

FIGHT BACK AGAINST PANCREATIC CANCER

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

July 2014

Cancer Research Paralyzed By Bureaucracy

**Internal Protection
Against Solar Damage**

**Newly Discovered
Benefits of Coffee**

**Exclusive Report
From Cardiovascular
Disease Symposium**



PLUS—
Vitamin D Slashes Breast Cancer Mortality
Creatine Protects Against Neurodegeneration
Hysterectomy Procedure to Avoid

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.

Kaneka QH Ubiquinol® is a registered trademark of Kaneka Corporation. PrimaVie® is a registered trademark of Natreon, Inc. BioPQQ® is a registered trademark of MGC (Japan).

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**To order Super Ubiquinol
CoQ10 With BioPQQ®, call 1-800-544-4440
or visit www.LifeExtension.com**

REPORTS



24 PREVENT SUN-INDUCED SKIN AGING

Solar rays cause wrinkles, age spots, and cancer. A **tropical fern extract**—when taken orally—markedly **reduces** ultraviolet-induced skin damage. This natural extract goes one step further and **repairs** sun-aged skin by generating **new collagen** and **elastin**.



36 CREATINE EXTENDS LIFE SPAN

Once used only by athletes, **creatine** has been shown to improve glucose tolerance, inhibit cognitive decline, and combat age-related disease. Impressive, journal-published research shows that **creatine** extends life span in animals by the equivalent of **seven years** in **human** terms.



48 NEW FINDINGS ABOUT COFFEE

A study published in the *New England Journal of Medicine* reveals the overall death risk for coffee drinkers is **16% lower** than non-drinkers. Containing more than 1,000 compounds, **coffee's** potent molecules are now recognized to inhibit cardiovascular disease, metabolic syndrome, diabetes, neurodegeneration, and liver and kidney cancers.



62 CARDIOVASCULAR CONFERENCE REPORT

At the world's largest conference on cardiovascular disease prevention organized by **Dr. Michael Ozner**, scientists presented compelling studies for reducing heart disease risks. Topics included gluten sensitivity, fructose's link to diabetes, coronary artery calcification, preventing blood vessel aging, chelation therapy, processed meat risks, and cardiac medications.



74 A COMMON BUT DEADLY GYNECOLOGICAL PROCEDURE

Every year, more than 60,000 women undergo **morcellation** for the removal of **uterine fibroids** or to shred the uterus for easy removal. Unfortunately, the process can spread lethal cancer cells into the abdomen, killing one in every 350 women treated with this procedure.

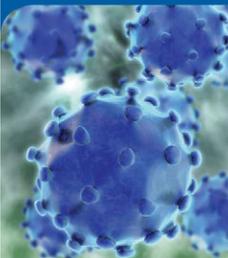


7 ON THE COVER

CANCER RESEARCH PARALYZED BY BUREAUCRACY

Like lambs awaiting slaughter, the public tolerates bureaucratic delays that inflict horrific suffering and needless death. Lifesaving cancer treatments remain bogged down in red tape. AIDS activists revolted against regulatory roadblocks and turned HIV infection into a manageable illness. Cancer victims should emulate this remarkable success.

DEPARTMENTS

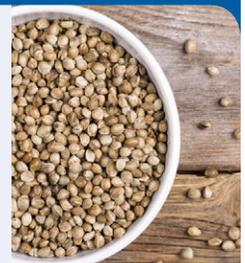


17 IN THE NEWS

Calcium supplements decrease colorectal cancer risk; vitamin D lowers breast and colorectal cancer mortality; individuals with enhanced vitamin E metabolism have **25%** lower prostate cancer risk; vitamin C supports breast cancer survival; fish oil lowers blood pressure; and more.

93 SUPER FOODS

Hemp seeds are a rich source of two essential fatty acids—*alpha-linolenic acid* and the rare *gamma linolenic acid*—along with all the essential amino acids and abundant minerals and vitamins. Hemp seeds quell inflammation, enhance cardiovascular protection, and ease eczema symptoms.

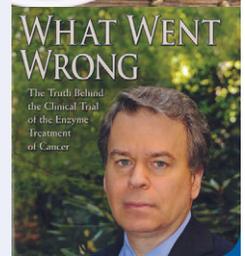


87 WELLNESS PROFILE

Author of *The Sailor Who Climbs Mountains*, Jean Braure is a three-time Olympic sailor and **Life Extension®** member who has also scaled the world's highest peaks. At 78—and still climbing—he takes a range of supplements to improve his performance.

99 AUTHOR INTERVIEW

Nicholas Gonzales, MD, pioneered research into an enzyme-based nutritional approach to treating cancer. In his book, *What Went Wrong*, he describes how the medical world's bias and incompetence derailed a crucial clinical trial and nearly succeeded at discrediting his therapy.





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How Much Curcumin Are You Absorbing?



Curcumin is an active compound derived from the Indian spice **turmeric**. It has been widely acclaimed for its diverse health-promoting effects on nearly every organ system in the body,¹⁻⁶ including its support for the body's natural inflammatory response system.⁷ But most curcumin is neither *absorbed well nor retained well* in the blood—posing a challenge to those who wish to maximize its benefits.⁸

Life Extension® took the lead in resolving this issue several years ago by introducing **Super Bio-Curcumin**® containing **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

Now, an exciting **next generation** curcumin formula has become available! The **Advanced Bio-Curcumin**® with **Ginger & Turmerones** provides additional compounds that **further** boost absorption of curcumin's highly beneficial phytonutrients!^{9,10}

UNRIVALED POTENCY AND ABSORBABILITY

In addition to **BCM-95**®, this **curcumin** formula contains:

1. Turmerones: After curcumin is extracted from turmeric, what remains is **turmeric oil** rich in compounds called **turmerones**.^{11,12} Combining **BCM-95**® with a high content of **turmerones** provides health consumers with more beneficial **turmeric** compounds that further multiply absorption.⁹ Scientists have shown that these potent **turmerones** not only support curcumin absorption, but significantly increase the amount of curcumin **inside** the cell as well!⁹

2. Ginger: Curcumin and **ginger** are close botanical relatives. Research demonstrates that they have overlapping and complementary health benefits,¹³ and scientists are focusing on the therapeutic effects of *combining* these two plants.^{14,15}

Advanced Bio-Curcumin® with **Ginger & Turmerones** provides a supercritical extract of ginger standardized to the greatest concentration of ginger compounds—including beneficial gingerols and shogaols.

3. Phospholipids: This new curcumin formula also contains **phospholipids**, a type of emulsifying molecule known to greatly enhance absorption of poorly soluble active compounds.¹⁰

The powerfully enhanced bioavailability and potency of **Advanced Bio-Curcumin**® with **Ginger & Turmerones** is superior to conventional curcumin supplements. This product represents the most powerful and cost-effective way to supplement with—and receive the full benefits of—this very critical nutrient.

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)	200 mg
[providing 60 mg gingerols]	

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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To order **Life Extension**® **Advanced Bio-Curcumin**® with **Ginger & Turmerones**, call **1-800-544-4440** or visit **www.LifeExtension.com**



Item# 01808

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

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

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



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



John Boik, PhD, is the author of two books on cancer therapy, *Cancer and Natural Medicine* (1996) and *Natural Compounds in Cancer Therapy* (2001). He obtained his doctorate at the University of Texas Graduate School of Biomedical Sciences with research at the MD Anderson Cancer Center, focusing on screening models to identify promising new anticancer drugs. He conducted his postdoctoral training at Stanford University Department of Statistics. He is currently president of New Earth BioMed, a nonprofit cancer research corporation that studies mixtures of natural products.



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



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



Steven B. Harris, MD, is president and director of research at Critical Care Research, a company that grew out of 21st Century Medicine in Rancho Cucamonga, CA. Dr. Harris participates in groundbreaking hypothermia, cryothermia, and ischemia research. His research interests include antioxidant and dietary-restriction effects in animals and humans.



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



Richard Kratz, MD, DSci, is clinical professor of ophthalmology at the University of California, Irvine, and the University of Southern California (Los Angeles). Dr. Kratz pioneered the cataract-removal technique called phacoemulsification and developed intraocular lenses to replace the crystalline lens. He is currently involved in projects relating to glaucoma, cataract extraction, and facilitating eyesight for the totally blind.



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



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

Dr. Dipnarine Maharaj is the Medical Director of the South Florida Bone Marrow Stem Cell Transplant Institute and is regarded as one of the world's foremost experts on adult stem cells. He received his medical degree in 1978 from the University of Glasgow Medical School, Scotland. He completed his internship and residency in Internal Medicine and Hematology at the University's Royal Infirmary.



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



Michael D. Ozner, MD, FACC, FAHA, is a board-certified cardiologist who specializes in cardiovascular disease prevention. He serves as medical director for the Cardiovascular Prevention Institute of South Florida and is a noted national speaker on heart disease prevention. Dr. Ozner is also author of *The Great American Heart Hoax* and *The Miami Mediterranean Diet* (2008, Benbella Books). For more information visit www.drozner.com.



Jonathan V. Wright, MD, is medical director of the Tahoma Clinic in Renton, WA. He received his MD from the University of Michigan and has taught natural biochemical medical treatments since 1983. Dr. Wright pioneered the use of bioidentical estrogens and DHEA in daily medical practice. He has authored 11 books and publishes *Nutrition and Healing*, a monthly newsletter with a worldwide circulation of more than 100,000.

ADVANCED

Item # 01430



Resveratrol Formula

In 2003, the **Life Extension Foundation**[®] introduced a standardized **resveratrol** extract shown to favorably alter genes implicated in the aging process—many of the same genes that respond to **calorie restriction**.

Since then, we have identified additional compounds that simulate calorie restriction's ability to trigger youthful **gene expression**—the process by which genes transmit signals that slow certain aspects of aging.

Compelling evidence reveals that certain compounds found in berries, such as **pterostilbene** and **fisetin**, possess potent "longevity gene" activators that work in synergy with **resveratrol**. For example, **fisetin** (found in strawberries) has been shown to **stabilize** resveratrol in the body by shielding it from metabolic breakdown,¹⁻¹⁰ thus extending its beneficial effects.

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

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Intolerable Delays!



BY WILLIAM FALOON

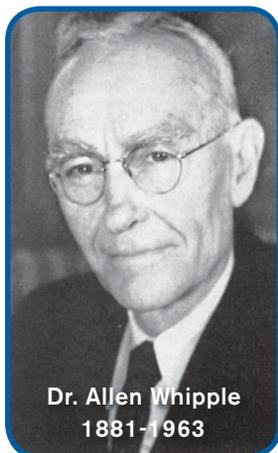
The first surgical attempt to cure **pancreatic cancer** was demonstrated in Germany in **1909**.¹ In **1935**, a doctor named **Allen Whipple** devised a more effective way to remove the **pancreas** and adjacent body parts.²

Dr. Whipple's technique involves the removal of the head of the pancreas, along with portions of the stomach, small intestine, gall bladder, and common bile duct.

The surgical impact on the body is severe. There is a higher death rate from this procedure than many other hospital operations.³ Sometimes the rearranged internal organs do not hold together and infection spreads inside the patient. This leads to follow-up surgery where the remainder of the pancreas and the

spleen are removed to correct problems caused by the first operation.⁴

Some patients do not heal well and leak pancreatic juice from where body parts are sewn together. This happens so frequently that the surgeon leaves in drainage catheters for fluids to exit so they don't accumulate inside the patient.^{4,5}



Dr. Allen Whipple
1881-1963

Another complication is paralysis of the stomach that can take over a month to heal. During this time a feeding tube is surgically placed into the small intestine to provide nourishment.⁶

Some patients develop **type I diabetes** because the insulin-producing areas of their pancreas is removed, requiring life-long insulin injections.⁷

Despite these horrific surgical side effects, most patients who survive the painful hospital ordeal die from metastatic **pancreatic cancer**. Few are cured.

The name of this surgery is the "**Whipple Procedure**." While it's been refined since Dr. Whipple's work in **1935**, pancreatic cancer still kills the vast majority of its victims—**79 years** later!⁸

The snail's pace of progress against malignancies like pancreatic cancer should provoke societal outrage against the establishment. Yet like lambs standing in line awaiting slaughter, the public tolerates mediocre medicine that is inflicting horrific suffering and massive numbers of needless deaths.

We view these bureaucratic lags as **intolerable delays** that will be ridiculed by future medical historians. This article describes a drug long ago approved by the FDA that can improve outcomes in pancreatic and other cancer cases. This treatment, however, is not being incorporated into conventional practice.

AS WE SEE IT

Steve Jobs was criticized for delaying a **Whipple Procedure** for nine months after being diagnosed with **pancreatic cancer**.⁹ The initial approaches Jobs tried (acupuncture, vegan diet, herbs, spiritualists) had no chance of eradicating his primary pancreatic tumor.

It's hard to blame the then 49-year-old co-founder of Apple, however, for not wanting his body cut up via a **Whipple Procedure**. Steve Jobs eventually died at age 56 after undergoing multiple aggressive treatments, including a liver transplant.¹⁰⁻¹²

How many technologies developed in the early **1900s** do consumers still use today? Yet, even the **stethoscope** (invented in **1819**) remains state-of-the-art in today's archaic world of medical practice.



Steve Jobs
1955-2011
Pancreatic Cancer Victim

© MATTHEW YOHE

If one is diagnosed with pancreatic cancer at a relatively early stage, the **Whipple Procedure** is still the best treatment option. Overlooked are a myriad of **adjuvant therapies** that can markedly improve long-term survival and reduce the horrific complications

inherent to the Whipple surgical procedure.

The cancer treatment I describe next is not new. It has long been recommended to **Life Extension**® members.

Interleukin-2 **Improves Survival 3-Fold!**

Interleukin-2 (IL-2) enhances overall immune function, most notably by enhancing **natural killer cell** activity.¹³⁻¹⁵ Natural killer cells are among the body's most important immune defenses against malignant and viral-infected cells.¹⁶⁻²⁰ (Cells infected with certain viruses are more prone to convert to malignant cells.)²¹

IL-2 was long ago approved to treat kidney cancer²²⁻²⁶ and metastatic melanoma.²⁷⁻²⁹ Its efficacy was likely limited by the advanced disease stage patients are at by the time IL-2 is administered.³⁰ There is toxicity associated with **high-dose** IL-2.^{31,32}

Intriguing research suggests that administering **moderate-dose** IL-2 to patients **before** surgery and chemotherapy may improve survival and other outcomes.³³⁻³⁷ It does this by boosting immune

Interleukin-2 Versus Placebo **In Pancreatic Cancer Treatment**

The subcutaneous administering of **9 million** international units a day of the drug **interleukin-2** to pancreatic cancer patients **three days before** surgery induced the following benefits compared to placebo patients administered saline:

	Interleukin-2 Group	Control
Two-Year Survival	33%	10%
Three-Year Survival	22%	0%
Postoperative Complications	33%	80%

This study should have made headline news. Instead it was buried in a **2006** edition of the journal **Hepato-Gastroenterology**.⁴⁶

Life Extension has been recommending moderate dose **interleukin-2** as an adjuvant cancer treatment since the late **1990s**.

Skeptics point to studies in advanced melanoma and renal cell carcinoma patients where **interleukin-2** provides only modest survival improvements. These narrow-focused cynics neglect evidence that **interleukin-2** is most effective when administered **before** immune-suppressing surgery, radiation, and chemotherapy begins.^{33-37,47,48}

Why Cancer Patients Need To Boost Natural Killer Cell Activity

Natural killer cells are the part of the immune system that is capable of recognizing and killing virus-infected and malignant cells, while sparing normal cells.^{49,50}

The importance of killing virus-infected cells is that cells infected with *human papilloma virus* (HPV) and other viruses have greater propensity to mutate into cancer cells. Chronic infection with some of these viruses also exhausts vital immune functions.⁵¹

In mice deficient in **natural killer cells**, tumors grow more aggressively and are more metastatic.⁵²⁻⁵⁴

Natural killer cells play an important role in the control of tumor growth.⁵⁵

Infusion of immune enhancers like **interleukin-2** boosts **natural killer cell** activity which can lead to the death of tumor cells.⁵⁶

Leukemia patients have benefited using **natural killer cells** obtained from hematopoietic stem cell donors, which is an exciting area of cancer research.⁵⁷⁻⁵⁹

Non-drug ways of boosting **natural killer cell** activity include **garlic**,⁶⁰⁻⁶⁴ **melatonin**,⁶⁵⁻⁶⁷ **Reishi extract**,⁶⁸⁻⁷¹ and other supplements used by **Life Extension** members. When treating cancer, however, **interleukin-2** should be considered to provide an exponential improvement in natural killer cell activity **prior** to initiation of conventional treatments.

function **prior** to it being impaired by conventional treatments.

Surgery results in significant immune impairment, something we warned against long before the mainstream considered it a factor in the poor survival rates seen in many types of cancer.³⁸⁻⁴³ Immune suppression that occurs during chemotherapy is a well-established treatment complication.^{44,45}

In a study conducted on **pancreatic cancer** patients, half the group was administered moderate dose IL-2 for three consecutive days prior to a **Whipple Procedure**. Two years after the operation, **33%** of patients pre-administered IL-2 were alive compared to only **10%** of control surgical patients. Three-year survival was **22%** in the IL-2 group compared to **0%** of the controls.⁴⁶

Surgical complications occurred in **80%** of the control surgical patients compared with only **33%** in the IL-2 pretreatment group. While the control group spent **19.5** days confined to the hospital after their **Whipple Procedure**, the IL-2 group escaped the hospital in **12** days.⁴⁶

Life Extension has been recommending moderate-dose IL-2 since the **1990s**, yet the mainstream oncologists behave as if these drugs are limited to advanced cancers for which they originally gained FDA-approval. The reality is that IL-2 and other immune-boosting drugs may have far greater efficacy when administered **early** in the disease process against of a wide range of solid tumors and some types of leukemia.

Contrast Mediocre Cancer Treatment To HIV

Cancer is not relegated to modern times. It has killed human beings forever, but has become prominent as people live longer and cancer incidence markedly increases. Pancreatic cancer, for instance, increases sharply in individuals over age 50, and most patients are 60 to 80 years old when diagnosed.⁷²

HIV rose to prominence in the early **1980s**, though the virus existed in the human population before then. The problem was that no one paid attention until thousands started dying.

Within 15 years of HIV infection becoming pandemic, effective anti-viral “cocktails” were discovered that turned AIDS from a death sentence into a manageable chronic disease.⁷³⁻⁷⁵

In **1981**, AIDS was a disease of unknown origin.⁷⁶ It is controllable today because of rapid scientific innovation. **Pancreatic cancer**, on the other hand, still kills virtually all its victims with the best hope for long-term survival being the **Whipple Procedure** first refined in **1935**.⁸

So why were AIDS treatments discovered so quickly while effective cancer therapies languish?

The difference was the aggressive way that experimental multimodal therapies were implemented in HIV/AIDS patients compared to the suffocating bureaucracy that stymies cancer research.

In the early days of AIDS treatment, **any** therapy that might work was tried immediately on dying patients and the results evaluated and documented. These treatments were often administered by those infected with HIV who faced pending death if a cure were not discovered quickly. The FDA was cast by

the wayside as AIDS activists made certain that potentially effective treatments were not obstructed by bureaucratic red tape.⁷⁷

We at *Life Extension* are proud of the part we played in saving the lives of AIDS patients by defying FDA attempts to shut us down. An editorial published late last year in the *New England Journal of Medicine* revealed how HIV revolutionized the way global health is pursued, and how it resulted in *accelerated* delivery of innovative life saving treatments.⁷⁸

We Were Jailed!

The FDA did not like our aggressive stance when it came to accelerating medical research, particularly as it related to helping AIDS victims. The FDA did everything in its power to shut *Life Extension* down and imprison us for life.⁸² According to the FDA, we were ripping off dying AIDS patients by recommending unproven therapies.

The *Journal of the American Medical Association* (Nov 27, 2013) featured an article describing a **54% reduction** in the risk of progressing from HIV to full-blown AIDS using selenium and multi-vitamins.⁸³ *Life Extension*



first recommended these nutrients in the **October 1985** edition of this publication (called at that time *Anti-Aging News*).

While the study published in the *Journal of the American Medical Association* was conducted in a region of Africa where malnutrition is rampant, and the study had other flaws (like a **25%** dropout rate in both groups), the delay in HIV-induced immune suppression in patients taking these nutrients was remarkable.

A number of previous studies support the benefits of certain nutrients in delaying HIV progression^{79,84-86} Even *FDA Consumer Magazine* eventually acknowledged the value of AIDS patients using nutrient supplements.

We also recommended a drug called **isoprinosine** to AIDS patients in the **October 1985** issue of *Anti-Aging News*. This contributed to our being arrested by the FDA because isoprinosine was not an approved drug. In the **June 21, 1990**, edition of the *New England Journal of Medicine*, a study found that HIV-infected humans who took isoprinosine were **eight times less** likely to progress to **AIDS** compared to placebo.⁸⁷ This was not enough, however, to keep us from being indicted in **1991**.

What helped save us was the continuing publication of research findings corroborating that **isoprinosine** and certain nutrients significantly delayed disease progression in HIV-infected patients,

New England Journal Of Medicine Praises Work Of Early AIDS Activists

Allan Brandt, PhD, is a professor of medical history at **Harvard Medical School**. Dr. Brandt's perspective titled "**How AIDS Invented Global Health**" was published in the June 6, 2013, edition of the *New England Journal of Medicine*.⁷⁹ Here are some quotes from his perspective:

- "AIDS has reshaped conventional wisdoms in public health, research practice, cultural attitudes, and social behaviors."
- "The rapid development of effective antiretroviral treatments, in turn, could not have occurred without new forms of disease advocacy and activism."
- "But AIDS activists explicitly crossed a vast chasm of expertise. They went to FDA meetings and events steeped in often arcane science of HIV, prepared to offer concrete proposals to speed research, reformulate trials, and accelerate regulatory processes."
- "This approach went well beyond the traditional bioethical formulations of autonomy and consent. As many clinicians and scientists acknowledged, AIDS activists, including many people with AIDS, served as collaborators and colleagues rather than constituents and subjects, changing the trajectory of research and treatment."

Omitted from Dr. Brandt's complimentary statements were the harassment, persecution, and incarceration of AIDS activists by government agencies that sought to suppress burgeoning development of AIDS therapies.^{80,81}

“In conclusion, our data suggest the relevance of NK (natural killer) cells as primary effectors not only against high-risk leukemias, but also solid tumors.”⁴⁴

Quote from study published in the April 2013 edition of the journal *Oncoimmunology*

thus negating the FDA’s argument that we were “ripping off AIDS patients” by recommending “unproven” therapies.

The FDA was on the wrong side when it sought to destroy us in the **1980-1990s**. Regrettably, millions of Americans continue to perish from needless bureaucratic red tape from virtually all diseases except AIDS. The reason AIDS is the exception is that AIDS activists made it clear to the FDA that there would be no bureaucratic delays in delivering experimental therapies to HIV-infected patients. The FDA capitulated and this enabled rapid medical innovation to occur in a free market environment.

Cancer patients, on the other hand, sit by like timid sheep, as the FDA decides which experimental therapy they are “allowed” to try and how far their disease must progress before the experimental therapy is made available on a so-called “compassionate-use” basis. FDA’s granting of “compassionate-use” sometimes occurs weeks after the patient dies, or is so close to death that it has no chance of working.

Not Fast Enough!

In **2010**, the **Life Extension Foundation**[®] pledged a substantial amount of money to a prestigious cancer research institute to evaluate many of the components contained in our published **Pancreatic Cancer Treatment Protocol**. The institution eagerly pushed this project forward, generating reams of paperwork in order to obtain **Institutional Review Board** approval.

Here we are in **2014**, and the total number of pancreatic patients enrolled in this study is **zero**.

Bureaucratic delays like this are beyond rational understanding. These are human lives we are talking about!

When we devised unique treatments for AIDS in the 1980s, they were provided to dying AIDS patients almost overnight. Not all of them worked, but the ones that did built on a foundation that has resulted in HIV patients living for decades, as opposed to pancreatic cancer patients who often die in a matter of months.

Contrast the rapid development of AIDS therapies to most pancreatic cancer patients who die even after enduring the **Whipple Procedure** that was first described in **1935**. It is clear that methods employed by AIDS activists are far superior to today’s regulatory quagmire that stymies cancer research.

Citizens Should Revolt

Cancer will likely kill over **570,000** Americans this year.⁸⁸

Already-approved treatments could be saving lives, such as administering moderate dose interleukin-2 *early* in the disease process. Yet even these simple treatment enhancements are ignored by the oncology mainstream that prefers to practice **assembly line** medicine.

These kinds of delays would have never been tolerated by AIDS activists, who experimented with *any* potentially effective drug on large numbers of dying patients to quickly discover what worked and what didn’t.

The *New England Journal of Medicine* credits the work of AIDS pioneers as revolutionizing the way medical research is conducted today. We at *Life Extension* disagree with this Pollyanna assessment, as cancer therapies we uncovered decades ago remain bogged down in FDA red tape. Many are not being pursued at all despite a continuous stream of favorable data flowing out of research facilities.

The slogan in the black box below was chanted by AIDS activists who surrounded FDA headquarters in **1988** and shut down the agency for one day:^{89,90}

**“Act Up, Speak Out...
Silence = Death!”**

Protest Now Rather Than Wait For Funerals

I do not know why every cancer patient and their family does not march on Washington to demand the same exemption from bureaucratic suffocation that enabled HIV to become a manageable disease in a relatively brief window of time.

Perhaps cancer patients should write their family and friends and state something to the effect:

“In lieu of attending my funeral, would you mind marching on the Capitol in Washington D.C. and insist that cancer patients have unfettered access to any therapy that might work.”

For longer life,



William Faloon

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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 PSP) 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

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High Potency **FAT-SOLUBLE** NUTRIENTS in ONE Softgel

Most people don't get enough oil-based nutrients like **vitamin K**, **lycopene**, and **gamma tocopherol**. This problem is solved with a one-per-day softgel called **Super Booster**. It provides high potencies of **fat-soluble** compounds lacking in dry powder formulas, along with other nutrients.

Just one **SUPER BOOSTER** provides:



Item # 01680

- **VITAMIN K2** Scientific studies show **vitamin K2** provides superior benefits for the bones, arteries, and other tissues. The **MK-4** form of vitamin K2 is the most rapidly absorbed and is now routinely used in Japan to maintain healthy bone density. **MK-4**, however, only remains active in the blood for a few hours. The **MK-7** form of K2, on the other hand, remains bioavailable to the human body over a sustained **24-hour period**. Super Booster provides a potent dose of **MK-7 and MK-4** to keep calcium in the bone and out of the arteries.

- **GAMMA TOCOPHEROL** If one consumes only alpha tocopherol, the critically important **gamma** tocopherol is displaced from cells within the body. While *alpha tocopherol* vitamin E inhibits *lipid peroxidation*, the *gamma tocopherol* form quenches the dangerous *peroxynitrite* free radical. It is especially important for those who take vitamin E supplements to make sure they consume at least 200 mg a day of gamma tocopherol.

- **LUTEIN** The carotenoid lutein helps maintain healthy cell division, supports the macula of the eye, and protects the endothelial lining of the arteries.

- **LYCOPENE** Evidence suggests that people who ingest the carotenoid lycopene enjoy healthier prostate function. Lycopene also helps guard against LDL oxidation.

- **GINKGO** Hundreds of studies substantiate the multifaceted effects of *Ginkgo biloba* in promoting healthy circulatory and neurological function.

- **CHLOROPHYLLIN** Scientific studies indicate that chlorophyllin may protect against environmentally induced damage to DNA.

JUST ONE SOFTGEL OF SUPER BOOSTER SUPPLIES:

Vitamin K2 (as menaquinone-7)	200 mcg	Gamma Tocopherol	197.45-296.25 mg
Vitamin K2 (as menaquinone-4)	1000 mcg	Lycopene	10 mg
Vitamin K1 (as phytonadione)	1000 mcg	Lutein	2 mg
Ginkgo extract	120 mg	Vitamin B12	300 mcg
Sesame lignans	20 mg	Vitamin C	95 mg
Chlorophyllin	100 mg		

A bottle of 60 **Super Booster** softgels retails for \$42. If a member buys four bottles, the price is reduced to **\$28.50** per bottle.

The **Super Booster** saves consumers **huge dollars** by combining a wide variety of costly nutrients into one daily softgel. If you add up the price of the individual ingredients contained in the **Super Booster**, you would spend **two to three times more** for this potency if taken separately.

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

Contains soybeans.

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

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SUPPORT FOR THE IMMUNE SYSTEM

Reishi mushroom has been traditionally used to boost immune system vitality. Its broad-spectrum benefits have been demonstrated in thousands of studies.¹

An advanced extraction technology has resulted in a new **Reishi extract** that make its active compounds even more bio-available.

REISHI SUPPORTS A HEALTHY IMMUNE SYSTEM

An abundance of evidence demonstrates that **Reishi** constituents enhance the protective activity of the body's **hematopoietic stem cells, T-cells**, and other crucial immune factors.²⁻⁹

Reishi's immune-supporting compounds include an array of unique *polysaccharides*, *triterpenes*, and other constituents,^{10,11} many of which assist activation of the cell surface receptors that modulate normal immunity.¹²

The **Reishi** mushroom also supports the body's production of endogenous antioxidant enzymes—such as **superoxide dismutase (SOD)**, **catalase**, and **glutathione**—which, in turn, support the body's natural immune defenses against free radical damage!^{13,14}

ADVANCED EXTRACTION TECHNOLOGY

Reishi Extract Mushroom Complex delivers powerful compounds and represents the **next generation** of natural immune support. Reishi extracts standardized to polysaccharides have been available for years, but most do not standardize for triterpenes and include the spores. This full-spectrum extract has multiple components that have shown to support healthy immune function and enhanced longevity in a natural experimental aging model.¹⁵



Item# 01708

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

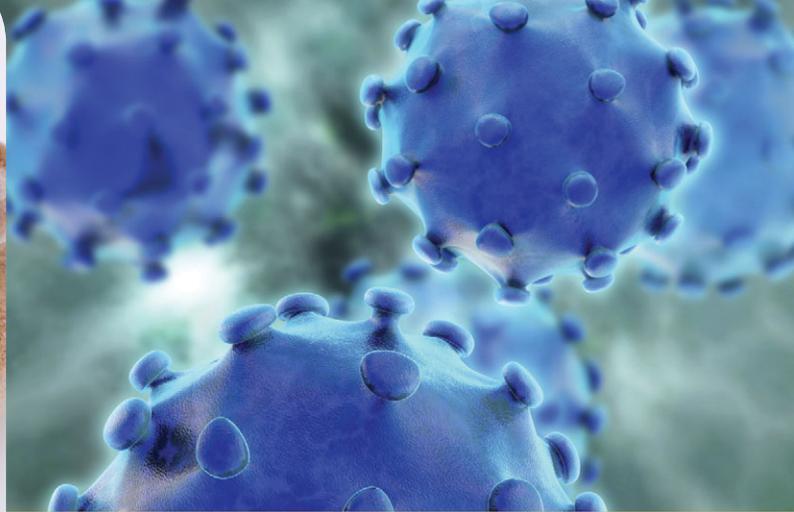
Reishi mushroom (<i>Ganoderma lucidum</i>) extract (Fruit body)	980 mg
[standardized to 13.5% polysaccharides (132.3mg) and 6% triterpenes (58.8mg)]	
Shell-broken Reishi mushroom (<i>Ganoderma lucidum</i>) spore	150 mg

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

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To order **Reishi Extract Mushroom Complex**, call 1-800-544-4440 or visit www.LifeExtension.com



IN THE NEWS

Higher Vitamin D Levels Associated With Improved Breast And Colorectal Cancer Survival

An article published online in the *European Journal of Cancer* reports the results of two meta-analyses conducted by researchers at the German Cancer Research Center in Heidelberg, which affirm a protective effect for higher levels of vitamin D against the risk of dying from breast cancer as well as colorectal cancer.*

The researchers selected five studies that involved 4,413 breast cancer patients and five studies that included 2,330 colorectal cancer patients. Analysis of the selected studies uncovered a **38%** average lower risk of dying from any cause and a **42%** lower risk of dying from breast cancer when the highest versus lowest categories of serum 25-hydroxyvitamin D levels were compared. For colorectal cancer, the risk averaged **29%** lower for all-cause mortality and **35%** lower for disease-specific death among the highest groups.

Editor's Note: Authors Haifa Maalmi and colleagues note, "The rather consistent results found in our meta-analyses suggest vitamin D supplementation might bear a potential to improve prognosis among colorectal and breast cancer patients, a suggestion that should be followed up and tested in randomized controlled trials."

—D. Dye

* *Eur J Cancer*. 2014 Feb 27.

Nutritious Meals Reduce Health Care Expenditures In Chronically Ill Population

The *Journal of Primary Care & Community Health* published an article by researchers affiliated with Philadelphia's Metropolitan Area Neighborhood Nutrition Alliance (MANNA), which reports a health savings benefit for nutritious meal delivery to men and women with chronic ailments.*

The study compared 65 MANNA clients with 633 Medicaid patients with chronic illnesses who did not receive the services. Subjects in the MANNA group received three nutritionally balanced meals per day that employed Medical Nutrition Therapy (MNT) to improve nutritional status, disease-fighting ability, and quality of life. Health care costs for all participants were assessed for the six months prior to and six months following the beginning of the meal deliveries.

Average monthly health care costs including inpatient costs and hospital admissions decreased among the MANNA clients during the three months after the meal service was initiated, demonstrating a health benefit for improved nutrition.

Editor's Note: In the months after receiving the meals, the group's monthly healthcare costs were an average of **31%** lower than costs incurred by participants who did not receive the meals.

—D. Dye

* *J Prim Care Community Health*. 2013 Oct;4(4):311-7.



Need For Choline Higher In Some Individuals

An article published in *The FASEB Journal* presents University of North Carolina researchers' findings of a variance in the requirement for choline among people of different genders and ethnic backgrounds.*

Kerry-Ann da Costa, PhD, and colleagues gave 79 men and women a 10-day diet that provided **550 mg** choline per day, which is the Institute of Medicine's adequate intake level. This was followed by a diet containing only **50 mg** choline daily for up to six weeks, during which changes associated with the development of liver or muscle dysfunction were monitored. DNA samples were evaluated for 200 variations in 10 genes related to choline metabolism in order to determine their relationship with deficiency symptoms.

The researchers observed several single nucleotide polymorphisms (SNPs) associated with choline deficiency-related organ dysfunction in women when they consume a diet low in choline, as well as variants that affect choline requirements.

Editor's Note: Other SNPs were identified with muscle damage. Variation in SNPs that affect choline requirement was observed among Europeans, Mexicans, Asian Americans, and people of African descent.

—D. Dye

* *FASEB J.* 2014 Mar 26.



Meta-Analysis Links Greater Calcium Intake To Lower Colorectal Cancer Risk

The results of a meta-analysis published online in the *International Journal of Cancer* support a reduced risk of colorectal cancer among men and women with a higher intake of calcium.*

Edward L. Giovannucci, ScD, of Harvard School of Public Health, and colleagues selected 21 publications reporting 20 prospective observational studies for their analysis. Analysis of overall intake of calcium, which involved studies that included a total of 1,415,597 participants among whom 12,305 cases of colorectal cancer occurred, uncovered an **8% lower risk** of the disease in association with each **300 mg** per day increase in calcium intake. Those whose consumption of calcium averaged **1,000 mg** per day had an **18% lower risk** of the disease compared to those whose intake was **250 mg**, and among those whose intake was **1,750 mg**, the risk was **26% lower**.

Editor's Note: Analysis of studies that examined supplemental calcium, which included 8,839 colorectal cancer cases among 920,837 subjects, revealed a **9% lower risk** of the disease in association with each **300 mg** per day increase.

—D. Dye

* *Int J Cancer.* 2014 Mar 13.

Aspirin Is Not Beneficial Before Non-Cardiac Surgery

A study presented at the annual meeting of the American College of Cardiology and published in the *New England Journal of Medicine* reported that giving surgery patients aspirin may cause more harm than good.*

The study involved just over 10,000 patients undergoing non-cardiac surgery. Half received **200 mg** of aspirin right before surgery, while half received a placebo. The aspirin group continued to take **100 mg** of aspirin for a month following the operation.

Researchers found that **7%** of patients in the aspirin group, or 351 people, had a heart attack or died within 30 days of surgery, compared to **7.1%** (355) of those who received a placebo, indicating no benefit to taking aspirin. More significantly, 230 patients in the aspirin group experienced major bleeding versus 188 who took a placebo.

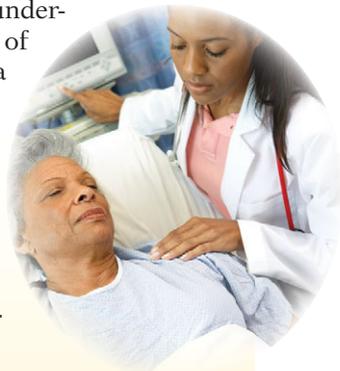
There was no difference in the outcomes for patients who regularly took a daily aspirin compared to those who took it specifically before surgery.

"You're not preventing heart attacks and mortality, but you are increasing the risk of significant bleeding," said study leader Dr. P.J. Devereaux.

Editor's Note: The take-home lesson based on these study results is to discontinue aspirin two days before surgery in consultation with your doctor if aspirin has been prescribed to you. A second related study, also published in the *New England Journal of Medicine*, found that the drug clonidine, which is given to **20%** of patients with atherosclerosis (hardening of the arteries) is also ineffective and potentially harmful.

—A. Kessler

* *N Engl J Med.* 2014 Mar 31.





Genes Reflecting Increased Vitamin E Status Associated With Lower Prostate Cancer Risk

An article appearing in the *Journal of Nutrition* reveals a lower risk of prostate cancer in men with genetic variants indicative of higher vitamin E status. “Genetic variants in genes involved in vitamin E transport or metabolism may be important determinants of potential beneficial effects of vitamin E supplementation on prostate cancer risk,” authors Jacqueline M. Major and associates note.*

The study included participants in the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial, which enrolled over 155,000 men and women between 1993 and 2001. The current investigation compared 483 men diagnosed with prostate cancer and 542 matched control subjects who had genotype data on three vitamin E-related variants available. The researchers found that the presence a specific single nucleotide polymorphism was associated with a **25%** lower risk of prostate cancer in comparison with the more common genotype.

Editor’s Note: As potential mechanisms for vitamin E, the authors emphasize its antioxidant properties that can protect against oxidative damage or inhibit lipid peroxidation within the cells. They also discuss the vitamin’s modifying effect on inflammation.

—D. Dye

* *J Nutr.* 2014 Mar 12.

Greater Vitamin C Intake Linked With Reduced Risk Of Breast Cancer Mortality

The results of a meta-analysis conducted by researchers at Sweden’s Karolinska Institute indicate improved survival among women with breast cancer who had a higher intake of vitamin C from supplements or food sources, according to the *European Journal of Cancer*.*

For their analysis, Holly R. Harris and her colleagues selected nine reports describing 10 observational studies that included a total of 17,696 women diagnosed with breast cancer. Among this group, there were 1,558 deaths attributable to the disease and 2,791 total deaths. Studies examined the effect of supplementing with vitamin C following breast cancer diagnosis and/or the effect of vitamin C obtained in the diet.

When the studies reporting the effects of vitamin C supplementation were evaluated, the use of supplements was associated with a **19%** lower risk of total mortality and a **15%** lower risk of dying from breast cancer in comparison with no use.

Editor’s Note: Analysis of vitamin C from food sources uncovered a **27%** lower risk of mortality and a **22%** lower risk of breast cancer death in association with each **100 mg** per day increase. Comparison of high versus low dietary intake resulted in a **20%** lower risk of dying and a **23%** reduction in the risk of breast cancer mortality among women whose intake was categorized as high.



—D. Dye

* *Eur J Cancer.* 2014 Mar 7.

Meta-Analysis Results Indicate Blood Pressure Reduction Benefit For EPA/DHA

The results of a meta-analysis published online in the *American Journal of Hypertension* add evidence to a blood pressure-reducing effect for the omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).*

Paige E. Miller and colleagues analyzed 70 randomized trials that compared the effects of EPA and/or DHA to a placebo. The average dose of EPA plus DHA was **3.8 grams** per day, which was supplied by fish oil in the majority of the studies.

Analysis of hypertensive subjects who were not receiving treatment for their condition found an average reduction of **4.51 mmHg** in systolic blood pressure and a **3.05 mmHg** reduction in diastolic pressure among those who received EPA and DHA in comparison with a placebo. In the meta-analysis of all studies, EPA plus DHA was associated with an average reduction in systolic and diastolic blood pressure of **1.52 mmHg** and **0.99 mmHg**.

Editor’s Note: When the analysis was restricted to EPA/DHA from supplements alone, systolic blood pressure was lowered by an average of **1.75 mmHg** and diastolic by **1.11 mmHg**. Diastolic blood pressure was found to be significantly reduced when the dosage of EPA/DHA exceeded **2 grams** per day.

—D. Dye

* *Am J Hyperten.* 2014 Mar 6.

Improved Physician Awareness Increases Deficiency Diagnoses

Greater willingness on the part of physicians to order vitamin D tests for preventive care has led to a surge in deficiency diagnoses, according to a study published in the *Southern Medical Journal*.*

Utilizing data from The National Ambulatory Medical Care and National Hospital Ambulatory Medical Care surveys, Karen Huang and colleagues determined that between 2007 and 2010 approximately 7.5 million outpatient visits were associated with vitamin D deficiency diagnoses. “From 2007 to 2010, we noted that the number of diagnoses for vitamin D deficiency rapidly increased and tripled from 2008 to 2010,” Dr. Huang reported.

“We believe this increase in visits with a diagnosis of vitamin D deficiency, but without a diagnosis of weak or fractured bones, suggests that a lot of doctors now are checking patients for this deficiency so that they can help prevent the patients from developing weak bones,” she concluded.

Editor’s Note: The researchers found that females were **2.6 times** likelier than males to be diagnosed with low vitamin D levels, and that those aged 65 and older were nearly **3 times** as likely to be deficient than younger patients.

—D. Dye

* *South Med J.* 2014 Apr;107(3).



Meta-Analysis Reveals Lower Risk Of Dying In Association With Higher Vitamin D In Nearly 30 Years Of Follow-Up

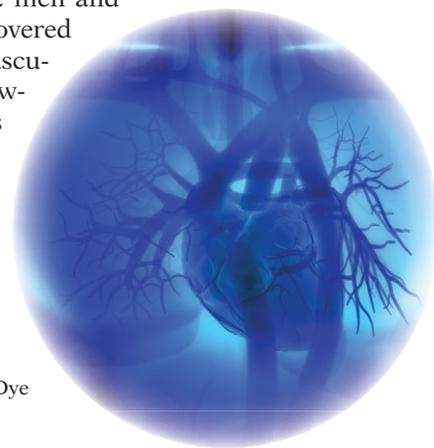
A review and meta-analysis published in the *British Medical Journal* concluded an association between a higher serum level of vitamin D and a lower risk of death from any cause over follow-up periods ranging from 0.3 to 29 years. The international team of researchers also uncovered a reduction in the risk of premature death in association with the use of vitamin D3 supplements.*

Rajiv Chowdhury and colleagues selected 73 observational cohort studies that reported serum 25-hydroxyvitamin D levels and the cause of deaths that occurred among 849,412 men and women over follow-up. The analysis uncovered a **35%** higher risk of death from cardiovascular disease or from any cause over follow-up among those whose vitamin D levels were in the lowest one-third of subjects in comparison with those whose levels were among the highest third.

Editor’s Note: Analysis of 22 randomized controlled trials of vitamin D supplements, involving a total of 30,716 participants, revealed an **11%** lower risk of dying over three to seven years of follow up among those who received vitamin D3 in comparison with a placebo or no treatment.

—D. Dye

* *Br Med J.* 2014 Apr 1.



Lifestyle Improvement May Be As Influential As Drug Therapy For Erectile Dysfunction

An article published online in *The Journal of Sexual Medicine* reveals that lifestyle changes may be as good as prescription medication for treating erectile dysfunction (ED) in older men.*

In an investigation of 810 men aged 35 to 80 years at the beginning of the study, Gary A. Wittert, MD, and his associates at the University of Adelaide in Australia documented the presence of erectile dysfunction in **23.2%** of the subjects. During the following five-year period, **31.7%** developed ED, yet the condition went into remission among **29%**.

Predictors of the development of ED included having a lower income, the presence of significant abdominal fat, depression, diabetes, obstructive sleep apnea, voiding lower urinary tract symptoms, and other factors. Predictors of its remission included employment and the absence of lower urinary tract symptoms, angina, diabetes, and disordered lipids.

Editor’s Note: “The good news is, our study also found that a large proportion of men were naturally overcoming erectile dysfunction issues,” Dr Wittert concluded. “The remission rate of those with erectile dysfunction was **29%**, which is very high. This shows that many of these factors affecting men are modifiable, offering them an opportunity to do something about their condition.”

—D. Dye

* *J Sex Med.* 2014 Feb 18.



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BY MICHAEL DOWNEY

Protect Against Sun-Induced Skin Aging From The Inside Out

Even if you're exposed to solar rays for just a few minutes a day, photons in the sun's ultraviolet rays can wreak havoc on your skin, leading to wrinkles, age spots, and cancer.

Most people think that topical sunscreen is the best way to protect against the negative effects of ultraviolet radiation. But even if you faithfully apply sunscreen daily, some parts of your body remain vulnerable to the skin-aging and DNA-damaging effects of the sun.

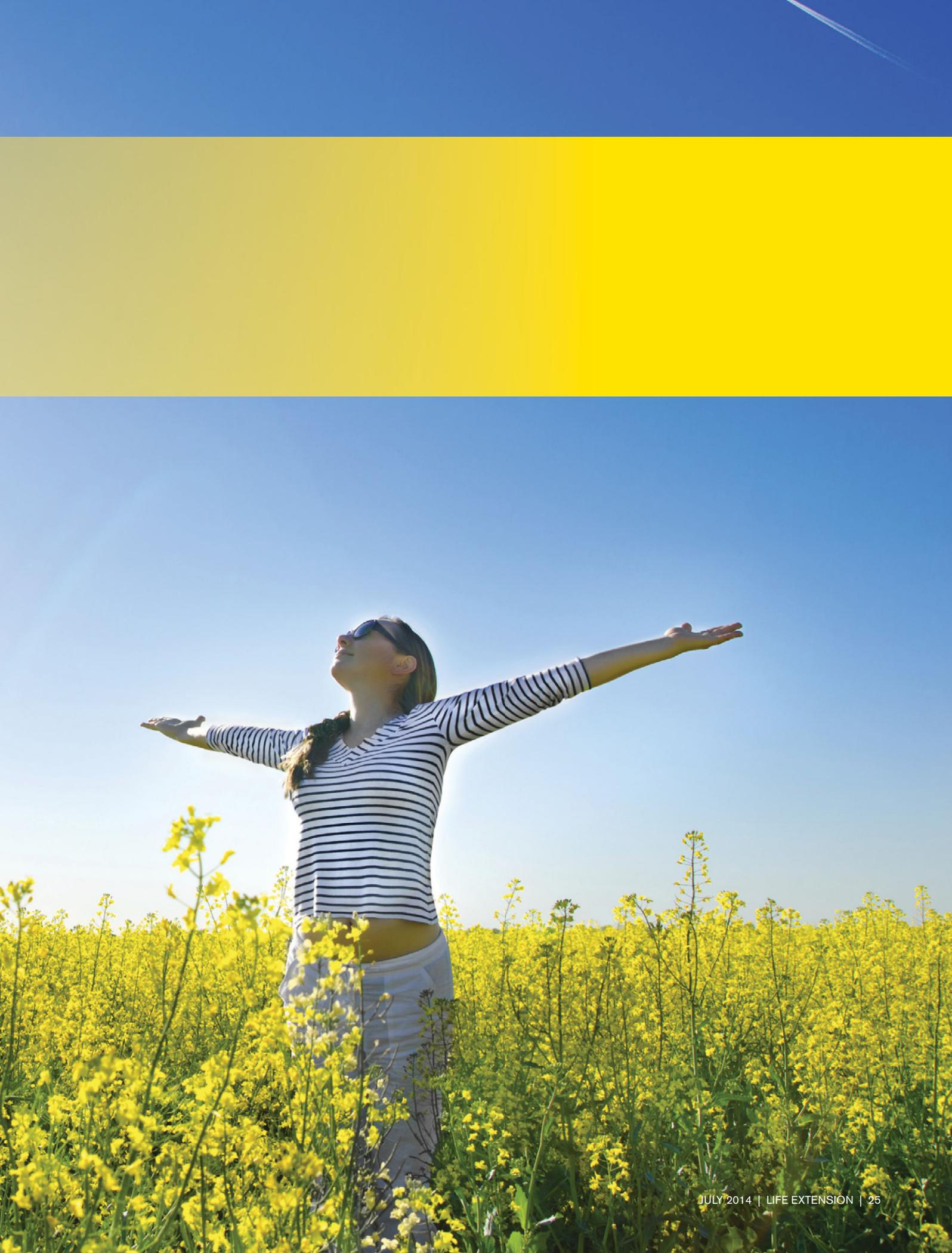
Fortunately, there is an additional way to protect your skin.

A natural plant compound works at a deep level inside your skin's cells to reduce the effects of harmful ultraviolet rays and blunt skin aging.¹⁻³

Polypodium leucotomos is a tropical fern extract containing a natural mixture of phytochemicals that have been shown to inhibit photoaging.⁴⁻⁶ It inhibits a protein-degrading enzyme that is a prime cause of photoaging.⁷ Most strikingly—it exerts its effects when taken *orally*.^{4,5}

In this article, you'll learn how this plant extract significantly prevents^{4,5}—and even repairs⁵—the ravages of ultraviolet radiation that lead to premature skin aging.





How The Sun Ages Your Skin

Your skin is exposed to the damaging rays of the sun far more than you realize. Even if you're only in the sun a few minutes a day, the *photons* (gamma rays) in the sun's ultraviolet (UV) rays can alter the structure of your skin⁷—leading to premature skin aging, wrinkles, sun spots, and more. UV rays are extremely damaging to your skin in a number of ways:

1. The photons in the sun's UV rays oxidize proteins, which correlates with accelerated or premature aging.⁸⁻¹⁰ Oxidation from UV radiation activates *matrix metalloproteinase* (MMP), enzymes that break down elastin and collagen—the proteins responsible for keeping your skin supple and firm.^{11,12}
2. UV radiation induces oxidative stress that triggers the release of *proinflammatory cytokines* and growth factors, which further alter elastin and collagen. The result is accumulated breakdown of the skin's structural integrity.¹¹
3. UV rays generate free radicals and other harmful substances that damage **DNA**. The DNA encodes the information responsible for the continuing production of healthy new skin cells.¹³
4. Ultraviolet radiation reduces skin levels of Langerhans cells, specialized immune cells that are abundantly found in the skin and are responsible for protecting against invading pathogens and for participating in the immune response and defense against cancers.¹³⁻¹⁶



These destructive effects on tissue structure are eventually visible as photo-aged skin. The prominent clinical sign is wrinkling, but other effects include a loss of elasticity, age spots, hypo- or hyper-pigmentation, spider veins, and blackheads.¹⁷

Some people currently rely totally on topical sunscreens—but scientists have found this protection alone to be largely inadequate.¹⁷⁻¹⁹

The good news is that scientists have now established that an extract of the fern *Polypodium leucotomos* contains a high percentage of photo-protective compounds that block the skin aging that results from sun exposure.⁵

Unleash Your Skin's Internal Ultraviolet Defenses

For centuries, Honduran natives have protected themselves against sun damage and skin disorders by ingesting *Polypodium leucotomos* fern extract. The first report on its effectiveness was published 47 years ago in the journal *Nature*,²⁰ and since then, clinical trials have demonstrated that this antioxidant-rich extract safely bolsters the skin's defenses against the accelerated aging caused by ultraviolet rays.⁵

Polypodium leucotomos contains photoprotective compounds—*phenols*, *biological acidic molecules*, and *monosaccharides*—that prevent the sun's rays from breaking down the body's own photoprotective molecules. Studies suggest no significant toxicity or allergic properties.^{5,6,21}

By preserving this natural, built-in protection against sun damage, *Polypodium leucotomos* exhibits strong anti-aging activity on the skin, both superficial and deeper layers.²²

Polypodium leucotomos works in a number of ways to protect the structural integrity of your skin:

- *Polypodium leucotomos* prevents the destructive structural changes in the skin associated with increased oxidative stress. For example, *Polypodium leucotomos* inhibits ultraviolet light's dramatic disorganization of *microfilaments*—the tough but flexible, fibrous framework that supports skin cells.²²
- It also inhibits the ultraviolet light-induced mislocation of adhesion points between cells themselves, and also between cells and the surrounding matrix.^{22,23} These adhesion points hold separate cells together and provide tissues with structural cohesion and an important signaling pathway—without which skin breakdown may occur.^{24,25}

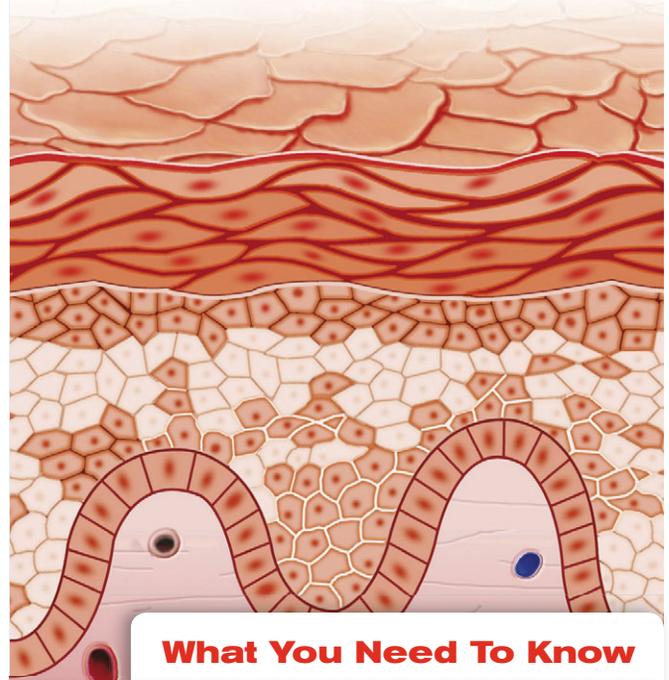
- *Polypodium leucotomos* extract helps protect the skin from premature aging by inhibiting several *matrix metalloproteinases*—enzymes that break down elastin and collagen—and by increasing the expression of *tissue inhibitors of metalloproteinases* (TIMP), your body's own inhibitor of metalloproteinase.^{26,27}
- *Polypodium leucotomos* stimulates molecules that are reduced in the skin during the onset of photoaging—such as elastin, collagen, and *transforming growth factor beta* (TGF-beta), which is a protein that activates a host of signaling pathways involved in many cellular processes.^{26,28}
- Ultraviolet radiation also damages cellular membranes in the skin by inducing lipid peroxidation.^{29,30} *Polypodium leucotomos* extract blocks this process and thus prevents skin damage.³¹
- Recent research has established the effectiveness of *Polypodium leucotomos* at naturally protecting both ultraviolet-radiated and non-radiated fibroblasts²⁶—cells that synthesize the extracellular matrix and collagen, the structural framework of skin tissue.³²
- Additionally, extracts of *Polypodium leucotomos* have been shown to inhibit protein-destroying skin enzymes that decrease skin elasticity,³¹ to inhibit damaging skin inflammation,³³ and to promote the survival of healthy skin cells.^{22,33}

So by protecting from the harmful ultraviolet rays as well as blocking the multiple forms of damage they cause, *Polypodium leucotomos* extract provides the skin with extraordinary protection from photoaging^{1,34}—allowing you to retain a high degree of healthy, youthful skin despite chronological aging.²

Restore Sun-Damaged Skin

Remarkably, scientists found that *Polypodium leucotomos* not only prevents, but also repairs, the sun's damaging effects on the skin. It *prevents* sun-aged skin by directly inhibiting MMP (matrix metalloproteinase) expression, preventing the breakdown of collagen in the first place. It *repairs* sun-aged skin by stimulating new production of collagen and elastin^{5,31,32}—healing and regenerating photoaged skin after exposure to ultraviolet radiation.⁵

Digital cross section showing skin's reaction to sunburn.



What You Need To Know

Skin Protection From The Inside Out

- Most people assume that the only protection against the skin-aging effects of ultraviolet light must come from topical skin application. But research demonstrates that the oral fern extract *Polypodium leucotomos* works deep inside the skin to protect against ultraviolet rays and reduce skin aging.
- Sunscreens are an important defense, but most people apply them too lightly and inconsistently.
- Numerous studies indicate that *Polypodium leucotomos* inhibits *degradative matrix remodeling*, a main cause of photoaging. Most remarkable—it exerts these effects when taken orally.
- This novel extract inhibits—and even repairs—the ultraviolet damage that prematurely ages the skin. Oral *Polypodium leucotomos* is the most potent tool for preventing photoaged skin, especially when used with topical sunscreen for complete protection.

Four Problems With Sunscreens

The first problem with relying on sunscreens alone for skin protection is *finding one that works*. The only truly effective sunscreens are those that provide equal protection across the full range of ultraviolet B (UVB) and ultraviolet A (UVA) light.⁵⁴ Protecting against both is vital because short wavelength UVB injures the outer layers of the skin (epidermis), while long wavelength UVA damages deeper layers of the skin (dermis).⁵⁵

Second, studies demonstrate that most people apply sunscreen incorrectly and fail to consistently reapply when required—and further demonstrate that it is still important to avoid unnecessary sun exposure after its application.¹⁷⁻¹⁹ Many consumers apply only **25** to **50%** of the amount used for SPF testing.¹⁸ This results in an SPF that is **50%** or less effective than the labeled SPF.¹⁸

A third problem with sunscreens was underscored by a 2014 study showing that *infrared radiation* (IR)—which is outside the ultraviolet range—can also contribute to skin photoaging. *Sunscreens do not generally protect against infrared radiation*, and scientists have been scrambling to develop products that do.⁵⁶

Finally, no matter how effective and properly applied, topical sunscreens do not provide uniform, total-body surface protection—leaving the eyes, lips, and scalp open to damage by the sun's rays.

To block photoaging, sunscreens should always be carefully selected, applied in appropriate doses, reapplied at correct intervals, and used in conjunction with other photoprotective measures,⁵⁴ such as shade, clothing—and ideally, an internal, whole-body protective option.

The regenerative properties underlying this anti-aging effect include reactive oxygen species scavenging capability, inhibiting premature *apoptosis* (cell death), and blocking improper extracellular matrix rearrangements that occur during oxidative damage.⁵ These activities suggested to scientists that the benefits of *Polypodium leucotomos* may extend beyond skin care—and may be useful as a systemic anti-aging and antioxidant tool.⁵

In fact, scientists already suggest looking beyond the anti-aging effects of *Polypodium leucotomos* on the skin—and towards future research on its effects on other parameters related to body aging, such telomere length and telomerase activity.⁵

Powerful Skin Health Benefits

In an array of studies, *Polypodium leucotomos* has proven its ability to block the long-term skin-aging consequences of sun exposure—but the short-term benefits are equally impressive. This is specifically demonstrated with sunburn, idiopathic dermatoses, and skin cancer.

Sunburn

In the same way that oral *Polypodium leucotomos* extract can block long-term sun-induced skin aging, it will also help prevent the shorter-term skin damage known as sunburn, which over time greatly contributes to skin photoaging.

If you're used to covering up or using topical sunscreens, it may be difficult to imagine that swallowing a capsule could provide potent protection from harmful ultraviolet radiation from inside the skin. But multiple studies show that *Polypodium leucotomos* might increase the amount of time you can spend in the sun before your skin becomes red and inflamed.^{1,2,34}

In an early clinical trial, 21 study participants experienced an almost **3-fold** increase in the amount of UV radiation that would generate comparable redness/sunburn, compared to when they used no form of UV protection.² Those who took special drugs that increase photosensitivity experienced impressive results, in this case increasing the amount of UV radiation before visible suntan occurred by up to nearly **7 fold**.^{2,35}

In another study, scientists enlisted volunteers who had fair-to-light skin, which made them more naturally vulnerable to sunburn. The active group received *Polypodium leucotomos* extract in doses equivalent to **7.5 milligrams per kilogram** of body weight—translating to **525 milligrams per 154-pound person**—and was then directly exposed to varying doses of artificial ultraviolet radiation. Compared to control subjects, individuals taking *Polypodium leucotomos* extract experienced a substantial decrease in skin reddening.¹

Microscopic effects are even more impressive. Extract-treated cells showed reduced skin damage caused by ultraviolet light—including significantly fewer sunburn cells, which are indicators of tissue injury.¹ They also showed a decreased level of the kind of DNA damage that can lead to cancer, as well as a trend suggesting the preservation of Langerhans cells (key immune cells found in the epidermis, or outer layer of skin).¹

Idiopathic Dermatoses

While sunburn is an inflammatory reaction with a known cause, some people are prone to specific skin disorders where the cause is unknown, called

Chronological Aging Versus Photoaging

Chronological aging of the skin is predetermined by each individual's physiological predisposition.

Sun-induced aging of the skin—or *photoaging*—varies with the degree of sun exposure and the amount of melanin in the skin.

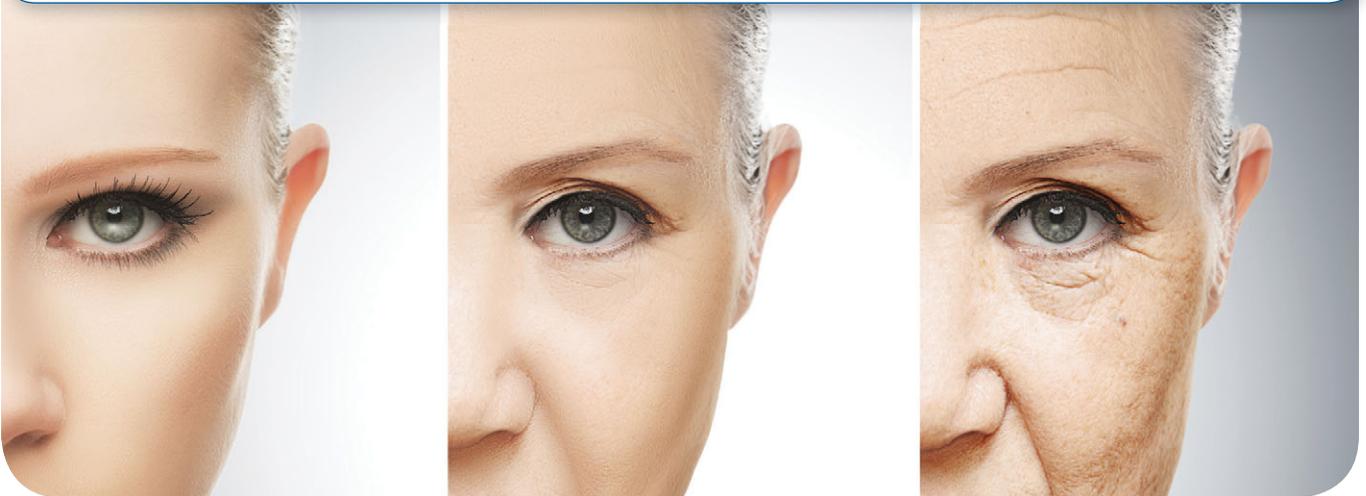
Chronological aging of the skin is characterized by laxity and fine wrinkles, as well as possible development of benign growths such as *seborrheic keratoses* and *angiomas*. However, chronological aging is *not* associated with increased or decreased pigmentation or with the very deep wrinkles that are characteristic of photoaging.⁵⁷ This form of skin aging can occur anywhere on the body.

Sun-induced photoaging is clinically characterized by deep wrinkles, as well as mottled pigmentation, rough skin, skin tone loss, dryness, sallowness, deep furrows, severe atrophy, spider veins, laxity, leathery appearance, marked loss of elasticity, *actinic purpura*

(purple spots), precancerous lesions, and possibly skin cancer, including melanoma.^{58,59} The accelerated aging of skin—photoaging—occurs most often on sun-exposed areas of the skin, such as the face, neck, upper chest, hands, and forearms.⁶⁰

Seborrheic keratoses—small, benign, wart-like growths—are regarded as a key biomarker of chronological or intrinsic skin aging.^{57,60} They are *not* caused by, and appear independently of, sun exposure.

Vascular lesions—such as broken blood vessels, facial veins, rosacea, telangiectasias, and many other kinds of vascular blemishes—are regarded as a key biomarker of photoaging. They are *not* caused by, and appear independently of, intrinsic aging. Studies in humans and in mice have demonstrated that acute and chronic ultraviolet B (UVB) irradiation greatly increases skin *angiogenesis* (the formation of new blood vessels from existing vessels).⁶¹⁻⁶³



idiopathic dermatoses. This category can include polymorphic light eruption, a condition in which sufferers experience a skin rash after even brief exposure to sunlight.

In one study, when scientists gave idiopathic photodermatoses patients **480 milligrams** per day of oral *Polypodium leucotomos* and then exposed them to sunlight, an astounding **80%** of treated patients reported improvement.³⁶

And in a more recent study of 57 patients with idiopathic photodermatoses, when subjects orally took **480 milligrams** of *Polypodium leucotomos* daily and then exposed themselves to sunlight, **73%** of the patients experienced a significant reduction in symptoms.³⁷

Skin Cancer

The same sunlight that leads to structural changes and accelerated skin aging can trigger changes that boost the risk of skin cancer.³⁸ Even though skin cancer now accounts for over **40%** of all US cancers,³⁹ unprotected ultraviolet light exposure is the most preventable risk factor for skin cancer.⁴⁰ Fortunately, the same mechanisms through which *Polypodium leucotomos* protects the skin from photoaging provide unprecedented defense against skin cancer as well.^{1,6,29,31,34,41-44}

Scientists found that oral *Polypodium leucotomos* appears to promote skin health by maintaining the skin's *Langerhans* cells, which scavenge toxins and debris.^{1,2} They also found that the oral extract

reduces ultraviolet light-induced DNA damage and mutations associated with skin cancer,^{1,45} concluding that oral *Polypodium leucotomos* is "...an effective systemic chemoprotective agent..."²

Enhancing The Photo-Protective Effects Of *Polypodium Leucotomos*

Scientists were intrigued to identify a specific extract that further enhances the potent photoprotective effects of *Polypodium leucotomos*. Obtained from three red orange varieties (*Citrus sinensis* var. Moro, Tarocco, and Sanguinello), this extract is known as **Red Orange Complex** and provides abundant phenolic compounds, including *anthocyanins*, *flavanones*, ascorbic acid, and *hydroxycinnamic acids*.⁴⁶⁻⁴⁸

Early lab studies indicated that Red Orange Complex exerts an anti-inflammatory effect on human cells, including keratinocyte cells⁴⁸—the predominant cell type in the epidermis. In cell culture studies, this complex has been shown to inhibit the growth and development of human cancer cells⁴⁹ and to inhibit cell death caused by UVB rays.⁵⁰

In addition, *in vivo* research demonstrated that Red Orange Complex provides topical photoprotection against UVB-induced skin redness.^{46,51} Supplementation was also found to increase *serum thiol* groups—which are free-radical quenchers—in individuals exposed to significant automobile exhaust pollution in the workplace⁵² and were also found to reduce oxidative stress in type II diabetic patients.⁵³

Encouraged by these results, scientists conducted a clinical trial to study the complex's photoprotective capacity. Enrolling 18 volunteers, the study team measured the effects of oral Red Orange Complex



Topical Versus Oral Sunscreen

Sunscreens are generally applied in insufficient dosages such that the *effective* SPF is **50%** or less than the *labeled* SPF¹⁸ and they're seldom reapplied as required. Sunscreens *do not* generally block infrared radiation.^{56,63} Also, few people are in the habit of wearing sunscreen on cloudy days—but radiation scattering by clouds can result in higher total radiation levels on partly cloudy days than on completely sunny days. In fact, **80%** of ultraviolet light can penetrate light cloud cover.⁶⁴

Oral *Polypodium leucotomos* tropical fern extract can block UV and IR radiation at the cellular level and can inhibit the many cellular skin photoaging effects.^{2,5,22,26,31,33,34}

Sunscreens have one key mechanism: they function at the skin surface by limiting the amount of solar radiation that penetrates deeper to trigger photoaging.

Oral *Polypodium leucotomos* is active at multiple levels—from the skin surface to deep inside and in between skin cells, exerting broad effects that protect skin from the effects of radiation. Working through multiple mechanisms, *Polypodium leucotomos* reduces photoaging by.^{2,5,22,26,31,33,34}

- Preventing decomposition of the body's photoprotective molecules
- Reducing the remodeling of the tissue matrix
- Inhibiting oxidative stress-induced morphological (structural, form-related) changes
- Preventing radiation-induced loss of cell-to-cell and cell-to-matrix anchorage points
- Inhibiting several matrix metalloproteinases
- Stimulating an endogenous tissue inhibitor of metalloproteinase (TIMP)
- Reducing lipid peroxidation
- Protecting fibroblasts
- Inhibiting elasticity-decreasing enzymes
- Lowering inflammation
- Inhibiting apoptosis
- Scavenging reactive oxygen species (ROS)
- Repairing photoaging damage by stimulating elastin, collagen, and transforming growth factor beta (TGF-beta), and
- Preventing DNA damage.

supplementation on UVB-induced damage. After 15 days, the intensity of the induced redness decreased by about **35%**—demonstrating significant sun protection for the skin.⁵¹

These various outcomes demonstrate that Red Orange Complex supports *Polypodium leucotomos* to further inhibit the aging effects of ultraviolet radiation on the skin.

Summary

Many people assume that protection from the skin-wrinkling effects of ultraviolet radiation must occur outside the body—but clinical research shows that an oral extract of the fern *Polypodium leucotomos* works deep inside the skin to protect against ultraviolet rays and block skin aging.¹⁻³

Polypodium leucotomos has been shown in numerous studies^{4,5} to inhibit degradative matrix remodeling, a main cause of photoaging.⁶ And most striking—it exerts these effects when taken orally.^{4,5}

This novel extract helps prevent^{4,5}—and even repair⁵—ultraviolet radiation damage that prematurely ages the skin.

The most effective program to protect against the accelerated skin aging (photoaging) involves limited exposure to sunlight (especially between noon and 2:00 p.m.), liberal application and reapplication of a quality topical sunscreen, and regular oral supplementation with ***Polypodium leucotomos*** fern extract with **Red Orange Complex** to further enhance the fern extract's effectiveness. ●

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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Understanding The Sun's Wavelengths

Different wavelengths of sunlight radiation represent different risks as follows:⁶⁵

- **UVC rays**—wavelengths of which range from **180** to **280** nanometers—are almost completely absorbed by the ozone layer and do not affect the skin.
- **UVB rays**—wavelengths of which range from **280** to **325** nanometers and which are strongest around midday—affect the superficial layer of the skin known as the epidermis and causes sunburn.⁵⁷
- **UVA rays**—wavelengths of which range from **315** to **400** nanometers—were believed to have a minor effect on the skin, but studies now show that UVA penetrates *deeper* into the skin. UVA also makes up about **95%** of sunlight, while UVB makes up about **5%** of sunlight, and therefore, UVA causes more severe skin aging damage.^{57,66-68}
- **IR** or infrared radiation—wavelengths of which range from **760** nanometers to **one millimeter**—has only recently been determined to induce skin photoaging and skin damage.^{56,63,69} While the photon energy of infrared is low, the total amount of infrared that reaches human skin is *massive* compared to ultraviolet radiation. Most IR lies within the IR-A band—ranging between **760** nanometers and **1,440** nanometers—a band of IR that represents about **30%** of total solar energy. IR-A penetrates human skin deeply with **50%** of it reaching the dermis skin layer.⁵⁷



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BRAIN SHIELD™



SUPPORT for COGNITIVE FUNCTION with AGING

Your brain is under constant onslaught from environmental and stress-related challenges, as well as normal aging processes.^{1,2}

Fortunately, our brain cells have built-in, **self-healing** systems that provide natural defenses against these ongoing threats.³ Even more remarkable, molecular science is revealing that the human brain has the capacity to **preserve** the neurons involved in brain remodeling (*plasticity*).³

Scientists in China and Singapore have found that **gastrodin**, a compound typically derived from a traditional Chinese orchid (*Gastrodia elata*), provides powerful support for the brain's normal defenses and regenerative mechanisms.⁴⁻⁷

To make these benefits available to members, **Life Extension®** introduces **Brain Shield™**, providing **300 mg** of **gastrodin** in each capsule for *maximum* brain support.

MULTI-FACTORIAL BENEFITS!

Recent studies confirm that the **gastrodin** in **Brain Shield™** is one of the most powerful compounds for supporting healthy brain function *at any age!* **Gastrodin** works by the following mechanisms:

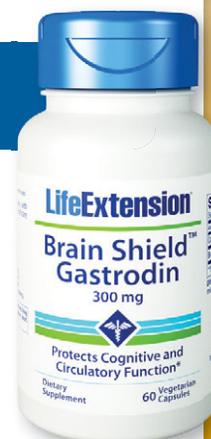
- To retain normal function, the aging brain relies on adequate **blood flow** to get sufficient oxygen and fuel.⁸ It has been repeatedly shown that formulas containing **gastrodin** beneficially support normal, healthy levels of brain blood flow in both animals and in humans.^{6,7}
- The body maintains a delicate balance of **neurotransmitters**, such as GABA, which is of tremendous importance to healthy brain function. Studies show that alone or in combination the active compound **gastrodin** helps maintain healthy levels of vital neurotransmitters in those whose levels are already within the normal range.⁹⁻¹¹

- With aging, short-term **memory** function is often impaired. Studies show that **gastrodin** helps support the healthy body's normal defenses against the mild memory problems associated with aging.¹²
- Scientists have shown that the breakdown metabolites of **gastrodin** help provide support against the normal stress and tension of daily life.^{13,14}
- And **Brain Shield™** helps alleviate the occasional **cranial pain** associated with daily life.¹⁵

Brain Shield™ supports healthy cognitive and circulatory function in aging individuals.

Those seeking maximum benefit should start with one **300 mg** capsule of **Brain Shield™** taken twice daily.¹⁶ After 30 days, one **Brain Shield™** (gastrodin) capsule daily may be sufficient based upon the experience of gastrodin as an over-the-counter (OTC) pharmaceutical agent. Those taking **Cognitex®** are obtaining **50 mg** of gastrodin in the daily dose along with complementary nutrients. As additional research continues on gastrodin, better clarification on optimal dosing for a wide range of neurovascular and neuro-inflammatory conditions should be available.

A bottle of 60 **300 mg** vegetarian capsules of **Brain Shield™** retails for \$33. If a member buys four bottles, the price is reduced to **\$22.50** per bottle.



Item # 01802

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To order **Life Extension® Brain Shield™**, 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.

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.

BY WILL BRINK

CREATINE

Reduces

Markers Of

Aging

A naturally occurring organic acid known as **creatine** has long been used by athletes to boost their performance and build muscle strength without steroids. But emerging research is showing that creatine also has important **anti-aging** effects in vital tissues throughout the body.

As we age, the unique benefits of **creatine** become more pronounced. From protection against cognitive decline and congestive heart failure to reducing insulin levels and shielding against muscle loss, creatine enhances **mitochondrial function** that helps reduce the ravages of aging.

Recently, creatine has been found to significantly lower the accumulation of a recognized marker of aging called **lipofuscin** in the brains of aging mice.¹ As a result, creatine-fed mice lived an average of **9%** longer than control animals—*that's equivalent to more than seven years for an average human!*¹





The supplemented animals also performed significantly better on neurobehavioral testing.^{1,2} In fact, creatine is now being hailed by experts as “a starting-point for a novel means of delaying neurodegenerative disease, and/or for strengthening memory function and intellectual capabilities.”³

Because of creatine’s vital impact on your body’s energy levels, it should be considered for anyone interested in slowing aging, improving energy levels, and fighting off age-related diseases.

Creatine's High-Energy Impact

In order to understand how creatine can have such a powerful impact on a wide range of functions within the body, you have to understand the key role that creatine plays in cellular energy supplies.

Mitochondria are found in every cell and are responsible for converting food into the energy the body needs in order to function. Aging leads to the accumulation of **dysfunctional** mitochondria.⁴

The loss of mitochondrial function can cause the buildup of aging pigments known as **lipofuscin**. Lipofuscin builds up when a cellular “garbage-disposal system” (i.e., *autophagy*) breaks down. Eventually, with the decrease in autophagy and related increase in lipofuscin, there is increased oxidative stress, decreased energy production, and ultimately, cell death.⁵⁻⁷

In studies, creatine has been found to help boost cellular energy and to significantly lower accumulation of lipofuscin in the brains of aging mice.^{1,8} Creatine also helps maintain adequate levels of high-energy phosphate-containing molecules in tissues with especially high energy consumption, such as the



heart, brain, and muscle.⁹⁻¹¹ High levels of creatine support the body's production of ATP, the universal energy-transfer molecule, when ATP itself is used up by these power-hungry tissues.^{8,12,13}

Ultimately, supplementing with creatine helps restore the energy loss that is at the root of many age-related diseases. As you'll see in the next sections, creatine supplementation has a positive impact on everything from cognitive decline to cardiovascular health.

Creatine Provides Energetic Solutions To Cognitive Decline

Many brain disorders involve a disruption of the brain's energy supply systems. That applies not only to chronic, age-related diseases such as Parkinson's, Alzheimer's, and Huntington's, but also to acute conditions such as strokes and traumatic brain and spinal cord injuries.¹⁴ Creatine's role as an energy-enhancer suggests it may be helpful in all of these conditions.¹⁵

In addition, this energy loss leads to the accumulation of the damaging lipofuscin pigments that are present in all of these neurodegenerative diseases.¹⁶⁻¹⁸ Creatine's ability to lower the accumulation of this aging pigment offers promise in the treatment of these cognitive diseases.¹

Here's a rundown on what we know about creatine supplementation in brain diseases associated with aging:

Alzheimer's disease primarily affects memory and cognition, with debilitating loss of the ability to recognize loved ones, to navigate even around the home, and to sustain meaningful conversations.¹⁹

Creatine supplementation shows promise in addressing the underlying causes of this disease—especially when given in the early stages.¹² This is due in large part to creatine's role as an energy enhancer. That's because **energy loss** from **dysfunctional mitochondria** plays a major role in this disease—and causes damaging lipofuscin pigments to accumulate as a result.^{16,20}

Creatine also protects brain cells against the root cause of this energy loss, namely the **excitotoxicity** that is a hallmark of neurodegenerative diseases in general, and against the toxic *Abeta proteins* that are unique to Alzheimer's.²¹ Creatine protects against this toxicity, which impairs mitochondrial energy production.^{12,15}

Parkinson's disease is a disorder of movement control in the brain; it produces tremors, slowed movements, and a characteristic “mask-like” face. Advanced Parkinson's disease can also include dementia, with symptoms similar to Alzheimer's.^{19,22}



What You Need To Know

Creatine

- Creatine has long been used successfully by athletes to improve performance and combat fatigue; it is now showing promise in strengthening the hearts and minds of older adults.
- Supplementing with creatine may delay the impact of Parkinson's, Huntington's, and other neurodegenerative diseases.
- Glucose tolerance may also be improved by creatine supplementation.
- Creatine reduces the accumulation of lipofuscin, "the aging pigment," in internal organs. Lipofuscin exacerbates the aging process through oxidative stress.
- Creatine has such an impressive record of performance and safety that some experts now routinely recommend supplementation for older adults.

Creatine can have a positive effect on a number of the factors involved in this disease. For starters, brain tissue from both humans and animals with Parkinson's disease show abnormally high levels of telltale lipofuscin pigment. This indicates that problems with cellular energy management and waste control are underlying factors in the disease.^{17,20} As we've discussed, creatine has been found to lower the accumulation of lipofuscin.

Creatine also enhances the survival and protection of neurons that produce **dopamine**, the missing transmitter in the disease.^{11,23} Studies have shown that creatine improves patient mood, allows smaller doses of medication to be used, and also reduces the side effects of those meds.^{24,25} This is especially noteworthy for Parkinson's patients, since the most commonly prescribed medication for Parkinson's (*L-DOPA*, a precursor to dopamine) causes disturbing side effects including out-of-control movements.²⁶

Huntington's disease is a genetic neurodegenerative disorder that involves damage to motor control centers in the brain, and symptoms include wild, out-of-control movements.⁸

As with the other disorders, the brain cells of Huntington's patients display excessive amounts of the aging pigment lipofuscin—indicating underlying problems with cellular energy.^{1,18} This suggests creatine may be an important component in the battle against this disease.

Remarkably, creatine supplementation has been shown to offer considerable neuroprotection even after the onset of symptoms in animal studies.²⁷ Supplemented animals also survived significantly longer than controls when creatine was provided in the early and middle stages of the disease. These effects were directly attributed to creatine's ability to increase brain levels of energy in the form of stored ATP.

Mice with experimental Huntington's disease that were supplemented with creatine showed slower loss of brain tissue and delayed accumulations of the destructive protein gene *huntingtin*.²⁴ Supplemented animals also had improvements in body weight and motor performance, and slower onset of diabetes.²⁸

Amyotrophic Lateral Sclerosis (ALS) is a devastating neurodegenerative disease that can strike without warning at almost any age. Sometimes referred to as Lou Gehrig's disease, it is closely associated with **mitochondrial dysfunction** in the brain cells that control voluntary movement, resulting in weakening and eventually atrophy of skeletal muscles.²⁹ Respiratory failure is the major cause of death in ALS patients.³⁰

Although it is considered an untreatable condition, creatine could offer symptomatic treatment for

those suffering from ALS. In human patients, creatine supplementation at **20 grams/day** for seven days, followed by **3 grams/day** for up to six months, increased voluntary muscle contractions at the knee in **70%** of patients, and at the elbow in **53%** of patients.³¹ These improvements wore off after six months; however, the researchers concluded that creatine can at least temporarily boost muscle power in ALS patients.

This beneficial effect may be due to creatine's impact on the neurotransmitter *glutamate*.³² The overstimulation of glutamate leads to excitotoxicity, which is a phenomenon implicated in ALS.³³ Animal research showed that creatine helps reduce increases in brain levels of glutamate. Supplemented animals also survived longer and performed better on motor tests.^{34,35}

Strokes most often occur as a result of insufficient blood supply to areas of the brain. Decreased blood flow to the brain is associated with excessive amounts of lipofuscin (the aging pigment).³⁶ This suggests stroke damage at the cellular level is not unlike that of degenerative diseases of the brain—and indicates that creatine's ability to lower the accumulation of this aging pigment may make it beneficial for stroke victims as well.

Mouse studies of creatine supplementation show marked reduction in the size of damaged areas after blood flow to the brain is interrupted by a stroke.¹⁰ In addition, creatine supplementation also replenished ATP in the brain that had been depleted as a result of stroke. Human studies of creatine in stroke victims are not yet available. However, given creatine's strong safety record, researchers recommend that people

at high risk for strokes consider supplementing with creatine.¹⁰

Cognitive functioning in normal adults is also favorably affected by creatine supplementation. Creatine's widespread benefits on muscle fatigue prompted one group of researchers to focus on its ability to improve mental fatigue as well.³⁷ At a dose of **8 grams/day** for five days, the supplement reduced mental fatigue induced by repeated mathematical calculations. Tests showed that the subjects' brains utilized more oxygen after supplementation, a measure of enhanced energy use.

Older adults taking **5 grams** of creatine, four times daily, performed better on tasks of memory and cognition.^{38,39}

The cognition-enhancing effects of creatine seem to be especially strong in tasks that require a rapid speed of processing, such as deciding quickly whether it's safe to cross a street, or in distinguishing a friendly face from a potentially threatening one.⁴⁰ Following extended sleep deprivation (up to 36 hours), creatine supplementation also improved performance of complex "executive" tasks involving decision-making skills.⁴¹

Most of the data on these diseases are at present derived from animal studies or basic lab studies, but large human trials are in the pipeline. However, given creatine's impressive safety record as an energy-enhancer in humans during exercise, many experts are recommending that older adults, especially those at high risk for acute brain injuries such as stroke, should begin regular supplementation with creatine.



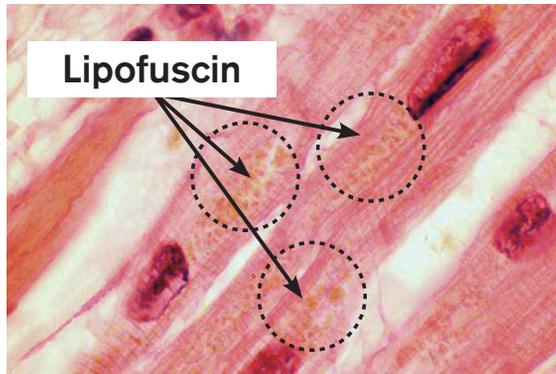
Cardiovascular Effects Of Creatine Supplementation

Creatine supplementation clearly improves skeletal muscle performance in healthy athletes and older adults.⁴²⁻⁴⁴ That has led scientists to consider whether creatine could also function as an energy-enhancer for the most important muscle in the body: the *heart*. Numerous studies in both animals and humans indicate that it can.

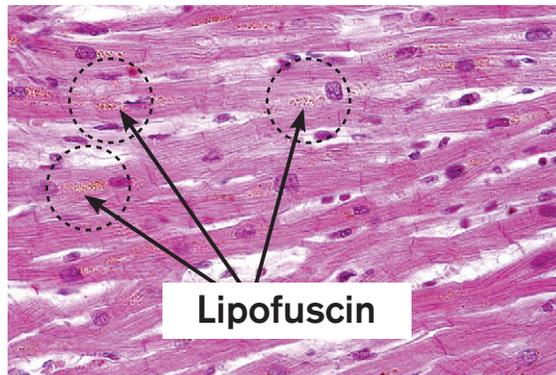
In animal studies, creatine supplementation restored ATP levels in animals subjected to energy-reducing cardiac stress; it also reduced markers of heart muscle exhaustion.⁴⁵ Other studies show similar effects, even in unstressed animals.⁴⁶

Human studies of creatine supplementation remain few, but the results are promising. In one study, patients with chronic congestive heart failure took high doses (**20 grams/day**) of creatine for 10

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Reduce The Signs Of *INTERNAL* AGING

Lipofuscin Accumulation: Aging You Can't See

Microscopic photographs of heart cells with accumulations of yellow-brown lipofuscin. Collections of lipofuscin represent age-related breakdown in cellular garbage-disposal systems and cause accelerated oxidative damage, reduced energy production, and premature cell death.

Did you know that aging tissues, even those deep within our bodies, develop physical and biochemical changes remarkably similar to the ones we can see from the outside?

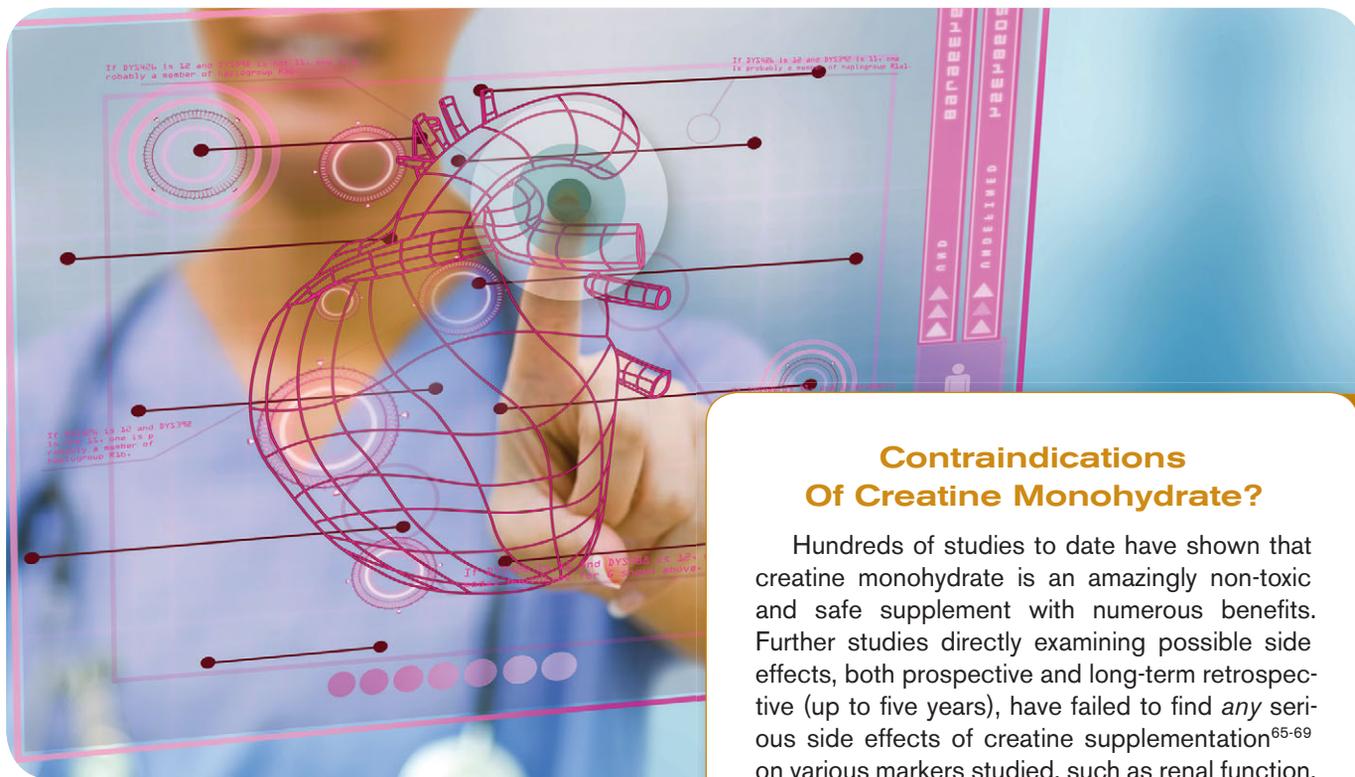
It's true. Take liver spots, for example. These brownish blemishes are examples of *external* aging and represent accumulations of pigments from generations of broken-down skin cells.

In the microscopic photographs above, you can see nearly identical pigment accumulations in the tissues of the heart. Known as lipofuscin ("the aging pigment") these pigment collections provide stark evidence of *internal* aging. Lipofuscin builds up when a cellular garbage-disposal system (autoph-

agy) breaks down. Eventually, with the decrease in autophagy and related increase in lipofuscin, there is increased oxidative stress, decreased energy production, and ultimately, cell death.^{5,6}

But you don't have to sit idly by as your body fills with these age-induced garbage collections. Creatine has recently been found to significantly lower accumulation of lipofuscin in brains of aging mice.¹

As a result, creatine-fed mice lived an average of **9% longer** than control animals—*that's equivalent to more than seven years for an average human!*¹ The supplemented animals also performed significantly better on neurobehavioral testing.^{1,2}



days, undergoing cardiac and exercise testing before and after the supplementation period. Supplemented patients had significantly increased levels of energy-rich creatine phosphate in their muscles compared with controls, and they performed as much as **21%** better on exercise cycle testing.⁴⁷

In a similar study in patients with congestive heart failure, those taking creatine almost doubled the number of handgrip exercises. They also significantly reduced the amount of muscle waste products they produced.⁴⁸ Since those with congestive heart failure typically experience reduced exercise tolerance,⁴⁸ these improvements bode well for creatine as an enhancer of mobility and quality of life for these patients.^{49,50}

Creatine Shows Potential In Managing Blood Sugar And Insulin Levels

One natural consequence of creatine's ability to boost muscle energy levels is a subsequent increase in your body's ability to utilize glucose as metabolic fuel.⁵¹ Creatine has long been known to lower blood glucose levels in healthy patients. Now, studies are beginning to appear that indicate creatine's blood-sugar benefits in **diabetic** patients as well.

In humans, creatine supplementation markedly increased the production of the glucose transporter complex called *GLUT-4*, which shuttles sugar molecules from the blood into cells and on to mitochondria.⁵²

Contraindications Of Creatine Monohydrate?

Hundreds of studies to date have shown that creatine monohydrate is an amazingly non-toxic and safe supplement with numerous benefits. Further studies directly examining possible side effects, both prospective and long-term retrospective (up to five years), have failed to find *any* serious side effects of creatine supplementation⁶⁵⁻⁶⁹ on various markers studied, such as renal function, hepatic function, and others. So are there contraindications of creatine monohydrate?

Although creatine monohydrate is clearly safe for healthy people with a very low side-effects profile using up to **10 grams per day**, are there specific groups who should not use it?

Again, the data suggest very few actual contraindications. The only people who should avoid creatine supplements are those with a history of renal disease and/or those taking *nephrotoxic* (poisonous to the kidneys) medications. There's been a handful of case reports that show very high doses of creatine (and the reports were not always clear as to what form of creatine was used) were associated with kidney dysfunction.⁷⁰ Typical for such a simple case report, it's unclear what other medications were involved or pre-existing medical condition existed.

However tenuous the connection between high-dose creatine monohydrate and pre-existing kidney dysfunction, it's prudent to advise people with a history of renal disease and/or those taking nephrotoxic medications to avoid creatine supplementation until more data exists examining that connection. As creatine monohydrate supplementation may cause a transient increase in creatinine levels in some individuals, it may act as a false indicator of renal dysfunction.

Animal studies show similar phenomena, along with lowered blood glucose and reduced plasma insulin levels.⁵¹ This is a critically important point, because elevated insulin levels are associated with diseases such as cancer and atherosclerosis.^{5,53,54}

In sedentary but otherwise healthy men, **10 grams/day** of creatine along with moderate exercise produced significant improvements in oral glucose tolerance test results.⁵⁵ A study published in 2011 showed that diabetics taking creatine supplements combined with exercise experienced similar improvements in blood sugar, glucose tolerance testing, and hemoglobin *A1c*, the measure of glucose exposure over long periods.⁵⁶

Creatine: Protecting Older Adults From Muscle Loss

As we age, we tend to become increasingly sedentary. Combine that with age-related changes to our biology, and the result is typically the loss of healthy muscle mass, known as *sarcopenia*.^{57,58} Muscle loss can be serious—especially when combined with poor cognition and balance—as it increases your risk of falling. And of course, weakened bones increase the risk of a serious injury in a fall.⁵⁹

Several studies now support the use of creatine supplementation to enhance lean body mass, muscular performance, and fatigue resistance in young adults.^{58,60,61} These benefits are of equal interest for older people.

New research shows that supplementing with approximately **5 to 20 grams/day** could provide major benefits for older people. Supplementation produces significant improvements in the ability to perform short-lived but high-energy actions, such as those involved in sitting down and rising up again from a chair, in which a person must lower and then raise their entire body weight in a short period.⁶² Other studies show improvement in grip strength.⁶³ While exercise is helpful, many studies show that creatine is beneficial even in the absence of such training.⁵⁸

A small but growing body of evidence suggests that creatine may improve bone mineral density and strength, particularly if combined with resistance exercise.⁵⁸

The evidence for creatine supplementation is now so great that one expert has written, “**Physicians should strongly consider advising older adults to supplement with creatine and to begin a resistance training regime in an effort to enhance skeletal muscle strength and hypertrophy, resulting in enhanced quality of life.**”⁶⁴

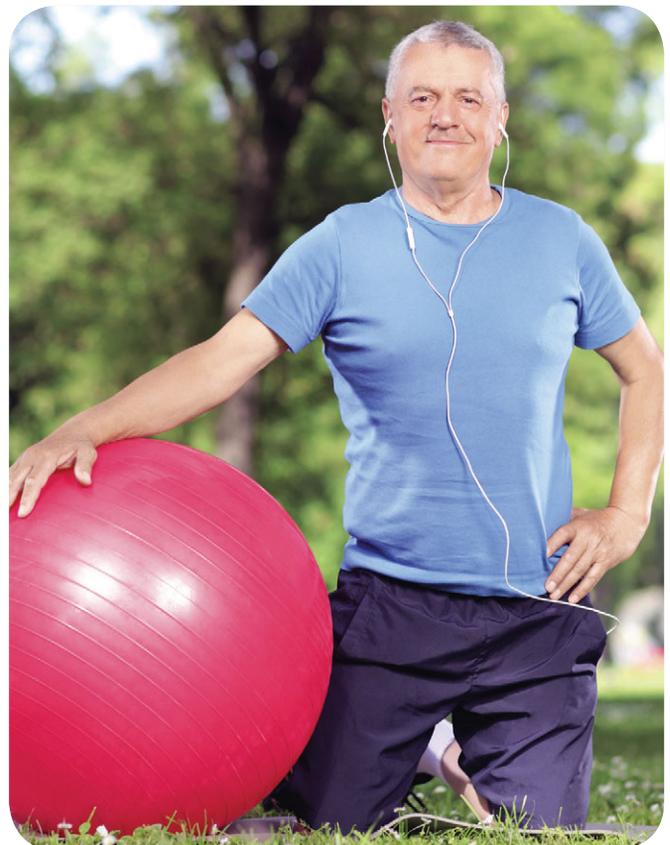
Summary

Long used by athletes as an energy-enhancing aid, creatine is increasingly showing promise in diseases that involve deterioration of the energy balance in our bodies. These include neurodegenerative diseases, especially Parkinson’s and Huntington’s diseases, as well as heart disease and diabetes. And animal studies reveal significant extension of the life span in older animals supplemented with creatine.^{34,35}

Our bodies run on energy. We extract that energy from food, and then move and store it in tissues for immediate release. As we get older, however, our energy-storing and energy-moving apparatus begin to fail, and byproducts begin to accumulate. Creatine helps the body transfer energy and provide energy to tissues that have very high energy demands, such as the brain, heart, and muscle.

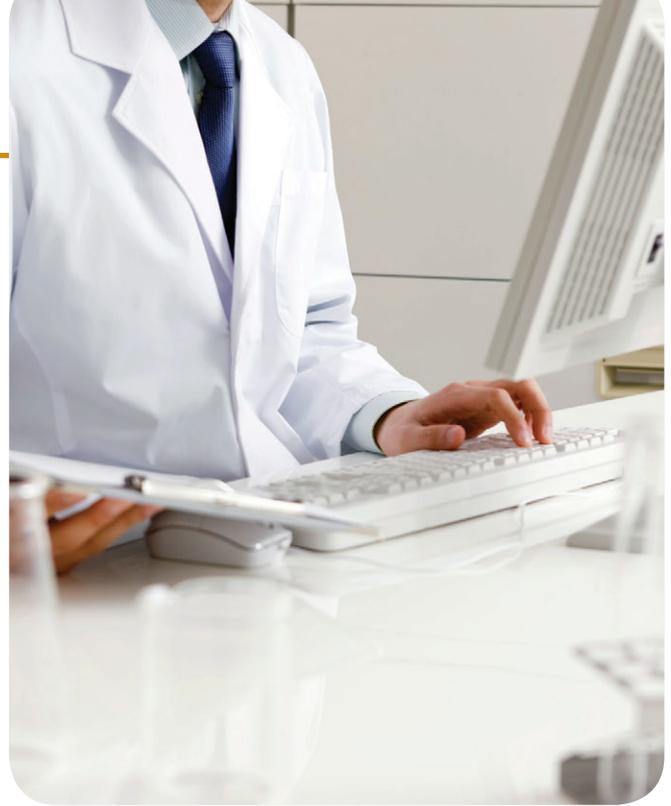
Research on creatine as a life-extender in humans is in its infancy, but the existing evidence of its efficacy, combined with its strong safety record, make it an interesting supplement for adults to consider who seek to slow aging and fend off its consequences. ●

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

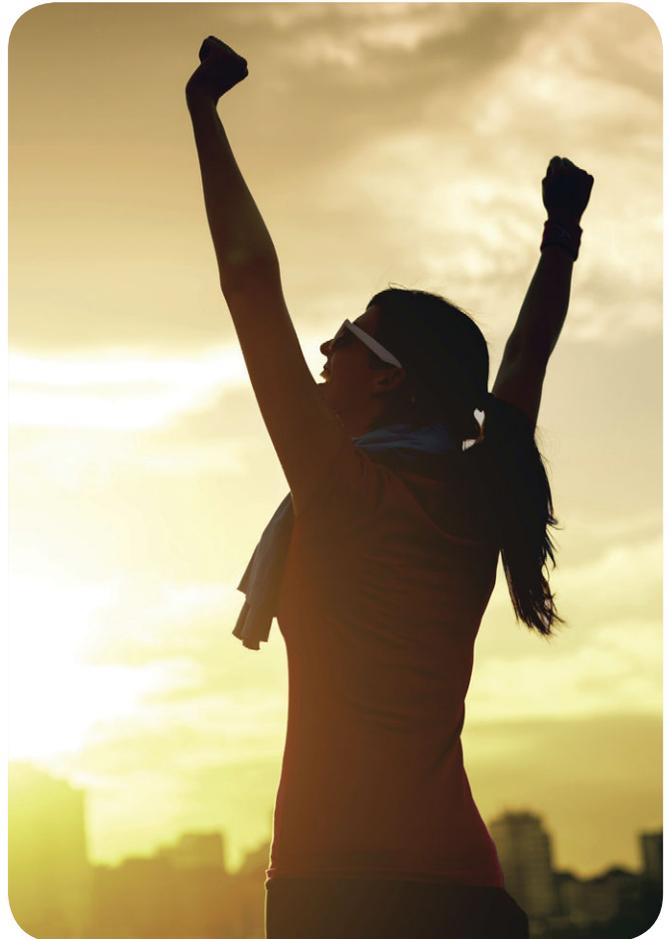


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Probiotic Liquid Vegetarian Capsules

The Most Advanced Probiotic Available

While people use **probiotics** for intestinal health, compelling new evidence indicates that they have a broad spectrum of health benefits.¹⁻⁶

Scientists are finding that not having the proper balance of good to bad bacteria can wreak havoc throughout the body.⁷⁻¹¹

FlorAssist® offers a new way to help maintain the proper balance of intestinal flora.

Why Don't Probiotics Always Work?

One of the complications many commercial probiotics face is their inability to overcome hurdles in the digestive tract before hitting their target area—an aspect that can greatly limit their beneficial effects.¹²

FlorAssist® Probiotic Liquid Vegetarian Capsules utilize a "**dual encapsulation**" technology to combat the shortcomings of many commercial probiotics, delivering unprecedented amounts of live bacterial colonies to where your body needs them.

FlorAssist® Probiotic Liquid Vegetarian Capsules...

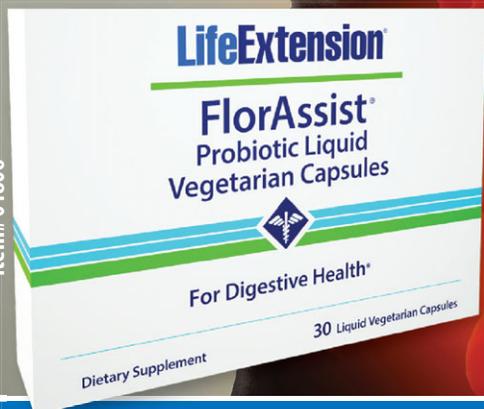
- Contain probiotic strains that are **acid resistant**, protecting them from stomach acid that can destroy the viability of the strains;
- Have **dual encapsulation technology**, keeping the capsule intact longer, and ensuring that the probiotic reaches the small intestine,
- Provide a **high CFU** (Colony Forming Units) of 15 billion per capsule!

Dual Encapsulation Probiotic



These **potent strains** of probiotic bacteria adhere to the soft lining of the intestinal tract, help maintain a healthy surface, and support the digestive system.

The retail price for a bottle containing 30 capsules of **FlorAssist® Probiotic Liquid Vegetarian Capsules** is \$33. If a member buys four bottles, the price is reduced to just **\$22.50** per bottle.



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To order FlorAssist® Probiotic Liquid Vegetarian Capsules, call 1-800-544-4440, or visit www.LifeExtension.com

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ENERGY FOR Life



Many creatine products are sold on the American market, but the most absorbable form is creatine monohydrate imported from Germany. Life Extension offers two different creatine supplements to provide energy-boosting effects to cells throughout the body.



Item #01529



Item #01746

To order any of these potent creatine supplements, call **1-800-544-4440** or visit www.LifeExtension.com

Each **Creatine Cap** supplies **439.5 mg** of creatine from **500 mg** of creatine monohydrate. The suggested dose for healthy people is 2-4 capsules a day. A bottle containing 120 **Creatine Caps (500 mg)** retails for \$10.95. If a member buys four bottles, the price is reduced to **\$6.94** per bottle.

For those seeking creatine's ultimate benefits, Life Extension has devised a formula that provides **2,000 mg** of creatine monohydrate, **15 grams** of whey isolate, and **3,000 mg** of glutamine in each scoop. The retail price for a **1,000 gram** jar of **Creatine-Whey-Glutamine Powder** is \$30. If a member buys four jars, the price is reduced to **\$20.25** per jar.

Contains milk and soybeans.

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BY JEFFREY HUNTINGTON

New Health Benefits From Daily

Coffee

Coffee is a widely consumed beverage.¹⁻³ It contains over 1,000 compounds, many of which are biologically active. Coffee also contains a complex mixture of polyphenols, making it one of the most popular pharmacologically active beverages.^{1,4-11}

Scientific interest in uncovering the health benefits contained in a daily cup of coffee has exploded in the last several years.

For example, drinking two extra cups of coffee daily may reduce your risk of developing type II diabetes. That's the conclusion of a **2014** study of more than a million people, which demonstrated a **12%** decrease in diabetes risk for each additional two cups of coffee consumed (the decrease was **11%** among decaffeinated coffee drinkers).⁴

That's only one example of the rapidly expanding literature regarding the benefits of drinking coffee. There now is compelling evidence of coffee's health benefits regarding cardiovascular disease, metabolic syndrome, neurodegenerative disease, plus liver and kidney cancers.^{6,12-19}

And a stunning epidemiological study has shown sharp reductions in the risk of overall death among coffee drinkers.⁵

Enjoying a cup of coffee—or more—provides important longevity and protective benefits.^{5,14}





Coffee Reduces Risk Of Death

In a study funded by the National Institutes of Health and published in the prestigious *New England Journal of Medicine*, researchers explored the relationship between coffee drinking and the risk of dying. The study included more than 229,000 men and over 173,000 women who ranged in age from 50 to 71 years at the start of the study.⁵ The researchers followed the subjects for up to 13 years—or 5.15 million person-years!—making this one of the most powerful studies of its kind.

The researchers found that the risk of dying was significantly reduced in those who drank coffee (all levels of consumption) compared to those who did not.⁵ Compared to those who drank no coffee, the risk for men of dying from any cause was reduced **6%** among those who drank **1 cup/day**, **10%** for **2-3 cups**, **12%** for **4-5 cups**, and **10%** for **6 or more cups/day**. For women, the risk reduction was **5**, **13**, **16**, and **15%**, respectively.

While these findings are certainly impressive, the researchers also discovered that coffee consumption produced significant reductions in the risk of dying from a number of specific causes, including heart disease, respiratory disease, stroke, injuries and accidents, diabetes, and infections.⁵

It is evident from this study, and many earlier, smaller studies, that far from being “bad for you,” as was once believed, coffee can be considered an important promoter of long life and good health.

Coffee Provides Cardiovascular Protection

The complex mix of anti-inflammatory polyphenols and other bioactive compounds in coffee delivers potent cardioprotective properties. The greatest benefits have been found in filtered coffee consumption.²⁰⁻²³ Reversing earlier concerns that coffee might increase or aggravate cardiovascular disease risk, large epidemiologic studies reveal important positive effects on the heart, blood vessels, and brain that contribute to a reduction in the risk of heart disease, atherosclerosis, and stroke.^{21,24,25}

In one large meta-analysis, over 1.2 million participants were evaluated for their cardiovascular disease risk according to their coffee consumption.¹² Compared to subjects who drank no coffee at all, the researchers found a **15%** cardiovascular disease risk reduction among those who drank an average of **3.5 cups/day**, and **11%** for those who had an average of **1.5 cups/day**. This was an important study since it showed some level of protection for all amounts of coffee consumption.

One of the most important predictors of cardiovascular disease risk is *endothelial dysfunction*.²⁶ The endothelium is an ultra-thin layer of cells that lines blood vessels. It sends biochemical signals, including *nitric oxide*, to smooth muscle cells in the vessel walls, triggering them to relax and dilate, or contract and constrict, thereby regulating blood flow and pressure throughout the body.²⁷ People with atherosclerosis (hardening of the arteries) have perturbed endothelial function, causing vital organs such as the heart or brain to suffer from disrupted blood flow, which in turn can produce a heart attack or stroke.²⁸

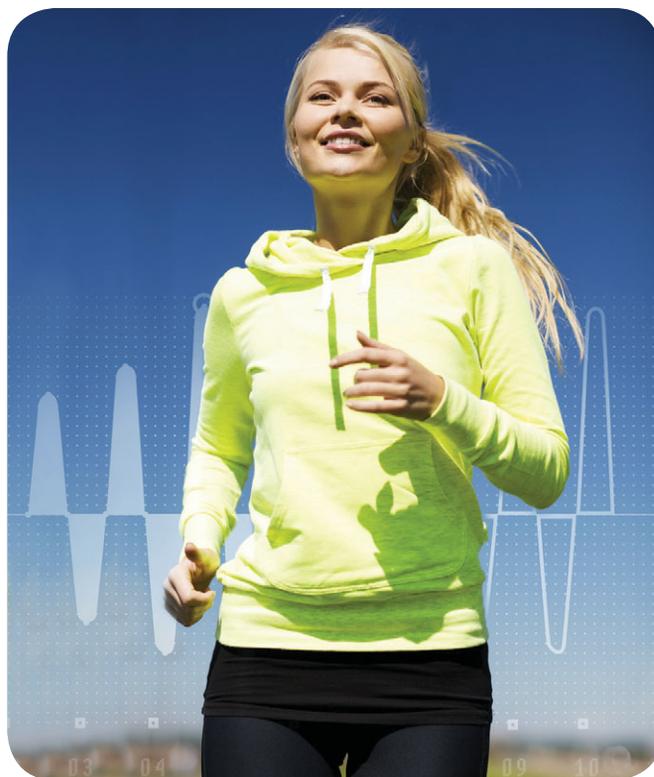
The effects of coffee consumption on endothelial function have been controversial, in part because of confusion regarding the role of caffeine. Caffeine has been found to temporarily worsen endothelial function in some studies, but the antioxidant and other benefits of polyphenols in coffee appear to largely negate this effect.^{1,15,29} In a group of older adults consuming a typical drink of boiled caffeinated coffee, endothe-

lial function was **49%** better in those who reported *high* consumption compared with those reporting *low* consumption.¹⁶

Even **200 mg** of caffeine (equivalent to about **2.5 cups** of coffee) improved endothelial function by **160%** in patients with known coronary artery disease and by **121%** in healthy volunteers, suggesting there may in fact be a beneficial role for caffeine in addition to the polyphenols.⁶ In a separate study, **300 mg** of caffeine, given to healthy young men, produced a **25.5%** improvement in endothelial function; this effect was traced to an increase in production of the vessel-dilating compound nitric oxide.³⁰

Decaffeinated coffee has also repeatedly been shown to improve endothelial function, reducing the risk of cardiovascular disease. In one study, endothelial function improved **46%** one hour after consumption of two cups of decaffeinated Italian espresso coffee, and by **23%** one hour after consumption of one cup.³¹

Given that decaffeinated coffee exerts positive effects on endothelial function, it appears that the polyphenol compounds exert substantial benefits. A study of healthy, non-diabetic men showed that ingestion of a single dose of purified caffeine polyphenols improved endothelial function following a glucose challenge (simulating a meal).²³ This is an important finding, given that after-meal increases in blood sugar are strongly associated with poor endothelial function and increased cardiovascular risk.³²⁻³⁴



Both caffeinated and decaffeinated coffee, even at fairly high levels of consumption, exert favorable effects on endothelial function and on cardiovascular disease risk. Importantly, one study showed no significant negative effects of coffee consumption, either caffeinated or decaf, on certain types of ECG associated with cardiovascular disease.³⁵

Coffee Protects Against Metabolic Syndrome And Type II Diabetes

The modern lifestyle is contributing to an alarming and constant increase in the prevalence of obesity, type II diabetes, and their deadly long-term consequences.³⁶⁻⁴⁰

In particular, *metabolic syndrome*—abdominal obesity, hypertension, abnormal blood lipids, and insulin resistance producing borderline/high blood sugar levels—is on the rise, along with increased risks for diabetes, heart disease, cognitive decline, and even cancer.^{37,41,42}

Fortunately, there's a growing body of evidence favoring coffee consumption as a means of protection against both metabolic syndrome and diabetes.

In a study from Japan, where rates of metabolic syndrome have been rising sharply over the past decades, all components of metabolic syndrome occurred less frequently among coffee drinkers than among non-drinkers. More components of metabolic syndrome were present in those who drank less coffee.⁴³

Other studies have shown similar effects, with heavy coffee drinkers being more protected from metabolic syndrome components like elevated triglycerides; one study showed that drinking **1.5 to nearly 3 cups/day** offered a **49%** reduction in the risk of having high blood sugar.¹³

Coffee's impact on fat accumulation is also favorable. Both light (**1-3 cups/day**) and moderate (**4 or more cups/day**) coffee consumption was shown to reduce abdominal fat collections in a group of middle-aged men. Moderate coffee consumption was also associated with higher blood levels of the beneficial hormone *adiponectin*, which helps regulate metabolic processes, further evidence of reduced deleterious activity of fat tissue.^{14,44}

Animal studies provide some insights into how coffee exerts its protective effects against metabolic syndrome.

In one study, rats were fed a diet rich in animal fats and sugars, including fructose. They rapidly developed metabolic syndrome, which led to dangerous remodeling of their heart structures and also to non-alcoholic fatty liver disease (NAFLD), both of which occur in humans who consume too much sugar and fat.⁴⁵



What You Need To Know

The Numerous Health Benefits Of Coffee

- Coffee is one of the most widely consumed beverages in the world; it contains more than 1,000 different compounds.
- Once thought likely to be harmful, coffee is now recognized as an excellent source of antioxidant and anti-inflammatory molecules.
- Very large and powerful epidemiological studies show that coffee consumption is associated with longer lifespans and with reduced risks of dying from a host of common, age-related conditions.
- Coffee reduces the risk of cardiovascular disease, metabolic syndrome, diabetes, neurodegenerative diseases, and liver and kidney cancers.
- If you enjoy drinking coffee, go for it — there is ample evidence that coffee is a highly functional beverage that gives one pleasure, robust health, and a long life.

Coffee's Beneficial Compound

Coffee has numerous beneficial properties that appear to be independent of its caffeine content. While coffee is known to contain more than a thousand bioactive compounds, scientists have learned that one such compound, **chlorogenic acid**, is responsible for the lion's share of coffee's healthful activities.

Chlorogenic acid is a polyphenol, making it a member of one of the largest classes of plant molecules that promotes human health. Chlorogenic acid also has powerful anti-oxidant and anti-inflammatory effects.⁷⁵⁻⁸⁰

It is also recognized as one of the important cardio-protective components of coffee, capable of improving heart muscle cell health, potentially reducing the risks of congestive heart failure after a heart attack.⁷⁷ It inhibits the clumping of platelets that contributes to blood vessel blockage to produce heart attacks and strokes.⁸¹

Chlorogenic acid also has a potent impact on how our bodies effectively handle sugars and fats.⁸² Studies show that this polyphenol provides important anti-obesity and glucose-lowering effects,⁸² and treatment of diabetic animals with chlorogenic acid was able to partially prevent the biochemical and cognitive

changes associated with diabetes, improving memory and decreasing anxiety.⁸³ In studies of animals with long-term consequences of diabetes, such as painful diabetic neuropathy and poor wound healing, chlorogenic acid not only lowered blood sugar, but directly reduced pain and enhanced healing rates.^{84,85}

The beneficial effects of coffee drinking on neurodegenerative diseases such as Parkinson's and Alzheimer's is largely attributable to chlorogenic acid, according to recent studies.^{76,86,87} Chlorogenic acid reduces oxidative stress-induced brain cell death, and also preserves the activity of vital neurotransmitters (nerve cell signaling molecules) that are lost in Alzheimer's patients.^{79,88,89}

Finally, chlorogenic acid, by modulating genetic expression, promotes immune system activation that favors detection and destruction of cancer cells by patrolling immune cells, helping to abort an incipient cancer before it can take root and grow.⁸⁰

There's no longer any doubt about coffee's health-giving properties. Modern coffee processing techniques that enhance the chlorogenic acid content may serve to make your daily "cuppa" contribute strongly to your health and life span.



But when a supplemental coffee extract was added to the rats' diet, those unhealthy effects were significantly reduced, and the animals' glucose tolerance and high blood pressure also resolved.⁴⁵

Similarly, mice fed a high-fat diet gained weight and increased abdominal fat stores, but when fed the same diet and supplemented with coffee (decaf or regular) they had lower body weights and fat stores.⁴⁶ The supplemented animals also had significantly lower levels of liver damage indicators and inflammatory markers, compared with unsupplemented controls.

Even in animals with both metabolic syndrome and diabetes, coffee has proved to be therapeutic. A study of rats that had both disorders showed coffee consumption reduced serum glucose, total cholesterol, and triglycerides, thus lowering risk factors for developing cardiovascular disease and other complications of metabolic syndrome.⁴⁷

The benefits of coffee on metabolic syndrome were summarized in a comprehensive review in late **2013**. Of the studies examined, all of the animal and most of the human research demonstrated protective effects of coffee on metabolic syndrome and on development of non-alcoholic fatty liver disease (the few human studies that showed no effect were conducted among young populations, who have a relatively low incidence of metabolic syndrome at baseline).⁴⁸

A main risk posed by metabolic syndrome is the development of full-blown type II diabetes, the result of sustained exposure to fat-related inflammatory cytokines and poor insulin sensitivity.⁴⁹ As with metabolic syndrome itself, coffee is highly protective against type II diabetes.

A large multi-ethnic study of more than **75,000** men and women showed that drinking **3 or more**

cups/day of regular coffee reduced risk of developing type II diabetes **35%** in women, and **14%** in men; this study did not find significant risk reduction with decaffeinated coffee.⁵⁰

That difference between caffeinated and decaf coffees, however, seemed to disappear in research that examined even larger populations. Two important **2014** meta-analyses, each including more than a million participants, provide definitive evidence that both kinds of coffee offer protective effects against type II diabetes. The first demonstrated that compared with little or no consumption, the risk for developing diabetes was reduced by **8, 15, 21, 25, 29,** and **33%** for consumption of **1 to 6 cups/day** (respectively), with protection seen for both caffeinated and decaffeinated brews.⁵¹

The second meta-analysis showed similar results. Compared with the lowest level of coffee intake, those drinking the largest amounts of regular coffee had a **29%** lower risk, while those drinking the largest amount of decaf had a **21%** lower risk.⁴ This study also demonstrated that each additional two cups of regular coffee reduced diabetes risk by **12%** (**11%** in decaf drinkers).⁴

Animal studies show that coffee (decaf and regular) contributes to decreased insulin resistance (the precursor to type II diabetes) and reduces blood sugar levels by modulating several proteins involved in insu-

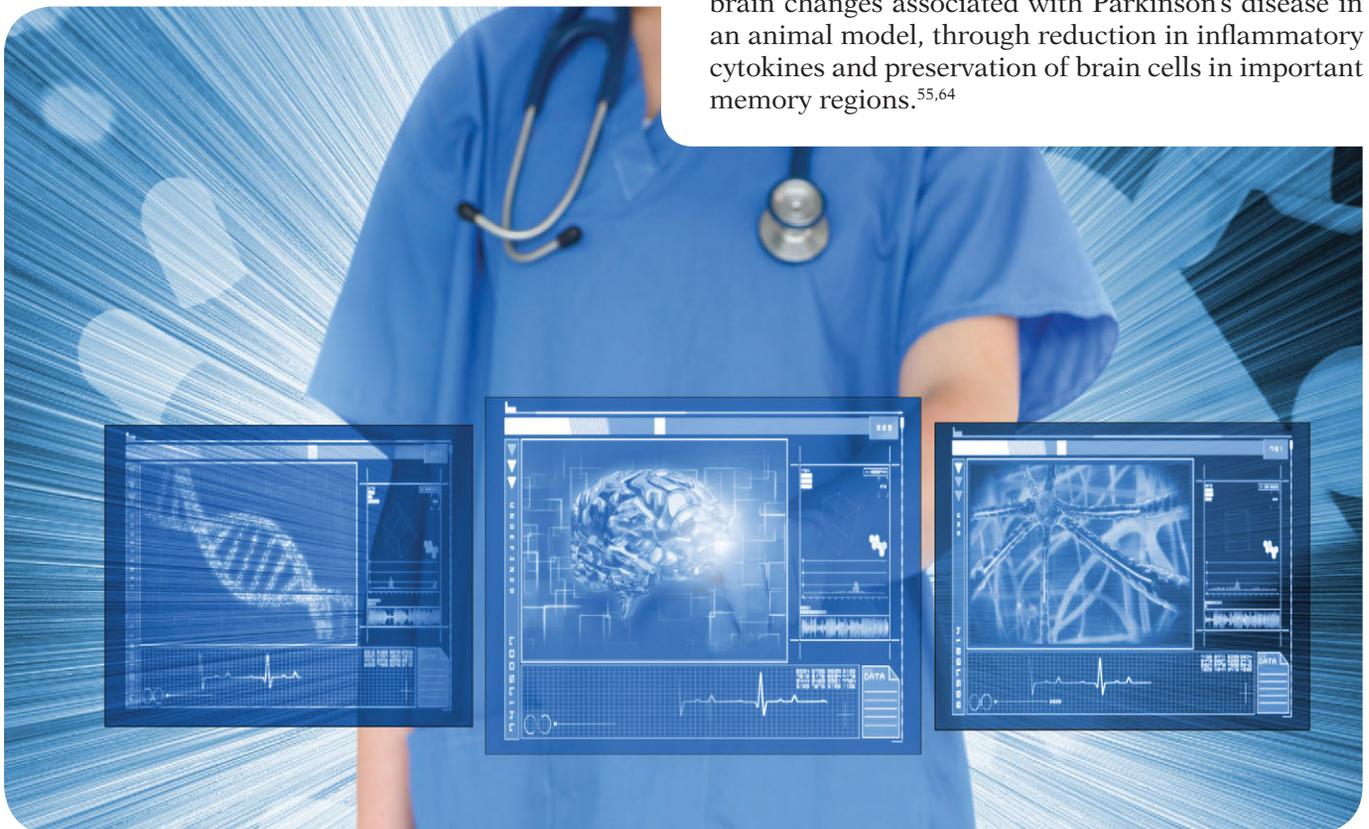
lin signaling and down-regulating genes involved in inflammation.⁵² Subsequent research suggests these effects may in turn lead to increased energy utilization and energy expenditure, both important factors in reducing total body fat stores and reducing the risk for diabetes and metabolic syndrome.⁵³

Coffee Protects Brain Cells

Both caffeine and coffee show powerful effects in protecting brain cells from age-related degeneration. Epidemiologic studies show that people with higher intakes of coffee and caffeine are *less* likely to develop Alzheimer's or Parkinson's diseases, two of the most feared cognitive disorders of aging.⁵⁴⁻⁵⁹

People with mild cognitive impairment (MCI, the precursor to Alzheimer's) who have higher blood caffeine levels are significantly less likely to progress to full-blown dementia, and rates of cognitive decline are slower in people with higher caffeine intake.^{60,61} Coffee drinkers who consume **3 cups/day** are **28%** less likely to develop Parkinson's disease.⁶²

In animal studies, it has been shown that caffeine and caffeinated coffee can prevent Alzheimer's-like cognitive impairment from developing as mice age, *and* reverse the cognitive impairment and accumulation of the abnormal Alzheimer's brain protein called *Abeta* in aged mice.⁶³ Caffeine also prevented the brain changes associated with Parkinson's disease in an animal model, through reduction in inflammatory cytokines and preservation of brain cells in important memory regions.^{55,64}



But that's not the only beneficial component of caffeinated coffee. Studies have shown that caffeinated coffee elevates plasma levels of a growth factor (GCSF—or *granulocyte-colony stimulating factor*) that is associated with improved memory. GCSF is also thought to promote formation of new brain cells and the synapses that connect them.⁶⁴ And a specific non-caffeine coffee component called *EHT* (*eicosanoyl-5-hydroxytryptamide*) has direct anti-inflammatory and antioxidant effects that preserve the specific neurons that die off in Parkinson's disease.⁵⁸

Caffeine is also associated with a decreased risk of depression, as shown by studies documenting up to a **43%** risk reduction in people with the highest versus the lowest caffeine consumption.^{65,66} Consumption of coffee itself provides a **39** to **77%** reduction in risk of depression.^{66,67}

Coffee Prevents Liver And Kidney Cancers

The rich brew of bioactive compounds in coffee is now credited with preventing certain cancers, particularly those of the liver and kidneys.¹⁸

Hepatocellular carcinoma is the most common primary malignant cancer of the liver; it is strongly associated with hepatitis B and C viral infections, and coffee drinking appears to confer a protective effect.⁶⁸

Compared with people drinking **0-1 cups of coffee/day**, those drinking **2-3, 4-5, 6-7, and 8 or more cups/day** have reductions in liver cancer risk of **34, 56, 62, and 68%**, respectively.¹⁷ This level of protection is provided by coffee, regardless of whether a person has been infected with either or both hepatitis B and C viruses, both of which are strongly associated with liver cancer.⁶⁹ Overall, studies show a remarkably consistent average risk reduction of about **50%** in coffee drinkers versus non-drinkers, regardless of study design or location.⁷⁰

Proposed mechanisms for protection against liver cancer include induction of toxin-destroying and antioxidant enzymes, and reducing enzymes that activate carcinogens.¹⁸

Coffee consumption appears to reduce kidney cancer risk as well, with laboratory evidence demonstrating that coffee helps destroy renal cancer cells.^{18,19} Compelling evidence also shows general improvements in kidney function among coffee drinkers.

Several studies have now shown that coffee significantly increases kidney function as measured by *glomerular filtration rate* (GFR), the amount of toxin-containing fluid that is filtered through the kidney each minute (higher numbers are better).^{71,72} The effect was demonstrated to be even greater in middle-aged and elderly coffee-consuming female diabetics.⁷³

And among kidney dialysis patients, coffee drinking is associated with significant improvements in lipid profile, a cardiovascular risk that is increased in those on dialysis.⁷⁴

Summary

Coffee, one of the world's most popular beverages, is a complicated mix of more than a thousand compounds. In addition to caffeine, which itself appears to have beneficial effects, coffee also contains polyphenols and other compounds capable of modifying gene expression, protecting tissues from oxidant and inflammatory damage, and other favorable effects.

A major study demonstrated that coffee drinkers are at significantly lower risk of dying from all causes, as well as from many of the specific conditions that are the leading cause of death among Americans, from cardiovascular disease to diabetes. Additional studies have shown benefits from coffee consumption on metabolic syndrome, neurodegenerative diseases, and cancers of the kidney and liver.

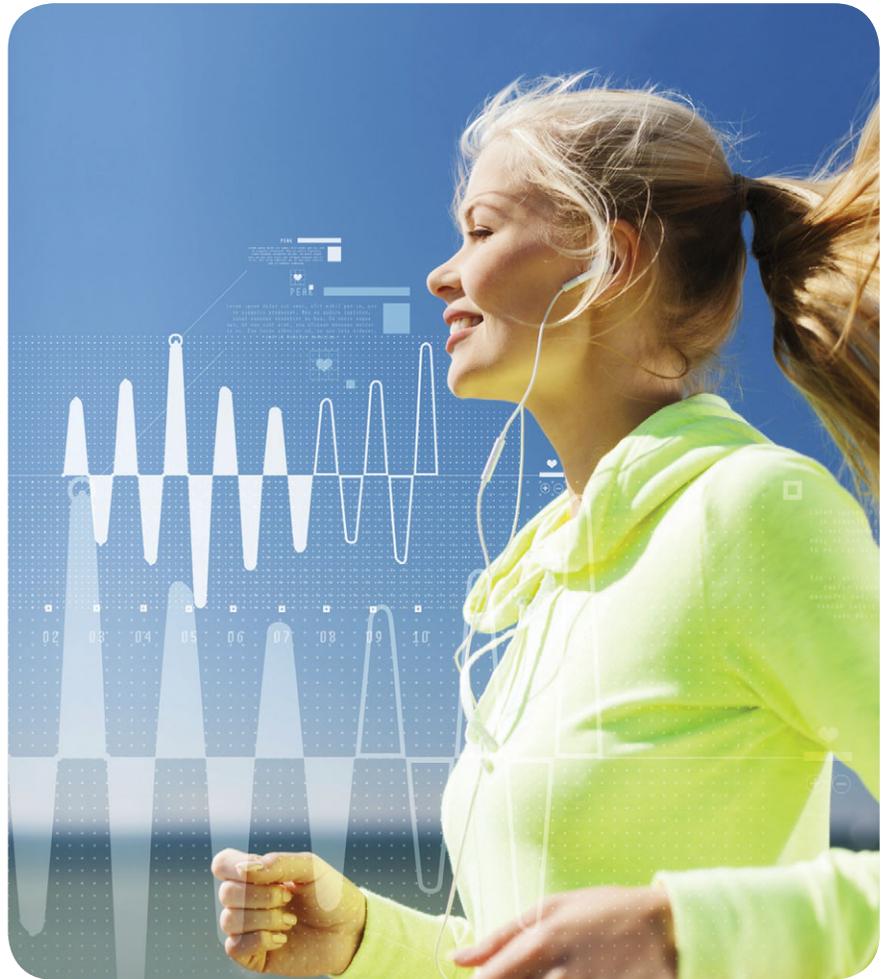
So, find a brand of coffee that you enjoy, preferably one with known quantities of antioxidant molecules, and drink up—you'll be doing yourself and your health a pleasurable favor. ●

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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ITEM # 01707

REMARKABLE WEIGHT REDUCTION WITH CoffeeGenic® Green Coffee Bean Extract



In a placebo-controlled human study, subjects took **350 mg of green coffee extract** three times daily (before meals).

Study subjects were not asked to change their calorie intake or exercise level, but people participating in weight-loss trials often do make lifestyle changes in order to increase their odds of shedding body fat.

The impressive findings, published in January 2012, noted that men and women lost an average of **17.6 pounds**—over **10%** of body weight—after **12 weeks** of **green coffee extract** supplementation! There was also an average **4.44%** reduction in body fat percentage!¹

The conclusion is that **green coffee extract** supports the ability to lose weight.¹ The form of **green coffee bean extract** used in this successful weight loss study is **CoffeeGenic® Green Coffee Extract**.

How CoffeeGenic® Works

The active ingredient in **green coffee bean extract** is **chlorogenic acid**.

Published studies on **chlorogenic acid** demonstrate a wide range of supportive properties related to insulin sensitivity,² and to glucose formation,^{3,4} and absorption.⁵

Clinical research has shown that **chlorogenic acid** helps limit after-meal glucose surges, supporting healthy blood sugar levels for those already within the normal range.⁶

CoffeeGenic® Green Coffee Extract provides a standardized dose of **chlorogenic acid** extracted from **green coffee beans**.

Based on the latest research, **CoffeeGenic® Weight Management™ with Green Coffee Extract** has been formulated to provide in each capsule:

CoffeeGenic® Green Coffee Bean Extract [Standardized to 50% <i>chlorogenic acids</i> (175 mg)]	350 mg
Integra-Lean® African Mango <i>(Irvingia gabonensis)</i> proprietary extract (seed)	100 mg
Chromium [as Crominex® 3+ chromium stabilized with Capros® Amla <i>(Phyllanthus emblica)</i> extract (fruit) and PrimaVie® Shilajit]	150 mcg
Iodine (as potassium iodide)	100 mcg
Green Tea decaffeinated extract [98% polyphenols (49 mg), 45% EGCG (22.5 mg)]	50 mg

The suggested dose is just one capsule before each meal. A bottle of **90 vegetarian capsules** of **CoffeeGenic® Weight Management™ with Green Coffee Extract** retails for \$40. If a member buys four bottles, the price is reduced to **\$27 per bottle**.

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This supplement should be taken in conjunction with a healthy diet and regular exercise program. Results may vary.

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

Integra-Lean® *Irvingia* is protected by U.S. Patent No. 7,537,790. Other patents pending. IGOB-131® proprietary extract is a registered trademark of Gateway Health Alliances, Inc. Crominex® 3+, Capros® and PrimaVie® are registered trademarks of Natreon, Inc.

To order CoffeeGenic® Weight Management™ with Green Coffee Extract, call 1-800-544-4440 or visit www.LifeExtension.com

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

Finally!

A SAFE, HEALTHY COFFEE CREAMER

Start your day with a healthy boost
in your morning coffee.

Most grocery store creamers are comprised of an artificial milk-like substitute made of **chemicals** as well as dangerous hydrogenated oils, corn syrup solids, artificial flavors and sweeteners, and a brew of stabilizing and emulsifying chemicals.

The new **Rich Rewards™ Protein Coffee Creamer** contains a healthy serving of nutritious, high-quality protein—with no added sugar or anything artificial.

Easy-to-use and requiring no refrigeration, vanilla-flavored **Rich Rewards™ Protein Coffee Creamer Vanilla** is naturally sweetened with non-calorie antioxidant *Monk fruit* extract.

A Protein Boost To Your Morning Coffee

Each serving of **Rich Rewards™ Protein Coffee Creamer** contains only **1 gram** of carbohydrate—but provides a full **5 grams** of healthy protein. That's about as much protein as a hard-boiled egg! The leading brands of commercial creamers have *no* protein.¹

The protein in **Rich Rewards™ Coffee Creamer** is from a milk protein isolate that is high in *casein*, a slower digesting protein, which helps promote satiety, energy expenditure, and protein balance.²

Rich Rewards™ Protein Coffee Creamer contains no sodium, cholesterol, saturated fat, trans fat, hydrogenated oils, or gluten—and no added sugar.



A 9.52 oz jar of 30 servings of Life Extension® **Rich Rewards™ Protein Coffee Creamer Vanilla Flavor** retails for \$26. If a member buys four jars, the price is reduced to **\$17.25** per jar.

To order Rich Rewards™ Protein Coffee Creamer Vanilla, 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.



Item # 01612

Scientists have found that people living on the Greek island of Ikaria enjoy a longer, healthier life span and it may be due to the way they prepare their coffee.

Instead of heavily **roasting** the coffee and thus removing beneficial polyphenols, they **boil** it in a way that retains its unique compounds.¹ Greek islanders who consumed this polyphenol-rich coffee were found to have healthy **endothelial function** that scientists suggested may play a role in their longevity.¹

POLYPHENOL-RETAINED COFFEE

Among the most beneficial coffee polyphenol is **chlorogenic acid**, an inhibitor of an enzyme called *glucose-6-phosphatase*. This enzyme stimulates the excess creation of **glucose** in the liver, which can result in **blood glucose** elevation.

For coffee lovers who like to **freshly grind** their own coffee beans, **Rich Rewards® Breakfast Blend Whole Bean Coffee** is made using a patented, **100%** natural process called **HealthyRoast™**.² This process delivers a more complete nutritional profile of the coffee bean, yielding up to **87% more chlorogenic acid** than conventional coffees!

Handpicked deep in the rainforests of Central America, **Rich Rewards®** consists exclusively of **100%** USDA certified organic *arabica* coffee beans, gently roasted in small batches—with the polyphenols then added back in to provide optimal health benefits.

RICH REWARDS® BREAKFAST BLEND COFFEES

Whole Bean Or Freshly Ground

RICH REWARDS® BREAKFAST BLEND GROUND COFFEE

We also offer our **Rich Rewards® Breakfast Blend Ground Coffee**—so you can kick-start your day a little faster—in both caffeinated and decaffeinated options.

For those who prefer a flavored coffee, **Rich Rewards® Breakfast Blend Ground Coffee** is available in natural **Vanilla** or **Mocha** flavors.

Like our regular **Rich Rewards®** whole bean and ground coffees, these flavored ground coffees are roasted using the patented **HealthyRoast™** process—which preserves the special, naturally occurring coffee compounds that soothe (instead of irritate) your stomach. This unique process also guarantees a higher content of healthy *polyphenols*.

ONE SMART CUP OF COFFEE®

Life Extension® **Rich Rewards® Breakfast Blend Coffee** provides it all:

- Whole bean savory taste
- Ground coffee for added convenience—caffeinated or decaffeinated
- Regular ground coffee taste or two natural-flavored options
- Far higher percentage of chlorogenic acid than conventional coffees
- Certified **100%** organic
- Special, naturally occurring compounds that soothe your stomach

A 12 oz bag of **Rich Rewards® Breakfast Blend Whole Bean Coffee** retails for \$13. Members pay **\$9.75** per bag.

A 12 oz bag of any flavor **Rich Rewards® Breakfast Blend Ground Coffee** retails for \$15. Members pay **\$11.25** per bag.

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Item # 01609



Item # 01610



Item # 01729



Item # 01730

To order any of the Rich Rewards® Breakfast Blend Coffee options, call 1-800-544-4440 or visit www.LifeExtension.com

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

THE 2014 *CARDIOVASCULAR DISEASE PREVENTION* SYMPOSIUM



Dr. Ozner

For years, Michael Ozner, MD, has been organizing the world's largest cardiology conference devoted to the prevention of cardiovascular disease.

Dr. Ozner serves as medical director for the Cardiovascular Prevention Institute of South Florida and is a member of **Life Extension's** Scientific Advisory Board.

On February 6, 2014, Dr. Ozner gave opening remarks at his 12th Annual Cardiovascular Disease Prevention International Symposium in Miami Beach, Florida. This article provides an overview of the various presentations made at this conference dedicated to preventing the most prevalent disease striking Americans.



South Beach Diet Gluten Solution

Arthur Agatston, MD, (Associate Professor of Medicine, University of Miami School of Medicine) is best known as the originator of the South Beach



Diet for which he has written many best-selling books. The subject of his presentation (and the subject of his latest book) was gluten.

Gluten is a protein found in wheat and a few other grains. Gluten readily forms cross-links with itself and with other proteins. This cross-linking property makes bread chewy (viscous and elastic), but it also

makes gluten difficult to digest. In people with **celiac disease**, gluten greatly damages *intestinal villi*, leading to diarrhea, abdominal pain, weight loss, fatigue, and anemia. Although up to **1%** of the population has celiac disease, most of the victims are unaware they are afflicted.¹⁻³

Much more common than celiac disease, according to Dr. Agatston, is **gluten sensitivity**, which can cause headaches, foggy mind, chronic fatigue, sinus problems, and constipation or diarrhea (among other problems).¹ Although there is a definitive diagnostic test for celiac disease, gluten sensitivity can only be established by removing gluten from the diet and seeing if the symptoms go away. Celiac disease cannot be cured, symptoms can improve and intestinal healing can occur if celiac patients completely remove gluten from their diet.⁴ Removing gluten from one's diet is not such an easy task, because gluten and wheat are added to so many products, particularly to achieve thickening. Dr. Agatston mentioned such unsuspected products as tomato sauce, yogurt, and toothpaste. Although wheat is not a GMO (Genetically Modified Organism), centuries of selective breeding and hybridization have increased the gluten content of wheat for the purpose of strengthening dough,² which has led to an increase in celiac disease and gluten sensitivity.⁵



Dangers Of Fructose

Robert Lustig, MD, (Professor of Clinical Pediatrics, University of California, San Francisco) believes that sugar consumption, fructose consumption in particular, is more of a cause of type II diabetes than obesity. He said that sugar consumption in the US increased by a **factor of 10** between 1820 and 1900, and doubled between 1900 and the year 2000.



Table sugar (sucrose) is composed of equal parts of the two simple sugars *glucose* and *fructose*.⁶ Fructose has often been recom-

mended to diabetics because unlike glucose, fructose consumption does not stimulate insulin secretion as much as glucose (fructose has a lower glycemic index).^{7,8}

But a study of overweight human subjects showed that a high-fructose diet promotes insulin resistance, visceral obesity, and elevated serum triglycerides (fats in the bloodstream), an effect not seen when glucose was substituted for fructose in the same diet.⁹

Insulin resistance is generally thought about as reduced ability of insulin to cause muscle to absorb glucose. But to Dr. Lustig, insulin resistance in the liver is more crucial. Unlike glucose, fructose is rapidly removed from the blood stream by the liver, which protects the rest of the body from the damaging effects of fructose. But the liver itself becomes damaged by fructose, and by the fats (triglycerides) that fructose causes the liver to manufacture.^{10,11} The resultant fatty liver is more causative of type II diabetes and insulin resistance than visceral fat,^{12,13} although the consequences are not so bad when fructose consumption is moderate.¹⁴

Fructose elevates uric acid production, which has damaging effects on the kidney and cardiovascular system.^{15,16} Most soda drinks are currently sweetened with high fructose corn syrup,¹⁷ partly because fructose is sweeter and more soluble than glucose.¹⁸ Increased consumption of those soda beverages has been linked to weight gain and might play a role in the growing incidence of obesity.¹⁹ Even fruit juice, which can be high in fructose, has been linked to type II diabetes.²⁰ Dr. Lustig lamented the promotion of orange juice by pediatricians. Apple juice, which has more than twice the fructose as orange juice, is the juice most often given to children under age 5.²¹ Fruit juice is a poor substitute for fruit or milk, especially in light of the fact that half of children between the ages of 1 and 5 do not get enough calcium.²¹



Smoking And Psychological Factors In Cardiovascular Disease

Wayne Sotile, PhD, (Clinical Assistant Professor, Tulane University) discussed efforts to reduce or stop cigarette smoking. A long-term study of British doctors showed that smokers died about 10 years younger than non-smokers.²² A study of smokers who suffered a heart attack showed that **80%** attempted to quit smoking after the heart attack, but after one year only about half were still not smoking.²³



Sotile

Dr. Sotile described tactics for reducing smoking, such as only smoking if a smoker rated the desire to smoke as being greater than 7 on a scale from 1 to 10. He said that simply encouraging smokers to keep a count of the cigarettes they smoked reduced cigarette consumption by half. But he also cited a study of heavy smokers which showed that a **50%** reduction of cigarette consumption did not significantly reduce the risk of premature death.²⁴ Complete cessation of smoking will provide definite health benefits—life and health are extended in proportion to how early in life a smoker completely stopped smoking.²² Dr. Sotile said that for those who are unable or unwilling to quit smoking, electronic cigarettes have considerably fewer toxicants and carcinogens than tobacco cigarettes.²⁵

In a separate lecture, Dr. Sotile discussed psychological factors leading to cardiovascular disease. Studies of certain “type-A” behavior factors (competition and exaggerated commitment to work) have not shown convincing results that the personality type leads to increased risk of coronary artery disease, whereas hostility (a major attribute of the type A personality) has been associated with increased risk.²⁶

Confounding this analysis, however, is the fact that hostile people more often have unhealthy lifestyles.²⁶ Work stress is particularly toxic when there is high demand, but low decision latitude.²⁶ Dr. Sotile thinks that the number of stresses is less important for cardiovascular risk than the number of uplifts (gratitude, interest, hope, pride, amusement, and love).

Women’s Issues In Cardiovascular Disease

Sharonne Hayes, MD, (Professor of Medicine and Cardiovascular Diseases, Mayo Clinic, Rochester, Minnesota) is concerned with both women’s issues and psychological issues associated with cardiovascular disease.



Hayes

For example, certain metabolic changes during pregnancy can resemble diabetes, and may accelerate the development of diabetes after pregnancy.²⁷ In a study involving subjects who lost their significant other, women were **three times** more likely to experience death of a spouse after age 65 than a man.²⁸ The risk of a heart attack in the first 24 hours after the death of a spouse was increased more than **20 times**, and it decreased subsequently.²⁸ Women are more likely to die of stroke than coronary artery disease, whereas the opposite is the case for men.²⁹ Women with a history of depression are **two to three times** more likely to have calcification of their coronary arteries than women without a history of depression.³⁰ Patients with coronary heart disease are much more likely to have impaired endothelial function, and are much more likely to die if they are depressed.³¹ A study showed that anxiety is a stronger predictor of coronary artery disease than depression.³² Exercise reduces death rates in depressed heart patients.^{33,34} Another study cited showed that pet ownership is associated with lower blood pressure, reduced incidence of cardiovascular disease risk factors, and increased survival in individuals with existing cardiovascular disease.³⁵

Dr. Hayes reported on a Mayo Clinic survey of the hierarchy of female concerns. What is most important to women is their children, followed by their home, their career, their pet, their spouse, and lastly, themselves. Dr. Hayes suggested that the low priority women give to their own needs can manifest in not taking time to look after their health, such as by exercising. As another example, she reported that **79%** of women said they would call 911 if someone else was experiencing symptoms of a heart attack, but only **53%** would call 911 if they were the one experiencing heart attack symptoms.²⁹



Removing The Cause Of Atherosclerotic Inflammation

Ira Tabas, MD, PhD, (Professor of Medicine and Anatomy and Cell Biology, Columbia University, New York, New York) summarized his argument by saying that the first step in stopping inflammation caused by a splinter in the finger is to remove the splinter. Inflammation in atherosclerosis involves the inability to effectively clear dead immune cells with accumulated oxidized non-HDL cholesterol from blood vessel walls.^{36,37} Preventing the entry and retention of oxidized non-HDL cholesterol in blood vessel walls would help prevent atherosclerosis.^{38,39}



Tabas

Calcium In Coronary Arteries

Khurram Nasir, MD, (Research Director, Center for Prevention and Wellness, Miami, Florida) is concerned that half of the serious coronary artery disease incidents (including death) occur in individuals who displayed no previous symptoms.⁴⁰ As a predictor of coronary artery disease, he has found imaging of calcium in the coronary artery to be superior to assessments of coronary artery wall thickness⁴¹ or blood levels of the inflammatory agent C-reactive Protein (CRP).⁴²



Nasir

In a study of about 44,000 patients, about half of the participants had coronary artery calcium detectable by electron beam tomography. The patients having the highest coronary artery calcium were about **seven times** more likely to die during a mean 5.6-year period.⁴³ Dr. Nasir believes that because scanning for coronary artery calcium is easy and inexpensive, it should be as routine as mammograms. Some people avoid the coronary calcium score diagnostic test because of the radiation exposure.

Small Cholesterol Particles Are The Worst

Michael Richman, MD, (Cardiothoracic/Vascular Surgeon, Center for Cholesterol Management, Los Angeles, California) did not agree with Dr. Nasir that routine screening for coronary artery calcium justifies the radiation exposure. He said calcified atherosclerotic plaques do not rupture, and that in his surgical experience, ruptured plaques are soft. He cited a study showing that coronary vessel blockage frequently occurs without calcification.⁴⁴



Richman

Dr. Richman noted that many small cholesterol particles are a better indicator of cardiovascular risk than the total amount of cholesterol.⁴⁵ Small cholesterol particles are more easily oxidized,^{46,47} and small particles enter blood vessel walls more easily than large cholesterol particles.⁴⁸ Dr. Richman's preferred phrase for helping people to remember the importance of the number of small particles as opposed to total amount of cholesterol is "The number of cars that cause a traffic jam is not related to the number of people in the cars."

Prevention Of Blood Vessel Aging

Valentin Fuster, MD, (Professor, Mount Sinai School of Medicine, New York, New York) asked if aging can be prevented—in particular, aging of blood vessels. The extensive shortening of telomeres that cap the ends of chromosomes causes cells to stop dividing (become *senescent*). In white blood cells, telomeres shorten about **6 to 9%** per decade.⁴⁹ *Senescence* of the cells that line blood vessels (endothelial cells) causes them to more readily bind to cells (monocytes) that contribute to atherosclerosis.⁴⁹ Age-related decline in the supply of stem cells is observed in blood vessels which might ultimately lead to age-related atherosclerosis.⁴⁹ In addition, aging leads to an increasing deposition of calcium in blood vessels and is associated with a reduction in bone mineral density.⁵⁰ Blood

vessel calcification causes kidney disease.^{50,51} It is a misconception that rupture of atherosclerotic plaques is usually a fatal event. Plaques frequently rupture in the absence of clinical symptoms.⁵² What can be fatal is repeated ruptures leading to increasing risk for blood vessel occlusion and eventually to clots that block the blood vessels completely.⁵²

Chelation Therapy For Cardiovascular Disease

Gervasio Lamas, MD, (Chairman of Medicine, Mount Sinai Medical Center, Miami Beach, Florida) reported on his clinical trial showing a reduction in cardiovascular disease in patients receiving intravenous *chelation* therapy with *disodium EDTA* (ethylene diamine tetraacetic acid).⁵³

Chelation is a controversial intravenous therapy that removes metal ions such as calcium, lead, zinc, cadmium, arsenic, iron, and more from the blood stream.^{53,54} Some of these metals are toxic, whereas others are essential for health and survival. The claim that chelation could remove calcium from atherosclerotic plaques makes no sense insofar as EDTA is water soluble and cannot cross cell membranes,⁵⁵ but removal of toxic metals could be beneficial for other reasons. Chelation therapy must be done slowly, because when done too rapidly blood calcium levels can become so low as to cause death.⁵⁶

Dr. Lamas' study was criticized because the chelation therapy infusion mixture needed to be made locally (shortly before administration), because so many of the testing centers practiced alternative medicine (including chelation therapy), and because so many more patients in the placebo group than in the chelation group withdrew from the study, leading to suspicion that many patients had discovered that they were being given a placebo.⁵⁷

A follow-up analysis of the chelation clinical trial by Dr. Lamas' team showed considerably greater



benefit for heart attack patients in the trial who were diabetic compared to those who were not diabetic.⁵⁸ It is plausible that chelation therapy could be particularly beneficial for diabetics due to the fact that it most likely inhibits the formation of *advanced glycation end-products* (AGEs), which are responsible for many of the health problems associated with diabetes.⁵⁹ At the conference, Dr. Lamas suggested that his study was not being given the credibility it deserved because of a bias of his critics against chelation therapy. But both of his publications of his study concluded that the results do not justify routine use of chelation therapy, and that further research is required.^{53,58}

Fish And Mercury Toxicity In Cardiovascular Disease

Dariush Mozaffarian, MD, (Associate Professor of Medicine and Epidemiology, Harvard Medical School, Boston, Massachusetts) has researched the



benefits and hazards of consuming fish. The main omega-3 fatty acids in fish oil are DHA (*docosahexaenoic acid*), EPA (*eicosapentaenoic acid*), and DPA (*docasapentaenoic acid*).⁶⁰ Omega-3 fatty acids provide multiple health benefits as they are incorporated into cell membranes, modulating the function of enzymes, receptors, and ion-channels embed-

ded in the cell membranes.^{61,62} The omega-3 fatty acids also modify gene expression to reduce inflammation and improve lipid metabolism.⁶¹

DHA is incorporated into the membranes of heart muscle cells **five to 10 times** more than EPA (DPA is also incorporated more than EPA),⁶³ which could also be relevant in explaining why DHA was associated with a lower risk of certain arrhythmias.⁶¹ But EPA and DPA are much more effective than DHA in reducing inflammatory protein (C-reactive protein) and the clotting factor fibrinogen.⁶¹ And DPA most strongly reduced death from stroke.⁶⁴

The toxic metal mercury in fish is a concern, especially for pregnant women, but mercury intake can be reduced by eating small, short-lived species rather than larger, predatory, long-lived species (such as swordfish).⁶⁵ Fish oil from supplements rather than from fish reduces mercury ingestion because mercury is tightly bound to the protein in the meat.⁶⁶ Dr. Mozaffarian reports the cardiovascular benefits of fish consumption outweigh the risks,^{63,67} but he did not elaborate on the toxic effects of fish mercury on the nervous system, immune function, reproduction, or cancer.⁶⁸

Benefits Of Chocolate (Cocoa)

In a separate lecture, Dr. Mozaffarian discussed the cardiovascular benefits of chocolate (cocoa). Cocoa, which is rich in flavonoids, has been shown to significantly reduce blood pressure, insulin resistance, endothelial dysfunction, and fats in the bloodstream.⁶⁹ A study of subjects fed dark chocolate (containing cocoa) or white chocolate (no cocoa) for 18 weeks showed a small, but significant reduction in blood pressure for the dark chocolate group, but not for the white chocolate group.⁷⁰ An analysis of several studies showed that the highest levels of chocolate consumption were associated with a **37%** reduction in cardiovascular disease, and a **29%** reduction in stroke compared with the lowest levels of consumption.⁷¹ Despite the sugar and fat content of chocolate, reduced insulin resistance and reduced serum insulin levels were associated with chocolate consumption.⁷² The flavanol *epicatechin* is believed to be the main source of benefit.⁷²

Hazards Of Processed Meat And Red Meat

Natalie Castro-Romero, RD, (Chief Dietitian, Baptist Health South Florida, Miami, Florida) cited one study that showed slightly increased death rates for both cancer and cardiovascular disease resulting from the consumption of both processed meat and red meat.⁷³ However, another study showed that consumption of processed meat, but not red meat, is associated with a higher incidence of coronary heart disease (**42%** higher), and diabetes (**19%** higher).⁷⁴ Processed meat does not contain more saturated fat, cholesterol, or iron than red meat, but processed meat does contain more sodium and nitrate preservative.⁷⁴



Castro-Romero

Subclinical Thyroid Disease And Cardiovascular Disease

Irwin Klein, MD, (Professor of Medicine, New York School of Medicine, New York City, New York) spoke of the impact of subclinical hypothyroidism and subclinical hyperthyroidism on cardiovascular disease. These conditions are called subclinical because they are detected in blood tests, but don't necessarily manifest the clinical symptoms of hypothyroidism or hyperthyroidism.

High levels of thyroid hormone affect the cardiovascular system by increasing heart rate, lowering vascular resistance, and increasing blood volume, whereas



low levels of thyroid hormone have the opposite effect.⁷⁵ There is controversy about whether patients with subclinical thyroid disease should be treated. But there is more certainty about certain classes of patients. Treatment is recommended for elderly patients having subclinical *hyper*thyroidism because of the risk of atrial fibrillation (irregular heartbeats in the upper chambers of the heart).⁷⁶ Treatment is also recommended for pregnant women because of the risk to the mother and/or fetus.⁷⁶⁻⁷⁸

As people age, there is an increasing incidence of subclinical *hypo*thyroidism. But in the elderly (older than 85 years), subclinical hypothyroidism is protective against cardiovascular disease, whereas for the young and middle-aged, subclinical hypothyroidism *increases* the risk of cardiovascular disease.⁷⁹ The risk of treating subclinical hypothyroidism is that thyroid hormone dosage and blood levels must be frequently monitored. Overdosing occurs in about **20%** of patients, leading to atrial fibrillation, cardiac dysfunction, and reduced bone mineral density.⁸⁰

Medications To Control Blood Cholesterol

Peter Toth, MD, PhD, (Professor of Clinical Medicine, Michigan State University, East Lansing, Michigan) said that blood levels of non-HDL cholesterol are a better indicator of cardiovascular disease risk than is LDL cholesterol.⁸¹



Toth

Conventional wisdom holds that LDL cholesterol is bad and HDL cholesterol is good in terms of heart disease risk. But this simple description overlooks other forms of cholesterol, such as VLDL (very low density lipoprotein).⁸² Only HDL cholesterol reduces cardiovascular disease risk, whereas the other forms

of cholesterol are all harmful with VLDL being more harmful than LDL.⁸¹ Combining a statin (which lowers synthesis of non-HDL cholesterol) with an agent that lowers absorption of cholesterol from the intestine (*ezetimibe*) results in greater reductions of non-HDL cholesterol, and greater increase in HDL cholesterol than statin alone.⁸³ Although niacin can raise HDL cholesterol, addition of niacin to statin therapy showed no additional benefit.⁸⁴

Medications Against Cardiovascular Death From Type II Diabetes

Henry Ginsberg, MD, (Professor of Medicine, Columbia University Medical Center, New York City, New York) said that the vast majority of people with type II diabetes are obese,⁸⁵ but that the vast majority of obese people do not have type II diabetes.⁸⁶ He also supported the view that insulin resistance cannot be separated from type II diabetes or metabolic syndrome.^{87,88}



A 40-year-old patient newly diagnosed with type II diabetes has a life expectancy that is eight years less than that of the general population, largely due to early death from cardiovascular disease.⁸⁷ Administration of the drug *pioglitazone* (**Actos**[®]) to type II diabetes patients significantly reduces all-cause mortality, non-fatal heart attacks, and strokes.⁸⁹ Pioglitazone is a *PPAR-γ* (*peroxisome proliferator-activated receptor-gamma*) activator which reduces various inflammatory markers.⁸⁹ He cited a study showing that for patients at risk of developing diabetes due to high blood glucose, the

blood glucose-lowering drug *metformin* reduced the incidence of diabetes by **31%**, whereas lifestyle intervention (weight loss and physical activity) reduced the incidence by **58%**.⁹⁰

Nonalcoholic Fatty Liver Disease (NAFLD) affects up to **20** to **30%** of the general population, and up to three-quarters of those have insulin resistance or metabolic syndrome.⁹¹ For type II diabetes patients who lost **8%** of their body weight over a 12-month period, there was a significant reduction of NAFLD.⁹¹

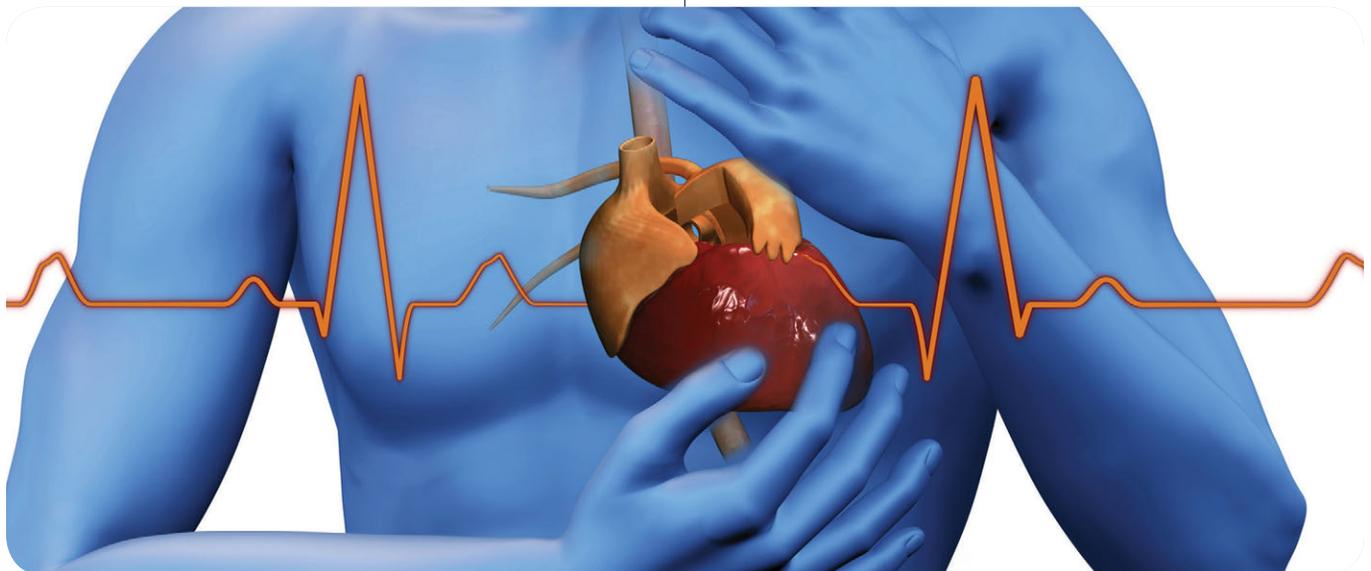
Concluding Remarks

Although the above report only includes approximately half the speakers at the Cardiovascular Disease Prevention International Symposium, I believe it provides a good coverage of the flavor and highlights of the presentations. It was inspiring to be with so many medical professionals seeking to prevent disease, rather than to simply treat 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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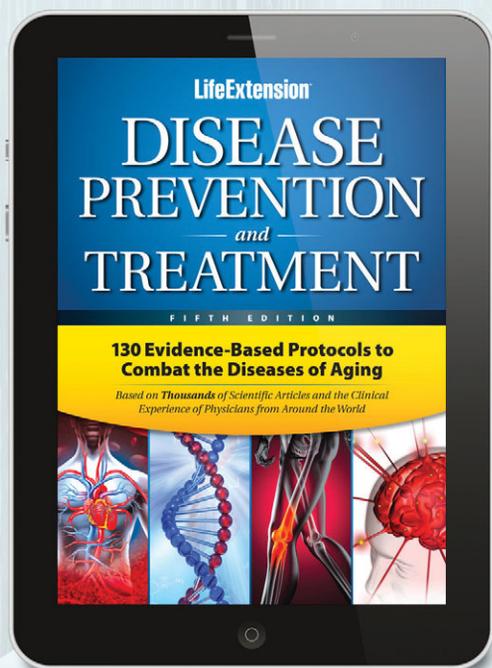
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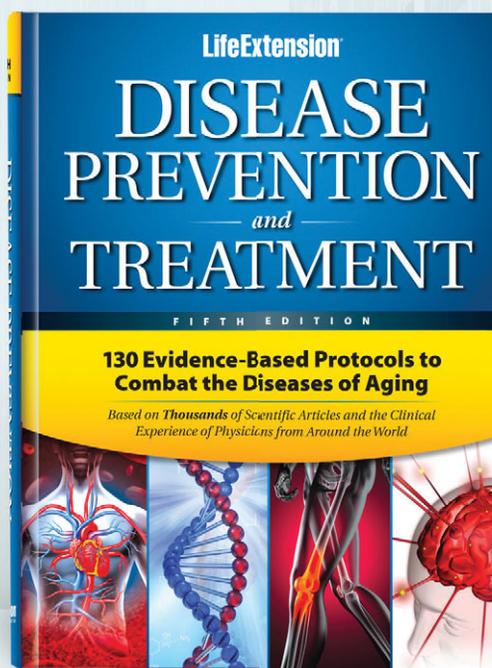


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BY DREW HOFMANN

When A Common Gynecological Procedure TURNS DEADLY

Morcellation is a procedure used as a means of extracting a woman's uterus, largely as a treatment for **uterine fibroids**. It may also be used to remove other organs.¹ The process leaves only a small scar, while reducing hospital lengths of stay and potential surgical complications.²

This so-called "minimally-invasive" procedure has been found to cause the potentially lethal spread of cancer to unsuspecting women.

Amy Reed, MD, PhD, is an accomplished anesthesiologist at Beth Israel Hospital in Boston who treated many of the victims of the Boston Marathon bombing. She has tragically experienced the risks of morcellation firsthand.

Dr. Reed's supposedly benign morcellation procedure at Boston's Brigham and Women's Hospital to treat her fibroids ended up splattering cancerous cells throughout her abdomen and pelvis, leading to an advanced stage IV cancer diagnosis.³

DANGERS OF MORCELLATION



Life Extension[®] is publishing this story in the hopes that it will speed action amongst doctors, hospitals, manufacturers, and patients to stop this needless loss of life.





Before: Dr. Reed and her husband Dr. Noorchashm before the morcellation.

A Routine Procedure Gone Bad

Last October, Dr. Reed had a routine hysterectomy at Boston's Brigham and Women's Hospital to remove her uterine fibroids using the morcellation procedure.⁴ Dr. Reed was not informed about the risks that accompany this procedure.^{5,6} She was given no information about the morcellator, nor about the known risk regarding the spreading or upstaging of a hidden malignancy. Overwhelmingly, most women are not told that they will undergo morcellation. It is simply done at the discretion of the physician.⁷

A few days after the procedure, Dr. Reed and her husband Dr. Hooman Noorchashm, a cardiothoracic surgeon at the Brigham and Women's Hospital and a lecturer on surgery at Harvard Medical School, were devastated to discover that she had developed a rare form of uterine cancer. They subsequently learned that, likely due to the morcellation procedure, the cancer cells had spread and Dr. Reed had stage IV cancer.

Yet the risks of spreading cancer cells through morcellation were indeed known, and had been clearly raised in numerous articles and editorials published in prestigious gynecological and cancer journals long before Dr. Reed's procedure.⁸⁻¹¹ In fact, an article published by a team at Brigham and Women's Hospital in Boston, where Dr. Reed's surgery was done, reported on the risks of spreading an existing cancer by morcellation. The article recommended *"...review of current surgical protocols to prevent future seeding of the pelvic region with tumor particles."*¹¹ That article's publication preceded Dr. Reed's surgery by *three years*. Indeed, the senior gynecological oncologist who authored the manuscript was the same individual who

referred Dr. Reed for an operation he knew would likely involve the use of a morcellator after reassuring her in writing that "this is a clearly benign process."

How could a procedure with a known risk of disseminating a malignancy not only be cleared by the FDA, but also become a standard gynecological procedure undergone by hundreds of thousands of women annually?^{2,9} Why did so many gynecologists close ranks to defend a flawed procedure and deny the clear and present danger posed by morcellation?¹² Why, after Drs. Reed and Noorchashm drew both professional and public attention to the problem, was the procedure not put on at least a temporary moratorium? And why has Dr. Noorchashm been chastised and isolated, rather than praised and supported, by his peers and colleagues in his effort to make medicine safer?⁴

For many in the medical profession, Dr. Reed may be seen as just another statistic, but as a mother of six young children and a highly respected medical doctor with decades of life and medical practice ahead of her, her illness is catastrophic and beyond calculation.¹³

What Is Morcellation?

Physicians performing hysterectomies, often to remove uterine fibroids, frequently use a tool called a *morcellator*, a small device with a sharp blade attached to a handle. The tool is inserted into the body to cut and shred fibrous tissue in order to ease its removal. The problem is that the tissue that's being shredded may contain hidden cancer cells that are then scattered throughout the abdomen where they can take root and quickly spread. Additionally, the rotating blades can injure nearby organs and blood vessels.⁸⁻¹⁰



After: Dr. Reed underwent surgery and five cycles of chemotherapy to control her stage IV cancer caused by morcellation. She is pictured here with her husband, Dr. Noorchashm, who shaved his head to emulate his wife's chemo-induced hair loss.



What You Need To Know

Morcellation

- A technique for “minimally invasive hysterectomy” known as morcellation threatens the lives of as many as one in 350 women.⁴⁸ With more than 600,000 hysterectomies performed in the US annually, that is the equivalent of two jumbo jet crashes each year.
- When such a tragedy struck a physician couple in Boston—and left a vibrant, 40-year-old mother of six struggling with stage IV uterine cancer—the couple spoke up and took their case to hospital administrators and leading gynecologists.
- Yet the medical community and its regulatory bodies have remained largely silent, and in fact, have pushed back hard, refusing for the most part to alter their procedures and defending their practice.⁴⁹
- At the root of this completely avoidable catastrophe lies poor physician training, immovable administrators, a “too-big-to-change-now” mentality, and substantial corporate financial interests.
- Do not succumb to a “minimally invasive hysterectomy” that puts your life at unnecessary risk; demand to know your physician’s intent long before you enter the operating room, and if morcellation is scheduled, ask for an alternative.⁵⁰
- Join the public crusade to remove this unsafe and needless procedure from our hospitals: write to your legislators asking for hearings on the subject and sign the petition at <http://www.change.org/petitions/women-s-health-alert-deadly-cancers-of-the-uterus-spread-by-gynecologists-stop-morcellating-the-uterus-in-minimally-invasive-and-robot-assisted-hysterectomy>.

Imagine taking a morcellator to an undetected malignant tumor in the abdomen, under the impression that it is a benign fibroid. Among the pieces of material freely scattered about are bits of cancerous tissue. These bits of tissue make the pathologist’s job even more challenging because the tissue’s highly mutilated state makes it very difficult to spot the presence of a malignancy.^{1-3,14}

The result, in oncologic terms, is called “upstaging,” or worsening, of the cancer. And this upstaging may happen **as a direct result of the procedure chosen by the gynecologist**. A uterine malignancy is ominous even at its lowest stage (stage I), with five-year survival hovering around **60%**. Upstaging the cancer to stage III drops survival to **22%** at five years, and only **15%** of women with stage IV cancers survive that long.^{5,15}

Hysterectomy

Hysterectomy (removal of the uterus) is one of the most common surgical procedures in the United States, with roughly 600,000 done annually.⁵ The most frequent indication for hysterectomy is uterine fibroids, also called uterine *leiomyoma* (lie-oh-my-oma).⁵

Uterine fibroids are clusters of abnormal, but not cancerous, cells in the thick, muscular walls of the uterus. They commonly affect women in their 40s and 50s. Fibroids may occur singly or in clusters. Studies have shown that, while these tumors are not malignant, they often contain abnormal genetic material that predisposes them to growing rapidly and in an uncoordinated fashion. By age 50, between **20 to 80%** of women develop fibroids.¹⁶⁻²⁰

Over time uterine fibroids may grow in size and number.²¹ Women with fibroids may have no symptoms at all, but in many women the symptoms become intolerable, and often include:¹⁸

- Heavy and irregular vaginal bleeding (possibly to the extent of producing anemia),
- A feeling of fullness in the lower abdomen, with eventual abdominal swelling,
- Frequent urination if the fibroids press down on the bladder,
- Low back pain, and/or pain during sex,
- Complications of pregnancy and labor, often leading to a higher risk for Caesarean section.

Most women with significant or persistent symptoms wind up with a hysterectomy, or removal of the uterus, which is curative.¹⁶

A standard hysterectomy is considered major surgery, requiring hospitalization and a recovery period that lasts several weeks.^{16,22} Naturally, patients and their gynecologists have sought easier, less painful, shorter operations.

The rise of so-called “minimally-invasive surgery” has led to many improvements in general surgery procedures, as well as in gynecological surgeries,²³ although it remains unclear whether these techniques genuinely offer long-term advantages.²⁴⁻²⁷

Minimally-invasive surgery has been available to women requiring hysterectomies for over two decades.^{28,29} Like all minimally-invasive procedures, the technique involves inserting a *laparoscope*—a tube with a camera and channels through which to pass surgical instruments—into the abdomen, then performing the procedure either manually or robotically using inputs on a monitor screen.^{14,30,31}

But since an entire uterus, especially one laden with large masses such as fibroids, is too big to pass intact through the endoscope, a morcellator is first used to slice and mince the tissue into pieces fine enough to draw out.⁸ Just as one would expect, bits of morcellated tissue inevitably fall away into the woman’s abdominal cavity.⁹

And for as many as one out of every 350 women undergoing morcellation in America, that’s where the nightmare begins. While the vast majority of uterine masses are indeed benign fibroids, an estimated one in 350 women instead has a uterine cancer.³² However, women with malignant tumors may not be identified

before morcellation since symptoms and imaging findings in patients with benign fibroids and uterine sarcomas can be identical.⁵

Morcellation Of Hidden Cancers: A Systemic Failure

To understand this systemic failure, one needs to look at how physicians are educated, how inaccurate or thoughtless use of statistics produces false or misleading conclusions, and how medical devices are approved by regulatory agencies and marketed by manufacturers.

In an interview with *Life Extension*, Hooman Noorchashm, MD, PhD, took pains to reach thoughtful and objective conclusions about these areas, despite his personal grief and pain.

Regarding medical education, Dr. Noorchashm noted that gynecologists, unlike every other surgical specialty, have no extended exposure to general surgical practices and techniques. That means they learn in a “silo,” deprived of the opportunity to share with, and learn from, surgeons in all other fields.³³

Physicians who later become cardiac surgeons, orthopedists, neurosurgeons, and such spend at least a full year of residency training in a general surgery environment. There, they learn to embrace certain standard techniques and shun others, including, says Dr. Noorchashm, the notion of chopping up an unknown mass and scattering its debris throughout the surgical field. In a letter to the American Association of



Gynecologic Laparoscopists, he describes “the meticulous care that is taken by other surgeons not to disrupt tissues inside the body, especially when there is a possibility of cancer lurking,” and wonders why there is not greater interchange of information between gynecologists and other surgical specialties.

During our discussion, Dr. Noorchashm also provided insight into the statistics that have been used by both gynecologists and device manufacturers to reassure themselves and their patients about the safety of morcellation in the face of hidden uterine cancer. It has been pointed out that women preparing for fibroid surgery are typically quoted a figure of “one in 10,000” as the risk of having an undiagnosed malignancy.⁵ But that number simply represents the risk of uterine cancers in the entire general female population.⁵ For women with symptom-producing uterine masses, the figure is in fact believed to be as frequent as one in 350—a much greater risk.^{3,5}

Why is the risk consistently downplayed?

That is a more difficult question to answer, says Dr. Noorchashm. It seems likely it has to do at least in part with the ways morcellators are marketed to physicians. Glossy ads appear in trade journals read by gynecologists, touting the device’s “safety, control, and simplicity,” saying it’s an “efficient and time-saving alternative” compared to other techniques, and describing the “simple, fast, and safe morcellation of even large amounts of tissue.” Note that most of the concerns in these promotional materials focus on the surgeon, not the patient. They have to do more with efficiency and speed than they do with patient outcomes.

Another factor is the surprisingly lax oversight of medical devices by the FDA. Medical devices must only demonstrate that they are “substantially equivalent” to existing devices for similar purposes, a surprisingly circular definition.³⁴ Shockingly, no clinical data at all were deemed necessary for the 2010 FDA approval of a common morcellator.^{35,36}

“Entrepreneurial medicine could be great, if the primary focus is to keep the patient 100% safe. However, if the primary object is to protect the practice of minimally invasive hysterectomy, defend or distract from a severe error in surgical judgment and practice, or to profit from a danger, such entrepreneurship in medicine is ethically suspect.”

—Hooman Noorchashm, MD, PhD



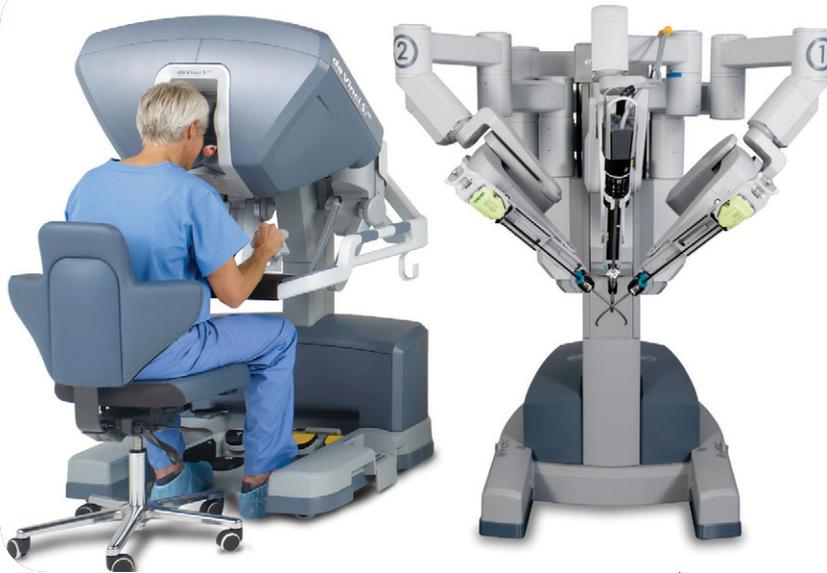
Finally, Dr. Noorchashm points to the intense pressure felt by physicians in today’s “industrialized” medical system to perform at maximum productivity, as measured in hospital lengths of stay (they should be short), numbers of patients seen daily (they should be large), and return on investment in expensive equipment (naturally it should be great). These factors prejudice doctors and hospitals against choosing any procedure that might take longer, use more resources, and cost the for-profit hospital system any additional money.

Taken together, says Dr. Noorchashm, the combination of inadequate, isolated training of gynecologists, the use of inappropriate statistics, shoddy FDA oversight, and intense financial pressure on physicians all sustain the use of this technology, despite the known risks to which it exposes patients.

No one is suggesting an actual conspiracy in this connection; far from it. Rather, this tragic situation arises from the same kind of institutional inertia, resistance to change, and narrow vision that continue to plague healthcare systems around the world.³⁷⁻⁴³

Medical Damage Control

In an ideal medical environment where patient care is held to be of paramount importance, where the Hippocratic Oath’s injunction “*primum non nocere*,” or “first do no harm” is held sacred, and where genuine evidence is used to inform and revise policies and procedures, Drs. Reed and Noorchashm’s personal experiences and professional campaign for change would have led to an immediate halt to morcellation, at least while the issue was being more closely examined. Device manufacturers would rapidly issue warnings on their own, and if they didn’t, regulatory agencies like the FDA would step in to enforce such steps. And clinicians would fully explain to women why an apparent time-saving, scar-reducing procedure was unwise and unsafe.



Left: Surgeon looking into console viewer when the da Vinci[®] robot is used to morcellate. Right: The da Vinci[®] Si[™] patient cart with Single-Site[™] instruments.

But sadly we live in a world where profits take precedence over patient outcome. Dr. Noorchashm's efforts to alert the medical community about the very real life-threatening dangers of morcellation have been met with denials and attempts at corporate "damage control" by hospital administrators and chiefs of gynecology. His persistent letters to manufacturing executives such as those at Intuitive Surgical who manufacture the da Vinci[®] robot have been met with silence rather than ethical and immediate action in issuing warnings on the device. According to Dr. Noorchashm, "This medical specialty's leaders and the companies involved have known about the hazard and have blindly accepted the collateral damage to their patients for many years."

The medical community does not appreciate when one of its own raises a red flag about a dangerous medical practice: it ruins business and halts the steady flow of dollars to device manufacturers, hospitals, and doctors. Dr. Noorchashm's attempts to point out, in a reasoned fashion, where and how morcellation increases patient risks have been aggressively met with insults, pushback, and even the suggestion that he is acting irrationally due to grief over his wife's condition, and that it would be much wiser for him to remain quiet to protect his career.

"Thanks for sharing. As we have repeatedly said, nothing is going to create any 'peace' in this man."

— Gerald F. Joseph, MD, Vice President for Practice Activities at the American College of Obstetricians and Gynecologists (ACOG), in response to Dr. Noorchashm's request for ACOG support in changing morcellation practices.

In effect, once the notion of patient safety is raised by a physician, that physician is seen as a traitor, and colleagues, hospitals, and other institutions quickly close ranks, isolating the whistleblower and protecting their own financial self-interests.

Thanks to Drs. Noorchashm and Reed's relentless efforts there has been some minor progress. Four medical centers have now modified their position on open morcellation. Rather than totally discontinue or at least issue a moratorium until a thorough review has been conducted, Temple University Medical Center, University of Rochester Medical Center, Brigham and Women's Hospital, and Massachusetts General Hospital now require that all morcellation be conducted using an "isolation bag" intended to prevent spillage of tumor or tissue. However, this is not a satisfactory solution. Isolation bags can tear during morcellation, spilling their potentially hazardous contents back into the patient. Additionally, bags are cumbersome and doctors cannot always see what they are morcellating, resulting in organ damage. This change in policy fails to ban morcellation entirely, so a certain amount of risks continues. Therefore, patients will continue to undergo this risky procedure.

Other institutions have not been willing to go even that far. Incredibly, after accurately describing the risk of spreading malignant cells throughout the abdomen, and after noting that "Morcellation-induced *sarcomatosis* (the spread of a type of cancer) will worsen the prognosis for the patient and necessitate additional surgery and chemotherapy," a medical staff note to the OB/GYN Department at Brigham and Women's Hospital in Boston (where Dr. Reed's procedure was done) concludes, anticlimactically, that informed consent forms should make patients aware of the risks of morcellation.⁴⁴ In reality, informed consent does

little to protect the patient, but superbly protects the surgeon and hospital.

But the memo does not require that physicians even tell patients that they will use a morcellator. Instead, the memo only suggests it by saying: *“Doctors sometimes use a mincing process called ‘morcellation’... mincing the tissue into small pieces may spread the tumor around the abdominal cavity...this may sometimes reduce the patient’s chances of being cured.”* It goes on to suggest that spreading cancer this way is thought to occur “infrequently”—and then cites a range of one in 400 to one in 1,000 to support this claim. These statements are repeated in a position statement by the Society of Gynecologic Oncology (SGO) in 2013.³

Not surprisingly, this tepid approach has been strongly criticized by physicians and researchers in other countries. In an editorial, the British journal *Lancet Oncology* wonders “why the SGO [Society of Gynecologic Oncology] has taken such a soft line,” and recommends cracking down on device manufacturers and regulators to assure warning labels and accurate advertising for morcellators.³ And the National Institute for Health and Care Excellence in the UK, the equivalent of the US FDA, has issued provisional guidelines aimed at reducing the use of power morcellators and improving patient consent procedures.⁴⁵

Dr. Noorchashm is cautiously encouraged by these changes, but he feels that they go nowhere near far enough. In letters and op-ed pieces to major US newspapers, in a barrage of letters to medical journals and professional organizations, and in approaches to state and federal legislators, he advocates for an immediate moratorium on morcellation.⁴⁶ He and Dr. Reed have also founded a petition on the www.change.org web-



Non-Surgical Ways To Manage Uterine Fibroids

Life Extension® has published an integrative protocol for the management of uterine fibroids.

This updated protocol can be accessed at
lef.org/fibroids

site which reads: “Place an immediate moratorium on intracorporeal uterine morcellation during minimally invasive hysterectomy, on all gynecological tissue morcellation devices and any devices, used to morcellate the uterus intracorporeally in the United States and Abroad. It is your high duty to first, do no harm.”

Almost daily, Drs. Reed and Noorchashm hear from other couples whose lives and loved ones have been irreparably harmed by morcellation, each couple telling their own version of an eerily similar story: they were not told that morcellation would be used, they were not informed of the risk, alternatives were not discussed, and cancers, when discovered, were at advanced stages. Yet doctors continue to use morcellation on legions of women day in and day out.

Despite a flurry of articles in the gynecologic and general medical literature questioning or condemning the practice, morcellation continues to be used on women daily at hospitals throughout the country. Its proponents have not backed down. In an email received shortly before press time, Dr. Noorchashm repeated his pleas, and directed them to readers of this magazine: “I again ask for your help in keeping this hazard in the public eye until it is resolved.” The gynecological associations have not acted to stop this dangerous procedure.

Due to Drs. Noorchashm and Reed’s herculean efforts, the Food and Drug Administration has finally issued a safety communication on the use of laparoscopic uterine power morcellation in hysterectomy. Yet according Dr. Noorchashm, “...the FDA advisory on morcellation is definitely insufficient in protecting women. In fact, given the extensive analysis performed by the FDA public health specialists revealing a one in 350 mortality hazard, we are astonished that this equipment was not pulled from the marketplace. Functionally, the FDA has left this hazard in the hands of the patient to inform themselves...This is not an acceptable response from a Federal agency entrusted with protecting the public effectively—particularly because these devices are regulated by the FDA.” Yet as we go to press, morcellation and its very real risks continue to be used on uninformed patients.

There is still much work to be done to stop this dangerous procedure from bringing deadly cancer into the lives of even more innocent women.

Summary

Modern technology has delivered some genuinely miraculous techniques capable of relieving suffering, reducing costs, and minimizing complications of surgical procedures. But sometimes newer and faster is not better, and may even be harmful.

Morcellation, chopping up a fibroid-laden uterus for easy removal through a laparoscope, held the promise of shorter operations, smaller scars, and faster returns to everyday activities. But its proponents overlooked, downplayed, or concealed the risk of spreading deadly uterine cancer in a small, but by no means minuscule, proportion of cases.

Morcellation continues to be used in the US, driven by inadequate physician training, institutional inertia, and corporate greed. Even now, few hospitals require that the technique, and associated risks, be revealed to, much less discussed with, patients prior to an elective hysterectomy.⁴⁷

If you or someone you care about is facing a hysterectomy, it is essential that you know whether morcellation is being contemplated in your case. Ask your physician long before you are faced with signing an informed consent form and the operation is imminent. Demand to know your options. The wisest choice, if you agree that a one in 350 chance of dying from upstaging a hidden malignancy is unacceptable, is to choose an alternate procedure. And if this article has moved you, please consider signing Dr. Noorchashm's online petition at www.change.org. ●

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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Morcellation NEWS UPDATE

Efforts to stop the use of morcellation to remove uterine fibroids and perform hysterectomies remains a rapidly evolving story. The *Wall Street Journal*, *New York Times*, *Boston Globe*, *Washington Post*, and nightly news continue coverage of this story.

As we approach press time, Johnson & Johnson announced it will suspend worldwide sales of its power morcellator device. Note that Johnson & Johnson is not removing the device from the market, but rather stopping further sales until there is clarity in the medical community about the safety and use of this device.

Additionally, Dr. William Maisel of the FDA stated on April 17, 2014, "There is no reliable way to determine if a uterine fibroid is cancerous prior to removal. Patients should know that the FDA is discouraging the use of laparoscopic power morcellation for hysterectomy or myomectomy, and they should discuss the risks and benefits of the available treatment options with their health care professionals."

This summer, the FDA will convene a public meeting of the Obstetrics and Gynecological Medical Devices Panel to discuss laparoscopic power morcellation and hear from patients, physicians, and manufacturers.

Changing medical thinking, practice, and regulation is too often a painfully slow process that allows years of needless suffering for far too many patients. Until Dr. Noorchashm tirelessly and courageously began to sound the alarm morcellation was performed on too many women without concern for the lethal risks perpetuated. Specific hospitals, medical professions, device manufacturers, and the FDA are beginning to respond, albeit somewhat cautiously, to Dr. Noorchashm's warnings. In the space of several months, Dr. Noorchashm has created a vital awareness to change a harmful medical practice that normally takes thousands of deaths and years of fighting bureaucracy and manufacturers. His is a remarkable accomplishment. While there are still massive obstacles to overcome—such as medical societies, physicians, and hospitals who continue to endorse morcellation—Dr. Noorchashm has brought a powerful light onto a harmful *business-as-usual* medical practice. His hopes and ours is that going forward, no woman should unnecessarily be exposed to the life-threatening risk of cancer through morcellation.

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[standardized to 4% glucosinolates (16 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

Those who want to obtain the 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. When 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**

IS YOUR FOLIC ACID WORKING FOR YOU?



Item # 01439

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

Folate is involved in **neurotransmitter synthesis** and critical **enzymatic reactions** throughout the body.

By depleting excess **homocysteine**, folate benefits cardiovascular health and nervous system function.

Those who take ordinary folate supplements, however, may not be experiencing its full spectrum of effects. This is because once ingested, not everyone converts folate to its biologically active form called **5-methyltetrahydrofolate (5-MTHF)**.¹ Research shows that in a large proportion of the population, *genetic enzyme deficiencies* prevent the conversion of folate to **5-MTHF**, leaving many vulnerable to low blood folate levels (and higher-than-desired homocysteine).

A BIOACTIVE FORM OF FOLATE

A more useful approach is to take the bioactive folate **5-MTHF** directly, which has been declassified as a drug and is now available as a dietary supplement. **5-MTHF** has been shown to dramatically raise blood serum folate levels² compared with folic acid supplementation. This bioactive folate is up to **seven times** more bioavailable than folic acid. This greater *bioavailability* is especially important in people who have a genetic enzyme deficiency³ since it requires no conversion to become metabolically active.

People with elevated homocysteine levels have a greater risk of cognitive decline.⁴ Unlike folic acid, **5-MTHF** is able to cross the blood-brain barrier, which is especially important for people with cognitive difficulties, to enhance the synthesis of *acetylcholine* in the brain—the neurotransmitter associated with memory.

Studies also show that the effectiveness of **5-MTHF** can be further enhanced by co-supplementing with methylcobalamin (the active form of vitamin B12),⁵ vitamin B6, and riboflavin.⁶ **5-MTHF** is up to seven times more bioavailable than regular folic acid.

A bottle containing **100** vegetarian capsules of **Optimized Folate** providing 1,000 mcg of bioactive folate in each capsule retails for \$28. If a member buys four bottles, the cost is only **\$18.75 per bottle**.

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Quatrefolic® is a registered trademark of Gnosis S.p.A.

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 supporting 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

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AprèsFlex® is a registered trademark of Laila Nutraceuticals exclusively licensed to PL Thomas-Laila Nutra LLC. U.S. Patent No. 8,551,496 and other patents pending. HMRlignan™ is a trademark used under sublicense from Linnea S.A. US Patents 6,319,524 and 6,669,968. Albion® is a registered trademark of Albion Laboratories, Inc.



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
Phospholipid	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]	70 mg
Proprietary Enterolactone Precursors Blend [HMRlignan™ Norway spruce (<i>Picea abies</i>) (knot wood) and Flax (seed) lignan extracts]	20 mg
Lycopene [from natural tomato extract (fruit)]	10 mg
Boron (as Albion® bororganic glycine)	3 mg

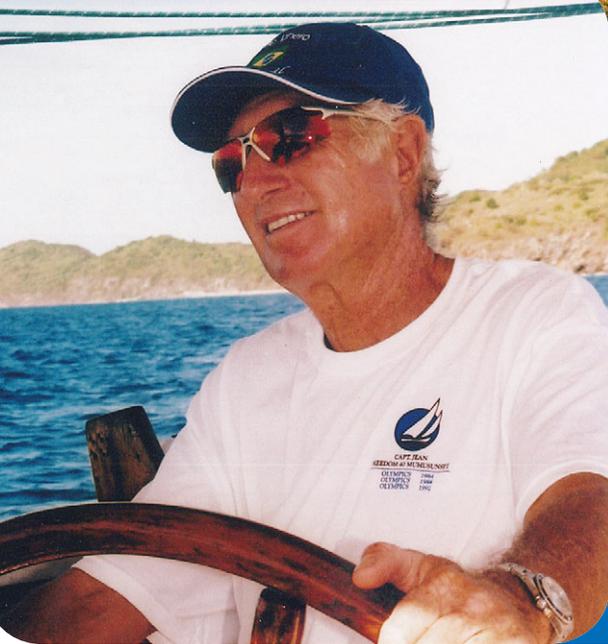
¹ 3-O-acetyl-11-keto-β-boswellic acid

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.

To order Ultra Natural Prostate, 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.



WELLNESS PROFILE

BY JON FINKEL

Jean Braure: No Mountain Too High, No Ocean Too Wide



JEAN BRAURE

The title of Jean Braure's autobiography is *The Sailor Who Climbs Mountains*. It's a simple, effective title, but Braure's modesty doesn't allow him to elaborate on the cover of his book. Only when you flip through the pages do you realize that he's not just a sailor; rather, he's a three-time Olympic sailor, having competed in the Soling class in 1984, and the Tornado class in the 1988 and 1992 Summer Olympics. And he's not just a mountain climber either. He has reached the summit of some of the most impressive peaks in the world, including Mont Blanc in France, the Matterhorn in Switzerland, Kala Patar in Nepal, and Mount Rainier in the United States. Now, at 78 years old, he's still climbing, with plans to scale the Monte Rosa in Switzerland, which is one of the highest peaks in the country.

A World Traveler

Braure was born in Paris, France, to a French father and a Swiss mother. He served in the French Navy on a training ship for Midshipmen that sailed around the world in one year. When the Algerian War was over, he got his United States citizenship and worked in Miami Beach until he was offered a job in the US Virgin Islands in 1964, where he has lived ever since. Though he had sailing in his blood from his days in the Navy, it took him some time to realize that he wanted to get back on the water.

“Soon after moving to the Virgin Islands, I discovered that I wanted to come back to the sea,” Braure says. “I got my Captain’s license and then started a sailing school as well as a sailing charter boat business, which I still have.”

What Braure also soon discovered was that he had an incredible knack for winning sailing competitions.

“I was very good in competitive sailing,” he says. “I was in excellent physical shape and had the will to run an Olympic Campaign, which meant I had to travel so I could train with the best in the world and also learn from past champions. I also had to cover the expenses of the endeavor.”

He says that his greatest sailing accomplishment was qualifying for the Olympics, although he did win two Rolex Cups in 1981 and 1982. In order to qualify for the Olympics, he had to place in the top 50 sailors in the United States and win the trials in the Virgin Islands, which he did for the first time at 49 years old. It was at this juncture in his life that he discovered **Life Extension®**.

Maximizing Health

“I got introduced to Life Extension at the time of my training for the Olympics in 1984,” Braure says. “I became a member

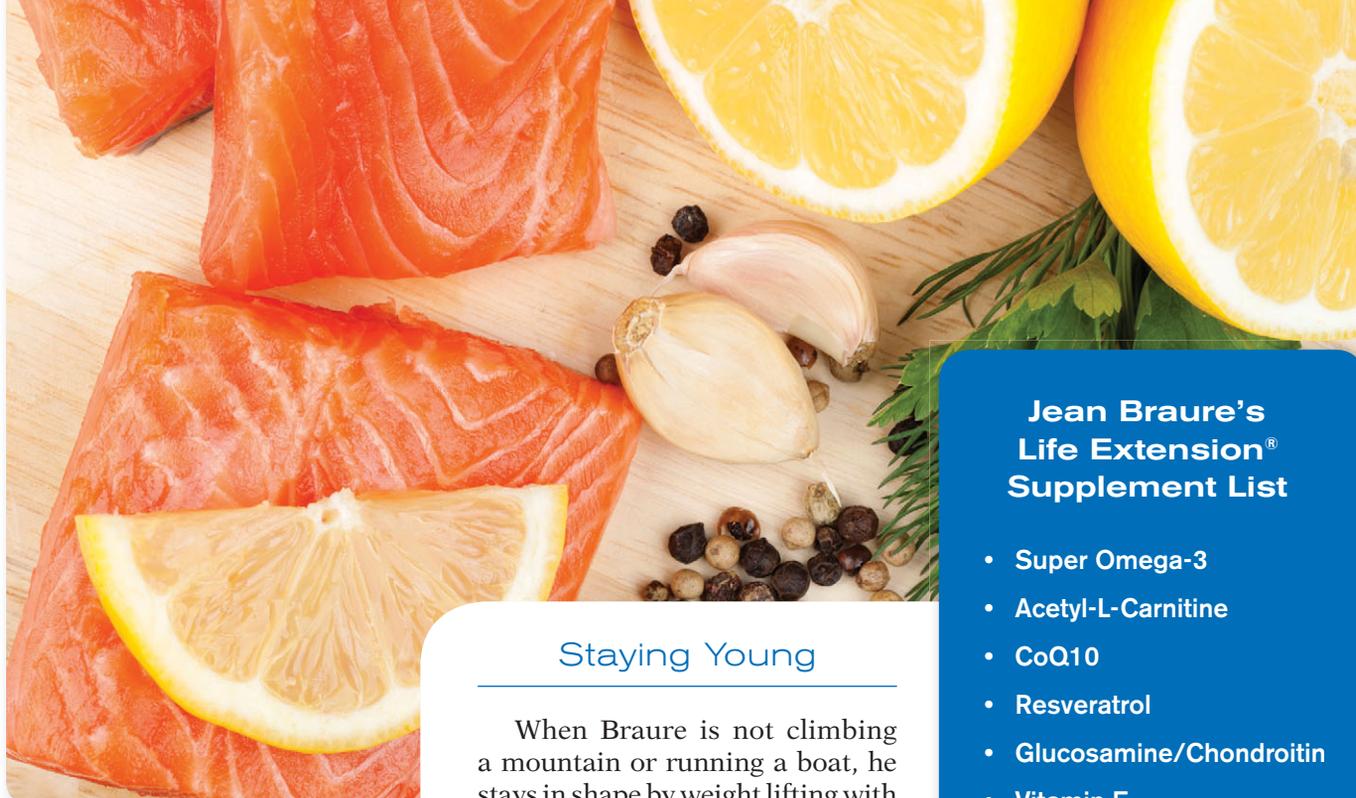
and realized that the supplements helped me perform better when I was at high altitude climbing or during the endurance of a race. I like omega-3s, Acetyl-L-Carnitine for endurance, and CoQ10 as an antioxidant.^{1,2} These days I take Life Extension glucosamine and chondroitin, and I have very little pain after exercising.”

In general, Braure says he takes supplements to improve his performance, though whether that performance is on the open ocean or the face of a mountain depends on the time of year. During hurricane season, you might find him in Nepal, where he once hiked for two weeks to reach the Mount Everest base camp.



MOUNT EVEREST





Staying Young

“I don’t like to call rock climbing or steep glacier climbing a sort of hiking because it is more demanding in a shorter time and more dangerous,” he explains.

And Braure knows a thing or two about demanding climbs. While trying to reach the peak of the famous Mount Kilimanjaro, he had to stop 311 feet short of the summit due to his heart beating irregularly.

“I didn’t like the rhythm of my heart at the time,” he said. “In mountaineering, the summit is not important. The voyage to the summit is what counts, with the beauty of nature, the white ice, the brown rocks, the colors of the clouds, the green of the valleys down below... Even the friendship of a roped team. My decision to abandon the climb so close to the summit was mentally difficult because my mind wanted to continue, but my body was not responding the way I wanted it to. The rule is to always monitor your body. Plus, at that altitude, 6,000 meters (19,600 feet) your mind plays tricks on you because of the lack of oxygen. You refuse to see the dangers, like how exhausted you really are or a dangerous pitch.”

When Braure is not climbing a mountain or running a boat, he stays in shape by weight lifting with his arms once a week, by doing leg endurance work with weights once a week, and by stretching almost every single day.

“I also play tennis in the evening two or three times a week and I listen to my body,” he says, “Sometimes I’ll do weight lifting two times a week or more.”

He does all of this to maintain as much activity as he can.

“My longevity goals are to function properly as long as possible without much muscular pain or fatal illness,” he says. “I do everything possible to stave off deterioration. I have a good diet, I take supplements from Life Extension, and I exercise.”

Braure even admits to being difficult in restaurants these days, as he only drinks red wines in moderation with less than **13%** alcohol content. Also, as he’s read in Life Extension, he pays attention to how his food is cooked.

“Cooking fast at high temperatures damages our cells and results in glycation and inflammation,” he says. “I remember my youth when cooking and the preparation of food was slow and served with a lot of veggies. Today I try to eat that way and I avoid most meat, especially red meat.”

Jean Braure’s Life Extension® Supplement List

- Super Omega-3
- Acetyl-L-Carnitine
- CoQ10
- Resveratrol
- Glucosamine/Chondroitin
- Vitamin E
- PQQ

While his efforts to stay young have clearly paid off, even a man with talents as great as Braure still has to know his limits.

“I stopped doing solo glacier traversing when my friend died in a crevasse,” he says. “And I stopped doing extreme climbs at age 76.”

But when he does choose to climb and compete in sports, the number of years he’s been on earth stays out of his mind. ●

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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COMPREHENSIVE VITAMIN K FORMULA



There are **three forms** of **vitamin K** that the human body can utilize to promote **arterial health** and **bone support**.¹⁻⁸

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

VITAMIN K1 is the form of vitamin K that is found in green vegetables. **K1** is tightly bound to plant fiber, so only a fraction is *absorbed* into the bloodstream. Supplementation ensures ample **K1** blood levels.

VITAMIN K2 is usually found in meats, dairy, and egg yolks. Since you may be avoiding these foods for health reasons, ingesting a **K2** supplement is *essential*. **MK-4** is the most *rapidly absorbed* form of **K2**, and **MK-7** boasts a very *long half-life* in the body, making 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 www.LifeExtension.com**

Super K formula provides in just one daily softgel:

Vitamin K2 (MK-7)	200 mcg
Vitamin K2 (MK-4)	1000 mcg
Vitamin K1	1000 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, K2 (MK-4) and 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 softgels**.)

Warning to Coumadin® (warfarin) Drug Users

Patients prescribed vitamin K-antagonist anti-coagulant 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 vitamin 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 the vitamin K you supplement with. Life Extension provides several forms of low-dose vitamin K for physician consideration.

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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.

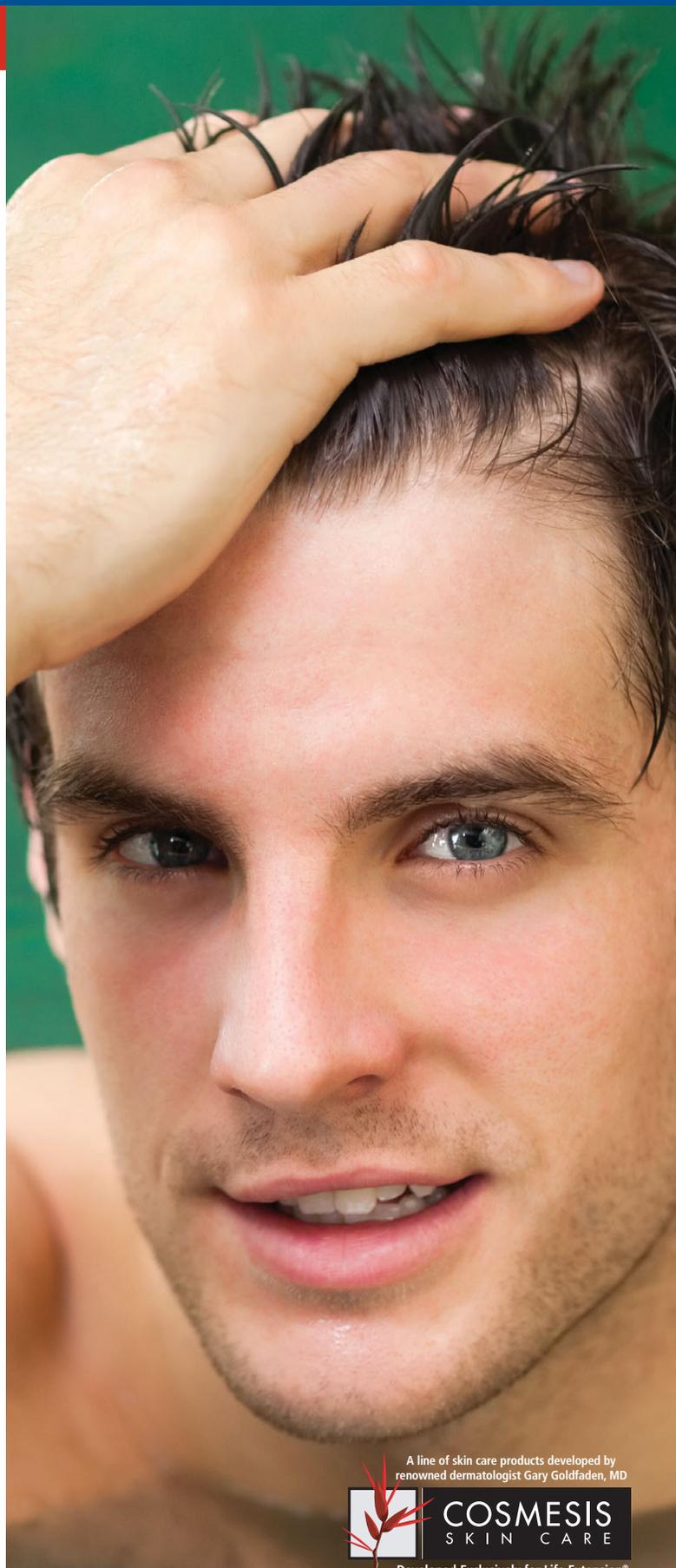
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To order Cosmesis Rejuvenating Scalp Serum, call 1-800-544-4440 or visit www.LifeExtension.com



Item # 80153



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



COSMESIS
SKIN CARE

Developed Exclusively for Life Extension®

ULTIMATE eye HYDRATION

Maintaining eye support is essential for optimal eye health.

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

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

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

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

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

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



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



SUPER FOODS

BY WILLIAM GAMONSKI

Harness The Nutritional Power Of Hemp Seeds

Few foods can match the unique nutrient profile of **hemp** seeds. Their noteworthy amounts of **alpha-linolenic acid** (ALA) and **gamma linolenic acid** (GLA) make hemp seeds a natural **anti-inflammatory** powerhouse.

Hemp Seed's Journey

Hemp (*Cannabis sativa L.*) has been celebrated for thousands of years due to its high quality and durable fibers, which have been used to manufacture boat sails, carpeting, paper, and clothing. It most likely originated in the Himalayas before being brought to the Middle East and Europe by the Aryans and Christopher Columbus. Today, hemp seeds are used for a variety of dietary and medicinal purposes. China, Romania, and Australia are currently among today's top producers of hemp and its products.¹



Anti-Inflammatory Effects

Chronic inflammation has been associated with age-related disorders including heart disease, diabetes, and cancer.² The high intake of omega-6 fatty acids relative to omega-3 fatty acids in the typical Western diet creates an imbalance that drives low-grade chronic inflammation. Reducing omega-6-rich foods like vegetable oils and increasing your intake of hemp seeds, which have an excellent content of omega-6 to omega-3s, might be part of an effective strategy to optimally balance inflammation in the body.³

Furthermore, hemp seeds contain a wealth of the rare omega-6 fatty acid GLA that exerts strong anti-inflammatory activity. In the body, GLA is metabolized into *dihomogamma-linolenic acid* (DGLA), which interferes with the ability of *arachidonic acid* to make pro-inflammatory molecules.^{4,5} DGLA further modulates inflammation through its conversion to the anti-inflammatory compounds

prostaglandin (PGE1).⁵ Additional evidence reported in the *Journal of Clinical Immunology* suggests that DGLA prevents an excessive output of interleukin-1 from monocytes, thereby controlling inflammation.⁶

Cardiovascular Disease Prevention

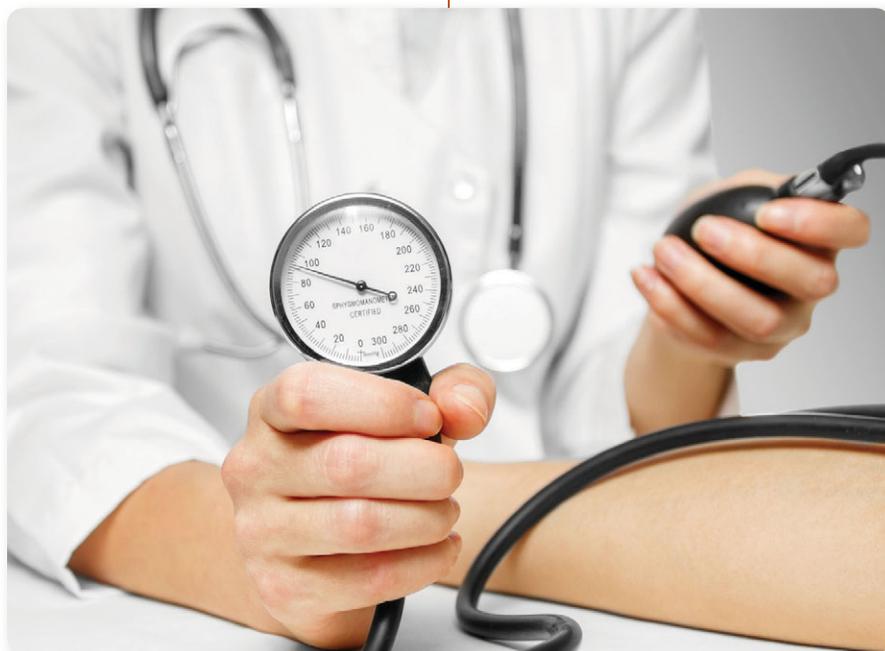
In a meta-analysis of 61 observational studies involving nearly 900,000 adults between the ages of 40 and 89, scientists discovered that the ratio of total cholesterol to HDL was a far better predictor of ischemic heart disease mortality in comparison with isolated cholesterol values. In fact, this meta-analysis found that the ratio of total cholesterol/HDL was **two times** better at predicting the risk of dying from ischemic heart disease when compared to total cholesterol alone.⁷

What this means is that if your total cholesterol is **200 mg/dL** and your HDL is **65 mg/dL**, your ratio is 3.07, which places you at relatively low risk for death from a heart



Ways To Integrate Hemp Seeds Into Your Diet¹⁸

1. Sprinkle hemp seeds onto salads, cereals, oatmeal, and yogurt.
2. Add into smoothies and other shakes.
3. Eat them raw as a snack.
4. Use hemp seeds in baked goods such as breads, granola bars, and muffins.



attack. For optimal risk reduction, the total cholesterol/HDL ratio should be less than 3.5. The problem is that as people age, total cholesterol often increases while protective HDL plummets. Ideal HDL levels are over **50-60 mg/dL**.

This important total cholesterol to HDL ratio can be positively influenced by hemp seed oil, according to human research published in the *European Journal of Nutrition*. Scientists reported that participants consuming **1 ounce** of hemp seed oil daily for four weeks lowered their ratio of total cholesterol to HDL, thereby protecting against the number one killer of Americans.⁸



Hemp seeds possess an abundance of the amino acid *arginine*.⁹ Arginine is a precursor to nitric oxide, a signaling molecule that protects against endothelial dysfunction, which underlies the development of atherosclerosis.¹⁰ Additionally, scientists at the Medical University of South Carolina observed a strong association between dietary arginine intake and C-reactive protein (CRP), an inflammatory marker associated with heart disease. They found that those consuming the highest amount of dietary arginine were **30%** less likely to have elevated CRP.¹¹

A separate study published in the *Journal of Thrombosis and Haemostasis* indicates that hemp seeds can help prevent the formation of dangerous blood clots that cause heart attacks and stroke. Scientists observed that rats fed **4 grams** of dietary hemp seeds for 12 weeks increased blood levels of the omega-3 fatty acid ALA, which in turn inhibited platelet aggregation.¹²

In addition to decreasing the likelihood of a heart attack, hemp seeds might favorably alter cardiac performance *after* a heart attack has occurred. Restoration of blood flow to cardiac tissues (*reperfusion*) after a heart attack contributes to the generation of reactive oxygen species that induce contractile dysfunction and arrhythmias, which further damage the heart in a process referred to as *ischemia-reperfusion injury*.¹³ Researchers demonstrated that rats fed hemp seed oil daily for 12 weeks had better post-recovery performance from this serious damage compared to a control group, as the result of significant improvements in heart muscle function.¹⁴

Eases Eczema Symptoms

Atopic dermatitis, also known as eczema, is a chronic inflammatory skin disorder affecting an estimated 17 million US adults and children.¹⁵ Skin dryness and

itchiness are hallmark symptoms of the condition, with persistent scratching leading to additional complications such as a rash and other opportunistic infections.¹⁶ With their favorable fatty acid profile and high concentration of vitamin E, hemp seeds might provide the perfect mixture to enhance skin quality in those with atopic dermatitis.

To test the effects of hemp seed oil on the clinical symptoms of atopic dermatitis, Finnish researchers performed a randomized, controlled crossover trial wherein participants ingested either **2 tbsp** of hemp seed oil or olive oil daily for eight weeks, followed by four weeks of no treatment. Participants then switched to the opposite treatment for another eight weeks. Subjects were instructed to maintain their normal diet and avoid skin creams.

During the hemp seed oil phase, participants experienced a statistically significant decrease in skin dryness of **29.4%** and skin itchiness of **39%**, whereas no significant changes were seen during the olive oil phase.¹⁷ These positive changes in skin quality are believed to be related to the beneficial improvements in subjects' plasma fatty acid profiles.

Summary

Few seeds can match the nutrient profile of hemp seeds as a rich source of the omega-3 precursor ALA and hard-to-find beneficial GLA. Together, these health-promoting nutrients quell inflammation, enhance cardiovascular protection, and ease eczema symptoms.

Although hemp is derived from the marijuana plant (*Cannabis sativa L.*), it contains minuscule

concentrations of the psychoactive ingredient *tetrahydrocannabinol* (THC). Therefore, hemp seeds can be enjoyed as a regular part of your daily diet without the worry of experiencing psychoactive effects.³ ●

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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Hemp Seed Nutritional Facts, 1 oz¹⁹

Nutrients	Amount	DV(%)
Manganese	2.8 mg	140%
Vitamin E	15.4 mg	77%
Magnesium	300 mg	75%
Phosphorus	405 mg	41%
Zinc	5.0 mg	34%
Iron	3.9 mg	22%
Protein	9.2 g	18%

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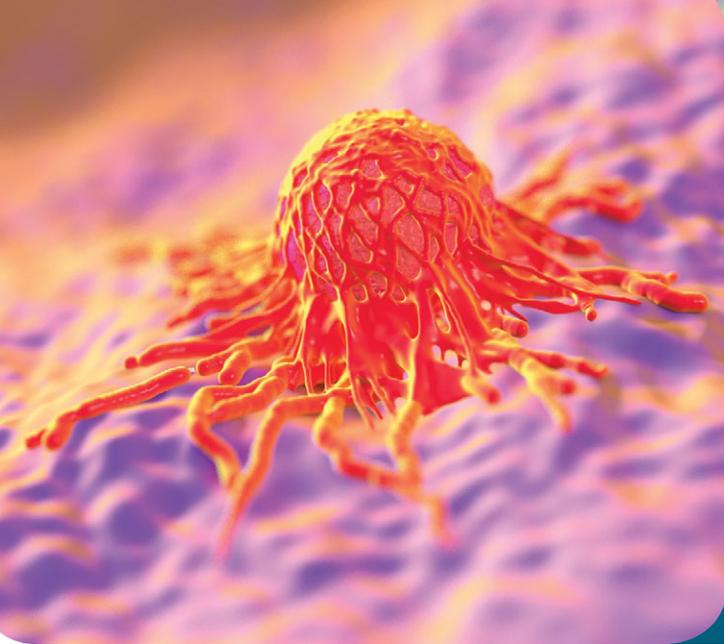
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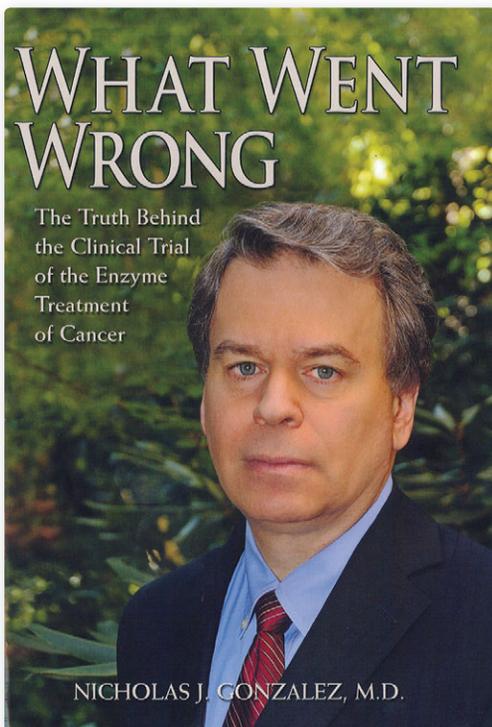
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AUTHOR INTERVIEW

BY NICHOLAS GONZALEZ, MD

What Went Wrong?



As a long-time and avid follower of *Life Extension Magazine*[®], I realize its knowledgeable readers won't be surprised to hear of another example of academic bias toward a promising "alternative" cancer therapy that doesn't fit the prevailing medical model. But I am in a unique position to write about this subject because my colleague Linda Isaacs, MD, and I battled for eight years against the entrenched interests of the National Cancer Institute (NCI), the National Institutes of Health (NIH), and unfortunately, even the National Center for Complementary Medicine (NCCAM) to have our nutritional approach to cancer fairly tested in a controlled clinical study. In my latest book *What Went Wrong*, I document how bias, indifference, and incompetence at the highest levels of the academic medical world nearly allowed our promising therapy to be discredited.¹

To sum up our therapy, we offer an aggressive nutritional approach for the treatment of cancer and other degenerative diseases. Our program involves three basic components: individualized diet, individualized supplement programs with large doses of specially formulated pancreatic enzymes for cancer patients, and detoxification routines such as coffee enemas—which, despite the controversy, come right out of the traditional medical literature.^{2,4}

We base our therapy on the work of the controversial alternative practitioner William Donald Kelley, DDS, who during the 1960s developed his enzyme-based nutritional approach to cancer. My book *One Man Alone* details my formal five-year investigation of Dr. Kelley's work, begun in 1981, and includes 50 case reports of patients who experienced long-term survival (and in many cases complete tumor regression) while under Kelley's care.⁵ For example, one patient had been diagnosed at surgery in August 1982 with stage IV adenocarcinoma of the pancreas with a liver biopsy confirming metastatic cancer; all later confirmed at the Mayo Clinic. This patient is alive and well today, some 31 years from her original diagnosis, far exceeding the typical three- to six-month survival expectancy reported for the disease.

Despite such findings, in the mid-1980s I was unable to get support for further research. Kelley, in great frustration (and not a little anger) closed his office down. In 1987, intending to keep Kelley's therapy available for those who wanted it, Dr. Isaacs and I opened a practice in New York, and from the beginning we witnessed the same type of successes I had uncovered in Kelley's files. For example, just recently I saw for routine follow-

up a patient who started with me in early December 1987. Initially diagnosed with inflammatory breast cancer with 17/17 positive nodes, she had developed skeletal metastases while on aggressive multi-agent chemotherapy. She decided to try our approach and today, more than 25 years later, she is alive and well, her disease having long ago completely regressed.

In 1993, after presenting a series of case reports at the National Cancer Institute, the then-Associate Director, Dr. Michael Friedman, suggested Dr. Isaacs and I proceed with a phase II pilot study, evaluating our therapy in patients diagnosed with advanced pancreatic cancer. We eventually published the findings of this effort in 1999, in the peer-reviewed research journal *Nutrition and Cancer*, describing, to our knowledge, the most positive data for the treatment of inoperable pancreatic cancer in the history of medicine.⁶

Even before this article appeared, in 1998, based on the preliminary data, the then-National Cancer Institute Director, Dr. Richard Klausner, approved funding for a large-scale controlled Phase III study, in which my therapy would be compared to the best available chemotherapy in the treatment of patients diagnosed with inoperable pancreatic cancer. The trial was to be supervised by the NCI and run out of Columbia University in New York City.

Initially, we had great hope that the study would be a fair, honest, and comprehensive evaluation of our treatment, as well as an opportunity to bridge the gap between conventional and alternative medicine. But from the beginning, problems plagued the study. The initial randomized design of the trial alienated potentially suitable study candidates who feared

they would be told to get chemotherapy. Dr. Isaacs and I had no say on patient entry, many approved patients did not meet the entry criteria, and most patients sent to us for treatment could not or would not follow the protocol. And, many patients were kept waiting weeks as their disease progressed, before a decision about their eligibility was rendered at Columbia. The problems with the study's management were so pervasive that after a particularly contentious meeting and exchange of letters, Dr. Linda W. Engel, the Program Officer at NCCAM in charge of overseeing the project grant, wrote in her official capacity:

There have been numerous and very difficult scientific, operational, and procedural challenges in carrying out this trial. These have been well documented and frequently discussed...

We discussed at considerable length his [my] concerns about the probable accrual of patients unable to comply fully with the nutrition arm of the protocol. It was our impression that everyone in the room basically agreed that, despite best efforts, there is in fact, reason to be concerned about this issue, and that it clouds interpretation of the data...⁷

Said differently...many of the enrolled patients who were supposed to follow my protocol did not follow my protocol.

Despite these admitted shortcomings, the researchers at Columbia eventually terminated the trial, stating that the data demonstrated the superiority of the chemotherapy regimen used—which we later discovered

References

had been developed by a group at Columbia that included the Principal Investigator of our trial, a clear conflict of interest.⁸⁻¹¹

Principal Investigators on a clinical trial are chosen to be the ultimate managers and referees of the study, and to be fair and objective, should have no tie intellectually or financially to any treatment under evaluation.

The Principal Investigator of our clinical trial, as we were to learn, worked closely with the Columbia research team developing the very chemotherapy regimen being used as a counter to our treatment. This relationship should have disqualified him from serving such an important role.

This connection had never been declared to us...we had to discover on our own. As the study drew to a close, my colleague Dr. Isaacs and I became increasingly concerned that the Principal Investigator seemed far too enthusiastic about the chemotherapy regimen. We began searching the peer-reviewed literature and discovered multiple articles directly linking him to the chemotherapy researchers, and specific treatment, used in our trial.

We also discovered he had failed to obtain proper informed consent for many patients, a basic requirement for any legitimate clinical study.¹² Two federal agencies, the Office of Human Research Protections and the Food and Drug Administration, largely as a result of our complaints, have investigated the trial and reported serious mismanagement by the Columbia team. Because of these investigations, an article written by the Columbia group about the study—without, I might add, our knowledge—was rejected by the *Journal of the American Medical Association*. Nonetheless,

they were able to get the paper into the *Journal of Clinical Oncology*,¹³ a journal previously distinguished by its publication of a fraudulent article supporting bone marrow transplantation for breast cancer.¹⁴

In my book, *What Went Wrong*, I describe in detail the study's development beginning in 1997, our initial hope for a fair and honorable study, its gradual deterioration, and our dogged fight to keep our promising therapy from being tarnished by a poorly conceived, poorly executed clinical trial. Our experiences provide yet another cautionary tale of bias and indifference toward a therapy that doesn't fit the academic model, coupled with mismanagement and incompetence at the highest levels of the conventional medical world. For anyone wishing to learn what it's like to battle the powers that be, this book will be an eye-opener. ●

Editor's note: Compliance with Dr. Gonzalez's program is challenging and the digestive problems encountered by pancreatic cancer patients can preclude them from being able to take the 200 pills a day that may be prescribed.

Those with pancreatic cancer are urged to review Life Extension's pancreatic cancer protocol that involves a somewhat different treatment regimen. This can be accessed at www.lef.org/pancreatic

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

To order a copy of *What Went Wrong*, visit www.amazon.com.

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 Estradiol Total Testosterone
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 CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.</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
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 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> |
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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
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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
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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> |
|---|--|

ORDER LIFE-SAVING BLOOD TESTS FROM VIRTUALLY ANYWHERE IN THE US!

TERMS AND CONDITIONS

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

Signature of Life Extension Member

X

Life Extension Foundation Members only

MEMBER NO.

Male Female

Name

Date of Birth
(required) / /

Address

City

State

Zip

Phone

Credit Card No.

Expiration Date /

Mail your order form to:

LifeExtension
NATIONAL DIAGNOSTICS, INC.

3600 West Commercial Boulevard
Fort Lauderdale, FL 33309

Phone your order to: **1-800-208-3444**

Fax your order to: **1-866-728-1050**

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

Blood tests available only in the continental United States. Not available in Maryland.

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

PRODUCTS

AMINO ACIDS

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

BONE & JOINT HEALTH

ArthroMax® with Theaflavins and AprèsFlex®
ArthroMax® Advanced with UC-II® and
AprèsFlex®
Bone-Up™
Bone Restore
Bone Restore w/Vitamin K2
Bone Strength Formula w/KoAct™
Dr. Strum's Intensive Bone Formula
Fast Acting Joint Formula
Glucosamine Chondroitin Capsules

BRAIN HEALTH

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Brain Shield™
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™
Neuro-Mag™ Magnesium L-Threonate
Optimized Ashwagandha Extract
Phosphatidylserine Capsules
Rhodiola Extract
Super Ginkgo Extract
Vinpocetine

DIGESTIVE

Bifido GI Balance
Carnosoothe w/PicroProtect
Digest RC™
Esophageal Guardian
Enhanced Super Digestive Enzymes
Extraordinary Enzymes
FlorAssist®
Gutsy Chewy Digestive Tablets
Pancreatin
Regimint
Theralac Probiotics

DURK AND SANDY PRODUCTS

Blast™
Inner Power™

EYE CARE

Bilberry Extract
Brite Eyes III
Eye Pressure Support with Mirtogenol®
MacuGuard™ Ocular Support
MacuGuard™ Ocular Support with Astaxanthin
Solarshield Sunglasses

FIBER

AppleWise Polyphenol
Fiber Food
TruFiber®
WellBetX PGX® plus Mulberry

FOOD

Rich Rewards™ Black Bean Vegetable Soup
Rich Rewards™ Spicy Cruciferous Vegetable Soup
Rich Rewards™ Cruciferous Vegetable Soup
Rich Rewards™ Lentil Soup
Rich Rewards™ Mung Bean Soup with Turmeric
Rich Rewards® Coffee
(Available in mocha, vanilla and decaffeinated)
Rich Rewards™ Dark Chocolate
Rich Rewards™ Protein Creamer
Rich Rewards® Whole Bean Coffee

HAIR CARE

Dr. Proctor's Advanced Hair Formula
Dr. Proctor's Shampoo
Super-Absorbable Tocotrienols

HEART HEALTH

AppleWise Polyphenol
Advanced Lipid Control
Aspirin (Enteric Coated)
Cardio Peak™ w/Standardized Hawthorn and Arjuna
Cho-Less™
D-Ribose Tablets
D-Ribose Powder
Endothelial Defense™ with
Full-Spectrum Pomegranate™
Fibrinogen Resist
Forskolin
Homocysteine Resist
Natural BP Management
Olive Leaf Vascular Support
Peak ATP® with GlycoCarn®
PhosphoOmega®
Policosanol
PROVINAL® Purified Omega-7
Pycnogenol® French Maritime Pine Bark Extract
Red Yeast Rice
Super Absorbable CoQ10™ with *d*-Limonene
Super Omega-3 EPA/DHA with Sesame
Lignans & Olive Fruit Extract
Super Omega with Krill & Astaxanthin
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with BioPQQ®
Super Ubiquinol CoQ10 with Enhanced
Mitochondrial™ Support
Theaflavin Standardized Extract
TMG Powder
TMG Liquid Capsules

HERBAL/PHYTO PRODUCTS

Artichoke Leaf Extract
Asian Energy Boost
Astaxanthin w/Phospholipids
Berry Complete
Blueberry Extract
Blueberry Extract w/Pomegranate
Butterbur Extract w/Standardized
Rosmarinic Acid
Calcium D-Glucarate
Enhanced Berry Complete with Acai
Full-Spectrum Pomegranate™
Grapeseed Extract with Resveratrol &
Pterostilbene
Huperzine A
Kyolic® Garlic Formula 102 + 105
Kyolic® Reserve
Mega Green Tea Extract
Mega Green Tea Extract (Decaffeinated)
(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

Advanced Natural Sex for Women® 50+
7-KETO® DHEA
DHEA
DHEA Complete
GH Pituitary Support Day Formula
GH Pituitary Support Night Formula
Liquid Melatonin
Melatonin
Melatonin Timed Release
Natural Estrogen with Pomegranate Extract
Pregnenolone
ProgestaCare for Women
Super Miraforte with Standardized Lignans

IMMUNE ENHANCEMENT

AHCC® (Active Hexose Correlated Compound)
Black Cumin Seed Oil
Black Cumin Seed Oil w/Bio-Curcumin®
Buffered Vitamin C Powder
Echinacea Extract
FlorAssist™ Probiotic
i26 Hyperimmune Egg
Immune Modulator w/Tinofend®
Immune Protect with PARACTIN®
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
Boswella
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 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
 LuraLean® Caps Special Propolmannan Particle Size
 Optimized Irvingia w/Phase 3™ Calorie Control Complex
 Optimized Saffron with Satierea!®
 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® - 60 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 veg. 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 veg. 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	CARNOOOTH® 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) - 1,000 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) - 1,000 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/β-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		
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

To order call: 1.954.766.8433 or 1.800.544.4440

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 UTIROSE™ (OPTIMIZED) - 60 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01529	CREATINE CAPSULES - 120 veg. caps Buy 4 bottles, price each	10.95 9.25	8.21 6.94		
01746	CREATINE WHEY GLUTAMINE POWDER - 454 grams (vanilla) Buy 4 jars, price each	30.00 27.00	22.50 20.25		
01429	CR MIMETIC LONGEVITY FORMULA - 60 veg. caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
*33840	CRWAY GREAT GLUCOSE CONTROL CD	98.00	82.00		
**CRWAY	CR WAY OPTIMAL HEALTH PROGRAM SOFTWARE	195.00	195.00		
00407	CURCUMIN® (SUPER BIO) - 400 mg, 60 veg. caps Buy 4 bottles, price each	38.00 35.00	28.50 26.25		
01808	CURCUMIN® w/GINGER & TURMERONES (ADVANCED BIO)-30 softgels Buy 4 bottles, price each	30.00 27.00	22.50 20.25		
01804	CYTOKINE SUPPRESS™ w/EGCG - 30 veg. caps Buy 4 bottles, price each	30.00 27.00	22.50 20.25		
D					
00658	7-KETO® DHEA METABOLITE - 25 mg, 100 caps Buy 4 bottles, price each	\$28.00 24.00	\$21.00 18.00		
01479	7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		

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) - 200 mg, 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	FEMMENESSENCE 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	28.00	21.00		
00954	GREEN TEA EXTRACT (MEGA) - decaffeinated - 100 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
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 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 veg. 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		
01470	LURALEAN® CAPS SPECIAL PROPOLMANNAN PARTICLE SIZE - 120 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
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 lozenges (vanilla)	9.95	7.46		
	Buy 4 bottles, price each	8.00	6.00		
01537	METHYLCOBALAMIN - 5 mg, 60 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) - 750 mg, 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	42.00	31.50		
	Buy 4 bottles, price each	37.80	28.35		
01692	NATURAL ESTROGEN w/POMEGRANATE EXTRACT - 60 caplets	38.00	28.50		
	Buy 4 bottles, price each	33.00	24.75		
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 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
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		
00889	RHODIOLA EXTRACT - 250 mg, 60 veg. caps	11.75	8.81		
	Buy 4 bottles, price each	10.58	7.94		

SUB-TOTAL OF COLUMN 14

To order online visit: www.LifeExtension.com

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
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		
01809	RICH REWARDS™ DARK CHOCOLATE - 15 piece bag Buy 4 bags, price each	15.00 12.96	11.25 9.72		
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) - 300 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/SATIAREAL (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		
01596	SKIN RESTORING PHYTCERAMIDES w/LIPOWHEAT® - 30 veg. liquid caps Buy 4 bottles, price each	25.00 23.00	18.75 17.25		

SUB-TOTAL OF COLUMN 15

No.		Retail Each	Member Each	Qty	Total
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		
01721	TRYPTOPHAN PLUS (OPTIMIZED) - 90 veg. caps Buy 4 bottles, price each	32.00 29.00	24.00 21.75		

SUB-TOTAL OF COLUMN 16

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No.		Retail Each	Member Each	Qty	Total
T CONTINUED					
01816	TWO-PER-DAY - 60 tablets	\$10.50	\$7.88		
	Buy 4 bottles, price each	9.50	7.13		
01815	TWO-PER-DAY - 120 tablets	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01814	TWO-PER-DAY - 120 caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
00326	L-TYROSINE - 500 mg, 100 tablets	12.98	9.74		
V					
00213	VANADYL SULFATE - 7.5 mg, 100 tablets	\$15.00	\$11.25		
	Buy 4 bottles, price each	12.50	9.38		
00408	VENOTONE - 60 caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01327	VINPOCETINE - 10 mg, 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	14.00	10.50		
01526	VITAMIN B3 NIACIN - 1,000 mg, 100 veg. caps	12.75	9.56		
	Buy 4 bottles, price each	12.00	9.00		
00372	VITAMIN B3 NIACIN - 500 mg, 100 caps	7.65	5.74		
	Buy 4 bottles, price each	6.65	4.99		
00098	VITAMIN B5 - 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
01535	VITAMIN B6 - 250 mg, 100 veg. caps	12.50	9.38		
	Buy 4 bottles, price each	11.00	8.25		
00361	VITAMIN B12 - 500 mcg, 100 lozenges	8.75	6.56		
	Buy 4 bottles, price each	7.25	5.44		
01634	VITAMIN C w/ DIHYDROQUERCETIN - 1,000 mg, 60 tablets	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
00927	VITAMIN C w/ DIHYDROQUERCETIN - 1,000 mg, 250 tablets	25.50	19.13		
	Buy 4 bottles, price each	23.25	17.44		
00084	VITAMIN C (BUFFERED) POWDER - 454.6 grams	23.95	17.96		
	Buy 4 bottles, price each	22.00	16.50		
01736	(EFFERVESCENT) VITAMIN C-MAGNESIUM CRYSTALS - 180 grams	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01732	VITAMIN D3 - 2,000 IU, 1 fl oz, Mint flavor	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01753	VITAMIN D3 - 1,000 IU, 90 softgels	7.00	5.25		
	Buy 4 bottles, price each	6.00	4.50		
01751	VITAMIN D3 - 1,000 IU, 250 softgels	12.50	9.38		
	Buy 4 bottles, price each	11.25	8.44		
01713	VITAMIN D3 - 5,000 IU, 60 softgels	11.00	8.25		
	Buy 4 bottles, price each	9.90	7.43		
01718	VITAMIN D3 - 7,000 IU, 60 softgels	14.00	10.50		
	Buy 4 bottles, price each	12.60	9.45		
01758	VITAMIN D3 w/SEA-IODINE™ - 5,000 IU, 60 caps	14.00	10.50		
	Buy 4 bottles, price each	12.50	9.38		
00864	VITAMIN D3 Liquid Emulsion - 2,000 IU, 1 oz.	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01741	VITAMINS D AND K w/SEA-IODINE™ - 60 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01763	VITAMIN E (NATURAL) - 400 IU, 100 softgels	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	26.00	19.50		
01225	VITAMIN K2 (LOW-DOSE) - 45 mcg, 90 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		

SUB-TOTAL OF COLUMN 17

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

SUB-TOTAL OF COLUMN 18

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SUB-TOTAL COLUMN 2	
SUB-TOTAL COLUMN 3	
SUB-TOTAL COLUMN 4	
SUB-TOTAL COLUMN 5	
SUB-TOTAL COLUMN 6	
SUB-TOTAL COLUMN 7	
SUB-TOTAL COLUMN 8	
SUB-TOTAL COLUMN 9	
SUB-TOTAL COLUMN 10	
SUB-TOTAL COLUMN 11	
SUB-TOTAL COLUMN 12	
SUB-TOTAL COLUMN 13	
SUB-TOTAL COLUMN 14	
SUB-TOTAL COLUMN 15	
SUB-TOTAL COLUMN 16	
SUB-TOTAL COLUMN 17	
SUB-TOTAL COLUMN 18	

ORDER TOTALS

Sub-Total A (Sub-total of Columns 1 through 18)	
Postage And Handling (Any size order, 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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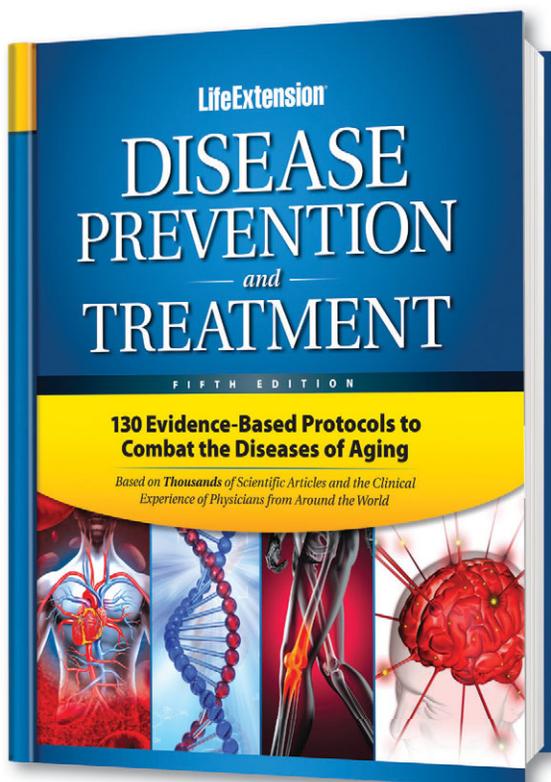
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Discover *Zyflamend*, the premier herbal supplement for helping to balance and support the body's natural, **healthy inflammation** process.*

What is the Inflammation Response?

Our body's inflammation response is a natural process and part of the body doing its job. We often think of the inflammation response as something we can feel—such as where there are large numbers of sensitive nerve endings. But we can also have a response we can't feel, where sensitive nerves aren't concentrated. Whether we're aware of it or not, this inflammation response can affect the whole body.

Zyflamend® from New Chapter® is an intelligent blend of full-spectrum herbal extracts containing a multitude of naturally occurring compounds. These whole, active phytonutrients work together to support a **healthy inflammation response**.* Perhaps as important as a daily multivitamin, Zyflamend is the patented herbal protocol to help your whole body's natural inflammation process stay balanced.* In addition, whole-food antioxidants, including Ginger, Turmeric, Green Tea, and Rosemary, help quench free radicals and support healthy aging.*

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120 Softgels (Item #01051) Retail \$64.95 **Member Price \$48.71**

Zyflamend's Patented Formula

Many of the herbs in Zyflamend have been used traditionally to **support human health and longevity** in cultures around the world. Chinese Skullcap, Chinese Goldthread, and Barberry are time-honored tonic herbs in the Chinese herbal tradition. Rosemary and Oregano are native to the Mediterranean region. Zyflamend's Hu Zhang is a natural source of resveratrol, a heart-supportive compound in red wine.* Turmeric, Ginger, and Holy Basil are common elements in Asian and Indian wellness regimes. Green Tea is known across this region for its many remarkable properties.

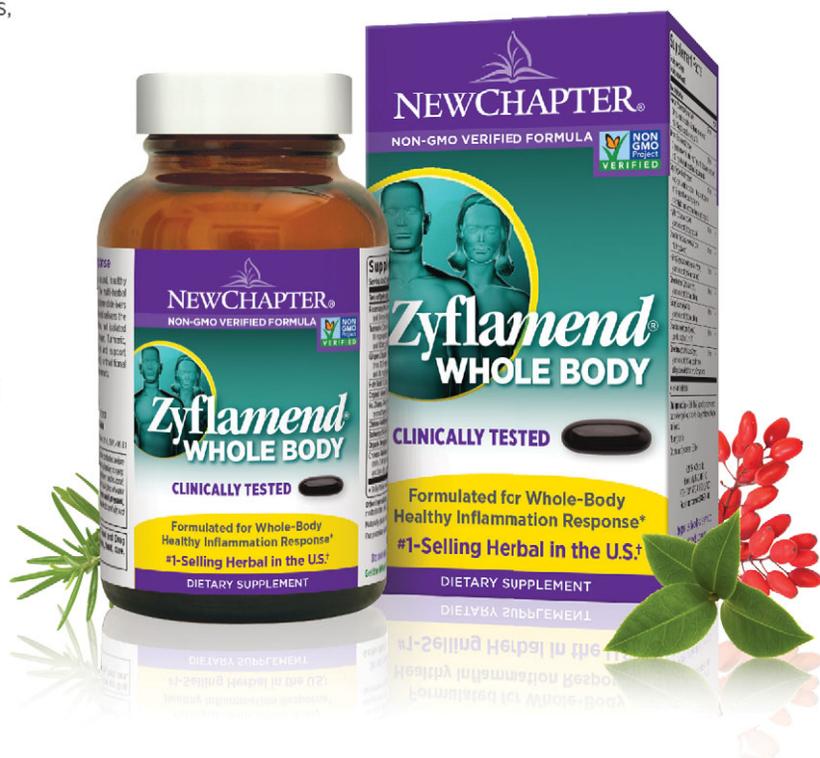
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Validated in Huge New Study: Vascular Benefits of a Mediterranean Diet

A large, rigorous study published in the *New England Journal of Medicine* confirmed the health benefits of those who switch to a **Mediterranean diet** rich in **omega-3 fish oil** as well as protective nutrients called polyphenols found in **olive oil**, fruits, vegetables, nuts like walnuts, and wine.¹ The study ended early because the benefits were so overwhelming, with startling benefits for vascular health, that it was considered unethical to continue to deprive the control group.¹

In addition to the health-promoting benefits of vegetables and fruits with their abundance of polyphenol nutrients, the Mediterranean Diet group took at least **4 tablespoons** of polyphenol-rich extra-virgin **olive oil** a day.¹

Life Extension® Members Benefited Long Ago

Starting in **2005**, Life Extension members began taking a supplement (**Super Omega-3**) that provided potent concentrations of **fish oil** and **olive polyphenols** like hydroxytyrosol and oleuropein. This supplement also provided standardized **sesame lignans** to support the beneficial effect of omega-3 fatty acids in the body.²

Olive oil contains polyphenol nutrients that have demonstrated wide-ranging health benefits.³⁻⁵ The recommended twice daily dose of **Super Omega-3** supplies a similar polyphenol content to that found in **4 to 6 tablespoons of olive oil**.

References

1. *N Engl J Med*. 2013 Feb 25.
2. *Crit Rev Food Sci Nutr*. 2007;47(7):651-73.
3. *Altern Med Rev*. 2007 Dec;12(4):331-42.
4. *Curr Top Med Chem*. 2011;11(14):1767-79.
5. *Med Glas (Zenica)*. 2012 Feb;9(1):1-9.
6. Available at: <http://www.ifosprogram.com/consumer-reports.aspx>. Accessed March 18, 2013.
7. *J Nutr Sci Vitaminol (Tokyo)*. 2003 Aug;49(4):270-6.

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

Supportive but not conclusive evidence shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease. IFOS™ certification mark is a registered trademark of Nutrasource Diagnostics, Inc. These products have been tested to the quality and purity standards of the IFOS™ program conducted at Nutrasource Diagnostics, Inc.

Super Omega-3 with Sesame Lignans and Olive Fruit Extract

To ensure the purest, most stable, and easy-to-tolerate fish oil, **Super Omega-3 EPA-DHA** is *molecularly distilled*. It enjoys the highest **5-star rating** for **purity, quality, and concentration** from the renowned *International Fish Oil Standards* program.⁶ The **sesame lignans** not only direct the omega-3s fatty acids toward more effective pathways in the body, but guard the delicate fish oil from oxidation.^{2,7}

A bottle containing 120 softgels of **Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract** retails for \$32. If a member buys four bottles, the price is reduced to **\$21** per bottle. If **10 bottles** are purchased, the cost is **\$18.68** per bottle. (Item #01482)

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

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



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WHAT'S INSIDE

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LifeExtension® Magazine



7 CANCER RESEARCH PARALYZED BY BUREAUCRACY

Lifesaving cancer treatments remain bogged down in bureaucratic red tape. Cancer victims should emulate AIDS activists, who revolted against regulatory roadblocks and turned HIV into a manageable illness.



36 CREATINE EXTENDS LIFE SPAN

Research shows **creatine** extends life span in animals, while improving glucose tolerance, inhibiting cognitive decline, and combating age-related disease.



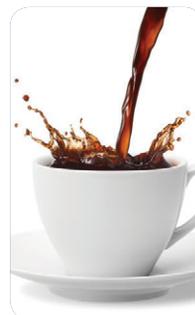
62 CARDIOVASCULAR CONFERENCE REPORT

At a conference on cardiovascular disease prevention, scientists highlighted the risks of fructose, the benefits of chocolate, and the dangers of small LDL particles.



24 PREVENT SUN-INDUCED SKIN AGING

A **tropical fern extract**—when taken orally—reduces ultraviolet-induced skin damage that causes wrinkles, age spots, and cancer. This natural extract goes one step further and **repairs** sun-aged skin by generating new collagen and **elastin**.



48 NEW FINDINGS ABOUT COFFEE

A recent study published in the *New England Journal of Medicine* reveals **coffee** drinkers' death risk is **16% lower** than non-drinkers. Coffee inhibits cardiovascular disease, metabolic syndrome, diabetes, and neurodegeneration.



74 A COMMON BUT DEADLY GYNECOLOGICAL PROCEDURE

A process called **morcellation** that removes **uterine fibroids** can spread lethal cancer cells into the abdomen, killing one in every 350 women treated.