rapidly restore blood flow to areas injured by stroke.⁴

5. Improving Metabolic Syndrome

In an exciting look ahead at what the future may hold in human studies, preclinical research has shown that tocotrienols can reverse many changes seen in metabolic syndrome, including improving lipid profiles, reducing atherosclerotic lesions, lowering blood glucose and markers of *glycation*, normalizing blood



pressure, and inhibiting new fat deposits.^{30,31} At the functional level, tocotrienols improve heart muscle function, improve glucose and insulin tolerance, and reduce infiltration of inflammatory cells into heart muscle.³⁰

Tocotrienols And Diabetes

Diabetes accelerates aging through a variety of mechanisms. In fact, **80%** of diabetic patients will die of an atherosclerotic event such as a heart attack or a stroke, making it especially important to address the factors involved in diabetes.²² Fortunately, a number of animal studies demonstrate that tocotrienols offer hope for patients suffering from this disease.

Tocotrienols have been found to improve blood sugar and kidney function in diabetic animals.³² This effect has been attributed to their sugar- and lipid-lowering effects, and to their ability to modulate specific growth factors that prevent fibrous proteins from being deposited in kidney tissue.³³

Other studies have shown that tocotrienols improve insulin sensitivity and whole-body sugar utilization in a similar way as some expensive diabetes drugs (through activation of the metabolic sensors known as *peroxisome proliferator-activated receptors* or PPARs).³⁴

And a tocotrienol-rich diet reduced the attack of sugar on tissues (*glycation*), even in non-diabetic rats. In diabetic rats, it improved blood sugar control as well as glycation.³⁵

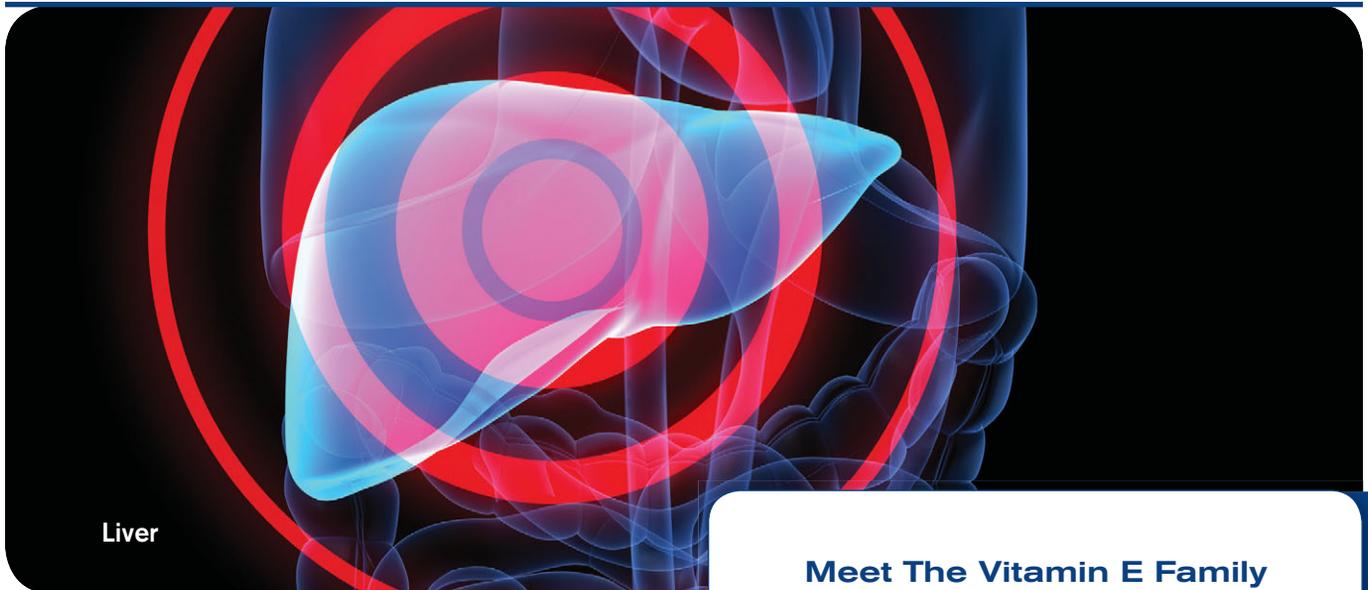
Because diabetes also attacks the nerves, it eventually produces neuropathy, a potentially painful condition that has resisted many attempts to treat it with drugs. In diabetic rats with neuropathy, tocotrienol supplementation substantially reduced pain behaviors and biochemical changes seen in neuropathy.³⁶

Tocotrienols And Liver Disease

In addition to growing indications that tocotrienols are effective against liver cancer,¹⁷ there is compelling evidence of their effectiveness in treating non-alcoholic fatty liver disease (NAFLD). In NAFLD, fat is deposited in the liver and can lead to hepatitis, liver failure, or even cancer.³⁷

In a randomized clinical trial, 87 adults with high cholesterol and NAFLD received either mixed tocotrienols (**200 mg** twice daily) or placebo.³⁸

After one year, supplemented patients had a significantly greater rate of normalization of their liver tissue on ultrasound than did control patients. The rate of remission was also significantly higher in treated patients than in control patients, while NAFLD



worsened in two controls but didn't worsen in any of the supplemented patients. This is the first clinical study ever to show liver protective effects in NAFLD patients using tocotrienols.³⁸

Another study showed that oral tocotrienols delayed progression of end-stage liver disease in **50%** of liver transplant patients, compared with just **20%** in a group treated with alpha-tocopherol.³⁹ The study also demonstrated good tissue penetration of oral tocotrienols in humans, countering previous reports of poor bioavailability.

Tocotrienols For Neuroprotection

Oxidation, inflammation, and toxicity resulting from normal brain cell activity are all involved in the terrifying progression of cognitive decline. That's why there has been so much interest in vitamin E in general, with its antioxidant effect, and more recently in tocotrienols, with their ability to regulate a wide variety of genes and signaling molecules.

Patients with Alzheimer's disease and those with mild cognitive impairment are more likely than healthy people to have low blood tocopherol and tocotrienol levels.⁴⁰ Conversely, very old people with higher levels of tocotrienols in their blood have a **64%** reduced risk of having Alzheimer's.⁴¹ Tocotrienols are incredibly effective at protecting vital brain circuitry in these conditions.

Animal studies demonstrate the remarkable neuroprotection offered by tocotrienols. A tocotrienol-rich fraction not only protected rats from free-radical-induced brain cell death, but it also reduced DNA damage in brain cells, and improved the animals' performance on various cognitive tests such as mazes and swimming challenges.⁴²

Meet The Vitamin E Family

Vitamin E was first discovered in 1938 as a "fertility factor."⁶¹ During the ensuing years, it was discovered that vitamin E was an antioxidant with value in many different body systems.

Vitamin E can be divided into two groups: *tocopherols*, which is the most well-known form of vitamin E, and the lesser-known *tocotrienols*.⁶⁷

The tocopherol group has received the most attention since the vitamin's discovery. This group contains members called alpha-, beta-, gamma-, and delta-tocopherol.⁷ They are all important nutrients.

The second group in the vitamin E family is the tocotrienols, which until recently received little scientific attention. Even today, less than **1%** of the literature on vitamin E is devoted to tocotrienols. The family resemblance is still close: Tocotrienols exist in the same four configurations (alpha, beta, gamma, and delta), and differ from their respective tocopherol cousins only by a few chemical bonds.⁶² But those small differences make for differences in function.

Tocotrienols and tocopherols are both antioxidants, but the antioxidant activity of tocotrienols is several times more than tocopherol.^{62,63} Beyond that, tocotrienols modify gene expression, inhibit various enzymes, and carry out functions that tocopherols can't perform.

Tocotrienols have potent anticancer and anti-diabetes abilities, as well as cardio-, neuro-, liver-, and bone-protective actions based on their unique functions in the body.



How Tocotrienols Protect Your Heart

Tocotrienols modulate many different cardioprotective mechanisms. They have been shown to:²⁵

1. Reduce plasma levels of *C-reactive protein* (CRP), which is both a marker of and a cause in the inflammatory response that damages heart and blood vessels.
2. Reduce other inflammatory mediators such as *cytokines*.
3. Reduce *advanced glycation end products* (AGEs) arising from elevated blood sugar that damage vessels and tissues.
4. Reduce expression of adhesion molecules that cause platelets and white blood cells to stick to vessel walls, potentially blocking them.
5. Suppress expression of *matrix metalloproteinases* (MMPs) involved in the spread of certain cancers.
6. Reduce risk factors for destabilizing atherosclerotic plaques (such plaques, when unstable, readily burst, often blocking the artery and producing heart attack or stroke).
7. Reduce ischemia/perfusion injury to brain and heart muscle; this kind of injury subjects already vulnerable tissues to a blast of oxygen radicals, just when the tissue was beginning to heal.⁶⁴
8. Suppress, regress, and slow the progression of atherosclerosis.

Alpha-tocotrienol is the most potent neuroprotective form of natural vitamin E.³ It is so incredibly potent that concentrations in the nanomole to attomole range (one-billionth to one-billion-billionth of a mole) block brain cell death caused by prolonged excitatory stimulation by the neurotransmitter *glutamate*.⁴³⁻⁴⁵ Oral supplementation in humans results in tocotrienol plasma concentrations of **3 micromolar**; that's billions of times higher than the concentrations needed in the lab.⁴⁶

Tiny concentrations of tocotrienols, when administered before neurotoxins, led to a sharp reduction in brain cell damage, restoring their normal growth and viability in the laboratory.^{43,47} Most importantly, tocotrienol treatment of cultured brain cells under oxidative stress restores *neurites*, which are tiny projections off the cell that allow for normal cell-to-cell communication.^{48,49}

Tocotrienols For Bone Health

Tocotrienols are rapidly emerging as major contributors to greater bone density and major inhibitors of bone loss.

Postmenopausal women are the leading sufferers of osteoporosis, though older men develop some degree of abnormal bone loss as well.⁵⁰ Long-term anti-inflammatory corticosteroid treatment is an increasingly common cause of bone loss. In addition, research suggests bone loss may be triggered by elevated cortisol levels from stress or smoking.^{51,52}

A host of studies has now established that tocotrienols can prevent, and even reverse, bone loss and promote fracture healing in animal models of osteoporosis from many different causes, including menopause and steroid treatment.⁵³⁻⁵⁵ The mechanisms are surprisingly well-understood.

Tocotrienols are potent antioxidants, which appear to reduce the oxidant-induced inflammation that contributes to bone loss.⁵⁶⁻⁵⁸ Tocotrienols also upregulate genes related to new bone formation, while suppressing inflammatory signaling that generates bone destruction; this activity is not shared by tocopherols.⁵⁹

As we mentioned earlier, tocotrienols inhibit the enzyme HMG-CoA reductase, which is associated with cholesterol production.²⁰ HMG-CoA reductase is also profoundly involved in osteoporosis, favoring bone-resorbing cells over bone-forming ones. By inhibiting HMG-CoA reductase, tocotrienols prevent excessive bone resorption (bone breakdown) and promote new bone formation.^{50,59,60}

Since statins are also powerful HMG-CoA reductase inhibitors, combining statins with tocotrienols has been found to be especially beneficial for bone health. Animal studies have found that combining statins with tocotrienols potentially reduces the statin dose needed—therefore limiting the potential side effects of statins as well.^{50,60}

Summary

Tocotrienols are potent gene regulators and modulators of many enzymes involved in human health, helping to quash the inflammation, glycation, and other processes that contribute to age-related diseases.

Tocotrienols are increasingly being recognized for their potential roles in protecting against cancer, heart disease, stroke, diabetes, liver disease, neurodegenerative diseases, and even osteoporosis. ●

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

Tocotrienols Delay Brain Aging

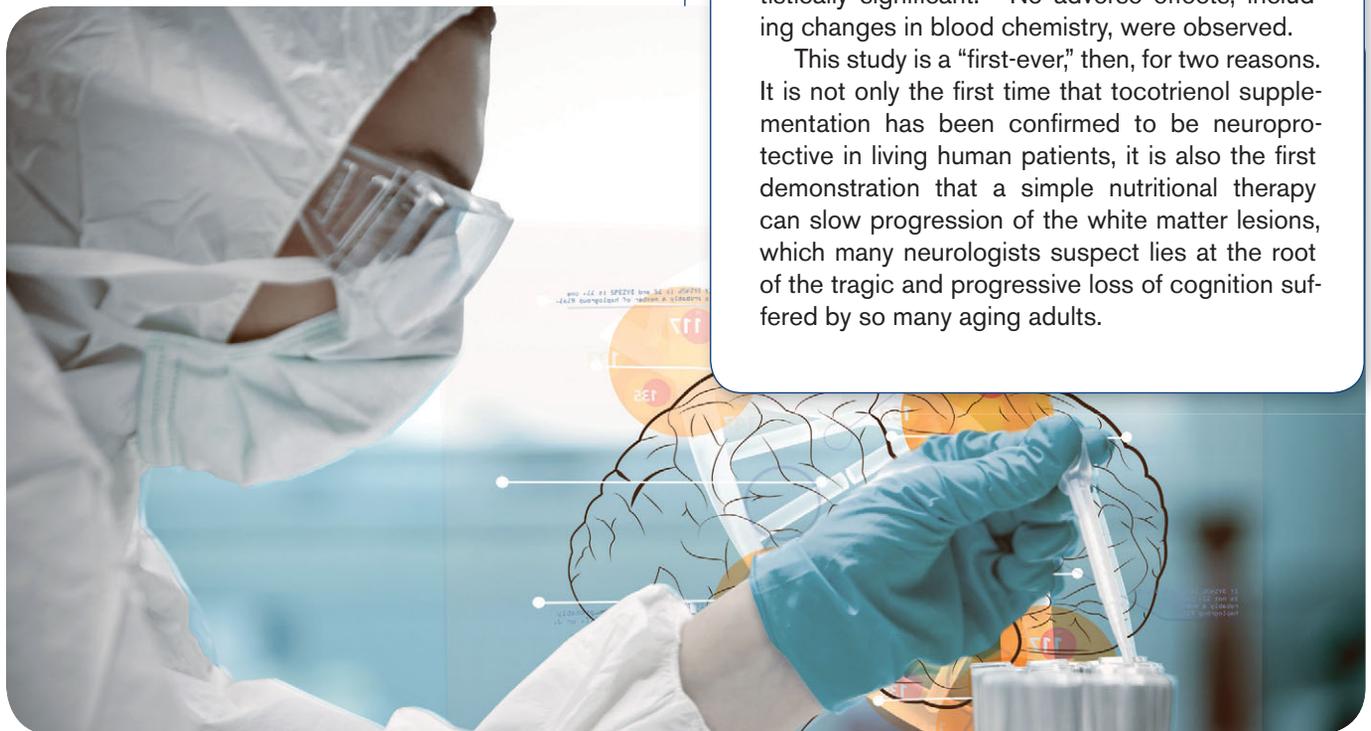
Basic laboratory and animal studies have long supported a role for *tocotrienols* in protecting brain cells and tissue from the ravages of aging.⁶⁶ In these studies, tocotrienols have been closely linked to neuroprotection through their potent antioxidant properties, as well as their ability to redirect the production of inflammatory molecules to non- or even anti-inflammatory actions.^{67,68}

Now, for the first time, these pre-clinical studies have been compellingly validated in a human study of a pervasive form of brain aging known as *leukoaraiosis*, or white matter lesions.¹ In this condition, damage to the endothelial lining of small arteries in the brain is thought to produce tiny areas of poor blood flow, resulting in the condition known as vascular cognitive impairment.^{69,70} If it progresses, stroke, cognitive impairment, gait disturbances, and other conditions may follow.⁶⁹⁻⁷¹

In a study released in April of 2014, researchers randomly assigned a group of volunteers with known cardiovascular risk factors and confirmed white matter lesions in their brains to receive either placebo or a twice-daily dose of **200 mg** mixed tocotrienols.⁶⁶ The study lasted two years.

In the placebo group, as expected, the mean volume of the white matter lesions increased over the two-year study period. But in the tocotrienol group, the volume of lesions remained unchanged, and the differences between the groups was statistically significant.⁶⁶ No adverse effects, including changes in blood chemistry, were observed.

This study is a “first-ever,” then, for two reasons. It is not only the first time that tocotrienol supplementation has been confirmed to be neuroprotective in living human patients, it is also the first demonstration that a simple nutritional therapy can slow progression of the white matter lesions, which many neurologists suspect lies at the root of the tragic and progressive loss of cognition suffered by so many aging adults.



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COGNITEX

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*J Ethnopharmacol. 1997;56:45-54.

References for most can be found at: http://www.lef.org/magazine/mag2007/feb2007_report_cognitex_03.htm

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BY WALTER THOMPSON

Fight IMMUNE DECLINE With **REISHI**

As we age, the steady decline of our **immune system** opens the door for infection and inflammation that underlies heart disease, diabetes, and cancer.¹⁻⁴ Known as *immunosenescence*, the deterioration of a once-vital immune system hastens the decay of our body's defenses and functions.⁵

In the search for remedies to ward off the dangers of **immunosenescence**, researchers have found that the medical mushroom known as **Reishi** contains multiple bioactive components that have a proactive effect on the immune system.

Ancient Chinese physicians discovered the multiple properties of Reishi and it has been used for centuries to promote health and longevity, which earned Reishi the title, "Mushroom of Immortality."^{6,7}

The complex compounds in Reishi have been shown to safely modulate an aging immune system, combat cancer, and reduce some of the causes of cardiovascular disease.^{6,8-12}

FIGHTING IMMUNE DECLINE





Modern scientists utilizing sophisticated technology and laboratory studies are providing evidence backing more than 2,000 years of traditional use in China. Reishi mushrooms contain a multitude of the pharmacologically active compounds that may ward off various factors of aging.⁶

Reishi Balances Aging Immune Systems

A youthful immune system prevents infection by bacterial, viral, fungal, and other organisms, and also conducts *immune surveillance* to track, identify, and destroy abnormal molecular patterns that might indicate an early cancer.¹³ Furthermore, an optimal immune system is capable of slowing and stopping the inflammatory response to an invader once the threat had been neutralized.¹⁴

But over time, the immune system slows down in its normal function. There are three main results of this process known as immunosenescence.

1. First, with a reduced immune function, a person becomes increasingly vulnerable to infections that can produce fatal *pneumonia* in older adults.¹⁵⁻¹⁸ Even with the widespread pneumonia vaccine coverage among elderly people, the death rate continues to climb due to the debilitating effect of immunosenescence and the increase in antibiotic resistance.^{16,19-22} Other infections, such as influenza and herpes viruses, also threaten older adults as their immunity wanes.^{17,23}
2. The second major impact of immunosenescence is an apparent loss of the immune system's ability to identify and destroy emerging cancer cells. Cancer cells display unusual molecular patterns that a healthy immune system routinely recognizes and eliminates.



With a decline in natural immunity, there's an increased likelihood that malignant cells will escape detection and evolve into a full-blown tumor. This is one of the reasons why cancer is largely a disease of older people.^{5,24,25}

3. The third component of immunosenescence is loss of the ability to turn off the inflammatory response once the threat has been eliminated. With the inflammatory response switch left in the "on" position, this type of persistent, low-grade inflammation is potentially at the root of many "diseases" of aging, including cardiovascular disease, neurodegeneration, bone and joint disorders, and again, cancer.²⁶⁻²⁸

The numerous chemical components of the Reishi mushroom exert subtle, but powerful effects that may reverse many of the impacts of immunosenescence.²⁹ Reishi extracts boost the function of dendritic cells, which help other immune cells recognize foreign antigens and destroy them.^{14,29,30}

Reishi also promotes development of B and T lymphocytes, immune cells involved in the production of antibodies and the regulation of immune function.²⁹ Extracts of Reishi enhance development of specialized "natural killer" cells that target viral invaders and cancer cells for destruction.^{8-10,29}

Reishi Targets Age-Related Infections

Reishi mushrooms and their extracts have potent antiviral and antibacterial properties that can help protect the body from deadly microorganisms that threaten health as one ages.

Many of the components found in Reishi have been shown to inhibit infection of herpes simplex, the virus that causes cold sores and genital herpes. It also may defend against herpes zoster, reducing pain associated with shingles and demonstrating a treatment response in several manifestations of the herpes zoster virus in one pilot trial of a Reishi combination formula.³¹ Reishi components directly bind to the viruses,³² interfering with the process in which viruses attach to and enter healthy body cells in order to create an infection.³³ Unlike medications, research showed that Reishi did not cause toxicity to cells.^{34,35}

In patients who had already developed shingles, administration of Reishi extract was shown to dramatically reduce the painful effects of the viral outbreak.³⁶ As with many natural therapies, Reishi is most effective against herpes viruses when it is administered prior to, rather than following, development of the infection.^{33,37}

Influenza viruses are also the targets of Reishi mushroom extracts, which are rich in trace elements like zinc and selenium that are known to be essential for preventing viral infections and mitigating their severity.³⁸⁻⁴⁰ Studies also show that Reishi extracts potentially inhibit the Epstein-Barr virus that causes mononucleosis syndrome and is also strongly implicated in several kinds of lymphomas.⁴¹⁻⁴⁴ And Reishi extracts also target the hepatitis B virus, while protecting the liver against its damaging effects in preclinical research.^{45,46}

Remarkably, Reishi extracts have now been shown to produce a dramatic drop in the number of active virus particles known as “viral load” in monkeys infected with *simian acquired immunodeficiency syndrome* (SAIDS), a model of the human HIV/AIDS disease.⁴⁷ Laboratory studies demonstrate that active compounds from Reishi mushrooms act by inhibiting HIV enzymes called *proteases*: an action similar to that of some of the most successful anti-HIV drugs on the market.⁶ In this context, Reishi mushrooms have been said to have “huge potential for HIV drug discovery.”⁶

Components from Reishi increase the activity of *cell surface receptors* that trigger the release of inflammatory cytokines signaling molecules and thereby helping the immune system identify and destroy bacterial invaders.⁴⁸

Reishi Immunomodulation Slashes Inflammation And Lowers Cholesterol

Inflammation is a major component of atherosclerosis and cardiovascular disease, which promotes the development of cholesterol-containing plaques and increases the tendency of platelets and white blood cells to stick to those plaques, further narrowing and blocking arteries.^{49,50} Reishi mushrooms’ potent immune-modulating properties have been shown to lower these inflammatory stimuli by reducing cells’ ability to stick to vessel walls and preventing the overgrowth of smooth muscle cells that stiffens and “hardens” arteries.^{49,50}

But Reishi components have other means of improving cardiovascular health as well.

Polysaccharides from Reishi significantly reduced triglycerides and total cholesterol (including LDL) cholesterol after 12 weeks of supplementation in rats, while also raising HDL cholesterol levels.^{11,12} In the same experiments, Reishi supplementation lowered markers of oxidation, while increasing natural cellular antioxidant systems. Microscopic examination of the animals’ livers revealed a remarkable reduction in fatty degeneration of liver cells, an inflammatory stage that readily leads to cirrhosis and liver failure.^{11,12,51,52}



What You Need To Know

Reishi Mushroom Boosts Immune Vitality

- Reishi mushrooms were well-known to ancient Chinese practitioners for their wide array of life-giving properties.
- Today’s science reveals that these mushrooms contain myriad bioactive molecules, many of which help boost immune function, helping to reverse immunosenescence, the waning immunity that accompanies advancing age.
- By improving immune function, Reishi mushroom extracts contribute to your body’s ability to protect itself from infections and cancers, while also reducing your risk of inflammatory conditions such as cardiovascular disease.
- Reishi extracts are proving to be a “virtual pharmacy” in a single supplement, one that can favorably affect your health across a broad spectrum of conditions.
- To strengthen and balance your immune system and prevent infection, heart disease, and cancer, give strong consideration to adding Reishi mushroom extracts to your current supplement regimen.



Basic laboratory studies demonstrate that certain “sterol” compounds in Reishi can interfere with the cholesterol synthesis pathway in human cells, diminishing the amount of new cholesterol produced each day.^{53,54} This mechanism is similar to that of the statin cholesterol-lowering drugs, but operates on an entirely different enzyme system.⁵⁵

Human studies with Reishi have been conducted in patients with mild hypertension and elevated blood lipids. While the results showed little change in blood pressure, the researchers found a marked reduction in serum triglycerides and a marked increase in HDL-cholesterol.

Additionally, the Reishi group saw better plasma insulin and insulin resistance results—a major risk factor for later cardiovascular disease development and diabetes—than the placebo group.⁵⁶ Other research showed a reduction in the activity of an enzyme that contributes to elevated blood sugar and lipid levels.⁵⁷

In diabetic rats, which like their human counterparts are at increased risk for atherosclerosis and heart disease, Reishi extract supplementation decreased fasting blood glucose and improved insulin concentrations in a manner comparable with the antidiabetic drugs *metformin* and *rosiglitazone*.^{58,59} The animals given Reishi had lower levels of free fatty acids, triglycerides, and total and LDL-cholesterol, and higher levels of beneficial HDL-cholesterol.⁵⁸

Reishi’s Immunomodulation Protects Against Cancer

Reishi mushrooms have multiple mechanisms by which they fight the development and spread of human cancers.⁶⁰ Studies suggest Reishi mushrooms have six potential anticancer mechanisms.^{61,62} Because

of the numerous bioactive compounds contained in Reishi, many of these mechanisms are somewhat complex. We describe six of Reishi’s known anticancer mechanisms next:

1. Activation and modulation of the host immune system.

Natural killer (NK) cells identify abnormal cancerous tissue and attack it before it develops into a full-blown tumor.⁶³ Immunomodulation is primarily the result of Reishi polysaccharides interacting with immune system cells, especially those in the spleen and the thymus, both sources of aggressive cancer-killing cells.^{9,10,64,65} Animal studies show that Reishi inhibited tumor growth and prolonged the lifespan of mice bred to carry cancers. Reishi stimulated normal immune function, even when the animals were treated after the tumors had developed.⁶⁶

A preparation of Reishi extract markedly increased the ability of immune system cells to surround and destroy tumor cells in mice bearing a variety of human cancers. The extract also prevented the decrease in immune system function caused by exposure to ionizing radiation.⁶⁷ Reishi polysaccharides also inhibit adhesion of the “coating” protein fibrinogen to cancer cells. This makes cancer cells more vulnerable to destruction by stripping them of the protection naturally afforded by fibrinogen, and making the cells more accessible to NK cells that can destroy them.⁸

Another compound from Reishi appears to bind to specialized cell receptors that trigger a sequence of events resulting in the destruction of malignant cells.⁶⁸ And a series of unique long-chain fatty acids from Reishi is also able to modulate antitumor responses.^{69,70} Even Reishi proteins may play an active role in the inhibition of tumor cell growth.⁷¹

2. Direct killing of cancer cells.

Studies show that Reishi components not only decrease numbers of tumor cells, but also inhibit their ability to form colonies that spread into healthy tissue, while leaving healthy cells unaffected.^{72,73} These effects are powerful enough to augment the activity of the chemotherapy drug *cisplatin*.⁷²

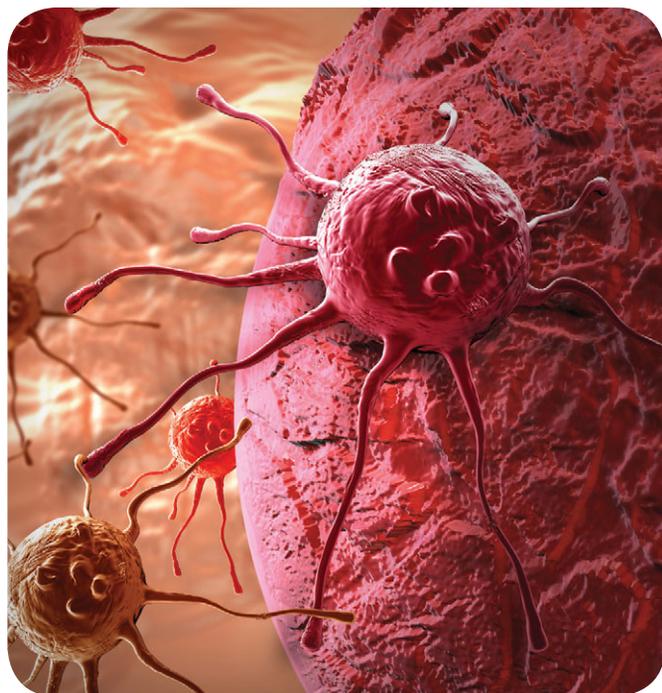
3. Inhibition of new blood vessel formation (angiogenesis).

Studies show that a polysaccharide/protein-like molecule from Reishi inhibited new vessel formation by up to **40%** in a laboratory model of angiogenesis.⁷⁴

4. Inhibition of cancer cell proliferation and invasion (metastasis).^{61,64,75}

Reishi mushroom components reduce inflammatory signaling and estrogen receptor signaling in breast cancer cells, taking away two of the most potent promoters of cancer cell proliferation.^{76,77} In prostate cancer cells, Reishi induces a decrease in inflammatory signaling and slows cell proliferation.^{60,78} Reishi extracts also cause “cell cycle arrest,” in which the cell replication cycle becomes “locked” in one phase, making further replication impossible and stopping the growth of the tumor.^{72,79-82}

An important component of Reishi, *ganoderic acid*, has been shown to inhibit tumor invasion by its ability to block a “protein-melting” enzyme called *matrix metalloproteinase*, or MMP.⁸³⁻⁸⁶ Cancer cells use MMP to dissolve away the protein matrix between normal



cells, allowing them to squeeze their way through barriers and invade nearby tissues, and even enter the bloodstream to form metastases far away from the original tumor.^{86,87} Ganoderic acid has been shown to both inhibit prostate cancer cell growth and create an environment in bone tissue that is not favorable for the spread of the cancer.⁸⁸

5. Deactivation of carcinogens.

This process protects cells from damage that may initiate cancer development.⁶¹ When rats were exposed to the powerful colon carcinogens *azoxymethane* or *PhIP*, those treated with higher doses of Reishi extract developed significantly fewer and/or smaller tumors than those given the carcinogen only.^{89,90} Similarly, fewer tumors developed in the lungs of rats treated with a lung carcinogen when the animals were treated with Reishi extracts.⁹¹

6. Promotion of programmed cell death (apoptosis).

With the process of programmed cell death (apoptosis), normal cells die when their useful lives are over. However, some cancer cells lose the ability to die off by apoptosis, and instead continue to proliferate endlessly, taking over healthy cells and organs.^{92,93} By increasing apoptosis, this kind of accelerated cancer cell death has been demonstrated in human cervical cancer and other cell lines after treatment with Reishi extracts, especially those containing *ganoderic acid*.^{62,72,94}

These six specific properties have made Reishi extracts of special interest to oncology researchers who are studying highly aggressive and invasive cancers, especially of the breast and prostate.^{60,95,96} Inflammatory breast cancer is one such condition in which malignant cells do not form a cohesive tumor mass in the breast, but rather spread rapidly by forming tiny “spheroids” of cells that travel through the blood and lymphatic system, resulting in the appearance of multiple metastases throughout the body.^{97,98} Reishi’s ability to inhibit many of the steps in metastatic spread is now being actively explored as a means of stopping such deadly, invasive cancers.⁹⁵⁻⁹⁷

Today, Reishi mushrooms’ combined anticancer activities have been demonstrated in studies of lung, breast, prostate, ovarian, cervical, and colon cancers, both for prevention and for treatment of these devastating malignancies.^{62,64,88-91,94,97,99} Early clinical trials are especially encouraging.

One study in a group of 30 patients with advanced-stage cancer showed that **1,800 mg** of a Reishi polysaccharide extract three times daily produced a sharp increase in immune function, including increases in



tumor-fighting *interleukin-2* and *interferon-gamma* and in natural killer cell activity.¹⁰⁰ And another study in patients with precancerous colon lesions called *colorectal adenomas* demonstrated that a supplement dose of **1,500 mg/day** of a Reishi extract for 12 months *decreased* the rate of appearance of at least one adenoma by **52%** at 12 months; in contrast, the group receiving placebo experienced an *increase* in the rate of incidence of at least one adenoma by a dramatic **42%** at 12 months. In this study, there was also a *decrease* in total size of tumors of **1.40 mm** in supplemented patients, with an *increase* of **1.73 mm** in untreated controls.¹⁰¹ The typical dose for normal aging people is about **1,000 mg** each day of **standardized Reishi extract**, along with other natural components of the Reishi mushroom.

Summary

Chinese medical practitioners have long recognized the value of the medicinal **Reishi** mushroom, and used it to promote healthy, long lives in their patients. Modern science has revealed the virtual pharmacy contained inside these mushrooms, which contain a broad array of biologically active molecules.

Chief among the benefits of Reishi mushrooms is their ability to counteract **immunosenescence**, the aging and gradual loss of immune function. Immunosenescence raises risk for infection, cancer, and cardiovascular disease.

Studies now convincingly demonstrate the value of Reishi mushroom extracts in combating the very infections that most prominently threaten our health as we age, by boosting functions of immune system cells that identify, track, and destroy infectious agents. Similar immune-boosting effects from Reishi extracts

help the immune system recognize the abnormal molecular patterns that mark cancer cells, helping to eliminate them before they mature into malignant tumors. Reishi extracts also act on the other extreme of the immune system, helping to end the overactive inflammation that contributes to cardiovascular 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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THE NEXT OMEGA...



Are You Getting Your **OMEGA-7**?

**PROVINAL® Purified Omega-7 From Highly Purified Fish Oil
Supports Healthy Metabolic Factors**

Omega-3s are already a part of Life Extension® members' health routines and are recognized for their many benefits. But scientists are increasingly excited about the newly discovered effects of a little known family of "good fats"—**omega-7** fatty acids.

Rather than replace omega-3s, the **omega-7** fatty acid **palmitoleic acid** has been shown to powerfully complement omega-3s with its unique cellular-signaling properties that directly support healthy metabolic factors associated with:

- Superior **cardiovascular** health,^{1,2}
- Healthy **inflammatory** response,^{1,3,4}
- Optimum normal metabolism of **glucose** and **insulin**,^{1,5,6} and
- Beneficial modulation of **hunger** and **satiety**.^{7,8}

Unique Cell-Signaling Support

Palmitoleic acid is a monounsaturated **omega-7** that has been identified as a **lipokine**—meaning a lipid-controlling hormone—making it an incredibly unique fatty acid.⁹

Scientific studies have shown that the cell-signaling and metabolic support provided by **palmitoleic acid** promotes healthy levels of **triglycerides**, **total cholesterol**, **LDL**, and **HDL** already within normal range—after just one month of **210 milligrams** of daily **palmitoleic acid** supplementation.¹⁰

Studies also show that within normal ranges, palmitoleic acid helps balance **C-reactive protein** levels, a marker of whole-body inflammation;¹⁰ optimizes **insulin sensitivity**;^{11,12} and regulates levels of satiety-promoting and hunger-promoting gastric hormones.^{7,8}

Advanced Purified Omega-7

Conventional processing methods result in omega-7 products containing only about **25%** of **palmitoleic acid**. But **Provinal® Purified Omega-7** is concentrated to **50%** beneficial **palmitoleic acid**. This purifying technique also enables superior **palmitoleic acid** availability.

Convenient One-Per-Day Dosing

The suggested daily dosage of one softgel of **Provinal® Purified Omega-7 softgel** provides:

Palmitoleic Acid (Omega-7)	210 mg
[from Provinal® highly refined anchovy and/or menhaden oil] (non-GMO)]	

A bottle of 30 softgels of **Provinal® Purified Omega-7** retails for \$27. If a member buys four bottles, the price is reduced to **\$18** per bottle.

Provinal® is a registered trademark of Tersus Pharmaceuticals, LLC.

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Top Off Your TESTOSTERONE *Naturally*

Low Testosterone Levels May Lead to:

Reduced Sex Drive • Less Energy
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Cardiovascular Issues

Maintaining healthy testosterone levels is one of the most important steps you can take to regain your health and improve your performance. With research showing that by the time a man is 60 years old, he may produce 60% less testosterone than he did in his 20s, the time is now to add Life Extension®'s Super MiraForte with Standardized Lignans to your supplement regimen.



Each daily dose of Super MiraForte with Standardized Lignans contains the following testosterone supporting ingredients:

1,500 mg	Chrysin
15 mg	Bioperine®
850 mg	Muira puama
282 mg	Nettle root
15 mg	Chelated elemental zinc
320 mg	Maca
33.4 mg	HMRLignan™
	Norway Spruce lignan extract



Item # 01698

The retail price for a bottle of 120 capsules of **Super MiraForte with Standardized Lignans** is **\$62**. If a member buys four bottles, the price is reduced to **\$42** per bottle.

To order Super MiraForte with Standardized Lignans call 1-800-544-4440 or visit www.LifeExtension.com

Super Health. Super Libido.
Super MiraForte.

Caution: If you are taking any medication, use only under physician supervision. Men with existing prostate cancer may not be able to use this product. Elevations in free testosterone can unmask an occult (hidden) prostate cancer. Anyone with this concern should have a baseline PSA prior to using this product and a follow-up PSA test 60 days later. If a significant elevation of PSA is found, discontinue this product and advise physician. Do not take more than 15 mg per day of Bioperine®.

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Reishi Mushroom

Boosts Immune Vitality



Item# 01708

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Mushroom Complex, call 1-800-544-4440
or visit www.LifeExtension.com

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Reishi mushroom, a medicinal mushroom used for centuries in traditional Chinese medicine, was known as “the mushroom of immortality.”¹ Science has now confirmed what the ancients knew—**Reishi** boosts immune vitality. Its broad-spectrum benefits have been demonstrated in thousands of studies.²

Reishi supports a healthy immune system. An abundance of evidence demonstrates that **Reishi** mushroom enhances the protective activity of the body’s crucial immune factors.³⁻¹⁰ The **Reishi** mushroom also supports the body’s production of antioxidant enzymes— such as *superoxide dismutase* (SOD), *catalase*, and *glutathione*— which, in turn, support the body’s natural immune defenses against free radical damage!^{11,12}

Reishi Extract Mushroom Complex delivers powerful compounds thanks to an advanced extraction technology. This *full-spectrum Reishi* extract has multiple components that have been shown to support healthy immune function and enhanced longevity in an experimental aging model.¹³

The suggested 2 capsules a day of Reishi Extract Mushroom Complex provide:

Reishi mushroom (<i>Ganoderma lucidum</i>) extract (Fruit body) [standardized to 13.5% polysaccharides (132.3 mg) and 6% triterpenes (58.8 mg)]	980 mg
Shell-broken Reishi mushroom (<i>Ganoderma lucidum</i>) spore	150 mg

A bottle containing 60 vegetarian capsules of **Reishi Extract Mushroom Complex** retails for **\$30**. If a member buys four bottles, the price is reduced to **\$20.25**.



Item # 01596

Your Skin's Internal Moisturizer

Ceramides are essential for preserving healthy-looking skin.^{1,2} That's why they're included in so many anti-aging face creams.

Your body's production of **ceramides** declines with age.³ That's bad news, since ceramides make up **35-40%** of the binding matrix that maintains moisture balance and protects the skin's surface.⁴ It's therefore critical that ceramides lost to aging are replaced.

Restore Ceramides Naturally from Within!

The **ceramides** that young skin naturally produces to retain its supple appearance are identical to those present in **wheat!**

Wheat-derived oils have been used *topically* for centuries as a natural moisturizer. But you can't get enough ceramides from topically applied wheat oil to have a long-term impact on your skin's appearance. And they don't appear in sufficient concentration in your diet.

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

Lipowheat® is a proprietary **ceramide blend** that offers *nutritional* support for aging skin to complement the topical products you may already be using.

The Moisturizing Pill the Japanese Have Enjoyed for a Decade!

Lipowheat® ceramides have been available to Japanese women as a functional food since 2000.⁵ The hydrating action of **Lipowheat**® ceramides have proven effective in clinical trials.

Aging Americans can now offset the visible impact of the gradual decline in their ability to produce enough ceramides by using **Skin Restoring Phytoceramides with Lipowheat**®.

One bottle containing 30 **350 mg** vegetarian liquid capsules of **Skin Restoring Phytoceramides with Lipowheat**® retails for \$25. If a member buys four bottles, the price is reduced to **\$17.25**.

Contains wheat.

Lipowheat® is a registered trademark of LAVIPHARM Group of Companies.

To order **Skin Restoring Phytoceramides with Lipowheat**®
call **1-800-544-4440** or visit **www.LifeExtension.com**

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ASK THE PHARMACIST

BY KIMMI STULTZ, PHARM.D., CPH

Beta-Blockers Cause Lack Of Restful Sleep



Q: My doctor prescribed *atenolol* (**Tenormin**[®]) to lower my blood pressure. Ever since I started taking it, I constantly feel fatigued and lethargic, yet at night I don't get any restful sleep. Why is this and what can I do?

A: Atenolol is a beta-blocker commonly prescribed for patients with cardiovascular disease and hypertension. Beta-blockers, also known as beta-adrenergic blocking agents, reduce the effects of *catecholamines* (norepinephrine and epinephrine, the fight-or-flight hormones). This in turn slows the heart rate, relaxes blood vessels, and improves conduction signals in the heart, thereby lowering blood pressure.^{1,2}

Unfortunately, this can lead to adverse side effects since beta-receptors affect multiple metabolic and physiologic functions.^{3,4} Common side effects associated with the use of beta-blockers include fatigue and sleep disturbances.⁵⁻⁷

Beta-Blockers And CoQ10 Deficiency

Beta-blockers have been shown to block the biological pathway of coenzyme Q10-dependent enzymes in the body.⁸ This interferes with energy production and protection against free radicals, contributing to fatigue.^{8,9} This drug-induced depletion may be particularly serious in the elderly, who already suffer from a natural age-related CoQ10 deficiency. CoQ10 is a mitochondrial enzyme essential for the production of *adenosine triphosphate* (ATP), the core of cellular energy processes.¹⁰⁻¹³ A 2009 clinical study showed a close correlation between lowered levels of CoQ10 and its role in the pathophysiology of chronic fatigue as a direct result of mitochondrial dysfunction.¹⁴

Levels of CoQ10 naturally decline with age. While adults over the age of 30 can benefit from taking CoQ10 supplements, they are especially important for

people with cardiovascular concerns, and those who take certain blood pressure medications like beta-blockers.¹⁵⁻¹⁸ *Ubiquinol* (the active form of CoQ10) has a much greater bioavailability than *ubiquinone* (the oxidized form), helping to improve metabolic efficiency of the cardiovascular system to maintain heart health.¹⁹ Based on a meta-analysis of published scientific research, therapeutic doses of ubiquinol range between **100 to 200 mg** daily, but may be increased if conditions warrant.⁹

Beta-Blockers And Melatonin

Beta blockers have long been associated with sleep disturbances such as difficulty falling asleep, staying asleep, and insomnia. They have been shown to reduce the production of melatonin via specific inhibition of *beta-1 adrenergic receptors*. Melatonin is a hormone secreted by the pineal gland in the

brain, and helps in maintaining normal circadian rhythms.^{6,20-21} People with hypertension already have a lower melatonin production rate than those with normal blood pressure.²²

According to the Centers for Disease Control and Prevention, insufficient sleep is a public health epidemic. Persons experiencing sleep insufficiency are also more likely to suffer from chronic diseases such as hypertension, diabetes, depression, obesity, and cancer. They're also at risk of increased mortality and reduced quality of life and productivity.²³

Clinical data indicates melatonin not only plays a significant role in regulating our sleep-wake cycle, it also plays a part in protecting against cardiovascular disease, neurological disease, and other diseases related to aging.²⁴ Melatonin's universal action on oxidative stress through its scavenging and antioxidant effects plays a role in several metabolic functions influencing virtually every living cell. Scientific evidence from the last 15 years has suggested that melatonin has positive effects on the cardiovascular system. The administration of melatonin doses typically ranges from **500 mcg** to **5 mg** nightly to promote sleep.²⁵⁻²⁷

Beta-blockers deplete nutrients that are essential to the metabolic activities of every cell in the body. The bottom line here is that we need to be aware of medications that could potentially create an imbalance in your nutritional status and correct them. ●

Note: Altering your dose or discontinuing any of your prescription medications should always be done under the care and supervision of your physician.





Kimmi Stultz is a member of the American Pharmacists Association Foundation, American Academy of Anti-Aging Medicine, and a clinical pharmacy educator for the Life Extension Foundation®.

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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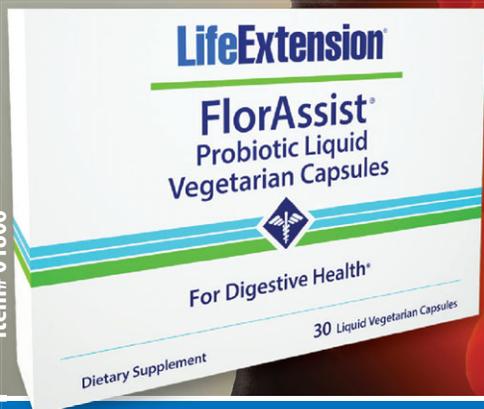
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AUTHOR INTERVIEW

BY DANIEL G. AMEN, MD

Unleash The Power Of The Female Brain

Renowned neuropsychiatrist and best-selling author Dr. Daniel Amen has written his first book specifically addressing the female brain. He gives a comprehensive and much-needed guide to understanding a woman's unique brain and its strengths (intuition, empathy, multitasking, collaborating) and vulnerabilities (anxiety, depression, a tendency to worry). In the pages of *Unleash the Power of the Female Brain*, Dr. Amen discusses strategies women can use for peak brain performance, including what supplements to take, how to balance their hormones, and what lifestyle changes may lead to increased brain health.

LE: While there is an enormous amount of information in your book about how women can improve their brains, you mention some specific laboratory tests that women should get and monitor, including a vitamin D blood test and a *homocysteine* blood test. Why are they so important?

Dr. Amen: Low levels of vitamin D have been associated with obesity, depression, cognitive impairment, heart disease, reduced immunity, cancer, psychosis, and all causes of mortality. Two-thirds of the population is low in vitamin D; this is the same percentage of US residents who are overweight or obese.

LE: What about homocysteine?

Dr. Amen: Elevated homocysteine levels in the blood have been associated with damage to the lining of the arteries and atherosclerosis as well as an increased risk of heart attack, stroke, blood clot formation, and possibly Alzheimer's disease. This is a sensitive marker for B vitamin deficiency, including folic acid deficiency. Replacing these vitamins often helps return the homocysteine level to normal.

LE: One of the chapters in your book is titled, "Balance Your Hormones to Boost the Female Brain." What is the relationship between hormone levels and brain function?

Dr. Amen: There is a very strong mutual influence between hormones and the brain. The brain produces signals that trigger hormones, and hormones from other parts of the body also influence the brain. For example, when thyroid activity is low, brain activity is typically low as well. That's why a low thyroid often goes along with depression, irritability, and brain fog. Balanced hormones are critical to your brain's well-being.

LE: While there are several hundred hormones that affect the brain, you mention about a half-dozen that are the most important. Namely estrogen, progesterone, testosterone, thyroid, cortisol, DHEA, and insulin. However, you spend a lot of time on estrogen. What makes estrogen so critical?

Dr. Amen: Healthy levels of estrogen make you feel good. Too much estrogen can make you feel anxious and irritable. Estrogen withdrawal makes you feel anxious

and confused. It's the rise and drop in estrogen that drastically affects your mood, and the more erratic your particular fluctuation is, the more upset it can make you. These problems become worse during perimenopause and menopause, when estrogen levels wane.

LE: What are the symptoms of excess estrogen levels?

Dr. Amen: Puffiness, heavy bleeding, fibrocystic breasts, low libido, cravings for carbohydrates, weight gain around the hips, vaginal or oral yeast, mood swings, tender breasts, and headaches or migraines.

LE: And what are some symptoms of low estrogen levels?

Dr. Amen: Weight gain, bladder incontinence and infection, mood changes or depression, insomnia, low libido, heart palpitations, osteoporosis, painful intercourse, foggy-headedness, irritability, fatigue, weepiness, hot flashes, and pain.

LE: Fortunately, you mention some foods that can help improve the conversion of estrogen into good metabolites, or metabolites that can easily be excreted. What are they?

Dr. Amen: There are great foods that can help improve the conversion of estrogen into good metabolites away from bad ones. These foods include insoluble dietary fibers, such as lignans found in green beans, peas, carrots, seeds, and Brazil nuts. The reason that dietary fiber, especially lignans so beneficial is that it can bind harmful estrogens into the digestive tract, so they can be excreted in the feces instead of

being reabsorbed. Dietary fiber also improves the composition of intestinal bacteria so that harmful estrogen metabolites can be excreted from the body.

LE: And can you quickly explain why sugar and simple carbohydrates are so detrimental to brain health and overall health?

Dr. Amen: Sugar and simple carbohydrates cause unfriendly flora to grow in the gastrointestinal tract and disrupt estrogen metabolism. These foods also raise blood sugar and insulin levels, resulting in adverse influences in sex hormone balance. Too many simple carbohydrates have been associated with postmenopausal breast cancer risk among overweight women and women with a large waist circumference.

LE: There are some dietary supplements that you recommend women begin taking to improve their estrogen imbalance, including omega-3 fatty acids and melatonin. How are they beneficial?

Dr. Amen: Omega-3 fatty acids contain EPA, which has been reported in laboratory studies to help control estrogen metabolism and decrease the risk of breast cancer. Eating grass-fed organic beef also supplies these fats. Melatonin levels decline with age and may lead to sleep disturbances common during menopause. Melatonin has been shown in laboratory studies to inhibit the growth of breast cancer cells. It also acts as an anti-inflammatory and antioxidant in the brain and other tissues like the intestine.

LE: You discuss a lot of instances where hormones affect overall mood. In particular, you state

that low progesterone can lead to a host of unsettling symptoms for women. Can you expand on that a bit?

Dr. Amen: Progesterone can fluctuate greatly in women who are in their late thirties and forties, making them feel anxious and irritable. Often, progesterone cream can be very helpful under the care of an experienced health care provider.

LE: What are some things that produce low levels of progesterone?

Dr. Amen: Progesterone production can decrease with low levels of thyroid hormone, the use of antidepressants, chronic stress, deficiencies in the vitamins A, B6, C, or zinc, and a diet high in refined sugar. Chasteberry has been found to help support healthy progesterone levels. It can also be taken to reduce the symptoms of PMS and endometriosis (**20-40 mg** a day).

LE: Low levels of DHEA can also wreak havoc on a woman's system. Why is that?

Dr. Amen: One of the most important reasons to measure DHEA is that low levels in combination with high cortisol levels put you at risk for memory loss. Originally, it was thought that high cortisol was the culprit in damaging the *hippocampus*, the brain's major learning and memory center, but new studies report that people with Alzheimer's have lower DHEA levels. When DHEA drops, the protective effects of DHEA on the brain are lost.

LE: How can women combat this problem?

Dr. Amen: If your DHEA is low, it can easily be supplemented. There is good evidence that validates DHEA supplementation to help support adrenal gland function and your weight. DHEA is usually well-tolerated, but there can be some unpleasant side effects like acne and facial hair owing to the tendency of DHEA to increase testosterone levels. These can be avoided by using a specific metabolite of DHEA called 7-Keto-DHEA.

LE: Are there any other supplements that might be helpful to the adrenal system?

Dr. Amen: B vitamins support the adrenal system and can help you deal with stress. *5-HTP* is a calming supplement that boosts serotonin levels and can support sleep so that you feel less stress, which can also help with weight loss. Also, L-theanine, Relora, magnesium, holy basil, ashwagandha, and rhodiola have been shown to be useful.

LE: In addition to supplements that can support hormone levels and protect the brain, you have a section in the book titled "Amen Clinics' Nine Rules of Brain-Healthy Eating." People should absolutely buy the book for the complete list of rules, but you mention a few specific foods that readers may find are interesting in terms of how much benefit they offer. Hemp seeds and raw cacao come to mind. Why are they so beneficial?

Dr. Amen: Raw cacao is loaded with antioxidants and is high in flavonoids, which are substances shown to increase blood flow, magnesium, iron, chromium,

zinc, copper, and fiber. It can also decrease cravings and balance blood sugar. But eat only a small amount of dark chocolate or it will turn to fat.

LE: And what about hemp seeds?

Dr. Amen: Hemp seeds are high in protein, contain all essential amino acids and fatty acids, and are high in omega-3s and healthy omega-6s (including gamma-linolenic acid, which has anti-inflammatory properties).

LE: From what foods to eat, to what supplements to take, to stress-relieving strategies and hormone balancing advice, *Unleash the Power of the Female Brain* is a must-read for women of all ages. Thank you. ●

Daniel G. Amen, MD, is a physician, double-board-certified psychiatrist, teacher, and eight-time *New York Times* best-selling author. He is widely regarded as one of the world's foremost experts on applying brain imaging science to everyday clinical practice.

Dr. Amen is the founder of Amen Clinics in Newport Beach and San Francisco, California; Bellevue, Washington; Reston, Virginia; Atlanta, Georgia; and New York City. To order a copy of *Unleash The Power of The Female Brain*, call 1-800-544-4440 or visit www.LifeExtension.com
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WELLNESS PROFILE

BY JON FINKEL

Dr. Dennis Goodman

A Man On A Mission To Promote Magnesium



DR. DENNIS GOODMAN

Cardiologist Dennis Goodman, MD, could not get rid of the nagging feeling he was experiencing as he did rounds in the hospital. Day after day, he was treating heart patients and helping them live longer, but increasingly he had the sense that he was simply putting out a fire with the medical treatments he had to offer. The *root causes* of heart problems, he felt, were simply not being addressed.

“I had that sense that I was taking care of people who were already in deep trouble,” says Dr. Goodman, a board-certified cardiologist who trained at Baylor College of Medicine in Houston, Texas. “It got to the point where I kept thinking about how we can prevent this stuff in the first place. I had this sense of starting to focus on what people can do themselves to keep themselves healthy before you have to come to the doctor with an acute problem.”

Dr. Goodman graduated *cum laude* from the University of Cape Town Medical School in Cape Town, South Africa. He completed his residency in Pittsburgh, did his fellowship at Baylor, and is currently a Clinical Associate Professor of Medicine at New York University and the Director of Integrative Medicine at New York Medical Associates in Manhattan.

“What makes people healthy is what we eat, being active, and stress management, which includes avoiding things that create inflammation in the body,” Dr. Goodman says. “There’s also a huge component of illness that is psychological. I started to look at things we can do to minimize oxidative stress and how we can deal with the stresses that everybody faces.”

Zeroing In On Magnesium

“People are unaware of how important magnesium is,” Dr. Goodman says. “And it’s all too common *how* deficient people are. When I tell patients that they have the classic symptoms of magnesium deficiency, which can be very non-specific, ranging from fatigue, insomnia, palpitations, and things people just attribute to everyday life, they don’t understand it. Then I prescribe them something as simple as magnesium and they come back and can’t believe how well they’re feeling.”

Dr. Goodman points out that since humans don’t make magnesium, we need to take it in because it is crucial to so many bodily functions. The right level of magnesium can help avoid heart attacks, lower blood pressure, halt muscle cramps, relieve insomnia, and boost calcium absorption.

So why don’t more people know about it?

“That’s the question I began asking when I decided to write *Magnificent Magnesium—Your Essential Key to a Healthy Heart and More*,” he says. “How do we get educated if there is no company to pay for advertisements and if Big Pharma isn’t benefiting from getting the word out?”

Even in medical schools, Dr. Goodman says that magnesium does not get put in the proper place based on its importance. He laments that doctors don’t even hear about it unless they have a specific interest in nutrition and learn about it themselves.

Spreading The Word

“One of the reasons I wanted to write this book was to spread the word about magnesium,” Dr. Goodman explains. “I wanted to come to *Life Extension*® and places that understand how important these things are.”

Another facet of Dr. Goodman’s magnesium mission is to help people lessen the number of prescription medications they are currently

taking. For instance, a lot of people have high blood pressure, yet one cause of magnesium deficiency is high blood pressure. Many doctors will simply prescribe a blood pressure lowering medication, which may then cause side effects that require additional drugs, and a vicious cycle begins.

“You start with the pills and then it is one pill for this and one pill for that, and then all of a sudden you’re on 10 pills,” he says, describing a situation that is all too common. “And they just came out with a recommendation that more people should take statins... I say before medication, we talk about lifestyle changes and nutrition. Let’s start with a low-salt diet, exercise, and magnesium. To me, that’s a lot better than taking drugs. Also, it allows people to take their health in their own hands.”

Common Health Conditions That Benefit From Magnesium:

- Asthma
- Chronic Fatigue Syndrome
- Chronic Pain
- Depression
- Fibromyalgia
- GI Problems
- Headache And Migraine
- Heavy Metal Toxicity
- Kidney Stones
- Osteoporosis
- Sleep Disorders





A Golden Opportunity

One of the reasons Dr. Goodman is so excited about the current era of modern medicine is that little-known vitamins and minerals like magnesium are finally getting their due. With the Internet and social media, people have more ways than ever to do their own research, find their own books and blogs, and seek out ways to intervene in their own health management. He points to the rise in awareness of the importance of vitamin D as a perfect example. Whereas a decade ago, the general public couldn't differentiate D from any of the other vitamins, nowadays, it is becoming standard for people to ask about their own vitamin D levels.

"We all check vitamin D now," he says. "The day is coming when we'll check magnesium red blood cells. It is such an easy test to repeat."

And it's also an easy deficiency to correct. Magnesium is found in green leafy vegetables, almonds, and pumpkin seeds. However, the levels of magnesium in these foods isn't as high as it once was.

"The problem is that the soil is deficient in so many places and you could be eating large amounts of these foods and not be getting enough magnesium," he says. "You need to buy organic forms of these foods or buy them from a farmer's market."

If you want to make sure you're hitting your magnesium marks, in addition to consuming the above foods, you can always add a high-quality magnesium supplement to your regimen.

"As a maintenance dosage I recommend **3 mg** per pound of body weight," Dr. Goodman says. "But that's for maintenance. If you're stressed out and there is inflammation in your system, you can go up to **5 mg** per pound of body weight."

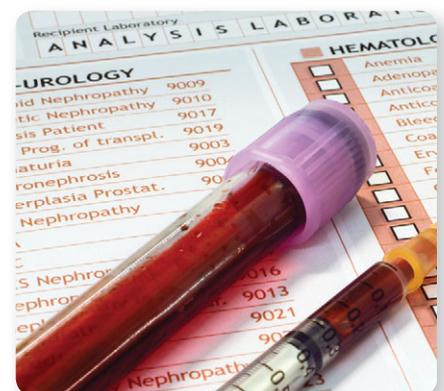
In his book, *Magnificent Magnesium*, Dr. Goodman outlines a comprehensive plan for supplementing with magnesium, as well as all of the benefits that can be obtained from maintaining proper levels. One of the major points he focuses on is the area of heart health, where he builds a bedrock case for understanding heart disease and how a deficiency of magnesium may play a role in exacerbating or even causing some of our nation's most common cardiac problems.

The guidelines Dr. Goodman sets forth in his book are a must-read for anyone looking to take control of their heart and total body health.

"As always, talk to your doctor before you start taking any new supplement," he says. "But when it comes to magnesium, after reading my book, it's possible you may educate him!" ●

To order a copy of
Magnificent Magnesium,
call 1-800-544-4440 or
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TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT

FOR DNA PROTECTION

Scientists continue to discover healthful benefits—including DNA protection—in **cruciferous vegetables** such as broccoli, cauliflower, cabbage, watercress, and Brussels sprouts. Unfortunately, no matter how healthy you eat, cooking destroys many of these protective plant extracts.

Triple Action Cruciferous Vegetable Extract combines cruciferous plant extracts into a comprehensive formula for optimal DNA protection.

Protective compounds found in cruciferous vegetables like **I3C** (*indole-3-carbinol*) and **DIM** (*di-indolyl-methane*) encourage liver detoxification to help neutralize dangerous xenoestrogens (estrogen-like environmental chemicals that damage the body's hormonal system), as well as beneficially modulate estrogen metabolism.¹⁻⁴

Extracts of **broccoli**, **watercress**, and **rosemary** also provide bioactive compounds that have a multitude of favorable effects on estrogen metabolism and healthy cell division.⁵⁻⁸ **Apigenin**, a powerful plant flavonoid found in plants such as parsley and celery, boosts cell protection.⁹

For those weighing less than 160 pounds, just one capsule a day provides optimal potencies. Those weighing over 160 pounds should consider taking two capsules a day. A bottle containing 60 vegetarian capsules of **Triple Action Cruciferous Vegetable Extract** retails for **\$24**. If a member buys four bottles, the price is reduced to **\$16.50 per bottle**.

Those who want the added benefits of **trans-resveratrol** can order **Triple Action Cruciferous Vegetable Extract with Resveratrol**. Each capsule provides **20 mg** of *trans-resveratrol* in addition to the vegetable extracts and retails for **\$32** per 60-capsule bottle. If a member buys four bottles, the price is reduced to **\$22.20 per bottle**.

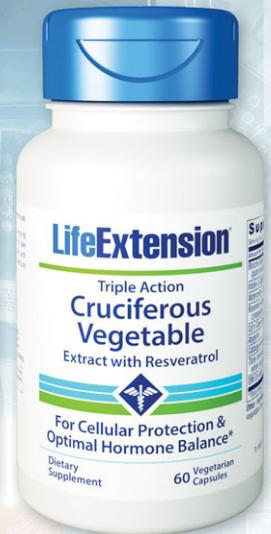
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To order Triple Action Cruciferous Vegetable Extract, call 1-800-544-4440 or visit www.LifeExtension.com



Item # 01468



Item # 01469

Triple Action Cruciferous Vegetable Extract provides the following ingredients in just one vegetarian capsule:

Broccoli Extract [standardized to 4% glucosinolates (16 mg)]	400 mg
Watercress 4:1 extract	50 mg
Indole-3-Carbinol (I3C)	80 mg
Rosemary Extract	50 mg
Cat's Claw Extract	50 mg
Cabbage Extract	25 mg
DIM (di-indolyl-methane)	14 mg
Apigenin	25 mg

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

COMPREHENSIVE VITAMIN K FORMULA



To Support Arterial Health And Bone Support

There are **three** forms of **vitamin K** that are key factors to promoting arterial health and bone support.¹⁻⁸

Life Extension®'s Super K with Advanced K2 Complex provides this dynamic trio of **vitamin K1**, **vitamin K2 (MK-4)**, and **vitamin K2 (MK-7)** in one softgel.

Vitamin K1 is the form of vitamin K found in green vegetables, but only a fraction is absorbed into the bloodstream. Supplementation ensures ample K1 blood levels.

Vitamin K2 can be found in meats, dairy, and egg yolks. If you are avoiding these foods for health reasons, it is *essential* to ingest a K2 supplement. **MK-4** is the most rapidly absorbed form of K2, while **MK-7** boasts a very long half-life in the body. This makes both forms the perfect complement to any vitamin K regimen.⁹

To order **Super K with Advanced K2 Complex** or **Super Booster**, call **1-800-544-4440** or visit **LifeExtension.com**

Just one daily softgel of Super K formula provides:

Vitamin K2 (MK-7)	200 mcg
Vitamin K2 (MK-4)	1,000 mcg
Vitamin K1	1,000 mcg

The retail price for a bottle containing **90 softgels** is \$30. If a member buys four bottles, the price is reduced to **\$20.25 per bottle**.

(The same Super K formula consisting of vitamin K1, vitamin K2 (MK-4), and vitamin K2 (MK-7) can be found in the **Life Extension® Super Booster**. If you take the Super Booster, you do *not* need additional **Super K with Advanced K2 Complex**.)

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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.



SUPER FOODS

BY MICHAEL DOWNEY

Olive Oil

Powerful Protection Against Aging And Mortality



Researchers continue to confirm that the Mediterranean diet, rich in olive oil, is one of the best ways to lower the risk of all-cause mortality.¹ Those who adhere to a Mediterranean diet have a longer life expectancy and a lower risk of heart disease, high blood pressure, and stroke.¹⁻³

Olive oil is a rich source of monounsaturated fatty acids, along with various phenolic compounds such as *oleocanthal*, *oleuropein*, *hydroxytyrosol*, and *tyrosol*.⁴ These substances are believed to modulate nearly **100** human genes⁵ and in turn, cell signaling⁶ and age-associated processes.⁴

Olive oil has built a strong reputation for defending against cardiovascular disease, diabetes, cancer, rheumatoid arthritis, and other diseases. But newly released studies demonstrate that by incorporating olive oil into your daily diet, you may also protect against other age-related diseases such as Alzheimer's, osteoporosis, skin aging—even premature death.⁴⁻¹¹

Two 2013 studies found that these benefits are even greater when extra-virgin olive oil is substituted for regular olive oil¹²—and that many of the health effects of the Mediterranean diet can be ascribed largely to the nutraceutical properties of extra-virgin olive oil.⁴

Staving Off Alzheimer's Disease

Scientists recently linked *oleocanthal*, a natural phenylethanoid found in extra-virgin olive oil, to a reduced risk of Alzheimer's disease, the sixth leading cause of death in America.¹³ Alzheimer's disease is characterized by the accumulation of *amyloid-beta* and *tau proteins* in the brain.¹⁴

A study published in 2013 showed that oleocanthal enhances the clearance of amyloid-beta from the brain by increasing two major amyloid-beta transport proteins at the blood-brain barrier.⁷

Additionally, this study demonstrated that oleocanthal treatment significantly increased the degradation of amyloid-beta through its upregulation of amyloid-beta-degrading enzymes.⁷

This finding may lead to the development of a novel olive-oil-based Alzheimer's therapy.

Inhibiting Osteoporosis

In a recent report, researchers found that eating a Mediterranean diet enriched with virgin olive oil for two years robustly increased serum concentrations of *osteocalcin* and *procollagen type I N-terminal propeptide* (P1NP), which in turn suggests potent protective effects against osteoporosis.⁸

Osteocalcin is produced by the body and is bone-building, by nature.¹⁵ (In addition to its role as a bone marker, osteocalcin has been related to blood sugar stability). Enhanced P1NP is a strong indication of increased bone collagen synthesis and bone formation rate.⁸

These results confirm a previous experimental report that associates the consumption of olive oil

Selecting, Storing, And Using Olive Oil

Most of the world's olive oil is produced in the Mediterranean regions of Greece, Spain, France, and Italy.^{35,36} The highest quality—and most healthful—olive oil has a low acid content, which is expressed as oleic acid.^{37,38}

Virgin olive oils come from the first pressing of the olives and contain no more than **2%** free acidity.^{37,38} They are considered to have a superior taste compared to refined olive oils. True virgin olive oil contains no refined oil at all. Because high-quality, extra-virgin olive oil contains a greater abundance of potent compounds, it is well worth the higher cost.³⁹

Exposure to light and heat can cause olive oil to turn rancid. Be sure to store it in an opaque bottle kept in a cool, dark place.^{40,41}

Consider using olive oil in soups, sauces, stews, and vegetable dishes. Coat cooked pasta with it. Olive oil makes a great dip for bread, especially when embellished with herbs.

with the prevention of bone-mass loss in animal models of osteoporosis,¹⁰ which affects **55%** of Americans aged 50 and over.¹⁶

Preventing Skin Aging

Skin aging is due to intrinsic as well as external factors; especially UV exposure.¹⁷ Sun exposure, otherwise known as photoaging, causes pigmentation abnormalities, wrinkling, and tissue slackening.¹⁸

In a study published in 2012, scientists surveyed 1,264 women and 1,655 men, aged 45 to 60, and analyzed their monounsaturated fatty acid intakes from dietary sources over the first 2.5 years of the follow-up period. Severity of facial skin photoaging was graded over this period by investigators using a 6-grade scale illustrated by photographs.¹¹

The team found significantly lower risk of severe photoaging, for both sexes, among those with higher intakes of monounsaturated fatty acids, specifically olive oil. Interestingly, photoaging pro-

tection was *not* associated with the intake of monounsaturated fatty acids from animal sources (including meat, processed meat, or dairy sources).¹¹

Reducing Mortality Risk

The Mediterranean diet has long been shown to have longevity effects, but the degree to which its greater use of olive oil contributes to this effect has not been established. However, a recent study focused on the specific, individual role that olive oil plays in this association.¹⁹

Scientists analyzed data from a large, prospective study that followed 40,622 participants aged 29 to 69 for a combined total of over 550,000 person-years.

They observed an impressive **26%** reduction in mortality among healthy adults in the upper quartile of olive oil consumption compared to non-consumers. Even a relatively small increase in olive oil consumption was shown to have a

beneficial effect. The impact on the risk of death was similar for the use of both regular olive oil and virgin olive oil.¹⁹

The pathway by which olive oil reduces mortality is unclear. However, it may flow from its protective effect on the risk of chronic diseases such as cardiovascular disease and cancer.¹⁹

Let's review olive oil's established protection against these age-related disorders.

Promoting Cardiovascular Health

Olive oil regulates nearly 100 genes, many of which modulate inflammation—and inflammation can cause numerous detrimental effects, including cardiovascular disease.⁵

It has long been known that olive oil helps decrease total cholesterol and low-density lipoprotein (LDL) levels,²⁰ but later

research has shed light on additional cardiovascular benefits.

A controlled study measured the effect of consuming virgin versus refined olive oil on inflammatory markers in 28 heart disease patients. Each subject consumed **50 mL** (almost two ounces) of virgin olive oil for three weeks and **50 mL** of refined olive oil for another three weeks.²¹ Virgin olive oil produced significant reductions in interleukin-6 and C-reactive protein—inflammatory markers associated with increased heart disease risk—suggesting it represents a potent, additional intervention to pharmacological treatment.²¹

Scientists then tested three classes of olive oil—containing low, medium, or high content of polyphenols—on plasma lipid levels and oxidative stress. This study randomly assigned 200 healthy men to consume **25 mL** of each type of olive oil daily for three weeks per type. While triglyceride levels decreased similarly with all

three kinds of olive oil, the most polyphenol-rich olive oil produced the greatest improvements in HDL levels and the most dramatic decreases in oxidative stress markers. It is worth noting that extra-virgin olive oil has richer polyphenol content than refined olive oil.²²

In 2011, scientists concluded that, compared to those who never use olive oil, those with highest olive oil consumption have a **41%** reduced risk of stroke.² And in a 2012 study, participants whose olive oil intake ranked in the top quarter had a **44%** lower risk of dying from heart disease compared to those who consumed no olive oil.⁹

Suppressing Cancer

A Mediterranean-style diet rich in olive oil is associated with a decreased risk of many types of cancer. Several constituents of olive oil appear to be responsible for its anticancer effects, including polyphenols and oleic acid.²³ Oleic acid suppresses over expression of a cancer-triggering gene that plays a key role in the invasive progression and metastasis of several human cancers; a finding that could lead to an olive oil-based cancer therapy.²⁴

Evidence of olive oil's potency against breast cancer has been accumulating quickly. Researchers separated phenolic compounds in olive oil into "fractions," each of which was tested against breast cancer cells. The major polyphenols found in extra-virgin olive oil suppressed the breast cancer-promoting gene HER2. Cells with overactive HER2 reacted to the extra-virgin olive oil compounds by self-destructing.²⁵



Other scientists determined that olive oil attacks breast cancer tumors in several potent ways: Olive oil suppresses the oncogene that drives tumor growth; it switches off the proteins that cancer cells rely on to survive and multiply, and it protects DNA against damage that can eventually lead to cancer.²⁶

Quelling Inflammation

Extra-virgin olive oil reduces the expression of multiple inflammatory genes²⁷ and does not activate inflammatory pathways (in contrast to other dietary fats, such as butter)²⁸ and decreases inflammatory markers.²⁹ Increased olive oil consumption is linked to a decreased risk of rheumatoid arthritis, an autoimmune disease characterized by joint inflammation and pain.⁶

Scientists conducted a clinical trial on rheumatoid arthritis patients. Olive oil and fish oil produced greater improvements in clinical measurements of the disease than fish oil alone.³⁰ This suggests olive oil may help prevent rheumatoid arthritis and may restore mobility and function in those already afflicted.

Protecting Stomach Health

Helicobacter pylori are bacteria linked to peptic ulcers and some strains are linked with gastric (stomach) cancer.³¹ Researchers have reported that virgin olive oil compounds exert “strong bactericidal activity against eight strains of *H. pylori*, three of them resistant to some antibiotics. These results open the possibility of considering



virgin olive oil a chemopreventive agent for peptic ulcer or gastric cancer.”³²

Another study found those with the highest intakes of oleic acid, abundant in olive oil, had a **90%** lower risk of developing ulcerative colitis. Dr. Andrew Hart, who along with his colleagues performed the study, stated “half of the cases of ulcerative colitis could be prevented if [2 to 3 daily tablespoons of olive oil] were consumed.”^{33,34}

Summary

Olive oil’s potent compounds have long been known to defend against cardiovascular disease, diabetes, cancer, and rheumatoid arthritis. But new research demon-

strates extra-virgin olive oil modulates nearly 100 genes that protect against other aging-related diseases such as Alzheimer’s, osteoporosis, peptic ulcers, and even aging skin. ●

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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SUPER OME

**Powerfully
Enhanced Omega-3
Benefits**



Item #01819

Emerging research suggests that different sources of omega-3 fatty acids, such as **fish oil** and **krill oil**, provide *complementary* effects upon cellular targets throughout the body.¹

Scientists suggest that combining **fish oil** and **krill oil** may provide *enhanced support* for cardiovascular health and the brain due to the different ways that fish oil and krill oil are taken up by our cells.²

Fish oil and krill oil share many important similarities, such as reducing levels of omega-6 relative to beneficial omega-3 fatty acids.² Most Americans consume too many omega-6 polyunsaturated fatty acids and not enough omega-3s.³

Evidence suggests that by *combining* both fish and krill oil, you can maximize uptake and the protective benefits of a wide spectrum of omega-3 fatty acids.³

To provide enhanced coverage, a new **Super Omega** contains a potent concentration of **fish oil**, **olive fruit**, and **sesame lignans**, plus **krill** and **astaxanthin**.

Combined Benefits Of Fish And Krill Oils

Human studies suggest that omega-3 fatty acids from **fish oil** result in a more rapid uptake into *plasma triglyceride* and *platelet phospholipids*, which specifically benefit the cardiovascular system.⁴

G A With Krill & Astaxanthin

The omega-3s found in **krill** appear to be more rapidly incorporated into *red blood cell phospholipids*, which are rapidly absorbed into brain cells.⁵

When combined, krill *and* fish oil appear to offer enhanced benefits for *both* the cardiovascular *and* nervous system than either form by itself.

Astaxanthin: Super-Antioxidant

Astaxanthin protects cells by controlling free-radical activity and boosting mitochondrial function.⁶ This potent antioxidant carotenoid has been shown to help optimize joint, immune,^{7,8} brain,^{9,10} cardiovascular,^{11,12} DNA,^{13,14} and mitochondrial^{15,16} health. Astaxanthin also supports healthy blood sugar levels for those already in the normal range.^{17,18} And astaxanthin crosses the blood-eye barrier, supporting vascular health within the eye¹⁹ and protecting the eyes' sensitive cells.²⁰⁻²³

In **Super Omega with Krill & Astaxanthin**, the natural astaxanthin content of krill is *fortified* with *additional* astaxanthin for maximum stability and benefit.

Newly Documented Benefits Of Mediterranean Diet

In **2013**, the results of a huge trial of people who followed a Mediterranean diet were published in the *New England Journal of Medicine*. Those who supplemented this diet either with **olive oil** or **nuts** showed such a huge reduction in primary cardiovascular problems that the trial was stopped early to spare the lives of those on the control diet.²⁴

The Mediterranean diet—rich in **omega-3** fatty acids, monounsaturated fatty acids found in **olive oil**, and antioxidant-rich fruits, vegetables, and herbs—has long been associated with cardiovascular health and increased life span.²⁵⁻³³

To help emulate a Mediterranean diet, **Super Omega** provides a **standardized olive fruit polyphenol extract** to protect normal LDL from oxidation.³⁴⁻³⁸ Research shows that a combination of **olive oil** *and* **fish oil** supplements helps with **inflammation** better than a placebo or fish oil alone.³⁹ The daily dose of Super Omega softgels provide the equivalent polyphenol content of **4 to 6 tablespoons of extra virgin olive oil**.

Sesame Lignans Extend Fish Oil's Benefits

The *unstable* nature of fatty acids like fish oil limits their biological efficacy in the body. Scientific studies show that when **sesame lignans** are supplemented with fish oil, the beneficial effects are augmented.^{40, 41}

Sesame lignans help guard against **lipid peroxidation**, thereby extending the stability of **DHA** in the body. These lignans also direct fatty acids toward pathways that can help with inflammatory reactions. **Super Omega** provides standardized **sesame lignans** to enhance the overall benefits of EPA/DHA marine oils.

Experts believe that taking both fish oil and krill oil together offers overlapping coverage to powerfully boost your health—with benefits that add to and amplify those of fish oil alone.

The suggested daily dose of four softgels of Super Omega with Krill & Astaxanthin provides:

Pure+™ Wild Fish Oil Concentrate	4,050 mg
Yielding:	
EPA (eicosapentaenoic acid)	1,400 mg
DHA (docosahexaenoic acid)	1,000 mg
Typical DPA (docosapentaenoic acid)	158 mg
Antarctic Krill (<i>Euphausia superba</i>) oil	300 mg
Polyphen-Oil™ Olive extract (fruit and leaf)	400 mg
[providing 90 mg polyphenols, 20.50 mg verbascoside/oleuropein, 15 mg hydroxytyrosol]	
Sesame seed lignan extract	10 mg
Natural Astaxanthin	4 mg
(from CO2 extract of <i>Haematococcus pluvialis</i> algae)	

Contains crustacean shellfish (krill).

A bottle of 120 softgels of **Super Omega with Krill & Astaxanthin** retails for \$45. If a member buys four bottles, the price is reduced to **\$31.50** per bottle.

Super Omega-3 Still Available

Life Extension members still have access to our premium **Super Omega-3 with Olive Fruit Extract and Sesame Lignans**. This formula costs less since it does not contain krill oil or astaxanthin.

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To order Super Omega with Krill & Astaxanthin, 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

- | | |
|---|---|
| <p>○ COMPREHENSIVE PANELS</p> <p>○ 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</p> | <p>○ THE CBC/CHEMISTRY PROFILE (LC381822) \$35
 Note: This CBC/Chemistry Profile is included in many Life Extension panels. Please check panel descriptions.</p> <p>CARDIOVASCULAR RISK PROFILE
 Total Cholesterol Cholesterol/HDL Ratio
 HDL Cholesterol Estimated CHD Risk
 LDL Cholesterol Glucose
 Triglycerides Iron</p> <p>LIVER FUNCTION PANEL
 AST (SGOT) Total Bilirubin
 ALT (SGPT) Alkaline Phosphatase
 LDH</p> <p>KIDNEY FUNCTION PANEL
 BUN BUN/Creatinine Ratio
 Creatinine Uric Acid</p> <p>BLOOD PROTEIN LEVELS
 Total Protein Globulin
 Albumin Albumin/Globulin Ratio</p> <p>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</p> <p>BLOOD MINERAL PANEL
 Calcium Sodium
 Potassium Chloride
 Phosphorus Iron</p> |
| <p>○ 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</p> | <p>○ COMPREHENSIVE THYROID PANEL (LC100018) \$199
 TSH, T4, Free T3, Reverse T3, TPO, ATA</p> <p>○ FOOD SAFE ALLERGY TEST** (LCM73001) \$198
 This test measures delayed (IgG) food allergies for 95 common foods.</p> <p>○ ADRENAL FUNCTION PANEL (LC100021) \$136
 DHEA-S, AM/PM Cortisol, Glucose, Insulin, Lipid Panel, RBC magnesium</p> <p>○ OMEGA SCORE™*** (LCOMEGA) \$131.25
 Provides valuable information on your risk of developing heart disease, sudden heart attack, and cardiac death. The Omega Score™ also includes your AA:EPA ratio, allowing you to determine and track a major factor in total body inflammation.</p> |
| <p>○ WEIGHT LOSS PANEL-COMPREHENSIVE (LC100028) \$275
 CBC/Chemistry profile (see description above), 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.</p> | <p>○ 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.</p> |
| <p>○ WEIGHT LOSS PANEL-BASIC (LC100027) \$130
 CBC/Chemistry profile (see description above), DHEA-S, free and total Testosterone, Estradiol, Progesterone, Cortisol, TSH, Free T3, Insulin and Hemoglobin A1c.</p> | <p>○ 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.</p> |
| <p>○ 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.</p> | <p>○ 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.</p> |
| <p>○ 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.</p> | |
| <p>○ LIFE EXTENSION THYROID PANEL (LC304131) \$75
 TSH, T4, Free T3, Free T4.</p> | |
| <p>○ FEMALE COMPREHENSIVE HORMONE PANEL* (LC100011) \$299
 CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, Total Estrogens, Progesterone, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.</p> | |
| <p>○ MALE COMPREHENSIVE HORMONE PANEL* (LC100010) \$299
 CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.</p> | |

* 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"/> ENERGY PROFILE (LC100005) \$375
CBC/Chemistry Profile (see description), 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), 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 above), 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), Vitamin D 25-hydroxy, C-Reactive Protein (high sensitivity), Fibrinogen, Homocysteine.</p> <p><input type="radio"/> VAP™ PLUS* (LC100009) \$330
VAP, C-Reactive Protein (high sensitivity), Homocysteine, Fibrinogen, PLAC® Test (Lp-PLA2), Vitamin D 25-hydroxy.</p> <p>CARDIAC RISK</p> <p><input type="radio"/> COQ10* (COENZYME Q10) (LC120251) \$99
This test is used to check the blood level of CoQ10 and will enable more precise dosing for anyone seeking to achieve and maintain high levels of this critical antioxidant.</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><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"/> MALE HEALTH</p> <p><input type="radio"/> PSA (PROSTATE-SPECIFIC ANTIGEN) (LC010322) \$31
Can provide an early warning sign for prostate disorders and possible cancer.</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, and 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>BONE 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"/> OSTEOCALCIN* (LC010249) \$91
Osteocalcin is often used as a biochemical marker, or biomarker, for the bone formation process. It has been routinely observed that higher serum osteocalcin levels are relatively well correlated with bone diseases characterized by increased bone turnover, especially osteoporosis.</p> <p><input type="radio"/> DPD CROSS LINK URINE TEST (LC511105) \$79
The deoxypyridinoline (DPD) urine test can be used to measure bone re-absorption rates in healthy individuals and in those with enhanced risk of developing metabolic bone diseases. Deoxypyridinoline can be used to monitor therapies (which may include bisphosphonate drugs) in people diagnosed with osteoporosis.</p> |
|--|--|

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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

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For non-member prices call 1-800-208-3444

PRODUCTS

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Branched Chain Amino Acids
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Arginine/L-Ornithine Capsules
L-Carnitine Capsules
L-Glutathione, L-Cysteine & C
L-Glutamine Capsules
L-Glutamine Powder
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L-Tyrosine Tablets
Mega L-Glutathione Capsules
N-Acetyl-L-Cysteine Capsules
Optimized Carnitine with GlycoCarn®
Pharma GABA®
Super Carnosine Capsules
Taurine Capsules

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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

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Brain Shield™
CDP Choline Capsules
Cognitex® with Brain Shield™
Cognitex® with Pregnenolone &
Brain Shield™
Cognitex® Basics
DMAE Bitartrate
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin Granules
Methylcobalamin Lozenges
Migra-Mag with Brain Shield™
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Phosphatidylserine Capsules
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Vinpocetine

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Carnosoothe w/PicroProtect
Digest RC™
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Enhanced Super Digestive Enzymes
Extraordinary Enzymes
FlorAssist®
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Inner Power™

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Fiber Food
TruFiber®
WellBetX PGX® plus Mulberry

FOOD

Rich Rewards™ Black Bean Vegetable Soup
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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™ Protein Creamer
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Dr. Proctor's Advanced Hair Formula
Dr. Proctor's Shampoo
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HEART HEALTH

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Forskolin
Homocysteine Resist
Natural BP Management
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Peak ATP® with GlycoCarn®
PhosphOmega®
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

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Astaxanthin w/Phospholipids
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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)
(also w/CoffeeGenic® Green Coffee Extract)
Mega Lycopene Extract
Optimized Ashwagandha Extract
Optimized Garlic
Pomegranate Extract
Pomegranate Juice Concentrate
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

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7-KETO® DHEA
DHEA
DHEA Complete
GH Pituitary Support Day Formula
GH Pituitary Support Night Formula
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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)
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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®
Lactoferrin
Norwegian Shark Liver Oil
Optimized Fucoidan w/Maritech® 926
Peony Immune
ProBoost™ Thymic Protein A
Reishi Extract Mushroom Complex
Vitamin C with Dihydroquercetin
Winter Wellness™
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
Omega-3 Whirl
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
Advanced Phospholipid Delivery
Hepatopro
SAME
Silymarin

MINERALS

Biosil
 Bone Restore
 Bone Strength Formula w/KoAct®
 Bone-Up™
 Boron Capsules
 Calcium Citrate with D3
 Chromium Ultra
 Copper
 Iodoral
 Iron Protein Plus
 Magnesium
 Magnesium Citrate
 Only Trace Minerals
 Optimized Chromium w/Crominex® 3+
 OptiZinc
 Sea-Iodine™
 Selenium
 Se-Methyl L-Selenocysteine
 Strontium
 Vanadyl Sulfate
 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
 Mouthwash w/Pomegranate
 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 Softgels w/Advanced K2 Complex

PET CARE

Cat Mix
 Dog Mix

PROSTATE & URINARY HEALTH

Optimized Cran-Max® with UTIRose™
 5-LOXIN®
 PalmettoGuard™ Saw Palmetto w/Beta Sitosterol

Pomi-T®
 Super Saw Palmetto/Nettle Root Formula w/Beta-Sitosterol
 Ultra Natural Prostate Formula

SKIN CARE

Advanced Lightening Cream
 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
 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
 Rejuvenex® 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

Anti-Alcohol Antioxidants w/HepatoProtection Complex
 Benfotiamine w/Thiamine
 Breast Health Formula
 Butterbur Extract w/Standardized Rosmarinic Acid
 Chlorella
 Chlorophyllin
 Green Coffee Extract CoffeeGenic® (also w/Glucose control)

Coriolus Super Strength
 CR Mimetic Longevity Formula
 Cinsulin® w/InSea2® and Crominex® 3+
 European Leg Solution Diosmin 95
 Fem Dophilus
 Femmenessence MacaPause®
 GlycemicPro™ Transglucosidase
 Migra-eeze™
 Natural Female Support
 Pecta-Sol®
 Potassium Iodide
 PQQ Caps with BioPQQ®
 PteroPure®
 Prelox® Natural Sex for Men®
 Pyridoxal 5' - Phosphate
 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®
 Folic Acid + 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
 Calorie Control Weight Management™ Formula w/CoffeeGenic® Green Coffee Extract
 CoffeeGenic® Weight Management™ with Green Coffee Extract
 7-KETO DHEA
 DHEA® Complete
 Fucoxanthin Slim™
 Garcinia HCA
 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
 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		
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		
01206	BERRY COMPLETE - 30 veg. caps	21.00	15.75		
	Buy 4 bottles, price each	18.67	14.00		

SUB-TOTAL OF COLUMN 1

No.		Retail Each	Member Each	Qty	Total
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		
70000	BLOOD PRESSURE MONITOR - ARM CUFF (medium)	99.95	64.97		
70004	BLOOD PRESSURE MONITOR - WRIST (travel size)	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		
01680	BOOSTER w/ADVANCED K2 COMPLEX (SUPER) - 60 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
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™ - 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	\$21.00	\$15.75		
	Buy 4 bottles, price each	19.00	14.25		
00884	BUTTERBUR EXT. w/STANDARDIZED ROSMARINIC ACID - 60 softgels	44.00	33.00		
	Buy 4 bottles, price each	39.60	29.70		
C					
01653	CALCIUM CITRATE w/VITAMIN D - 300 caps	\$24.00	\$18.00		
	Buy 4 bottles, price each	21.25	15.94		
01651	CALCIUM D-GLUCARATE - 200 mg, 60 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	15.00	11.25		
01693	CALORIE CONTROL WEIGHT MANAGEMENT FORMULA w/COFFEENIC® GREEN COFFEE EXTRACT BLUEBERRY FLAVOR - 414 grams powder	60.00	45.00		
	Buy 4 jars, price each	54.00	40.50		
	Buy 8 jars, price each	50.00	37.50		
01700	CARDIO PEAK™ w/STANDARDIZED HAWTHORN & ARJUNA - 120 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
00916	CARNITINE w/GLYCOCARN® (OPTIMIZED) - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01532	L-CARNITINE - 500 mg, 30 veg. caps	15.00	11.25		
	Buy 4 bottles, price each	13.20	9.90		
01258	CARNOOOL™ w/PICROPROTECT™ - 60 veg. caps	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01687	CARNOSINE (SUPER) - 500 mg, 90 veg. caps	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
01003	CAT MIX - 100 grams powder	15.00	11.25		
	Buy 4 jars, price each	12.00	9.00		
01659	CDP CHOLINE CAPS - 250 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
01391	CHILDREN'S FORMULA LIFE EXTENSION MIX™ - 100 chewable tablets	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00550	CHLORELLA - 500 mg, 200 tablets	23.50	17.63		
01571	CHLOROPHYLLIN - 100 mg, 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	20.00	15.00		
01359	CHO-LESS™ - 90 capsules	35.00	26.25		
01477	CHROMIUM ULTRA - 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
01504	CHROMIUM W/CROMINEX® 3+ (OPTIMIZED) - 500 mcg, 60 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
01503	CINSULIN® W/INSEA® AND CROMINEX® 3+ - 90 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
01818	CITRIMAX® (SUPER) - 180 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	38.00	28.50		
00818	CLA BLEND w/SESAME LIGNANS (SUPER) - 3,000 mg, 120 softgels	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
	Buy 10 bottles, price each	26.33	19.75		
00819	CLA BLEND w/GUARANA & SESAME (SUPER) - 3,000 mg, 120 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.33	28.75		
01707	COFFEENIC® WEIGHT MANAGEMENT™ w/GREEN COFFEE EXTRACT - 90 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01896	COGNITEX® w/BRAIN SHIELD™ - 90 softgels	60.00	45.00		
	Buy 4 bottles, price each	52.00	39.00		
	Buy 8 bottles, price each	48.00	36.00		

SUB-TOTAL OF COLUMN 3

No.		Retail Each	Member Each	Qty	Total
01897	COGNITEX® w/PREGNENOLONE & BRAIN SHIELD™ - 90 softgels	\$62.00	\$46.50		
	Buy 4 bottles, price each	53.00	39.75		
	Buy 8 bottles, price each	50.00	37.50		
01421	COGNITEX® BASICS - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		
01735	COMPLETE B-COMPLEX - 60 veg. caps	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
01798	COMPREHENSIVE NUTRIENT PACKS ADVANCED - 30 packs	90.00	67.50		
	Buy 4 boxes, price each	82.00	61.50		
00119	COPPER CAPSULES - 2 mg, 100 caps	9.91	7.43		
00949	COQ10 w/α-LIMONENE (SUPER-ABSORBABLE) - 50 mg, 60 softgels	25.00	18.75		
	Buy 4 bottles, price each	22.00	16.50		
	Buy 10 bottles, price each	20.00	15.00		
00950	COQ10 w/α-LIMONENE (SUPER-ABSORBABLE) - 100 mg, 100 softgels	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
	Buy 10 bottles, price each	56.00	42.00		
01226	COQ10 (SUPER-UBIQUINOL) - 100 mg, 60 softgels	56.00	42.00		
	Buy 4 bottles, price each	52.00	39.00		
	Buy 10 bottles, price each	48.00	36.00		
01733	COQ10 w/BIOPOQ® (SUPER UBIQUINOL) - 100 mg, 30 softgels	54.00	40.50		
	Buy 4 bottles, price each	50.00	37.50		
	Buy 10 bottles, price each	46.00	34.50		
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) - 100 mg, 60 softgels	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
	Buy 10 bottles, price each	52.00	39.00		
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) - 50 mg, 100 softgels	58.00	43.50		
	Buy 4 bottles, price each	53.00	39.75		
	Buy 10 bottles, price each	50.00	37.50		
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) - 50 mg, 30 softgels	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) - 200 mg, 30 softgels	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
	Buy 10 bottles, price each	52.00	39.00		
01053	CORIOLUS SUPER STRENGTH - 600 mg, 150 veg. caps	99.95	74.96		
80154	COSMESIS LIGHTENING CREAM - 1 oz jar	65.00	48.75		
	Buy 2 bottles, price each	57.00	42.75		
80152	COSMESIS ADVANCED TRIPLE PEPTIDE SERUM - 1 oz bottle	65.00	48.75		
	Buy 2 bottles, price each	57.00	42.75		
80140	COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS - .33 oz	49.00	36.75		
	Buy 2 bottles, price each	42.00	31.50		
80139	COSMESIS AMBER SELF MICRODERMABRASION - 2 oz	49.00	36.75		
	Buy 2 jars, price each	42.00	31.50		
80118	COSMESIS ANTI-AGING MASK - 2 oz	72.00	54.00		
	Buy 2 bottles, price each	63.36	47.52		
80151	COSMESIS ANTI-AGING REJUVENATING FACE CREAM - 2 oz jar	65.00	48.75		
	w/COFFEE EXTRACT Buy 2 jars, price each	57.00	42.75		
80153	COSMESIS ANTI-AGING REJUVENATING SCALP SERUM - 2 oz bottle	46.00	34.50		
	Buy 2 bottles, price each	39.00	29.25		
80134	COSMESIS ANTI-GLYCATION SERUM - 1 oz	33.00	24.75		
	w/BLUEBERRY & POMEGRANATE EXTRACTS				
	Buy 2 bottles, price each	31.35	23.51		

SUB-TOTAL OF COLUMN 4

Buyers Club Order Form

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No.		Retail Each	Member Each	Qty	Total
C CONTINUED					
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		
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		
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		

SUB-TOTAL OF COLUMN 5

No.		Retail Each	Member Each	Qty	Total
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		
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 & FIRING 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 UTI ROSE™ (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		

SUB-TOTAL OF COLUMN 6

To order online visit: www.LifeExtension.com

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
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		
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		

SUB-TOTAL OF COLUMN 7

No.		Retail Each	Member Each	Qty	Total
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		
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		
01806	FLORASSIST® PROBIOTIC - 30 liquid veg. caps Buy 4 boxes, price each	33.00 30.00	24.75 22.50		
01439	FOLATE (OPTIMIZED) (L-METHYLFOLATE) 1,000 mcg - 100 veg. caps Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01641	FOLIC ACID + B12 CAPSULES - 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		
01301	GH PITUITARY SUPPORT DAY FORMULA - 120 tabs Buy 4 bottles, price each	48.00 44.00	36.00 33.00		
01302	GH PITUITARY SUPPORT NIGHT FORMULA - 120 veg. caps Buy 4 bottles, price each	25.00 22.50	18.75 16.88		
**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		

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					
01541	GLUTATHIONE, CYSTEINE & C - 100 veg. caps	\$20.00	\$15.00		
	Buy 4 bottles, price each	18.00	13.50		
00314	L-GLUTATHIONE (MEGA) - 250 mg, 60 caps	39.64	29.73		
01731	GLYCEMICPRO™ TRANSGLUCCOSIDASE - 60 veg. caps	48.00	36.00		
	Buy 4 bottles, price each	42.00	31.50		
01669	GLYCINE - 1,000 mg, 100 veg. caps	12.00	9.00		
	Buy 4 bottles, price each	10.80	8.10		
01091	GRAPE EXTRACT w/RESVERATROL (WHOLE) - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
01411	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE - 100 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
01604	GREEN COFFEE EXTRACT COFFEENIC® - 200 mg, 90 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01620	GREEN COFFEE EXTRACT COFFEENIC® - 400 mg, 90 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
00953	GREEN TEA EXTRACT (MEGA) - lightly caffeinated - 100 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	24.00	18.00		
00954	GREEN TEA EXTRACT (MEGA) - decaffeinated - 100 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	24.00	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	17.00	12.75		
	Buy 4 bottles, price each	15.00	11.25		
01393	HEPATOPRO - 900 mg, 60 softgels	50.00	37.50		
	Buy 4 bottles, price each	46.00	34.50		
01435	HOMOCYSTEINE RESIST - 100 veg caps	24.00	18.00		
	Buy 4 bottles, price each	21.60	16.20		
01527	HUPERZINE A - 200 mcg, 60 veg caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
00661	HYDRODERM® - 1 oz	79.95	59.96		
	Buy 2 bottles, price each	65.33	49.00		
I					
*01060	i26® HYPERIMMUNE EGG - 140 grams powder	\$54.99	\$46.75		
01704	IMMUNE MODULATOR W/TINOFEND® - 60 veg. caps	17.00	12.75		
	Buy 4 bottles, price each	15.00	11.25		
00955	IMMUNE PROTECT W/PARACTIN® - 30 veg. caps	29.50	22.13		
	Buy 4 bottles, price each	26.55	19.91		
01049	INNERPOWER™ - 555 grams powder	42.00	31.50		
01674	INOSITOL CAPSULES - 1,000 mg, 360 veg. caps	62.00	46.50		
	Buy 4 bottles, price each	58.00	43.50		
01292	INTEGRA-LEAN® AFRICAN MANGO IRVINGIA - 150 mg, 60 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01002	IODORAL® - 180 tabs	50.00	37.50		
01677	IRON PROTEIN PLUS - 300 mg, 100 caps	28.00	21.00		
	Buy 4 bottles, price each	26.00	19.50		
01492	IRVINGIA W/PHASE 3™ - 120 veg. caps	56.00	42.00		
	CALORIE CONTROL COMPLEX (OPTIMIZED AFRICAN MANGO)				
	Buy 4 bottles, price each	48.00	36.00		

SUB-TOTAL OF COLUMN 9

No.		Retail Each	Member Each	Qty	Total
J, K					
00056	JARRO-DOPHILUS EPS™ - 60 veg. caps	\$22.95	\$17.21		
01759	JARRO-DOPHILUS EPS™ - 25 Billion - 30 caps	39.95	29.96		
01724	K w/ADVANCED K2 COMPLEX (SUPER) - 90 softgels	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01600	KRILL HEALTHY JOINT FORMULA - 30 softgels	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01050	KRILL OIL PHOSPHOMEGA™ - 60 softgels	33.95	25.46		
00316	KYOLIC® GARLIC FORMULA 102 - 200 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		
L					
01681	LACTOFERRIN (APOLACTOFERRIN) CAPS - 60 caps	\$52.00	\$39.00		
	Buy 4 bottles, price each	48.00	36.00		
00020	LECITHIN - 16 oz. granules	15.00	11.25		
	Buy 4 jars, price each	12.50	9.38		
01855	LIFE EXTENSION MIX™ - 315 tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01857	LIFE EXTENSION MIX™ W/EXTRA NIACIN - 315 tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01854	LIFE EXTENSION MIX™ - 490 caps	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
01856	LIFE EXTENSION MIX™ POWDER - 14.81 oz	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
01865	LIFE EXTENSION MIX™ - 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01867	LIFE EXTENSION MIX™ W/EXTRA NIACIN 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01864	LIFE EXTENSION MIX™ - 490 caps w/o copper	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
01866	LIFE EXTENSION MIX™ POWDER - 14.81 oz w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
01608	LIVER EFFICIENCY FORMULA - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01639	5-LOX INHIBITOR W/APRESFLEX® - 100 mg, 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01678	L-LYSINE - 620 mg, 100 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
00455	LYCOPENE EXTRACT (MEGA) - 15 mg, 90 softgels	35.00	26.25		
	Buy 4 bottles, price each	30.00	22.50		

SUB-TOTAL OF COLUMN 10

No.		Retail Each	Member Each	Qty	Total
M					
01885	MACUGUARD™ OCULAR SUPPORT - 60 softgels	\$22.00	\$16.50		
	Buy 4 bottles, price each	19.80	14.85		
01886	MACUGUARD™ OCULAR SUPPORT w/ASTAXANTHIN - 60 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01459	MAGNESIUM CAPS - 500 mg, 100 veg. caps	12.00	9.00		
	Buy 4 bottles, price each	10.00	7.50		
01682	MAGNESIUM CITRATE - 160 mg, 100 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	7.50	5.63		
01668	MELATONIN - 300 mcg, 100 veg. caps	5.75	4.31		
	Buy 4 bottles, price each	5.00	3.75		
01083	MELATONIN - 500 mcg, 200 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00329	MELATONIN - 1 mg, 60 caps	5.00	3.75		
	Buy 4 bottles, price each	4.63	3.47		
00330	MELATONIN - 3 mg, 60 caps	8.00	6.00		
	Buy 4 bottles, price each	6.88	5.16		
01786	MELATONIN TIME RELEASE - 3 mg, 60 veg. tabs	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
00331	MELATONIN - 10 mg, 60 caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
00332	MELATONIN - 3 mg, 60 veg. lozenges	8.00	6.00		
	Buy 4 bottles, price each	6.88	5.16		
01734	MELATONIN (Fast Acting Liquid) - 3 mg (Natural Citrus-Van)	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
01787	MELATONIN TIME RELEASE - 300 mcg, 100 veg. tabs	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
01788	MELATONIN TIME RELEASE - 750 mcg, 60 veg. tablets	8.00	6.00		
	Buy 4 bottles, price each	7.00	5.25		
01536	METHYLCOBALAMIN - 1 mg, 60 veg. lozenges (vanilla)	9.95	7.46		
	Buy 4 bottles, price each	8.00	6.00		
01537	METHYLCOBALAMIN - 5 mg, 60 veg. lozenges (vanilla)	32.00	24.00		
	Buy 4 bottles, price each	25.00	18.75		
	Buy 10 bottles, price each	23.00	17.25		
00709	MIGRA-EEZE™ (BUTTERBUR) - 60 softgels	29.50	22.13		
	Buy 4 bottles, price each	26.33	19.75		
01800	MIGRA-MAG w/BRAIN SHIELD™ - 90 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01522	MILK THISTLE (CERTIFIED EUROPEAN) - 60 veg. caps	34.00	25.50		
	Buy 4 bottles, price each	30.00	22.50		
01822	MILK THISTLE (EUROPEAN) - 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01817	MILK THISTLE (EUROPEAN) - 120 softgels	44.00	33.00		
	Buy 4 bottles, price each	40.00	30.00		
01698	MIRAFORTE w/STANDARDIZED LIGNANS (SUPER) - 120 caps	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
01769	MITOCHONDRIAL BASICS w/BIOPQQ® - 30 caps	52.00	39.00		
	Buy 4 bottles, price each	46.00	34.50		
01768	MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ® - 120 caps	94.00	70.50		
	Buy 4 bottles, price each	84.00	63.00		
00065	MK-7 - 90 mcg, 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		

SUB-TOTAL OF COLUMN 11

No.		Retail Each	Member Each	Qty	Total
01279	MOUTHWASH W/POMEGRANATE - 16 oz	\$18.50	\$13.88		
	Buy 4 bottles, price each	17.00	12.75		
00451	MSM (METHYLSULFONYLMETHANE) - 1,000 mg, 100 caps	14.00	10.50		
	Buy 4 bottles, price each	11.95	8.96		
N					
01534	N-ACETYL-L-CYSTEINE - 600 mg, 60 veg. caps	\$14.00	\$10.50		
	Buy 4 bottles, price each	13.50	10.13		
00066	NATTOKINASE - 60 softgels	25.50	19.13		
01807	NATURAL APPETITE SUPPRESS (ADVANCED) - 60 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
00984	NATURAL BP MANAGEMENT - 60 tablets	44.00	33.00		
	Buy 4 bottles, price each	40.00	30.00		
01892	NATURAL ESTROGEN - 60 veg. tabs	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
01221	NATURAL FEMALE SUPPORT - 30 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01471	NATURAL GLUCOSE ABSORPTION CONTROL - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
01626	NATURAL SEX FOR WOMEN® 50+ (ADVANCED) - 90 veg. caps	59.00	44.25		
	Buy 4 bottles, price each	45.33	34.00		
01444	NATURAL SLEEP® - 60 veg. caps	13.00	9.75		
	Buy 4 bottles, price each	10.00	7.50		
01551	NATURAL SLEEP® w/ MELATONIN (ENHANCED) - 30 caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01511	NATURAL SLEEP® w/o MELATONIN (ENHANCED) - 30 caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01445	NATURAL SLEEP® MELATONIN - 5 mg, 60 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00987	NATURAL STRESS RELIEF - 30 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01603	NEURO-MAG™ MAGNESIUM L-THREONATE - 90 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01602	NEURO-MAG™ L-THREONATE W/CALCIUM & VITAMIN D 225 grams - Lemon flavor	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
00373	NO-FLUSH NIACIN - 800 mg, 100 caps	19.00	14.25		
	Buy 4 bottles, price each	17.00	12.75		
O					
01623	OLIVE LEAF VASCULAR SUPPORT - 500 mg, 60 veg. caps	\$22.00	\$16.50		
	Buy 4 bottles, price each	20.00	15.00		
01819	OMEGA WITH KRILL & ASTAXANTHIN (SUPER) - 120 softgels	45.00	33.75		
	Buy 4 bottles, price each	42.00	31.50		
	Buy 10 bottles, price each	38.00	28.50		
01483	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 60 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
	Buy 10 bottles, price each	14.00	10.50		
01482	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 120 softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	24.90	18.68		
01484	OMEGA 3 EPA/DHA W/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 120 enteric coated softgels	34.00	25.50		
	Buy 4 bottles, price each	31.00	23.25		
	Buy 10 bottles, price each	28.00	21.00		

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
CONTINUED					
01485	OMEGA 3 EPA/DHA W/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 60 enteric coated softgels	\$20.00	\$15.00		
	Buy 4 bottles, price each	18.00	13.50		
	Buy 10 bottles, price each	16.00	12.00		
01619	OMEGA 3 EPA/DHA W/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) (SMALL SOFTGEL) - 240 softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	24.90	18.68		
01632	OMEGA-3 LEMON WHIRL - 16 oz bottle	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01633	OMEGA-3 TROPICAL WHIRL - 16 oz bottle	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01801	ONE-PER-DAY - 60 tablets	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01328	ONLY TRACE MINERALS - 90 veg. caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
P					
01789	PALMETTOGUARD™ SAW PALMETTO w/BETA SITOSTEROL -30 softgels	\$15.00	\$11.25		
	Buy 12 bottles, price each	12.00	9.00		
00073	PANCREATIN - 500 mg, 50 caps	13.22	9.92		
01323	PEAK ATP® WITH GLYCO-CARN® - 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 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		
01390	PHOSPHOMEGA® - 60 softgels	39.95	26.96		
01436	POLICOSANOL - 10 mg, 60 veg. caps	20.00	15.00		
	Buy 6 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		
00957	POMEGRANATE JUICE CONCENTRATE - 16 oz. liquid	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
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/BIOPQQ® - 10 mg, 30 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01647	PQQ CAPS W/BIOPQQ® - 20 mg, 30 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
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		

SUB-TOTAL OF COLUMN 13

No.		Retail Each	Member Each	Qty	Total
01576	PREVAGEN® - 10 mg, 30 caps	\$60.00	\$45.00		
01577	PREVAGEN® ES - 20 mg, 30 caps	70.00	52.50		
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		
01742	PROTEIN-ISOLATE (WHEY) VANILLA - 1 lb. powder	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		
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		
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		
01413	RESVERATROL W/PTEROSTILBENE - 20 mg, 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01410	RESVERATROL W/PTEROSTILBENE - 100 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
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		

SUB-TOTAL OF COLUMN 14

No.		Retail Each	Member Each	Qty	Total
00889	RHODIOLA EXTRACT - 250 mg, 60 veg. caps Buy 4 bottles, price each	\$11.75 10.58	\$8.81 7.94		
00972	(D) RIBOSE POWDER - 150 grams Buy 4 jars, price each	27.50 24.75	20.63 18.56		
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		
01729	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE - 12 oz. bag Natural Vanilla	15.00	11.25		
01730	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE - 12 oz. bag Natural Mocha	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		
01820	RICH REWARDS™ PROTEIN COFFEE CREAMER - Vanilla - 5 grams Buy 4 bottles, price each	26.00 23.00	19.50 17.25		
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		
00453	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 50 enteric coated tablets Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
00557	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 20 enteric coated tablets Buy 6 boxes, price each	28.00 24.00	21.00 18.00		
01055	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 50 enteric coated tablets Buy 4 bottles, price each	66.00 60.00	49.50 45.00		
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		

SUB-TOTAL OF COLUMN 15

No.		Retail Each	Member Each	Qty	Total
01596	SKIN RESTORING PHYTCERAMIDES 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		
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		
01790	SUPER SAW PALMETTO/NETTLE ROOT w/BETA-SITOSTEROL -60 softgels Buy 4 bottles, price each Buy 12 bottles, price each	28.00 26.00 24.00	21.00 19.50 18.00		
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 - 1,000 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		

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
T CONTINUED					
01721	TRYPTOPHAN PLUS (OPTIMIZED) - 90 veg. caps Buy 4 bottles, price each	\$32.00 29.00	\$24.00 21.75		
01816	TWO-PER-DAY - 60 tablets Buy 4 bottles, price each	10.50 9.50	7.88 7.13		
01815	TWO-PER-DAY - 120 tablets Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01814	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		
V					
00213	VANADYL SULFATE - 7.5 mg, 100 veg. tablets Buy 4 bottles, price each	\$15.00 12.50	\$11.25 9.38		
00408	VENOTONE - 60 caps Buy 4 bottles, price each	18.95 16.00	14.21 12.00		
01327	VINPOCETINE - 10 mg, 100 tablets Buy 4 bottles, price each	18.00 14.00	13.50 10.50		
01526	VITAMIN B3 NIACIN - 1,000 mg, 100 veg. caps Buy 4 bottles, price each	12.75 12.00	9.56 9.00		
00372	VITAMIN B3 NIACIN - 500 mg, 100 caps Buy 4 bottles, price each	7.65 6.65	5.74 4.99		
00098	VITAMIN B5 - 500 mg, 100 caps (Pantothenic Acid) Buy 4 bottles, price each	10.50 9.38	7.88 7.04		
01535	VITAMIN B6 - 250 mg, 100 veg. caps Buy 4 bottles, price each	12.50 11.00	9.38 8.25		
00361	VITAMIN B12 - 500 mcg, 100 lozenges Buy 4 bottles, price each	8.75 7.25	6.56 5.44		
01634	VITAMIN C w/ DIHYDROQUERCETIN - 1,000 mg, 60 veg. tablets Buy 4 bottles, price each	10.00 9.00	7.50 6.75		
00927	VITAMIN C w/ DIHYDROQUERCETIN - 1,000 mg, 250 veg. tablets Buy 4 bottles, price each	25.50 23.25	19.13 17.44		
00084	VITAMIN C (BUFFERED) POWDER - 454.6 grams Buy 4 bottles, price each	23.95 22.00	17.96 16.50		
01736	(EFFERVESCENT) VITAMIN C-MAGNESIUM CRYSTALS - 180 grams Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01732	VITAMIN D3 - 2,000 IU, 1 fl oz, Mint flavor Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01753	VITAMIN D3 - 1,000 IU, 90 softgels Buy 4 bottles, price each	7.00 6.00	5.25 4.50		
01751	VITAMIN D3 - 1,000 IU, 250 softgels Buy 4 bottles, price each	12.50 11.25	9.38 8.44		
01713	VITAMIN D3 - 5,000 IU, 60 softgels Buy 4 bottles, price each	11.00 9.90	8.25 7.43		
01718	VITAMIN D3 - 7,000 IU, 60 softgels Buy 4 bottles, price each	14.00 12.60	10.50 9.45		
01758	VITAMIN D3 w/SEA-IODINE™ - 5,000 IU, 60 caps Buy 4 bottles, price each	14.00 12.50	10.50 9.38		
00864	VITAMIN D3 Liquid Emulsion - 2,000 IU, 1 oz. Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01741	VITAMINS D AND K w/SEA-IODINE™ - 60 caps Buy 4 bottles, price each	24.00 22.00	18.00 16.50		
01763	VITAMIN E (NATURAL) - 400 IU, 100 softgels Buy 4 bottles, price each Buy 10 bottles, price each	30.00 28.00 26.00	22.50 21.00 19.50		

SUB-TOTAL OF COLUMN 17

No.		Retail Each	Member Each	Qty	Total
01225	VITAMIN K2 (LOW-DOSE) - 45 mcg, 90 softgels Buy 4 bottles, price each	\$18.00 16.00	\$13.50 12.00		
X					
00409	XYLIWHITE™ MOUTHWASH - 16 oz	\$10.00	\$7.50		
W					
01739	WINTER WELLNESS™ - 60 caps Buy 4 bottles, price each	\$15.00 13.00	\$11.25 9.75		
Z					
01813	ZINC HIGH POTENCY - 50 mg, 90 veg. caps Buy 4 bottles, price each	\$7.95 7.00	\$5.96 5.25		
01561	ZINC LOZENGES - 60 veg. lozenges Buy 4 bottles, price each	9.00 8.00	6.75 6.00		
***01051	ZYFLAMEND® WHOLE BODY - 120 softgels	64.95	48.71		

SUB-TOTAL OF COLUMN 18

GIVE THE GIFT of HEALTH, with a LIFE EXTENSION GIFT CARD!



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ORDER SUBTOTALS

SUB-TOTAL COLUMN 1	
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, continental 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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PHONE _____ FAX _____

VISA/MASTERCARD/AMEX/DISCOVER # _____

EXP. DATE _____

SIGNATURE _____

SHIP TO ADDRESS

NAME _____ E-MAIL _____

ADDRESS _____

CITY/STATE/ZIP-POSTAL CODE _____ COUNTRY _____

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Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.	LIFE EXTENSION MEDIA		Retail	Member Price	Qty	Total
33869	UNLEASH THE POWER OF THE FEMALE BRAIN • by Daniel Amen, MD	2014	\$16.00	\$12.00		
33870	MAGNIFICENT MAGNESIUM • by Dennis Goodman, MD	2014	\$14.95	\$11.21		
33866	HEART, AN AMERICAN MEDICAL ODYSSEY • by Dick Cheney & Jonathan Reiner, MD	2014	\$28.00	\$21.00		
33864	THE SUPPLEMENT PYRAMID • by Michael A. Smith, MD	2014	\$24.95	\$18.71		
DPT05	DISEASE PREVENTION AND TREATMENT, EXPANDED FIFTH EDITION (hardcover)	2014	\$39.95	\$39.95		
	Buy 4 books, price each		\$36.00	\$36.00		
33865	THE RESTORATION OF THE HUMAN BODY [IN 7 PARTS] • by Sergey A. Dzugan, MD, PhD	2014	\$29.95	\$22.46		
33863	YOU THE OWNERS MANUAL • by Michael F. Roizen, MD & Mehmet C. Oz, MD (paperback)	2014	\$19.99	\$14.99		
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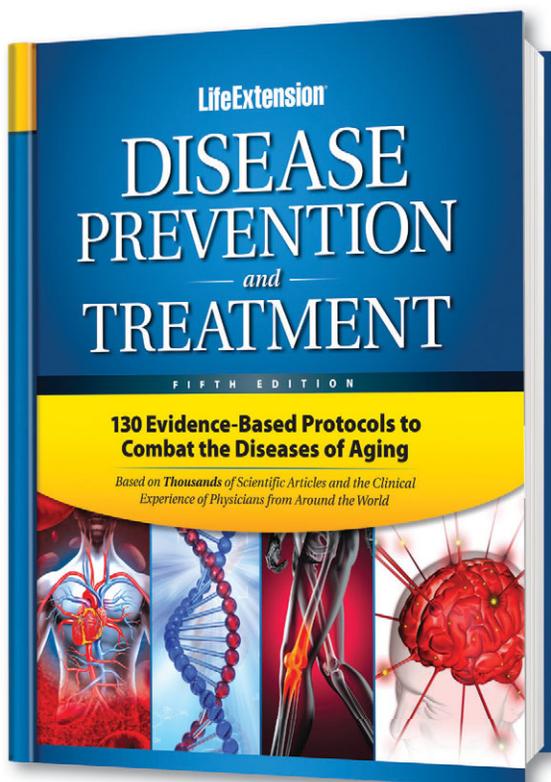
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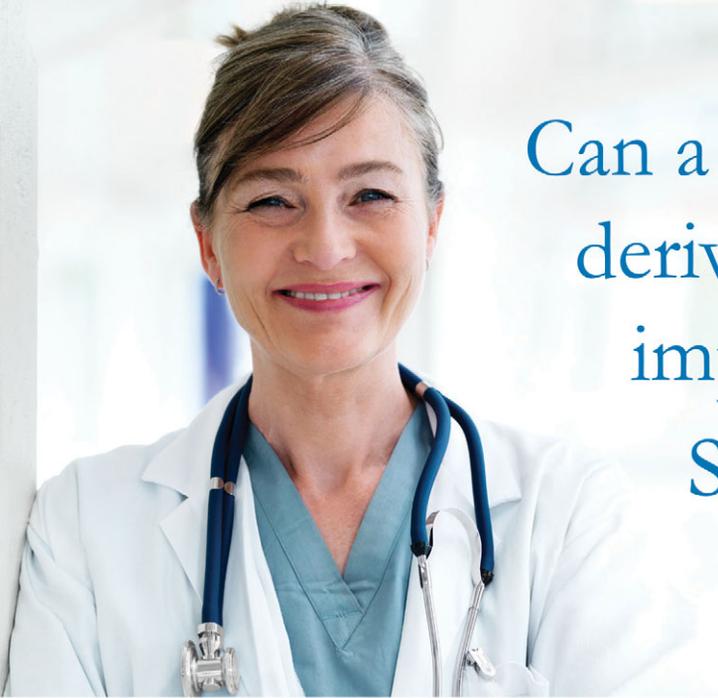
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Improves Memory*

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.

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

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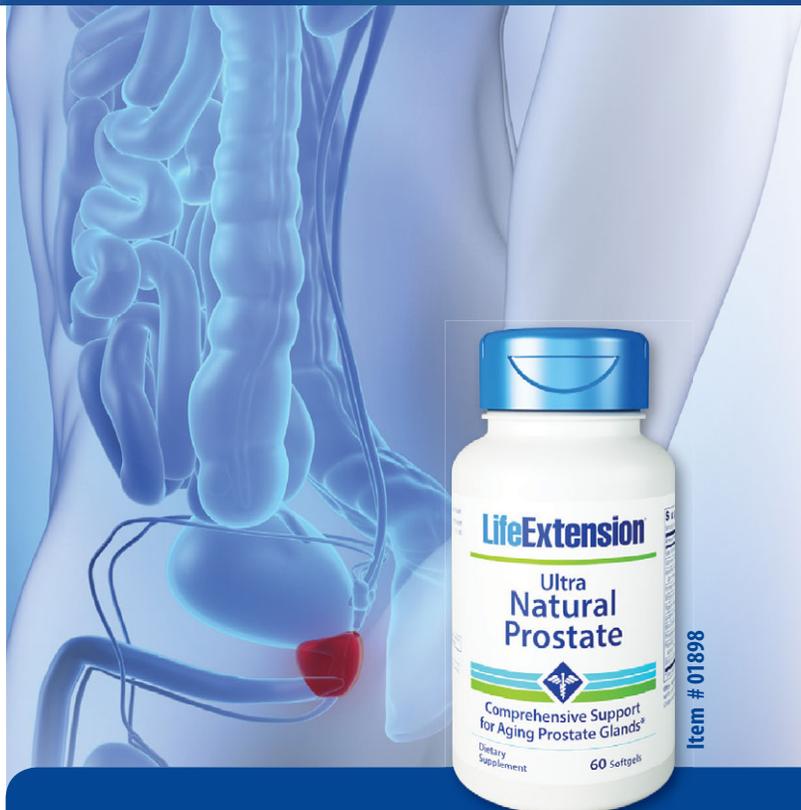
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ULTIMATE PROSTATE PROTECTION

At Life Extension®, we continually update our formulas to reflect the latest research findings.

Ultra Natural Prostate formula provides the latest scientifically validated, standardized botanical extracts shown to promote healthy prostate function. No other prostate protection formula provides such a broad array of nutrients to support the multiple factors involved in promoting the aging prostate gland. Here are the ingredients in the **Ultra Natural Prostate** formula:

- **Standardized lignans** convert to *enterolactone* in the intestine, which is then absorbed into the bloodstream to provide support for prostate cells against excess estrogen levels.¹⁻³
- **AprèsFlex®** supports normal inhibition of *5-lipoxygenase* or *5-LOX*, an enzyme that is associated with undesirable cell division changes.^{4,5}
- **Stinging and Dwarf nettle root extracts** help support prostate cells against excess estrogen levels.^{6,7}
- **Saw Palmetto CO2 extract** helps inhibit *dihydrotestosterone* (DHT) activity in the prostate, helps support normal urinary flow, and helps regulate inflammatory reactions in the prostate.⁸⁻¹¹
- **Pygeum** (*Pygeum africanum*) extract helps suppress prostaglandin production in the prostate and supports healthy urination patterns.^{12,13}
- **Pumpkin seed oil**, from select pumpkins, enhances the composition of free fatty acids and augments saw palmetto's benefits.¹⁴⁻¹⁶
- **Beta-sitosterol** enhances the protective effects of other botanical extracts and helps improve quality of life.¹⁷⁻¹⁹
- **Graminex® Flower Pollen Extract™**, has been shown to help relax the smooth muscles of the urethra and help regulate inflammatory reactions.²⁰⁻²²
- **Boron** has been shown to slow elevation of prostate-specific antigen (PSA).²³⁻²⁵
- **Lycopene** supports efficient cellular communication, helps maintain healthy DNA, regulates hormonal metabolism, and promotes healthy prostate size and structure.²⁶⁻³²



Item # 01898

The suggested daily dose of two softgels of **Ultra Natural Prostate** provides:

Saw Palmetto CO2 extract (fruit) [providing 272 mg total fatty acids]	320 mg
Graminex® Flower Pollen Extract™ (from rye)	252 mg
Stinging and Dwarf nettle extracts (root)	240 mg
Beta-Sitosterol (from pine)	180 mg
Phospholipids	160 mg
Pygeum extract (bark)	100 mg
Pumpkin seed oil [providing 170 mg total fatty acids]	200 mg
AprèsFlex® Indian frankincense (<i>Boswellia serrata</i>) extract (gum resin) [providing 14 mg AKBA ¹]	70 mg
Proprietary Enterolactone Precursors Blend [HMRlignan™ Norway spruce (<i>Picea abies</i>) (knot wood) and Flax (seed) lignan extracts]	20.15 mg
Lycopene [from natural tomato extract (fruit)]	10 mg
Boron (as Albion® bororganic glycine)	3 mg

¹ 3-O-acetyl-11-keto-β-boswellic acid

A bottle of 60 softgels of **Ultra Natural Prostate** retails for **\$38**. If a member buys four bottles, the price is reduced to **\$26.25** per bottle. If a member buys 12 bottles, the price is **\$24**.

Contains soybeans.

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7 WHY SICK CARE COSTS SO MUCH

Pharmaceutical lobbyists use regulatory barriers to gouge the public with monopolistic prices. Deregulation would improve healthcare, lower costs, and eliminate the need for government-mandated insurance programs.



22 GREEN TEA DEFENDS AGAINST ALZHEIMER'S DISEASE

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34 SAFELY MANAGE MENOPAUSAL SYMPTOMS

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