

MILLIONS OF NEEDLESS CANCER DEATHS

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April 2010

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Item #01224

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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.

Humans get most of their vitamin K from green vegetables in the form of **vitamin K1**. The problem is that K1 is tightly bound to plant fiber and only a small fraction *absorbs* into the bloodstream.

Vitamin K2 is absorbed much more efficiently than K1. Scientific studies show K2 provides overwhelmingly superior benefits for the bones, arteries and other tissues.¹⁻⁸

The predominant sources of **K2** in Western diets are organ meats, dairy and egg yolks — foods that health conscious people seek to minimize in their diets. The result is that most people in Western societies are not obtaining *optimal* potencies of vitamin K.

The solution is to use a vitamin K supplement that provides ideal potencies of K1 and the two active forms of K2.

Ideal Forms of Vitamin K2

Over the past four years, two forms of **vitamin K2** have been extensively researched and the findings reveal vastly improved effects compared to K1.

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 bio-available to the human body over a sustained 24-hour period and to higher levels (7- to 8-fold) during prolonged intake.⁹

Both **MK-4** and **MK-7** have demonstrated remarkable health benefits when studied in human populations.

The Most Complete Vitamin K Formula

Vitamin K1 is the form found in plants and vegetables and should be part of most people's daily supplement regimen. Even more important is inclusion of the **MK-4** and **MK-7** forms of **vitamin K2**.

Based on new data substantiating the long-acting effects of MK-7, it is now possible to ingest fewer total micrograms of vitamin K but achieve far higher sustained blood levels of this critical nutrient.

Super K formula provides in just one daily softgel:

Vitamin K1	1000 mcg
Vitamin K2 (MK-4)	1000 mcg
Vitamin K2 (MK-7)	100 mcg

The virtue of this formula is that it provides the precise amount of the long-acting **MK-7** form of **vitamin K2** that recent human studies have shown provides optimal K2 levels over a 24-hour period. The **MK-4** is included to provide the rapid increase in vitamin K blood levels that may account for its beneficial effects in certain studies.

More Expensive Forms of K2 ... Same Low Price

Super K with Advanced K2 Complex provides all three forms of vitamin K. The retail price for a bottle containing **90 softgels** (three-month supply) is \$26. If a member buys four bottles, the price is reduced to just **\$17.25 per bottle**.

The same **Super K** formula containing the identical potencies 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 softgels**.

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



REPORTS



26 RESTORE YOUTHFUL SKIN WITH LOW-COST HORMONE

Recent research reveals an unexpected culprit behind leathery, wrinkled, “graying” skin: chronic insomnia. Scientists have discovered that skin possesses receptors for the hormone *melatonin*, the body’s natural sleep regulator. A unique topical intervention can halt degradation of skin tissue and restore its youthful appearance.



36 END THE CYCLE OF URINARY TRACT INFECTIONS

Urinary tract bacterial infections account for millions of office visits and over \$1 billion in healthcare costs annually. A newly discovered natural agent offers women potent protection from this painful affliction.



60 TAILORED CANCER CARE TECHNOLOGY

Using sophisticated molecular analysis, scientists can now design tailored cancer treatment protocols by profiling genetic differences among circulating tumor cells within each patient. **Life Extension®** hopes even the most *indifferent* oncologists will abandon the conventional “one-size-fits-all” approach and utilize this superior technology.



70 DONNA KARAN: REINVENTING HEALTH CARE

Top fashion designer Donna Karan has gone from “dressing people to addressing people and their well being.” In this exclusive feature, she takes **Life Extension** behind the scenes of the Urban Zen Sanctuary, a cutting-edge cancer care center in New York.



48 ON THE COVER

ARE CANCER CELLS CIRCULATING IN YOUR BLOOD?

An extraordinary technological breakthrough enables doctors to detect circulating tumor cells in your blood. This test provides a powerful new weapon in the fight against cancer by allowing doctors to identify metastatic cells that break away from the primary tumor.

DEPARTMENTS



7 AS WE SEE IT Millions of Needless Cancer Deaths

As cancer deaths continue to skyrocket, most people remain unaware that a medical “knowledge deficit” is the number one *cause* of cancer mortality. Fortunately, the **Life Extension Foundation®** remains steadfastly committed to identifying *avant-garde* therapies most oncologists know *nothing* about. Here we detail several life-saving treatments, including *leukocyte infusion therapy* and the adjuvant use of **metformin**.



17 IN THE NEWS

Green tea may prevent lung cancer; vitamin D levels inadequate during winter months; more drug company kickbacks; antioxidant-rich fruits and vegetables may cut lymphoma risk; blueberry juice may boost memory; and more.

WELLNESS PROFILE 77

Dr. Frank Lipman is the founder of Eleven Eleven Wellness Center in New York City. He has authored several books about maintaining vitality and long-term health. In this profile, Dr. Lipman discusses his unique approach to achieving lifelong wellness.



NUTRACEUTICAL UPDATE 83

Lignans are powerful agents that help prevent cancer, heart disease, and osteoporosis. New research illuminates the many ways these largely unheralded dietary components help maintain optimal health.



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Sweet potatoes contain an impressive array of nutrients, including heavy doses of vitamin A, vitamin C, manganese, and potassium. Its high fiber content also makes it a nutritional powerhouse.





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The Latest Advance in

CoQ10 Technology

Life Extension® was the first to introduce **coenzyme Q10** to the United States way back in **1983**. Since then, we have consistently introduced more **potent** and better **absorbable** forms of this critical nutrient.

The **new Super Ubiquinol** with **Enhanced Mitochondrial Support™** contains an organic compound called **PrimaVie® shilajit** that research shows **doubles** levels of **CoQ10** in the **mitochondria**.¹

Shilajit has been shown to help restore and sustain **cellular energy**. The latest studies reveal that when **shilajit** is **combined** with **CoQ10**, **cellular energy** gains substantially increase.

In a breakthrough preliminary study, the combination of **CoQ10** and **shilajit** produced a **56%** increase in cellular energy production in the **brain—40% better** than **CoQ10** alone. In **muscle** there was a **144%** increase, or **27% better** than **CoQ10** alone.²

Researchers have found that **shilajit** works to boost **CoQ10's** beneficial effects by:

1. Stabilizing **CoQ10** in its superior **ubiquinol** form, thereby *prolonging* its action at the cellular level.^{3,4}
2. Facilitating more efficient *delivery* of **CoQ10** into the **mitochondria**, resulting in greater cellular energy output.⁵⁻⁹

Scientific analysis shows that **shilajit** itself is rich in **essential** compounds that promote mitochondrial metabolism. Part of **shilajit's** beneficial effects derives from its ability to help the mitochondria convert **fats** and **sugars** into adenosine triphosphate, or **ATP**—the body's main source of energy.⁵⁻⁹

PrimaVie® is a registered trademark of Natreon, Inc.
Kaneka QH® is a registered trademark of Kaneka Corporation.

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The **New Super Ubiquinol CoQ10** with **Enhanced Mitochondrial Support™**

Combining **ubiquinol CoQ10** with **shilajit** generates a powerful *synergy* that supports more youthful cellular energy production than **CoQ10** alone.^{2,4,5}

The retail price for 60 100-mg softgels of **Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™** is **\$62**. If a member buys four bottles, the price is reduced to **\$42** per bottle. **Item #01426**

The retail price for 100 50-mg softgels of **Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™** is **\$58**. If a member buys four bottles, the price is reduced to **\$39.75** per bottle. **Item #01425**

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Item #01425

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

Sam Baxas, MD, head of the Baxamed Medical Center for Youth Restoration in Basel, Switzerland, has developed cell therapy and growth hormone therapies for various diseases, including Parkinson's disease and arthritis.

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

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John Crisler, DO, is an osteopathic physician and president of The All Things Male Center for Men's Health in Lansing, MI. Dr. Crisler is a distinguished leader in the field of anti-aging medicine for his new, advanced testosterone replacement therapy protocols that have changed the way physicians all over the world treat their patients.

William Davis, MD, is Medical Director of Milwaukee Heart Scan and developer of the web-based initiative, Track Your Plaque, the only heart disease prevention program that uses the new CT heart scans to detect, track, and control coronary plaque.

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

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

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

Norman R. Gay, MD, is proprietor of the Bahamas Anti-Aging Medical Institute in Nassau, Bahamas. A former member of the Bahamian Parliament, he served as Minister of Health and Minister of Youth and Sports. He is a three-time chairman of the Executive Committee of the PanAmerican Health Organization in Washington, DC.

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Michele G. Morrow, DO, FAAFP, is a board-certified family physician who merges mainstream and alternative medicine using functional medicine concepts, nutrition, and natural approaches. Dr. Morrow is an accomplished clinician, medical researcher, author, and lecturer.

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Jonathan V. Wright, MD, is medical director of the Tahoma Clinic in Renton, WA, and a board member of the Vitamin C Foundation and the American Preventive Medical Association, among many other groups.

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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 is currently a post doctoral fellow at Stanford University Department of Statistics.



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Deborah F. Harding, MD is founder of the Harding Anti-Aging Center. She is triple board-certified in Internal Medicine, Sleep Disorder Medicine, and Anti-Aging Medicine. She also earned the Cenegenics certification in Age Management Medicine. She is a faculty member of the new University of Central Florida Medical School.



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



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.



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.



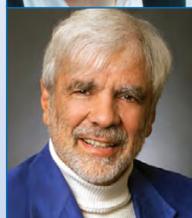
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PROTECT EYE HEALTH AND FIGHT TIRED EYES

By absorbing blue-light, the **macula** protects delicate **photo-receptor cells** in the retina from light damage. The *density* of your macular pigment (composed of lutein, zeaxanthin, and meso-zeaxanthin) is essential to proper vision. Unfortunately, this density declines naturally over time. Some aging people also lose their ability to convert lutein into **meso-zeaxanthin** inside their macula.

Eating lots of lutein- and zeaxanthin-containing vegetables can help maintain the structural integrity of their macula. However, since **meso-zeaxanthin** is not part of the typical diet, it cannot be replaced except in supplement form.

Super Zeaxanthin with Lutein & Meso-zeaxanthin Plus Astaxanthin gives you therapeutic doses of all **three carotenoids** to help protect your precious eyesight **plus** a special ingredient that's scientifically proven to help fight tired eyes.

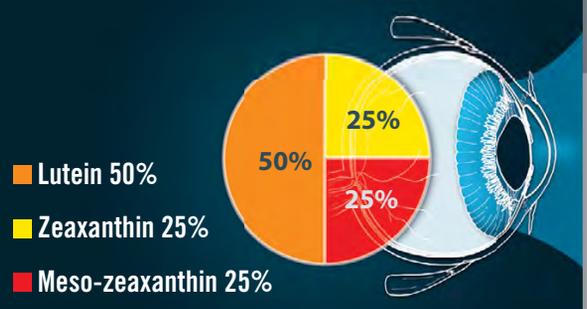
Fight Tired Eyes With Astaxanthin

If you're one of the more than 72 million people in America who use a computer daily at work,¹ you're probably familiar with eye fatigue. Staring at a fixed-distance object such as a computer screen for a long period of time can cause the muscles that focus your eyes (called the ciliary body) to tire or go into spasm. This can result in physical symptoms such as head discomfort, sensitivity to glare, tiredness, soreness, dryness, and blurry vision.

Super Zeaxanthin with Lutein & Meso-zeaxanthin Plus Astaxanthin contains a potent dose of **astaxanthin**, a carotenoid found in a red algae called *Haematococcus pluvialis*. Studies show that taking **astaxanthin** with other carotenoids protects against free-radical induced DNA damage, repairs UVA-irradiated cells, and inhibits inflammatory cell infiltration.²⁻⁵ Astaxanthin also helps support vascular health within the eye and improves visual acuity.⁴ Its fat-soluble nature offers protection to sensitive cells inside the eye.⁶

With its special combination of ingredients that targets eyestrain and protects visual acuity, **Super Zeaxanthin with Lutein & Meso-zeaxanthin Plus Astaxanthin** is truly an exciting breakthrough in eye care.

The retail price for a bottle containing 60 softgels of **Super Zeaxanthin with Lutein & Meso-zeaxanthin Plus Astaxanthin** is \$42. If a member buys four bottles, the price is reduced to just **\$28.50** per bottle.



Each softgel of new **Super Zeaxanthin with Lutein & Meso-zeaxanthin Plus Astaxanthin** provides:

OptiLut® and Lutein Plus® with MZ®	38 mg
<i>Marigold (Tagetes erecta) Extract (flower)</i> [free lutein equivalent 10 mg]	
Zeaxanthin & Meso-zeaxanthin blend	3.75 mg
<i>(micronized zeaxanthin, OptiLut® Marigold and Lutein Plus® with MZ® Marigold Extract)</i>	
Natural Astaxanthin	6 mg
<i>(from Haematococcus pluvialis algae extract)</i>	



Item #01286

To order **Super Zeaxanthin with Lutein & Meso-zeaxanthin Plus Astaxanthin**, call **1-800-544-4440** or visit **www.LifeExtension.com**

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So Many Needless Cancer Deaths



BY WILLIAM FALOON



One of today's great misconceptions is how people die. Most believe *disease* to be the leading cause. Nothing could be further from the truth.

Statisticians tabulate diseases that humans die from. Missing from the data is what *enabled* these illnesses to progress to the point of claiming the victim's life.

Medical ignorance is the number one reason people die. This "knowledge deficit" is not limited to Western countries. By looking at the absurd ways people die in third world countries, you will understand the lethal consequences of medical ignorance.

In parts of Africa, for example, AIDS is not considered to be a viral disease.¹ Instead, the belief is that one contracts AIDS by "thinking" they may contract AIDS. Therefore, according to this backward logic, to even "think" that practicing safe sex will prevent AIDS will result in one contracting the disease. The result of this fallacy is that HIV infection has reached epidemic proportions in Africa, as people freely engage in dangerous sexual practices while pretending there is no such thing as the HIV virus.²⁻⁴

In rural Afghanistan, people defecate outside whenever they feel the urge. The result of this unsanitary habit is that infectious diseases that were long ago eliminated in the Western world run rampant.⁵⁻⁷ Even when international aid organizations set up latrines and education programs to prevent the spread of disease this way, many rural Afghans continue to move their bowels in places that result in human feces being introduced into the water and food supply.⁸

It's Just as Bad in the Western World

While examples of third world ineptitudes could fill a book, arrogant doctors in the Western world pretend that they have lifted themselves out of the *sea of ignorance* that has caused so many to perish in the past.

What these doctors fail to understand is that their own apathy and scientific unawareness is causing us to die in *different* ways today.

AS WE SEE IT

Needless Cancer Deaths

Cancer continues to inflict an epidemic of disability and death on the American population.^{9,10} These tragedies are largely unnecessary.

Surgical removal of the primary tumor is often the first of many *toxic* therapies inflicted upon a newly diagnosed cancer patient. While it may seem to make sense to quickly “cut out” the tumor, the harsh reality is that conventional *surgery* can enable a localized tumor to quickly spread throughout the patient’s body.¹¹ As we meticulously described in the December 2009 issue of *Life Extension Magazine*[®], unless specific pre-operative interventions are implemented, the **surgical procedure** itself can:

1. Suppress immune function, thus making the patient less able to kill residual localized, circulating, and metastasized tumor cells.¹²⁻¹⁷
2. Remove natural anatomical barriers that impede tumor growth, thus creating a opportunity for localized tumor recurrence.¹⁸
3. Induce the body to produce growth factors to heal the surgical wound, such growth factors that also promote the proliferation of cell colonies that have spread (metastasized) to other parts of the body.¹⁹⁻²³
4. Induce angiogenesis (new blood vessel growth), thus providing residual cancer cells with new blood vessel infiltrative capacity to feed their rapid growth.^{19, 24-26}
5. Create a systemic inflammatory state that provides residual tumor cells with biological fuel used to stimulate rapid propagation.^{20, 27}



Fortunately, therapies described in our cancer treatment articles (available at www.lef.org), when administered prior to surgery, can circumvent most if not all of these surgically induced side effects. Sadly, few oncologists prescribe these scientifically proven approaches prior to surgery.

One Overlooked Drug... Millions of Lost Lives

Cimetidine is the generic name of a once-popular heartburn drug called Tagamet[®]. It is so safe that it is now sold over-the-counter. Just as the use of low-dose *aspirin* to prevent heart attack was overlooked by cardiologists for decades, so have the remarkable anti-cancer effects of *cimetidine* been ignored by the cancer establishment.

Not only does *cimetidine* have proven *immune-boosting* properties, but it specifically inhibits *angiogenesis* and can block the *adhesion* of certain tumor cells to blood vessel walls where they establish metastatic colonies.²⁸⁻³⁸

We first recommended *cimetidine* in **1985** as an adjuvant cancer therapy. Since then, a plethora of published scientific studies document remarkable survival improvements when patients with many kinds of cancer take this non-toxic drug.^{35,39-44}

In a **1994** study, only **7%** of colorectal patients given *cimetidine* (400 mg by mouth twice a day 5 days pre-operatively and IV 2 days post-operatively) died over a 3-year time period compared to a startling **41%** in the control group (not taking *cimetidine*).⁴⁰ In a **2002** study, **84.6%** of *cimetidine*-treated patients afflicted with a common type of **colon cancer** were alive after 10 years compared to only **49.8%** in the non-*cimetidine* group.³⁵ The *cimetidine* dose given was 800 mg each night. *Cimetidine* should be administered at least five days prior to surgery and taken for at least one year thereafter.

An enormous amount of published data documents the life-saving benefits of *cimetidine* against a wide variety of cancers. Yet here we are in the year **2010**, and virtually no oncologist prescribes this safe and low-cost medication.

Colon cancer alone kills about **55,000** Americans annually.⁴⁵ Just bringing this one piece of information about *cimetidine* to the public’s attention could save **tens of thousands of lives** every year in the United States! That is why the **Life Extension Foundation**[®] reminds members of the wealth of life-saving knowledge that is available to them. In many cases, the efficacy of these therapies was validated decades ago. The problem is

pharmaceutical company control over academia, the media, and the FDA results in information about these low-cost life-saving therapies being suppressed.

The Anti-Cancer Effects of Metformin

Few doctors understood why we suggested that healthy people consider taking the anti-diabetic drug *metformin* in the early 1990s. Based on our review of published studies, metformin induced many anti-aging benefits including enhancing insulin sensitivity and assisting in weight loss.

An article published in the **January 13, 2010** issue of the *Journal of the American Medical Association* describes the anti-cancer benefits of metformin as follows:

“Metformin has been shown to have antitumor effects in vivo in animal models, and in epidemiologic studies, including an increased pathologic complete response rate in combination with preoperative chemotherapy in breast cancer patients... Bonanni and his colleagues are investigating the anti-proliferative effect and mechanism of action of metformin in a phase 2 trial in women with early breast cancer who are waiting for surgery.”⁴⁶

We have long postulated that metformin’s anti-cancer effects are at least partially based on its ability to enhance *insulin sensitivity*, thereby reducing the amount of tumor-promoting insulin secreted by the pancreas to metabolize glucose.



Metformin is a safe and inexpensive generic prescription drug, yet its utility is ignored in the conventional oncology setting. I personally take 850 mg 2 to 3 times a day of metformin to reduce my risk of a host of age-related diseases, including cancer.

Travel to Live

You can pick up *cimetidine* at your local pharmacy. Nutrients and other therapies suggested in our cancer treatment protocols are readily available. For many cancer patients, however, traveling to clinics that offer advanced therapies may be their only chance to live.

An example of this need for travel is an experimental immunotherapy for advanced **melanoma** being run at Northwestern University in Chicago, Illinois. Immune-enhancing approaches against melanoma in the past have been disappointing. Doctors at Northwestern University, however, are using a novel approach that has produced impressive results.

In this FDA-approved clinical trial, a topical cream (called *imiquimod*) is applied to the exposed tumor twice a day for a total of six weeks. At weeks two and four, the doctors expose the area to an infrared laser. The topical **imiquimod** cream binds with receptors on cancer cells and stimulates them to activate proteins that “broadcast” the presence of the tumor cells to the immune system. In essence, the patient’s own tumor cells become a unique



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anti-tumor vaccine. The laser portion of the treatment is designed to hyper-activate the *imiquimod* with the objective of inducing a systemic immune response against metastatic melanoma cells. Imiquimod is an FDA-approved drug and this is an FDA-approved clinical trial. To inquire about participating, call Stephanie St. Pierre, MD at 312-695-6786 or email s-stpierre@northwestern.edu. This study is referenced by the ClinicalTrials.gov identifier: NCT00758797. **Study details can be found on the FDA-approved clinical trials Web site: www.clinicaltrials.gov.**

You may not qualify to participate in this clinical study or may not want to be bothered with the bureaucratic red tape. Fortunately, this same protocol is being done in the Bahamas for melanoma, and a modified version is being studied to treat breast cancer. In order for this treatment to be administered, a tumor lesion must be present near the surface of your skin, such as a breast lump, a chest wall breast lesion, or a superficial melanoma tumor. To inquire about

clinical programs being offered in the Bahamas, call the International Strategic Cancer Alliance (ISCA) at **610-628-3419** or log on to www.is-canceralliance.com.

ISCA is an organization that can refer you to specialized medical centers around the world that offer potential life-saving therapies. It is regrettable that so many cancer patients choose the “convenience” of their local chemotherapy ward and deprive themselves of non-toxic and possibly curative treatments available a plane ride away.

The Supercharged Granulocyte

Granulocytes are a type of immune cell that up until recently have not been considered particularly effective in killing cancer cells. In a discovery that made headline news around the world, Dr. Zheng Cui of the Wake Forest University School of Medicine developed a colony of mice with *supercharged granulocytes* that successfully fight off any form of virulent transplanted cancer.⁴⁷ The supercharged

granulocytes in these mice infiltrate tumor cells and destroy them. The mice exposed to these tumor cells are healthy, cancer-free, and have a normal life span.

This exciting cancer research project started serendipitously in 1999 when Dr. Cui was testing the effects of administering cancer cells to mice. He found that one mouse did not develop cancer no matter how many cancer cells he administered. Further research led him to discover that the mouse that appeared to be immune from cancer had an extra amount of potent *granulocytes* for specifically killing cancer cells without harming normal cells. When Dr. Cui administered healthy, potent *granulocytes* to mice with cancer, he cured them.⁴⁸ Laboratory research showed that the granulocytes appeared to explode cancer cells like guided missiles!

Dr. Cui showed in laboratory experiments that immune cells from some people can be almost **50 times** more effective in fighting cancer than in others.⁴⁹ What that means is that these *supercharged granulocytes* can be harvested from healthy young donors and infused into cancer patients with curative intent. In response to these findings, the **Life Extension Foundation** is helping to fund a human clinical trial of this potential curative cancer treatment.

This new clinical trial will test this approach in humans with advanced cancer, including metastases, who have not been helped by conventional cancer therapies. The trial has received an IND (investigational new drug) status from the FDA and Institutional Review Board approval. The principal investigator/lead physician for this trial is Dipnarine Maharaj, MD, who has in-depth experience in stem cell transplantation,





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including transfusion of blood products, hematology, and oncology.

To obtain further information about participating in this new study, contact the non-profit arm of the South Florida Bone Marrow/Stem Cell Transplant Institute, 10301 Hagen Ranch Road, Suite 600, Boynton Beach, Florida, 33437, at **561-752-5522**.

Designing an Individually Tailored Cancer Treatment

For decades, traditional medicine has made cancer treatment decisions based on the “one-size-fits-all” approach—whereby everyone with a particular cancer receives the same treatment. Tragically, this approach has failed to benefit the majority of women with metastatic breast cancer who received standard chemotherapy protocols. This approach refuses to acknowledge the individual differences inherent in the cancer that could have affected treatment. Now, exciting new advances in Circulating Tumor Cell (CTC) technology can allow medical science to finally move away from this outdated approach and towards an *individually tailored* cancer treatment program.⁵⁰

An advanced diagnostic blood test is available in Germany that not only detects the presence of *circulating tumor cells*, but performs a gene expression analysis to identify which treatments (including nutritional-based approaches)

are most likely to be effective. The importance of testing *circulating tumor cells* is that these cells can be genetically dissimilar from the primary tumor. This means that even if your oncology surgeon was progressive enough to have analytical tests performed on your primary tumor, the cells that broke away may bear little resemblance and therefore require a very different treatment regimen.

In this issue of *Life Extension* magazine, we feature two articles describing the critical importance of circulating tumor cell testing in cancer patients. One of these tests is available in the United States while another is widely used in Europe. To find out how to obtain either of these circulating tumor cell (CTC) tests, refer to the two articles in this month’s issue.

Have We Aroused Your Appetite for Novel Cancer Treatments?

The **Life Extension Foundation** was established in 1980 to enlighten the world about innovative approaches to disease treatment that are overlooked by the medical establishment.

Our **30-year** track record reveals our non-profit organization to be decades ahead of mainstream doctors in introducing lifesaving medical therapies.

I’ve provided just a few tidbits of information to arouse your appetite about the in-depth cancer treatments that are available to the enlightened cancer patient. To the detriment of most cancer victims, these technologies are too often ignored by practicing oncologists.

As a member of the **Life Extension Foundation**, you have the assurance that we will make every effort to guide you to the most avant-garde treatments in the

event you develop cancer. I hope you understand how today’s cancer industry, which financially thrives on the sale of toxic/minimally effective patented drugs, wants this knowledge to be suppressed.

For longer life,

William Faloon

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Turn page for additional references and a successful case history that utilized a comprehensive multi-modal protocol.

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Saving One Life at a Time

Cancer is a complex disease that requires a multi-pronged effort to provide the best chances of attaining a cure, remission, or significant extension of life. Discoveries are occurring in the research setting, but the process by which they are incorporated into clinical oncology practice is excruciatingly slow. Through various clinical research programs Life Extension funds, access to novel treatments, along with state-of-the-art labs that analyze a patient's cancer profile, are expedited. Our costs involved in funding these cancer research programs are significant, but we view the results as well worth the expenditure of our time and financial resources.

A stage IV lung cancer patient with metastatic lesions to the brain came to us for help in October 2008. Therapy was initiated using conventional drugs (cisplatin and Alimta® (pemetrexed) combined with the immune enhancing agent Arvizel™. Additional support against microbial infection was then introduced using Immune26®. **Gc macrophage activating factor** was later incorporated into this patient's regimen to provide additional immune support.

This patient presented to us with a **CEA** tumor marker blood level of **498.2**, indicating very advanced disease. After 11 months of treatment, the CEA reading is down to **17.9**. The patient is not cured, but has

responded remarkably well to this novel treatment, showing reduced size of cancer lesions. The chart below shows improvement in this patient in response to individualized aggressive treatment.

We have extensive detailed records that have been maintained during the entire treatment phase—this includes MRI scans, PET scans, pathology reports, blood tests, and reports of gamma knife procedures that have been performed at regular intervals. This patient would likely be dead now if not for the aggressive clinical study program we designed for him. One compound we evaluated in this patient is **Gc macrophage activating factor** (Gc-MAF). Published findings demonstrate complete remissions for the patients who participated in two separate trials on breast and prostate cancer. The mechanism of action of Gc-MAF is activation of the immune system (the macrophages) by the use of the Gc protein, which is often referred to as vitamin D binding protein. A large clinical study using Gc-MAF is being planned and will be announced in a future issue of *Life Extension Magazine*®.

For more information on customized cancer care and exciting research programs please contact Örn Adalsteinsson, PhD at International Strategic Cancer Alliance (ISCA) at 610-628-3419.

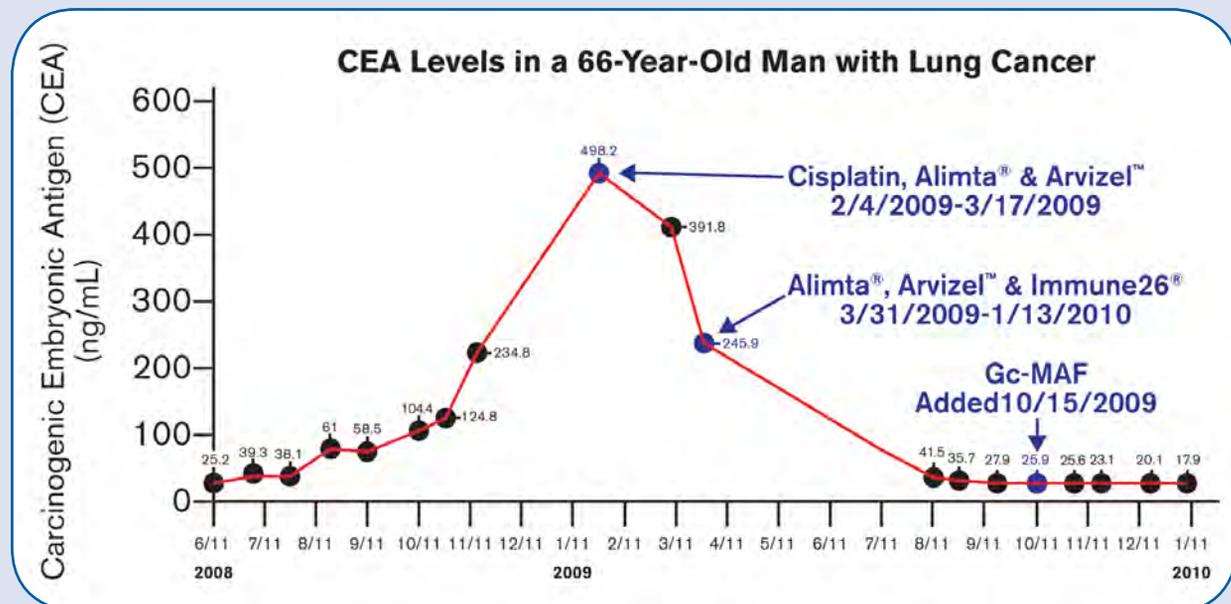


Figure 1: Carcinogenic embryonic antigen (CEA) levels in a patient with stage IV non-small cell lung cancer (NSCLS). The patient's CEA dropped dramatically after initiating an integrative cancer care program.

A Multi-Faceted Approach to HEALTHY BODY Weight

It's not your fault! Public health agencies blame gluttonous behavior and lack of physical activity as the sole reasons for today's **obesity epidemic**. Ignored are a plethora of age-related **metabolic** changes that predispose us to weight gain, even when we try to cut back on caloric intake.

The good news is that you don't have to do it alone. Scientists have identified *natural compounds* that function via *multiple* mechanisms to combat the underlying factors involved in excess accumulation of body fat.

New Phase 3™ Sucrase Modulator

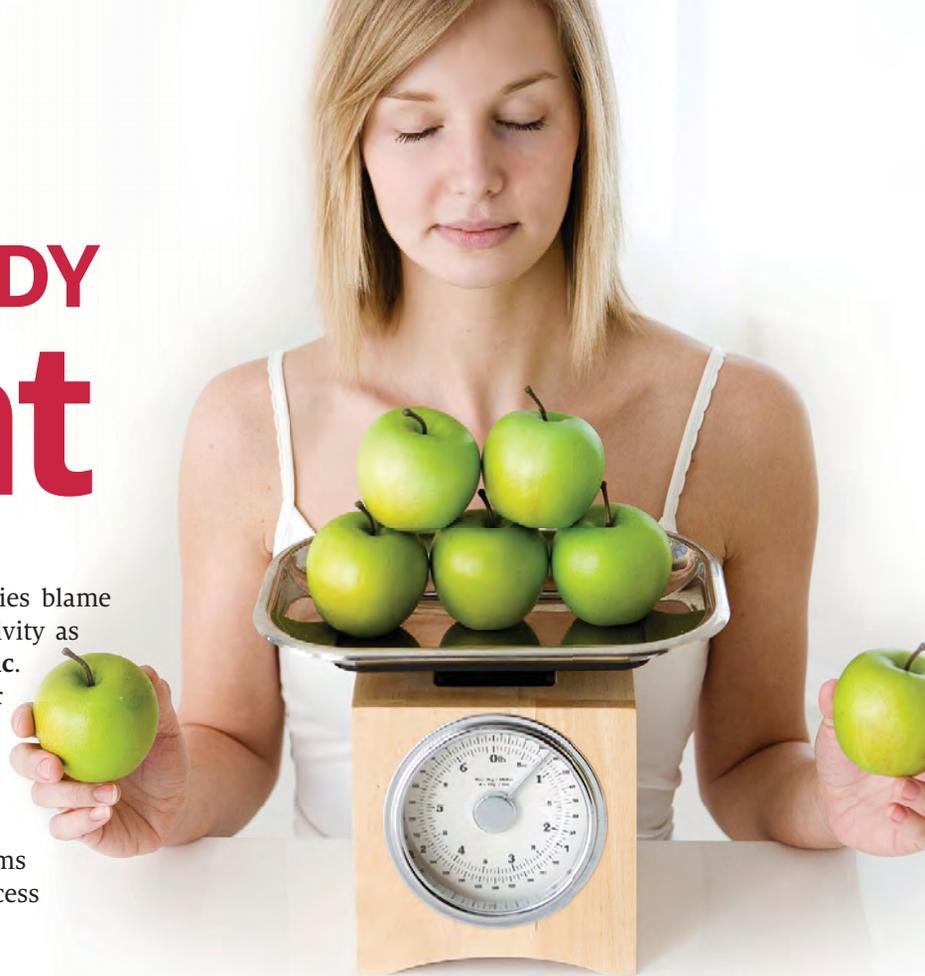
A recent study in the journal *Science* concluded that in primates a **calorie-restricted diet** can delay disease onset and age-related mortality.¹ While *Life Extension*® readers understand the benefits of calorie restriction, that doesn't make it any easier to cut back on one of the major calorie culprits in the American diet: *refined sugar*.

Sucrase is an enzyme that breaks down sucrose in the digestive tract for *absorption* into the bloodstream. **Phase 3™** is a new, patented compound that functions as a beneficial modulator of sucrase. By delaying the rapid absorption of sucrose, **Phase 3™** can help support the healthy release of insulin and sugar into the bloodstream in response to sucrose ingestion that so readily converts to body fat. **Phase 3™** contains a natural substance found in plants called **L-Arabinose** that provides an important new weapon in the battle to reduce the number of absorbed calories from sugar.

Green Tea Phytosome Cellular Energy Enhancer

The ability of **green tea extracts** to inhibit the breakdown and absorption of dietary fat has been the subject of research studies across the globe. Mounting scientific research has documented the **metabolic effects** of **green tea** polyphenols. A proprietary **phytosome complex** has shown an ability to increase the absorption of green tea polyphenols into the bloodstream better than conventional tea extracts — resulting in peak plasma levels of the critical green tea polyphenol *epigallocatechin-3-gallate*.²

Participants in a human clinical trial showed an average weight loss of **30 pounds** and a **10%** reduction in waist circumference in **90 days** when 300 mg/day of this new **green tea phytosome** was taken in conjunction with a reduced-calorie diet.² The *placebo* group that followed the same reduced-calorie diet lost only **9.9 pounds** and only **5%** of their waist size.



The Alpha-Amylase Enzyme

Aging reduces our ability to utilize the **carbohydrates** (and fats) that constitute what most would consider part of a healthy diet. The result is that as we grow older, our bloodstreams become chronically *bloated* with **glucose** and **triglycerides** in direct contrast to the youthful metabolic profile we have in our younger years. Emerging scientific research suggests that the alpha-amylase enzyme plays an undesirable role in the digestion of dietary carbohydrates and subsequent absorption of calories from starch and sugar.

A natural bean extract (*Phaseolus vulgaris*) moderates *alpha-amylase* activity. In a human trial in which all overweight participants were placed on a 2,000–2,200-calorie, carbohydrate-rich diet, those taking *Phaseolus vulgaris* lost **6.5 pounds** and **1.2 inches** in waist size in only **30 days** compared with **0.8 pounds** and **0.2 inches** in the placebo group.³

The Alpha-Glucosidase Enzyme

Another intestinal enzyme that enables carbohydrate absorption is **alpha-glucosidase**. A patented seaweed extract (**InSea™**) has demonstrated the ability to help maintain healthy levels of both *alpha-glucosidase* and *alpha-amylase*. When given to laboratory animals, this seaweed extract reduced after-meal (postprandial) **glucose** elevations by up to **90%** compared with non-supplemented animals.⁴

Remember, young healthy individuals rapidly convert ingested fats-sugars into energy. Age-related changes decrease our **metabolic capacity** to efficiently utilize dietary fats-sugars. It is thus paramount for aging people to reduce their *absorption* of excess calories. By taking nutrients before each meal that reduce the activity of carbohydrate-fat digesting enzymes, the calorie burden is significantly reduced.

To order Optimized Irvingia with Phase 3™ Calorie Control Complex, call toll-free 1-800-544-4440.

Leptin Sensitivity

Fat cells (adipocytes) secrete a hormone called *leptin* that tells our brain we have eaten enough. *Leptin* can also facilitate the breakdown of stored *triglycerides* in our adipocytes via the process of *lipolysis*. Heavy individuals have startlingly high blood levels of leptin, indicating that their cells have become *resistant* to the *leptin* that is supposed to prevent them from putting on so many fat pounds.

An extract from a West African food called *Irvingia gabonensis* has been shown to help support *leptin sensitivity* in overweight people. In a recently published study, *Irvingia* demonstrated beneficial effects upon leptin blood levels, followed by weight loss and inches off the waistline.⁵ In addition to supporting healthy *leptin sensitivity*, *Irvingia* has demonstrated the following beneficial effects on key aspects of metabolism:

- **Glycerol-3-phosphate dehydrogenase** is an enzyme involved in the complex biochemical process that converts ingested starch and sugar calories to stored body fat. *Irvingia* has been shown in studies involving fat cells to reduce the activity of *glycerol-3-phosphate dehydrogenase*,⁶ which may help reduce the impact of starch and sugar calories on body fat.

- Scientific research on fat cells suggests that *Irvingia* has **alpha-amylase-inhibiting** properties⁷ (like *InSea*^{2™} and *Phaseolus vulgaris*), which can help support a *slowing* of the rate of carbohydrate absorption from the intestines and a reduction of the caloric impact of starchy and sugary foods.⁸

- **Adiponectin** is a hormone involved in helping to maintain insulin sensitivity on the membranes of energy-producing cells. Big fat cells produce *less* adiponectin, and overweight people need to be especially concerned about maintaining healthy levels of adiponectin to support insulin sensitivity and metabolic fitness. Scientific data suggests that *Irvingia* helps support healthy adiponectin levels.⁶

The New Optimized Irvingia with Phase 3™ Calorie Control Complex

In reviewing the remarkable effects demonstrated by these *natural compounds*, one might think that any one of them might be a solution to their weight problem. The reality is that aging individuals often fall victim to *many molecular factors* that can sabotage the best weight-loss programs.

The new **Optimized Irvingia** formula provides a combination of nutrients that combat *age-related* fat accumulation via the following eight distinct mechanisms:

1. Delaying *digestion and absorption* of sucrose.
2. Enhancing *resting energy expenditure* at the cellular level.
3. Slowing the absorption of *dietary fat* from the intestines.
4. Moderating *alpha-amylase enzyme activity* to reduce carbohydrate absorption in the bloodstream.
5. Reducing *alpha-glucosidase enzyme activity* to further slow the absorption of starches and sugars into the bloodstream.
6. Supporting *leptin sensitivity* to reduce hunger and stimulate lipolysis.
7. Supporting youthful levels of *adiponectin* to help maintain healthy insulin sensitivity.
8. Moderating *glycerol-3-phosphate dehydrogenase enzyme* activity to reduce the amount of ingested starches that are converted to triglycerides and stored as fat.

Two capsules of **Optimized Irvingia with Phase 3™ Calorie Control Complex** provide:

Phase 3™ L-Arabinose and chromium complex550 mg
(supplying 475 mg L-Arabinose and
100 mcg Chromium in a food bound state)
Green Tea Phytosome (decaffeinated) extract 150 mg
Phase 2® *Phaseolus vulgaris* white kidney bean extract 445 mg
InSea™ seaweed extract125 mg
Irvingia gabonensis extract 150 mg

Summary of Human Studies with New Optimized Irvingia Ingredients

Ingredient	Study	Treatment vs Placebo
Green Tea Phytosome Extract	100 overweight subjects placed on a hypocaloric diet (men: 1,850 calories; women: 1,350 calories) randomized to receive 300 mg/day of green tea phytosome extract or placebo for 90 days ²	<u>Weight loss</u> 30.1 pounds vs. 9.9 pounds <u>Waist size reduction</u> 10% vs. 5% (14% vs. 7% in men)
Phase 2® White Kidney Bean Extract	60 overweight subjects placed on a 2,000-2,200 calorie, carbohydrate-rich diet and randomized to either 445 mg/day of white kidney bean extract or placebo for 30 days ³	<u>Weight loss</u> 6.5 pounds vs. 0.8 pounds <u>Waist size reduction</u> 1.2 inches vs. 0.2 inches
Integra-Lean® Irvingia Gabonensis Extract	102 overweight subjects randomized to either 150 mg of Irvingia twice daily or placebo for 10 weeks ⁵	<u>Weight loss</u> 28 pounds vs. 1.5 pounds <u>Waist size reduction</u> 6.4 inches vs. 2.1 inches
Phase 3™	50 non-diabetic subjects were used to study the suppression effects of L-Arabinose and chromium on capillary glucose ⁹	Consuming LA-Cr simultaneously with a 70 gram sucrose challenge suppressed the glucose response an average of -20% compared to control over four different time periods.

Note: Supplements should be taken in conjunction with a healthy diet and regular exercise program. Results may vary.



Item #01492

Directions are to take two capsules before the two heaviest meals of the day. A bottle of **120** capsules of **Optimized Irvingia with Phase 3™ Calorie Control Complex** retails for \$78. If a member buys four bottles, the price is reduced to **\$54 per bottle**.

InSea™ is a trademark of InnoVactiv, Inc. Integra-Lean® Irvingia is protected by U.S. Patent No. 7,537,790. Other patents pending. Phase 2® and Phase 3™ are used under license.

Caution: This product is designed to target several critical factors involved in age-related weight gain. Those who ingest more calories than what their body has the metabolic capacity to utilize will not see results. This is because some people are ingesting so many excess calories that no matter how much their metabolic rate is increased, or how much improvement occurs in their post-meal blood sugar and serum triglyceride levels, or how much youthful insulin sensitivity and other body fat-regulating systems are restored, they are overwhelming the metabolic capacity to utilize these calories. This will result in excess calories being stored in adipocytes. One cannot consume limitless calories and expect to shed fat pounds by taking drugs, nutrients, and/or hormones that demonstrate weight-loss effects in clinical studies.

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ARE YOU TAKING THE OPTIMAL FORMS OF VITAMIN E?

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

Four prestigious scientific journals have highlighted **gamma tocopherol** as one of the most critically important **forms of vitamin E** for those seeking optimal health benefits.

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

SESAME LIGNANS: The Natural Vitamin E Booster

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

In a human study that combined **gamma tocopherol** with **sesame lignans**, **gamma tocopherol/sesame** was **25% more effective** than **gamma tocopherol/tocotrienols** in suppressing tissue measurements for free-radical and inflammatory damage.^{4,5} Since tocotrienols are considered nature's most potent antioxidants, the fact that low-cost gamma tocopherol with sesame is **more effective** is a remarkable finding.

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

WORLD'S MOST COMPREHENSIVE VITAMIN E FORMULA!

Each softgel of Gamma E Tocopherol with Sesame Lignans provides:

Gamma tocopherol	237 mg
Sesame lignan extract	20 mg
Delta tocopherol	79 mg
Alpha tocopherol	36 mg
Beta tocopherol	3.6 mg

This formula provides potent doses of **gamma tocopherol** along with **sesame lignan extract** to augment the **antioxidant** effects of **gamma tocopherol**.

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

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

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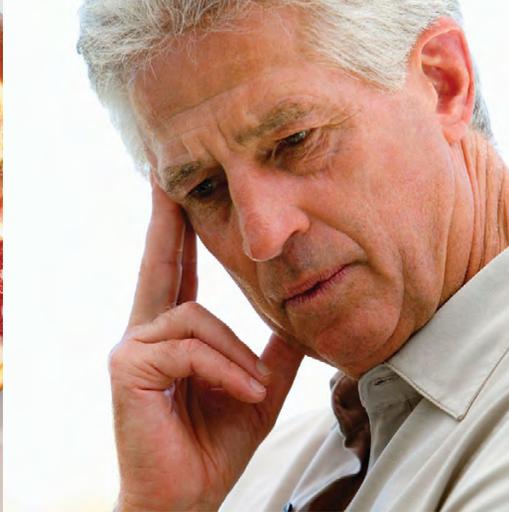
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4. *J Nutr.* 1992 Dec;122(12):2440-6.
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Item # 00759

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

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



IN THE NEWS

Pomegranate Inhibits Hormone-dependent Breast Cancer Cell Growth

A report published in the journal *Cancer Prevention Research* reveals the discovery of researchers at City of Hope Hospital in Duarte, California of a suppressive effect for compounds found in pomegranate on the proliferation of breast cancer cells.*

City of Hope Division of Tumor Cell Biology director Shiuan Chen, PhD and his associates found that ten ellagitannins occurring in pomegranates had the potential to prevent estrogen-responsive breast cancer, with a metabolite of ellagic acid called urolithin B significantly inhibiting the growth of cultured breast cancer cells.

University of Texas M. D. Anderson Center Clinical Cancer Prevention Department chairman Powel Brown, MD, PhD is intrigued by the results. "This study does suggest that studies of the ellagitannins from pomegranates should be continued."

He suggested that people "might consider consuming more pomegranates to protect against cancer development in the breast and perhaps in other tissues and organs."

Editor's note: Pomegranate extract is available in a number of dietary supplements.

—Dayna Dye

* *Cancer Prev Res.* 2010 Jan;3(1) .

Low-carb Diet Effective for Lowering Blood Pressure

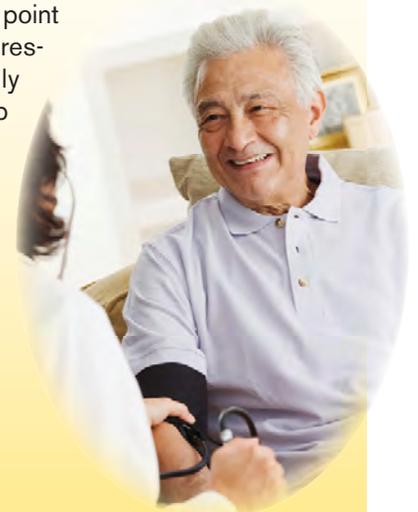
A recent study published in the *Archives of Internal Medicine* concluded that a low-carb diet may help lower blood pressure.* The study gave 146 patients either instructions on how to eat a low-carbohydrate diet, and to start the trial by eating 20 or fewer grams of carbohydrates daily, or to take 120 mg of a weight loss aid (orlistat) three times a day while eating a lower calorie, lower fat diet.

The patients were followed for 48 weeks, at the end of which the low-carb group had lost 9.5% of their body weight, compared to only 8.5% for the weight loss-aid group. While there were similar improvements in cholesterol levels between the two groups, the low-carb diet patients showed improvement in blood pressure.

The improvements amounted to a 5.9 point drop in their systolic blood pressure and a 4.5 point drop in their diastolic pressure, compared to only a 1.5 point systolic drop in the weight loss aid group, and a 0.4 point drop in diastolic.

—Jon Finkel

* *Arch Int Med.* 2010 Jan. 25.



Vitamin D Levels Inadequate During Winter Months

A study in the *Journal of Nutrition* by researchers from the University of California, Davis is one of the most recent to recommend a vast increase in the recommended dosage for proper vitamin D levels.* Vitamin D deficiency has been associated with or can make worse a host of diseases, including osteopenia, osteoporosis, muscle weakness, fractures, common cancers, autoimmune diseases, infectious diseases, and cardiovascular diseases.

In order to prevent the onset of these diseases, vitamin D sufficiency is defined in this study as having blood vitamin D levels of at least 75 nmol/L (30 ng/mL).* In order for people of European ancestry with high sun exposure to achieve that level, they would need to supplement with 1,300 IU per day of the vitamin during the winter. People of African ancestry with low sun exposure would need to supplement with between 2,100 and 3,100 IU per day throughout the year, according to the study.

The study, led by Laura Hill, endorses increasing the supplementation of vitamin D for some groups of people by nearly five times the current 200 IU recommendation.

Editor's note: While mainstream doctors are finally realizing the lethal dangers of *insufficient* vitamin D, they still don't understand that *optimal* levels of *25-hydroxyvitamin D* in the blood are **over 50 ng/mL**. Achieving this optimal blood level usually requires the daily ingestion of **5,000 IU to 10,000 IU** of vitamin D3.

—Jon Finkel

* *J Nutr.* 2010 Jan 6.

More Drug Company Kickbacks

Federal prosecutors claim that Big Pharma company Johnson & Johnson paid tens of millions of dollars in kickbacks so nursing homes would prescribe their schizophrenia medicine to more patients.* An Associated Press article written by Linda A. Johnson described the recent alleged lawsuit, where prosecutors Johnson & Johnson paid rebates and other forms of kickbacks to Omnicare Inc., the country's biggest dispenser of prescription drugs in nursing homes.



The allegations are in a complaint filed by the US Attorney in Boston that includes accusations that after receiving money from Johnson & Johnson, pharmacists at Omnicare then recommended that nursing home patients with signs of Alzheimer's disease be put on the strong schizophrenia drug Risperdal®. This drug was later found to increase the risk of death in the elderly.

"Kickbacks in the nursing home pharmacy context are particularly nefarious because they can result in excessive prescribing of strong drugs to patients who have little or no control over the medical care they are receiving," US Attorney Carmen Ortiz said in his statement. "Nursing home doctors should be able to rely on the integrity of the recommendations they receive from pharmacists, and those recommendations should not be a product of money that a drug company is paying to the pharmacy."

—Jon Finkel

* Johnson LA. Johnson & Johnson Accused of Kickbacks, *Associated Press*, January 15, 2010.

Pterostilbene Aids in Colon Cancer Prevention

In a recent study in the journal *Carcinogenesis* by the Department of Chemical Biology at the Ernest Mario School of Pharmacy, Rutgers University, stilbenes, which are phytochemicals present in grapes and berries, were shown to potentially help prevent colon cancer.*

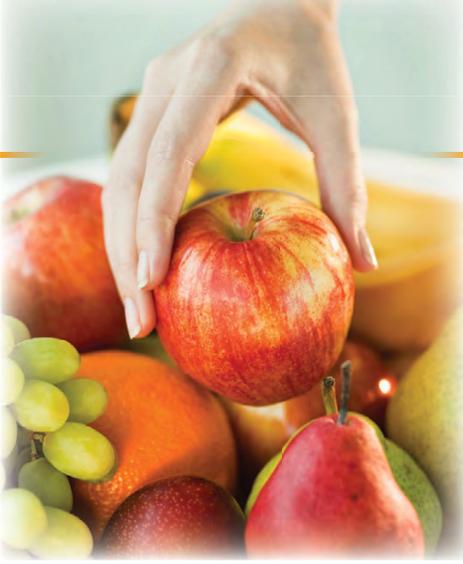
While widely studied stilbenoids like resveratrol have shown antioxidant, anti-inflammatory, chemopreventive, and anti-aging effects in a number of biological systems, the purpose of this study was to identify the chemopreventive potential of pterostilbene with colonic tumor formation as an end point, and to further evaluate how pterostilbene affect colon carcinogenesis.

The researchers evaluated rats over a 45-week period that were given either a control or 40 ppm pterostilbene. Overall analysis indicated that pterostilbene reduced colon tumor multiplicity of non-invasive adenocarcinomas, lowered proliferating cell nuclear antigen, and downregulated the expression of beta-catenin and cyclin D1.



—Jon Finkel

* *Carcinogenesis.* 2010 Jan. 8.



Antioxidant-rich Fruits and Vegetables May Cut Lymphoma Risk

In a recent study done at the Mayo Clinic College of Medicine in Rochester, Minnesota, researchers evaluated the results of increased dietary intakes of specific antioxidant nutrients, like vitamin C, alpha-carotene, and proanthocyanidins in order to determine their effectiveness in reducing the risk of cancer.*

The study, led by James Cerhan, analyzed the dietary intakes for 35,159 Iowa women aged between 55 and 69. A total of 415 cases of non-Hodgkin's lymphoma were documented during the study.

Dietary vitamin C intakes were associated with a 22% reduction in lymphoma risk, while alpha-carotene, proanthocyanidins, and manganese were associated with 29, 30, and 38% reductions in risk. In addition, increased intakes of fruits and vegetables were associated with a 31% reduction in risk, while yellow/orange and cruciferous vegetables were linked to a 28 and 18% reduction.

—Jon Finkel

* *Int J Cancer*. 2010 Feb 15;126(4):992-1003.

Blueberry Juice May Boost Memory

A new study done by researchers at the University of Cincinnati Academic Health Center showed that drinking wild blueberry juice every day improved the memory of aging adults with memory problems.*

Blueberries contain polyphenol compounds, the most prominent of which are anthocyanins. Anthocyanins have antioxidant and anti-inflammatory effects and have also been associated with increased neuronal signaling in brain centers, which mediates memory function as well as improved glucose disposal. These benefits would be expected to mitigate neurodegeneration.

The researchers measured the effects of daily consumption of wild blueberry juice in a sample of nine older adults over a 12-week period. The findings of this preliminary study suggest that moderate-term blueberry supplementation may confer neurocognitive benefits and establish a basis for more comprehensive human trials to study preventive potential and neuronal mechanisms.

Editor's note: Blueberry extracts are available in a number of dietary supplements.

—Jon Finkel

* *J Agric Food Chem*. 2010 Jan 4.

Higher Omega-3 Fatty Acid Levels Correlated with Reduced Telomere Shortening Rate

Researchers at the University of California reveal in a recent issue of the *Journal of the American Medical Association* that heart disease patients who have higher levels of omega-3 fatty acids experience a lower rate of reduction in telomere length over time.* Telomeres, which are protective DNA sequences at the ends of chromosomes, shorten with the age of the cell, and their length is a marker of biological aging.

The investigation enrolled 608 men and women recruited from the Heart and Soul Study. Patients whose levels of EPA and DHA were among the top 25% of participants had the slowest rate of telomere shortening over the 5-year follow-up period, while those whose levels were lowest had rates that were the fastest.

"These findings raise the possibility that omega-3 fatty acids may protect against cellular aging in patients with coronary heart disease," the authors conclude.

Editor's note: Daily fish oil capsules are a convenient and safe way to ensure optimal omega-3 fatty acid intake.

—Dayna Dye

* *J Am Med Assoc*. 2010 Jan 20;303(3).



Jogging Builds Brain Cells

Scientists reporting in the *Proceedings of the National Academy of Sciences* have recently concluded that running has a positive impact on the hippocampus, which is the section of the brain responsible for learning and memory. Their findings are based on studies that show that adult mice that voluntarily used running wheels increased the number of their brain cells and performed better at spatial learning tests than non-exercising mice.*

Until recently, neuroscientists were under the impression that we do not grow new brain cells after birth. However, recent mice experiments have repeatedly shown that running boosts the number of new brain cells in the hippocampus. In this particular study, two groups of mice, one of which had unlimited access to a running wheel throughout, were put through post-exercise memory tests. After training sessions, the mice in the exercising group scored almost twice as high as the other mice in a repeated memory test for a sugar reward. The sedentary mice got steadily worse at the test.

This evidence confirms what other studies have begun to show, which is that exercise triggers significant physiological and structural changes in the brain that can improve cognitive function and help prevent mental decline.

—Jon Finkel

* *Proc Natl Acad Sci U S A*. 2010 Jan 19.

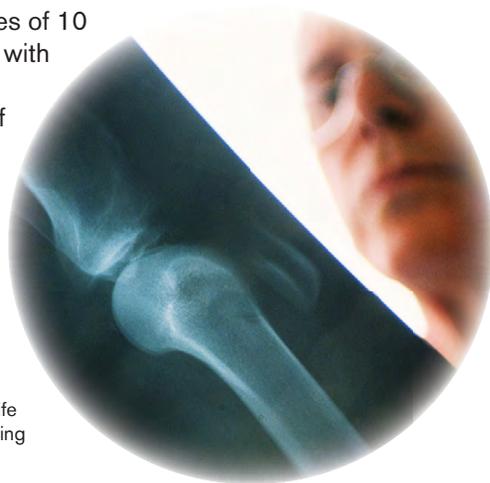
Calcium and Vitamin D Supplementation Reduces Fracture Risk Regardless of Age, Gender

The January 16, 2010 issue of the *British Medical Journal* reported the results of a review of seven clinical trials which found that supplementing daily with both calcium and vitamin D helps prevent bone fractures among men and women of all ages.*

An international team of scientists pooled data from 68,517 subjects for their analysis of randomized trials involving vitamin D supplementation. The combination vitamin D with calcium reduced overall fracture risk by 8%, and hip fracture risk by 16% compared to the risk experienced by those who did not receive the nutrients. Vitamin D supplementation alone in daily doses of 10 or 20 micrograms was not associated with significant benefits.

“Interestingly, this combination of supplements benefits both women and men of all ages, which is not something we fully expected to find,” noted Dr. John Robbins, who coauthored the article.

Editor’s note: The combination of calcium with vitamin D, such as are contained in Life Extension’s Calcium Citrate with Vitamin D and Bone Restore products, has long been recognized by Life Extension as necessary for bone maintenance during all of life’s stages.



—Dayna Dye

* *Br Med J*. 2010 Jan 16;340(7738).

Green Tea May Block Lung Cancer

A recent front-page news article on the British Broadcasting Corporation’s news web site claims that green tea may block lung cancer.* The article cited several cancer experts who spoke about a few specific studies that point to green tea’s cancer stopping effects. In particular, several lab studies have shown that extracts from green tea, called polyphenols, can stop cancer cells from growing.

The link between green tea being a beneficial weapon against cancer originated with the discovery that rates of many cancers are much lower in Asia, where green tea is a widely consumed drink, than other parts of the world.

Dr. I-Hsin Lin, of Shan Medical University found that among smokers and non-smokers, people who did not drink green tea were more than five times as likely to get lung cancer as those who drank at least one cup a day.



—Jon Finkel

* <http://news.bbc.co.uk/2/hi/health/8453628.stm>.



Does Your Pharmacy Care if You Live or Die?

Today's chain pharmacies have become drug-dispensing assembly lines. They fill whatever your doctor prescribes or insurance covers, regardless of what is best for your individual needs.

At **Life Extension Pharmacy™** we do things differently. We take advantage of our partnership with the Life Extension Foundation® for intimate knowledge of the peer-reviewed scientific literature about the prescription drugs you take ... including drug interactions, side effects, lower-cost alternatives, and, in some cases, safer and more effective ways to use your medications. It's our mission to preserve **your health and save you money.**

Our Independent Thinking

As well as offering advice on the safety and effectiveness of your prescriptions, our team of pharmacists also explains how they can work synergistically with nutrient and hormone supplements to keep you healthy.

Consider the anti-coagulant drug **Coumadin®** (warfarin) as an example. While most doctors advise patients who are taking **Coumadin®** to avoid vitamin K supplements and vitamin K-containing foods, recent research demonstrates that **Coumadin®** plus low-dose vitamin K supplements (around **45 mcg** a day) can achieve more stable measurement of blood clotting time (the INR test). Even more important is that Coumadin®'s horrendous **side effects** (accelerated atherosclerosis and bone loss) may be preventable in the presence of stable vitamin K levels in the body.

Another problem occurs with drugs prescribed to treat **prostate cancer** (such as **Lupron®**) that deplete the body of **testosterone**. Through our collaboration with the Life Extension Foundation, we can advise patients on the specific steps they should take to protect against the lethal "**Androgen Deprivation Syndrome.**"

Another example is the statin drug **Crestor®**. This high-priced medication is flying out of pharmacies across the country. But should it be? Recent studies reveal that it's not right for everyone who is taking it. Visit www.LifeExtensionRx.com/crestor for our in-depth analysis on the latest Crestor® study.

Tailored Services

So keep this in mind... the **Life Extension Pharmacy™** puts your **welfare first**. If a lower-cost drug may work better for you than an expensive brand name, we're going to recommend it. Combining the Life Extension Foundation's nutraceutical expertise with our pharmacists' in-depth knowledge of pharmaceuticals and customized prescription compounding, **Life Extension Pharmacy™** is committed to helping you get the very best results from your therapy.

Simvastatin 40-mg (90 Tablets)		
CVS Price \$154.99	Life Extension Rx Price \$21.23*	% Saved 86%
Glyburide 5-mg (90 Tablets)		
CVS Price \$33.59	Life Extension Rx Price \$13.06*	% Saved 61%

* Prices as of February 15, 2010. Prices subject to change.

Saving Your Money & Your Health

Life Extension Pharmacy™ offers a range of ways to save you money including low-cost compounded drugs, life-saving prescription drugs at greatly discounted prices, and practical suggestions on how to conserve your health care dollars. To see how much we can save you, look at our prices for the statin **simvastatin** and the antidiabetic drug **glyburide** compared with CVS in the table above!

**Super Low Prices
on Compounded Prescription Drugs**

LifeExtensionRx™
The right prescription for savings

Call 1-877-877-9700
today to fill a new prescription or
to transfer an existing one.

To find out how you may benefit by transferring your prescriptions, call **1-877-877-9700**.

Life Extension Pharmacy, Inc. is a licensed pharmacy based in Fort Lauderdale, FL. A portion of prescription proceeds goes to the Life Extension Foundation, a nonprofit organization.

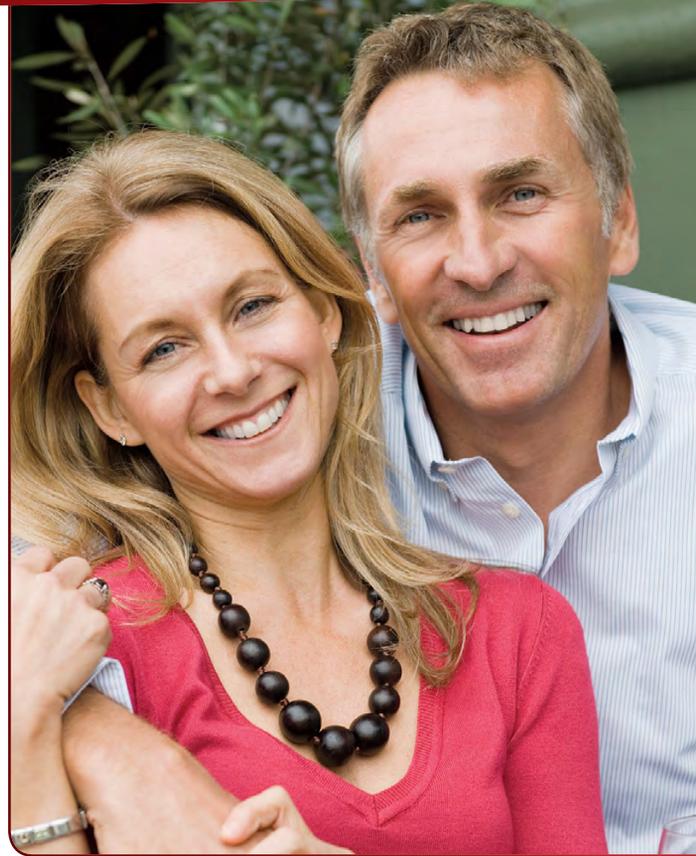
Fight Back Against Aging!

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** that helps protect delicate cellular structures and enables cells to perform life-sustaining metabolic processes.

MITOCHONDRIAL ENERGY OPTIMIZER 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 (Advanced Glycation End-Products or “AGEs”) 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
- **LUTEOLIN** Systemic inflammation is involved in most undesirable consequences of aging. Culprits behind **chronic inflammatory** reactions are pro-inflammatory **cytokines**, such as **interleukin-1** and **tumor necrosis factor alpha**. *Luteolin* is a super-potent plant extract that has been shown to modulate these dangerous inflammatory cytokines.⁶⁻¹¹
- **BENFOTIAMINE** Effectively modulates multiple destructive biochemical pathways, including AGEs’ formation pathway, which 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.¹²⁻¹⁴ Benfotiamine protects endothelial cell integrity from the effects of high glucose levels. In addition, benfotiamine exhibits direct antioxidative capacity and prevents induction of DNA damage.¹⁵
- **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.¹⁶⁻¹⁹
- **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.²⁰⁻²³
- **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.²⁴



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

A bottle of **Mitochondrial Energy Optimizer** containing **120 capsules** retails for \$86. If a member buys four bottles, the price is reduced to **\$58.50** per bottle.

Just four capsules of the Mitochondrial Energy Optimizer provide:

Carnosine.....	1000 mg
Acetyl-L-carnitine arginate DiHCl	700 mg
Bio-Enhanced® R-Lipoic acid	150 mg (microencapsulated)
Benfotiamine	150 mg
Pyridoxal 5'-Phosphate	100 mg
Luteolin.....	8 mg



ITEM #01368

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

To order Mitochondrial Energy Optimizer, 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. These products are not intended to diagnose, treat, cure, or prevent any disease.



Green Tea Extract

Large volumes of published **scientific findings** validate the multiple health benefits of **green tea**.

The active constituents in green tea are **polyphenols**, with **epigallocatechin-3-gallate (EGCG)** being the most powerful. The antioxidant activity of **EGCG** is about **25-100 times** more potent than **vitamins C and E**.

When Life Extension® introduced the first standardized **green tea extract** in **1993**, the supplement was very expensive. As more research was published about green tea's multifaceted benefits, more companies competed to make **higher-potency** extracts at lower prices.

The good news for consumers is that they can obtain **high-potency standardized** green tea extract capsules at a fraction of the prices charged just five years ago.

The Life Extension Foundation Buyers Club offers **98% green tea extracts** in either a **lightly caffeinated** or **decaffeinated** form. These **98%** extracts are standardized to provide high potencies of critical **EGCG**, the most important **polyphenol** found in green tea. Each capsule of **Mega Green Tea Extract** provides more polyphenols than are found in five cups of green tea.

These highly-concentrated **Mega Green Tea Extract Caps** contain **725 mg** of either **lightly caffeinated** or **decaffeinated** 98% standardized green tea extracts. The retail price for a **100-capsule bottle** of **Mega Green Tea Extract** is **\$28**.

If a member buys four bottles of 725-mg **Mega Green Tea Extract** capsules, the price is reduced to **\$19.88 per bottle**.

To order **Mega Green Tea Extract**,
call **1-800-544-4440**
or visit **www.LifeExtension.com**

Item #00953



Item #00954

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.

LARGEST SELECTION OF VITAMIN D SUPPLEMENTS

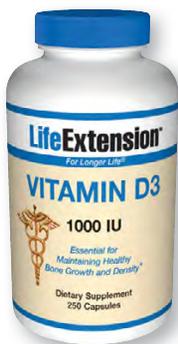
More studies have been published over the past four years supporting the health benefits of **vitamin D** than possibly any other compound.

The good news for consumers is that vitamin D is a very **low cost** supplement.

The objective of taking a vitamin D supplement is to achieve **25-hydroxyvitamin D** blood levels of **50 ng/mL** (and higher).

Life Extension's® exclusive analysis of over 13,000 **vitamin D** blood tests reveals that the minimum intake for most aging people should be around **7,000 IU** a day. Some individuals need **10,000 IU** of vitamin D daily.

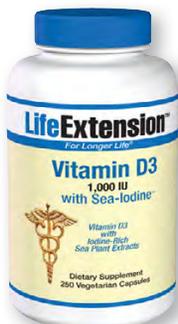
You can choose the right dose of **vitamin D3** for you from the large selection of vitamin D3 supplements below. Remember to factor in that you may be getting **1,000-3,000 IU** of vitamin D in multi-nutrient formulas you already take.



■ **Vitamin D3 1,000 IU • 250 capsules**
Retail: **\$12.50**

Four bottle Member Price: **\$8.44**

Commercial companies offered only **400 IU** vitamin D products when Life Extension long ago introduced this **1,000 IU** version. For most people, this 1000 IU potency is *insufficient* to attain optimal vitamin D blood levels. For smaller individuals who obtain **2,000-3,000 IU** in their multi-nutrient formulas (and children), this potency of vitamin D may be suitable. **Item# 00251**



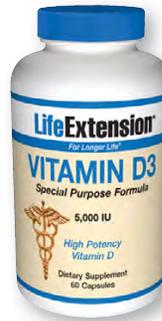
■ **Vitamin D3 1,000 IU with Sea-Iodine***
250 vegetarian capsules

Retail: **\$22**

Four bottle Member Price: **\$15**

Most people do not ingest enough vitamin D and iodine, especially those seeking to reduce their salt intake. Combining **vitamin D3** and **iodine** into one capsule makes taking these two nutrients economical and convenient. **Item# 01371**

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



■ **Vitamin D3 5,000 IU • 60 capsules**
Retail: **\$11**

Four bottle Member Price: **\$7.43**

For those obtaining **1,000-3,000 IU** of vitamin D in their multi-nutrient formulas, this **5,000 IU** potency is what most need to *achieve* optimal vitamin D blood levels. **Item# 00713**

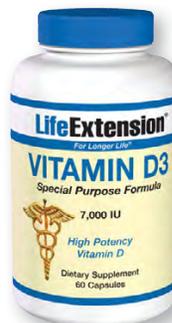


■ **Vitamin D3 5,000 IU with Sea-Iodine***
60 vegetarian capsules

Retail: **\$14**

Four bottle Member Price: **\$9.38**

Most people do not ingest enough vitamin D and iodine, especially those seeking to reduce their salt intake. Combining **5,000 IU** of **vitamin D3** and **1,000 IU** of **iodine** into one capsule make taking these two nutrients economical and convenient. **Item# 01372**



■ **Vitamin D3 7,000 IU • 60 capsules**
Retail: **\$14**

Four bottle Member Price: **\$9.45**

Some individuals (such as those weighing more than 180 pounds) may require higher potencies of vitamin D. When combined with **1,000-3,000 IU** obtained from multi-nutrient formulas, this **7,000 IU vitamin D3** capsule should enable these individuals to attain **25-hydroxyvitamin D** blood levels above the desired range of **50 ng/mL**. **Item# 01418**



■ **Vitamin D3 Liquid Emulsion 2,000 IU • 1 ounce**
Retail: **\$28**

Four bottle Member Price: **\$18.75**

For those rare individuals who have difficulty absorbing enough vitamin D3 from powdered capsules, this liquid emulsion of vitamin D can be used. **Item# 00864**

CAUTION: Individuals consuming more than 2,000 IU/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxyvitamin D measurement. Do not exceed 10,000 IU per day unless recommended by your doctor. Vitamin D supplementation is not recommended for individuals with hypercalcemia (high blood calcium levels). People with kidney disease, certain medical conditions (such as hyperparathyroidism or sarcoidosis), and those who use cardiac glycosides (digoxin) or thiazide diuretics should consult a physician before using supplemental vitamin D.

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

Beyond Conventional Antioxidants

For decades, health-conscious consumers relied on conventional antioxidants (such as vitamins E and C) to help suppress damaging free radicals.

While thousands of published studies support the benefits of conventional antioxidants, scientists have discovered that extracts from brightly colored fruits and vegetables possess far greater antioxidant capacity.¹⁻³

In fact, human epidemiological studies show that those who regularly consume these potent plant-based *polyphenols* and *anthocyanins* remain far healthier in their advanced years.

So, if you're not eating the recommended five servings of fruits and vegetables a day, in particular the dark-skinned varieties, you could be lacking optimal antioxidant protection against toxic free radicals.

High-ORAC Score Fruits and Vegetables

To measure the antioxidant strengths of food and other substances, scientists use what is called the ORAC score. A higher score means the food is better at protecting the body's cells from free radical-induced damage. So, the higher a food's ORAC score, as in dark-skinned fruits and vegetables, the better it is for you. However, problems with availability, the perishable nature, and the cost of obtaining a wide variety of high-ORAC fruits and vegetables on a daily basis mean they are often difficult to get in the typical American diet.

Superior Antioxidant Protection

To overcome these issues, Life Extension has developed new Berry Complete formula to provide a concentrated blend of fruit and vegetable extracts that have some of the highest ORAC scores around. Each capsule is packed with scientifically proven polyphenols and anthocyanins from seasonal and perishable fruits and legumes that are typically the highest in ORAC values.

Just one capsule provides the antioxidant capacity of **more than 50%** of the daily recommended five a day intake of fruits and vegetables.

Berry Complete therefore provides an affordable way of getting powerful antioxidant protection from a variety of colorful fruits and vegetables into your diet to help fight free radical damage and promote healthy aging. A bottle containing 30 vegetarian capsules of **Berry Complete** retails for \$21. If a member buys four bottles, the cost is only **\$14 per bottle**.

The New Berry Complete

Each capsule provides 400 mg of a high ORAC antioxidant blend of fruit, vegetable, and legume standardized extracts and concentrated powders from:

- Blackcurrant
- Blackberry
- Elderberry
- Wild blueberry
- Wild bilberry
- Sweet cherry
- Tart cherry
- Acai
- Aronia
- Raspberry and raspberry seed
- Grape and grape seed
- Cranberry
- Prune
- Strawberry
- Pomegranate
- Black soybean hull
- Blue corn



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To order Berry Complete, call 1-800-544-4440
or visit www.lifeextension.com



ITEM# 01206





Getting Your Beauty Sleep with *Topical* Melatonin

BY GARY GOLDFADEN, MD AND ROBERT GOLDFADEN

The failure to get a good night's sleep affects nearly every system in our bodies, including the body's largest organ—the skin. The signs of sleep deprivation are often written all over our faces—from bags under the eyes to wrinkles and furrows to lack of skin tone—all of which can contribute to premature skin aging.

Scientific studies show that the restorative power of sleep is vital for rejuvenating and repairing the skin and is controlled by the hormone melatonin. However, as melatonin levels decline with age, only miniscule amounts of the small quantities produced by those suffering from sleep problems actually reach the skin. Fortunately, going straight to the source and applying melatonin directly to the skin will allow those suffering from insomnia to benefit from its rejuvenating powers for restoring the appearance and texture of skin. > >

We spend one-third of our lives sleeping. A common problem as people get older, however, is not experiencing the same level of restorative sleep as they did in their youth. Research shows that a good night's sleep is not just essential for a healthy mind, but a healthy body too. Sleep debt has been shown to hasten the onset of diseases such as type 2 diabetes and obesity,¹ and to reduce immunity.² Whatever the cause of insomnia, research suggests that it also impairs our beauty sleep by not allowing skin cells to repair themselves from the wear and tear of the day.³

The sleep/wake cycle that controls the body's clock is influenced by the master hormone melatonin, which is secreted cyclically from the pineal gland in the brain in response to the amount of light hitting our eyes. Melatonin keeps us in sync with the rhythms of the day and the season. In humans, melatonin secretion increases soon after the onset of darkness, peaks in the middle of the night (between 2 and 4 am), and gradually falls during the second half of the night.⁴

Feeling unrested in the morning or drowsy during the day can be a signal of sleep deprivation. According to a National Institutes of Health Consensus Statement, about 30% of American adults have some symptoms of insomnia within a given year, while approximately 10% have associated symptoms of daytime functional impairment.⁵ The prevalence of insomnia is also reported to be higher among women and older people.⁵ This may not be surprising since melatonin levels decrease dramatically and predictably with aging,⁶⁻⁸ with about 30% of people over the age of 50 experiencing some degree of insomnia.⁹



A Good Night's Sleep

Fortunately, melatonin supplementation can help to reset our biological clock. The timing and intensity of melatonin levels plays a role in many neuroendocrine functions. In fact, melatonin is closely linked with aging, stress/cortisol levels, jet lag, mood swings, and sleep patterns. Because of its ability to regulate day-night cycles, melatonin has been shown to be effective as a sleep aid in many people.

A meta-analysis of 17 studies concluded that melatonin supplementation decreases sleep latency (the time it takes to fall asleep) while increasing sleep efficiency and total sleep duration.¹⁰ Supplementation with melatonin has been found to be particularly helpful for elderly people suffering from insomnia,¹¹ with 0.3 mg of melatonin before bedtime improving their sleep compared with a control group.⁹

Melatonin has also shown promise in treating a variety of sleep disorders, of which the best studied is jet lag,¹² by effectively helping people adjust to new time zones. In addition, melatonin appears to produce sedation in some people that compares favorably to conventional pharmaceuticals used for inducing sleep—without impairing mental function.¹³

Declining Melatonin Levels and the Skin

Scientists have recently discovered that the skin contains melatonin receptors, which suggests that melatonin also plays an important role in regulating skin function and structure.¹⁴ People with reduced melatonin secretion not only suffer from insomnia, but are unable to benefit from its effects in the rest of the body. To make matters worse, since the skin does not have as intense a network of blood circulation as other organs such as the brain, what little melatonin is produced has a hard time reaching the skin, which may compromise skin integrity.

While the skin protects itself against multiple environmental and endogenous stressors during the day, scientists have recently discovered that during the nighttime hours, the skin springs into action to repair itself and get back into balance through a restorative and renewal process.³ Indeed, so much hormonal activity occurs in the skin that it is often referred to as another endocrine gland. It is believed that an altered rhythm and low levels of melatonin secretion in this localized system may play a role in the etiology and treatment of several common skin disorders, for example, atopic eczema and psoriasis.¹⁵ Melatonin is also believed to protect against certain cancers^{15,16} by a variety of mechanisms.

Melatonin plays a key role in rejuvenating skin through its interactions with major skin cells such as keratinocytes and fibroblasts. Melatonin protects keratinocytes against cell death, while stimulating the growth of fibroblasts.¹⁷ Fibroblasts produce the essential proteins collagen and elastin, which provide structural support for the skin. As we age, these fibroblast cells start to develop dramatic mitochondrial dysfunction,¹⁸ rendering them less able to produce enough energy to fulfill their role in supporting the skin. This is borne out in animal research showing that a deficiency in melatonin reduces skin thickness, increases lipid peroxidation, and induces skin degenerative changes—all of which have been shown to be improved with melatonin treatment.¹⁹

Melatonin has also been found to be effective against skin aging.¹⁹ It has powerful antioxidant properties by quenching mainly hydroxyl radicals, the most damaging of all radicals.¹⁵ In addition, research shows that pretreating human skin with topical melatonin can confer strong protection against ultraviolet (UV) light-induced erythema (sunburn)²⁰ by suppressing oxidative damage. Studies also show that while sleep deprivation can delay wound healing,²¹ topical treatment with melatonin can improve the quality of wound healing and scar formation.²²

Benefits of Topical Melatonin

While oral melatonin supplements can improve sleep in most people, melatonin appears in rather low levels in the blood due to prominent first-pass degradation in the liver, which can limit skin access.¹⁴ The efficacy of melatonin as a topical agent offers a promising avenue to enhance the skin's nightly repair cycle. Researchers have found that melatonin penetrates into the stratum corneum (the outer layer of skin)²³ and accumulates there due to its distinct lipophilic chemical structure, reinforcing the skin's capacity for repair, renewal, and revitalization during the night.

Fortunately, very low concentrations of melatonin are needed to penetrate into the skin.²³ Melatonin's chemical structure is such that it passes through cell membranes with relative ease,²⁴ especially when its permeation can be enhanced with agents that reduce its lag time into the skin.

The quest for such agents has shown methylsulfonylmethane (MSM) to be an effective permeation enhancer.²⁵ It is used in a variety of conditions to minimize pain and inflammation²⁶ since it can easily penetrate through cellular membranes,²⁷ including the skin, carrying along with it any substance that can be absorbed into the skin, such as melatonin.



What You Need to Know

Getting Your Beauty Sleep with Topical Melatonin

- Poor sleep adversely affects nearly every system of the body, including its largest organ—the skin.
- Inadequate sleep can lead to bags under the eyes, wrinkles and furrows, and poor skin tone, contributing to premature aging.
- The hormone melatonin is responsible for regulating sleep-wake cycles and plays a key role in skin repair and renewal. Aging and sleep disturbances can decrease the body's production of melatonin.
- Topical application of melatonin rejuvenates the skin through numerous mechanisms, including fighting free radicals, providing photoprotection, and supporting skin healing.
- Other topical agents including methylsulfonylmethane (MSM), gamma-aminobutyric acid (GABA), vitamins C and E, and specialized tea extracts complement melatonin's effects in promoting nightly skin repair.



MSM is also a unique and natural source of sulfur, which is a crucial component of the body's connective tissues. It is believed that exogenous MSM gives up its sulfur to essential amino acids and serum proteins, thus providing key functional and structural roles in these molecules. In addition, MSM is rated as one of the least toxic substances in biology, having been shown to be safe in animal and human studies.²⁶

Relaxing and Calming Ingredient

The effectiveness of melatonin in the skin can also be enhanced with agents that relax the body before sleep. Gamma-aminobutyric acid (GABA) is a key inhibitory amino acid that the body relies on to combat stress and remain in a serene state when faced with overstimulation. GABA exerts its actions through the same anti-anxiety receptors that are targets for drugs such as Valium® and is the most widespread and important inhibitory neurotransmitter in the brain. Considered as the brain's natural sedative, a recent study shows that supplementing with GABA can balance the excitability that can lead to restlessness, anxiety, and other disruptive conditions.²⁸

Protecting and Firming the Skin

Combining melatonin, MSM, and GABA with peptides and classic anti-aging nutrients such as vitamins C and E can help optimize the skin's renewal and repair cycle while firming skin and providing powerful antioxidant protection.

Vitamins C and E work together in providing antioxidant protection and supporting collagen synthesis

to preserve and restore skin health. Studies show that these antioxidants are depleted in aged and photoaged skin. In photoaged skin, for example, vitamin C levels are only **69%** of young skin levels in the epidermis and **63%** in the dermis. Naturally aged skin contains **61%** of youthful vitamin C skin levels in the epidermis, while the dermis retains about **70%** of youthful levels. A similar trend is seen for vitamin E levels, which are significantly lower in the epidermis of photoaged and naturally aged skin, compared with young skin.²⁹ Applying vitamin E topically can protect against free radicals generated by solar radiation as well as preserve vitamin E levels in the skin.³⁰ Studies with topical vitamin C on photoaged skin show significant improvement in wrinkling correlated with evidence of new collagen formation³¹ and other clinical parameters such as tactile roughness, skin tone, and sallowness/yellowing as well as subjective improvement.³²

Antioxidant Tea Benefits

As well as vitamins C and E, the potent natural antioxidants found in white, green, black, and red tea extracts^{33,34} can help protect skin from the aging effects of inflammation and oxidative stress. Red tea, in particular, is a powerful source of antioxidants,³⁴ while green tea provides the protective strength of epigallocatechin gallate (EGCG) to guard skin from the dangers of UV exposure and DNA damage.³⁵ Furthermore, tea extracts are excellent sources of vitamin C activity.³⁶ Vitamin C may contribute to the formation of new collagen,³⁷ improving both the tone and structure of the skin.

Combination Skin Rejuvenation

When combined and applied topically as a cream, melatonin, GABA, MSM, vitamins C and E, and specialized tea extracts offer a unique solution to maximize the skin's nightly repair cycle. These innovative ingredients provide powerful antioxidant protection while complementing each other in renewing the skin. ●

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

Gary Goldfaden, MD, a clinical dermatologist and lifetime member of the American Academy of Dermatology, is founder of Academy Dermatology in Hollywood, FL, and COSMESIS Skin Care. He is also a member of the Life Extension Scientific Advisory Board.

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RESVERATROL ^{PLUS} PTEROSTILBENE IN ONE FORMULA!

In 2003, the **Life Extension Foundation**® introduced a purified **resveratrol** supplement that was later documented to favorably alter some of the changes in gene expression that cause us to age.

In 2009, CBS News **60 Minutes** featured an in-depth report on the multiple benefits that resveratrol may confer in slowing and even reversing certain aspects of aging.

What differentiates **Life Extension**®'s resveratrol: It provides 100% **standardized trans-resveratrol** plus a full spectrum of natural compounds from the grape that have demonstrated remarkable biological properties. Most products currently on the market contain varying quantities of **trans-** and **cis-resveratrol**, and fail to provide enough **trans-resveratrol** for optimal results. In addition, **Life Extension** has added **pterostilbene**, which researchers have found works in a **synergistic** fashion with resveratrol to activate one's "longevity genes."

Research funded by Life Extension has shown that a combination of low-dose (20 mg) **resveratrol** plus **grapeseed extract** induced many of the favorable **gene expression** changes seen in **calorie-restricted** animals. Other studies, however, have indicated that **higher doses** may be needed to obtain all of resveratrol's positive benefits including:

- **Improved Insulin Sensitivity**
- **Enhanced Mitochondrial Function**
- **Reduced Expression of Inflammatory Factors**
- **Protection Against the Toxic Effects of a High-Fat Diet**

CBS News and its affiliates are not connected with Life Extension® in any way, and do not endorse or sponsor its products.

Life Extension has meticulously evaluated published studies on **resveratrol** and **pterostilbene** to establish doses people might need to take to duplicate these remarkable laboratory findings. The results of Life Extension's analysis yield a wide range of potentially effective doses of resveratrol and pterostilbene.

Highest Potency Resveratrol

The resveratrol *potency* you choose may be based on your current state of health and/or your desire to personally reach the upper limits of a healthy human life span. Life Extension offers a wide range of standardized **trans-resveratrol** potencies in combination with **pterostilbene** (which also favorably alters gene expression), **quercetin**, and other grape phytonutrients.

Optimized Resveratrol with Pterostilbene and the **new Calorie Restriction Mimetic Formula** provide the highest dosage of **trans-resveratrol** as well as a broad array of grape polyphenols, quercetin and **pterostilbene**.

All these Resveratrol Products are fortified with Pterostilbene!



Item #01413

Resveratrol with Pterostilbene

Provides **20 mg** of **trans-resveratrol** plus 120 mg of quercetin to facilitate resveratrol absorption. Pterostilbene content (125 mcg) equivalent to over **5 cups** of **blueberries**. Recommended dosage is 1 capsule daily with or without food. Each bottle contains 60 vegetarian capsules.

Retail Price: \$24

FOUR-BOTTLE MEMBER PRICE:

>> \$16.50 PER BOTTLE

(See each product description for amount of pterostilbene.)

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



Item #01411

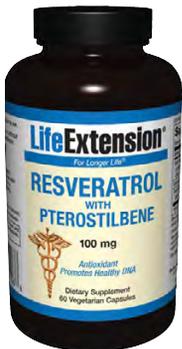
GrapeSeed Extract with Resveratrol & Pterostilbene

Provides **20 mg** of *trans*-resveratrol plus 100 mg of grapeseed extract. Pterostilbene content (125 mcg) equivalent to over **5 cups** of **blueberries**. Recommended dosage is 1 capsule daily with or without food. Each bottle contains 60 vegetarian capsules.

Retail Price: \$36

FOUR-BOTTLE MEMBER PRICE:

>> \$25.50 PER BOTTLE



Item #01410

Resveratrol with Pterostilbene

Provides **100 mg** of *trans*-resveratrol plus 120 mg of quercetin to facilitate resveratrol absorption. Pterostilbene content (250 mcg) equivalent to over **10 cups** of **blueberries**. Recommended dosage is 1 capsule daily with or without food. Each bottle contains 60 vegetarian capsules.

Retail Price: \$36

FOUR-BOTTLE MEMBER PRICE:

>> \$24 PER BOTTLE



Item #01409

Optimized Resveratrol with Pterostilbene

Provides in one capsule **250 mg** of *trans*-resveratrol, 85 mg of grape plant polyphenols plus quercetin. Pterostilbene content (500 mcg) equivalent to over **20 cups** of **blueberries**. Recommended dosage is 1 capsule daily with or without food. Each bottle contains 60 vegetarian capsules.

Retail Price: \$46

FOUR-BOTTLE MEMBER PRICE:

>> \$31 PER BOTTLE

The Most Potent RESVERATROL-PTEROSTILBENE Formula

Among the most promising of **caloric restriction mimics** and enhancers are **resveratrol**, **pterostilbene**, **quercetin**, and **grape seed polyphenols**, along with **black tea extract**. These nutrients have been shown to generate many of the same effects in the body as caloric restriction, without significant dietary modification.¹⁻⁸ In particular, they help “mimic” caloric restriction’s favorable impact on **genes** that influence the aging process.¹⁻⁸

Calorie Restriction Mimetic Formula includes **resveratrol**, higher levels of **pterostilbene** and **quercetin** plus, **grape seed polyphenols**, and **black tea extract** to provide broad-spectrum gene expression support in one nutritional compound.

Two capsules of **Calorie Restriction Mimetic Formula** provide:

Trans-Resveratrol	250 mg
Trans-Pterostilbene	3 mg
Quercetin	150 mg
Black tea extract	300 mg
Grape seed polyphenols	50 mg



Item #01419

Each bottle contains 60 vegetarian capsules of the new **Calorie Restriction Mimetic Formula**.

Retail Price: \$36

FOUR-BOTTLE MEMBER PRICE:

>> \$24.75 PER BOTTLE

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To order these **Resveratrol products** or the new **Calorie Restriction Mimetic Formula**, call **1-800-544-4440** or visit **www.LifeExtension.com**

THE WIDEST SELECTION OF MELATONIN SUPPLEMENTS

Melatonin 300-mcg

100 capsules

Retail \$5.75 • Members \$4.31

ITEM# 00547

Melatonin 300-mcg

100 time-release capsules

Retail \$6.25 • Members \$4.69

ITEM# 00546

Melatonin 500-mcg

200 capsules

Retail \$16 • Members \$12

ITEM# 00328

Melatonin 750-mcg

60 time-release capsules

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ITEM# 00540

Melatonin 1-mg

60 capsules

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ITEM# 00329

Melatonin 3-mg

60 capsules

Retail \$8 • Members \$6

ITEM# 00330

Melatonin 3-mg

60 dissolve-in-mouth lozenges

Retail \$8 • Members \$6

ITEM# 00332

Melatonin 3-mg

60 time-release capsules

Retail \$10.50 • Members \$7.88

ITEM# 00333

Natural Sleep 3-mg

60 capsules

Retail \$12.99 • Members \$9.74

ITEM# 00990

Natural Sleep Melatonin 5-mg

60 time-release capsules

Retail \$18 • Members \$13.50

ITEM# 00277

Melatonin 10-mg

60 capsules

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ITEM# 00331



The Life Extension Foundation® was the first organization to introduce melatonin to Americans in 1992. Since then, this low-cost supplement has been touted in several best-selling books and hundreds of published scientific papers.

The wide spectrum of dosage units (300 mcg to 10 mg) enables you to choose your ideal dose. Melatonin should be taken within 30-60 minutes of going to sleep.

To order any of these premium-grade melatonin supplements, call **1-800-544-4440**, or visit www.lifeextension.com

Cautions: Women seeking to become pregnant or who are pregnant should not use melatonin because high doses are being used in Europe as a birth-control pill. If melatonin causes you to wake up too drowsy, take less melatonin. If melatonin makes you feel more blue, reduce the dose or eliminate it altogether.

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

New Advanced Formula

Melatonin Cream

A Unique Blend to Awaken Your Natural Beauty

Numerous culprits are responsible for the leathery, wrinkled, graying complexion associated with aging. Now you can **replenish** your skin to regain the glow of youth with new **Melatonin Cream**.

Formulated by renowned dermatologist Gary Goldfaden, MD, this quenching blend includes a select variety of **natural skin rejuvenators** and **essential beauty factors** for supple, firm, radiant skin.

As the body's largest organ, your skin suffers most *visibly* from the stresses of modern living and the ravages of time. The unsightly creases, furrows, and dark circles that result can add years to your appearance.

Melatonin Cream offers a simple way to counter these issues and naturally restore your intrinsic beauty.

Just apply to a clean, dry area on any part of the body and rub in well at night. In addition to **melatonin**, its proprietary combination of ingredients includes:

- **MSM** (Methylsulfonylmethane). A unique, natural, efficient source of the sulfur that is used by many of the body's molecules. MSM easily penetrates the skin's cell membranes.^{1,2}
- **Vitamin C and E**. Two of nature's most powerful antioxidants to help rejuvenate aging skin.^{3,5}
- **Tea Extracts**. High-grade compounds derived from **white, green, black, and red tea** to help offset visible aging effects associated with oxidative stress.⁶⁻¹¹

Combining these beautifying factors helps you maintain that youthful, energized, and radiant look at any age.

A 1 oz jar of **Melatonin Cream** retails for \$28. If a member buys two jars, the price is reduced to just **\$17.25**.

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Item #80135



To order **Melatonin Cream**
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BY VICTORIA DOLBY TOEWS, MPH

Halt the Vicious Cycle of **Urinary Tract Infections**

Novel Next-Generation Antimicrobial Protection

You may be surprised to learn that urinary tract infections (UTIs) are the most common form of bacterial infection, accounting for **7 million** office visits, **1 million** emergency room visits, and **100,000** hospitalizations each year, at an estimated annual cost of **\$1.6 billion** to the American public.¹ One third of all women will contract a UTI by the age of 24.¹ Once a woman has contracted a UTI, her risk of recurrence is **20%**.²

Conventional medicine typically calls for aggressive treatment with broad-spectrum antibiotics, including *trimethoprim*, *cephalexin*, or *ciprofloxacin* (Cipro®). The deleterious effects of these drugs on women's health are *notorious*: fatigue, nausea, digestive distress, secondary infection, and the eventual evolution of resistant bacterial strains *imperious* to even the most powerful antibiotics.

In a little-known development, new data have emerged on a **low-cost, natural intervention** that until recently was available only in Europe. This extract from the *Hibiscus sabdariffa* flower not only exerts direct **anti-bacterial** action against microorganisms that cause UTIs,³ but it has also been shown to suppress the fungus responsible for common **yeast** infestations.

The natural compounds in **hibiscus** complement the already well-documented efficacy of **cranberry**.^{4,5} In women suffering from chronic UTIs (more than **8 infections per year**), **200 mg of hibiscus** per day reduced UTI recurrence by a remarkable **77%**.⁶

In this article, you will discover exciting new research on the power of these natural, complementary agents and their unique ability to halt the painful cycle of UTIs. > >



A Dangerous Affliction

The female anatomy (with a shorter urethra) provides an easy route for harmful bacteria to *migrate* into the urinary tract.

In general, UTIs originate from the transfer of bacteria—most often *Escherichia coli* from the GI tract—from the anus to the urethra, where they attach to mucosal cells along the urinary tract, colonize, and proliferate. *E. coli* is the causal agent in **80-95%** of acute, non-complicated UTIs. *Staphylococcus saprophyticus* accounts for most of the remainder.

Harmful bacteria can travel up the urethra, take hold within the **bladder**, and ultimately ascend into the **kidneys**. Left unchecked, this can lead to a condition known as **pyelonephritis**, or kidney infection. Acute pyelonephritis is characterized by shaking chills, flank pain, high fever, and pain in the muscles and joints. Chronic pyelonephritis is a longstanding form of kidney inflammation with symptoms that may be so mild that they go unnoticed. This carries the risk

that the infectious inflammatory disease may go undetected as it slowly progresses over many years, until there is enough deterioration to produce kidney failure. In severe cases, pyelonephritis may progress to **sepsis** (a potentially fatal, whole-body infection of the tissue and bloodstream).

A vicious *cycle* of repeated infection may also take hold. Many women develop multiple UTIs annually. They are typically administered antibiotics with each infection.

This may induce unwanted and potentially **dangerous** side effects, ranging from rash, nausea, dizziness, and the destruction of beneficial microflora in the body that leads to yeast infections (candidiasis). Disorders of the digestive tract, including diarrhea, **colitis** (inflammation of the colon), and **abdominal pain** are also commonplace. Women often require further medication to treat the secondary *yeast* infection that results from antibiotics; these anti-fungal medications may produce even more unwanted, detrimental side effects.

The result is a taxing pharmaceutical onslaught that can take an enormous toll on women's health and well being over time. So-called "superinfections" may even develop—powerfully resistant strains of bacteria that antibiotics are powerless to stop.

For this reason, preventing the **initial bacterial invasion** of the urethra represents a crucial point of intervention in the progress of UTIs. By *inhibiting* bacterial adhesion to the urethral lining at this early stage, an infection cannot take root.

Powerful Protection with Proanthocyanidins

Cranberry is the best-known natural preventive option for frequent UTIs. It first emerged as an effective intervention for bladder and urinary tract health in the early twentieth century. Scientists speculated that the **benzoic acid** in cranberries was metabolized to hippuric acid and excreted in the urine, which prevented bacterial growth by creating an acidic environment in the bladder.

Since then a wealth of clinical data have detailed the precise mechanism by which certain constituent components of the whole cranberry act to powerfully counter UTI onset.⁷⁻¹⁰ The most recent studies do not indicate a change in urine pH brought about by cranberries (meaning they do not *acidify* urine). Instead, cranberry's antimicrobial action arises from a class of flavonoids called **proanthocyanidins** (PACs). In addition to exerting potent antioxidant effects, cranberry PACs block bacteria from taking hold of the cells lining the urinary tract.

The surfaces of *E. coli* and many other bacteria are covered with motile, tendril-like structures called *fimbriae*. The fimbria acts as a kind of tentacle, enabling bacteria to “grab onto” other microorganisms, inanimate objects and—most importantly—host cells. A single bacterium may possess as many as 1,000 fimbriae. It is this feature that renders *E. coli* and other species endowed with fimbriae—including *Staphylococcus saprophyticus*, *Salmonella*, and *Helicobacter pylori*—especially virulent and infectious. They employ these structures to latch onto cells in the mucous membranes at multiple sites of the body and initiate a debilitating and potentially *lethal* proliferation.

A 2009 study demonstrated conclusively that cranberry PACs provoke disabling *alterations* in the fimbriae and other surface properties of the *E. coli* bacterium, vastly diminishing its capacity to attach *specifically* to the surface of the cells lining the urinary tract.⁷

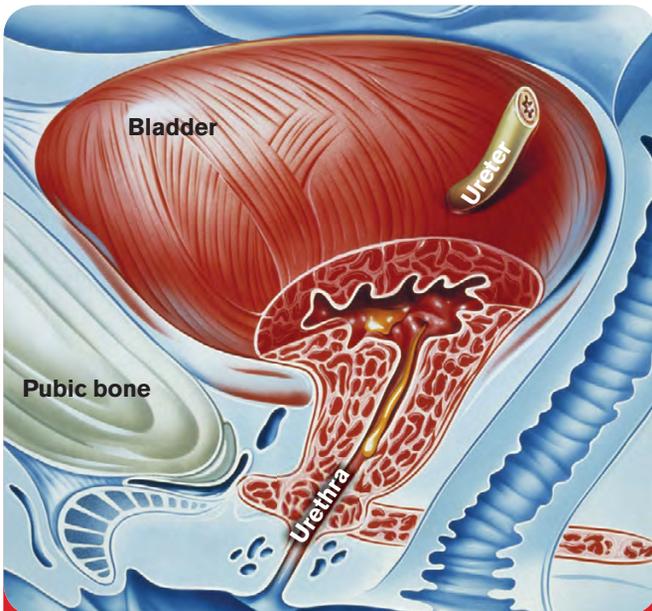
This process, known as *bacteriostasis*, prevents harmful bacteria from colonizing the urinary tract. Instead, they are flushed from the urethra during the natural voiding process.

The bacteriostatic effect of cranberry and its extracts has been well documented.^{11,12} Just **400-500 mg of cranberry extract** has been shown to deprive deleterious microbes of their ability to attach to the mucous membrane and colonize the urinary tract.^{4,5}



Halt the Cycle of Urinary Tract Infections

- Urinary tract infections (UTIs) are the most common form of bacterial infection.
- One third of all women will contract a UTI by the age of 24. Once a woman has contracted a UTI, her risk of recurrence is 20%.
- The proanthocyanidins in cranberry help prevent UTIs, and have been shown to powerfully inhibit *E. coli* from adhering to the urinary tract.
- Cranberry is particularly beneficial in preventing recurrent UTIs in women who tend to get multiple UTIs each year.
- Studies show that cranberry extract in pill form is more economical than drinking large quantities of 100% cranberry juice.
- *Hibiscus sabdariffa*, a novel extract recently available only in Europe, prevents UTI-causing bacteria from adhering to the linings of the urinary tract and bladder wall.
- Equally rich in bacteriostatic polyphenols—including the flavonoid gossypetin—hibiscus possesses profound anti-microbial effects.
- Hibiscus may exhibit **bacteriocidal** (bacteria-killing) properties comparable to the antibiotic **chloramphenicol** without the antibiotic's side effect profile.
- In the laboratory, hibiscus has a stronger antimicrobial effect than cranberry, particularly against *Candida albicans*.
- The combination of cranberry and hibiscus may provide a synergistic UTI intervention, providing bacteriostatic/bacteriocidal compounds in high concentrations.



The bladder (red) stores urine (yellow) before its expulsion from the body through the urethra (red, right center). Urine drains into the bladder from the kidneys (not seen) through the two ureters (one shown, upper right).



In examination of women plagued with recurrent bladder infections (6 or more in the prior year), cranberry extract (**200 mg** twice daily) completely eliminated UTI incidence. Women who continued cranberry supplementation remained **infection-free** during the next two years.⁵ Similar benefits were also revealed in a study of children with chronic UTIs.¹³

Cranberry beverages can also be effective. In one study, occurrence of UTIs was **slashed by half** in women consuming cranberry juice (250 mL, or about 8 ounces) three times daily and in women consuming cranberry extract twice daily.¹⁴ Recent clinical data further indicate that cranberries may also prevent UTIs in adult women at high risk for urinary infections. Researchers have recorded that older women who consumed 300 mL (about 10 ounces) of a cranberry beverage daily experienced only **42%** of the risk of UTI of women who consumed a placebo.¹⁵

Women who fall prey to the vicious cycle of chronic UTIs may wind up on low-dose antibiotics for months—or even years. The good news is that *this may not be necessary*. In 2009, a group of researchers compared antibiotics head-to-head with

daily supplements of cranberry extract in women suffering from recurrent infection.¹⁶ Cranberry (**500 mg**) and antibiotics (100 mg trimethoprin) were shown to be *almost equally effective* in preventing UTIs. Although cranberry was slightly outperformed, it posed none of the many dangers of antibiotics.

A further and often overlooked advantage of cranberry extract is cost. In a novel cost effectiveness study, researchers from the University of British Columbia calculated that the amount needed to *obtain* cranberry's full bacteriostatic benefit would cost less than half as much in extract form compared to juice.¹⁴ Cranberry must be taken daily to prevent UTIs, requiring at least 16 ounces of unsweetened, 100% cranberry juice every day. Low cost one-per-day *extracts* are also available.

A Potent New UTI Intervention

Native to Africa and Asia, *Hibiscus sabdariffa* has been used in some cultures to support bladder and kidney health. Traditional African practitioners use tea brewed from hibiscus calyxes (the green floral envelope of the blossom) as an acidic and anti-bacterial, both to acidify and deodorize urine and protect against UTIs and kidney stone formation.

Hibiscus boasts a range of powerful compounds that prevent *E. coli* from adhering to the urinary tract

In 2009, a group of researchers compared antibiotics head-to-head with daily supplements of cranberry extract in women suffering from recurrent infection.¹⁶ Cranberry (**500 mg**) and antibiotics (100 mg trimethoprin) were shown to be *almost equally effective* in preventing UTIs.

and bladder wall linings. Both the flower and calyx are abundant in bacteriostatic polyphenols, including **flavonoids**, **sambubiosides**, and **proanthocyanidins**. In particular, the flavonoid **gossypetin** (3,5,7,8,3',4'-hexahydroxy flavone) found in hibiscus has been identified as a distinct antimicrobial compound with powerful effects.³ Together these natural agents have been shown to *inhibit* the activity of a host of microbes responsible for UTIs, including *E. coli*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa*. In fact, hibiscus's mode of *prophylaxis* (prevention) and high concentration of bacteriostatic compounds may exert **bacteriocidal** (bacteria-killing) effects comparable to the antibiotic **chloramphenicol**—with *none* of the risks.

In a double-blind, placebo-controlled, clinical trial, women taking hibiscus experienced a **77%** reduction

in UTIs.⁶ Sixty-one women participated in the 6-month study, and 59 women completed the entire study. All of them had a history of frequent UTIs (more than four per year, including one or more in the three months prior to the start of the study). The women were randomly assigned to one of three groups receiving a daily dose of **200 mg of hibiscus extract** standardized to **90% polyphenols**; **200 mg of hibiscus extract** standardized to **60% polyphenols**; or placebo. Compared to the control group, women taking the hibiscus concentrations experienced a **77% decrease** in infections, as well as overall improvement in urinary comfort.

According to *in vitro* research, hibiscus also reduces contamination of both *E. coli* and *Candida albicans*, the fungus responsible for yeast infections.^{3,17,18} The antimicrobial effect was found to be immediate and complete after only one day. In addition, when hibiscus was compared to cranberry *in vitro*, the hibiscus had a stronger antimicrobial effect, particularly against *Candida albicans*.¹⁹

Hibiscus's bacteriostatic/bacteriocidal compounds are excreted through urine in high concentrations, enabling them to reach the bladder and urinary tract intact, where they *disable* infectious bacteria.²⁰



Summary

Urinary tract infections (UTIs) are the most common form of bacterial infection, accounting for 7 million office visits, 1 million emergency room visits, and 100,000 hospitalizations each year, with an estimated cost of \$1.6 billion annually. One third of all women will contract a UTI by the age of 24. Once a woman has contracted a UTI, her risk of recurrence is 20%.

The proanthocyanidins in cranberry effectively prevent UTIs by blocking *E. coli* from adhering to the urinary tract and bladder. Cranberry is especially effective for women who endure numerous UTIs annually. Studies show that cranberry extract in pill form is more economical than drinking large quantities of 100% cranberry juice.

Like cranberry, extract of *Hibiscus sabdariffa* prevents bacteria that cause UTIs from adhering to the linings of the urinary tract and bladder wall and may also possess bacteriocidal effects. Abundant in polyphenolic compounds, hibiscus may exhibit **bacteriocidal** (bacteria-killing) properties comparable to the antibiotic **chloramphenicol**—without the antibiotic's side effect profile. When compared to cranberry *in vitro*, hibiscus had a stronger antimicrobial effect, particularly against *Candida albicans*. ●

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

Victoria Dolby Toews, MPH has been a health journalist since 1993; her latest book is *The Green Tea Book*, second edition (Penguin, 2007).

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30 YEARS OF CLINICAL EVIDENCE BRINGS LONG-AWAITED RELIEF

It is estimated that *half* of all women in the United States will develop unsightly veins by age 50.¹ While dermatologists often suggest surgery to correct this “age-related” issue, European women have enjoyed access to a **natural solution for 30 years!**

Life Extension® offers American women the same extract *without* a prescription. No more compression bandages or stockings. Instead, experience the same beautifying effects European women have been raving about for three decades—**naturally!**

Derived from the sweet orange, **European Leg Solution featuring Certified Diosmin 95** contains a plant-based nutrient called *diosmin* and is available in a vegetarian tablet.

MICRONIZED FOR GREATER EFFECTIVENESS

In order to derive any significant benefit, bioactive diosmin extract **must be able to reach veins directly.**

Life Extension®’s proprietary extract undergoes a complex, highly refined process called **micronization**. It yields the only *form* of diosmin clinically proven to support healthy vascular function in the legs.^{1,2}

This scientifically controlled, multi-phase technique *radically reduces* the size of the standard diosmin particles contained in each tablet, from **37 microns** to less than **2 microns**. The result is an optimally bioavailable standardized extract. This ensures rapid, efficient delivery of diosmin to the bloodstream, enabling enhanced *penetration* of the delicate inner lining of the veins.

As with so many “age-related” conditions, *inflammation*³ is the chief culprit behind the presence of unsightly veins. Inflammatory responses are *precipitated* by the interaction between white blood cells and the endothelial lining.

Life Extension’s **European Leg Solution featuring Certified Diosmin 95** offers effective protection **by disrupting this inflammatory response.**

THE PREFERRED TREATMENT AMONG EUROPEAN WOMEN FOR BEAUTIFUL LEGS IS HERE

Life Extension’s **European Leg Solution featuring Certified Diosmin 95** provides the same pharmaceutical grade extract used by millions throughout Europe. The retail price for a bottle containing 30 600-mg vegetarian tablets is \$20. If a member buys four bottles, the cost is only **\$13.50** per bottle.

Item #01042



Six Ways Life Extension’s European Leg Solution featuring Certified Diosmin 95 Works for You

1. Maintains healthy blood flow through your capillaries—the most *fragile* of your blood vessels.
2. Maintains tone and elasticity of your veins—the key to sustained vascular health.
3. Eases the effects of circulating cytokines that promote inflammation.
4. Safeguards collagen and elastin against oxidative damage.
5. Enjoys an outstanding safety record.
6. Produces results in just **1–2 weeks**, with a single **600 mg** tablet taken each morning.²

*Product not for sale outside the United States.

To order European Leg Solution featuring Certified Diosmin 95,
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.





Heart Healthy **SUPER** **Omega-3**

Fish Oil Blend with Sesame Lignans and a MORE Concentrated Olive Fruit Extract

A Comprehensive Essential Fatty Acid Formula

An abundance of scientific research substantiates the wide-ranging health benefits, including promoting a healthy heart, of **omega-3 fatty acids** in fish oil and **monounsaturated fatty acids-polyphenols** in olive fruit.¹⁻⁹

SUPER OMEGA-3 from Life Extension® uses a patented EPA/DHA extraction process that results in a pure, stable and easy-to-tolerate **fish oil extract**.

While most fish oil is distilled to decrease contaminants such as mercury and PCBs, the **Pure +™** fish oil used in **Super Omega-3** is produced with a patented method that purifies the oil with a highly advanced *distillation process* to reduce pollutants to virtually undetectable levels. The result is an improved **fish oil** that *exceeds* the standards set by international rating agencies.

Sesame Lignans Enhance Fish Oil's *In Vivo* Effects

The *unstable* nature of fatty acids like fish oil limits their biological efficacy in the body. Scientific studies show that when **sesame lignans** are supplemented with fish oil, the beneficial effects are augmented.¹⁰

Sesame lignans help guard against **lipid peroxidation**, thereby extending the stability of **DHA** in the body. These **lignans** also direct fatty acids toward pathways which can help with inflammatory reactions. **Super Omega-3** provides standardized **sesame lignans** to enhance the overall benefits of the improved EPA/DHA fish oil blend.

New Higher Potency Standardized Olive Fruit

To emulate a Mediterranean diet, **Super Omega-3** provides a standardized **olive fruit extract** to deliver the polyphenol **hydroxytyrosol**, a powerful antioxidant that protects normal **LDL** from oxidation and counters dangerous free radicals.¹¹⁻¹⁴ Research shows that a combination of olive oil and fish oil supplements helps with inflammation better than a placebo or fish oil alone.¹⁵ Therefore, Super Omega-3 provides the equivalent polyphenol content of **6 ounces of Extra Virgin Olive Oil**.

Super Omega-3 provides a new, higher concentration **olive fruit extract** standardized for **hydroxytyrosol**, **tyrosol** and **oleuropein** polyphenols. Research shows the value of **oleuropein** in favorably altering gene expression, delaying senescence in specialized skin cells, and helping maintain normal platelet activation.

Life Extension's **Super Omega-3** is a fish oil concentrate that contains a *full-spectrum blend* of *synergistic* nutrients, providing a product of the utmost quality to produce optimal effects.

Super Omega-3 is certified to contain no detectable levels of mercury, arsenic, lead, cadmium, and other toxic metals by the International Fish Oil Standards (IFOS™). This product meets or exceeds IFOS™ standards for PCBs, dioxins, and other contaminants, and thus has received its highest 5-star rating.

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.

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

go-3

EPA/DHA

Two softgels should be taken twice daily with meals. A bottle of 120 softgels of **SUPER OMEGA-3 EPA/DHA with Sesame Lignans and 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 price per bottle is reduced to only **\$18.68**. *Item# 01482*

For those with a sensitive stomach, Super Omega-3 is now also available with enteric coating and retails for \$34. If a member buys four bottles, the price is reduced to **\$23.25 per bottle**. If **10 bottles** are purchased, the price per bottle is reduced to only **\$21**. *Item# 01484*

To order the most advanced fish oil supplement, **Super Omega-3 EPA/DHA with Sesame Lignans and MORE Olive Fruit Extract ... with or without enteric coating ... call 1-800-544-4440 or visit www.LifeExtension.com**

Supportive but not conclusive evidence shows that **consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease.**

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

Upgraded Formula!

Just four softgels of **SUPER OMEGA-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract** provide:

EPA Pure+™ Extract	1400 mg
(eicosapentaenoic acid)	
DHA Pure+™ Extract	1000 mg
(docosahexaenoic acid)	
Olive Fruit Extract	600 mg
[standardized to 1.5% hydroxytyrosol (9 mg), 0.7% oleuropein (4.2 mg), 0.5% verbascoside (3 mg) and 0.23% tyrosol (1.4 mg)]	
Sesame seed lignan extract	20 mg



Item #01482

Item #01484

Ease Joint Discomfort With Arthro-Immune Joint Support

Effectively
Combat Inflammation



One capsule provides:

BCM-95® Bio-Curcumin® Extract	250 mg
PARACTIN® Andrographis Extract.....	150 mg

Inflammatory conditions debilitate millions of adults, resulting in *restricted mobility* and *reduced strength*. **Inflamed joints** can lead to *extensive damage* to surrounding connective tissues, which causes the hands, feet, and arms to become painful, swollen and stiff.

While conventional methods can produce side effects, **Arthro-Immune Joint Support** from Life Extension® combines two clinically proven plant extracts into one powerful formula to help those suffering from inflammation.

Andrographis paniculata has received acclaim for its beneficial effect on inflammation.¹ A Chilean study involved 60 adults who took either 150 mg **andrographis extract** a day or a placebo. Those taking the extract showed *dramatic improvement* of several outcomes, **including fewer numbers of tender and/or swollen joints**. For joints that remained tender and/or swollen, the intensity was lessened.²

Curcumin is a compound that is universally recognized for its impressive *antioxidant* and *fluid-regulating* properties. In an as-yet-unpublished double-blind clinical trial, an enhanced absorbing curcumin was shown to have a beneficial effect on inflammation.³

Life Extension's **Arthro-Immune Joint Support** contains **PARACTIN® Andrographis extract**, which has been used in clinical, animal and *in vitro* studies that have demonstrated

its efficacy in *combating* inflammation. It also contains **BCM-95® Bio-Curcumin®**, which is considered the *gold standard curcumin*, with bioavailability *far superior* to that of most curcumin extracts.

Life Extension's **Arthro-Immune Joint Support** provides scientifically validated plant extracts that have been shown to have significant salutary effects on tender or swollen joints. **Just one** capsule a day provides a potent serving of **PARACTIN®** and **BCM-95® Bio-Curcumin®**. A bottle of 60 capsules retails for \$30. When a member buys four bottles, the price is reduced to only **\$20.25 per bottle**.

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, consult your health care provider before taking this product.

BCM-95® and Bio-Curcumin® are registered trademarks of Dolcas-Biotech, LLC. PARACTIN® is a registered trademark of HP Ingredients.

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To order **Arthro-Immune Joint Support**,
call **1-800-544-4440**
or visit **www.LifeExtension.com**

NEXT-GENERATION FORMULA

Optimized Cran-Max[®] with UTIRose[™]

Featuring a Novel High-Concentration *Hibiscus Polyphenol Blend*



The anatomy of the female **urinary tract** differs greatly from men, resulting in the need for additional nutritional support for women.

A wealth of published studies indicates that **cranberry polyphenols** may help to support a healthy urinary tract.¹⁻⁵

Of particular importance is the flavonoid content of the cranberry, including **anthocyanins** and **proanthocyanidins**. These natural compounds exert powerful antioxidant effects that can reduce oxidative stress.

Recent clinical data suggest that the proanthocyanidins found only in cranberries also possess **unique** molecular features that specifically promote urinary system health.⁶⁻⁸

A Synergistic Compound Available Only in Europe—Until Now

In a significant advance, **Life Extension[®]** has identified a unique compound available overseas but little-known in the United States that provides a **synergistic complement** to the whole cranberry's phytonutrient profile.

UTIRose[™] is derived from ***Hibiscus sabdariffa***, a species native to Europe, Asia, and Africa. Scientific analysis has shown that this species' flower and calyx (the green floral envelope surrounding the blossom) are rich in active polyphenols, including **flavonoids**, **sambubiosides**, and **proanthocyanidins**.

Of special importance is a flavonoid found in *Hibiscus sabdariffa* called **gossypetin** (3,5,7,8,3', 4'-hexahydroxy flavone), which has been shown to provide support for urinary system health.⁹

Life Extension[®] uses a unique, patented process in the manufacture of Optimized Cran-Max[®] with UTIRose[™]. Each daily serving supplies the complete phenolic profile of the whole cranberry *plus* hibiscus polyphenols in a standardized, highly absorbable, *concentrated* form. Two capsules of Optimized Cran-Max[®] with UTIRose[™] contains:

UTIRose[™] (<i>Hibiscus sabdariffa</i>) extract (flower, calyx)	200 mg
Cran-Max[®] Cranberry infused whole fruit extract	500 mg

The suggested daily amount of Cran-Max[®] in this formula alone (500 mg) was demonstrated to provide the **anthocyanin** equivalent of **seven 8 oz glasses** of Ocean Spray[®] Cranberry Juice Cocktail.¹⁰

The price for one bottle of **Optimized Cran-Max[®] with UTIRose[™]** containing 60 vegetarian capsules is \$18. If a member buys four bottles, the price is reduced to **\$12 per bottle**.

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Item #01424



To order the new **Optimized Cran-Max[®] with UTIRose[™]**,
call **1-800-544-4440** or visit **www.LifeExtension.com**

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Circulating Tumor Cell Assays: A Major Advance in CANCER TREATMENT

BY STEVEN NEMEROFF, ND

Scientists have discovered a test that can *revolutionize* the way doctors evaluate and treat a cancer patient. This technology involves the detection and genetic assay of **circulating tumor cells** in the bloodstream.

These **circulating tumor cells** are the metastatic *seeds* that can break away from the primary site of cancer, and spread to other parts of the body. Understanding circulating tumor cells is critically important, since it is the spread of cancer to other parts of the body—and **not the primary cancer**—that is often responsible for the death of a person with cancer.

Up until now, medical science has been focused on the primary tumor, basing treatment decisions on the specific characteristics of the primary cancer cells. However, circulating tumor cells can be genetically *different* from the primary cancer. Treatments designed to attack the primary tumor could fail to destroy the circulating tumor cells.

Here, we'll examine **circulating tumor cell assays** and the *great potential* this technology offers to advance the medical approach to cancer. The basic **circulating tumor cell (CTC)** assays you'll learn about in this article are available in the United States and provide important data as it relates to how an individual's cancer is treated. The **Cleveland Clinic** has recognized this CTC test as the top medical innovation for the year 2009.

A more *advanced* version of the **CTC** test is available by sending one's blood to Germany, where a *genetic analysis* is performed to identify the expression of therapeutic targets and chemo-resistance markers *unique to an individual's circulating tumor cells*. That test will be described in the second article, but read this article first so you understand the powerful prognostic value of circulating tumor cell (CTC) blood testing. > >

Moving From the Present to the Future

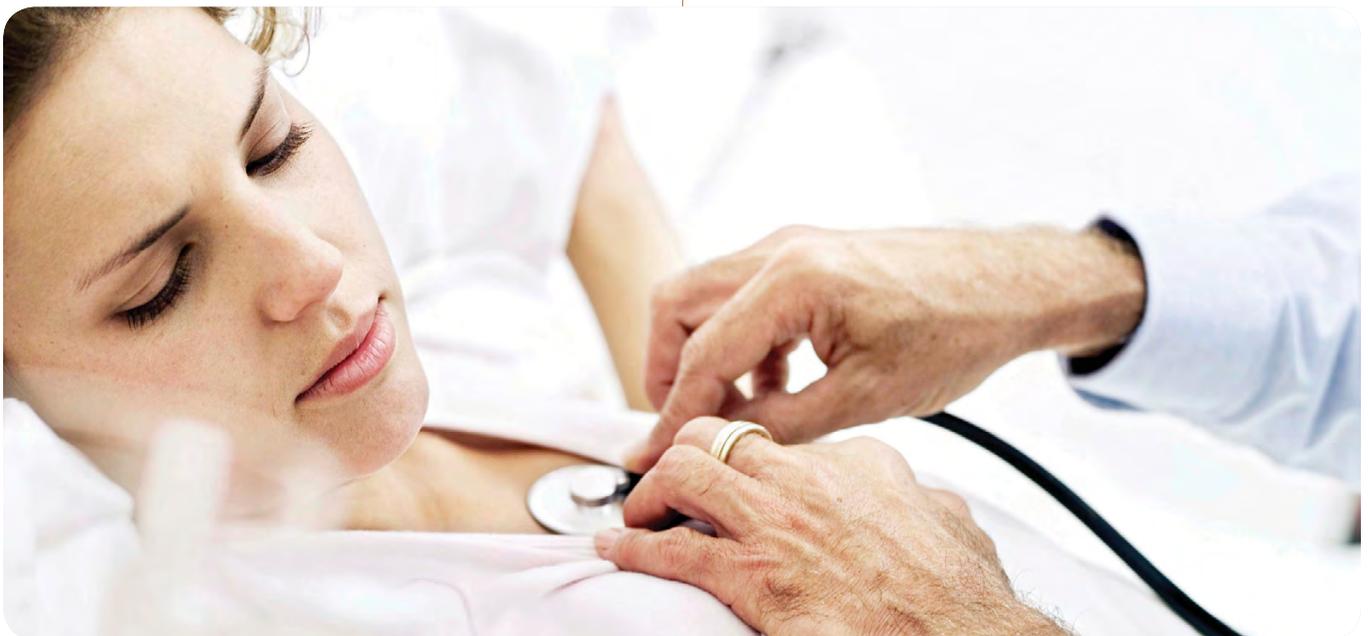
The conventional approach to cancer has been to focus on the primary tumor. For example, with breast cancer the emphasis has been to examine the breast tumor for specific markers, such as estrogen receptor status and HER2 status. Treatment decisions are then made based on the presence or absence of these markers in the primary tumor. However, this approach may be misguided as research has demonstrated that circulating tumor cells (CTC) can be genetically different from the cancer cells in the primary tumor. One example is a study¹ in which 37% of breast cancer patients had CTC that were positive for HER2, even though their primary breast tumor was negative for HER2! Another study provided similar findings.² This research suggests that directing treatment towards the cancer cells of the primary tumor can, in some cases, be “barking up the wrong tree.” For this reason, focusing on the metastatic cancer cells could lead to better results. CTC testing provides us with the means with which we can now focus our attention on these potential metastatic cancer cells.

Improving Prognostic Accuracy with Circulating Tumor Cells

A crucial step in evaluating a cancer patient relies on establishing an accurate prognosis, which provides a prediction of the probable course and outcome of the disease. With a correct prognosis in hand, doctors can then design the most appropriate treatment for a person’s cancer.

Currently, the ability to provide an accurate prognosis is far from perfect. To investigate if circulating tumor cell (CTC) testing can improve prognostic accuracy, German scientists studied 35 women with non-metastatic breast cancer who had their levels of CTC measured before they had received any treatment for their cancer.² Of these patients, 17 tested positive for CTC, while 18 tested negative for CTC. When the researchers looked at the prognoses of the two groups they found striking differences. The group that tested negative for CTC had a median overall survival of 125 months. The group with 5 or more CTC present in their blood had a median overall survival of only 61 months! The difference in survival of over 5 years between the two groups reveals the great importance that the presence and number of CTC had on the prognoses of this group of women with breast cancer. The findings of this study can have huge implications in how treatment is tailored for the individual with breast cancer. A key issue in breast cancer treatment is distinguishing at the outset which women have cancers that are low risk that do not require intensive treatment, and which women have a high risk of metastasis that requires aggressive treatment. This study provides a glimpse into the potential of CTC testing to provide a more accurate prognosis to allow doctors to distinguish high-risk from low-risk breast cancer patients.

In a related study, researchers at the University of Texas M. D. Anderson Cancer Center measured CTC in 151 women with metastatic breast cancer.³ These patients were also evaluated for other prognostic cancer markers, such as hormone receptor status, CA 27.29 (a blood marker that helps to measure the degree



of breast cancer metastatic activity), and HER2 status. Those who had 5 or more circulating tumor cells (CTC) had a median overall survival of 13½ months. The median overall survival for those with less than 5 CTC was over 29 months. The researchers also discovered that the presence of 5 or more CTC had the highest predictive value compared to all other tumor markers! The researchers went on to boldly state that “circulating tumor cells have superior and independent prognostic value...”

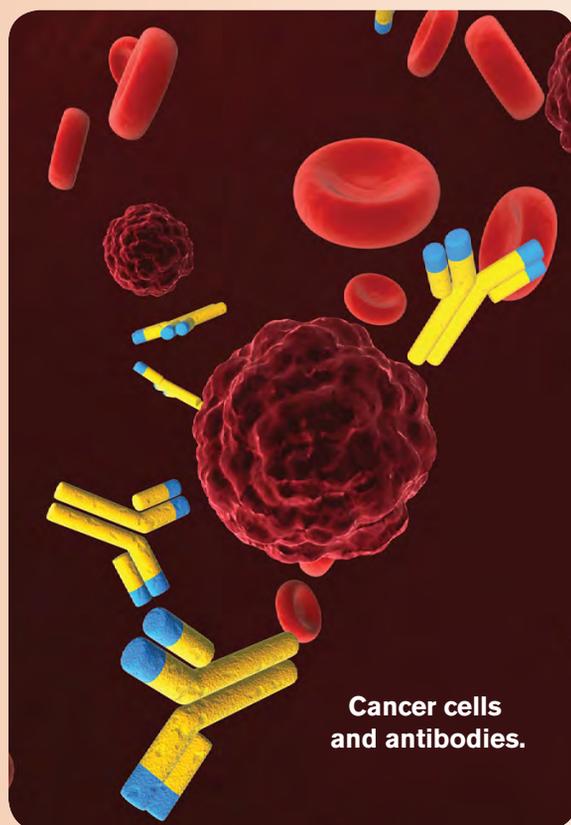
Furthermore, recent research indicates that CTC evaluation can be used to predict prognosis for men with prostate cancer. Researchers at Thomas Jefferson University compared the levels of CTC in 37 men with metastatic prostate cancer. Their findings were remarkable—for the men with 5 or more CTC, the median overall survival was only 8.4 months. For those men with less than 5 CTC the median overall survival was 48 months!⁴ Yet another study measured CTC in 55 men with a rising PSA after surgery for prostate cancer.⁵ A rising PSA after surgery is strongly predictive of prostate cancer recurrence.⁶ Radiation therapy was administered to 15 patients. Of these prostate cancer patients, 60% who were CTC positive had progression of their disease during radiation therapy, while there were *no disease progressions* in the CTC negative group!⁵ Additional studies have confirmed these results.⁷⁻⁸

Predicting Who Will Benefit from Prostate Cancer Surgery

A central issue that men with prostate cancer, and their doctors, face is deciding if surgery (or other therapy) to eradicate the prostate is the best course of action. Surgery is most indicated when there is a strong likelihood that it will be curative. This is generally the case when the cancer is confined to the prostate gland.

Potential surgical failure can occur when the cancer has spread beyond the prostate gland. In this situation, surgery is not likely to cure the disease and many doctors will not recommend surgery.

Unfortunately, the surgeon often does not know the extent of the cancer before surgery is performed. However, in a landmark study, scientists at Columbia University in New York have discovered that CTC testing can predict which men with prostate cancer are likely to benefit from surgery.⁹ In this study, 138 men with prostate cancer scheduled for surgery to remove the prostate were tested for the presence of CTC in their blood. An eye-opening finding revealed that the men who were CTC positive were 12 times more likely to experience a potential surgical failure compared to

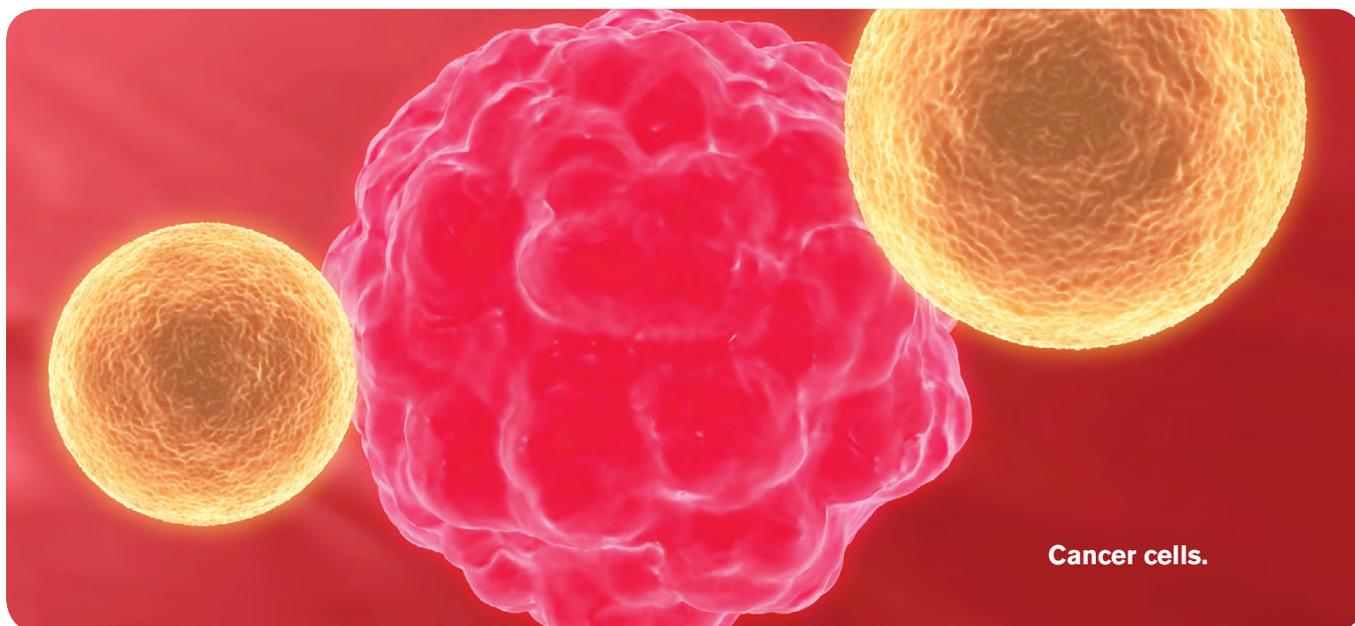


Cancer cells and antibodies.

What You Need to Know

Circulating Tumor Cell (CTC) Assays

- Doctors and scientists have identified a test that promises to revolutionize the evaluation and treatment of cancer.
- By detecting the number of circulating tumor cells (CTC) in the bloodstream, doctors can gain important information about a patient's prognosis, which can be used to guide treatment decisions.
- Greater numbers of CTC in the blood have been linked with increased risk of metastasis as well as poorer prognosis and survival.
- CTC assays may offer higher predictive value than many commonly utilized tests such as measurements of hormone receptor status, CA 27.29, and imaging studies.
- Monitoring CTC levels may also provide valuable information about the efficacy of treatment and the risk of recurrence.



Cancer cells.

those who were CTC negative. Moreover, the scientists determined that CTC status was superior to PSA levels and Gleason score at predicting potential surgical failure. In fact, every single person who was CTC positive with a PSA greater than 10 ng/mL had potential surgical failure. This compares to 76% of patients who were surgically cured with a PSA greater than 10 and who were CTC negative! All in all, CTC negative patients had an 87% chance for a surgical cure. The authors remarked that *“this assay might be a useful criterion in the counseling...of patients on the value of surgical treatment for prostate cancer.”*

Circulating Tumor Cells Superior to Imaging Tests

Researchers have also discovered that CTC evaluation may be more accurate than standard imaging tests at predicting the prognoses of metastatic breast cancer patients. Traditionally, imaging tests have been used to evaluate the effectiveness of treatment in those with metastatic breast cancer. The response to treatment is often determined by measuring changes in tumor size with CT and MRI scans. In a groundbreaking study performed in 2006, metastatic breast cancer patients had imaging tests done before and 10 weeks after they began therapy.¹⁰ The results of the imaging tests were reviewed by two independent radiologists. CTC were measured 4 weeks after the start of therapy. The researcher’s find-

ings were astonishing—the group that responded to treatment based on imaging tests (i.e., the tumors got smaller) and had 5 or more CTC had a worse prognosis than the group with CTC counts less than 5 that showed worsening of their disease on imaging studies! These findings suggest that the levels of CTC were far more important at predicting survival compared to the actual visual changes noted on imaging tests. Further analysis established that CTC testing had superior reproducibility compared to imaging studies. There was a 15% disagreement in the interpretation of the imaging tests between the two radiologists, compared to less than 1% variation in the results of CTC testing. The authors of this study declared that *“this advantage in reproducibility implies that inaccurate disease status evaluations and inappropriate treatment decisions are less likely with the use of the CTC assay than with radiographic studies.”* They went on to enthusiastically conclude that *“the assessment of CTCs has several advantages over serial radiographic evaluation. The CTC assay is more reproducible than radiographic evaluation, shows useful results at an earlier time point than do radiologic studies, and seems to be a more robust predictor of survival than is radiographic response.”*

Researchers have also discovered that CTC evaluation may be more accurate than standard imaging tests at predicting the prognoses of metastatic breast cancer patients.

Circulating Tumor Cells Predict Treatment Effectiveness

One of the most exciting potential uses of CTC technology is to allow doctors to evaluate treatment effectiveness during the early phase of therapy. Historically, cancer treatment decisions have been based on the results of large studies comparing the effectiveness of different treatment regimens. These studies have shown which treatments are statistically likely to produce the best results for a large number of people. However, these treatment guidelines do not predict how an *individual* person with cancer will respond to a given treatment.

For many cancer patients, the course of the disease, and the response to treatment, can be highly unpredictable. One person might have an excellent response to a given chemotherapy regimen, while for another person the same regimen might not have any effect at all. For this reason, it is extremely important to have the ability to quickly evaluate a person's response to treatment. Ideally, doctors would obtain this information during the early course of therapy. If the cancer is not responding to treatment then appropriate treatment changes can be made. Another very important consideration is the significant toxicity that is associated with cancer treatment. If it can be determined that a treatment is ineffective during the early stage of therapy, then the treatment can be discontinued before it can cause severe toxicity.

Up until now, doctors have often had to wait at least a few months before they can assess the effectiveness of treatment. This inability to evaluate a treatment's efficacy during the early phase of therapy can have disastrous consequences for the person with cancer. Those three months of waiting to know if the treatment is working can make the difference between altering therapy to reflect the lack of response, or continuing with an ineffective treatment and allowing the cancer to progress. This waiting may become a thing of the past, as recent studies have demonstrated that CTC testing can reliably predict the response to treatment during the early phase of therapy.

In an important study,¹¹ 163 women with metastatic breast cancer were tested for CTC at baseline and at four different times during the course of treatment. The researchers discovered that those patients with less than 5 CTC at the first measurement had a median overall survival of greater than 18.5 months. Those with 5 or more CTC had a median overall survival of only 7 months. As early as 4 weeks into therapy, CTC testing determined which patients were not responding and whose cancer would continue to progress with ineffective treatment.

The authors of this study concluded that "detection of elevated CTC at any time during therapy is an accurate indication of subsequent rapid disease progression and mortality for metastatic breast cancer patients."

In a related study,¹⁰ 138 women with metastatic breast cancer had CTC measured 4 weeks after the start of therapy. The median overall survival for those with 5 or more CTC was 8.5 months. Those with a CTC count less than 5 had a substantially greater median overall survival time of 22.6 months! Also, 84% of those with a CTC count less than 5 were alive after one year, compared to only 38% for those with a CTC count of 5 or more. The findings of these studies illustrate the tremendous potential of CTC testing to accurately predict the effectiveness of treatment during the early stage of therapy.

Circulating Tumor Cells Predict Risk of Relapse

One of the most important questions a person has after they receive treatment for their breast cancer is, "What is the likelihood that I will have a relapse?" Although statistical predictions for relapse can be made for large groups of people, this is a question that doctors are not able to answer with great accuracy for the individual woman with breast cancer.

However, a growing number of studies have revealed that CTC testing can accurately predict the likelihood of recurrence in breast cancer patients after they receive treatment.





In 2006, scientists in Spain measured the presence of CTC in 84 high-risk breast cancer patients after they received initial chemotherapy.¹² The researchers found dramatic differences in the relapse rates between those who tested positive for CTC, as compared to those that did not have any CTC detected in their blood. The group testing positive for CTC had a 269% increased risk of relapse, and a **300% increased risk of death**, compared to the group testing negative for CTC! Further analysis showed a striking 53 month difference in the time to relapse between the groups.

In a related study,¹³ German scientists in 2008 studied 25 women with breast cancer that had not metastasized. They measured CTC levels before and after the patients received chemotherapy. The results showed that relapse occurred in **less than 10%** of patients whose CTC levels indicated a decline, no change, or minor increase when compared to baseline CTC levels. There was a substantially higher relapse rate of 40% in the group with a CTC increase at the end of therapy.

The same German scientists then completed a study of 91 non-metastatic breast cancer patients receiving chemotherapy.¹⁴ Measurements of CTC were taken before, during, and after the completion of chemotherapy. After a follow-up period of 40 months, 20 of the women had experienced a relapse. The investigators determined that the group with a greater than 10-fold decrease in CTC after treatment had a relapse rate of only 3.6%! The group that experienced a greater than 10-fold increase in CTC after treatment experienced an alarming relapse rate of 42.4%. The

results of this study can have far-reaching implications for breast cancer patients in the future, as those with a greater than 10-fold increase in CTC after therapy are at much higher risk of relapse and might be candidates for more aggressive treatment. These researchers concluded that "... circulating tumor cells are influenced by systemic chemotherapy and that an increase... of 10-fold or more at the end of therapy is a strong predictor of relapse and a surrogate marker for the aggressiveness of the tumor cells."

Summary

A number of studies have demonstrated the impressive ability of CTC testing to provide essential information for cancer patients at various stages during their evaluation and treatment. CTC testing can improve prognostic accuracy, predict risk of relapse after treatment, and allow doctors to monitor treatment effectiveness in real time.

As we look into the future of cancer assessment and treatment, it's easy to see how CTC testing will allow us to move beyond the traditional focus on the primary tumor. Major advances can occur as medical science focuses on CTC and targets treatments against the specific characteristics of these cells. Fortunately, the person dealing with cancer does not have to wait for the future, as CTC testing is available now for those who want to take advantage of this new technology and benefit from the vital information this testing provides.

To inquire about laboratories that offer circulating tumor cell (CTC) assay blood tests in the United States, call 1-800-208-3444. (Information about the more advanced CTC/molecular analysis tests available in Germany appears in the next article.) ●

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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Achieve Multiple Health Benefits From Highly Absorbable Curcumin

How Much Curcumin Are You Absorbing?

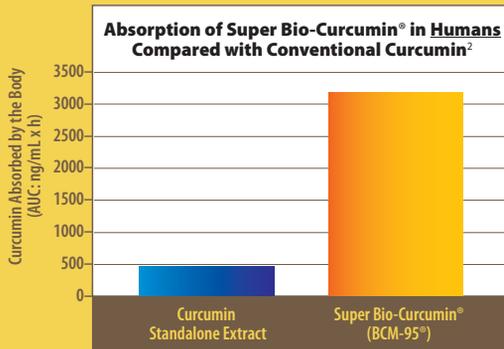


Chart 1. Super Bio-Curcumin® (BCM-95®) showed 6.9 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with conventional curcumin (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over 8 hours).

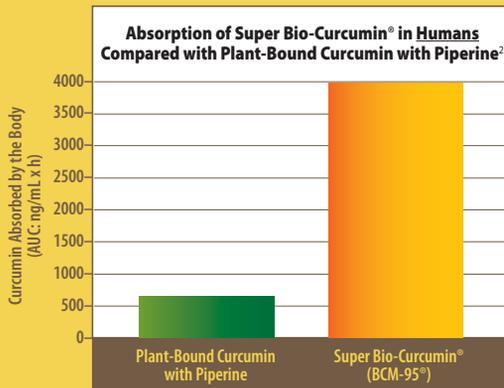


Chart 2. Super Bio-Curcumin® (BCM-95®) showed 6.3 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with plant-bound curcumin with piperine (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over 8 hours).

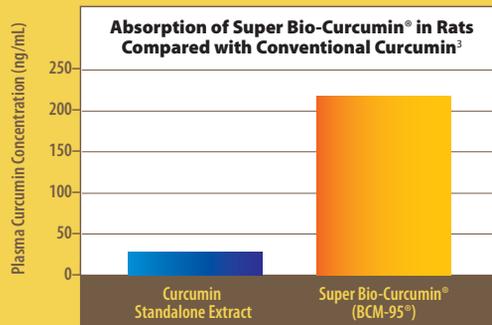


Chart 3. Bioavailability in rats fed with BCM-95® is 7.8 times higher than conventional curcumin.

Curcumin and other *turmeric* constituents are impressing scientists around the world with their remarkable health benefits, such as suppressing inflammatory factors, fighting free radicals, and promoting healthy DNA function. The problem is that curcumin is *poorly* absorbed into the bloodstream.

Super Bio-Curcumin® has been shown to **absorb up to seven times better** than conventional curcumin. This patent-pending formula thus represents the most cost-effective way to supplement with this critical nutrient.^{1,2}

The remarkable absorption studies charted to the left reveal that just one 400 mg capsule a day of this turmeric compound can provide *curcumin* blood levels equivalent to ingesting **2,500–2,800 mg** of commercial curcumin supplements.

Not only does this novel turmeric formulation provide far greater *peak* blood levels, but the curcumin also remains in the bloodstream almost **twice as long** compared with conventional supplements.

What's more, this enhanced absorption delivery complex provides other beneficial turmeric compounds in addition to standardized *curcumin*.

SUPER BIO-CURCUMIN® WITH BCM-95®



ITEM #00407

Life Extension's **Super Bio-Curcumin®** contains the patent-pending BCM-95® turmeric compound. A bottle containing 60 **Super Bio-Curcumin® with BCM-95®** capsules retails for \$30. If a member buys four bottles, the price is reduced to just **\$19.88** per bottle. Each bottle will last most members two months.

References:

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To order Super Bio-Curcumin® with BCM-95®, call 1-800-544-4440 or visit www.LifeExtension.com

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NEW
ENHANCED

Ultra Natural PROSTATE FORMULA

Standardized Lignans
Now with DeepExtract™ Technology

A huge percentage of men over age 50
suffer from prostate-induced discomforts.

Ultra Natural Prostate Formula contains the most scientifically substantiated nutrients to help protect the prostate gland and maintain its healthy function.

The **nine** active ingredients in **Ultra Natural Prostate Formula** are:

- **Saw palmetto extract with DeepExtract™.** A number of normal biological events in aging men affect prostate function and structure. Saw palmetto has been shown to interfere with DHT activity in the prostate, inhibit the alpha-adrenergic receptor activity (to support normal urinary flow), and help control inflammatory actions in the prostate gland.^{1,2} **DeepExtract™** is a patented, ultra-high pressure CO₂ technology engineered to recover **far greater amounts of bioactive, high-molecular weight compounds** from the saw palmetto berry during the extraction process. The result is a superior formula containing key ingredients in higher concentrations than many other extracts.³
- **Standardized lignans.** **Enterolactone** has demonstrated anti-estrogen and anti-DHT effects that are of particular importance for the aging prostate gland.^{4,6} **Lignans** from flax and Norway spruce convert to **enterolactone** in the intestine that is then absorbed into the bloodstream where it provides significant biological effects.
- **5-LOXIN® boswellia extract.** Published studies show that normal aging and poor diet cause levels of a dangerous enzyme (*5-lipoxygenase*) to increase, which can affect prostate cells.⁷ **5-LOXIN®** is a patented extract from the boswellia plant that has been shown to suppress *5-lipoxygenase* in addition to other pro-inflammatory factors.⁸⁻¹²
- **Nettle root extract (*Urtica dioica*).** Testosterone converts to estrogen at higher rates as men age. Prostate cells are sensitive to estrogen's growth stimulatory effects. Nettle root helps support prostate cells against excess estrogen levels.¹³
- **Pygeum.** Normal aging results in levels of certain prostaglandins increasing in the prostate gland. *Pygeum africanum* extract helps suppress these prostaglandins, keeping the prostate gland placid and promoting prostate comfort.¹⁴
- **Beta-sitosterol.** The most biologically active constituent of pygeum is beta-sitosterol. Beta-sitosterol from other plant sources is included in this prostate support formula.¹⁵
- **Cernitin®.** This European pollen extract has been shown to relax smooth muscle tone of the urethra, counteract DHT, and help regulate inflammatory reactions.¹⁵⁻¹⁹



The daily dose of two softgels of
Ultra Natural Prostate Formula provides:

USPlus® Saw Palmetto 320 mg (Co, DeepExtract™)	Phytosterol Complex 678 mg (standardized to 26.6% beta-sitosterol)
Nettle root extract 240 mg (<i>Urtica dioica</i>)	Boron 3 mg (from citrate, glycinate, and aspartate)
Pygeum extract 100 mg (11.7% pygeum sterols)	Cernitin® 252 mg
5-LOXIN® 70 mg	HMRlignan™ 20.15 mg
Lycopene extract 10 mg	Norway Spruce and ActiFlax™ Flax Lignan extract

- **Boron.** In addition to helping protect bones, this mineral has been shown to slow elevation of prostate-specific antigen (PSA) — a benefit seeming to occur as a result of boron's positive effect on the presence of protein-degrading enzymes in the prostate gland.^{20,21}
- **Lycopene.** This carotenoid associated with tomato's red color helps maintain healthy DNA gene function in prostate cells.²²⁻²⁶

Ultra Natural Prostate Formula provides scientifically validated standardized plant extracts that have been 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 maintaining a healthy prostate gland.

The retail price for 60 softgels of this standardized extract formula is \$38. If a member buys four bottles, the price is reduced to **\$26.25** per bottle. If a one-year supply is purchased, the cost drops to only **\$24** per bottle. **Not available for export.**

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POWERFUL PROTECTION AGAINST LDL Oxidation and Proinflammatory Cytokines

An increasing number of scientists recognize the critical need to protect the arterial wall against low-density lipoprotein (LDL) **oxidation** and **inflammatory** insults.

Research has shown that unique extracts present in black tea called **theaflavins** can have multiple applications for arterial health.¹

New Theaflavin Standardized Extract contains a number of beneficial flavonoids found naturally in tea leaves that help support levels of cholesterol that are already within the normal range.¹

Theaflavins have been shown in human studies to protect against **LDL oxidation** and favorably affect **endothelial function**,² thus helping to maintain healthy circulation.

Scientists have also found that black tea flavonoids possess strong **antioxidant** properties, which can help mitigate oxidative damage to cells and tissues from free radicals.³ In addition, theaflavins have been found to be helpful in regulating key **inflammatory** mediators in the body, thus helping to preserve cellular integrity.^{4,5}

A bottle of 30 350-mg vegetarian capsules of **Theaflavin Standardized Extract** retails for \$18. If a member buys four bottles, the cost is only **\$12 per bottle**.

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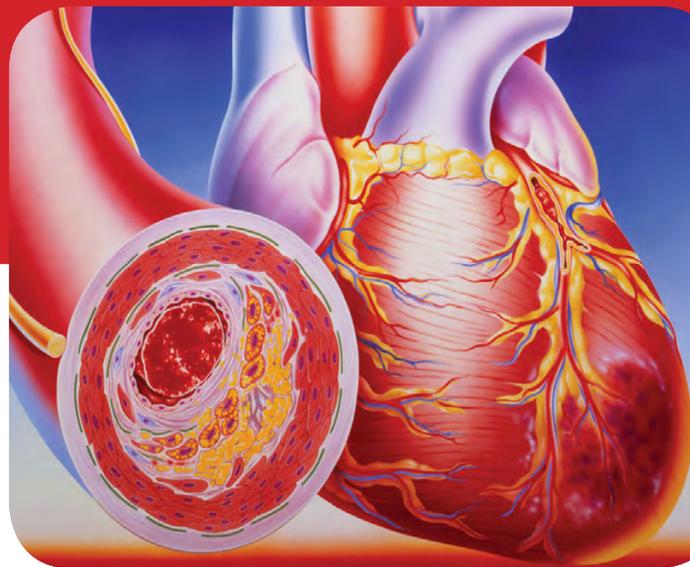
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To order **Theaflavin Standardized Extract Capsules**, call **1-800-544-4440**
or visit **www.lifeextension.com**

Protect Your Aging Arteries!

ENDOTHELIAL DEFENSE™

with GliSODin® & CocoaGold™



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The *endothelium* is the inner lining of blood vessels that regulates arterial health. The reason for so many of today's circulatory problems is the breakdown of *endothelial function* and *structure*.

The good news is that scientists have discovered three nutrients that have been clinically shown to help maintain healthy *endothelial* function and arterial circulation.

1 Pomegranate Restores Healthy Blood Flow

In a group of aging humans with risk factors for cardiovascular events, *pomegranate* or *placebo* was ingested on a daily basis. After twelve months, blood flow through the carotid arteries **improved 44%** in the pomegranate group, whereas carotid blood flow **worsened by 9%** in the *placebo* group.¹ (Both groups continued taking conventionally prescribed medications.)

In another similar group, pomegranate or placebo was ingested daily. After only three months, coronary artery blood flow **improved by 18%** in the *pomegranate* group, but **worsened by 17%** in the *placebo* group.² A standardized pomegranate extract is one of the three active components of **Endothelial Defense™** formula.

2 Cocoa Rapidly Improves Endothelial Function

Endothelial function can be evaluated by using a sensitive ultrasound test to assess blood flow velocity. In a controlled human study, arterial blood flow **improved by 37%** following ingestion of standardized *cocoa polyphenols* and this persisted about **eight hours**. This same study showed a **36% decrease** in undesirable platelet activation in the *cocoa polyphenol* groups.³ The *cocoa polyphenols* appear to exert their beneficial effect by enhancing endothelial *nitric oxide*. The age-related depletion of *nitric oxide* is considered a major impediment to healthy arterial blood flow. A standardized cocoa polyphenol extract is the second active component of **Endothelial Defense™** formula.

3 SOD Protects Against Nitric Oxide Degradation

Aging results in a reduction of our body's production of the critical antioxidant called *superoxide dismutase* (SOD). One consequence of SOD depletion is excess degradation of endothelial *nitric oxide*.

An orally active *superoxide dismutase* (SOD) called **GliSODin®** has been **clinically proven** to support healthy arterial function and structure... while boosting levels of the body's most powerful antioxidant enzymes (SOD and catalase).⁴⁻⁷

Studies show that damaging carotid artery thickness increases by 0.04 mm every 10 years. However, the recent study with **GliSODin®** suggests that **2.8 years** of supplementation may turn back the clock on **10 years** of age-related damage due to carotid artery wall thickening.⁸ The third ingredient of **Endothelial Defense™** formula is the patented **GliSODin®** in the identical dose used in the successful human study.

The Endothelial Defense™ Formula!

In response to these research findings, the **Endothelial Defense™** formula has been designed to provide the three best documented nutrients to help maintain healthy arterial blood flow. The suggested dose of two capsules in the morning before breakfast for absolute best response provide:

- Superoxide Dismutase/Gliadin Complex (GliSODin®)**500 mg
[SOD (Superoxide Dismutase) Enzyme Activity = 500 IU]
- Pomegranate (*Punica granatum*) Extract (fruit)**400 mg
[standardized to 30% Punicalagins (120 mg)]
- Pomegranate (*Punica granatum*) 5:1 Extract (fruit)**100 mg
- CocoaGold™ Cocoa (*Theobroma cacao L.*) Extract (bean)**112 mg
[standardized to 45% polyphenols (50 mg)]

To order Endothelial Defense™ with GliSODin® & CocoaGold™, call 1-800-544-4440 or visit www.lifeextension.com

References:

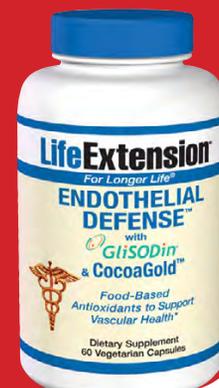
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The retail price of 60 vegetarian capsules of **Endothelial Defense™ with GliSODin® & CocoaGold™** is \$54. If a member buys four bottles, the price is reduced to just **\$36** per bottle.



Item #01297



BY STEVEN NEMEROFF, ND

Designing an Individually Tailored Cancer Treatment Utilizing Advanced CTC Molecular Analysis

For decades, traditional medicine has made cancer treatment decisions based on the “**one size fits all**” approach—in which everyone with a particular cancer **received the same treatment**. Tragically, this approach has **failed to benefit** the vast majority of women with breast cancer who received **standard** chemotherapy protocols.

This approach has **refused to acknowledge the individual differences** inherent in the cancer that could have affected treatment. Now, exciting new advances in **circulating tumor cell (CTC)** technology can allow medical science to finally **move away from this outdated** approach and towards an **individually tailored** cancer treatment program.

The basic **circulatory tumor cells (CTC)** test you learned about in the previous article measures the number of CTC in the bloodstream.

In this article, we'll examine an even more **advanced circulating tumor cell test** available in Europe that measures the **genetic characteristics of circulating tumor cells** and makes specific conventional and natural treatment suggestions based on the individual patient's CTC profile. This technology offers great potential to **optimally design** an individualized treatment, targeting the **specific weaknesses** of these potential metastatic cancer cells. > >

Exposing the Flaws of the “One Size Fits All” Approach

When a person is prescribed a treatment for their cancer, they might assume that the treatment was chosen based on the uniqueness of their cancer. For instance, when a woman with early-stage breast cancer is told that her chemotherapy treatment regimen will consist of the drugs Adriamycin®, Cytosan®, and Taxol®, (ACT), she might think this treatment was individually tailored for her cancer. In actuality, ACT is a standard chemotherapy protocol given to breast cancer patients. This “one size fits all” approach to breast cancer treatment would work well if superior results were obtained from this routine practice. Sadly, this has not been the case. The “one size fits all” approach to prescribing chemotherapy has failed to improve survival for the vast majority of women with breast cancer. In a shocking study of women with breast cancer over the age of 50 who had cancer present in their lymph nodes, standard chemotherapy regimens were shown to increase 10-year survival by only 3%.¹

In a related study of breast cancer patients receiving tamoxifen, researchers at the Dana-Farber Cancer Institute in Boston determined that those over age 50 with cancer in their lymph nodes did not receive any statistically significant survival benefits from receiving generic chemotherapy regimens compared to tamoxifen alone!²

A critical flaw of the “one size fits all” approach rests in treating all breast cancers as if they are one and the same. Although traditional oncology does make distinctions in a few obvious qualities, such as size of the cancer, lymph node status, and estrogen receptor status, we now know there can be substantial individual differences in cancer cell genetics among those with “similar” breast cancers. These differences can dramatically affect the response to treatment.

A powerful illustration of the lack of appreciation for individual differences in cancer treatment was clearly revealed in a landmark study published in the *New England Journal of Medicine* in 2007. Researchers compared women with lymph node-positive breast cancer who received ACT chemotherapy to those who did not receive chemotherapy. Their HER2 status was also determined—which refers to a genetic characteristic of the cancer. The researchers discovered that the group of women who were HER2 negative and estrogen receptor positive did not benefit at all from taking Taxol!³ The ramifications of this study are immense, as approximately two thirds of women with breast cancer fall into this category. In recognition of the failure of Taxol® to benefit this large group of women with breast cancer, oncologist Anne Moore, MD, Professor



of Clinical Medicine at the Weill Medical College of Cornell University in New York stated, ***“The days of ‘one size fits all’ therapy for patients with breast cancer are coming to an end.”***⁴

A further indictment of the “one size fits all” approach was prominently displayed in a study published in the *Journal of the National Cancer Institute* in 2008. In this investigation, scientists measured the effectiveness of an anthracycline-based chemotherapy regimen in 5,354 women with early-stage breast cancer. Anthracyclines are a class of chemotherapy drugs of which Adriamycin® is a key member. The scientists determined that women with early-stage breast cancer who were HER2 negative derived absolutely no benefit from taking Adriamycin® or other anthracycline drugs!⁵ Given that approximately 80% of breast cancers are HER2 negative,⁴ then only 1 of 5 women with breast cancer can benefit from these drugs that have considerable toxicity associated with their use. In one study, 7% of patients treated with Adriamycin® developed congestive heart failure.⁶

Another fundamental flaw of the current cancer treatment model is the exclusive focus on the primary tumor. However, it is the spread of cancer to other parts of the body that is very often lethal. Once the primary tumor has been surgically removed, then chemotherapy will often be prescribed in an attempt to kill any cancer cells remaining in the body that could potentially form metastases.

The choice of the appropriate chemotherapy agent to target the metastatic cancer cells is usually based on the characteristics of the primary tumor—which assumes that the metastatic cancer cells are genetically identical to the primary tumor. This assumption might be ill-advised as research has demonstrated that metastatic cancer cells can be genetically dissimilar from the primary tumor.

In an illuminating study conducted with metastatic breast cancer patients, researchers compared the genetic composition of the cancer cells that had formed distant metastasis to the genetic composition of the corresponding cancer cells in the primary breast tumor. The findings were alarming—in 31% of the comparisons, the genetic composition of the metastatic cancer cells differed almost completely from that of the primary breast tumors!⁷ Amazingly, further analysis revealed that none of the pairs of primary breast tumors with its corresponding metastatic cancer were identical. Based on these findings, the authors remarked that *“because metastatic cells often have a completely different genetic composition, their phenotype [biological behavior], including aggressiveness and therapy responsiveness, may also vary substantially from that seen in the primary tumors,”* leading to their conclusion that *“the resulting heterogeneity [genetic variability] of metastatic breast cancer may underlie its poor responsiveness to therapy...”*

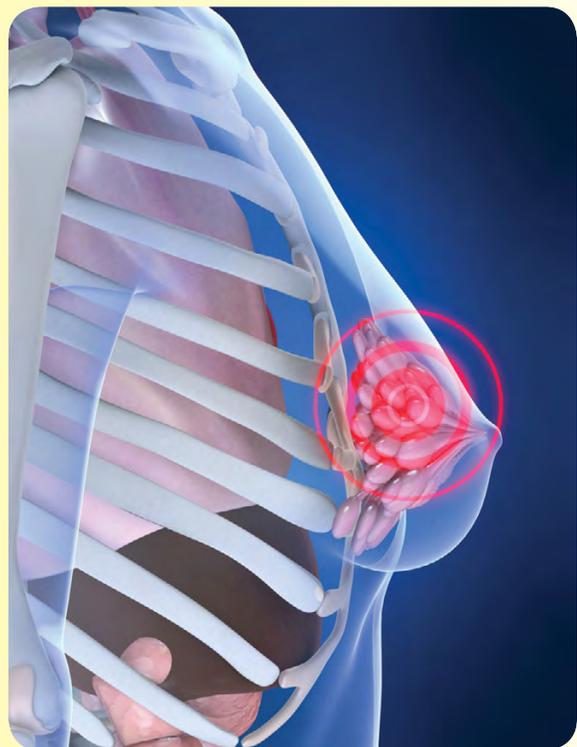
To further support the evidence that metastatic cancer cells can vary genetically from the primary tumor, two additional studies^{8,9} with breast cancer patients have demonstrated that CTC can be HER2 positive while the primary breast tumor can be HER2 negative!

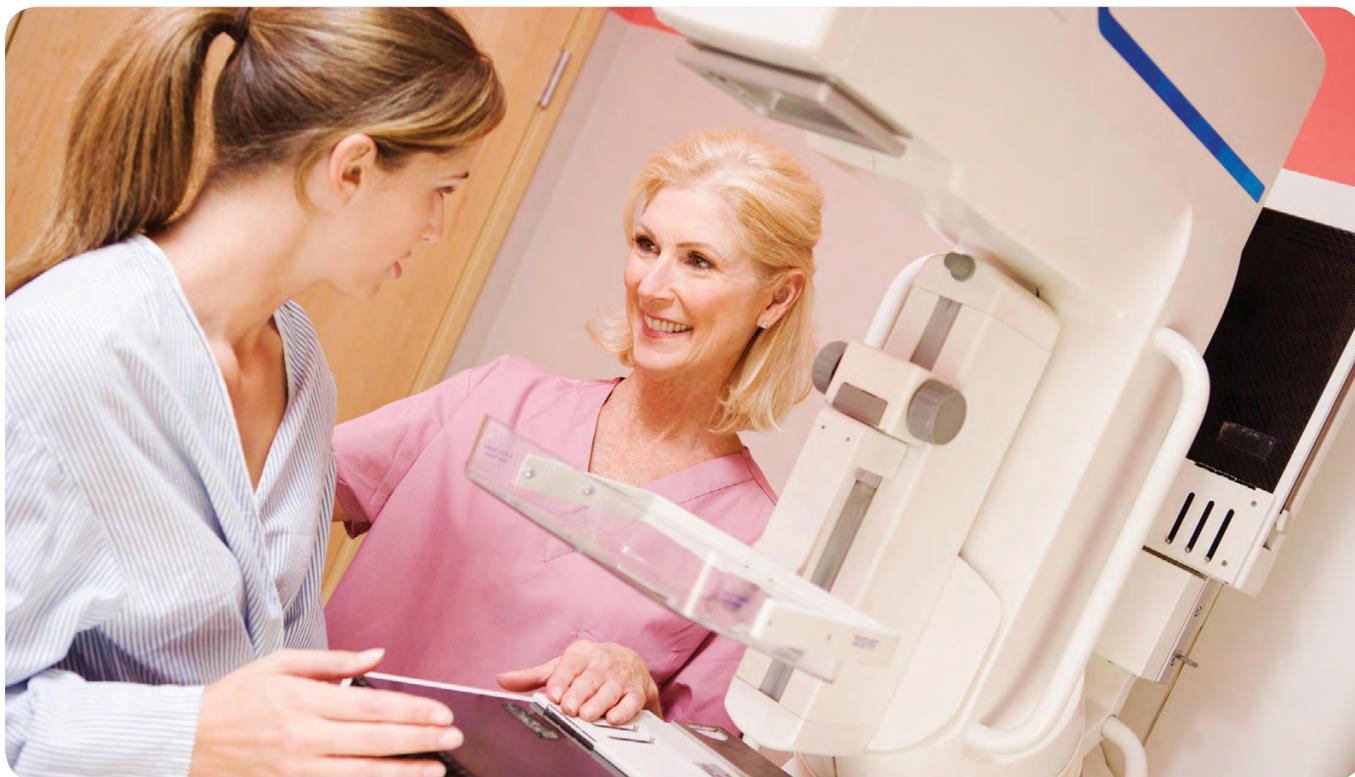
Tailoring Cancer Treatment for the Individual

Clearly, this old-fashioned approach of prescribing the same treatment for everyone with a particular cancer needs to be succeeded by a more enlightened paradigm which tailors treatment towards the individual uniqueness of the cancer. Furthermore, this “person-centered” model places emphasis on directing treatment decisions towards the distinguishing characteristics of the potential metastatic CTC. One of the most exciting applications of CTC technology is its use to facilitate the design of a treatment program that is truly customized to the genetic attributes of the person’s cancer. Given that CTC can be the seeds that eventually form metastatic disease, then CTC analysis provides medical science with an excellent opportunity to examine the genetic features of these cancer

Designing Individually Tailored Cancer Treatment

- Traditional cancer care is based on a “one size fits all” approach in which everyone with a certain type of cancer receives the same treatment. This approach fails to consider individual differences that may impact treatment choices and efficacy.
- Circulating tumor cells are often genetically different from the primary tumor and can be the seeds that eventually form metastatic tumors.
- Now, an advanced test available in Europe measures the genetic characteristics of circulating tumor cells (CTCs) and provides specific conventional and natural treatment suggestions.
- The information gathered from an advanced CTC test can be used to design an optimal individualized treatment plan targeting the weaknesses of potential metastatic cells. Since cancer metastases are often deadlier than primary tumors, targeting CTCs is essential to comprehensive cancer treatment.





cells before metastasis occurs, when treatment is far more likely to be successful.

In addition to detecting the presence and quantity of CTC in the bloodstream, recent advances in technology now allows the examination of CTC for a large number of tumor cell markers and genetic expressions. In essence, CTC testing constructs a genetic fingerprint of these potential metastatic cancer cells. The information obtained from this analysis can provide vital insight as to which chemotherapy drugs are best suited to exploit the genetic weaknesses of the CTC, as well as which chemotherapy agents are likely to be powerless against the genetic strengths of the CTC.

The Battle is Fought at the Cellular Level

Chemotherapy drugs can interact with cancer cells in various ways. These crucial interactions can decide the winner in the battle between the cancer and the chemotherapy drug. For example, some chemotherapy drugs only become fully activated after entering the cancer cell. This process is dependent upon the presence of certain enzymes within the cancer cell. A reduced production of these enzymes can lead to poor activation of the chemotherapy agent, resulting in a diminished anti-cancer effect. One chemotherapy drug which requires enzymatic activation is fluorouracil (5-FU), which is converted into its active form within the cancer cell by the enzyme uridine

phosphorylase. Studies have shown that cancer cells resistant to 5-FU have a reduced expression of uridine phosphorylase.^{10,11}

Gemzar® is a chemotherapy drug used in the treatment of lung, pancreatic, bladder, and breast cancer. Gemzar® requires the enzyme deoxycytidine kinase (DCK)—manufactured within the cancer cell—to become fully activated. Cancers that produce lesser amounts of DCK are protected from the effects of Gemzar®.¹²

Chemotherapy drugs can also exert their therapeutic effects by inhibiting essential enzymes within the cancer cell. The overexpression of these enzymes—called drug targets—can enhance the tumor destructive effects of these drugs. Adriamycin® (doxorubicin) is a prime example of this mechanism of action. The main drug target for Adriamycin® is topoisomerase 2. Studies have demonstrated that those patients with cancers expressing higher levels of topoisomerase 2 can benefit from treatment with Adriamycin®.¹³

Cancer cells also have the ability to produce enzymes that convert chemotherapy drugs into less potent forms, which weakens the anti-tumor activity of these drugs. 5-FU is commonly used in the treatment of breast and colon cancer. Dihydropyrimidine dehydrogenase (DPD) is an enzyme that degrades 5-FU to an inactive metabolite. Cancer cells expressing higher levels of DPD can be resistant to 5-FU. One study of colorectal cancer patients treated with 5-FU

revealed that those with high DPD levels had significantly shorter overall survival compared to patients with low DPD expression.¹⁴

Cyclophosphamide (Cytosan®) is utilized in the treatment of lymphoma, leukemia, and cancers of the breast, ovary, and bladder. Cancer cells produce an enzyme called gamma-glutamylcysteine synthetase (GCS), which metabolizes and inactivates cyclophosphamide. Cancer cells that manufacture greater amounts of GCS can possess a tactical advantage in the battle against cyclophosphamide.¹⁵

Other genetic expressions within the cancer cell can have a significant impact upon the effectiveness of chemotherapy drugs. The platinum drugs—cisplatin, carboplatin, oxaliplatin—are used in the treatment of ovarian, bladder, testicular, and lung cancer. These drugs inflict damage upon the cancer cell by attacking DNA. Cancer cells produce the excision repair cross-complementation 1 (ERCC1) protein, which is able to repair the damage caused by these drugs. Greater production of ERCC1 offers cancer cells a degree of immunity from platinum drugs.

A team of researchers in Italy measured ERCC1 mRNA levels in lung cancer patients receiving cisplatin.¹⁶ The researchers found a dramatic difference in survival based on the levels of ERCC1. Patients with cancers expressing lower levels of ERCC1 had a median overall survival of 23 months, compared to a median overall survival of 12.4 months in those with higher ERCC1 levels.

Methotrexate is a member of the “one size fits all” chemotherapy regimen for breast cancer. Methotrexate wields its tumoricidal activity by blocking an enzyme within the cancer cell called dihydrofolate reductase (DHFR). Cancer cells can compensate by producing more DHFR. Overproduction of DHFR provides cancer cells with a defense against methotrexate.¹⁷

In the battle against chemotherapy drugs, some cancers have developed a very clever mechanism to shift the balance of power in their favor. Multidrug resistance 1 (MDR1) is able to conveniently transport chemotherapy drugs out of the cancer cell, which drastically reduces their cancer-killing ability. Cancers that generate greater amounts of MDR1 are resistant to multiple chemotherapy drugs, such as vincristine, Taxol®, mitomycin C, and Adriamycin®.^{18,19}

As an added benefit, genetic analysis of CTC can inform us as to which natural supplements might be best indicated. For instance, nuclear factor-kappaB (NF-kB) promotes the growth of cancer. Curcumin is

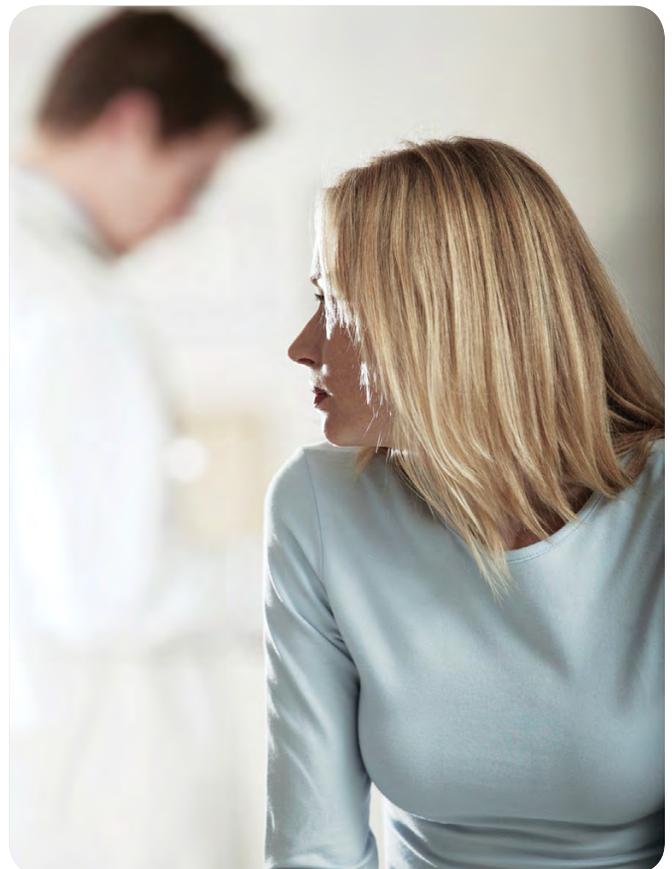
an inhibitor of NF-kB.²⁰ So, a person whose cancer is expressing high levels of NF-kB might consider including curcumin as part of their supplement program.

Some cancers are able to produce glutathione S-transferase pi (GST-pi), which confers resistance to multiple chemotherapy drugs. Ellagic acid—from pomegranate—inhibits GST.²¹ Supplementation with ellagic acid may be wise if CTC analysis demonstrates overproduction of GST-pi.

Advanced CTC Analysis is Now Available

When taking into consideration the numerous characteristics of the cancer that create its unique genetic fingerprint, we can now fully appreciate the radical differences that can occur between individuals with the “same” cancer, which may require distinctly

CTC analysis can now allow medical science to take the next step in cancer treatment by uncovering the key distinctions within the cancer—which ultimately distinguishes those with the “same” cancer from one another.



different treatments. CTC analysis can now allow medical science to take the next step in cancer treatment by uncovering the key distinctions within the cancer—which ultimately distinguishes those with the “same” cancer from one another. The results of CTC analysis can help to ensure the design of a therapy best suited for an individual’s cancer. Fortunately, advanced CTC assays are now available.

For assistance in facilitating the advanced circulating tumor cell (CTC) molecular analysis available at European laboratories, you can contact the International Strategic Cancer Alliance (ISCA) at 610-628-3419. ●

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

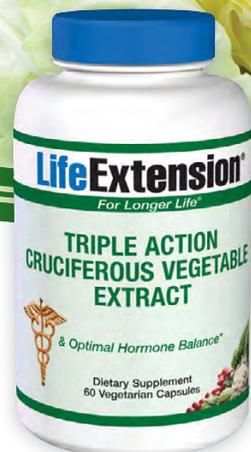
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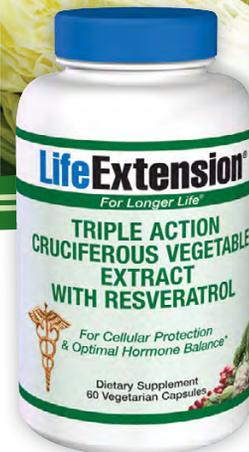




NEW TRIPLE ACTION CRUCIFEROUS Vegetable Extract with Apigenin



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ITEM #01469

Scientists have identified specific extracts from *cruciferous vegetables*—such as broccoli, cauliflower, cabbage and Brussels sprouts—that help maintain healthy hormone levels. Maintaining optimal hormone balance is essential to any anti-aging strategy. **Triple Action Cruciferous Vegetable Extract** combines these plant extracts into the most comprehensive food-based, plant compilation for cell protection yet.

I3C (indole-3-carbinol) and **DIM (di-indolyl-methane)** favorably modulate estrogen metabolism and induce liver detoxification enzymes to help neutralize potentially harmful estrogen metabolites and xenoestrogens (potentially toxic, estrogen-like environmental chemicals).¹⁻⁴

Extracts of **broccoli**, **watercress**, and **rosemary** provide *glucosinolates*, *isothiocyanates*, *carosic acid*, and *carnosol*—bioactive compounds that have a multitude of favorable effects on estrogen metabolism and cell division.⁵⁻⁸ **Apigenin**, a powerful plant flavonoid found in plants such as **parsley** and **celery**, is also added to the formula to boost cell protection,⁹ while 25 mg of a natural source of benzyl isothiocyanate (BITC), are included to maintain cell health.¹⁰

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

The new Triple Action Cruciferous Vegetable Extract provides the following concentrates in just one capsule:

Broccoli Super Concentrate	400 mg
[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 **resveratrol** can order **Triple Action Cruciferous Vegetable Extract with Resveratrol**. Each capsule provides **20 mg** of **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 only **\$22.20 per bottle**.

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



SUPER BOOSTER

with the most effective form of Vitamin K2, Gamma Tocopherol, Ginkgo, and much more!

Despite abundant scientific validation, many people still do not take vital nutrients because they don't want to swallow so many pills. This problem has been solved with a one-per-day softgel that includes multiple health-promoting nutrients in just one supplement. The **Life Extension® Super Booster** contains critical oil-based nutrients that cannot be incorporated into dry-powder based formulas like the **Life Extension Mix™**. The **Super Booster** has been upgraded to provide higher doses of the most effective form of **vitamin K** known as **menaquinone-7**. Just one **Super Booster** softgel provides:

- **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 also 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.

- **Sesame Lignans** Sesame lignans augment the antioxidant effects of both alpha- and gamma-tocopherol. In a human study conducted at Life Extension, gamma tocopherol plus sesame lignans was 25% more effective in suppressing measurements of free-radical damage than gamma tocopherol and tocotrienols.

- **Vitamin K2** **Vitamin K1** from dietary plant sources is poorly absorbed and only a small fraction gets into the bloodstream. **Vitamin K2** is absorbed much more efficiently. Scientific studies show **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,

Just one softgel of Super Booster supplies:

Gamma tocopherol	230 mg
Ginkgo extract	120 mg
Chlorophyllin	100 mg
Vitamin K2 (as menaquinone-7)	100 mcg
Vitamin K2 (as menaquinone-4)	1000 mcg
Vitamin K1	1000 mcg
Sesame lignans	20 mg
Lycopene	10 mg
Lutein	2 mg
Se-methylselenocysteine	67 mcg
Selenomethionine	67 mcg
Sodium selenite	67 mcg
Vitamin B12	300 mcg
Vitamin C	90 mg
Ascorbyl palmitate	50 mg
Zinc	10 mg
Mixed tocopherols	130 mg

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 now provides more **MK-7** than ever before — to keep calcium in the bone and out of the arteries.

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

- **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.

- **Selenium** Some scientific evidence suggests that consumption of selenium may reduce the risk of certain forms of cancer. However, the FDA has determined that this evidence is limited and not conclusive. Selenium's effects in boosting glutathione are well-established.

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



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Caution: Those individuals currently taking anticoagulants such as Coumadin® (warfarin) should consult their personal physician before taking supplemental vitamin K.

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ARM YOUR BODY AGAINST TOXINS



DNA PROTECTION FORMULA

Each day, our bodies are exposed to **environmental toxins**. Over time, these toxins can overwhelm the body's natural detoxification systems, causing dangerous alterations in genes that regulate cellular proliferation.*

Fortunately, medical science has documented the ability of certain nutrients to exert powerful health-promoting effects that can significantly bolster the body's natural defenses against chemical assault.* **DNA Protection Formula** provides standardized potencies of **curcumin, chlorophyllin, wasabi, and broccoli extract**.

The formula's turmeric extract contains bioactive **curcumin** that guards against food-borne and metabolic toxins, helps to maintain healthy liver function, and provides antioxidant protection against cell injury by inhibiting the formation of free radicals and quenching already formed superoxide and hydroxyl radicals.*

Chlorophyllin contained in the formula binds and forms irreversible complexes with certain toxic chemicals, allowing the body to safely eliminate these compounds before they can enter the bloodstream.

DNA Protection Formula contains the world's purest, organically grown New Zealand **wasabi** rhizome, a rich source of long-chain methyl **isothiocyanates** that have been shown to help maintain healthy liver enzymes.

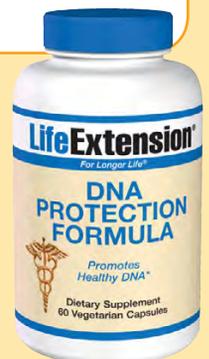
DNA Protection Formula's standardized **broccoli extract** contains concentrated levels of **glucosinolate** and **sulforaphane**, two bioactive compounds providing the **isothiocyanates** that are recommended for good health.*

Each capsule of **DNA Protection Formula** contains:

- Turmeric (*Curcuma longa*) root extract300 mg
[Standardized to 95% Curcuminoids (285 mg)
containing Curcumin, Demethoxycurcumin,
and Bis-demethoxycurcumin]
- Chlorophyllin (from sodium copper chlorophyllin)20 mg
- Broccoli (*Brassica oleracea l.*)225 mg
std. glucosinolate and sulforaphane extract
(sprout & plant) providing 3H-1, 2-Dithiole-3-Thione
(D-3T), and Phenylethylisothiocyanate (PEITC)]
- Wasabi (*Wasabia japonica*) powder (rhizome)50 mg
(providing isothiocyanate equivalence)
- Watercress (*Nasturtium officinale*)100 mg
4:1 extract (whole herb)

The suggested dosage is one capsule with each heavy meal. A 60-capsule bottle of **DNA Protection Formula** retails for **\$28**. If a Life Extension member orders four bottles, the price is reduced to just **\$18.90 per bottle**.

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, consult your healthcare provider before taking this product. Individuals with in-born errors of copper metabolism (e.g. Wilson's disease) should avoid daily, chronic use of this product.



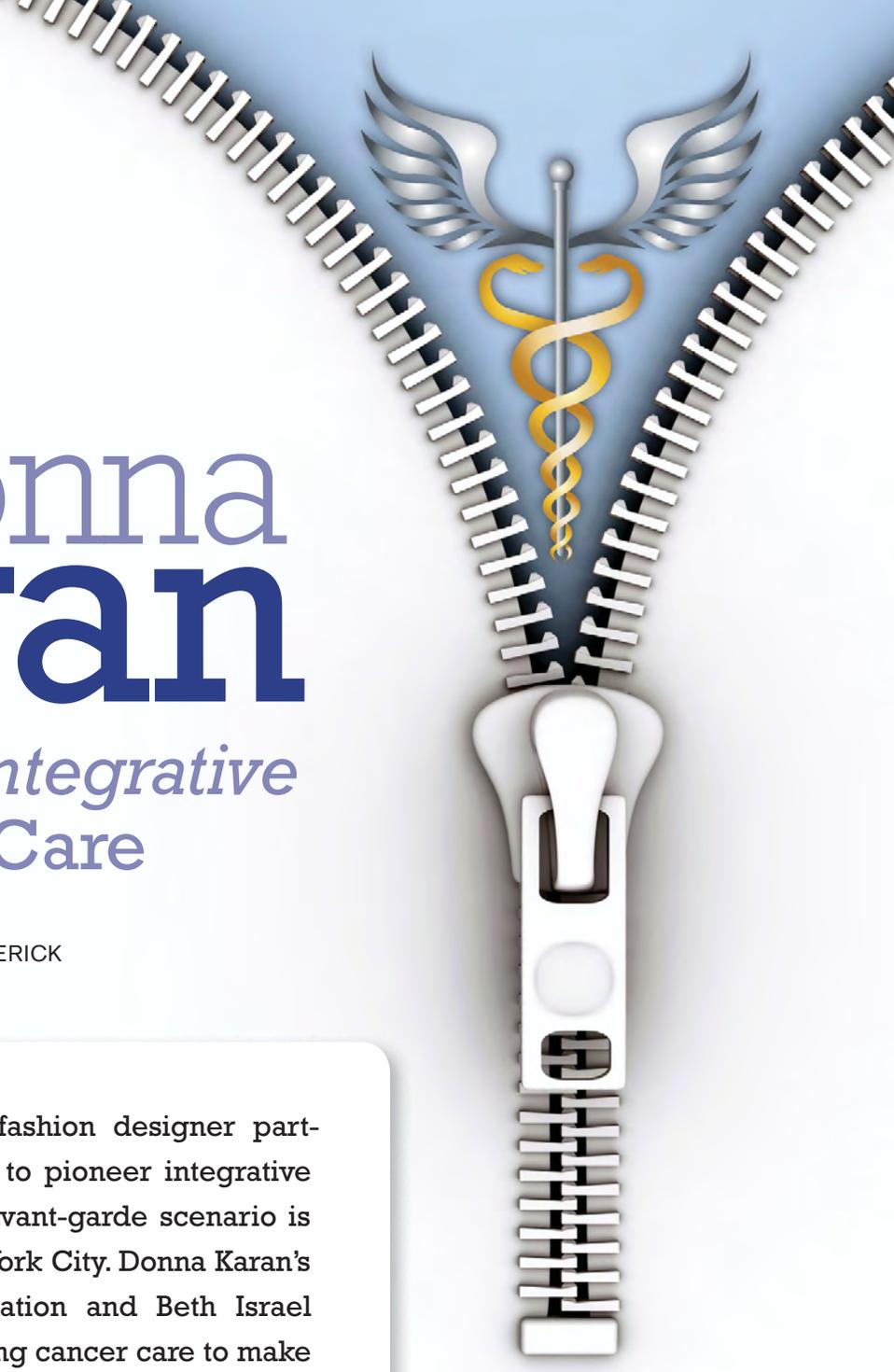
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To order the **DNA Protection Formula**,
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* These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.



PHOTOS COURTESY OF
DONNA KARAN AND URBAN ZEN

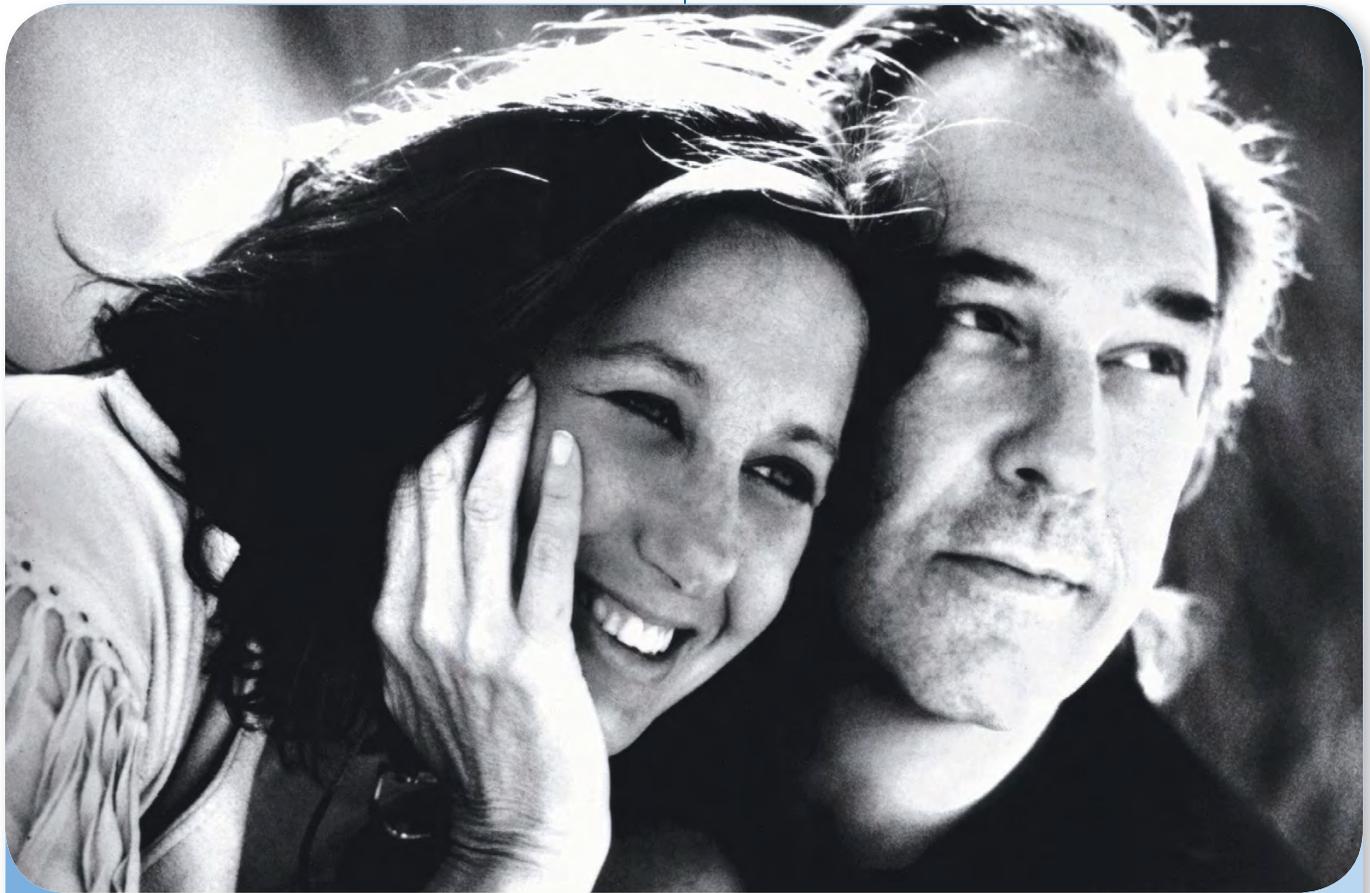


Donna Karan

Designing *Integrative* Health Care

BY KYLE RODERICK

Imagine a world famous fashion designer partnering with a major hospital to pioneer integrative cancer care. This medically avant-garde scenario is happening right now in New York City. Donna Karan's non-profit Urban Zen Foundation and Beth Israel Medical Center are redesigning cancer care to make it *patient-centered*, combining holistic medical therapies with allopathic treatments. Transcending the standard disease-centered, drug-focused cancer regimens that offer little in the way of mind/body nurturing, Urban Zen and Beth Israel are defining a new standard in health care, bringing life-enhancing results to patients, their loved ones, and the health care professionals who are working with them. > >



Donna Karan with her late husband, Stephan Weiss. His cancer experience inspired Karan to found the non-profit Urban Zen organization and fund Beth Israel Medical Center's Urban Zen Integrative Therapy Program. Photo courtesy of Donna Karan and Urban Zen.

Karan founded the Urban Zen Foundation in 2006. Urban Zen's Integrative Therapist (UZIT) program, co-directed by yoga teachers Rodney Yee and Colleen Saidman Yee, brings optimal nutrition, yoga lessons, Therapeutic Touch treatments, and aromatherapy to Beth Israel's cancer patients.

To date, among many of Urban Zen's and Beth Israel's collaborations is the hospital's Urban Zen Sanctuary on the cancer ward. If there's one semi-public space that needs to impart comfort and peace, it's a cancer ward lounge. Most are typically noisy, harshly-lit spots filled with scarred, uncomfortable furniture. Beth Israel's Urban Zen Sanctuary is a quiet, cozy and softly illuminated haven designed by architect David Fratianne and Alex Stark, a feng shui master. Fine art photographs adorn the walls, while wooden tables enhance the room's organic and comforting vibe. Here, patients, families and hospital staff can find respite and cultivate calm, soothing mind and body.

On the day of the Urban Zen Sanctuary opening, Donna Karan, 61 years old, sat down with *Life*

Extension Magazine to discuss her goals and projects. "I've always dressed people," Karan says in her husky, New York accent. "Now I want to address people and their well-being. My ultimate dream is to help not only the patients in the cancer ward beds but those in Beth Israel's outpatient clinics, too," she says. "Along the way, I'd like for the Urban Zen Integrative Therapy program to include a nutritional component so that patients can eat fresh produce, fresh vegetable juices, nutritious broths, fortifying soups and herbal teas. Hopefully," she ventures, "the program here at Beth Israel will serve as a template for other hospitals."

Karan's mission to improve health care with integrative medical approaches is rooted in her experience as "... A wife, friend and helper during two long and painful cancer journeys. Both my husband, Stephan Weiss," she explains, "and my close friend Lynn Kohlman died of cancer." Weiss, who battled lung cancer for seven years and died in June 2000 at the age of 62, was a painter, sculptor, and Ms. Karan's business partner. Her most trusted adviser, ally, and muse.

Helping negotiate lucrative licensing agreements and structuring departments as the company rapidly expanded throughout the 1980's, Weiss played a key role in helping the company develop into an international brand.

On one dark day, "Stephan was being cared for at Memorial Sloan-Kettering Cancer Center in Manhattan and his physician told him: "There is nothing more I can do for you." Karan relates. "Nothing more," she repeats in a hushed monotone, reliving the bad news. "Nothing more? I found this unacceptable. As long as there's life, there's hope. You don't just give up," she says with a determined light in her eyes. "This is where holistic and Eastern remedies come in, as they can help balance the mind and body while improving the patient's quality of life."

In addition to the several specialists attending Weiss, Karan wanted to look at him holistically as a patient, Karan says. "What is the health history and life context of this patient and how do you treat him or her at the mind-body level?" While Karan tried to improve quality of life throughout much of Weiss's treatment, she also felt herself increasingly stressed as his caregiver. To help both of them stay as balanced as possible, Karan enlisted the aid of several alternative health practitioners.

"Stephan received vital support from what he called 'the woo-woos,' meaning the acupuncturists, yoga teachers and other healers I brought in," Karan says. For example, one day, Weiss was having breathing difficulties. "Stephan had the most cutting-edge medical treatment available and yet it could do nothing to help him breathe," she says. "I got a yoga teacher to come and teach him to open his airway and lungs." Weiss went from gasping for breath to enjoying deep, slow, long breaths that made him feel more energized. "Practicing breath-work and yoga gave my husband a measure of control and comfort that he'd never known previously," Karan says. "Breathing has a potentially huge effect on quality of life. This is why the UZIT program teaches yoga and breath work for patients to do in bed, or anywhere else. The therapists also teach the nurses about breathing so that when

they enter the patient's room, they take their hand and breathe together for 20 seconds."

More vital support from Karan came in the form of the fortifying soups, broths, and vegetable juices that she brought into the hospital or fed Weiss while he was at home. "The food Stephan was given in the hospital was often processed, heavily salted institutional food," Karan says. "The canned fruits and vegetables and sugary desserts are not suitable for a healthy person, and certainly not for a cancer patient," Karan says. "My dream is to have trolleys of organic foods, broths and fresh-squeezed vegetable juices rolling through the halls of Beth Israel," Karan says. "When are hospitals going to realize that food is medicine?" Dr. Merrell acknowledges that it's on Beth Israel's agenda to deliver optimally nutritious foods to the cancer ward (and other patients). "Changing our food service might take some time," he concedes, "but we are committed to the goal."

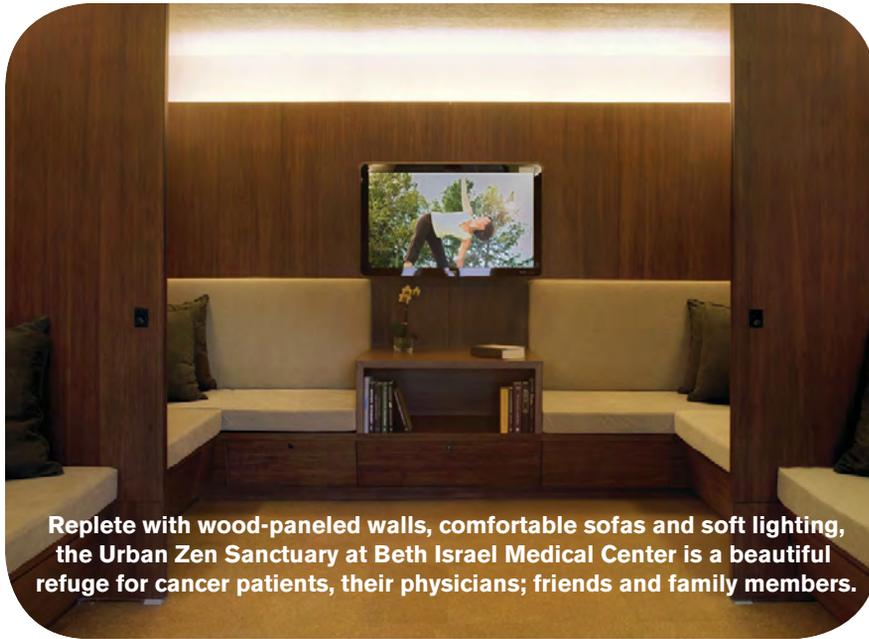


Louis Harrison, MD, philanthropist and Urban Zen founder Donna Karan, Woodson Merrell, MD, and Harris Nagler, MD, at the opening of the Urban Zen sanctuary on Beth Israel's Cancer Floor.



Philanthropist Donna Karan and Urban Zen team members trained in holistic modalities.

PHOTO: COURTESY MILLER PHOTOGRAPHY



Replete with wood-paneled walls, comfortable sofas and soft lighting, the Urban Zen Sanctuary at Beth Israel Medical Center is a beautiful refuge for cancer patients, their physicians; friends and family members.

Both Karan and Weiss found his cancer ward nurses “... totally heroic, angelic and overworked,” Karan remembers. “Most people don’t realize how physically and emotionally draining it can be to care for cancer patients. Stephan loved the nurses for their stamina, kindness, and humor... and for comforting him and all the other patients.” When Weiss and Karan discussed how she might one day reform cancer care in hospitals, “Stephan made me promise never to forget the nurses,” Karan says, “which is why the Urban Zen program trains them to do breath work with patients and for themselves, along with moving meditation and other therapeutic modalities.”

Like Weiss, Lynn Kohlman fought a valiant and long (five-year) cancer battle. As she battled breast and brain cancer, Kohlman continued to work out, practice yoga, and stay fit. Asserting that one can flourish with dignity, beauty, and innovation despite cancer’s toll, Kohlman took post-op, artistic black and white photos of her body. Wearing double mastectomy scars with a winning smile, Kohlman’s images are hauntingly vibrant. After her brain cancer surgery, titanium staples encircled her shaved skull.

“Lynn and I were great friends for years,” Karan recalls, her eyes lighting up, “she was the fashion director for my DKNY line and she also set the tone for Urban Zen. She was my inspiration.” A natural beauty, Kohlman had been a fashion model in the 60s and 70s and then a fashion photographer.

What would Stephan Weiss say if he could see what Urban Zen and Beth Israel have accomplished so quickly? How would Lynn Kohlman respond to the sensual comforts of the cancer ward’s Sanctuary?

Karan’s eyes well up with tears and she looks away to collect her thoughts.

After a five second pause, she says, “I think they’d feel glad that Urban Zen and Beth Israel are working together to benefit the cancer community and their loved ones. And I think they’d love Beth Israel’s atmosphere because it’s warm, life-affirming, and nurturing.” Indeed, the place is as warm, life-affirming and nurturing as the Urban Zen philosophy. “We want to raise awareness of the human condition and help initiate positive change,” Karan says. “We’re off to a great start with this pilot program and we look forward to achieving our goal of spreading the UZIT program to other hospitals. I just want to say ‘thanks’ to our many supporters and collaborators.” ●

For additional information, please contact
www.urbanzenfoundation.org

DONNA KARAN'S HEALTH TIPS

Ever since she broke both her knees in a skiing accident, Donna Karan has been extra careful to eat for maximum energy, antioxidant intake, and bone-building benefits. Her supplement regimen includes consuming vitamin D twice a day with fresh vegetable juice and berry cocktails that contain greens such as kale, spinach, Swiss chard, etc. “I love fresh green juices,” she says. Green powders are good to use when traveling, she acknowledges, “but fresh juices are optimal.”

Although she practices yoga and meditation every day, Karan says that, “Handstands, shoulder stands, back bends, and twists” are her favorites because they help balance and energize her at the same time.



Activate Your Longevity Genes with New CALORIE RESTRICTION MIMETIC Formula

Scientists have *intensely* focused on finding out how **calorie restriction** so radically extends life span.

In response to reduced **calorie intake**, beneficial “youth” genes are **activated** while detrimental “senescence” genes are **disabled**. These favorable **gene expression** changes play a critical role in the ability of calorie restriction to slow aging.

The incredible news is that a select group of nutrients has been discovered that trigger many of the same favorable mechanisms (including more youthful **gene expression** patterns) as **caloric restriction**.

Among the most promising **caloric restriction mimics** and enhancers are **resveratrol**, **pterostilbene**, **quercetin**, and **grape seed polyphenols**, along with **black tea extract**. These nutrients have been shown to generate many of the same effects in the body as caloric restriction, without significant dietary modification.¹⁻⁸ In particular, they help “mimic” caloric restriction’s favorable impact on **genes** that influence the aging process.¹⁻⁸

A new **Calorie Restriction Mimetic Formula** includes **resveratrol**, **pterostilbene**, **quercetin**, **grape seed polyphenols**, and **black tea extract** to provide even broader-spectrum gene expression support in one nutritional compound. The suggested dose of two capsules each day of the new **Calorie Restriction Mimetic Formula** provides:

Trans-Resveratrol	250 mg
Trans-Pterostilbene	3 mg
Quercetin	150 mg
Black tea extract	300 mg
Grape seed polyphenols	50 mg

A bottle containing 60 vegetarian capsules of the new **Calorie Restriction Mimetic Formula** retails for \$36. If a member buys four bottles, the cost is reduced to **\$24.75** per bottle.



Item #01419

To order the new **Calorie Restriction Mimetic Formula** call **1-800-544-4440** or visit to **www.LifeExtension.com**

Note: Those taking other **resveratrol** products may consider switching to this new **Calorie Restriction Mimetic Formula**.

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BONE RESTORE

for Lifelong Bone Health

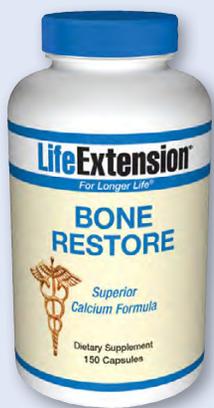
Maintaining strong, healthy bones is a cornerstone to successful aging. Unfortunately, even supplement users often fail to consume enough **calcium, vitamin D**, and other nutrients shown to help maintain healthy bones.

New research on **vitamin D** has led an increasing number of experts to advise men and women to consume **1000 IU** (and higher) of vitamin D each day to help maintain bone density.

The daily dose of **Bone Restore** provides **1200 elemental milligrams** of highly absorbable **calcium**, plus **1000 IU** of **vitamin D3**.

Bone Restore also contains ample **magnesium**, along with nutrients that enable calcium and magnesium to be incorporated in the bone matrix.

In addition, **Bone Restore** delivers a patented form of **boron** that is identical to natural plant forms found in food. Considered more bioavailable than other forms of boron, **FruiteX B® OsteoBoron®** supports healthy joints and bone.



Item #00811

Bone Restore comes in fast-release capsules, making the minerals and other nutrients immediately available for absorption.

The retail price for 150 capsules of **Bone Restore** is \$22.50. If a member buys four bottles, the price is reduced to just **\$14.63** per bottle.



Just five capsules of **Bone Restore** provide:

Highly-Absorbable Calcium	1200 mg
(from dicalcium malate, bis-glycinate, and fructoborate)	
Vitamin D3	1000 IU
Magnesium	340 mg
Boron	3 mg
(calcium fructoborate as patented FruiteX B® OsteoBoron®)	
Zinc	2 mg
Manganese	1 mg
Silicon	5 mg

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

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WELLNESS PROFILE

BY KYLE RODERICK

The Rhythm of Healing

Dr. Frank Lipman's Holistic Practice



Frank Lipman, MD

"Being a holistic physician involves more than simply treating illness," says New York City internist and acupuncturist Frank Lipman, MD. "My practice also encompasses looking at the patient within the greater patterns of nature's rhythms and how their lifestyle meshes or clashes with those rhythms."

The author of *Total Renewal: 7 Steps to Resilience, Vitality and Long-Term Health* (2003), *Spent: End Exhaustion and Feel Great Aging* (2009), and the newly published paperback *Revive*, Dr. Lipman is also the founder of Eleven Eleven Wellness Center in New York City. A trim, brown-haired man whose steady gaze regularly morphs into infectious smiles, Dr. Lipman specializes in treating those who despite being apparently healthy and in the

prime of life, are chronically feeling overwhelmed and exhausted.

"When prompted correctly, our rhythms and body clocks can reset because the body moves naturally towards healing if you give it a chance."

WELLNESS PROFILE



Donna Karan and Frank Lipman, MD

Lipman refers to this condition as “spent” syndrome. “Other symptoms include apathy, depression, insomnia, brain fog, lowered immunity, inexplicable physical aches and pains, and digestive problems.” These conditions are the body’s way of telling us that we are mentally, emotionally, and physically depleted, he ventures. As he notes in his new book, *Revive*, “Our bodies were not built to be sedentary nor run marathons into middle age. Moreover, government research shows that most Americans are chronically sleep-deprived, which is causing untold number of illnesses,” Dr. Lipman asserts. Additionally, “Humans were never meant to live without sunshine or eat a diet of

processed foods, as so many Americans do.” Noting that we evolved as omnivores, Dr. Lipman says, “Our bodies and minds can never be adequately nourished from fat-free or carb-free diets.” On top of that, “Given our wired, and increasingly wireless world which creates a 24/7 information overload, our brains and bodies rarely have a chance to recover from daily mental and emotional stress.”

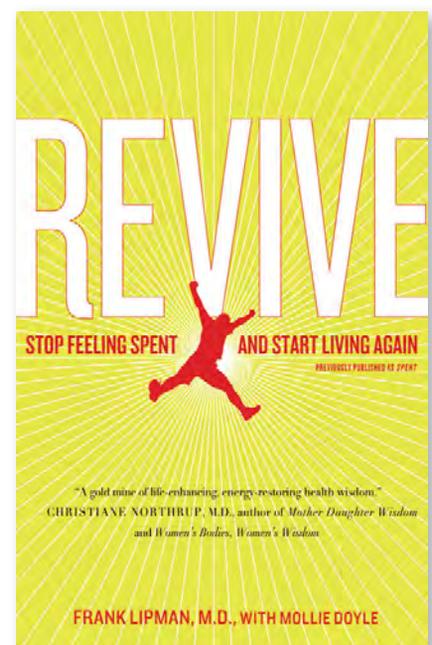
The standard American lifestyle runs counter to what our bodies need to function in a balanced way, Dr. Lipman asserts. “Human bodies are designed to eat natural and seasonal foods from our nearby environs, and to exercise in spurts that follow the pattern of exert, rest, recover, exert, etc. We are meant to have fresh air, sun, and water. We are built to sleep when the sun

goes down, and wake when it rises. Fortunately, when prompted correctly with natural light and good food at the correct time, the right supplements, appropriate exercise, and exposure to nature, our genetic clocks can reset themselves.”

Toward that end, Dr. Lipman’s treatment regimens comprise acupuncture, herbs and nutritional supplements. “I work with several associates, and our focus is on preventive health care and patient education,” Lipman says. “We work to get people healthy and help them thrive by using various non-invasive modalities and drug free techniques such as customized diet and supplement regimens; detox, acupuncture, physical therapy, chiropractic and lifestyle management.”

Although Dr. Lipman tries to avoid pharmaceuticals, he notes, “I do prescribe them when necessary, after holistic approaches have been ruled out.” A big believer in exercise as an alternative to antidepressants, Dr. Lipman says, “Restorative yoga can be very beneficial and it’s very easy to get into and out of the poses.”

Lipman’s approach to healing mind/body conditions has garnered many culturally influential patients, including fashion designer Donna Karan, actress Gwyneth Paltrow and Island Records founder Chris Blackwell, who brought the music of Cat Stevens, Bob Marley and the Wailers, U2, and other superstars to international audiences. The husband and wife acting team of Kevin Bacon and Kyra Sedgwick are also patients. They credit him with helping them maintain optimum health despite demanding work schedules, jet lag and other health challenges. “Frank Lipman has been our trusted friend and doctor for more than 15 years,” they say. “Time and



time again, Frank has helped us to restore our bodies to their natural rhythms and health.”

One of the many ways Dr. Lipman helps patients perk up is by having them cut out caffeine in favor of energy-enhancing supplements such as acetyl-L-carnitine. “Many people need caffeine every day to wake up so that’s a problem for their bodies,” he says. “If you have caffeine every now and then, that’s OK, but caffeine can tax the endocrine system which results in tiring the adrenal glands, body and mind,” he says. “I recommend 1-2 grams twice a day of acetyl-L-carnitine for menopausal women and men aged 50 and over.”

“When people reach age 70,” he continues, “I generally become more conservative with doses, so for people 70 and over, I would recommend just 1 gram twice a day.” He’s also a stickler for testing to discover any potential vitamin and mineral deficiencies. “Seventy percent of my practice is comprised of female patients,” he notes. “It is not uncommon for their blood tests to show deficiencies in vitamin D. I tell all my patients that there is much persuasive evidence-based medical research suggesting that calcium and vitamin D work synergistically to provide optimal potential clinical benefit to bones and the rest of the body.” (See sidebar for Dr. Lipman’s extensive personal supplement regimen.) A longtime *Life Extension*® reader, he says, “I’ve learned a lot over the years from reading the medical research that is discussed in the magazine, and I take some of the *Life Extension*® supplements, as well.”

An ex-South African who was born and raised in Emmarentia, Johannesburg, Dr. Lipman trained as a medical doctor in various hospitals in South Africa, and

Reset Your Body Clock to Revive and Thrive

“Stress is epidemic,” says Dr. Lipman, “because most of us maintain bad habits such as chronically sleeping and exercising too little, eating processed or unhealthy foods, and so forth. Lack of sleep combined with chronic stress causes a person’s body clock to get out of its natural, healthy rhythm,” he explains, “which in turn erodes energy and often leads to irritability and illness.” Here are some tips from Dr. Lipman on how to help reprogram your body clock in seven days. If you follow these, “Your body will start to feel more energized after one week,” he promises:

- Keep a consistent daily schedule. Get up at the same time every day, regardless of what time you go to bed.
- Get some natural light during the day, every day, by going for a walk, preferably in nature. If you live in an overcast, rainy

region, get some full-spectrum lights and install them where you spend most of your time.

- Darken your room completely. That means covering or turning off any of the blinking or glowing lights from the alarm clock, the cell phone charger, the DVD clock and timer, etc. Each little bit of light can stop your melatonin levels from rising, which you need to induce sleep and to experience the deep restorative sleep your body requires. If you can’t darken your room, wear an eye mask.
- Since your metabolism peaks at about noon, it is better for your body and mind to have a bigger breakfast and lunch and smaller dinner. Eat good fats and protein for breakfast because that is what your body and mind needs for fuel during the day.
- Exercise regularly to reduce stress.

in (then) homelands such as KwaNdebele, before settling in New York. “My wife and I immigrated to the USA and settled in New York City because we could no longer continue living under the racist Apartheid regime,” he says. He completed a three-year residency in Internal Medicine and for a number of years after that immersed himself in the study of Chinese medicine, functional medicine, nutrition, meditation and yoga. When Lipman opened Eleven Eleven Wellness Center in Manhattan in 1992, “I had a broad understanding of the strengths and weaknesses of my Western training. And I had a fund of knowledge thanks to other medical systems

I’d been studying. I felt ready to treat people scientifically yet holistically with various modalities.”

By the mid-1990s, however, Dr. Lipman noticed that more and more male and female patients reported feeling exhausted, depressed, overwhelmed, achy, and older than their years. “These people were eating ostensibly good diets and exercising, yet they were sleeping poorly,” he recalls. “They complained of low or no sex drive and were running on empty. I labeled this “syndrome” “SPENT,” and I believe that whatever you call it, many of us are feeling mentally and physically spent. Although Western medicine offers Prozac® and other potential panaceas,

Dr. Lipman's Daily Supplement Regimen

"I believe in front-loading supplements so that you give your body and mind a big boost to start the day," says Dr. Lipman. Typically, Dr. Lipman blends up a breakfast smoothie consisting of whey protein, almond milk plus a probiotic and plant-extract rich green powder. (For variety, he also uses a red powder that's high in probiotic and fruit extracts.) While his supplement intake depends on work load and travel schedule, Lipman supplied this "condensed version" during a tour of his office.

- Super MiraForte with Standardized Lignans: 2 capsules in the morning and 2 capsules in the evening
- SAME: 400 mg once or twice a day
- Calcium and vitamin D: 1,000 mg of each twice a day
- Sulforaphane (broccoli extract): 500 mg
- Alpha lipoic acid: 800 mg
- Coenzyme Q10: 200 mg
- Magnesium: 500 mg once or twice a day
- Acetyl-L-carnitine: 350 mg, sometimes 3 times a day
- Vitamin E (alpha and gamma tocopherols): 400 mg
- Omega-3 fish oil: 1,000 mg
- Adaptogenic formulae containing ginseng, cordyceps, ashwagandha, holy basil, and other herbs: dosage varies according to the seasons

"many physicians fail to recognize that this epidemic exists," Lipman says.

Pondering the files of spent patients, it soon occurred to Lipman that the only time he never saw folks with these symptoms was when he was working as a doctor 28 years ago in KwaNdebele, a rural area in South Africa. "I saw many diseases stemming from physical hardship, poverty, poor hygiene, and malnutrition," he recalls. "In KwaNdebele, there was no electricity, indoor heating or refrigeration. But people went to bed when it got dark, rose with the sun and ate only those foods that were in season. They lived in harmony with the rhythms of nature. Although desperately poor," he reflects, "my South African patients lived nature-based lives, which seemed to confer certain health advantages that many of my New York patients never enjoyed."

Dr. Lipman credits what he learned from studying Chinese medicine (that humans live in the natural world and are governed by the forces of nature) as helping him pinpoint the origins of his spent patients' problems. "Human bodies are creatures of their environments and are subject to the dictates of cyclical rhythms," he asserts. "Since these rhythms are fundamental elements of nature's self-organizing dynamic, I looked for scientific research documenting the relationship between natural rhythms and health." Fortunately, he found research in the field of chronobiology, the science that examines cyclical phenomena in living organisms.

"I was fascinated by the fact that the body runs according to more than 100 circadian rhythms," he says. "These are based roughly

on nature's 24-hour cycle, influencing different aspects of your body's function, including sleep and wake cycles, body temperature, hormone levels, brain wave activity, heart rate, blood pressure and even pain threshold. These rhythms also influence moods, and as I explain in *Revive*, our internal body clocks are set precisely to these rhythms and cycles of nature.

"For most of us, the only time we become aware of our body's internal rhythms and their importance is if and when we have jet lag after traversing a few time zones. With jet lag, you get tired easily, feel sluggish, you have trouble concentrating or thinking clearly, your body aches, you have trouble sleeping and you may even have digestive problems," Dr. Lipman says. "But unlike when you are spent, after a few days of jet lag, your body clock adjusts to the new time zone and you start feeling better."

According to Dr. Lipman, "When prompted correctly, our rhythms and body clocks can reset because the body moves naturally towards healing if you give it a chance." When our rhythms are in sync, we have more energy, everyday tasks are easier to perform—things just seem to unfold effortlessly." By making small but important lifestyle changes, (see sidebar Reset Your Body Clock to Revive and Thrive), Dr. Lipman says, "You'll soon feel more energetic, start sleeping better and reclaim your birthright of vibrancy and happiness." ●

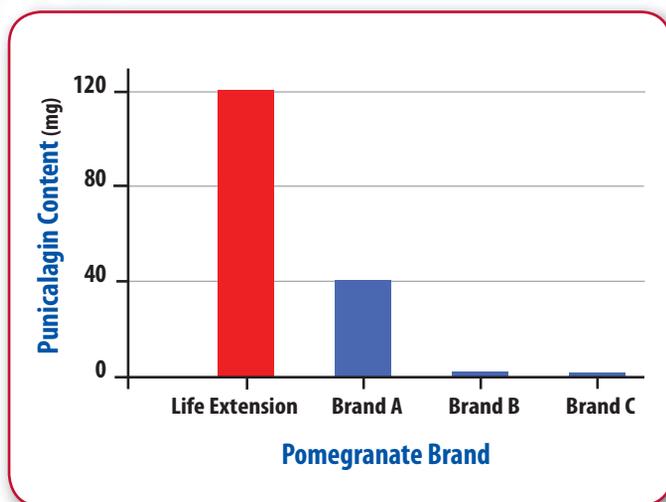
For more information about Dr. Lipman, visit www.drfranklipman.com.

How Potent is Your POMEGRANATE?

Some nutrients are easy to compare, but not **pomegranate**. The key factor is how much active ingredient is **absorbed** into your bloodstream.

Many pomegranate supplements are standardized for **ellagic acid**, but not the **punicalagin polyphenols** that make this fruit so unique. The reason that **punicalagins** are so important is that they are **95% absorbed** into the blood.¹

We assessed three popular pomegranate supplements and found them to be woefully **deficient** in bioavailable **punicalagins**. The chart below compares these leading pomegranate supplements to Life Extension®'s proprietary blend of **punicalagin** polyphenols:



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Pomegranate supplements with higher levels of **punicalagins** provide systemic benefits to cells throughout the body. Based on the weighted cost per gram, the cheapest pomegranate brand tested (Brand **A**) was half the price of *Life Extension's* capsules, but it had only a third of the punicalagin content (**40 mg** compared with **120 mg**). More expensive pomegranate brands (Brands **B** and **C**) contained only ellagic acid extract and not the full-spectrum polyphenols with **punicalagins**, limiting their effectiveness in the body.

If you take pomegranate for its unique benefits for arterial and prostate health, you can rest assured that **Life Extension Pomegranate** supplements are more potent and cost-effective. Just one capsule a day provides the natural concentration of polyphenol antioxidants with the same potency of biologically active **punicalagin polyphenols** found in **eight ounces of pomegranate juice** (plus standardized **cocoa** polyphenols).

A bottle of **30** vegetarian capsules of **Pomegranate Extract with CocoaGold™** retails for \$24. If a member buys four bottles, the cost is only **\$15.75 per bottle**.

Reference

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ITEM# 01256

How Theralac® Benefits Life Extension Members.

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LIFE EXTENSION
MEMBERS!**

Thank you, Life Extension Members for telling your family and friends about **Theralac**. We are pleased Theralac has helped so many of you!

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When probiotics are in control, a state of **eubiosis** exists and life is good: **effective digestion, absorption, and regularity prevail**. When probiotics are lacking, a

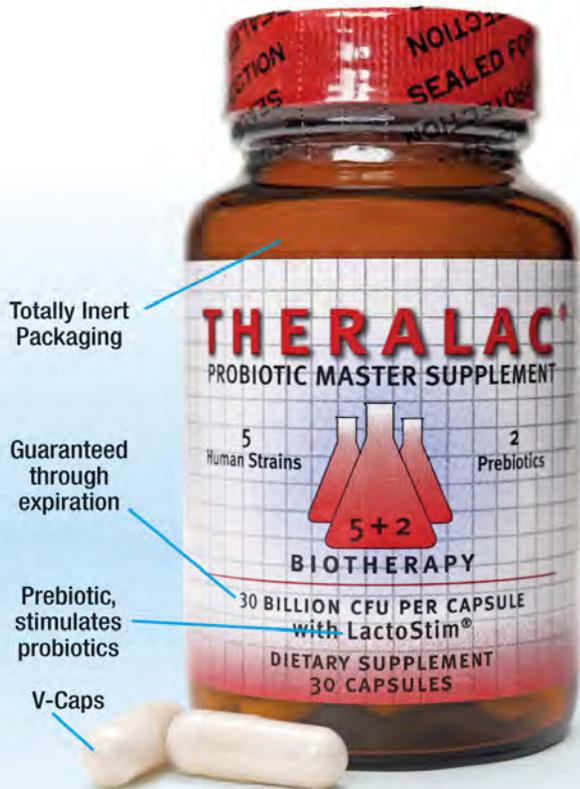
state of **dysbiosis**, often results: an unhealthy condition characterized by indigestion, cramping, bloating and discomfort.

Theralac's Rescue Plan: Just take **one or two Theralac capsules daily** and you will feel it working in less than a week, **guaranteed**. When you get back to feeling comfortable inside, back off to a maintenance dose of 2 capsules/week and save money! Theralac's patented formulation makes this value added benefit possible.

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NUTRACEUTICAL UPDATE

BY DALE KIEFER

LIGNANS

Important Phytonutrients for Robust Health

Lignans contain powerful agents that assist in cancer¹⁻²³ and heart disease prevention,²⁴⁻³⁶ and help maintain bone strength.

New research illuminates the many ways these largely unheralded dietary components help maintain optimal health. Some of these include: reduction of chronic inflammation,³⁷⁻³⁹ thwarting viral infection,^{40,41} improving glycemic control among diabetics, and decreasing insulin resistance.^{26,42} The data regarding cancer protection are

particularly compelling. As one researcher noted, “*Experimental evidence in animals has shown clear anticarcinogenic effects of flaxseed or pure lignans in many types of cancer.*”¹⁴³

Join us as we explore the often overlooked benefits of these important nutrients.

The Lowdown on Lignans

Lignans represent one of the four major classes of chemical compounds referred to collectively as *phytoestrogens*. Phytoestrogens are plant-based compounds structurally similar to estradiol, which is the primary estrogen hormone in humans. Phytoestrogens weakly engage estrogen receptors, figuratively flipping certain cellular “switches” on or off. These switches, or receptors, stud tissues located throughout



More than **500** lignans are known to exist in the plant kingdom.

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the body, in both men and women. They affect everything from arterial health, to brain function, sexual maturation and reproduction. Under certain conditions, they play a direct role in promoting, or defusing, aggressive cancer growth. It is hypothesized that the interplay between natural estradiol and other estrogens, and plant-derived phytoestrogens, is a prerequisite for optimal health.⁴⁴ Although much remains to be investigated, a preponderance of evidence indicates that dietary phytoestrogens exert positive, protective effects in humans.

Isoflavones, for instance, are another major class of phytoestrogens. Together, isoflavones and lignans are the most common phytoestrogens in the diet.⁴⁵ Numerous studies have documented the link between a high intake of soy

isoflavones and a reduced incidence of heart disease, osteoporosis and certain cancers.⁴⁶⁻⁵³ Soy phytoestrogens have been shown to significantly reduce total cholesterol, low-density lipoprotein (LDL), and triglyceride levels. And a high intake of phytoestrogens—particularly lignans—has recently been associated with a reduced risk of breast cancer among premenopausal women.¹⁶ Another recent study found that Scottish men with the highest intake of lignans have the lowest incidence of prostate cancer.⁷ Animal studies have generally echoed these findings. While there is still some controversy regarding the overall role of phytoestrogens in health, scientists generally acknowledge that a higher intake of phytoestrogens appears to be associated with a reduced risk of various diseases.^{7, 16, 48, 54-59}

Lignan Lineage

Significant quantities of lignans are present in foods ranging from whole grains (rye, wheat, oat, and barley) to berries, vegetables, legumes, and other fruits.⁶⁰ Sesame is a rich source of the lignan, *sesamin*. And new research indicates that a “novel synergistic effect” of newly discovered lignans interacting with vitamin E accounts for “the anti-aging effect of sesame.” The lignans evidently help prevent the decomposition of sesame tocopherols (vitamin E compounds), preserving the antioxidant potency of the vitamin E. According to a Japanese review of sesame research, “Sesame lignans also showed other useful functions, such as acceleration of alcohol decomposition in the liver; antihypertensive activity, immunoregulatory activities, anticarcinogenic activity, and others.”⁶¹

The primary lignan in flaxseed is *secoisolariciresinol*. Other lignans bear equally tongue-twisting names, but only two lignans are of ultimate significance to human health: *enterodiol* and *enterolactone*. These biologically active lignans are known as *enterolignans*, or “mammalian lignans.” They are formed in the human digestive tract through the interaction of gut-dwelling bacteria with dietary lignans. Plant-based lignans are considered precursors, then, to the bioactive mammalian lignans.

Anti-Cancer Activity

While extra virgin olive oil is widely recognized as a heart-healthy oil, it also contains lignans, which further contribute to the beneficial nutritional profile of this functional food. Recently published research indicates that olive oil lignans, among other olive



oil chemicals, may play an active role in protecting against breast cancer. This was demonstrated recently by Spanish researchers working with breast cancer cells that overexpress a protein known as Human Epidermal growth factor Receptor 2 (commonly abbreviated as HER2/neu).^{62,63} HER2 is a protein associated with highly aggressive growth by certain breast cancers, so thwarting this protein is especially desirable. In fact, Spanish researchers wrote recently, "...Humans have safely been ingesting...lignans as long as they have been consuming olives and olive oil, [supporting] the notion that...these phytochemicals might provide an excellent and safe platform for the design of new HER2-targeting agents."⁶³



Diets including plenty of whole grains, nuts, seeds, legumes, fruits, and vegetables are loaded with lignans, and such diets have been consistently associated with a reduced risk of cardiovascular disease.

One well-studied lignan, *podophyllotoxin*, is so effective at targeting cancer cells for destruction it has been modified for use in chemotherapy. Its semi-synthetic derivatives, etoposide, teniposide, and etoposide phosphate, are routinely used to combat deadly lung cancer, among other malignancies.^{5,64} Korean researchers showed recently that a lignan derived from an Asian medicinal plant, *Daphne genkwa*, arrested growth and induced apoptosis of promyelocytic leukemia cells in the laboratory. The lignan, researchers concluded, "may be a potential chemotherapeutic agent for the treatment of cancer."¹³

In animal models of human breast cancer, dietary lignans, which are converted to enterolactone, have been shown to inhibit or delay the growth of breast cancer.² This effect is believed to be due to enterolactone's ability to modulate estrogen signaling. This protective effect evidently extends well beyond breast cancer, however. Experimental evidence suggests that dietary lignans also offer significant protection against tumors of the liver, prostate, skin, colon and other organs.^{1,5,6,8,11,19-22,64}

A Dutch case-control study found a clear association between a high intake of lignans and a reduced risk of colorectal

adenomas, which are considered to be precursors to colon cancer. "We observed a substantial reduction in colorectal adenoma risk among subjects with high plasma concentrations of enterolignans," investigators concluded.¹⁴

Of course, animal models are one thing, while actual effects in humans are another. But a variety of studies on human subjects support the conclusion that dietary lignans protect us against numerous cancers. For instance, French researchers conducted a prospective study of more than 58,000 postmenopausal women, who were followed for an average of 7.7 years. Statistical analysis revealed that a greater intake of dietary lignans was clearly associated with a reduced risk of breast cancer. "High dietary intakes of plant lignans and high exposure to enterolignans were associated with reduced risks of estrogen receptor- and progesterone receptor-positive postmenopausal breast cancer..." researchers

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concluded.²³ A Swedish study reached a similar conclusion. After studying nearly 52,000 women, researchers concluded: “A significant 17% risk reduction for breast cancer overall in the high lignan quartile was observed...”¹¹

Cardiovascular Protection

Diets including plenty of whole grains, nuts, seeds, legumes, fruits, and vegetables are loaded with lignans, and such diets have been consistently associated with a reduced risk of cardiovascular disease. Of course, such diets also contain a host of other phytonutrients, so this cardioprotective effect would not necessarily be owed solely to the high lignan content. But studies that have investigated this question appear to confirm an important role for lignans in cardiovascular protection.^{32,34-37,65}

In 1998, for example, Canadian researchers addressed the issue by examining the effects of two different types of flaxseed on markers of atherosclerosis in rabbits. One group received flaxseed high in

both lignans and the omega-3 fatty acid, alpha-linolenic acid (ALA). A second group received a type of flaxseed, called Type II, which is high in lignans but virtually devoid of fatty acids. Both types of flaxseed reduced atherosclerosis. Type II flaxseed reduced the development of atherosclerosis by 69%. Researchers concluded that the reduction in atherosclerosis by the low-omega-3 flaxseed was due to a decrease in serum total cholesterol and LDL. “In conclusion,” they wrote, “[the atherosclerosis-reducing] activity of Type II flaxseed is not due to alpha-linolenic acid.”³⁶

Several clinical trials have reported a link between flaxseed consumption and modest, but significant, reductions in LDL levels. Subjects experienced from 8 to 14% reductions in levels of this “bad” lipid.^{34,35,65} Of course, the importance of lowering LDL for optimal heart health is widely

documented. More recently, US scientists conducted a randomized, placebo-controlled, double-blind study of the relationship between flaxseed consumption and cardiovascular disease risk factors in adults with high cholesterol.

Subjects consumed 40 grams ground flaxseed per day, or placebo, for 10 weeks. Compared to placebo (wheat), flax significantly reduced LDL levels at five weeks. Average reductions were 13%. By 10 weeks, reductions were approximately 7%. “Ground flaxseed has a modest but short lived LDL-cholesterol lowering effect,” researchers concluded. Additionally, levels of lipoprotein (a) were significantly reduced, by about 14%, and insulin sensitivity was significantly increased.³⁰ High levels of lipoprotein (a) are associated with an increased risk of atherosclerosis, which is a root cause of most heart disease.⁶⁶



Bolstering Bone Health

Osteoporosis threatens the health of both aging men and women, but it is especially troublesome for elderly women. In the United States, approximately 10 million Americans are affected by osteoporosis, and the financial impact of the disease is estimated to be at least \$17.9 billion per year.⁵² Characterized by a progressive loss of bone mass through a process known as demineralization, osteoporosis increases bone fragility, thus increasing the risk of fracture.¹⁰ Among women, estrogen deficiency following menopause plays an enormous role in the development of bone fragility.⁶⁷ Observational studies have shown that populations with a high intake of soy isoflavones experience a lower incidence of osteoporosis-related fractures compared to Western populations.⁴⁹

Researchers examined data from more than 70 studies for a 2003 review of the evidence regarding phytoestrogens (including lignans) and bone health. These included studies involving bone cells grown in the laboratory, investigations using animal models of human postmenopausal osteoporosis, and human observational/epidemiologic and human dietary intervention studies. "On balance," wrote the authors of the review, "the collective data suggest that diets rich in phytoestrogens have bone-sparing effects in the long term..."⁵⁰ More recently, Chinese researchers conducted a meta-analysis, in which data from numerous clinical trials is combined and statistically analyzed. After examining data from ten trials, involving more than 600 subjects, they wrote: "The spine bone mineral density in subjects who consumed



isoflavones increased significantly...in comparison to that in subjects who did not consume isoflavones."⁵¹

These investigators concluded: "Isoflavone intervention significantly attenuates bone loss of the spine in menopausal women. These favorable effects become more significant when more than 90 mg/day of isoflavones are consumed." Furthermore, wrote the Beijing-based scientists, "... Soy isoflavone consumption for six months can be enough to exert beneficial effects on bone in menopausal women."⁵¹ Thus it is possible to protect bone health even later in life, by increasing phytoestrogen intake.

While many of these studies have considered the bone-sparing effects of isoflavone phytoestrogens, rather than lignans in particular, there is strong evidence that

lignans are equally effective at protecting against osteoporosis. For example, Japanese researchers conducted an experiment on female rats, removing their ovaries to simulate the effects of menopause on women. The bones of test animals that received the lignan, isotaxiresinol, for six weeks were compared to the bones of rats that did not receive the lignan. Both bone mineral content and bone mineral density were increased in test animals as compared to control rats, and decreases of three bone strength indexes, induced by the removal of the animals' ovaries, were prevented. "Biochemical markers for bone remodeling revealed that isotaxiresinol slightly *increased* bone formation and significantly *inhibited* bone resorption [bone loss] without side effect on uterine tissue," wrote the scientists.⁵³

NUTRACEUTICAL UPDATE

Summary

Lignans may not often make headlines, but chances are they've been protecting you from a variety of degenerative conditions for as long as you have been consuming whole grains, legumes, vegetables, soy and/or flaxseed. Life Extension® members consume potent *lignan* concentrates in the supplements they use every day. A plethora of evidence shows that these important phytochemicals work in a variety of ways to prevent cancer, protect the cardiovascular system, ward off viral infection, and maintain bone health. ●

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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Tired of Taking "Half-Measures" To Protect Your Health and Long-Term Vitality? *Then You Need To Read This...*

By Greta Blackburn

I'm sure this is not news to you. As a reader of *Life Extension Magazine* you are way ahead of the pack already. But the truth remains that we are facing a literal pandemic of obesity, bad health and debilitating old age here in the United States of America.

And here's the really scary part... We are not alone. All across the world, rates of obesity are climbing dramatically. China. India. It's now planet-wide. You could say this is a very bad result from a very good thing - there's obviously more food to go around. And we aren't toiling in the fields anymore, burning off fat. But the truth of the matter is this - obesity and poor nutrition lead to enormous health problems such as diabetes, cancer, heart disease, and many others. And "easy chair" lives have turned us soft.

There is good news, though. The same technology that has enabled us to live cushy lives has also produced hard data that can help us overcome this challenge. We have research on how to improve nutrition and we have studies that clearly detail the benefits of regular cardiovascular workouts, as well as from resistance training. Even more recently, breakthrough work on the role that telomeres play in aging on a cellular level and other emerging technologies have offered hope that we can actually turn back the clock on our bodies.

As someone who pays particular attention to your health and your physical condition, you have already moved way past the all-too-common "help me lose a few pounds" phase. You're ready to go beyond the superficial to find proven tools and strategies to transform your body into a lean, mean, energized machine for decades - not years - to come.

My name is Greta Blackburn and for more than three decades I've been deeply involved in nutritional science, physical fitness, and anti-aging research. As the Founding Editor of *Ms. Fitness Magazine* we pioneered the notion that strength plus vitality equals beauty.

My FITCAMPS created a revolution in the fitness industry by turning endless gym workouts of dreary leg-lifts and

jumping jacks into a whirlwind experience packed with leading-edge science, innovative exercise, and just flat-out fun! And for the past four years, and until recently, I helped get TA Sciences, a company that is a pioneer in the field of telomeres and anti-aging, off the ground. I branched out from TA to more effectively spread the word about living long and living well. You see, the core passion of my life has been to help others live stronger, healthier, longer, and fuller lives through nutrition, exercise, and science.

This coming April I've pulled together an incredible educational and experiential event for anyone who wants to enjoy this kind of transformation for themselves. **It's called "FITCAMP Cancun" and it will run from April 14-18, 2010.**

At FITCAMP Cancun:

- The scientific roadmap to reverse the aging process by 2029 will be revealed.
- You will experience a uniquely comprehensive blend of personalized physical challenges (designed just for you!).
- You will meet the experts and learn about the absolute latest research on diet, nutrition, exercise, and anti-aging technologies. Dr. Bill Andrews, co-discoverer of the hTert Telomerase Gene will be on hand to explain theories of Telomere Biology. Dr. Joe Mercola will tell you why Vitamin D is so important to your health and how to get the best source.
- The Maximum Life Foundation's David Kekich will discuss his exciting book *Life Extension Xpress* and show you the Seven Steps to Healthy Aging.
- Learn how to become a Telonaut (www.telonauts.com). Dr. Dave Woynarowski will be on hand to explain the fun "TRIBE" of early adopters- like you- who form this unique international club.
- Meet Producer Michael Jacobsen, co-host of radio's *The Telonaut Hour*. Michael is committed to creating meaningful entertainment and is soon bringing *Dirty Dancing* to the Broadway stage. He has toured Elton John, Barbra Streisand and others through Europe. Learn his plan to help make Hollywood Holistic.
- Interval Training is the hot new thing in gyms everywhere. Phil Campbell wrote the book on it. ReadySetGo! Fitness will change your body, your biochemistry, up your Human Growth Hormone levels naturally, and carve you slim in 20 minutes four times a week doing whatever exercise you like best!
- Experience firsthand what is fast becoming the world's "Fountain of Youth" destination resort: www.CeibaDelMar.com

FITCAMP Cancun will push your limits and expand your mind as to what's



Greta B's
FITCAMP

Spend April 14th - 18th, 2010 in paradise at Ceiba Del Mar, Cancun, Mexico.

FITCAMP Package prices start at \$1,599 (excluding airfare). For more info and FITCAMP schedule, go to www.fitcamp.com

possible given current research and technology. It's packed start to finish with great teachers, incredible training, and hands-on experiences that will totally expand the horizon on how you view your life, your health, and your future.

Plus, FITCAMP Goody Bags are legendary for their abundance and practicality! Receive a FREE LEF Gift Pack when you enroll.

Questions? Call 1-800-727-2888.

Or for more information, head over to the official website: www.fitcamp.com

Registration is limited and slots are disappearing fast. So make sure to check this out and register today. And be sure to mention that you are an LEF member to receive a member's only discount.

You do not want to miss this.

Sincerely,
Greta Blackburn

Featured Presenters:



Dr. Joseph Mercola



Dr. Bill Andrews



Dr. Dave Woynarowski



David Kekich



Michael Jacobsen



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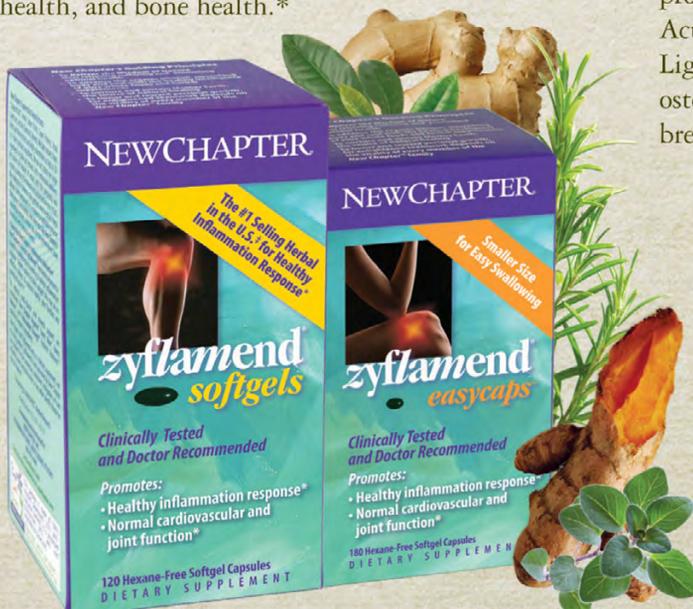
The #1-Selling[‡] Herbal Formula for Healthy Inflammation Response*

Multiple Synergistic Components, Whole Body Benefits

Many people think that only joints are affected by inflammation. The truth is that the body's natural inflammatory response affects everyone and every major organ system. Given the link between a healthy inflammation response and whole body health – a source of extensive and ongoing research – a supplement strategy geared toward promoting a healthy inflammation response is as fundamental as a daily multivitamin.* Research at leading medical institutions, including human clinical trials, has demonstrated a unique herbal formulation's ability to promote a safe, natural and healthy response to inflammation.*

Zyflamend contains many herbs used traditionally to promote a healthy inflammation response.* Many of these herbs have been part of the human diet for thousands of years.

Zyflamend is the #1-selling herbal in the U.S.[‡] for healthy inflammation response.* It contains hundreds of bioactive constituents from ten of the most researched botanicals that promote a healthy inflammatory response and provide multiple health benefits: healthy aging, joint health, heart health, and bone health.*



[‡] According to 2009 SPINS Data

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

Zyflamend for Healthy Aging

Aging is not the simple result of the passage of time. According to a provocative new view, it is actually something our own bodies create, a side effect of the essential inflammatory system. Resveratrol, a natural constituent commonly linked to red wine, is a powerful antioxidant. One serving of Zyflamend contains resveratrol equal to six glasses of wine!

Zyflamend for Joint Health

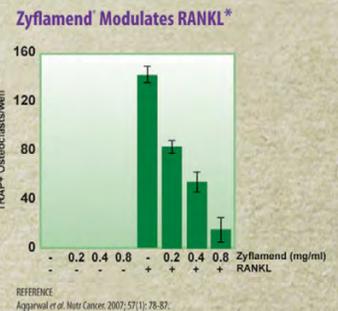
Modulation of the inflammatory process is an important and useful strategy for maintaining healthy joint function.* A healthy inflammatory response may also contribute to a control of adverse bone changes that can cause discomfort and compromise the integrity of the joint. When the inflammatory response is out of balance, joint health may be complicated, in most cases, with bone and soft tissue breakdown of the joint.

Zyflamend for Heart Health

Recent research suggests that the key factor in predicting heart health is gauging the amount of inflammation in the arteries. Maintaining a healthy cardiovascular system is strongly linked to a healthy inflammation response – Zyflamend is the first choice for promoting heart health.*

Zyflamend for Bone Health

Emerging evidence suggests that inflammation exerts a significant effect on bone metabolism by stimulating production of RANKL (Receptor Activator for Nuclear Factor K B Ligand), a molecule which activates osteoclasts, the cells responsible for the breakdown of bone.



Zyflamend 120 Softgels Item# 01051

Retail Price: \$58.95 **Member Price: \$44.21**

Zyflamend 180 EasyCap Softgels Item# 01029

Retail Price: \$29.95 **Member Price: \$22.46**

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SUPER FOODS

BY JON FINKEL

The Sweet Potency of the Sweet Potato

While sweet potatoes usually only take center stage in our diets when they're on the table at Thanksgiving dinner, the *sheer magnitude* of their health benefits may force you to reconsider eating this

dessert-flavored vegetable on a nightly basis.

With their impressive array of **nutrients**, from heavy doses of *vitamin A*, *vitamin C*, *manganese* and *potassium*, to its *high fiber* content, sweet potatoes have astounding health-boosting properties.¹ In addition, the purple-fleshed variety of sweet potatoes are high in *anthocyanins*.

Anthocyanins have important antioxidant capacities that make it a valuable component to any health maintenance regimen.²

Improved insulin resistance was also discovered in a human study when sweet potatoes were added to the diet.¹



SUPER FOODS



Sweet Potato's Tale

First things first: sweet potatoes aren't even potatoes. Potatoes come from the *Solanaceae* family and sweet potatoes belong to the *Convolvulaceae* family, which is a group of plants that have trumpet-shaped flowers.¹ Sweet potato relics have been found as long ago as 8,000 BC and the vegetables themselves were brought to Europe by Christopher Columbus after his first trip to North America in 1492. There are over 400 varieties, each differentiated by their subtle variations in skin color, ranging from purple to red to orange to yellow to white. The most common form of sweet potato has orange flesh and is often called a yam. It was given that name in the 1900s in the

United States to help set it apart from the white-fleshed sweet potato that was popular during that time period.¹

Valuable Vegetable

In a study conducted by the Center for Science in the Public Interest, the sweet potato scored more than 100 points higher than a regular baked potato.³

Echoing this study, the journal *Advances in Food and Nutrition Research* evaluated the sweet potato's role in the human diet and concluded that its biochemical and nutritional composition make it an excellent source of natural health-promoting compounds.⁴ Among those compounds are beta-carotene, as stated earlier,

and anthocyanins, which have shown potential health benefits against *bacterial infections, diabetes, inflammation, aging and neurological disease, and cancer.*⁵

Beta Carotene for the Brain

With its high beta-carotene content, eating sweet potatoes can offer improvement in a variety of areas where beta carotene supplementation is recommended. One particular area where beta-carotene has shown promising results is with cognitive function in men. A study published in the *Archives of Internal Medicine* showed that men supplementing with beta-carotene for one year scored significantly higher than those taking a placebo in general cognitive tests.⁵ When it came to boosting verbal memory, men receiving long-term beta-carotene supplementation also performed significantly better, leading the researchers to conclude

Select the Right Sweet Potato

1. Do not store uncooked sweet potatoes in the refrigerator.
2. Store sweet potatoes in a dark, cool, and ventilated place.
3. Sweet potatoes will stay fresh for 10 days.
4. The darker varieties of sweet potato have the most carotene content.
5. Choose sweet potatoes that are firm.
6. Avoid sweet potatoes with bruises, soft spots, and cracks.

SWEET POTATO, BAKED, WITH SKIN 1 potato

Nutrient	Amount	DV (%)
Vitamin A	1310.69 RE	
Beta-carotene	7864.16 mcg	
Vitamin C	17.06 mg	28.4
Manganese	0.52 mg	26.0
Copper	0.26 mg	13.0
Dietary fiber	3.14 g	12.6
Vitamin B6 (pyridoxine)	0.25 mg	12.5
Potassium	306.05 mg	8.7

Source: <http://www.whfoods.com/genpage.php?tname=foodspice&dbid=64>



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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that long-term supplementation with beta-carotene may provide cognitive benefits.

Diabetes Fighter

Diabetes is an **insidious disease** whose early symptoms include weakness, fatigue, weight loss and tingling in the hands and feet.⁶ Left untreated, the disease can have *lethal effects* on your health. In a study involving rats to determine sweet potato's effects on several markers of diabetes, the vegetable showed *significant* abilities to potentially reel in some of the more harmful markers.¹ Using white-fleshed sweet potatoes for the study, the rats showed impressive improvement in pancreatic cell function, lipid levels, and glucose management. They also showed reduced insulin resistance inside of just eight weeks. Improved insulin resistance was also discovered in a human study when sweet potatoes were added to the diet.¹

Powerful Tool Against Kidney Cancer

Incidence of kidney cancer is relatively high in Northern Europe and North America compared to Asia and scientists have been trying to find out what may cause the discrepancy.

A study in the *Journal of Epidemiology* states that one of the reasons may be the rate of ingestion of sweet potatoes in the diet of Asian cultures.⁷ The study, which was an analytic cohort that evaluated the risk factors for kidney cancer death using the Japan Collaborative Cohort Study (JACC), included 47,997 males and 66,520 females aged 40 years and older. Taking into account medical history, anthropometry, dietary and lifestyle considerations over the 10-year study, the researchers concluded that eating sweet potatoes and potatoes regularly was associated with a decreased risk of disease. ●



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

Five Easy Steps:

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

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

For Our Local Members:

For those residing in the Ft. Lauderdale, Florida area, blood-draws are also performed at the Life Extension Nutrition Center from 9:00 am to 2:00 pm Monday through Saturday. Simply purchase the blood test and have it drawn with no wait! Our address is 1100 West Commercial Blvd, Ft. Lauderdale, FL, 33309. We're located at Commercial Blvd and Powerline Road, just west of I-95. For more information or directions call 954-766-8144.

Blood Testing The Ultimate Information

MOST POPULAR PANELS Life Extension Member Pricing

- COMPREHENSIVE PANELS**

○ MALE LIFE EXTENSION PANEL (LC322582) \$269
 CBC/Chemistry Profile
 DHEA-S
 PSA (prostate-specific antigen)
 Homocysteine
 C-Reactive Protein (high-sensitivity)
 Free Testosterone
 Total Testosterone
 Estradiol
- MALE HORMONE ADD-ON PANEL (LCADDM) \$160**
Pregnenolone, Dihydrotestosterone (DHT), and TSH
 To provide an even more in-depth analysis of a man's hormone status, Life Extension has created this panel as an addition to the Male Life Extension Panel. This panel provides valuable information about the thyroid, a testosterone metabolite that can affect the prostate, and the mother hormone that acts as a precursor to all other hormones.
- LIFE EXTENSION MALE WEIGHT LOSS PANEL (LCWLM) \$324**
 CBC/Chemistry Profile, DHEA-S, Free Testosterone, Total Testosterone, Estradiol, PSA, C-Reactive Protein, Homocysteine, TSH, Free T4, Free T3
- FEMALE LIFE EXTENSION PANEL (LC32535) \$269**
 CBC/Chemistry Profile
 DHEA-S
 Estradiol (an estrogen)
 Homocysteine
 C-Reactive Protein (high-sensitivity)
 Progesterone
 Free Testosterone
 Total Testosterone
- FEMALE HORMONE ADD-ON PANEL (LCADDF) \$130**
Pregnenolone, Total Estrogens, and TSH
 To provide an even more in-depth analysis of a woman's hormone status, Life Extension has created this panel as an addition to the Female Life Extension Panel. This panel provides valuable information about the thyroid, total estrogen status, and the mother hormone that acts as a precursor to all other hormones.
- LIFE EXTENSION FEMALE WEIGHT LOSS PANEL (LCWLF) \$324**
 CBC/Chemistry Profile, DHEA-S, Free Testosterone, Total Testosterone, Estradiol, Progesterone, C-Reactive Protein, Homocysteine, TSH, Free T4, Free T3
- LIFE EXTENSION THYROID PANEL (LC304131) \$75**
 TSH, T4, Free T3, Free T4.
- MALE HORMONE RE-TEST PROFILE (LCRTM) \$275**
 CBC/Chemistry Profile, DHEA-S, Dihydrotestosterone (DHT), Estradiol, PSA, Pregnenolone, Total and Free Testosterone, and TSH. Continual monitoring of hormone levels is necessary for men seeking to maintain optimal blood level values.
- FEMALE HORMONE RE-TEST PROFILE (LCRTF) \$250**
 CBC/Chemistry Profile, DHEA-S, Total Estrogen, Pregnenolone, Total and Free Testosterone, Progesterone, and TSH. Continual monitoring of hormone levels is necessary for women seeking to maintain optimal blood level values.
- DR. LICHTEN COMPREHENSIVE MALE PANEL (LICHTEN01M) \$668**
MALE LIFE EXTENSION PANEL PLUS:
 IGF-1, FSH, LH, TSH, T4 free, Cortisol, Fasting Insulin, Sex Hormone Binding Globulin, and Hemoglobin A1C.
- DR. LICHTEN COMPREHENSIVE FEMALE PANEL (LICHTEN01F) \$668**
FEMALE LIFE EXTENSION PANEL PLUS:
 IGF-1, FSH, LH, TSH, T4 free, Cortisol, Fasting Insulin, Sex Hormone Binding Globulin, and Hemoglobin A1C.
- THE CBC/CHEMISTRY PROFILE (LC381822) OVER 40 PARAMETERS TESTED \$35**
CARDIOVASCULAR RISK PROFILE
 Total Cholesterol Cholesterol/HDL Ratio
 HDL Cholesterol Estimated CHD Risk
 LDL Cholesterol Glucose
 Triglycerides Iron
LIVER FUNCTION PANEL
 AST (SGOT) Total Bilirubin
 ALT (SGPT) Alkaline Phosphatase
 LDH
KIDNEY FUNCTION PANEL
 BUN BUN/Creatinine Ratio
 Creatinine Uric Acid
BLOOD PROTEIN LEVELS
 Total Protein Globulin
 Albumin Albumin/Globulin Ratio
BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE
 Red Blood Cell Count Monocytes
 White Blood Cell Count Lymphocytes
 Eosinophils Platelet Count
 Basophils Hemoglobin
 Polys (Absolute) Hematocrit
 Lymphs (Absolute) MCV
 Monocytes (Absolute) MCH
 Eos (Absolute) MCHC
 Baso (Absolute) Polynucleated Cells
 RDW
BLOOD MINERAL PANEL
 Calcium Sodium
 Potassium Chloride
 Phosphorus Iron
- NOTE: CBC/Chemistry profile is included in the Male and Female Life Extension panels.**
- 24-HOUR URINARY PROFILES ^{NEW}**

 - URINARY COMPLUS PANEL (LCM4080) \$472.50**
 This 24-hour urinary steroid hormone profile contains a combination of 30 hormones and metabolites. This panel may be used to evaluate bio-identical hormone replacement therapy.
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 This 24-hour urinary steroid hormone profile contains a combination of 17 hormones and metabolites. This panel may be used to evaluate bio-identical hormone replacement therapy.
 - URINARY ADRENAL PROFILE (LCM4000) \$315**
 This 24-hour urine test measures a combination of 12 steroid hormones and metabolites synthesized by the adrenal cortex and may prove useful in the evaluation of endocrine disorders, stress, adrenal insufficiency, and more.
 - URINARY ESTROGEN PROFILE (LCM4061) \$281.25**
 This 24-hour urinary steroid hormone profile contains a combination of 8 hormones and metabolites. This panel may be used to evaluate bio-identical hormone replacement therapy.

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



MOST POPULAR SINGLE TESTS

Life Extension Member Pricing

HORMONES

- CORTISOL (LC004051)** \$39
This test is to measure adrenal function.
- ADRENOCORTICOTROPIC HORMONE (ACTH)* (LC004440)** **NEW**
\$91
A pituitary function test useful in evaluating adrenocortical dysfunction.
- DHEA-SULFATE (LC004697)** \$61
This test shows if you are taking the proper amount of DHEA. This test normally costs \$100 or more at commercial laboratories.
- DIHYDROTESTOSTERONE (DHT)* (LC500142)** \$99
Measures serum concentrations of DHT.
- ESTRADIOL (LC004515)** \$33
For men and women. Determines the proper amount in the body.
- INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN 3 (IGFBP3) (LC140152)** \$47
Elevated levels in hypertensive individuals have been associated with a nine-fold increase of carotid arteriosclerosis.
- INSULIN FASTING (LC004333)** \$42
Can predict those at risk of diabetes, obesity, and heart and other diseases.
- PREGNENOLONE* (LC140707)** \$116
Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.
- PROGESTERONE (LC004317)** \$55
Primarily for women. Determines the proper amount in the body.
- 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.
- SOMATOMEDIN C (IGF-1) (LC010363)** \$75
Indicates growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality.
- TOTAL AND FREE TESTOSTERONE (LC140103)** \$99
Determines whether testosterone replacement should be considered as a therapy for depression, abdominal obesity, low energy, poor mental performance, or loss of libido.
- URINARY 2/16 ESTROGEN METABOLITE RATIO (LCU73000)** \$128
This ratio is relevant as a risk factor for estrogen-sensitive diseases including breast and cervical cancers, osteoporosis, and recurrent respiratory papillomatosis.

CARDIAC RISK

- Lp-PLA2 (PLAC TEST) (LC141275)** \$125
This test is used to aid in predicting risk for coronary heart disease, and ischemic stroke associated with atherosclerosis. Lp-PLA2 is a cardiovascular risk factor that provides unique information about the stability of the plaque inside your arteries.
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Measures inflammation factors in arteries. Recent studies indicate that C-reactive protein may be the most accurate risk factor for predicting heart attack and stroke.
- APOLIPOPROTEIN ASSESSMENT - (APO A1 + APO B + RATIO) (LC216010)** **NEW**
\$55
This ratio correlates with risk of coronary artery disease and is useful in the presence of borderline elevations of cholesterol.
- FIBRINOGEN* (LC001610)** \$31
High levels of this blood-clotting factor increase the risk of heart attack and stroke.
- HOMOCYSTEINE (LC706994)** \$64
Can indicate if you are likely to have a heart attack or stroke. Even if you take folic acid, you still may have dangerously high levels of this artery-clotting metabolic debris that can be lowered with high doses of TMG and vitamin B6.
- VAP™ TEST (LC804500) (UPDATED)** \$185
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.
- MALE HEALTH**
- PSA (PROSTATE-SPECIFIC ANTIGEN) (LC010322)** \$31
Can provide an early warning sign for prostate disorders and possible cancer.
- FREE-PSA (INCLUDES TOTAL PSA)* (LC480780)** \$61
Recommended to determine if an elevated PSA is indicative of prostate cancer.
- GENERAL HEALTH**
- CELIAC DISEASE ANTIBODY SCREEN (LC334971)** **NEW**
\$99
This test measures deamidated gliadin IgA, tissue transglutaminase IgA, and serum IgA.
- 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.
- VITAMIN C* (LC001479)** **NEW**
\$47
Levels of vitamin C are used to measure nutritional status.
- FOOD SAFE ALLERGY TEST (LCM73001)** \$174
This test measures delayed (IgG) food allergies for 45 common foods.

ORDER LIFESAVING 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.

1100 West Commercial Blvd.,
Ft. Lauderdale, FL 33309

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

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

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

Products

AMINO ACIDS

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Branched Chain Amino Acids
D, L-Phenylalanine Capsules
GABA Powder
Glycine Capsules
Glycine Powder
Arginine Capsules
L-Arginine Free Base Powder
Arginine/L-Ornithine Capsules
L-Carnitine Capsules
L-Carnitine Powder
L-Cysteine Capsules
L-Glutathione, L-Cysteine & C
L-Glutamine Capsules
L-Glutamine Powder
L-Lysine Capsules
L-Lysine Powder
L-Methionine Powder
L-Tyrosine Powder
L-Tyrosine Tablets
Mega L-Glutathione Capsules
N-Acetyl-Cysteine Capsules
Optimized Carnitine with GlycoCarn®
PharmaGABA
Super Carnosine Capsules
Taurine Capsules
Tryptopure® Tryptophan
(Optimized) Tryptopure® Plus

BONE & JOINT HEALTH

ArthroMax™ with Theaflavins
Bone-Up™
Bone Restore™
Bone Strength Formula w/KoAct™
Chondroitin Sulfate
Chondrox
Fast Acting Joint Formula
Glucosamine Chondroitin Capsules

BRAIN HEALTH

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
CDF Choline Capsules
Cognitex with NeuroProtection Complex
Cognitex with Pregnenolone &
NeuroProtection Complex
DMAE
DMAE-Ginkgo
DMAE Powder (37% DMAE)
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin with B5 and BHA
Lecithin Granules
Methylcobalamin Lozenges
Optimized Ashwagandha Extract
Phosphatidylserine Capsules
Rhodiola Extract
Super Ginkgo Extract
Vinpocetine

DIGESTIVE

Agave Digestive-Immune Support
Bromelain Powder
Carnosoothe w/PicroProtect
Digest RC™
Enhanced Super Digestive Enzymes
(also available with Probiotics)
Florastor
Intact Digest
Life Flora™
Natural EsophaGuard
NutraFlora (FOS) Powder
N-Zimes™
Pancreatin
Papain Powder
Primal Defense
Regimint™

DURK AND SANDY PRODUCTS

Blast™
Dual-C
Inner Power™
Memory Upgrade

EYE CARE

Bilberry Extract
Blackcurrant Freeze Dried Extract
Brite Eyes III
Lutein Plus Powder
Overxcast Polarized Sunglasses
Solarshield Sunglasses
Super Zeaxanthin with Lutein &
Meso-Zeaxanthin
(Plus Astaxanthin also available)
Vision Optimizer

FIBER

Apple Pectin Powder
Chitosan
Enhanced Fiber Food Powder
Hi-Lignan® Nutri-Flax®
SlimStyles® PGX
WellBetX PGX® Soluble Fiber Blend

HAIR CARE

Dr. Proctor's Advanced Hair Formula
Dr. Proctor's Shampoo
Healthy Hair Spray
Life Extension Shampoo and Conditioner
Super-Absorbable Tocotrienols

HEART HEALTH

Advanced Lipid Control
Cho-Less
D-Ribose Capsules
D-Ribose Powder
Endothelial Defense
Enhanced CoQ10 with Brewer's Yeast
Fibrinogen Resist
Forskolin
Homocysteine Resist
Low Dose Aspirin (Enteric Coated)
Natural BP Management
Peak ATP® with GlycoCarn®
Policosanol
Red Yeast Rice
Super Absorbable CoQ10™ with *d*-Limonene
Super Omega-3 EPA/DHA with Sesame
Lignans & Olive Fruit Extract
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with Enhanced
Mitochondrial™ Support
Sytrolin™
Theaflavin Standardized Extract
TMG Powder
TMG Tablets
Vascular Protect

HERBAL/PHYTO PRODUCTS

Artichoke Leaf Extract
Astaxanthin
Berry Complete
Blackcurrant Juice Concentrate
Blueberry Extract
Blueberry Extract w/Pomegranate
and CocoaGold™
Butterbur Extract w/Standardized
Rosmarinic Acid
Calcium D-Glucarate
Chloroplex
Cilantro Herbal Extract
Citrus Bioflavonoid
CocoaGold™
Grapeseed Extract with Resveratrol &
Pterostilbene
Green Tea Leaves
Hesperidin Complex Powder
Huperzine A with Natural Vitamin E
Kyolic® Garlic Formula 105
Kyolic® Reserve
Lycopene
Mega Green Tea Extract
Mega Green Tea Extract (Decaffeinated)
Mega Lycopene
Mega Silymarin with Isosilybin B
Nutrim
Optimized Ashwagandha Extract
Phyto-Food
Pomegranate Extract
Pomegranate Extract with CocoaGold™
Pomegranate Juice Concentrate

ProGreens®
Pure-Gar™
Pycnogenol
Optimized Quercetin
Resveratrol with Pterostilbene
Rhodiola Extract
Rosmarinic Acid Extract
Rutin Powder
Silymarin
SODzyme™ with GliSODin®
Stevia Extract
Super Bio-Curcumin®
Super Curcumin with Bioperine®
Super Polyphenol Extracts w/CocoaGold™
Super Ginkgo Extract
Triple Action Cruciferous Vegetable Extract
Venotone
Whole Grape Extract

HORMONES

7-Keto® DHEA
DHEA
DHEA Complete
GH Pituitary Support Day Formula
GH Pituitary Support Night Formula
Melatonin
Melatonin Timed Release
Natural Estrogen with Pomegranate Extract
Pregnenolone
ProFem Cream
Pure IGF
Super Miraforte with Standardized Lignans

IMMUNE ENHANCEMENT

Agave Digestive-Immune Support
AHCC® (Active Hexose Correlated Compound)
Buffered Vitamin C Powder
Echinacea
Enhanced Life Extension Whey Protein
i26 Hyperimmune Egg
Immune Protect with PARACTIN®
Lactoferrin
Maitake SX-Fraction
Norwegian Shark Liver Oil
Primal Defense™
ProBoost™ Thymic Protein A
Pure Gar™
Sambu® Guard
Theralac Capsules
Thymic Immune Factors
Vitamin C with Dihydroquercetin
Zinc Lozenges with Vitamin C

INFLAMMATORY REACTIONS

Arthro-Immune Joint Support
ArthroMax™ with Theaflavins
Barlean's Kids DHA
Boswella
Boswella™ Topical Cream
Bromelain (Specially-coated)
Coromega Kids Brain and Body (DHA)
DHA 240
Emulsified Norwegian Cod Liver Oil
Fast Acting Joint Formula
Korean Angelica
5-LOXIN®
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Natural Relief 1222™ Cream
PhosphoOmega™ Krill Oil
Perilla Oil
Serraflazyme
Shark Cartilage
SODzyme™ with GliSODin® and Wolfberry
Super MaxEPA
Super Omega-3 EPA/DHA with Sesame
Lignans & Olive Fruit Extract
Udo's Choice Oil
Zyflamend Easy

LIVER HEALTH

Branch Chain Amino Acids
HepatoPro
Mega Silymarin with Isosilybin B
N-Acetyl Cysteine
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
Mineral Formula for Men
Mineral Formula for Women
Only Trace Minerals
OptiZinc
Sea-Iodine™
Selenium
Se-Methylselenocysteine
Vanadyl Sulfate
Zinc/Vitamin C Lozenges

MISCELLANEOUS

Blood Pressure Monitor Arm Cuff Medium
Cell Sensor Gauss Meter™
Empty Gelatin Capsules
The Capsule Filler Machine
The Pill Cutter and Grinder

MITOCHONDRIAL SUPPORT

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Mitochondrial Energy Optimizer
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

L-Theanine
Natural Stress Relief
Optimized Tryptopure™ Plus SAmE
St. John's Wort Extract
Tryptopure™ L-Tryptophan

MOUTH CARE

Advanced Oral Hygiene
Dr. Tung's Tongue Cleaner
Life Extension Mouthwash w/Pomegranate
Life Extension Toothpaste
MistOral III™ with CoQ10

MULTIVITAMIN

Children's Formula Life Extension Mix
Comprehensive Nutrient Pack
Life Extension Booster
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 Powder
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
Vital Greens Mix

PET CARE

Life Extension Cat Mix
Life Extension Dog Mix

PROSTATE & URINARY HEALTH

BetterWOMAN®
Optimized Cran-Max® with UTIRose™
5-LOXIN®
(Water-Soluble) Pumpkin Seed Extract
Super Saw Palmetto with Beta-Sitosterol

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

SKIN CARE

Anti-Aging Mask
Anti-Glycation Serum
Antioxidant Facial Mist
Antioxidant Rejuvenating Foot Cream
Antioxidant Rejuvenating Foot Scrub
Antioxidant Rejuvenating Hand Cream
Antioxidant Rejuvenating Hand Scrub
Anti-Redness & Blemish Lotion
Cellulite Suppress™ Formula
Corrective Clearing Mask
DHEA Skin Creme
Derma Whey
Dual-Action MicroDerm Abrasion
Essential Plant Lipids Reparative Serum
Face Master® Platinum
Face Rejuvenating Antioxidant Cream
Enhanced FernBlock® with Sendara™
Fine Line-Less
Hair Suppress Formula
Healing Mask
Hyaluronic Facial Moisturizer
Hydroderm®
Lavilin Underarm Deodorant
Life Extension Sun Protection Spray
Lifting & Tightening Complex
Melatonin Cream
Mild Facial Cleanser
NaPCA w/Aloe Vera
Neck Rejuvenating Antioxidant Cream
New Face Solution
Peel Off Cleansing Mask
Pigment Correcting Cream
(Ultra) Rejuvenex®
Rejuvenex® Body Lotion
Rejuvenex® Factor
Rejuvenating Serum
Skin Lightening Serum
Skin Stem Cell Serum
Total Sun Protection Cream
Triple Action Under Eye Rejuvenator
Ultra Rejuvenex®
Ultra RejuveNight® w/ Progesterone
Ultra RejuveNight® w/o Progesterone
Ultra Lip Plumper
Ultra Wrinkle Relaxer
Under Eye Refining Serum
Under Eye Rescue Cream
Vitamin C Serum
Vitamin K Healing Cream

SOY

Natural Estrogen w/Pomegranate
Soy Power Powder
Soy Protein Concentrate
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 w/Zinc
CocoaGold w/Beta Glucan
Coriolus Versicolor Super Strength
Enhanced Cinsulin® w/Glucose Management Proprietary Blend
EDTA
(European Leg Solution) Diosmin95
Fem Dophilus
GlucoFit™
Lustre™
Maitake SX-Fraction™
Menopause Solutions
Migra-eeze™
Natural Female Support
Pecta-Sol®

Potassium Iodide
Prelox® Natural Sex for Men®
Pyridoxamine
Rosmarinic Acid Extract

SPORTS PERFORMANCE

Enhanced Life Extension Protein
DMG (N, N-dimethylglycine)
Inosine
L-Glutamine Capsules
L-Glutamine Powder
Micronized Creatine Capsules
Micronized Creatine Powder
Octacosanol

VITAMINS

Ascorbic Acid Powder
Ascorbyl Palmitate Capsules
Ascorbyl Palmitate Powder
B1
B2
B12
Beta-Carotene
Biotin Capsules
Biotin Powder
Buffered Vitamin C Powder
Calcium Ascorbate Powder
Complete B Complex
Eligen® B12
Folic Acid + B12
Folic Acid powder
Gamma E Tocopherol w/Sesame Lignans
Gamma E Tocopherol/Tocotrienols
Inositol Capsules
Inositol Powder
Liquid Emulsified Vitamin A
Mega Lycopene Extract
Methylcobalamin
MK-7
No-Flush Niacin
Optimized Folate
PABA Capsules
PABA Powder
Super Ascorbate C Capsules
Super Ascorbate C Powder
Super K w/Advanced K2 Complex
Tocotrienols w/Sesame Lignans
Vitamin B1 Powder
Vitamin B2 Powder
Vitamin B3 (Niacin) Capsules
Vitamin B5 Powder
Vitamin B6
Vitamin B12 Powder
Vitamin C
Vitamin D
Vitamin D3
Vitamin D3 w/Sea-Iodine™
Vitamin E Succinate
Vitamin K1

WEIGHT MANAGEMENT

Alli® Refill Pack
Belly Slim & Tone
Chitosan
CitriChrome
7-Keto DHEA
DHEA Complete
Enhanced Fiber Food
Fucoxanthin Slim™
HCA
Integra-Lean® Irvingia
Optimized Irvingia w/Phase 3™ Calorie Control Complex
Life Mix
Natural Appetite Control
SlimStyles® PGX Natural Weight Loss
Stevia Liquid Extract
Super CLA Blend w/Guarana and Sesame Lignans
Super CLA Blend w/Sesame Lignans
Udo's Choice Wholesome Fast Food Blend
WellBetX PGX® Soluble Fiber Blend

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail	Member Price	Qty	Total
A					
00449	ACETYL-L-CARNITINE - 500 mg, 100 caps	\$56.00	\$42.00		
	ACETYL-L-CARNITINE - 4 bottles of 100 caps	186.64	139.98		
00788	ACETYL-L-CARNITINE ARGINATE - 100 caps	59.00	44.25		
	ACETYL-L-CARNITINE ARGINATE - 4 bottles of 100 caps	203.96	152.97		
01308	ADVANCED LIPID CONTROL - 60 veg. caps	30.00	22.50		
	ADVANCED LIPID CONTROL - 4 bottles of 60 veg. caps	108.00	81.00		
01300	ADVANCED ORAL HYGIENE - 60 veg. mint lozenges	20.00	15.00		
	ADVANCED ORAL HYGIENE - 4 bottles of 60 veg. mint lozenges	72.00	54.00		
01417	AGAVE DIGESTIVE-IMMUNE SUPPORT - 360 grams of powder	30.00	22.50		
	AGAVE DIGESTIVE-IMMUNE SUPPORT - 4 bottles of powder	108.00	81.00		
00681	AHCC - 500 mg, 30 caps	48.98	36.74		
	AHCC - 4 bottles of 30 caps	174.20	130.65		
46925	ALLI® REFILL PACK - 60 mg, 120 caps	69.95	58.00		
00261	ALL-IN-ONE WEIGHT LOSS FORMULA - 300 caps	59.95	44.96		
	ALL-IN-ONE WEIGHT LOSS FORMULA - 2 bottles of 300 caps	110.00	82.50		
	ALL-IN-ONE WEIGHT LOSS FORMULA - 4 bottles of 300 caps	174.00	130.50		
00457	(SUPER) ALPHA-LIPOIC ACID w/BIOTIN - 250 mg, 60 caps	37.00	27.75		
	(SUPER) ALPHA-LIPOIC ACID w/BIOTIN - 4 bottles of 60 caps	128.00	96.00		
01420	ANTI-ALCOHOL ANTIOXIDANTS W/HEPATOPRO - 100 caps	18.00	13.50		
	ANTI-ALCOHOL ANTIOXIDANTS W/HEPATOPRO - 4 bottles of 100 caps	64.00	48.00		
00105	APPLE PECTIN POWDER - 8 oz bottle of powder	14.75	11.06		
	APPLE PECTIN POWDER - 4 bottles of powder	55.00	41.25		
01012	ARGININE CAPS - 800 mg, 200 caps	26.50	19.88		
	ARGININE CAPS - 4 bottles of 200 caps	93.00	69.75		
01039	ARGININE/ORNITHINE CAPS - 500/250 mg, 100 caps	16.00	12.00		
	ARGININE/ORNITHINE CAPS - 4 bottles of 100 caps	58.00	43.50		
00038	ARGININE/ORNITHINE POWDER - 150 grams of powder	22.95	17.21		
	ARGININE/ORNITHINE POWDER - 4 bottles of powder	76.00	57.00		
01025	(L)-ARGININE FREE-FORM POWDER - 100 grams of powder	15.98	11.99		
	(L)-ARGININE FREE-FORM POWDER - 4 bottles of powder	57.24	42.93		
00040	(L)-ARGININE HCL - 1 kilogram of powder	118.00	88.50		
	(L)-ARGININE HCL - 4 bottles of powder	432.00	324.00		
01303	ARTHRONAX™ w/THEAFLAVINS - 120 veg. caps	44.00	33.00		
	ARTHRONAX™ w/THEAFLAVINS - 4 bottles of 120 veg. caps	160.00	120.00		
01404	ARTHRO-IMMUNE JOINT SUPPORT - 60 veg. caps	30.00	22.50		
	ARTHRO-IMMUNE JOINT SUPPORT - 4 bottles of 60 veg. caps	108.00	81.00		
00919	ARTICHOKE LEAF EXTRACT - 500 mg, 180 veg. caps	28.00	21.00		
	ARTICHOKE LEAF EXTRACT - 4 bottles of 180 veg. caps	101.52	76.14		
00086	(SUPER) ASCORBATE C POWDER - 8 oz of powder	26.99	20.24		
	(SUPER) ASCORBATE C POWDER - 4 bottles of powder	99.48	74.61		
00080	ASCORBIC ACID POWDER - 16 oz of powder vitamin C	38.00	28.50		
	ASCORBIC ACID POWDER - 4 bottles of powder vitamin C	139.72	104.79		
00082	ASCORBYL PALMITATE CAPSULES - 500 mg, 100 caps	22.50	16.88		
	ASCORBYL PALMITATE CAPSULES - 4 bottles of 100 caps	80.00	60.00		
00083	ASCORBYL PALMITATE POWDER - 100 grams of powder	32.00	24.00		
	ASCORBYL PALMITATE POWDER - 4 bottles of powder	120.00	90.00		
00888	(OPTIMIZED) ASHWAGANDHA EXTRACT - 60 veg. caps	10.00	7.50		
	(OPTIMIZED) ASHWAGANDHA EXTRACT - 4 bottles of 60 veg. caps	36.00	27.00		
00892	(LOW DOSE) ASPIRIN ENTERIC COATED - 81 mg, 500 tablets	10.00	7.50		
	(LOW DOSE) ASPIRIN ENTERIC COATED - 4 bottles of 500 tablets	36.00	27.00		
00708	ASTAXANTHIN - 2 mg, 30 softgels	10.25	7.69		

SUB-TOTAL OF COLUMN 1

No.		Retail	Member Price	Qty	Total
B					
01040	BELLY SLIM & TONE - 6 fl oz	\$42.00	\$31.50		
	BELLY SLIM & TONE - 4 bottles of 6 fl oz	152.00	114.00		
00920	BENFOTIAMINE W/ THIAMINE - 100 mg, 120 caps	19.95	14.96		
	BENFOTIAMINE W/ THIAMINE - 4 bottles of 120 caps	74.40	55.80		
00925	(MEGA) BENFOTIAMINE - 250 mg, 120 veg. caps	30.00	22.50		
	(MEGA) BENFOTIAMINE - 4 bottles of 120 veg. caps	108.00	81.00		
01206	BERRY COMPLETE - 30 veg. caps	21.00	15.75		
	BERRY COMPLETE - 4 bottles of veg. caps	74.68	56.00		
00664	BETA-CAROTENE - 25,000 IU, 100 softgels	10.98	8.24		
	BETA-CAROTENE - 4 bottles of 100 softgels	39.32	29.49		
00088	BETA-CAROTENE POWDER - 100 grams of powder	27.00	20.25		
	BETA-CAROTENE POWDER - 4 bottles of powder	100.00	75.00		
00653	BETTERWOMAN -40 caps	40.00	30.00		
	BETTERWOMAN - 4 bottles of 40 caps	152.00	114.00		
00497	BILBERRY EXTRACT - 100 mg, 100 caps	28.00	21.00		
	BILBERRY EXTRACT - 4 bottles of 100 caps	100.00	75.00		
*01006	BIOSIL™ - 5 mg, 30 veg. caps	18.95	15.16		
*01007	BIOSIL™ - 30 fl ml	29.99	23.99		
00102	BIOTIN CAPSULES - 600 mcg, 100 caps	7.50	5.63		
	BIOTIN CAPSULES - 4 bottles of 100 caps	26.00	19.50		
00145	BIOTIN POWDER - 30 grams of powder	12.50	9.38		
	BIOTIN POWDER - 4 bottles of powder	44.00	33.00		
01037	BLACKCURRANT FREEZE DRIED EXTRACT - 60 veg. caps	21.95	16.46		
01034	BLACKCURRANT JUICE CONCENTRATE - 12 fl. oz	17.95	13.46		
01008	BLAST™ - 600 grams of powder	26.95	20.21		
70000	BLOOD PRESSURE MONITOR-ARM CUFF (medium)	99.95	64.97		
70001	BLOOD PRESSURE MONITOR-WRIST (travel size)	69.95	45.47		
01214	BLUEBERRY EXTRACT - 60 veg. caps	22.50	16.88		
	BLUEBERRY EXTRACT - 4 bottles of 60 veg. caps	80.00	60.00		
01338	BLUEBERRY EXTRACT w/POMEGRANATE & COCOAGOLD™ - 60 veg. caps	30.00	22.50		
	BLUEBERRY EXTRACT w/POMEGRANATE & COCOAGOLD™ - 4 bottles of 60 veg. caps	108.00	81.00		
00811	BONE RESTORE - 150 caps	22.50	16.88		
	BONE RESTORE - 4 bottles of 150 caps	78.00	58.50		
01211	BONE STRENGTH FORMULA w/KOACT™ - 120 caps	42.00	31.50		
	BONE STRENGTH FORMULA w/KOACT™ - 4 bottles of 120 caps	152.00	114.00		
00313	BONE-UP® - 240 caps (hydroxyapatite complex)	24.95	18.71		
	BONE-UP® - 4 bottles of 240 caps	90.00	67.50		
01079	BOOSTER - 60 softgels	48.00	36.00		
	BOOSTER - 4 bottles of 60 softgels	176.00	132.00		
01380	(SUPER) BOOSTER w/ADVANCED K2 COMPLEX - 60 softgels	42.00	31.50		
	(SUPER) BOOSTER w/ADVANCED K2 COMPLEX - 4 bottles of 60 softgels	152.00	114.00		
00621	BORON CAPS - 3 mg, 100 caps	5.95	4.46		
	BORON CAPS - 4 bottles of 100 caps	21.00	15.75		
00202	BOSWELLA - 100 caps	38.00	28.50		
	BOSWELLA - 4 bottles of 100 caps	120.00	90.00		
00258	BOSWELLA TOPICAL CREAM - 4 oz jar	15.00	11.25		
	BOSWELLA TOPICAL CREAM - 4 jars	52.00	39.00		
00253	BRANCHED CHAIN AMINO ACIDS - 90 caps	19.50	14.63		
	BRANCHED CHAIN AMINO ACIDS - 4 bottles of 90 caps	68.00	51.00		
00999	BREAST HEALTH FORMULA - 60 veg. caps	34.00	25.50		
	BREAST HEALTH FORMULA - 4 bottles of 60 veg. caps	120.00	90.00		
00893	BRITE EYES III - 2 vials, 5 ml each	34.00	25.50		
	BRITE EYES III - 4 boxes	128.00	96.00		

SUB-TOTAL OF COLUMN 2

No.		Retail	Member Price	Qty	Total
00136	BROMELAIN POWDER - 100 grams of powder	\$21.00	\$15.75		
	BROMELAIN POWDER - 4 bottles of powder	75.00	56.25		
01203	(SPECIALLY COATED) BROMELAIN - 500 mg, 60 enteric coated tablets	21.00	15.75		
	(SPECIALLY COATED) BROMELAIN - 4 bottles of 60 tablets	76.00	57.00		
00884	BUTTERBUR EXT. W/ STANDARDIZED ROSMARINIC ACID - 60 softgels	44.00	33.00		
	BUTTERBUR EXT. W/ STANDARDIZED ROSMARINIC ACID - 4 bottles of 60 softgels	158.40	118.80		
C					
00146	CALCIUM ASCORBATE POWDER - 300 grams of powder	\$24.00	\$18.00		
	CALCIUM ASCORBATE POWDER - 4 bottles of powder	88.00	66.00		
00058	CALCIUM CARBONATE POWDER - 1 kilogram of powder	13.95	10.46		
	CALCIUM CARBONATE POWDER - 4 bottles of powder	52.00	39.00		
01015	CALCIUM CITRATE - 300 caps	24.00	18.00		
	CALCIUM CITRATE - 4 bottles of 300 caps	85.00	63.75		
00535	CALCIUM D-GLUCARATE - 200 mg, 60 caps	18.00	13.50		
	CALCIUM D-GLUCARATE - 4 bottles of 60 caps	60.00	45.00		
00149	CALCIUM/MAGNESIUM POWDER - 1 kilogram of powder	21.00	15.75		
	CALCIUM/MAGNESIUM POWDER - 4 bottles of powder	75.00	56.25		
01419	CALORIE RESTRICTION MIMETIC FORMULA - 60 veg. caps	36.00	27.00		
	CALORIE RESTRICTION MIMETIC FORMULA - 4 bottles of 60 veg. caps	132.00	99.00		
00118	CAPSULE FILLER MACHINE FOR "00" CAPSULES	12.00	9.00		
	CAPSULE FILLER MACHINE FOR "00" CAPSULES - 4 machines	45.00	33.75		
00613	CAPSULE FILLER MACHINE FOR "0" CAPSULES	12.00	9.00		
	CAPSULE FILLER MACHINE FOR "0" CAPSULES - 4 machines	45.00	33.75		
00916	(OPTIMIZED) CARNITINE w/GLYCOCARN® - 60 veg. caps	29.00	21.75		
	(OPTIMIZED) CARNITINE w/GLYCOCARN® - 4 bottles of 60 veg. caps	104.40	78.30		
01041	L-CARNITINE CAPSULES - 500 mg, 30 caps	15.00	11.25		
	L-CARNITINE CAPSULES - 4 bottles of 30 caps	52.80	39.60		
00051	L-CARNITINE POWDER - 100 grams of powder	85.00	63.75		
	L-CARNITINE POWDER - 4 bottles of powder	295.00	221.25		
01258	CARNOSSOOTHIE w/PICROPROTECT™ - 60 veg. caps	29.95	22.46		
	CARNOSSOOTHIE w/PICROPROTECT™ - 4 bottles of 60 veg. caps	108.00	81.00		
01287	(SUPER) CARNOSINE CAPS - 500 mg, 90 caps	66.00	49.50		
	(SUPER) CARNOSINE CAPS - 4 bottles of 90 caps	240.00	180.00		
01011	CELLULITE SUPPRESS™ FORMULA - 6 fl. oz	58.00	43.50		
	CELLULITE SUPPRESS™ FORMULA - 4-6oz bottles	208.00	156.00		
00390	CDP CHOLINE CAPS - 250 mg, 60 caps	36.00	27.00		
	CDP CHOLINE CAPS - 4 bottles of 60 caps	136.00	102.00		
00998	CELL SENSOR-EMF DETECTION/MEASUREMENT METER	39.95	29.95		
01370	CHILDREN'S FORMULA MIX - 100 chewable tablets	18.00	13.50		
	CHILDREN'S FORMULA MIX - 4 bottles of 100 chewable tablets	64.00	48.00		
00216	CHITOSAN - 250 mg, 180 caps	28.00	21.00		
	CHITOSAN - 4 bottles of 180 caps	100.00	75.00		
	CHITOSAN - 10 bottles of 180 caps	230.00	172.50		
00369	CHITOSAN - 500 mg, 180 caps	55.00	41.25		
	CHITOSAN - 4 bottles of 180 caps	200.00	150.00		
00550	CHLORELLA - 500 mg, 200 tablets	23.50	17.63		
	CHLORELLA - 4 bottles of 200 tablets	84.00	63.00		
01048	CHLOROPHYLLIN w/ZINC - 100 mg, 100 caps	24.00	18.00		
	CHLOROPHYLLIN w/ZINC - 4 bottles of 100 caps	80.00	60.00		
01045	CHLOROPLEX - 100 caps	28.00	21.00		
	CHLOROPLEX - 4 bottles of 100 caps	98.00	73.50		
	CHLOROPLEX - 12 bottles of 100 caps	256.00	192.00		
01359	CHO-LESS - 90 capsules	32.50	24.38		
00142	CHOLINE BITARTRATE - 300 grams of powder	17.75	13.31		
	CHOLINE BITARTRATE - 4 bottles of powder	64.00	48.00		

SUB-TOTAL OF COLUMN 3

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

No.		Retail	Member Price	Qty	Total
00541	CHOLINE CHLORIDE - 16 oz liquid	\$14.95	\$11.21		
	CHOLINE CHLORIDE - 4 bottles of 16 oz liquid	56.00	42.00		
00364	CHONDROITIN SULFATE - 400 mg, 60 tablets	19.95	14.96		
	CHONDROITIN SULFATE - 4 bottles of 60 tablets	72.00	54.00		
00169	CHROMIUM - 200 mcg polynicotinate, 365 caps	28.00	21.00		
	CHROMIUM - 4 bottles of 365 caps	104.00	78.00		
01071	CHROMIUM ULTRA - 100 veg. caps	24.00	18.00		
	CHROMIUM ULTRA - 4 bottles of 100 veg. caps	84.00	63.00		
00551	CILANTRO HERBAL EXTRACT - 1 oz	12.00	9.00		
	CILANTRO HERBAL EXTRACT - 4 bottles of 1oz	44.00	33.00		
01267	(ENHANCED) CINSULIN® w/GLUCOSE MGMT PROP BLEND - 90 veg. caps	32.00	24.00		
	(ENHANCED) CINSULIN® w/GLUCOSE MGMT PROP BLEND - 4 bottles of 90 veg. caps	120.00	90.00		
00223	CITRICHROME - 90 caps	22.95	17.21		
	CITRICHROME - 4 bottles of 90 caps	80.00	60.00		
00069	CITRUS BIOFLAVONOID - 100 caps	15.99	11.99		
	CITRUS BIOFLAVONOID - 4 bottles of 100 caps	59.28	44.46		
00818	(SUPER) CLA BLEND w/SESAME LIGNANS - 1000 mg, 120 softgels	36.00	27.00		
	(SUPER) CLA BLEND w/SESAME LIGNANS - 4 bottles of 120 softgels	132.00	99.00		
	(SUPER) CLA BLEND w/SESAME LIGNANS - 10 bottles, 120 softgels	263.30	197.48		
00819	(SUPER) CLA BLEND w/GUARANA & SESAME -120 softgels	42.00	31.50		
	(SUPER) CLA BLEND w/GUARANA & SESAME - 4 btls of 120 softgels	153.32	114.99		
00863	COCOAGOLD™ - 130 mg, 60 veg. caps	12.50	9.38		
	COCOAGOLD™ - 4 bottles of 60 veg. caps	44.00	33.00		
01285	COCOAGOLD™ w/BETA-GLUCAN POWDER - 180 grams	20.00	15.00		
	COCOAGOLD™ w/BETA-GLUCAN POWDER - 4 jars of 180 grams	72.00	54.00		
00050	COD LIVER OIL - 12 fl oz (355 ml) (Emulsified)	14.58	10.94		
	COD LIVER OIL - 4 bottles of 12 fl oz (355 ml)	49.08	36.81		
00293	COD LIVER OIL - 100 softgels (Emulsified)	9.95	7.46		
	COD LIVER OIL - 4 bottles of 100 softgels	37.52	28.14		
00922	COGNITEX w/PREGNENOLONE & NEUROPROTECTION COMPLEX - 90 softgels	74.00	55.50		
	COGNITEX w/PREGNENOLONE & NEUROPROTECTION COMPLEX - 4 btls of 90 softgels	266.40	199.80		
	COGNITEX w/PREGNENOLONE & NEUROPROTECTION COMPLEX - 12 btls of 90 softgels	768.00	576.00		
00921	COGNITEX w/α PREGNENOLONE w/NEUROPROTECTION COMPLEX - 90 softgels	72.00	54.00		
	COGNITEX w/α PREGNENOLONE w/NEUROPROTECTION COMPLEX - 4 bottles of 90 softgels	256.00	192.00		
	COGNITEX w/α PREGNENOLONE w/NEUROPROTECTION COMPLEX - 12 bottles of 90 softgels	744.00	558.00		
00110	COMPLETE B-COMPLEX - 180 caps	21.50	16.13		
	COMPLETE B-COMPLEX - 4 bottles of 180 caps	72.00	54.00		
01374	COMPREHENSIVE NUTRIENT PACK - 30-day supply	189.00	141.75		
	COMPREHENSIVE NUTRIENT PACK - 120-day supply	684.00	513.00		
00119	COPPER CAPSULES - 2 mg, 100 caps	8.95	6.71		
	COPPER CAPSULES - 4 bottles of 100 caps	32.36	24.27		
00208	(ENHANCED) COQ10 (with Brewer's Yeast) - 30 mg, 100 caps	32.00	24.00		
	(ENHANCED) COQ10 (with Brewer's Yeast) - 4 bottles of 100 caps	108.00	81.00		
	(ENHANCED) COQ10 (with Brewer's Yeast) - 10 bottles of 100 caps	245.00	183.75		
00949	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 50 mg, 60 softgels	28.50	21.38		
	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 4 bottles of 60 softgels	99.00	74.25		
	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 10 bottles of 60 softgels	230.00	172.50		
00950	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 100 mg, 100 softgels	73.00	54.75		
	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 4 bottles of 100 softgels	260.00	195.00		
	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 10 bottles of 100 softgels	620.00	465.00		

SUB-TOTAL OF COLUMN 4

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail	Member Price	Qty	Total
C CONTINUED					
01226	(SUPER UBIQUINOL) COQ10 - 100 mg, 60 softgels	\$56.00	\$42.00		
	(SUPER UBIQUINOL) COQ10 - 4 bot of 60 softgels	208.00	156.00		
	(SUPER UBIQUINOL) COQ10 - 10 bot of 60 softgels	480.00	360.00		
01426	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -100 mg, 60 softgels	62.00	46.50		
	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -4 bot of 60 softgels	224.00	168.00		
	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -10 bot of 60 softgels	520.00	390.00		
01425	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -50 mg, 100 softgels	58.00	43.50		
	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -4 bot of 100 softgels	212.00	159.00		
	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -10 bot of 100 softgels	500.00	375.00		
01427	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -50 mg, 30 softgels	20.00	15.00		
	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -4 bot of 30 softgels	72.00	54.00		
01053	CORIOLUS VERSICOLOR SUPER STRENGTH - 600 mg, 150 caps	99.95	74.96		
00857	COROMEGA CHILD BRAIN & BODY - (Lemon Lime) 30 packets	25.00	18.75		
	COROMEGA CHILD BRAIN & BODY - (Lemon Lime) 4 boxes of 30 packets	90.00	67.00		
80118	COSMESIS ANTI-AGING MASK - 2 oz bottle	66.60	49.95		
	COSMESIS ANTI-AGING MASK - 2-2 oz bottles	117.22	87.92		
80134	COSMESIS ANTI-GLYCATION SERUM - 1 oz bottle w/BLUEBERRY & POMEGRANATE EXTRACTS	24.00	18.00		
	COSMESIS ANTI-GLYCATION SERUM - 2-1 oz bottles w/BLUEBERRY & POMEGRANATE EXTRACTS	45.60	34.20		
80133	COSMESIS ANTIOXIDANT FACIAL MIST - 2 oz bottle	29.95	22.46		
	COSMESIS ANTIOXIDANT FACIAL MIST - 2-2 oz bottles	56.90	42.68		
80132	COSMESIS ANTIOXIDANT FACIAL MIST - 4 oz bottle	39.95	29.96		
	COSMESIS ANTIOXIDANT FACIAL MIST - 2-4 oz bottles	76.00	57.00		
80127	COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2 oz jar	39.95	29.96		
	COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2-2 oz jar	76.00	57.00		
80128	COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2 oz jar	52.95	39.71		
	COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2-2 oz jar	93.20	69.90		
80117	COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2 oz jar	59.00	44.25		
	COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2-2 oz jars	106.00	79.50		
80121	COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2 oz jar	52.95	39.71		
	COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2-2 oz jars	93.20	69.90		
80105	COSMESIS ANTI-REDNESS & BLEMISH LOTION - 1 oz	69.95	52.46		
	COSMESIS ANTI-REDNESS & BLEMISH LOTION - 2-1 oz bottles	123.12	92.34		
80120	COSMESIS CORRECTIVE CLEARING MASK - 2 oz jar	59.95	44.96		
	COSMESIS CORRECTIVE CLEARING MASK - 2-2 oz jars	105.52	79.14		
80108	COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 oz	71.60	53.70		
	COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 2-1 oz bottles	126.00	94.50		
80123	COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 oz jar	65.00	48.75		
	COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2-2 oz jars	114.40	85.80		
80107	COSMESIS FINE LINE-LESS - 1 oz	69.95	52.46		
	COSMESIS FINE LINE-LESS - 2-1 oz bottles	123.12	92.34		
80131	COSMESIS HAIR SUPPRESS FORMULA - 4 oz bottle	53.75	40.31		
	COSMESIS HAIR SUPPRESS FORMULA - 2- 4 oz bottles	94.60	70.95		
80115	COSMESIS HEALING MASK - 2 oz bottle	59.95	44.96		
	COSMESIS HEALING MASK - 2-2 oz bottles	105.52	79.14		
80109	COSMESIS HYALURONIC FACIAL MOISTURIZER - 1 oz	52.95	39.71		
	COSMESIS HYALURONIC FACIAL MOISTURIZER - 2 bottles of 1 oz	93.20	69.90		
80110	COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 1 oz	52.95	39.71		
	COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 2 btl of 1 oz	93.20	69.90		
80103	COSMESIS LIFTING & TIGHTENING COMPLEX - 1 oz	69.95	52.46		
	COSMESIS LIFTING & TIGHTENING COMPLEX - 2 bottles of 1 oz	123.12	92.34		
80135	COSMESIS MELATONIN CREAM - 1 oz jar	28.00	21.00		
	COSMESIS MELATONIN CREAM - 2 - 1 oz jars	46.00	34.50		

SUB-TOTAL OF COLUMN 5

No.		Retail	Member Price	Qty	Total
80114	COSMESIS MILD FACIAL CLEANSER - 8 oz	\$52.95	\$39.71		
	COSMESIS MILD FACIAL CLEANSER - 2 bottles of 8 oz	93.20	69.90		
80122	COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2 oz jar	59.00	44.25		
	COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2-2 oz jars	106.00	79.50		
80119	COSMESIS PEEL OFF CLEANSING MASK - 2 oz bottle	59.95	44.96		
	COSMESIS PEEL OFF CLEANSING MASK - 2-2 oz bottles	105.52	79.14		
80111	COSMESIS PIGMENT CORRECTING CREAM - 1/2 oz	69.95	52.46		
	COSMESIS PIGMENT CORRECTING CREAM - 2 bottles of 1/2 oz	123.12	92.34		
80106	COSMESIS REJUVENATING SERUM - 1 oz	69.95	52.46		
	COSMESIS REJUVENATING SERUM - 2 bottles of 1 oz	123.12	92.34		
80112	COSMESIS SKIN LIGHTENING SERUM - 1/2 oz	79.95	59.96		
	COSMESIS SKIN LIGHTENING SERUM - 2 bottles of 1/2 oz	140.72	105.54		
80130	COSMESIS SKIN STEM CELL SERUM - 1 oz	69.00	51.75		
	COSMESIS SKIN STEM CELL SERUM - 2 bottles of 1 oz	128.00	96.00		
80116	COSMESIS ULTRA LIP PLUMPER - 1/3 oz	59.95	44.96		
	COSMESIS ULTRA LIP PLUMPER - 2 bottles of 1/3 oz	105.52	79.14		
80101	COSMESIS ULTRA WRINKLE RELAXER - 1 oz	89.95	67.46		
	COSMESIS ULTRA WRINKLE RELAXER - 2 bottles of 1 oz	159.52	119.64		
80113	COSMESIS UNDER EYE REFINING SERUM - 1/2 oz	69.95	52.46		
	COSMESIS UNDER EYE REFINING SERUM - 2 bottles of 1/2 oz	123.12	92.34		
80104	COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz	69.95	52.46		
	COSMESIS UNDER EYE RESCUE CREAM - 2 bottles of 1/2 oz	123.12	92.34		
80129	COSMESIS VITAMIN C SERUM - 1 oz bottle	79.95	59.96		
	COSMESIS VITAMIN C SERUM - 2-1 oz bottles	140.72	105.54		
80102	COSMESIS VITAMIN K HEALING CREAM - 1 oz	74.95	56.21		
	COSMESIS VITAMIN K HEALING CREAM - 2 bottles of 1 oz	131.92	98.94		
00862	CRAN-MAX® - 500 mg, 60 veg. caps	17.50	13.13		
	CRAN-MAX® - 4 bottles of 60 veg. caps	60.00	45.00		
01424	(OPTIMIZED) CRAN-MAX® with UTIROSE™ - 60 veg. caps	18.00	13.50		
	(OPTIMIZED) CRAN-MAX® with UTIROSE™ - 4 bottles of 60 veg. caps	64.00	48.00		
00609	CREATINE CAPS MICRONIZED - 120 caps	10.95	8.21		
	CREATINE CAPS MICRONIZED - 4 bottles of 120 caps	37.00	27.75		
00610	CREATINE POWDER MICRONIZED - 500 grams of powder	29.00	21.75		
	CREATINE POWDER MICRONIZED - 4 bottles of powder	106.52	79.89		
01096	CREATINE-WHEY-GLUTAMINE POWDER - 1 kg vanilla	45.00	33.75		
	CREATINE-WHEY-GLUTAMINE POWDER - 4 bottles of powder	168.00	126.00		
00912	(SUPER) CURCUMIN W/BIOPERINE® - 800 mg, 60 caps	20.75	15.56		
	(SUPER) CURCUMIN W/BIOPERINE® - 4 bottles of 60 caps	74.72	56.04		
00407	(SUPER BIO) CURCUMIN® - 400 mg, 60 veg. caps	30.00	22.50		
	(SUPER BIO) CURCUMIN® - 4 bottles of 60 veg. caps	106.00	79.50		
00126	CYSTEINE ANHYDROUS POWDER - 300 grams of powder	28.50	21.38		
	CYSTEINE ANHYDROUS POWDER - 4 bottles of powder	105.00	78.75		
00064	(L) CYSTEINE CAPSULES - 500 mg, 60 caps	18.95	14.21		
	(L) CYSTEINE CAPSULES - 4 bottles of 60 caps	65.24	48.93		
D					
01313	DERMA WHEY- 400 mg, 60 caps	\$65.00	\$48.75		
	DERMA WHEY- 4 bottles of 60 caps	236.00	177.00		
00856	(BARLEAN'S KID'S) DHA (Fruit Punch Flavor)- 8 fl. oz	22.00	16.50		
	(BARLEAN'S KID'S) DHA (Fruit Punch Flavor)- 4 bottles of 8 fl. oz	80.00	60.00		
00995	DHA 240 - 240 mg, 60 softgels	19.00	14.25		
	DHA 240 - 4 bottles of 60 softgels	68.00	51.00		
00658	7-KETO® DHEA METABOLITE - 25 mg, 100 caps	28.00	21.00		
	7-KETO® DHEA METABOLITE - 4 bottles of 100 caps	96.00	72.00		
01271	7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps	40.00	30.00		
	7-KETO® DHEA METABOLITE - 4 bottles of 60 veg. caps	144.00	108.00		

SUB-TOTAL OF COLUMN 6

No.		Retail	Member Price	Qty	Total
00607	DHEA - 25 mg dissolve in mouth 100 tablets pharmaceutical-grade	\$14.00	\$10.50		
	DHEA - 4 bottles of 100 tablets pharmaceutical-grade	47.00	35.25		
01250	DHEA COMPLETE - 60 veg. caps	48.00	36.00		
	DHEA COMPLETE - 4 bottles of 60 veg. caps	172.80	129.60		
00335	DHEA - 25 mg, 100 caps	15.00	11.25		
	DHEA - 4 bottles of 100 caps	50.00	37.50		
00454	DHEA - 15 mg, 100 caps	12.00	9.00		
	DHEA - 4 bottles of 100 caps	40.00	30.00		
00882	DHEA - 50 mg, 60 caps	16.00	12.00		
	DHEA - 4 bottles of 60 caps	56.00	42.00		
00883	DHEA - 100 mg, 60 caps	22.50	16.88		
	DHEA - 4 bottles of 60 caps	76.00	57.00		
01058	DHEA SKIN CREME - 1.7 oz pump	29.99	22.49		
01358	DIGEST RC - 30 tablets	19.95	14.96		
	DIGEST RC - 4 boxes of 30 tablets	68.00	51.00		
01272	(ENHANCED SUPER) DIGESTIVE ENZYMES - 100 veg. caps	18.95	14.21		
	(ENHANCED SUPER) DIGESTIVE ENZYMES - 4 bottles of 100 veg. caps	64.00	48.00		
01273	(ENHANCED SUPER) DIGESTIVE ENZYMES w/PROBIOTICS - 100 veg. caps	24.00	18.00		
	(ENHANCED SUPER) DIGESTIVE ENZYMES w/PROBIOTICS - 4 bottles of 100 veg. caps	88.00	66.00		
00114	DILAURYL THIODIPROPIONATE POWDER - 100 grams of powder	22.00	16.50		
	DILAURYL THIODIPROPIONATE POWDER - 4 bottles of powder	80.00	60.00		
*01042	(EUROPEAN LEG SOLUTION) DIOSMIN95 - 600 mg, 30 veg. tabs	20.00	15.00		
	(EUROPEAN LEG SOLUTION) DIOSMIN95 - 4 bottles of 30 veg. tabs	72.00	54.00		
00034	D,L-PHENYLALANINE CAPSULES - 500 mg, 100 caps	18.75	14.06		
	D,L-PHENYLALANINE CAPSULES - 4 bottles of 100 caps	64.00	48.00		
00033	D,L-PHENYLALANINE PLUS POWDER - 100 grams of powder	26.00	19.50		
	D,L-PHENYLALANINE PLUS POWDER - 4 bottles of powder	86.00	64.50		
00257	DMAE BITARTRATE - 150 mg, 200 caps	14.00	10.50		
	DMAE BITARTRATE - 4 bottles of 200 caps	42.00	31.50		
00022	DMAE POWDER (37% DMAE) - 100 grams of powder	24.00	18.00		
	DMAE POWDER (37% DMAE) - 4 bottles of powder	80.00	60.00		
00197	DMAE-GINKGO CAPSULES - 100 caps	36.00	27.00		
	DMAE-GINKGO CAPSULES - 4 bottles of 100 caps	120.00	90.00		
	DMAE-GINKGO CAPSULES - 8 bottles of 100 caps	220.00	165.00		
00059	DMG - 125 mg dimethylglycine, 60 tablets	18.50	13.88		
	DMG - 4 boxes of 60 tablets	68.00	51.00		
01052	DNA PROTECTION FORMULA - 60 veg. caps	28.00	21.00		
	DNA PROTECTION FORMULA - 4 bottles of 60 veg. caps	100.80	75.60		
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA - 2 oz	39.95	29.96		
	DR. PROCTOR'S ADVANCED HAIR FORMULA - 4 bottles	128.00	96.00		
00320	DR. PROCTOR'S HAIR FORMULA SHAMPOO - 8 oz bottle	24.95	18.71		
	DR. PROCTOR'S HAIR FORMULA SHAMPOO - 4 bottles	88.00	66.00		
00376	DR. TUNG'S TONGUE CLEANER	8.45	6.34		
	DR. TUNG'S TONGUE CLEANERS - 4 quantity	32.20	24.15		
00899	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 2.4 net oz jar	39.95	29.96		
	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 4 jars of 2.4 net oz	155.80	116.85		
00240	DUAL-C - 90 caps	12.00	9.00		
	DUAL-C - 4 bottles of 90 caps	42.00	31.50		
E					
00388	ECHINACEA - 250 mg, 60 caps	\$14.35	\$10.76		
	ECHINACEA - 4 bottles of 60 caps	50.00	37.50		
01024	EDTA - 500 mg, 100 caps	17.50	13.13		

* Due to license restrictions, this product is not for sale to wholesalers outside of the United States of America and Canada.

** Can only be sold in the United States and cannot be sold into the health food retail store channel.

† Member pricing not valid on this item.

SUB-TOTAL OF COLUMN 7

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

No.		Retail	Member Price	Qty	Total
01403	ELIGEN® B12 - 100 mcg 30 veg tablets	\$28.00	\$21.00		
	ELIGEN® B12 - 4 bottles of 30 veg tablets	100.00	75.00		
01297	ENDOTHELIAL DEFENSE™ w/GLISODIN® and COCOAGOLD™ - 60 veg. caps	54.00	40.50		
	ENDOTHELIAL DEFENSE™ w/GLISODIN® AND COCOAGOLD™ - 4 bottles of 60 veg. caps	192.00	144.00		
00625	(MEGA) EPA/DHA - 120 softgels	19.95	14.96		
	(MEGA) EPA/DHA - 4 bottles of 120 softgels	72.00	54.00		
F					
†01054	FACE MASTER® PLATINUM	\$199.00	\$199.00		
00965	FAST-ACTING JOINT FORMULA - 30 caps	39.00	29.25		
	FAST-ACTING JOINT FORMULA - 4 bottles of 30 caps	144.00	108.00		
20053	FEM DOPHILUS® - 30 caps	24.95	18.71		
20055	FEM DOPHILUS® - 60 caps	35.95	26.96		
*01311	(ENHANCED) FERNBLOCK® w/SENDARA™ - 30 veg. caps	39.00	29.25		
	(ENHANCED) FERNBLOCK® w/SENDARA™ - 4 bottles of 30 veg. caps	140.00	105.00		
00229	FIBER FOOD CAPS - 200 caps	15.00	11.25		
	FIBER FOOD CAPS - 4 bottles of 200 caps	50.00	37.50		
	FIBER FOOD CAPS - 10 bottles of 200 caps	119.00	89.25		
00228	FIBER FOOD - 300 grams of powder	15.00	11.25		
	FIBER FOOD - 4 bottles of powder	50.00	37.50		
	FIBER FOOD - 10 bottles of powder	119.00	89.25		
01307	(ENHANCED) FIBER FOOD POWDER - 453 grams of powder	34.00	25.50		
	(ENHANCED) FIBER FOOD POWDER - 4 jars of powder	120.00	90.00		
00718	FIBRINOGEN RESIST FORMULA (NATTOKINASE) - 30 veg. caps	49.00	36.75		
	FIBRINOGEN RESIST FORMULA (NATTOKINASE) - 4 bottles of 30 caps	176.00	132.00		
00873	FLAXSEED POWDER (HI-LIGNAN NUTRI-FLAX) - 16 oz powder	9.95	7.46		
01200	FLORASTOR® - 250 mg, 50 caps	55.15	41.36		
01312	(OPTIMIZED) FOLATE (5-METHYLTETRAHYDROFOLATE) - 100 veg. caps	28.00	21.00		
	(OPTIMIZED) FOLATE (5-METHYLTETRAHYDROFOLATE) - 4 bottles of 100 veg. caps	100.00	75.00		
00347	FOLIC ACID + B12 CAPSULES - 200 caps	10.50	7.88		
	FOLIC ACID + B12 CAPSULES - 4 bottles of 200 caps	38.00	28.50		
00148	FOLIC ACID POWDER - 30 grams of powder	16.00	12.00		
	FOLIC ACID POWDER - 4 bottles of powder	55.00	41.25		
00300	FORSKOLIN - 10 mg, 60 caps of elemental forskolin	15.00	11.25		
	FORSKOLIN - 4 bottles of 60 caps of elemental forskolin	50.00	37.50		
00993	FUCOXANTHIN-SLIM™ - 90 softgels	44.00	33.00		
	FUCOXANTHIN-SLIM™ - 4 bottles of 90 softgels	156.00	117.00		
G					
00127	GABA POWDER - 100 grams of powder	\$23.75	\$17.81		
	GABA POWDER - 4 bottles of powder	90.00	67.50		
00559	GAMMA E TOCOPHEROL/TOCOTRIENOLS - 60 softgels	42.00	31.50		
	GAMMA E TOCOPHEROL/TOCOTRIENOLS - 4 bottles of 60 softgels	148.00	111.00		
00759	GAMMA E TOCOPHEROL W/SESAME LIGNANS - 60 softgels	32.00	24.00		
	GAMMA E TOCOPHEROL W/SESAME LIGNANS - 4 bottles of 60 softgels	116.00	87.00		
00612	GELATIN CAPSULES - Set of 1000 empty caps size "0"	15.00	11.25		
	GELATIN CAPSULES - 4 Sets	56.00	42.00		
00117	GELATIN CAPSULES - Set of 1000 empty caps size "00"	19.00	14.25		
	GELATIN CAPSULES - 4 Sets	72.00	54.00		
01301	GH PITUITARY SUPPORT DAY FORMULA - 120 vegetarian tabs	48.00	36.00		
	GH PITUITARY SUPPORT DAY FORMULA - 4 bottles of 120 veg. tabs	176.00	132.00		
01302	GH PITUITARY SUPPORT NIGHT FORMULA - 120 veg. caps	25.00	18.75		
	GH PITUITARY SUPPORT NIGHT FORMULA - 4 bottles of 120 veg. caps	90.00	67.50		
00778	GINKGO BILOBA CERTIFIED EXTRACT™ - 120 mg, 365 caps	46.00	34.50		
	GINKGO BILOBA CERTIFIED EXTRACT™ - 2 bottles of 365 caps	87.00	65.25		
00504	(SUPER) GINKGO EXTRACT - 120 mg, 100 caps	29.00	21.75		
	(SUPER) GINKGO EXTRACT - 4 bottles of 100 caps	106.00	79.50		
01032	(PANAX RED) GINSENG - 60 veg. caps	29.99	22.49		

SUB-TOTAL OF COLUMN 8

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail	Member Price	Qty	Total
G CONTINUED					
00756	(MEGA) GLA WITH SESAME LIGNANS - 60 softgels	\$19.50	\$14.63		
	(MEGA) GLA WITH SESAME LIGNANS - 4 bottles of 60 softgels	72.00	54.00		
00345	(L) GLUTAMINE CAPSULES - 500 mg, 100 caps	14.95	11.21		
	(L) GLUTAMINE CAPSULES - 4 bottles of 100 caps	54.00	40.50		
00141	(L)-GLUTAMINE POWDER - 100 grams of powder	19.00	14.25		
	(L)-GLUTAMINE POWDER - 4 bottles of powder	67.52	50.64		
00522	GLUCOSAMINE/CHONDROITIN CAPSULES - 100 caps	38.00	28.50		
	GLUCOSAMINE/CHONDROITIN CAPSULES - 4 bottles of 100 caps	128.00	96.00		
00512	GLUCOFIT™ (COROSOLIC ACID) - 100 softgels	28.00	21.00		
	GLUCOFIT™ (COROSOLIC ACID) - 4 bottles of 100 softgels	100.00	75.00		
00113	GLUTATHIONE, C & CYSTEINE - 750 mg, 100 caps	18.00	13.50		
	GLUTATHIONE, C & CYSTEINE - 4 bottles of 100 caps	64.00	48.00		
00314	(MEGA) L-GLUTATHIONE - 250 mg, 60 caps	35.95	26.96		
	(MEGA) L-GLUTATHIONE - 4 bottles of 60 caps	129.44	97.08		
00795	GLYCINE CAPSULES - 1000 mg, 100 caps	12.00	9.00		
	GLYCINE CAPSULES - 4 bottles of 100 caps	43.20	32.40		
00128	GLYCINE POWDER - 300 grams of powder	18.00	13.50		
	GLYCINE POWDER - 4 bottles of powder	64.00	48.00		
01091	(WHOLE) GRAPE EXTRACT w/RESVERATROL - 60 veg. caps	36.00	27.00		
	(WHOLE) GRAPE EXTRACT w/RESVERATROL - 4 bottles of 60 veg. caps	136.00	102.00		
01411	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE-100 mg, 60 veg. caps	36.00	27.00		
	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE-4 bottles of 60 veg. caps	136.00	102.00		
00203	GREEN TEA LEAVES - 300 grams of powder	15.00	11.25		
	GREEN TEA LEAVES - 4 bottles of powder	50.00	37.50		
00953	(MEGA) GREEN TEA EXTRACT - lightly caffeinated - 100 veg. caps	28.00	21.00		
	(MEGA) GREEN TEA EXTRACT - 4 bottles of 100 veg. caps	106.00	79.50		
00954	(MEGA) GREEN TEA EXTRACT - decaffeinated - 100 veg. caps	28.00	21.00		
	(MEGA) GREEN TEA EXTRACT - 4 bottles of 100 veg. caps	106.00	79.50		
H					
00230	HCA - 90 caps	\$18.00	\$13.50		
	HCA - 4 bottles of 90 caps	62.00	46.50		
01405	HEALTHY HAIR SPRAY - 5 fl. oz (150 ml) 1 bottle	35.00	26.25		
	HEALTHY HAIR SPRAY - 4 bottles of 5 fl. oz	128.00	96.00		
00656	HEPATOPRO - 900 mg, 60 softgel	49.50	37.13		
	HEPATOPRO - 4 bottles of 60 softgel	188.00	141.00		
00138	HESPERIDIN COMPLEX POWDER - 300 grams of powder	19.00	14.25		
	HESPERIDIN COMPLEX POWDER - 4 bottles of powder	65.00	48.75		
00873	HI-LIGNAN NUTRI-FLAX - 16 oz powder	9.95	7.46		
00800	HOMOCYSTEINE RESIST - 100 caps	24.00	18.00		
	HOMOCYSTEINE RESIST - 4 bottles of 100 caps	86.40	64.80		
00067	HOODIA GORDONII - 60 caps	14.00	10.50		
00627	HUPERZINE A w/NATURAL VITAMIN E - 50 mcg, 60 caps	27.95	20.96		
	HUPERZINE A w/NATURAL VITAMIN E - 4 bottles of 60 caps	96.00	72.00		
00661	HYDRODERM® - 1 oz bottle	79.95	59.96		
	HYDRODERM® - 2 - 1 oz bottles	130.66	98.00		
I					
01060	i26 HYPERIMMUNE EGG - 140 grams of powder	\$49.99	\$42.00		
00955	IMMUNE PROTECT W/PARACTIN® - 30 veg. caps	29.50	22.13		
	IMMUNE PROTECT W/PARACTIN® - 4 bottles of 30 veg. caps	106.20	79.65		
01049	INNERPOWER™ W/SWEET STEVIA - Tropical Flavor Powder	42.00	31.50		
00155	INOSINE CAPSULES - 500 mg, 60 caps	22.95	17.21		
	INOSINE CAPSULES - 4 bottles of 60 caps	84.00	63.00		
00140	INOSINE POWDER - 100 grams of powder	52.00	39.00		
	INOSINE POWDER - 4 bottles of powder	180.00	135.00		
00109	INOSITOL CAPSULES - 500 mg, 100 caps	14.99	11.24		
	INOSITOL CAPSULES - 4 bottles of 100 caps	55.16	41.37		

SUB-TOTAL OF COLUMN 9

No.		Retail	Member Price	Qty	Total
00410	INOSITOL CAPSULES - 1000 mg, 360 caps	\$48.00	\$36.00		
	INOSITOL CAPSULES - 4 bottles of 360 caps	175.00	131.25		
00108	INOSITOL POWDER - 100 grams of powder	18.00	13.50		
	INOSITOL POWDER - 4 bottles of powder	67.52	50.64		
01021	INTACT™ DIGEST - 8 fl oz	29.95	22.46		
	INTACT™ DIGEST - 4 - 8 fl oz bottles	112.00	84.00		
01292	INTEGRA-LEAN® IRVINGIA - 150 mg, 60 veg. caps	56.00	42.00		
	INTEGRA-LEAN® IRVINGIA - 4 bottles of 60 veg. caps	192.00	144.00		
01002	IODORAL - 180 caps	50.00	37.50		
00563	IRON PROTEIN PLUS - 300 mg, 100 caps	24.00	18.00		
	IRON PROTEIN PLUS - 4 bottles of 100 caps	88.00	66.00		
01492	(OPTIMIZED) IRVINGIA w/PHASE 3™ - 120 veg. caps	78.00	58.50		
	(OPTIMIZED) IRVINGIA w/PHASE 3™ - 4 bottles of 120 veg. caps	288.00	216.00		
J, K					
00056	JARRO-DOPHILUS EPS™ - 60 veg. caps	\$19.95	\$14.96		
01224	(SUPER) K WITH ADVANCED K2 COMPLEX - 90 softgels	26.00	19.50		
	(SUPER) K WITH ADVANCED K2 COMPLEX - 4 bottles of 90 softgels	92.00	69.00		
01050	NKO KRILL OIL - 60 softgels	33.95	25.46		
00316	KYOLIC® GARLIC FORMULA 102 - 350 mg, 200 caps	23.95	17.96		
	KYOLIC® GARLIC FORMULA 102 - 4 bottles of 200 caps	82.00	61.50		
00214	KYOLIC® GARLIC FORMULA 105 - 200 caps	22.95	17.21		
	KYOLIC® GARLIC FORMULA 105 - 4 bottles of 200 caps	73.00	54.75		
00789	KYOLIC® RESERVE - 600 mg, 120 caps	24.75	18.56		
	KYOLIC® RESERVE - 4 bottles of 120 caps	85.80	64.36		
L					
00513	LACTOFERRIN (APOLACTOFERRIN) CAPS - 300 mg, 60 caps	\$40.00	\$30.00		
	LACTOFERRIN (APOLACTOFERRIN) CAPS - 4 bottles of 60 caps	144.00	108.00		
00017	LAVILIN UNDERARM DEODORANT - 12.5 grams of cream	15.00	11.25		
	LAVILIN UNDERARM DEODORANT - 4 jars of cream	55.00	41.25		
01003	LIFE EXTENSION CAT MIX - 100 grams of powder	15.00	11.25		
	LIFE EXTENSION CAT MIX - 4 bottles of powder	48.00	36.00		
00544	LIFE EXTENSION DOG MIX - 100 grams of powder	19.50	14.63		
	LIFE EXTENSION DOG MIX - 4 bottles of powder	64.00	48.00		
00010	LIFE EXTENSION HAIR CONDITIONER - 16 oz bottle	6.00	4.50		
	LIFE EXTENSION HAIR CONDITIONER - 4 bottles	18.00	13.50		
00020	LIFE EXTENSION LECITHIN GRANULES - 16 oz. jar	15.00	11.25		
	LIFE EXTENSION LECITHIN GRANULES - 4 jars	50.00	37.50		
00019	LIFE EXTENSION LECITHIN w/B5 AND BHA - 16 oz. jar	15.00	11.25		
	LIFE EXTENSION LECITHIN w/B5 AND BHA - 4 16 oz. 4 jars	50.00	37.50		
01455	LIFE EXTENSION MIX™ - 315 tablets	98.00	73.50		
	LIFE EXTENSION MIX™ - 4 bottles of 315 tablets	344.00	258.00		
	LIFE EXTENSION MIX™ - 10 bottles of 315 tablets	695.00	521.25		
01457	LIFE EXTENSION MIX™ w/EXTRA NIACIN - 315 tablets	98.00	73.50		
	LIFE EXTENSION MIX™ w/EXTRA NIACIN - 4 bottles of 315 tablets	344.00	258.00		
	LIFE EXTENSION MIX™ w/EXTRA NIACIN - 10 bottles of 315 tablets	695.00	521.25		
01454	LIFE EXTENSION MIX™ - 490 caps	110.00	82.50		
	LIFE EXTENSION MIX™ - 4 bottles of 490 caps	392.00	294.00		
	LIFE EXTENSION MIX™ - 10 bottles of 490 caps	850.00	637.50		
01456	LIFE EXTENSION MIX™ POWDER - 14.81 oz of powder	98.00	73.50		
	LIFE EXTENSION MIX™ POWDER - 4 bottles of powder	344.00	258.00		
	LIFE EXTENSION MIX™ POWDER - 10 bottles of powder	720.00	540.00		
01465	LIFE EXTENSION MIX™ - 315 tablets without copper	98.00	73.50		
	LIFE EXTENSION MIX™ - 4 bottles of 315 tablets without copper	344.00	258.00		
	LIFE EXTENSION MIX™ - 10 bottles of 315 tablets without copper	695.00	521.25		

SUB-TOTAL OF COLUMN 10

No.		Retail	Member Price	Qty	Total
01467	LIFE EXTENSION MIX™ W/EXTRA NIACIN 315 tablets w/o copper	\$98.00	\$73.50		
	LIFE EXTENSION MIX™ W/EXTRA NIACIN 4 bottles of 315 tablets w/o copper	344.00	258.00		
	LIFE EXTENSION MIX™ W/EXTRA NIACIN 10 bottles of 315 tablets w/o copper	695.00	521.25		
01464	LIFE EXTENSION MIX™ - 490 caps without copper	110.00	82.50		
	LIFE EXTENSION MIX™ - 4 bottles of 490 caps without copper	392.00	294.00		
	LIFE EXTENSION MIX™ - 10 bottles of 490 caps without copper	850.00	637.50		
01466	LIFE EXTENSION MIX™ POWDER - 14.81 oz of powder without copper	98.00	73.50		
	LIFE EXTENSION MIX™ POWDER - 4 bottles of powder without copper	344.00	258.00		
	LIFE EXTENSION MIX™ POWDER - 10 bottles of powder without copper	720.00	540.00		
01279	LIFE EXTENSION MOUTHWASH w/POMEGRANATE - 16 oz bottle	18.50	13.88		
	LIFE EXTENSION MOUTHWASH w/POMEGRANATE - 4 -16 oz bottle	68.00	51.00		
01401	LIFE EXTENSION ONE-PER-DAY - 60 veg. tablets	19.95	14.96		
	LIFE EXTENSION ONE-PER-DAY - 4 bottles of 60 veg. tablets	72.00	54.00		
00011	LIFE EXTENSION SHAMPOO - 16 oz bottle	6.00	4.50		
	LIFE EXTENSION SHAMPOO - 4 bottles	19.00	14.25		
01278	LIFE EXTENSION TOOTHPASTE MINT FLAVOR - 4 oz	9.50	7.13		
	LIFE EXTENSION TOOTHPASTE MINT FLAVOR - 4, 4 oz tubes	34.68	26.00		
01416	LIFE EXTENSION TWO-PER-DAY - 60 veg. tablets	9.95	7.46		
	LIFE EXTENSION TWO-PER-DAY - 4 bottles of 60 veg. tablets	36.00	27.00		
01415	LIFE EXTENSION TWO-PER-DAY - 120 veg. tablets	18.95	14.21		
	LIFE EXTENSION TWO-PER-DAY - 4 bottles of 120 veg. tablets	68.00	51.00		
00263	LIFE FLORA™ - 300 mg, 120 caps	20.50	15.38		
	LIFE FLORA™ - 4 bottles of 120 caps	75.00	56.25		
00032	LIFE MIX - 1 lb can of powder	25.00	18.75		
	LIFE MIX - 4 cans of powder	90.00	67.50		
00294	LIQUID EMULSIFIED VITAMIN A DROPS - 20,000 IU per drop	27.00	20.25		
	LIQUID EMULSIFIED VITAMIN A DROPS - 4 bottles	96.00	72.00		
00939	5-LOXIN® - 75 mg, 100 veg. caps	19.50	14.63		
	5-LOXIN® - 4 bottles of 100 veg. caps	69.00	51.75		
01013	L-LYSINE CAPSULES - 620 mg, 100 caps	9.00	6.75		
	L-LYSINE CAPSULES - 4 bottles of 100 caps	32.00	24.00		
00129	L-LYSINE POWDER - 300 grams of powder	16.00	12.00		
	L-LYSINE POWDER - 4 bottles of powder	55.00	41.25		
01017	LUSTRE™ - 90 tablets	17.50	13.13		
	LUSTRE™ - 4 bottles of 90 tablets	62.00	46.50		
01014	LUTEIN PLUS - 150 grams of powder	25.00	18.75		
	LUTEIN PLUS - 4 bottles of powder	88.00	66.00		
01028	LYCOPENE - 10 mg, 60 softgels	24.98	18.74		
00455	(MEGA) LYCOPENE EXTRACT - 15 mg, 90 softgels	35.00	26.25		
	(MEGA) LYCOPENE EXTRACT - 4 bottles of 90 softgels	120.00	90.00		
M					
01044	MAGNESIUM CAPS - 500 mg, 100 caps	\$9.50	\$7.13		
	MAGNESIUM CAPS - 4 bottles of 100 caps	32.00	24.00		
00502	MAGNESIUM CITRATE CAPS - 160 mg, 100 caps	9.00	6.75		
	MAGNESIUM CITRATE CAPS - 4 bottles of 100 caps	30.00	22.50		
00057	MAGNESIUM OXIDE POWDER - 1 kilogram of powder	14.00	10.50		
	MAGNESIUM OXIDE POWDER - 4 bottles of powder	52.52	39.39		
00704	MAITAKE™ SX-FRACTION - 90 tablets	49.95	37.46		
00048	(SUPER) MAX EPA - 12 oz liquid concentrate	22.45	16.84		
00547	MELATONIN - 300 mcg, 100 caps	5.75	4.31		
	MELATONIN - 4 bottles of 100 caps	20.00	15.00		
00328	MELATONIN CAPSULES - 500 mcg, 200 caps	16.00	12.00		
	MELATONIN CAPSULES - 4 bottles of 200 caps	56.00	42.00		

SUB-TOTAL OF COLUMN 11

No.		Retail	Member Price	Qty	Total
00329	MELATONIN CAPSULES - 1 mg, 60 caps	\$5.00	\$3.75		
	MELATONIN CAPSULES - 4 bottles of 60 caps	18.52	13.89		
00330	MELATONIN CAPSULES - 3 mg, 60 caps	8.00	6.00		
	MELATONIN CAPSULES - 4 bottles of 60 caps	27.52	20.64		
00333	MELATONIN CAPSULES - 3 mg, 60 time-release caps	10.50	7.88		
	MELATONIN CAPSULES - 4 bottles of 60 time-release caps	37.52	28.14		
00331	MELATONIN CAPSULES - 10 mg, 60 caps	28.00	21.00		
	MELATONIN CAPSULES - 4 bottles of 60 caps	96.00	72.00		
00332	MELATONIN LOZENGES - 3 mg, 60 dissolve-in-mouth lozenges	8.00	6.00		
	MELATONIN LOZENGES - 4 bottles of 60 dissolve-in-mouth lozenges	27.52	20.64		
00546	MELATONIN TIME RELEASE - 300 mcg, 100 caps	6.25	4.69		
	MELATONIN TIME RELEASE - 4 bottles of 100 caps	22.52	16.89		
00540	MELATONIN TIME RELEASE - 750 mcg, 60 caps	5.75	4.31		
	MELATONIN TIME RELEASE - 4 bottles of 60 caps	20.00	15.00		
01009	MEMORY UPGRADE - 600 grams powder	26.95	20.21		
01047	MENOPAUSE SOLUTIONS - 120 tablets	49.95	37.46		
00536	METHYLCOBALAMIN - 1 mg, 60 dissolve-in-mouth lozenges (vanilla)	9.95	7.46		
	METHYLCOBALAMIN - 4 bottles of 60 dissolve-in-mouth lozenges	32.00	24.00		
00537	METHYLCOBALAMIN - 5 mg, 60 dissolve-in-mouth lozenges (vanilla)	32.00	24.00		
	METHYLCOBALAMIN - 4 bottles of 60 dissolve-in-mouth lozenges	100.00	75.00		
	METHYLCOBALAMIN - 10 bottles of 60 dissolve-in-mouth lozenges	230.00	172.50		
00130	L-METHIONINE POWDER - 100 grams of powder	22.00	16.50		
	L-METHIONINE POWDER - 4 bottles of powder	75.00	56.25		
00709	MIGRA-EEZE (BUTTERBUR) - 60 softgels	29.50	22.13		
	MIGRA-EEZE (BUTTERBUR) - 4 bottles of 60 softgels	105.32	79.00		
00623	MINERAL FORMULA FOR MEN - 100 caps	15.00	11.25		
	MINERAL FORMULA FOR MEN - 4 bottles of 100 caps	50.00	37.50		
	MINERAL FORMULA FOR MEN - 12 bottles of 100 caps	130.00	97.50		
00624	MINERAL FORMULA FOR WOMEN - 100 caps	15.00	11.25		
	MINERAL FORMULA FOR WOMEN - 4 bottles of 100 caps	50.00	37.50		
	MINERAL FORMULA FOR WOMEN - 12 bottles of 100 caps	130.00	97.50		
01315	(SUPER) MIRAFORTE w/STANDARDIZED LIGNANS - 120 caps	62.00	46.50		
	(SUPER) MIRAFORTE w/STANDARDIZED LIGNANS - 4 bottles of 120 caps	224.00	168.00		
01368	MITOCHONDRIAL ENERGY OPTIMIZER - 120 caps	86.00	64.50		
	MITOCHONDRIAL ENERGY OPTIMIZER - 4 bottles of 120 caps	312.00	234.00		
00803	MISTORAL III w/COQ10 - 2 fl oz bottle	28.00	21.00		
	MISTORAL III w/COQ10 - 4 bottles	101.32	75.99		
00065	MK-7 - 90 mcg, 60 softgels	28.00	21.00		
	MK-7 - 4 bottles of 60 softgels	100.00	75.00		
00451	MSM (METHYL-SULFONYL-METHANE) - 1000 mg, 100 caps	14.00	10.50		
	MSM (METHYL-SULFONYL-METHANE) - 4 bottles of 100 caps	47.80	35.85		

N

00215	N-ACETYL CYSTEINE CAPSULES - 600 mg, 60 caps	\$14.00	\$10.50		
	N-ACETYL CYSTEINE CAPSULES - 4 bottles of 60 caps	54.00	40.50		
00168	NAPCA W/ALOE VERA - 8 fl oz bottle	10.00	7.50		
	NAPCA W/ALOE VERA - 4 bottles	36.60	27.45		
00066	NATTOKINASE - 60 softgels	24.98	18.74		
00718	NATTOKINASE (FIBRINOGEN RESIST FORMULA) - 30 caps	49.00	36.75		
	NATTOKINASE (FIBRINOGEN RESIST FORMULA) - 4 bottles of 30 caps	176.00	132.00		
00891	NATURAL APPETITE CONTROL - 90 softgels	28.00	21.00		
	NATURAL APPETITE CONTROL - 4 bottles of 90 softgels	100.80	75.60		
00984	NATURAL BP MANAGEMENT - 60 tablets	42.00	31.50		
	NATURAL BP MANAGEMENT - 4 bottles of 60 tablets	151.20	113.40		

SUB-TOTAL OF COLUMN 12

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail	Member Price	Qty	Total
N CONTINUED					
00913	NATURAL ESOPHAGUARD - 10 softgels	\$19.95	\$14.96		
	NATURAL ESOPHAGUARD - 2 boxes of 10 softgels	38.00	28.50		
00712	NATURAL ESTROGEN w/POMEGRANATE EXTRACT - 60 caplets	38.00	28.50		
	NATURAL ESTROGEN w/POMEGRANATE EXTRACT - 4 bottles of 60 caplets	132.00	99.00		
01221	NATURAL FEMALE SUPPORT - 30 veg. caps	28.00	21.00		
	NATURAL FEMALE SUPPORT - 4 bottles of 30 veg. caps	96.00	72.00		
00698	NATURAL RELIEF 1222™ - 2 oz tube	28.00	21.00		
	NATURAL RELIEF 1222™ - 4, 2 oz tubes	100.00	75.00		
00990	NATURAL SLEEP - 3 mg, 60 caps	12.99	9.74		
	NATURAL SLEEP - 4 bottles of 60 caps	40.00	30.00		
00277	NATURAL SLEEP MELATONIN - 5 mg, 60 caps	18.00	13.50		
	NATURAL SLEEP MELATONIN - 4 bottles of 60 caps	64.00	48.00		
00987	NATURAL STRESS RELIEF - 30 veg. caps	28.00	21.00		
	NATURAL STRESS RELIEF - 4 bottles of 30 veg. caps	96.00	72.00		
01000	NEW FACE SOLUTION - 1.7 oz bottle	54.00	40.50		
	NEW FACE SOLUTION - 4 bottles of 1.7 oz	196.00	147.00		
00096	NIACIN (B-3) CAPSULES - 1000 mg, 100 caps	12.75	9.56		
	NIACIN (B-3) CAPSULES - 4 bottles of 100 caps	48.00	36.00		
00372	NIACIN (B-3) CAPSULES - 500 mg, 100 caps	7.65	5.74		
	NIACIN (B-3) CAPSULES - 4 bottles of 100 caps	26.60	19.95		
00373	NO-FLUSH NIACIN - 800 mg, 100 caps	19.00	14.25		
	NO-FLUSH NIACIN - 4 bottles of 100 caps	68.00	51.00		
00262	NUTRAFLORA - 500 grams of powder	46.00	34.50		
	NUTRAFLORA - 4 bottles of powder	160.00	120.00		
01035	NUTRIM POWDER - 170 grams powder	25.95	19.46		
00523	N-ZIMES® - 270 caps	23.90	17.93		
	N-ZIMES® - 4 bottles of 270 caps	88.00	66.00		
O					
00104	OCTACOSANOL - 8000 mcg, 60 caps	\$17.99	\$13.49		
	OCTACOSANOL - 4 bottles of 60 caps	62.96	47.22		
01483	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT - 60 softgels	18.00	13.50		
	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT - 4 bottles of 60 softgels	64.00	48.00		
01482	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT - 120 softgels	32.00	24.00		
	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT - 4 bottles of 120 softgels	112.00	84.00		
	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT - 10 bottles of 120 softgels	249.00	186.75		
01484	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (ENTERIC COATED) - 120 softgels	34.00	25.50		
	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (ENTERIC COATED) - 4 bottles of 120 softgels	124.00	93.00		
	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (ENTERIC COATED) - 10 bottles of 120 softgels	280.00	210.00		
00717	ONLY TRACE MINERALS - 90 caps	15.00	11.25		
	ONLY TRACE MINERALS - 4 bottles of 90 caps	50.00	37.50		
00915	OPTIZINC® - 30 mg, 90 veg. caps	5.95	4.46		
	OPTIZINC® - 4 bottles of 90 veg. caps	20.00	15.00		
00043	L-ORNITHINE CAPSULES - 500 mg, 100 caps	24.95	18.71		
	L-ORNITHINE CAPSULES - 4 bottles of 100 caps	80.00	60.00		
P					
00107	PABA CAPS - 500 mg, 100 caps	\$13.99	\$10.49		
	PABA CAPS - 4 bottles of 100 caps	49.32	36.99		
00106	PABA POWDER - 100 grams of powder	15.00	11.25		
	PABA POWDER - 4 bottles of powder	55.00	41.25		

SUB-TOTAL OF COLUMN 13

No.		Retail	Member Price	Qty	Total
00073	PANCREATIN - 500 mg, 50 caps	\$11.99	\$8.99		
	PANCREATIN - 4 bottles of 50 caps	43.96	32.97		
00137	PAPAIN POWDER - 100 grams of powder	24.00	18.00		
	PAPAIN POWDER - 4 bottles of powder	80.00	60.00		
00923	PEAK ATP® WITH GLYCOCARN® - 60 tablets	59.00	44.25		
	PEAK ATP® WITH GLYCOCARN® - 4 bottles of 60 tablets	224.00	168.00		
00342	PECTA-SOL - One-month supply modified citrus pectin	99.95	74.96		
	PECTA-SOL - Four-month supply modified citrus pectin	382.80	287.10		
00872	PGX FIBER POWDER (SLIMSTYLES) - 6.4 oz powder	22.95	17.21		
00673	(WELLBETX) PGX SOLUBLE FIBER BLEND -180 caps	34.95	26.21		
00865	PHARMAGABA™ - 60 chewable tablets	29.95	22.46		
	PHARMAGABA™ - 4 bottles of 60 chewable tablets	108.00	81.00		
00131	L-PHENYLALANINE POWDER - 100 grams of powder	28.00	21.00		
	L-PHENYLALANINE POWDER - 4 bottles of powder	100.00	75.00		
00368	PHOSPHATIDYLSERINE CAPS - 100 mg, 100 caps	54.00	40.50		
	PHOSPHATIDYLSERINE CAPS - 4 bottles of 100 caps	192.00	144.00		
01050	PHOSPHOMEGA™ KRILL OIL - 60 softgels	33.95	25.46		
01016	PHYTO-FOOD - 80 grams of powder	46.00	34.50		
	PHYTO-FOOD - 4 bottles of powder	172.00	129.00		
00614	PILL CUTTER/GRINDER	11.95	8.96		
00561	POLICOSANOL - 10 mg, 60 tablets	24.00	18.00		
	POLICOSANOL - 6 bottles of 60 tablets	108.00	81.00		
00994	(SUPER) POLYPHENOL EXTRACT w/ COCOAGOLD™ - 30 veg caps	24.00	18.00		
	(SUPER) POLYPHENOL EXTRACT w/ COCOAGOLD™ - 4 bottles of 30 veg. caps	84.00	63.00		
00956	POMEGRANATE EXTRACT - 30 veg. caps	19.50	14.63		
	POMEGRANATE EXTRACT - 4 bottles of 30 veg. caps	70.20	52.64		
01256	POMEGRANATE EXTRACT w/ COCOAGOLD™ - 30 veg caps	24.00	18.00		
	POMEGRANATE EXTRACT w/ COCOAGOLD™ - 4 bottles of 30 veg caps	84.00	63.00		
00957	POMEGRANATE JUICE CONCENTRATE - 16 oz. liquid	25.95	19.46		
	POMEGRANATE JUICE CONCENTRATE - 4 bottles of 16 oz liquid	96.00	72.00		
00577	POTASSIUM IODIDE - 1 box, 14 tablets	6.95	5.21		
	POTASSIUM IODIDE - 4 boxes, 14 tablets	21.00	15.75		
00302	PREGNENOLONE CAPSULES - 50 mg, 100 caps	24.00	18.00		
	PREGNENOLONE CAPSULES - 4 bottles of 100 caps	76.00	57.00		
00700	PREGNENOLONE CAPSULES - 100 mg, 100 caps	26.00	19.50		
	PREGNENOLONE CAPSULES - 4 bottles of 100 caps	90.00	67.50		
*01373	PRELOX® NATURAL SEX FOR MEN® - 60 tablets	50.00	37.50		
	PRELOX® NATURAL SEX FOR MEN® - 4 bottles of 60 tablets	180.00	135.00		
00571	PRIMAL DEFENSE® - 900 mg, 90 caplets	49.95	37.46		
	PRIMAL DEFENSE® - 4 bottles of 90 caplets	194.00	145.50		
01019	PRIMAL DEFENSE® - 180 caplets	78.95	59.21		
00525	PROBOOST THYMIC PROTEIN A™ - 4 mcg, 30 packets	72.00	54.00		
	PROBOOST THYMIC PROTEIN A™ - 4 boxes	280.00	210.00		
00869	PRO FEM CREAM - 2 oz jar, Progesterone Cream	26.00	19.50		
	PRO FEM CREAM - 4, 2 oz jars, Progesterone Cream	96.00	72.00		
01020	PROGREENS® - 15 stick pack	22.50	16.88		
00396	PRO M - 500 mg, 100 caps	28.00	21.00		
	PRO M - 4 bottles of 100 caps	104.00	78.00		
*01475	(ULTRA NAT) PROSTATE FORMULA w/ 5-LOXIN® STAND. LIGNANS-60 softgels	38.00	28.50		
	(ULTRA NAT) PROSTATE FORMULA w/ 5-LOXIN® STAND. LIGNANS-4 bot of 60 softgels	140.00	105.00		
	(ULTRA NAT) PROSTATE FORMULA w/ 5-LOXIN® STAND. LIGNANS-12 bot of 60 softgels	384.00	288.00		
01092	(ENHANCED LIFE EXTENSION) PROTEIN (VANILLA) - 1 kg. of powder	38.00	28.50		
	(ENHANCED LIFE EXTENSION) PROTEIN (VANILLA) - 4 bot of powder	144.00	108.00		
01093	(ENHANCED LIFE EXTENSION) PROTEIN (CHOCOLATE) - 1 kg of powder	38.00	28.50		
	(ENHANCED LIFE EXTENSION) PROTEIN (CHOCOLATE) - 4 bot of powder	144.00	108.00		

SUB-TOTAL OF COLUMN 14

No.		Retail	Member Price	Qty	Total
01094	(ENHANCED LIFE EXTENSION) PROTEIN (NATURAL) - 1 kg of powder	\$38.00	\$28.50		
	(ENHANCED LIFE EXTENSION) PROTEIN (NATURAL) - 4 bot of powder	144.00	108.00		
01095	(ENHANCED LIFE EXTENSION) PROTEIN (BERRY) - 1 kg of powder	38.00	28.50		
	(ENHANCED LIFE EXTENSION) PROTEIN (BERRY) - 4 bot of powder	144.00	108.00		
00290	(DESIGNER WHEY) PROTEIN - Vanilla 2 lbs of powder	41.95	31.46		
	(DESIGNER WHEY) PROTEIN - 4 bottles of Vanilla powder	152.00	114.00		
00282	(DESIGNER WHEY) PROTEIN - Chocolate 2 lbs of powder	41.95	31.46		
	(DESIGNER WHEY) PROTEIN - 4 bottles of Chocolate powder	152.00	114.00		
00283	(DESIGNER WHEY) PROTEIN - Natural 2 lbs of powder	41.95	31.46		
	(DESIGNER WHEY) PROTEIN - 4 bottles of Natural powder	152.00	114.00		
01056	PURE-GAR® - 200 caps	24.95	18.71		
	PURE-GAR® - 4 bottles of 200 caps	84.00	63.00		
01209	(WATER-SOLUBLE) PUMPKIN SEED EXTRACT - 60 veg. caps	20.00	15.00		
	(WATER-SOLUBLE) PUMPKIN SEED EXTRACT - 4 bottles 60 veg. caps	72.00	54.00		
01210	(WATER-SOLUBLE) PUMPKIN SEED EXT w/SOY ISOFLAVONES - 60 veg. caps	22.00	16.50		
	(WATER-SOLUBLE) PUMPKIN SEED EXT w/SOY ISOFLAVONES - 4 bottles 60 veg.	80.00	60.00		
01031	PYCNOGENOL® - 60 veg. caps	86.95	65.21		
01207	PYRIDOXAMINE CAPS - 50 mg, 60 veg. caps	22.00	16.50		
	PYRIDOXAMINE CAPS - 4 bottles of 60 veg. caps	79.20	59.40		
Q, R					
01309	(OPTIMIZED) QUERCETIN - 250 mg, 60 veg. caps	\$18.00	\$13.50		
	(OPTIMIZED) QUERCETIN - 4 bottles of 60 veg. caps	68.00	51.00		
01030	RED YEAST RICE (Bluebonnet)- 600 mg, 60 veg. caps	16.95	12.71		
00979	RED YEAST RICE (Nature's Plus)- 600 mg, 60 veg. caps	22.75	17.06		
00060	RED YEAST RICE EXTENDED RELEASE (Nature's Plus)- 30 veg. tablets	20.55	15.41		
00605	REGIMINT® - 60 enteric-coated caps	19.95	14.96		
	REGIMINT® - 4 bottles of 60 caps	74.68	56.01		
00448	REJUVENEX® BODY LOTION - 6 oz tube	24.00	18.00		
	REJUVENEX® BODY LOTION - 4 tubes	79.20	59.40		
	REJUVENEX® BODY LOTION - 8 tubes	136.00	102.00		
00918	REJUVENEX® FACTOR - 1.7 oz Airless pump bottle	65.00	48.75		
	REJUVENEX® FACTOR - 2 bottles	120.00	90.00		
	REJUVENEX® FACTOR - 4 bottles	220.00	165.00		
	REJUVENEX® FACTOR - 8 bottles	399.28	299.46		
01220	(ULTRA) REJUVENEX® - 2 oz jar	52.00	39.00		
	(ULTRA) REJUVENEX® - 2 jars	96.00	72.00		
	(ULTRA) REJUVENEX® - 4 jars	176.00	132.00		
	(ULTRA) REJUVENEX® - 8 jars	319.44	239.38		
00676	(ULTRA) REJUVENIGHT (DREAM CREAM) - 2 oz jar	39.95	29.96		
	(ULTRA) REJUVENIGHT (DREAM CREAM) - 4 jars	144.00	108.00		
00706	(ULTRA) REJUVENIGHT w/PROGESTERONE - 2 oz jar	42.00	31.50		
	(ULTRA) REJUVENIGHT w/PROGESTERONE - 4 jars	152.00	114.00		
01413	RESVERATROL w/PTEROSTILBENE - 20 mg, 60 veg. caps	24.00	18.00		
	RESVERATROL w/PTEROSTILBENE - 4 bottles of 60 veg. caps	88.00	66.00		
01410	RESVERATROL w/PTEROSTILBENE - 100 mg, 60 veg. caps	36.00	27.00		
	RESVERATROL w/PTEROSTILBENE - 4 bottles of 60 veg. caps	128.00	96.00		
01409	(OPTIMIZED) RESVERATROL w/PTEROSTILBENE - 250 mg, 60 veg. caps	46.00	34.50		
	(OPTIMIZED) RESVERATROL w/PTEROSTILBENE - 4 bottles of 60 veg. caps	165.32	124.00		
00889	RHODIOLA EXTRACT - 250 mg, 60 veg. caps	11.75	8.81		
	RHODIOLA EXTRACT - 4 bottles of 60 veg. caps	42.32	31.74		
00972	(D) RIBOSE POWDER - 150 grams of powder	27.50	20.63		
	(D) RIBOSE POWDER - 4 jars of 150 grams	99.00	74.25		
00973	(D) RIBOSE CAPS - 120 veg. caps	32.00	24.00		
	(D) RIBOSE CAPS - 4 bottles of 120 veg. caps	115.20	86.40		

SUB-TOTAL OF COLUMN 15

No.		Retail	Member Price	Qty	Total
01208	(SUPER) R-LIPOIC ACID - 300 mg, 60 veg. caps	\$49.00	\$36.75		
	(SUPER) R-LIPOIC ACID - 4 bottles of 60 veg. caps	180.00	135.00		
00070	RNA CAPSULES - 500 mg, 100 caps	17.95	13.46		
	RNA CAPSULES - 4 bottles of 100 caps	64.64	48.48		
00143	RNA POWDER - 100 grams of powder	24.00	18.00		
	RNA POWDER - 4 bottles of powder	80.00	60.00		
00917	ROSMARINIC ACID EXTRACT - 60 veg. caps	38.00	28.50		
	ROSMARINIC ACID EXTRACT - 4 bottles of 60 veg. caps	144.00	108.00		
00139	RUTIN POWDER - 100 grams of powder	15.50	11.63		
	RUTIN POWDER - 4 bottles of powder	55.00	41.25		
S					
* 00573	SAMBU GUARD - 175 ml	\$17.49	\$13.99		
00358	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 20 enteric coated tablets	18.95	14.21		
	SAME (S-ADENOSYL-METHIONINE) - 8 boxes of 20 enteric coated tablets	132.80	99.60		
00453	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 50 enteric coated tablets	45.00	33.75		
	SAME (S-ADENOSYL-METHIONINE) - 4 bottles of 50 enteric coated tablets	156.00	117.00		
00557	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 20 enteric coated tablets	35.00	26.25		
	SAME (S-ADENOSYL-METHIONINE) - 6 boxes of 20 enteric coated tablets	168.00	126.00		
01043	SEA-IODINE™ - 1000 mcg, 60 veg. caps	8.00	6.00		
	SEA-IODINE™ - 4 bottles of 60 veg. caps	28.80	21.60		
00046	SELENIUM - 2 oz dropper bottle	9.45	7.09		
	SELENIUM - 4 bottles of 2 oz bottle	36.00	27.00		
00567	SE-METHYSELENOCYSTEINE - 200 mcg, 100 caps	12.00	9.00		
	SE-METHYSELENOCYSTEINE - 4 bottles of 100 caps	44.00	33.00		
00318	SERRAFLAZYME - 100 tablets	18.00	13.50		
	SERRAFLAZYME - 4 bottles of 100 tablets	64.00	48.00		
00339	SHARK-A CARTILAGE - 750 mg, 270 caps	68.00	51.00		
	SHARK-A CARTILAGE - 4 bottles of 270 caps	255.00	191.25		
00284	SHARK LIVER OIL (NORWEGIAN) - 1000 mg, 30 softgels	18.00	13.50		
	SHARK LIVER OIL (NORWEGIAN) - 4 bottles of 30 softgels	64.00	48.00		
00184	SILYMARIN - 100 mg, 50 caps	9.25	6.94		
	SILYMARIN - 4 bottles of 50 caps	33.00	24.75		
00702	(MEGA) SILYMARIN WITH ISOSILYBIN B - 100 caps	42.00	31.50		
	(MEGA) SILYMARIN WITH ISOSILYBIN B - 4 bottles of 100 caps	152.00	114.00		
00872	SLIMSTYLES PGX® - 6.4 oz powder	22.95	17.21		
00961	SODZYME® W/GLISODIN® AND WOLFBERRY - 90 veg. caps	28.00	21.00		
	SODZYME® W/GLISODIN® AND WOLFBERRY - 4 bottles of 90 veg. caps	96.00	72.00		
00657	SOLARSHIELD SUNGLASSES - 1 pair smoke color	12.99	9.74		
	SOLARSHIELD SUNGLASSES - 2 pair smoke color	23.00	17.25		
00785	(ULTRA) SOY EXTRACT - 675 mg, 600 caps	349.00	261.75		
	(ULTRA) SOY EXTRACT - 4 bottles of 600 caps	1260.00	945.00		
00304	SOY POWER POWDER - 300 grams of powder	31.50	23.63		
	SOY POWER POWDER - 4 bottles of powder	114.00	85.50		
00286	SOY PROTEIN POWDER (concentrated soy protein) - 16 oz of powder	12.00	9.00		
	SOY PROTEIN POWDER - 4 bottles of powder	42.50	31.87		
00432	STEVIA EXTRACT - 100 packets, 1 gram each	9.95	7.46		
	STEVIA EXTRACT - 4 boxes of 100 packets	36.00	27.00		
00351	ST. JOHN'S WORT EXTRACT - 300 mg, 60 caps	10.98	8.24		
	ST. JOHN'S WORT EXTRACT - 4 bottles of 60 caps	40.00	30.00		
00327	ST. JOHN'S WORT EXTRACT (PLANETARY) - 600 mg, 60 tablets	16.75	12.56		
	ST. JOHN'S WORT EXTRACT (PLANETARY) - 4 bottles of 60 tablets	55.40	41.55		
00971	SUN PROTECTION SPRAY W/BETA GLUCAN - SPF30 - 6 oz bottle	14.95	11.21		
	SUN PROTECTION SPRAY W/BETA GLUCAN - SPF30 - 4 bottles, 6 oz	54.00	40.50		

SUB-TOTAL OF COLUMN 16

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail	Member Price	Qty	Total
00747	(OVERCAST POLARIZED) SUNGLASSES - gray color, large	\$27.00	\$20.25		
	(OVERCAST POLARIZED) SUNGLASSES - 2 pairs, gray color	42.00	31.50		
00748	(OVERCAST POLARIZED) SUNGLASSES - gray color, medium	27.00	20.25		
	(OVERCAST POLARIZED) SUNGLASSES - 2 pairs, gray color	42.00	31.50		
00758	SUPER ABSORBABLE SOY ISOFLAVONES - 60 caps	28.00	21.00		
	SUPER ABSORBABLE SOY ISOFLAVONES - 4 bottles of 60 caps	100.00	75.00		
01408	SUPER SAW PALMETTO/NETTLE ROOT w/BETA-SITOSTEROL 60 softgels	28.00	21.00		
	SUPER SAW PALMETTO/NETTLE ROOT w/BETA-SITOSTEROL 4 bottles of 60 softgels	104.00	78.00		
	SUPER SAW PALMETTO/NETTLE ROOT w/BETA-SITOSTEROL One-year supply	288.00	216.00		
01407	SUPER SAW PALMETTO W/BETA-SITOSTEROL - 30 softgels	15.00	11.25		
	SUPER SAW PALMETTO W/BETA-SITOSTEROL - 12 bottles of 30 softgels	144.00	108.00		
00578	SUPER SELENIUM COMPLEX - 200 mcg, 100 caps	12.00	9.00		
	SUPER SELENIUM COMPLEX - 4 bottles of 100 caps	40.00	30.00		
	SUPER SELENIUM COMPLEX - 12 bottles of 100 caps	108.00	81.00		
00674	SYTRINOL™ - 60 softgels	32.00	24.00		
	SYTRINOL™ - 4 bottles of 60 softgels	112.00	84.00		
T					
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00199	TAURINE CAPSULES - 1000 mg, 50 caps	\$8.95	\$6.71		
	TAURINE CAPSULES - 4 bottles of 50 caps	32.00	24.00		
00133	TAURINE POWDER - 300 grams, powder	20.00	15.00		
	TAURINE POWDER - 4 bottles of powder	67.52	50.64		
01304	THEAFLAVIN STANDARDIZED EXTRACT - 30 veg. caps	18.00	13.50		
	THEAFLAVIN STANDARDIZED EXTRACT - 4 bottles of 30 veg. caps	64.00	48.00		
00555	(L) THEANINE - 100 mg, 60 caps	24.00	18.00		
	(L) THEANINE - 4 bottles of 60 caps	82.00	61.50		
01038	THERALAC - 30 caps	44.95	33.71		
00224	THYMIC IMMUNE FACTORS - 100 caps	18.00	13.50		
	THYMIC IMMUNE FACTORS - 4 bottles of 100 caps	56.00	42.00		
00668	(METABOLIC ADVANTAGE) THYROID FORMULA - 100 caps	17.95	13.46		
00349	TMG - 50 grams of powder	14.00	10.50		
	TMG - 4 bottles of powder	44.00	33.00		
00359	TMG TABLETS - 500 mg, 180 tablets	18.00	13.50		
	TMG TABLETS - 4 bottles of 180 tablets	62.00	46.50		
00366	TOCOTRIENOLS - 50 mg, 60 softgel caps	39.95	29.96		
	TOCOTRIENOLS - 4 bottles of 60 softgel caps	144.00	108.00		
00781	TOCOTRIENOLS WITH SESAME LIGNANS - 60 softgels	38.00	28.50		
	TOCOTRIENOLS WITH SESAME LIGNANS - 4 bottles of 60 softgels	144.00	108.00		
01400	(SUPER-ABSORBABLE) TOCOTRIENOLS - 60 softgels	30.00	22.50		
	(SUPER-ABSORBABLE) TOCOTRIENOLS - 4 bottles of 60 softgels	112.00	84.00		
01274	TOTAL SUN PROTECTION CREAM W/BETAGLUCANS - SPF 30, 4 oz Tube & PHOTO-AGING RECOVERY COMPLEX	28.00	21.00		
	TOTAL SUN PROTECTION CREAM W/BETAGLUCANS - 4-4 oz Tubes & PHOTO-AGING RECOVERY COMPLEX	100.80	75.60		
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT- 60 veg. caps	24.00	18.00		
	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT-4 bot 60 veg. caps	88.00	66.00		
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL -60 veg. caps	32.00	24.00		
	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL - 4 bottles	118.40	88.80		
01046	TRIPLE ACTION UNDER EYE REJUVENATOR - 0.5 oz pump	24.00	18.00		
	TRIPLE ACTION UNDER EYE REJUVENATOR - 4 boxes	88.00	66.00		
00866	TRYPTOPURE® L-TRYPTOPHAN - 500 mg, 90 veg. caps	38.00	28.50		
	TRYPTOPURE® L-TRYPTOPHAN - 4 bottles of 90 veg. caps	136.00	102.00		

SUB-TOTAL OF COLUMN 17

No.		Retail	Member Price	Qty	Total
01202	(OPTIMIZED) TRYPTOPURE® PLUS - 90 veg. caps	\$40.00	\$30.00		
	(OPTIMIZED) TRYPTOPURE® PLUS - 4 bottles of 90 veg. caps	144.00	108.00		
00036	L-TYROSINE POWDER - 100 grams of powder	22.50	16.88		
	L-TYROSINE POWDER - 4 bottles of powder	80.00	60.00		
00326	L-TYROSINE TABLETS - 500 mg, 100 tablets	12.50	9.38		
	L-TYROSINE TABLETS - 4 bottles of 100 tablets	45.68	34.26		
00035	L-TYROSINE PLUS POWDER - 100 grams of powder	28.00	21.00		
	L-TYROSINE PLUS POWDER - 4 bottles of powder	98.00	73.50		
U					
* 00310	UDO'S CHOICE® - 17 oz liquid (omega fatty acids)	\$27.49	\$21.99		
* 00311	UDO'S CHOICE® - 1000 mg, 180 caps	33.79	27.03		
* 00322	UDO'S CHOICE® WHOLESOME FAST FOOD - 1 lb bottle	27.49	21.99		
V					
00213	VANADYL SULFATE - 7.5 mg, 100 tablets	\$15.00	\$11.25		
	VANADYL SULFATE - 4 bottles of 100 tablets	50.00	37.50		
01018	VASCULAR PROTECT - 120 vegetarian caps	48.00	36.00		
	VASCULAR PROTECT - 4 bottles of 120 vegetarian caps	180.00	135.00		
00252	VELVET DEER ANTLER - 250 mg, 30 caps	36.00	27.00		
	VELVET DEER ANTLER - 4 bottles of 30 caps	136.00	102.00		
00408	VENOTONE - 60 caps	18.95	14.21		
	VENOTONE - 4 bottles of 60 caps	64.00	48.00		
00427	VINPOCETINE - 5 mg, 100 tablets	18.00	13.50		
	VINPOCETINE - 4 bottles of 100 tablets	56.00	42.00		
01033	VISION OPTIMIZER - 90 caps	29.95	22.46		
01098	VITAL GREENS MIX - 319.5 grams of powder	48.00	36.00		
	VITAL GREENS MIX - 4 bottles of powder	176.00	132.00		
00091	VITAMIN B1 CAPS - 500 mg, 100 caps	16.99	12.74		
	VITAMIN B1 CAPS - 4 bottles of 100 caps	60.68	45.51		
00090	VITAMIN B1 POWDER - 100 grams of powder (Thiamin)	18.00	13.50		
	VITAMIN B1 POWDER - 4 bottles of powder	67.52	50.64		
00093	VITAMIN B2 CAPS - 100 mg, 100 caps	12.99	9.74		
	VITAMIN B2 CAPS - 4 bottles of 100 caps	47.52	35.64		
00092	VITAMIN B2 POWDER - 30 grams of powder	10.50	7.88		
	VITAMIN B2 POWDER - 4 bottles of powder	37.52	28.14		
00096	VITAMIN B3 (NIACIN) - 1000 mg, 100 caps	12.75	9.56		
	VITAMIN B3 (NIACIN) - 4 bottles of 100 caps	48.00	36.00		
00372	VITAMIN B3 (NIACIN) - 500 mg, 100 caps	7.65	5.74		
	VITAMIN B3 (NIACIN) - 4 bottles of 100 caps	26.60	19.95		
00094	VITAMIN B3 POWDER - 300 grams of powder	15.00	11.25		
	VITAMIN B3 POWDER - 4 bottles of powder	56.00	42.00		
00098	VITAMIN B5 CAPS - 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88		
	VITAMIN B5 CAPS - 4 bottles of 100 caps	37.52	28.14		
00097	VITAMIN B5 POWDER - 100 grams of powder	15.25	11.44		
	VITAMIN B5 POWDER - 4 bottles of powder	55.00	41.25		
00556	VITAMIN B6 CAPS - 250 mg, 100 caps	12.50	9.38		
	VITAMIN B6 CAPS - 4 bottles of 100 caps	44.00	33.00		
00099	VITAMIN B6 POWDER - 100 grams of powder	24.50	18.38		
	VITAMIN B6 POWDER - 4 bottles of powder	88.00	66.00		
00361	VITAMIN B12 TABLETS - 500 mcg, 100 dissolve-in-mouth tablets	8.75	6.56		
	VITAMIN B12 TABLETS - 4 bottles of 100 dissolve-in-mouth tablets	29.00	21.75		
00144	VITAMIN B12 POWDER - 100 grams of powder	12.00	9.00		
	VITAMIN B12 POWDER - 4 bottles of powder	42.52	31.89		
00927	VITAMIN C WITH DIHYDROQUERCETIN - 1000 mg, 250 tablets	25.50	19.13		
	VITAMIN C WITH DIHYDROQUERCETIN - 4 bottles of 250 tablets	93.00	69.75		

SUB-TOTAL OF COLUMN 18

No.		Retail	Member Price	Qty	Total
00084	(BUFFERED) VITAMIN C POWDER - 454.6 grams of powder	\$23.95	\$17.96		
	(BUFFERED) VITAMIN C POWDER - 4 bottles of powder	88.00	66.00		
00864	VITAMIN D - 2000 IU, 1 fl oz	28.00	21.00		
	VITAMIN D - 4 bottles of 1 fl oz	100.00	75.00		
00251	VITAMIN D3 CAPS - 1000 IU, 250 caps	12.50	9.38		
	VITAMIN D3 CAPS - 4 bottles of 250 caps	45.00	33.75		
00713	VITAMIN D3 CAPS - 5000 IU, 60 caps	11.00	8.25		
	VITAMIN D3 CAPS - 4 bottles of 60 caps	39.60	29.70		
01418	VITAMIN D3 CAPS - 7000 IU, 60 caps	14.00	10.50		
	VITAMIN D3 CAPS - 4 bottles of 60 caps	50.40	37.80		
01371	VITAMIN D3 w/SEA-IODINE - 1000 IU, 250 veg. caps	22.00	16.50		
	VITAMIN D3 w/SEA-IODINE - 4 bottles of 250 veg. caps	80.00	60.00		
01372	VITAMIN D3 w/SEA-IODINE - 5000 IU, 60 veg. caps	14.00	10.50		
	VITAMIN D3 w/SEA-IODINE - 4 bottles of 60 veg. caps	50.00	37.50		
00063	VITAMIN E CAPS (NATURAL) - 400 IU, 100 caps	18.75	14.06		
	VITAMIN E CAPS (NATURAL) - 4 bottles of 100 caps	69.00	51.75		
	VITAMIN E CAPS (NATURAL) - 10 bottles of 100 caps	150.00	112.50		
00062	VITAMIN E POWDER (SYNTHETIC) - 300 grams of powder	28.95	21.71		
	VITAMIN E POWDER (SYNTHETIC) - 4 bottles of powder	100.00	75.00		
01225	(LOW-DOSE) VITAMIN K2 (MK-7) - 90 softgels	18.00	13.50		
	(LOW-DOSE) VITAMIN K2 (MK-7) - 4 bottles of 90 softgels	64.00	48.00		
Z					
00986	(SUPER) ZEAXANTHIN W/LUTEIN & MESO-ZEAXANTHIN - 60 softgels	\$22.00	\$16.50		
	(SUPER) ZEAXANTHIN W/LUTEIN & MESO-ZEAXANTHIN - 4 bottles	79.20	59.40		
01286	(SUPER) ZEAXANTHIN W/LUTEIN & MESO-ZEAXANTHIN PLUS ASTAXANTHIN - 60 softgels	42.00	31.50		
	(SUPER) ZEAXANTHIN W/LUTEIN & MESO-ZEAXANTHIN PLUS ASTAXANTHIN - 4 bottles of 60 softgels	152.00	114.00		
00152	ZINC GLUCONATE POWDER - 100 grams of powder	8.00	6.00		
	ZINC GLUCONATE POWDER - 4 bottles of powder	27.50	20.62		
00061	ZINC LOZENGES WITH VITAMIN C - 75 lozenges	9.50	7.13		
	ZINC LOZENGES WITH VITAMIN C - 4 bottles of 75 lozenges	27.00	20.25		
01051	ZYFLAMEND - 120 softgels	60.95	45.71		
01029	ZYFLAMEND EASYCAPS - 180 caps	31.95	23.96		

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The box on this page reveals how much more potent the **Two-Per-Day** formula is compared to the leading commercial multi-vitamin. Few consumers realize that commercial supplements often contain the cheapest form of nutrients that don't provide optimal benefits. For example, the **30 IU** of synthetic vitamin E contained in Centrum® may provide relatively little vitamin E to the bloodstream. Studies show that synthetic vitamin E is distributed throughout the body only about half as much as natural vitamin E.¹⁻⁵ The **200 IU** of natural vitamin E contained in **Two-Per-Day** thus provides about **13 times** more vitamin E activity than does **Centrum®**.

The following table compares the daily dosage of key nutrients included in both the **Life Extension Two-Per-Day Tablet** and Centrum®'s Daily Tablet:

Sample Ingredient Comparison	LIFE EXTENSION TWO-PER-DAY	Centrum®
Vitamin C	500 mg	60 mg
Vitamin E	200 IU (natural)	30 IU (synthetic)
Folic acid	800 mcg	400 mcg
Vitamin B12	300 mcg	6 mcg
Vitamin B6	75 mg	2 mg
Zinc	30 mg	11 mg
Selenium	200 mcg	55 mcg
Lutein	11 mg	(none)*
Lycopene	2 mg	(none)*
Vitamin B1	75 mg	1.5 mg
Vitamin B2	50 mg	1.7 mg
Niacin (as niacinamide)	50 mg	20 mg
Pantothenic acid	100 mg	10 mg
Biotin	300 mcg	30 mcg
Boron	3 mg	75 mcg
Chromium	200 mcg	35 mcg
Molybdenum	100 mcg	45 mcg
Magnesium	100 mg	50 mg
Manganese	2 mg	2.3 mg
Iodine	150 mcg	150 mcg
Potassium	25 mg	80 mg
Vitamin A	5000 IU	3500 IU
Vitamin D	2000 IU	400 IU
Choline Bitartrate	20 mg	(none)
Inositol	50 mg	(none)
PABA	30 mg	(none)
Calcium	12 mg	200 mg



Compared to Centrum®,
Life Extension Two-Per-Day Tablets
provide about:

- 5 times more Vitamin D
- 8 times more Vitamin C
- 7 times more Vitamin E
- 10 times more Biotin
- 40 times more Boron
- 4 times more Selenium
- 37 times more Vitamin B6
- 50 times more Vitamin B1
- 50 times more Vitamin B12
- More than twice as much niacin, zinc, and many other nutrients

References

1. *Am J Clin Nutr.* 1997 Mar;65(3):785-9.
2. *Am J Clin Nutr.* 1998 Apr;67(4):669-84.
3. *Biofactors.* 1999;10(2-3):115-20.
4. *Mol Aspects Med.* 2007 Oct;28(5-6):423-36.
5. *J Nutr Biochem.* 2004 Jul;15(7):380-95.

* Centrum® no longer contains significant amounts of lycopene nor lutein.

Life Extension Two-Per-Day Tablets provide much higher potencies of key nutrients and represent a **better value than many commercial brands.**

A bottle of 120 **Life Extension Two-Per-Day Tablets** retails for \$18.95. If a member buys four bottles, the price is reduced to \$12.75 per bottle. (The retail price for 180 tablets of Centrum® is around \$14.)

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WHAT'S INSIDE

LifeExtension[®] Magazine

ARE CANCER CELLS CIRCULATING IN YOUR BLOOD?



An extraordinary technological breakthrough now enables doctors to detect *circulating* tumor cells in your blood. This new test allows doctors to identify metastatic circulating cells that break away from the primary tumor and may soon save millions of lives.

END THE VICIOUS CYCLE OF URINARY TRACT INFECTIONS



Urinary tract infections (UTIs) result in millions of office visits and over \$1 billion in healthcare costs each year. A newly discovered natural agent offers women potent protection against this painful affliction.

RESTORE YOUTHFUL SKIN WITH A LOW-COST HORMONE



Researchers have identified a new culprit that *accelerates* skin aging: chronic insomnia. A unique topical application of melatonin, the body's natural sleep regulator, can help restore skin to youthful health.

MILLIONS OF NEEDLESS CANCER DEATHS



Rampant medical apathy and ignorance is the number one cause of cancer death in the world. **Life Extension**[®] suggests cutting-edge therapies and diagnostics to close this "knowledge gap" and halt skyrocketing cancer mortality rates.

PLUS

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MORE DRUG COMPANY KICKBACKS
GREEN TEA MAY PREVENT LUNG CANCER
BLUEBERRY JUICE CAN BOOST MEMORY
PTEROSTILBENE AIDS IN COLON CANCER PREVENTION