Achieve Benefits of Calorie Restriction without Hunger

FDA Finally Admits Deadly Effects of Acetaminophen

Halt the Stealth Progression of Parkinson’s Disease

Advanced Treatment of Hematological Cancers

PLUS—
Vitamin K Lowers Lymphoma Risk
Lack of Sleep Leads to Overeating
Omega-3 Improves Diabetic Kidneys
Diminished levels of neurotransmitters and other brain compounds profoundly affect cognition and memory in aging adults. Cognitex was developed in 1982 to increase brain levels of acetylcholine — a neurotransmitter that enables neurons to communicate. Over the years, Cognitex has been improved with the addition of nutrients used in Europe to protect and enhance neurological function.

Cognitex with Pregnenolone & NeuroProtection Complex provides the following scientifically validated nutrients to provide broad-spectrum neurological support:

- **Uridine-5'-monophosphate (UMP)**: A phosphatide building block of RNA-DNA that is critical to optimal brain function and the health of neuronal cell membranes. Naturally found in the milk of nursing mothers, UMP is essential not only for the growth and development of infant brains, but also for healthy cognitive function in aging adults.

- **Sharp-PS® GOLD**: A rich phosphatidylserine compound bound to DHA, promotes already-normal neuronal cell membrane function and structure.

- **Alpha-glyceryl phosphoryl choline (A-GPC)**: Boosts acetylcholine, a critical neurotransmitter that declines with age.

- **Vinpocetine**: Enhances circulation and oxygenation to brain cells, improves neural electrical conductivity, and protects against neuron-destroying excitotoxicity.

- **Phospholipid-Grape Seed Extract**: A compound that is better absorbed into the bloodstream where it improves blood vessel tone and elasticity, thus enhancing blood circulation and oxygen flow to the brain.

- **Wild blueberry extract**: Protects against free-radical damage in the brain and helps maintain fluid balances already within the normal range.

- **Sensoril® Ashwagandha Extract**: Helps alleviate mental fatigue by inhibiting an enzyme (acetylcholinesterase) that degrades acetylcholine in the aging brain.

- **Proprietary NeuroProtection Complex Blend**: Contains standardized extracts of hops, ginger, and rosemary — proven to help with inflammation.

- **Pregnenolone**: Is a hormone that may be especially beneficial to the brain.

The retail price for 90 softgels of Cognitex (with or without pregnenolone) is $74 (item #00922) and $72 (item #00921), respectively. If a member orders four bottles of either version, the price per bottle is reduced to just $49.95 and $48, respectively.

**Caution**: Cognitex is also available without pregnenolone for those with existing steroid hormone-sensitive cancer.

Perluxan® is used with permission. Sensoril® is protected under US Patents Nos. 6,153,198 and 6,713,092, and is a registered trademark of Natreon, Inc. Sharp-PS® GOLD is a registered trademark of Enzymotec Ltd.

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

Contains fish (wild herring, blue whiting), soybeans, and rice.

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

24 ACTIVATE YOUR SKIN’S INTERNAL SUNBLOCK
Despite the rapid rise in sunscreen use, rates of melanoma—the most lethal form of skin cancer—have more than doubled over the past two decades. New research substantiates the ability of natural dietary interventions to trigger your skin cells’ ultraviolet ray defenses internally.

48 LIFE EXTENSION FUNDS GROUNDBREAKING CANCER TREATMENT STUDY
When news broke about a colony of mice that were 100% resistant to cancer, there was an explosion of excitement throughout the scientific community. These mice were immune to cancer because they had been bred with ultra-powerful white blood cells called super-charged granulocytes. In response, the Life Extension Foundation® provided funding to launch the first human study using this cancer treatment at the South Florida Bone Marrow Stem Cell Transplant Institute.

56 THE FACTS ABOUT SOY
Is soy safe? A vocal minority has fueled a “controversy” of misinformation that surrounds this nutritional powerhouse. A review of the published scientific literature uncovers a wealth of studies validating soy’s broad-spectrum benefits, from cardiovascular disease and cancer prevention, to helping to maintain bone density.

70 INNOVATIONS IN PARKINSON’S PREVENTION
While there is no known cure for Parkinson’s disease, the single most important risk factor is well known: aging. Fortunately, advances in our understanding of how Parkinson’s unfolds has yielded safe, low-cost interventions to halt its stealth progress, including natural compounds many Life Extension® members already take.

DEPARTMENTS

7 AS WE SEE IT—Deadly FDA Neglect
Decades after Life Extension® exposed the lethal toxicity of acetaminophen, the mounting death toll caused by this pain-relieving drug finally forced the FDA to act. While the FDA’s feeble actions will reduce the carnage somewhat, the acute and long-term effects of acetaminophen will continue to land thousands of Americans in emergency rooms and morgues each year. Conventional physicians meanwhile ignore non-toxic interventions to help relieve chronic pain.

IN THE NEWS 17
Lower rheumatoid arthritis rates linked to vitamin D; supplement use associated with lower risk of cervical dysplasia in HPV-positive women; calcium associated with reduced breast cancer risk; lack of sleep may lead to overeating.

PROFILE: LAIRD HAMILTON 87
Legendary big wave surfer Laird Hamilton tackles the ocean by keeping his body in peak condition. His secret? An active lifestyle, natural foods, and a number of vital supplements, including vitamin C and powdered greens.

34 ON THE COVER
CUTTING-EDGE PROTECTION FROM EXCESS CALORIES
A startling Mayo Clinic analysis confirms that millions of normal-weight people are ingesting more calories than their bodies can utilize, significantly jeopardizing their health and longevity. The good news is a unique class of plant extracts simulates some of the effects of reduced caloric intake at the genetic level. Find out how the latest of these advanced calorie restriction mimetics enhances the benefits of resveratrol.
Features to look for in the Life Extension Forum:
- Easy registration process
- Enhanced search engine
- Community calendar
- Multiple languages
- Email notification and Forum subscriptions
- Private messaging between registered members
- "Emoticons" in Forum postings
- Improved member profiles
- Quick message posting
- Printer-friendly
- AND MUCH MORE!

Log on to http://forum.lef.org and check out the newly expanded and upgraded features.

Forum members and other interested parties can interact online. Forum members can post their questions and comments on topics such as dietary supplements, hormones, foods, lifestyles, disorders/diseases, and physician reviews.

Visit the Life Extension Forum today!
By absorbing blue-light, **carotenoids** protect delicate photo-receptor cells in the retina’s macula 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, 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. Astaxanthin also helps support vascular health within the eye and improves visual acuity. Its fat-soluble nature offers protection to sensitive cells inside the eye.

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.

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

**References:**
1. Report by the National Telecommunications and Information Administration of the US Department of Commerce. 2001 Sep.

Contains soybeans.

OptiLut® is a registered trademark of NutriScience Innovations, LLC. Lutein Plus® and MZ® are registered trademarks of Quantum Nutritional. Licensed under U.S. Patents 5,523,494; 6,218,436; 6,329,432; and 6,504,067.

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

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

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

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, approved 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 using 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.

Mitchell J. Ghen, DO, PhD, holds a doctorate in holistic health and anti-aging, and serves on the faculty of Medicine at the Benemerita Universidad Autonoma De Puebla, Mexico, as a Professor of Cellular Hemapoetic Studies. He is the author of The Ghen and Rains Guide to Compounding Pharmaceuticals and The Advanced Guide to Longevity Medicine.

Gary Goldfaden, MD, is a clinical dermatologist and a lifetime member of the American Academy of Dermatology. He is the founder of Academy Dermatology of Hollywood, FL, and COSMESIS Skin Care. He specializes in natural approaches to aging and rejuvenation of the skin.

Miguelangelo Gonzalez, MD, is a certified plastic and reconstructive surgeon at the Miguelangelo Plastic Surgery Clinic, Cabo San Lucas.

Garry F. Gordon, MD, DO, is a Payson, AZ-based researcher of alternative approaches to medical problems that are unresponsive to traditional therapies. He is president of the International College of Advanced Longevity Medicine.

Richard Heifetz, MD, is a board-certified anesthesiologist in Santa Rosa, CA, specializing in the delivery of anesthesia for office-based plastic/cosmetic surgery, chelation therapy, and pain management.

Roberto Marasi, MD, is a psychiatrist in Brescia and in Piacenza, Italy. He is involved in anti-aging strategies and weight management. His interests include the prevention of cardiovascular and metabolic diseases and the relationship between nutrition, inflammation, oxidative stress, aging, and degenerative diseases.

Maurice D. Marholin, DDC, DO, is a licensed osteopathic physician and chiropractor. He completed a NIH Fellowship in Nutrition at UAB. Board certified in Family Medicine with a CNS in Nutrition. He is currently the Medical Director at Leon County Jail. He is responsible for 1,100-1,200 inmates’ medical needs.

Philip Lee Miller, MD, is founder and medical director of the Los Gatos Longevity Institute in Los Gatos, CA. His practice is dedicated to anti-aging medicine, focusing on bioidentical natural hormone replacement, nutritional medicine, complex lipid disorders, and stress management. He is a diplomate of the American Board on Anti-Aging Medicine.

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

Herbert Pardell, DO, FAAIM, practices internal medicine at the Emerald Hills Medical Center in Hollywood, FL, and specializes in anti-aging, chelation, hormone replacement, and complementary medicine. He is a medical director of the Life Extension Foundation.

Lambert Titus K. Parker, MD, practices internal medicine at the Integrative Longevity Institute of Virginia in Virginia Beach, VA.

Ross Pelton, RPh, PhD, CCN, is director of nutrition and anti-aging research for Intramedicine, Inc. He has authored six books and teaches continuing education courses for health professionals on a wide variety of health topics.

Patrick Quillin, PhD, RD, CNS, is a clinical nutritionist in Carlsbad, CA, and formerly served as vice president of nutrition for Cancer Treatment Centers of America, where he was a consultant to the National Institutes of Health. He has written 15 books on health, including Beating Cancer with Nutrition.

Allan Rashford, MD, graduated the University of Iowa Medical School and did his internship, residency and fellowship in Pulmonary Medicine in New York City. Upon completing medical training, he became Chief of Medicine at St. Francis Hospital in South Carolina, and was later named President of the Charleston Medical Society.

Marc R. Rose, MD, practices ophthalmology in Los Angeles, CA, and is president of the Rose Eye Medical Group. He is on the staffs of Pacific Alliance Medical Center, Los Angeles, and other area hospitals.

Michael R. Rose, MD, is a board-certified ophthalmologist with the Rose Eye Medical Group in Los Angeles, CA, is on the staffs of the University of Southern California and UCLA.

Ron Rothenberg, MD, is a full clinical professor at the University of California San Diego School of Medicine, and founder of California HealthSpan Institute in San Diego, CA. Dr. Rothenberg is an internationally recognized clinician, researcher, lecturer, and educator in preventive and anti-aging medicine.

Roman Rozencwaig, MD, is a pioneer in research on melatonin and aging. He practices in Montreal, Canada, as research associate at Montreal General Hospital, Department of Medicine, McGill University.

Carol Ann Ryser, MD, FAAP, is medical director of Health Centers of America in Kansas City, MO, and focuses on pediatrics and mental health.

Michael D. Seidman, MD, is the regional coordinator of otolaryngology-head and neck surgery for the Bloomfield satellite of Henry Ford Health System (HFHS), Detroit, MI, co-director of the Tin-nitus Center, and co-chair of the Complementary/Alternative Medicine Initiative for HFHS.

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

Herbert R. Slavin, MD, is medical director of the Institute of Advanced Medicine in Lauderdale, FL, specializing in anti-aging medicine, disease prevention, chelation therapy, and natural hormone replacement therapy.

R. Arnold Smith, MD, is a clinical radiation oncologist who specializes in using immunotherapy to enhance the safety and efficacy of conventional cancer therapies.

Stephen L. Smith, MD, Richland, WA, focuses on treating allergies, and is a member of the American Society for Lasers in Medicine and Surgery.

Stephen Strum, MD, is a medical oncologist specializing in the treatment of prostate cancer. He is co-founder and past medical director of the Prostate Cancer Research Institute. Currently, he directs a practice for prostate cancer patients in Ashland, OR.

Javier Torres, MD, is a member of the American Academy of Physical Medicine and Rehabilitation, and is on the medical staffs of Sunrise Hospital, Desert Springs Hospital, Valley Hospital, and Mountain View Hospital, all in Las Vegas, NV.

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

Charles E. Williamson, MD, Boca Raton, FL, focuses on anti-aging, longevity, and pain management.

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.
Taste That Kills, Health and Nutrition Secrets That Can Save Your Life 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).

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.

Eric R. Braverman, MD, is director of the Place for Achieving Total Health (PATH Medical and the PATH Foundation) in New York City. Dr. Braverman received his BA from Brandeis University Summa Cum Laude/Phi Beta Kappa and his MD from New York University Medical School with Honors. He is the author of Younger You (2006) and Younger Thinner You (2009) and of over 100 research papers and is Clinical Assistant Professor of Integrative Medicine in the Department of Neurosurgery at Cornell Weill Medical College, as well as a lecturer on mild cognitive decline.

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

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.

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.

Robert Pastore, PhD, CNS is a clinical nutritionist practicing in New York City. Due to his thorough nature and focus on organic chemistry and biochemistry his colleagues have termed his practice forensic nutrition. He is a member of Harvard Medical School Postgraduate Association, the American College of Nutrition, New York Academy of Sciences, and the American Association of Pharmaceutical Scientists.

Stephen B. Strum, MD, is a medical oncologist who has specialized in prostate cancer treatment since 1983. He is co-founder and past medical director of the Prostate Cancer Research Institute. Currently, he directs a practice for prostate cancer patients in Ashland, OR.

Jonathan Treasure, AHG, MNIMH, is a British medical herbalist at the Centre for Natural Healing in Ashland, OR. Originally a medical sciences graduate from Cambridge University, he studied herbal medicine at the UK School of Phytotherapy. His clinical specialty is integrative botanical medicine for cancer, and his principal research interest is herb-drug interactions.

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

SCIENTIFIC ADVISORY BOARD

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

Russell L. Blaylock, MD, is a board-certified neurosurgeon, author, and lecturer. He recently retired from his neurosurgical practice to devote his time to nutritional studies and research. He has written numerous journal articles and three books (Excitotoxins: The Taste That Kills, Health and Nutrition Secrets That Can Save Your Life, and Natural Strategies for the Younger Thinner You) and currently publishes a monthly nutrition newsletter, The Blaylock Wellness Report.

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

JULY 2010 | LIFE EXTENSION | 5
The use of diets high in collagen to improve bone health dates back to ancient cultures. That’s why Life Extension® formulates an exciting patented formulation of chelated calcium and collagen called KoAct™ to help maintain bone strength and mineral density.* KoAct™ allows for greater flexibility … so your bones can absorb energy, reducing the risk of age-related injuries. Additional plant extracts are included for their bone-protective minerals and polyphenols.

Four capsules of Bone Strength Formula with KoAct™ provide:

- **Collagen** (from 3000 mg KoAct™ Calcium Collagen Chelate) 2,700 mg
- **Calcium** (from 3000 mg KoAct™ Calcium Collagen Chelate) 300 mg
- **Vitamin D3** (as cholecalciferol) 1,000 IU
- **Magnesium** (as magnesium citrate) 100 mg
- **Silica** [from standardized Bamboo (Bambusa vulgaris) extract (stem)] 5 mg
- **Dried Plum** (Prunus domestica) extract (fruit) 100 mg [standardized to 50% polyphenols (50 mg)]
- **Boron** (calcium fructoborate as patented FruiteX-B® OsteoBoron®) 3 mg

To order Bone Strength Formula with KoAct™, call 1-800-544-4440 or visit www.LifeExtension.com

A bottle of Bone Strength Formula with KoAct™ retails for $42. If a member buys four bottles, the price is reduced to $28.50 per bottle.
You might be surprised to know that the leading cause of **acute liver failure** in the United States is not **alcohol** abuse, nor **viral** hepatitis.

The number one reason Americans suffer acute liver failure is a **drug** the FDA has allowed to be sold for decades after its lethal toxicities were known.¹

This drug is available over-the-counter and in prescription combinations. In many cases, those ingesting this **toxic drug** (under various brand names) don’t even know they are taking it.

The FDA has bent over backwards to protect **billions of dollars of profits** earned annually by pharmaceutical companies who sell this deadly drug.

As the body count mounted in **2009**, the FDA was forced to mandate a lower dosage and remove it from prescription combinations that were particularly lethal.²

The FDA's feeble actions to appease critics are too little and far too late. The reduced dose will spare some lives, but this toxic drug will still inflict a considerable death toll. The fact that this carnage has gone on for decades confirms the FDA's blatant **failure** to protect the public.
What Called My Attention to This Drug-Induced Bloodbath?

Back in the early 1980s, I was having one of my all-night brainstorming sessions with scientists who routinely think “outside the box” when it comes to medical issues. One of these scientists enlightened me to the mechanism by which the pain reliever acetaminophen causes liver damage.

When acetaminophen is ingested, a rapid depletion of glutathione in the liver occurs. The result of glutathione depletion is free radical destruction of liver cells. The scientists I spoke with suggested Life Extension make a combination product of acetaminophen and N-acetyl cysteine (a glutathione-enhancing amino acid). According to these scientists, this would probably eliminate virtually all acetaminophen-related acute deaths.

Since acetaminophen and N-acetyl cysteine are both sold over-the-counter, you might think that making a “safer” acetaminophen formula would not be difficult. There is one problem. The FDA prohibits combining existing drugs and dietary supplements unless a New Drug Application is filed, tens of millions of dollars of clinical studies are performed, and the FDA agrees to allow the combination to be sold. The whole process can cost upwards of $100 million and take a decade to complete.

So by bureaucratic edict, a safer form of acetaminophen never made it to market.

FDA Throws Us in Jail!

In the late 1980s, the FDA began raiding our facilities for the purposes of gathering evidence to put me and others in jail. According to the FDA, our products were not approved by the agency and were therefore inherently unsafe.

We fought back by showing that not only were the products we recommended safe and effective, but that many of the drugs the FDA claimed to be safe were really poisons! We were indicted in the early 1990s under the charges that our product recommendations violated the FDA’s coveted regulatory structure, which included having approved labeling so consumers and their doctors could safely use these products.

My Weekly Radio Show

In response to those who believed the FDA’s fabricated attacks against us, I set up my own radio show on one of the largest stations in South Florida. Almost every week I would identify a drug the FDA approved as “safe” and reveal just how dangerous it really was. I would then discuss ways to make these drugs safer, such as taking coenzyme Q10 if a statin cholesterol-lowering drug were needed. It was known way back then that statin drugs interfere with CoQ10 synthesis in the body. By taking supplemental CoQ10, one could replenish their body with this life-sustaining nutrient that is depleted by statin drugs and aging.

In recalling my conversations with forward-thinking scientists in the early 1980s, I researched acetaminophen and was astounded by the multiple toxic effects this drug inflict on the liver, kidney, and other organs. When I went to the pharmacy to check out the labeling, there were no warnings required by the FDA to indicate this drug’s lethal side effects.

So here I was facing decades in prison for recommending products that did not have FDA-approved labeling, yet the FDA did...
mention was made about combining N-acetyl cysteine to protect against glutathione depletion and subsequent free radical-induced liver damage. There was also no mention about the other health problems (like kidney failure and kidney cancer) potentially caused by acetaminophen.

The most popular acetaminophen-containing drug is Tylenol®, and its makers wasted no time in running full page ads proclaiming that Tylenol® remains the “safest” pain relieving drug on the market. There appears to be no limit to how low pharmaceutical companies will sink to protect their immoral profits. To imply that acetaminophen is “safe” is a scientific contradiction.

Acetaminophen and the FDA: A Sordid History

The 2009 announcement about acetaminophen’s deadly effects is not the first time an independent group of doctors recommended the FDA do something about this drug. In 2002, another independent advisory committee commissioned by the FDA urged that warnings be put on the labels of acetaminophen drugs. The FDA said no to its own scientific advisors. Instead, the FDA budgeted a mere twenty thousand dollars to develop material that it hoped would be run in magazines and distributed by pharmacy chains for free! This is the bureaucratic equivalent of doing nothing.

FDA Finally Does Something about Acetaminophen

In 2009, an outside advisory panel recommended that the FDA ban narcotics containing acetaminophen (like Vicodin® and Percocet®). The panel also recommended that the amount of acetaminophen contained in OTC products be reduced. The FDA is not required to follow the recommendations of its advisory committees, although the agency typically does.

This prompted the FDA to finally announce sweeping changes designed to protect Americans against the liver damage inflicted by over-the-counter and prescription acetaminophen drugs. Some acetaminophen compounds are being banned, while others will have reduced dosages. No mention was made about combining N-acetyl cysteine to protect against glutathione depletion and subsequent free radical-induced liver damage. There was also no mention about the other health problems (like kidney failure and kidney cancer) potentially caused by acetaminophen.

Just How Dangerous Is Acetaminophen?

Each year, acetaminophen poisoning results in 100,000 calls to poison control centers, 56,000 emergency room visits, 26,000 hospitalizations, and more than 450 deaths from liver failure.

Acetaminophen’s deadly effects extend beyond the liver. Regular users of acetaminophen may double their risk of kidney cancer, a disease that kills 12,000 Americans each year. The incidence of kidney cancer in the US has risen 126% since the 1950s, a jump that may be tied to the growing use of drugs containing acetaminophen and its metabolites.

Because acetaminophen generates damaging free radicals throughout the body, it may very well increase the risk of many age-related diseases. In fact, scientists can consistently induce cataracts in the eyes of laboratory animals by giving them acetaminophen. They consider acetaminophen a “cataractogenic agent.” Interestingly, if antioxidants are provided to the animals, the cataract-inducing effects of acetaminophen are often completely neutralized.

Just imagine how the FDA would respond if a dietary supplement caused even a few of these adverse reactions. The FDA would immediately shut down the company and probably pursue criminal charges against the owners. Not so with acetaminophen. Since it is “approved” by the FDA, little has been done up till now to restrict consumer access to it.

These egregious disparities were not lost on prosecutors, who eventually dismissed the FDA’s flawed indictments against us.

not require labeling for one of the most dangerous drugs on the market to warn consumers about its lethal effects.

These egregious disparities were not lost on prosecutors, who eventually dismissed the FDAs flawed indictments against us.

AS WE SEE IT
FDA Should Have Known About Kidney Toxicity

The painkiller drug phenacetin was taken off the market long ago because of its severe kidney toxicity and increased risk of bladder cancer.50-54 Acetaminophen is the major metabolite of this banned drug, meaning that phenacetin’s destructive properties may have been caused by its breakdown to acetaminophen in the body.

So while phenacetin was withdrawn because too many peoples’ kidneys were shutting down, the FDA had no problem letting its major metabolite (acetaminophen) be freely marketed without any consumer warning whatsoever.

If acetaminophen is responsible for even a small percentage of the overall annual kidney cancer cases, the FDA’s failure to restrict this one drug may have killed tens of thousands of Americans from this one disease alone!

As history has taught us, when a highly profitable drug turns out to be a lethal killer, the FDA’s first response is to safeguard pharmaceutical economic interests. Consumer protection is a secondary issue.

It Is “Impossible” for the FDA to Protect the Public

Life Extension® warned about the lethal dangers of acetaminophen-containing drugs almost 20 years ago. The FDA did nothing to alert the public. Even when national news broadcasts reported on real life victims who died from acetaminophen, the agency responsible for protecting Americans against unsafe drugs stood still. Why was that?

As most of you know, pharmaceutical interests exert tremendous control over the FDA. Employees of the FDA are offered lucrative pharmaceutical jobs upon retirement and are heavily lobbied by drug companies while working at the agency.

Members of Congress charged with overseeing the FDA are also inundated by pharmaceutical lobbyists and pharmaceutical campaign contributions. When the safety of a drug as popular as acetaminophen is challenged, you can be certain pharmaceutical companies will pull out all the stops to make sure the government does not ban it.

Even when the FDA proposes stricter labeling on drugs like acetaminophen, pharmaceutical lobbyists besiege the FDA and Congress to make these warnings so benign that the public largely ignores them.

The degree of political influence involved in FDA decision-making results in it being impossible for the agency to use scientific evidence to protect Americans against unsafe drugs.

As I described earlier in this article, those not beholden to the pharmaceutical cartel learned of acetaminophen’s lethal effects decades ago—and even came up with preventive antidotes (such as N-acetyl cysteine). Yet to this day, acetaminophen continues to poison huge segments of the American public who still are unaware of how toxic this drug really is.

All Pain-Suppressing Medications Are Toxic

To relieve chronic pain, toxic doses of all approved analgesics are often required. That argument has been used by acetaminophen makers to state that if patients have to switch to other FDA-approved drugs (such as ibuprofen or Celebrex®), then users will die from other causes, such as stomach bleeding and heart attacks.

We don’t disagree that all FDA-approved pain relievers are dangerous and only minimally effective. We question why conventional doctors liberally prescribe toxic analgesics without seeking to alleviate the underlying cause of the pain.

In some cases, chiropractic care can result in functional and symptom relief of chronic pain. Certain dietary supplements such as gamma linolenic acid (from borage oil),55 high-dose fish oil,56,57 MSM (methylsulphonylmethane)58,59 and Korean Angelica extract60,61 have demonstrated remarkable pain relieving effects in peer-reviewed published scientific studies.
Last year, we introduced an **Infrared Heating Pad** that delivers a steady stream of soothing warmth deep into the tissues. We sold **ten times** more of these Infrared pads than we expected, and have received remarkable testimonials back from users. The number of these Infrared pads we shipped out indicates how many people suffer from **chronic pain**. Unfortunately, the FDA decided to ban the importation of this product until the company completes lengthy and burdensome registration requirements, so many of those suffering chronic pain will have no choice but resorting to toxic drugs the FDA allows to be freely sold. We will let you know if and when these infrared heating pads ever become available.

**Free Market More Effective than FDA**

For more than a century, consumers have been misled into believing the FDA protected them against dangerous drugs. The harsh reality is that the FDA functions to protect the economic interests of the pharmaceutical establishment, while trampling on the rights of Americans to access safer and more effective natural therapies.

As a member of the **Life Extension Foundation**, you learn about deadly drugs (such as Vioxx® and Premarin®) long before the FDA takes action to warn the public. Our 30-year track record documents that we are far more proficient in warning consumers about dangerous medications than the taxpayer-funded and drug company-corrupted FDA.

For longer life,

William Faloon

**References**


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 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.13

- **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

To order Mitochondrial Energy Optimizer, call 1-800-544-4440 or visit www.LifeExtension.com

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

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.

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. 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.

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.

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.
**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. 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, which may help reduce the impact of starch and sugar calories on body fat.

- **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.

**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.

*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. Modulating *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. Modulating glycerol-3-phosphate dehydrogenase enzyme activity to reduce the amount of ingested starches that are converted to triglycerides and stored as fat.

**Summary of Human Studies with Optimized Irvingia Ingredients**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Study</th>
<th>Treatment vs Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Tea Phytosome Extract</td>
<td>100 overweight subjects placed on a hypocaloric diet (men: 1,850 calories; women: 1,350 calories) randomized to receive 360 mg/day of green tea phytosome extract or placebo for 90 days</td>
<td>Weight loss 30.1 pounds vs. 9.9 pounds Waist size reduction 10% vs. 5% (14% vs. 7% in men)</td>
</tr>
<tr>
<td>Phase 2™ White Kidney Bean Extract</td>
<td>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</td>
<td>Weight loss 6.5 pounds vs. 0.8 pounds Waist size reduction 1.2 inches vs. 0.2 inches</td>
</tr>
<tr>
<td>Integra-Lean® Irvingia Gabonensis Extract</td>
<td>102 overweight subjects randomized to either 150 mg of Irvingia twice daily or placebo for 10 weeks</td>
<td>Weight loss 28 pounds vs. 1.5 pounds Waist size reduction 6.4 inches vs. 2.1 inches</td>
</tr>
<tr>
<td>Phase 3™</td>
<td>50 non-diabetic subjects were used to study the suppression effects of L-Arabinose and chromium on capillary glucose suppression</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

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 $64. If a member buys four bottles, the price is reduced to $45 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.

**References:**

Contains soybeans, tree nuts, yeast, and corn.

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.
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, 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.

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

- **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.

### Just one softgel of Super Booster supplies:

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gamma tocopherol</td>
<td>230 mg</td>
</tr>
<tr>
<td>Ginkgo extract</td>
<td>120 mg</td>
</tr>
<tr>
<td>Chlorophyllin</td>
<td>100 mg</td>
</tr>
<tr>
<td>Vitamin K2 (as menaquinone-7)</td>
<td>100 mcg</td>
</tr>
<tr>
<td>Vitamin K2 (as menaquinone-4)</td>
<td>1000 mcg</td>
</tr>
<tr>
<td>Vitamin K1</td>
<td>1000 mcg</td>
</tr>
<tr>
<td>Sesame lignans</td>
<td>20 mg</td>
</tr>
<tr>
<td>Lycopene</td>
<td>10 mg</td>
</tr>
<tr>
<td>Lutein</td>
<td>2 mg</td>
</tr>
<tr>
<td>Se-methylselenocysteine</td>
<td>67 mcg</td>
</tr>
<tr>
<td>L-Selenomethionine</td>
<td>67 mcg</td>
</tr>
<tr>
<td>Sodium selenite</td>
<td>67 mcg</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>300 mcg</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>90 mg</td>
</tr>
<tr>
<td>Ascorbyl palmitate</td>
<td>50 mg</td>
</tr>
<tr>
<td>Zinc</td>
<td>10 mg</td>
</tr>
<tr>
<td>Mixed tocopherols</td>
<td>130 mg</td>
</tr>
</tbody>
</table>

### Additional Ingredients:

- **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.

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

Caution: 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. Lyc-O-Mato® is a registered trademark of LycoRed Natural Products Limited.

Contains soybeans, peanuts, and sesame.
Mayo Study Links Increased Vitamin K Intake to Lower Non-Hodgkin Lymphoma Risk

In one of several noteworthy presentations at the 101st Annual Meeting of the American Association for Cancer Research, it was reported that a higher intake of vitamin K is associated with a reduced risk of non-Hodgkin lymphoma.*

James Cerhan, MD, PhD and his colleagues at the Mayo Comprehensive Cancer Center compared 603 non-Hodgkin lymphoma patients to 1,007 men and women who did not have cancer. The investigators found an association between a lower risk of non-Hodgkin lymphoma and increased consumption of vitamin K. For those whose intake of the vitamin was among the top 25% of participants at over 108 micrograms per day, the risk of the disease was 45% lower compared with those whose intake was among the lowest fourth at less than 39 micrograms per day.

“As with all new findings, this will need to be replicated in other studies,” Dr. Cerhan noted.

Editor’s note: This study adds evidence to previous research that associates vitamin K intake with cancer protection.

—Dayna Dye

Vitamin, Calcium Supplementation Associated with Reduced Breast Cancer Risk

The American Association for Cancer Research 101st Annual Meeting 2010 was the site of a presentation concerning the finding of a protective effect of vitamin and calcium supplements against breast cancer.*

Jaime Matta, PhD of the Ponce School of Medicine in Puerto Rico and his colleagues compared 268 Puerto Rican women with breast cancer to 457 healthy control subjects. Participants who consumed vitamin supplements were found to have a 30% lower risk of breast cancer compared to those who did not have a history of vitamin supplementation, and those who consumed calcium supplements had a 40% lower risk.

“It is not an immediate effect,” Dr. Matta noted. “You don’t take a vitamin today and your breast cancer risk is reduced tomorrow. However, we did see a long-term effect in terms of breast cancer reduction.”

Editor’s note: Since cancer takes years to develop, long-term protective measures are essential.

—Dayna Dye

**Supplement Use Associated with Lower Risk of Cervical Dysplasia in HPV-positive Women**

The *International Journal of Gynecologic Cancer* reports the finding of Korean researchers of a lower risk of cervical intraepithelial neoplasia (also known as cervical dysplasia) among human papilloma virus-positive women who consumed vitamin supplements. Human papilloma virus has been identified as the agent responsible for cervical cancer, for which cervical dysplasia is a precursor. The condition is detected by a pap smear and graded according to stage as 1, 2, or 3.*

Ninety women with cervical dysplasia 1 and 72 with cervical dysplasia 2/3 were compared with 166 control subjects. Women who used multivitamins had a 79% lower risk of cervical dysplasia 2/3 than those who did not use them. Similar reductions in cervical dysplasia 2/3 risk were observed for vitamins A, C, and E, and calcium use.

“Larger studies are needed for confirmation of these findings before the results can be generalized to a broader population,” the authors write.

**Editor’s note:** The authors involved in this study previously uncovered a link between a lower risk of cervical cancer and increased antioxidant intake from diet and supplements. —Dayna Dye


---

**Lower Rheumatoid Arthritis Rates Linked to Vitamin D**

A study published online in the journal *Environmental Health Perspectives* suggests that increased vitamin D from sunlight exposure could have a protective effect against rheumatoid arthritis, a chronic autoimmune disease with unknown causes.*

For the current investigation, Boston University School of Public Health associate professor Verónica Vieira, MS, DSc and her colleagues analyzed data from the Nurses’ Health Study, which enrolled female nurses in the United States beginning in 1976. Four hundred sixty-one participants diagnosed with rheumatoid arthritis between 1988 and 2002 were compared to 9,220 control subjects who did not have the disease. The researchers examined the association between rheumatoid arthritis risk and residential address.

The team found a higher risk of rheumatoid arthritis among women living in the northeastern United States, suggesting that less sunlight exposure, and, consequently, decreased vitamin D production, could be a factor in the development of the disease.

**Editor’s note:** The authors remark that an association with northern latitudes has also been observed for multiple sclerosis, Crohn’s disease, and other autoimmune diseases.

—Dayna Dye

* Environ Health Perspect. 2010 March 25.

---

**Lack of Sleep May Lead to Overeating**

A recent study published in the *American Journal of Clinical Nutrition* suggests that “sleep restriction could be one of the environmental factors that contribute to the obesity epidemic.”* In particular, the study discovered that normal-weight young men ate several hundred extra calories a day when they’d gotten just four hours of sleep compared to when they slept for a full eight hours.

The study, led by Dr. Laurent Brondel of the European Centre for Taste Sciences in Dijon, France, followed the sleep, eating, and energy expenditure in 12 healthy young men across two 48-hour periods. Two days served as a control period, where the men in the study adhered to their normal routines but wrote down their sleep, eating, and activities in a diary. During the second 48-hour period, the men went to bed at 12 am and woke up at 8 am on one day, and on the other day they went to bed at 2 am and woke up at 6 am. There were no eating restrictions during each period.

Researchers found that after the short night sleep, the men consumed 22% more calories, on average, than when they were allowed to sleep eight hours. This accounted for nearly 560 extra calories a day per person.

**Editor’s note:** Getting adequate sleep may be beneficial when trying to follow a low-calorie or calorie restricted diet.

—Jon Finkel

IN THE NEWS

Low Vitamin B6 May Increase Parkinson’s Disease Risk

A study published by the British Journal of Nutrition states that inadequate levels of vitamin B6 may increase the risk of Parkinson’s disease by 50%.* According to the American Parkinson’s Disease Association, over two million Americans currently suffer from PD. While searching for optimal vitamin levels to combat Parkinson’s, researchers from Japan conducted a hospital-based case-control study involving 249 people with Parkinson’s disease and 368 people without any neurodegenerative condition.

In order to quantify the intake of B vitamins, the subjects filled out a self-administered, semi-quantitative, diet questionnaire. They observed that there was no link between riboflavin, folate, and vitamin B12, but low intake of vitamin B6 was linked to an increased risk of the disease, independent of other factors.

These findings agree with a previous study done by researchers from the Erasmus Medical Center in Rotterdam, England, that also linked increased B6 intake with Parkinson’s disease risk.

Editor’s note: These low levels of B6 intake would only occur in those who do not take vitamin supplements.

—Jon Finkel

Reduced Vitamin K Intake Associated with Greater Cancer Mortality

An article published in the American Journal of Clinical Nutrition reports the finding of German researchers of an association between reduced vitamin K2 intake and an increased risk of dying from cancer.* The researchers analyzed data from 24,340 participants in the EPIC-Heidelberg study who were aged 35 to 64 upon enrollment between 1994 and 1998. Participants were followed through 2008. Over the follow up period, there were 1,755 cases of cancer, including 458 fatalities. While those whose intake of vitamin K2 was among the top 25% of participants had a 14% reduction in cancer incidence compared with those whose intake was among the lowest fourth, the group with the highest intake experienced a 28% lower risk of dying of the disease. The reduction occurred mainly in men.

“This study showed inverse associations between the dietary intake of menaquinones and both overall cancer incidence and mortality,” the authors conclude.

Editor’s note: The authors explain the difference in vitamin K2’s effects on men and women by the fact that the men in the study had cancer sites (prostate, lung) that were likelier to be influenced by vitamin K2.

—Dayna Dye

Intentional Weight Loss Helps, Not Harms, Seniors

The outcome of a study appearing in the Journal of Gerontology: Medical Sciences contradicts concerns raised by previous studies that deliberate weight loss among older individuals could increase the risk of death.* Researchers at Wake Forest University Baptist Medical Center analyzed data from 318 arthritic men and women over the age of 60 who participated in a randomized trial that evaluated the effects of dieting and/or exercise on physical function. Those assigned to a weight loss diet lost an average of 10.5 pounds over 18.5 months. Within 8 years after the trial’s conclusion, 15 deaths occurred among those assigned to weight loss diet interventions, compared with 30 in the remainder of the participants. “This study puts to rest a lot of unfounded concerns about how to address the epidemic of obesity among our older adults,” coauthor Stephen B. Kritchevsky, PhD concluded.

Editor’s note: The current findings are in agreement with numerous animal studies that have associated increased life span with calorie restriction.

—Dayna Dye

Increased Omega-3 Intake May Improve Kidney Health for Diabetics

A research team headed by Dr. Amanda Adler from the MRC Epidemiology Unit at the Institute of Metabolic Science in Cambridge (UK), published findings in Diabetes Care stating that kidney function was improved in type-1 diabetics with the highest average intake of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), compared with people with the lowest intakes of the fatty acids.*

They culled their results from data made available to them in the Diabetes Control and Complications Trial, which involved 1,436 participants who were between the ages of 13 and 39. The researchers measured the excretion of the protein albumin in urine. People who have kidney problems often experience a leakage of the protein albumin from the kidney into the urine. According to the study, people with a higher average intake of omega-3s had albumin excretion levels 22.7 mg per 24 hours lower than people with the lowest average intakes of omega-3s.

—Jon Finkel


Brisk Walking Reduces Stroke Risk

According to a WebMD Health News article, women who walk two or more hours per week or who walk at a brisk pace can significantly reduce their risk of suffering a stroke.* Based on a study of the exercising habits of 39,315 female health professionals whose average age was 54, the findings showed that women who walked at a pace of 3 miles per hour or faster had a 37% lower risk of suffering any type of stroke. Women who walked two or more hours a week had a 30% reduced risk of any type of stroke.

Jacob R. Sattelmair, MSc, of the Harvard School of Public Health was interviewed for the feature and concluded that “physical activity, including regular walking, is an important modifiable behavior for stroke prevention. Physical activity is essential to promoting cardiovascular health and reducing risk of cardiovascular disease, and walking is one way of achieving physical activity.”

—Jon Finkel


Green Tea May Strengthen Teeth

A new team of researchers from Japan suspect that antimicrobial molecules contained within green tea helps preserve teeth, as long as you don’t add sugar.* An article posted to discoverynews.com describes the findings, noting that catechins, found heavily in green tea, may be the protecting component.

Yasushi Koyama, the lead researcher on the project from the Tohuku University Graduate School of Medicine, and his colleagues examined more than 25,000 Japanese men and women between the ages of 40 and 64. They discovered that men who consumed at least one cup of tea a day were 19% less likely to have fewer than 20 teeth than those who did not drink green tea. Women had 13% lower odds.

The researchers concluded that catechins, which have been shown to kill mouth bacteria associated with tooth decay and gum disease, most likely give green tea its dental benefits.

—Jon Finkel

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) 10 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.
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.

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 high concentration of 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.

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

References:
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. Contains fish (anchovy, sardine, mackerel), soybeans, and sesame.
Novel Plant Compounds Halt Photoaging

Normally you think of protection from ultraviolet skin aging as something that must take place from outside your body, by blocking out solar radiation. But new research reveals that internal factors are just as critical for optimal skin protection.

Clinical research shows that upon ingestion, safe and readily-metabolized plant extracts furnish your skin with extraordinary protection from photoaging. They slow the absorption of harmful ultraviolet (UV) rays and blunt potentially cancer-causing DNA damage inflicted by sun-generated free radicals.

Much has been written about how the sun’s burning ultraviolet rays harm our health and appearance. Yet despite the warnings, more than two million people in the US will be diagnosed with skin cancer this year alone. Rates of melanoma—the most dangerous form of skin cancer—have not only doubled over the past 10-20 years, but continue to rise 3% to 7% annually.

In one study, novel plant extracts demonstrated an impressive 54% reduction in activity of collagen-degrading enzymes and an 86% inhibition of enzymes that break down hyaluronic acid—your skin’s natural moisturizer.

In this article, you will learn of the mechanisms by which certain phytonutrients can significantly offset the ravages of excessive UV exposure that lead to premature skin aging.
The Harvard researchers concluded that *Polypodium leucotomos* is an “effective systemic chemophotoprotective agent.”

Another study, conducted in 2007 by scientists in Milan, Italy, found that *Polypodium leucotomos* extract was beneficial to those individuals with a high sensitivity to the sun often referred to as “sun poisoning.” Recruited for the trial were 26 patients who suffered from *polymorphic light reaction*, a condition in which skin rashes can develop after fairly limited sun exposure. Two others had *solar urticaria*, a rare form of hives caused by exposure to UV light. All subjects had previously not responded to the usual available treatments.

Twenty-five of the patients met the criteria for evaluation and were exposed to sunlight while taking an oral dose of 480 mg of *Polypodium leucotomos* a day. Their responses were compared to their previous experiences to sunlight exposure without the benefit of the *Polypodium leucotomos* extracts.

The researchers reported that the subjects responded well to the fern extract, with 80% of the patients reporting benefit from its use. The “photoprotective activity of *Polypodium leucotomos* was significant,” wrote researchers. In addition, the fern extract was well-tolerated and did not cause any unwanted side effects.

**Role in Skin Aging**

A recent study found that *Polypodium leucotomos* could potentially become an important anti-aging ingredient.

Researchers investigated the effect of the fern extract, which is rich in polyphenols, on *human dermal fibroblasts*. The scientists studied the impact of *Polypodium leucotomos* on UV radiated fibroblasts and those that were non-irradiated in vitro. The researchers were particularly interested in the expression of enzymes and *transforming growth factor-beta (TGF-beta)* that are known to affect the *extracellular matrix proteins* such as elastin and collagen, responsible for keeping the skin supple and firm.

In the study, they looked at how *Polypodium leucotomos* affects *matrix metalloproteinases (MMPs)*—enzymes that break down collagen and that are stimulated by exposure to UV light.

The study found that *Polypodium leucotomos* may play a role in preventing skin aging by directly inhibiting MMP expression. At the same time, the fern extract demonstrated its protective effects by stimulating certain types of collagen. Interestingly, *Polypodium leucotomos* stimulated collagen production and it also decreased its degradation by the MMPs.
WHY FERN EXTRACT IS EFFECTIVE

Over the years, researchers have studied whether antioxidants such as oral tocopherol (vitamin E), ascorbate (vitamin C), and carotenoids are effective in protecting against the sun's ultraviolet rays. Studies have showed varying results, some more promising than others. However, when any photoprotective effect was observed, it usually was after prolonged administration of the antioxidants. So why is Polypodium leucotomos more effective than other antioxidants?

In an article published this April, Dr. Salvador Gonzalez, a renowned physician-researcher in dermatology and photo-medicine at Memorial Sloan-Kettering Cancer Center, reviewed several proposed mechanisms by which the natural ingredient appears to work:

- **Polypodium leucotomos** extract contains a high percentage of phenolics such as caffeic acid and ferulic acid, antioxidants which protect the skin against erythema. The fern extract inhibits the formation of free radicals and the oxidative damage that results from UV radiation.

- It protects cells and prevents damage to DNA. A recent study of healthy volunteers found that Polypodium leucotomos showed a trend toward preventing the increase in levels of the common deletion (a photoaging marker), as UVA radiation was increased.

- Fern extracts exhibit powerful anti-inflammatory effects in skin tissue.

- It also prevents UV rays from suppressing immune function, which is important in preventing harmful cellular changes that could lead to the development of skin cancer.

Polypodium leucotomos not only has short-term effects such as inhibiting reactive oxygen species (free radicals) production and DNA damage, but the short-term effects “translate into long-term prevention of photoaging and photocarcinogenesis,” Dr. Gonzalez said.

He noted that since Polypodium leucotomos can be administered orally it could decrease the incidence of phototoxicity in individuals with difficult-to-treat skin disorders such as psoriasis and vitiligo (loss of pigment in patches of the skin) who are undergoing UV treatments.

NEW COMBINATIONS OFFER MORE PROTECTION

Interestingly, combinations of various antioxidants have been found to have synergistic effects, yielding formulations that are more beneficial than any of the individual compounds used alone. Studies have shown that when several antioxidants are combined in one skin care product, the benefits to skin may be greater, and the photoprotective effect increases.

For instance, it’s well known that sun exposure is not the only cause of accelerated skin aging. Stress can also damage our skin, the body’s largest organ, as well as various other body parts. Reducing stress may therefore be significant in improving overall skin condition.
In a double-blind, randomized, placebo-controlled, in vitro study, a proprietary preparation containing Indian gooseberry (Phyllanthus emblica) and ashwagandha extracts demonstrated a 54% inhibition of enzymes that break down collagen, and an 86% inhibition of those that break down hyaluronic acid, the skin’s natural moisturizer.6

While ashwagandha helps protect the skin against the effects of stress, it also helps to benefit stress-related health conditions. In a randomized, double-blind, placebo-controlled trial, 98 chronically stressed adults were assigned to receive a patented standardized extract of ashwagandha for 60 days. They received either 125 mg once or twice a day, 250 mg twice a day, or a placebo. Their stress levels were measured throughout the study and blood pressure was taken at the beginning and at the end of the study.18

The researchers found that all three groups taking the ashwagandha reduced their stress and anxiety and lowered their blood pressure levels. The group receiving the lowest dose of 125 mg once a day had a 62% reduction in anxiety compared to those with the placebo, with anxiety scores declining even further in the other two groups. In addition, the group receiving the daily dose of 125 mg showed a 14.5% reduction in cortisol levels and a 13.2% increase in DHEA, with the other two groups reporting significantly greater benefits. In addition, all three groups taking ashwagandha saw a definite drop in their levels of C-reactive protein, which is a measure of inflammation within the body.

The researchers concluded that the “daily use of Withania somnifera (also known as ashwagandha) would benefit people suffering from the effects of stress and anxiety without any adverse effects.”18

In response, Polypodium leucotomos has recently been combined with a patented form of Phyllanthus emblica (from the Indian gooseberry) and ashwagandha—a medicinal herb that has been used for thousands of years by Ayurvedic practitioners. Rich in flavonoids and steroidal lactones called withanolides, ashwagandha works as an adaptogen to relieve the damage that emotional stress can inflict on skin.3,6,19,20

How the Sun’s Rays Affect You

The Earth’s ozone layer filters out most of the sun’s harmful rays, but those ultraviolet rays—UVA and UVB—that do manage to penetrate the ozone both tan and damage the skin. Blocking these rays helps prevent an array of problems including sunburn, photoaging, lowered immunity against infection, and skin cancers.

UVA rays,24 which make up about 95% of UV radiation, have a wavelength (320-400 nm) that penetrates into the deepest layer of the skin. The ultraviolet light generates destructive reactive oxygen species that interfere with the DNA’s repair mechanism. UVA also suppresses special immune system Langerhans cells that are charged with destroying harmful substances such as microorganisms or toxins before they can hurt the skin or penetrate further into the body. UVA rays also trigger a breakdown of collagen fibers. The result: skin develops wrinkles, sags, age spots, dries out, becomes rough, and thins.

UVB rays have a shorter wavelength (290-320 nm) than UVA rays, but they can penetrate the epidermis, the outer surface of the skin, damaging DNA and causing sunburns, swelling, and most skin cancers.

Skin cancers begin when UV radiation damages the DNA that controls skin cell growth. Experts believe that both forms of UV rays play a role in skin cancer, though UVB rays are a more potent cause of some skin cancers. One or two blistering sunburns early in life can greatly increase the lifetime risk of developing melanoma.25

Cross-section of human skin with melanoma.
SUMMARY

Most of us fail to recognize the age-accelerating effects of everyday sun ray exposure to the skin. Just ten minutes a day of normal sun exposure is the equivalent of intentionally bathing in the sun for over an hour every week.

Sun self-defense is crucial to prevent skin cancer, skin aging, and immune system suppression. Even when using a sunscreen, many of us are less-than-perfect, inconsistent appliers of topical protection.

*Polypodium leucotomos* is a tropical fern plant with potent antioxidant and anti-inflammatory properties that scavenges free radicals, protects DNA, and provides significant protection against other UV dangers. *Polypodium leucotomos*, when taken orally, works as a skin protector at a deep cellular level.

This fern extract, along with Indian gooseberry and ashwagandha, however is not meant to substitute for topical sunscreens and should not give anyone a false sense of security about their sun exposure. •

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

References


Unleash Your Skin’s Internal Defenses

- *Polypodium leucotomos* is a fern plant that grows in the Honduran jungles and rain forests.
- Ferns have been used for a variety of medicinal purposes, possibly beginning with *Dioscorides*, a Greek physician and botanist back in the first century. The ancient Mayans used it as a tea in their daily diet to purify the blood.
- Indigenous people of Central and South America have used *Polypodium leucotomos* extract for centuries for the treatment of skin ailments such as psoriasis, *atopic dermatitis*, and sunburn.
- Research supports the use of *Polypodium leucotomos* as an “internal sunscreen.”
- *Ashwagandha* is an Ayurvedic tonic best known for helping individuals deal with stress. It is also known as *Indian ginseng*.
- Ashwagandha relieves the damage that emotional stress can inflict on the skin, and *Phyllanthus emblica* (*Indian gooseberry*) provides potent antioxidant protection against skin-damaging free radicals.
- Together these three ingredients protect against the harmful effects of the sun and work to keep skin looking smooth, beautiful, and healthy.


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

Contains rice.

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.
Red yeast rice is produced by fermenting polished rice with various strains of the yeast Monascus purpureus. It contains numerous natural extracts including monacolins and sterols.

Choosing the right red yeast rice can be difficult as its popularity has resulted in a broad array of products that vary widely in both quality and purity.

Of particular concern is citrinin, a potentially toxic compound formed during the manufacturing process that has been found in some red yeast rice supplements. Life Extension does not make a red yeast rice supplement, but has evaluated commercial sources using the most sophisticated high-resolution analytical techniques to detect citrinin content.

In addition to providing high-grade, standardized red yeast rice extracts, no citrinin was detected in the following brands of red yeast rice:

**NATURE’S PLUS**
Nature’s Plus Herbal Actives red yeast rice provides a high concentration of active botanical principles. This uniformly standardized supplement maximizes efficient delivery of the whole red yeast rice extract. The suggested serving size is one 600 mg capsule per day, although some individuals may choose to ingest up to 1,800 mg per day.

Nature’s Plus Red Yeast Rice
600 mg • 60 vegetarian capsules • Item# 00979
A bottle containing 60 capsules of Nature’s Plus Red Yeast Rice retails for $23.20. Life Extension members pay only $17.40 per bottle.

**BLUEBONNET**
Bluebonnet’s red yeast rice extract also meets Life Extension’s standards for quality and purity—with no citrinin detected. The suggested serving size is one 600 mg capsule per day, although some individuals may choose to ingest up to 1,800 mg per day.

Bluebonnet Red Yeast Rice
600 mg • 60 vegetarian capsules • Item# 01030
A bottle containing 60 capsules of Bluebonnet Red Yeast Rice retails for $16.95. Life Extension members pay only $12.71 per bottle.

**CHO-LESS**
Individuals who wish to obtain a red yeast rice supplement along with other beneficial nutrients may choose Cho-Less, which features the following ingredients:

<table>
<thead>
<tr>
<th>Serving size:</th>
<th>Amount per serving</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 capsules</td>
<td></td>
</tr>
<tr>
<td>Red yeast rice</td>
<td>505 mg</td>
</tr>
<tr>
<td>Artichoke leaf extract</td>
<td>100 mg</td>
</tr>
<tr>
<td>Pantethine</td>
<td>100 mg</td>
</tr>
<tr>
<td>Guggul standardized extract</td>
<td>98 mg</td>
</tr>
<tr>
<td>Beta-sitosterol</td>
<td>80 mg</td>
</tr>
<tr>
<td>Niacin</td>
<td>90 mg</td>
</tr>
<tr>
<td>Policosanol</td>
<td>20 mg</td>
</tr>
<tr>
<td>Total</td>
<td>1,000 mg</td>
</tr>
</tbody>
</table>

The suggested use for Cho-Less is two capsules, 2-3 times per day.

Cho-Less
90 capsules • 1,000 mg • Item# 01359
A bottle containing 90 capsules of Cho-Less retails for $32.50. Life Extension members pay only $24.38 per bottle.

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.
Scientists are realizing that skin needs to be protected against external factors such as sunlight, and also against internal damage caused by emotional stress. This is because our emotions, particularly stressful ones, release a wave of stress hormones such as cortisol that prematurely age the skin.

Fortunately, emerging research suggests that a natural herb called **ashwagandha** can protect and enhance psychological health as seen in a recent human trial. In this study, just 125 mg of a patented ashwagandha extract once a day led to a **14.5%** reduction in cortisol levels in 98 chronically stressed individuals. This dose also resulted in a **13.2%** increase in levels of the anti-aging hormone DHEA, which helps maintain the youthfulness of skin cells. Overall, the ashwagandha-treated subjects experienced up to **62%** reduction in anxiety levels compared with virtually no change in the placebo group.

The impressive results from this trial have led to the incorporation of **ashwagandha** into a new skin-protection formula called **Enhanced FernBlock® with Sendara™**. As the name suggests, this formula also contains **FernBlock®**, the revolutionary oral supplement introduced by Life Extension® in July 2008 that acts as an internal sunscreen against damaging solar radiation.

**FernBlock®** is a natural extract derived from the fern plant *Polypodium leucotomos*. Extensive clinical studies document its ability to provide remarkable skin protection by inhibiting the absorption of harmful ultraviolet (UV) rays and quenching DNA-corrupting free radicals. **FernBlock®** also diminishes the consequences of excessive UV radiation by favorably altering a number of changes in skin cells that cause premature skin aging.

**Enhanced FernBlock® with Sendara™** is complemented with a powerful antioxidant called **Phyllanthus emblica**. This natural extract blocks a chemical reaction that generates several types of skin-damaging free radicals, thus shielding the skin against the destruction of collagen and other dermal matrix proteins. An *in vitro* study using a patented extract of both **ashwagandha** and **Phyllanthus emblica** demonstrated an impressive **54%** inhibition of collagen-degrading enzymes and an **86%** inhibition of those that break down hyaluronic acid—the skin’s natural moisturizer.

The unique combination of natural ingredients in **Enhanced FernBlock® with Sendara™** has been scientifically proven to help skin look and feel good from the inside out. This formula is designed to complement topical sunscreens for complete skin protection.

A bottle containing **30** vegetarian capsules of **Enhanced FernBlock® with Sendara™** retails for $39. If a member buys four bottles, the cost is only **$26.25 per bottle**.

Contains corn and rice.

**References**

*Patent Pending Sendara™ is a trademark of NutraGenesis LLC. FernBlock® is a registered trademark of Industrial Farmaceutica Cantabria, S.A.*

*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.*
An estimated 30 million Americans over age 20\textsuperscript{1,2} face lethal risks from excess caloric intake, but have no idea they are jeopardizing their health and longevity.

The reason why may surprise you: these individuals appear thin and healthy. Many adhere to a decent dietary and exercise regimen.\textsuperscript{1,2} But according to a comprehensive analysis conducted by heart researchers at the Mayo Clinic, they are still ingesting more calories than their bodies are able to utilize. The deadly consequences, published earlier this year, include:

- Four-fold higher rates of metabolic syndrome in later life
- Increased cardiovascular disease risk
- Blood lipid abnormalities in men and women
- Hypertension in men
- Double the risk of cardiac death in women.\textsuperscript{1,2}

This modern scourge of overconsumption happens to be an independent risk factor for virtually all age-related diseases—from cancer and atherosclerosis to arthritis and dementia.\textsuperscript{3-8}

It is also the principal challenge confronting aging individuals who wish to reap the extraordinary benefits of caloric restriction or CR. Reducing the number of calories you consume while maintaining optimal nutritional status initiates a system-wide anti-aging cascade. By “switching on” genes that favor youthful physiological function, caloric restriction dramatically slows the pathological aging process.

CR also improves biomarkers of health across the board, from cognitive function and cancer risk to glucose control and cardiac health.\textsuperscript{3-14} Yet most people cannot submit to a sufficiently restrictive dietary regimen to obtain the benefits.

The good news is that avant-garde researchers have brought to light a novel class of nutrients called calorie restriction mimetics. This handful of natural compounds has been shown to safely simulate some of the beneficial effects of calorie restriction without the need for stringent dietary measures.

Earlier this year, Life Extension\textsuperscript{®} provided you with the first comprehensive review of five known CR mimetics, some that Foundation members have been taking for many years.

In this article, you will learn of the latest research on these cutting-edge compounds. You will also discover the sixth CR mimetic to emerge in the scientific literature. This little-known but potent flavonoid called fisetin is difficult to obtain in sufficient amounts through diet alone.\textsuperscript{15} The most recent scientific evidence indicates it affords particular protection to the aging brain—and enhances the action of resveratrol!\textsuperscript{16-20}
Through these and other mechanisms of action, caloric restriction improves virtually all biomarkers of health. In a landmark 20-year controlled study of CR in primates published last year, a moderately restricted diet produced a three-fold reduction in the risk of age-related disease. Cardiovascular disease and cancer incidence were less than half in the calorie restricted group, and none of the monkeys developed impaired glucose control or diabetes.

**Fisetin: A New Multimodal CR Mimetic**

Although present in strawberries, the flavonoid fisetin is a relatively rare nutrient found only in minute quantities in the plant kingdom. It has been shown to maintain levels of glutathione (the primary antioxidant internal to most cells in the body) in the presence of oxidative stress. Its exceptional capacity to ward off age-related cognitive decline through the modulation of multiple neuronal (nerve cell-related) pathways has drawn the most intense scientific interest. Fisetin also exerts multimodal effects common to known caloric restriction mimetics.

In response to a reduction in caloric intake—sirtuins initiate a sequence of profoundly beneficial age-delaying processes. The sirtuin-mediated effects of calorie restriction have been successfully replicated in species ranging from yeast to higher primates. Sirtuins have been shown to:

- Enhance protection against oxidative stress
- Minimize protein damage by glucose (glycation)
- Prevent accumulated DNA damage
- Inhibit inflammation
- Improve mitochondrial function
- Promote the function of organelles (cellular sub-structures) responsible for maintaining structural and functional integrity

Antioxidant Protection

Fisetin’s antioxidant potency is comparable to quercetin. Alone among the polyphenols, fisetin induces genetic expression of a powerful cellular antioxidant Caloric Restriction: The Longevity Gene Activator

A wealth of scientific data spanning more than seven decades confirms caloric restriction’s unmatched power to boost longevity in nearly all forms of life, as much as 100% in some species. One of the primary means by which calorie restriction induces its profound anti-aging effects is through favorable gene expression. CR has been shown to activate a class of powerful signaling molecules known as silent information regulators (Sir), or sirtuins. These operate across multiple cellular pathways, regulating gene expression, aging, metabolism, DNA repair, and apoptosis (programmed cell death).

Sirtuins are ubiquitous in nature; one or more sirtuins are present in most species, from bacteria to mammals. This may explain why calorie restriction so radically increases life span across the full range of living organisms.

In response to a reduction in caloric intake—sirtuins initiate a sequence of profoundly beneficial age-delaying processes. The sirtuin-mediated effects of calorie restriction have been successfully replicated in species ranging from yeast to higher primates.

- Enhance protection against oxidative stress
- Minimize protein damage by glucose (glycation)
- Prevent accumulated DNA damage
- Inhibit inflammation
- Improve mitochondrial function
- Promote the function of organelles (cellular sub-structures) responsible for maintaining structural and functional integrity
system called quinone reductase or QR, which is vital in preventing oxidant-induced carcinogenesis. The antioxidant action of fisetin has been shown to significantly extend the life span of C. elegans—a benchmark indicator of CR mimesis (simulation). Its proven ability to inhibit oxidation of harmful LDL cholesterol also indicates fisetin’s potential in preventing cardiovascular disease.

**Glycation Blockade**

Laboratory studies show that fisetin inhibits glycation (destructive binding of sugar molecules to functional proteins) in human hemoglobin, protecting red blood cells from long-term damage. It interacts beneficially with other human proteins and with DNA. These effects likely account for its specific ability to protect brain and nerve tissues. Studies show that advanced glycation end-products (AGEs) and their receptors are closely linked to conditions such as Alzheimer’s disease and other forms of cognitive decline.

**DNA Protection**

Fisetin ranks very high among flavonoids at preventing DNA damage. Low doses of fisetin offer superior protection against DNA strand rupture induced by hydrogen peroxide, a potent free radical. These effects also place fisetin high on the list of potentially effective cancer-preventing agents.

**Inflammation Control**

Fisetin suppresses inflammatory cytokine production by diverse mechanisms. It downregulates the master inflammatory modulator NF-kB, which may reduce inflammatory responses, cancer-related cell proliferation, and metastatic alterations through a unique set of cellular mechanisms.

**Mitochondrial Support**

Fisetin has been shown to protect mitochondria against repeated oxidative stress. Cells treated with fisetin are able to maintain mitochondrial-dependent levels of adenosine triphosphate or ATP—the body’s primary “energy currency”—in the presence of powerful mitochondrial toxins. In live animal studies, researchers found that fisetin could significantly improve behavioral outcomes when administered five minutes after the initiation of an embolic stroke. Strokes impose a huge metabolic burden on brain tissue, and destruction of mitochondria is one reason for the neurological deficits observed after such events. Fisetin was shown to reduce the amount and volume of brain damage following induction of stroke in animal models.

**Caloric Restriction**

- Scientists estimate that 30 million Americans face the lethal risks of excessive energy (calorie) intake, even though they appear thin and healthy.
- The result is a four-fold increase in risk of developing metabolic syndrome, increased risk of cardiovascular disease, and more than double the risk of cardiac death in women.
- These alarming findings reflect the difficulty of avoiding excess calories in affluent societies—and underscore the enormous challenge facing individuals wishing to obtain extraordinary benefits of caloric restriction.
- Fortunately, avant-garde research has brought to light a handful of nutrients that can safely simulate the effects of caloric restriction.
- Each operates in a multitargeted and complementary fashion to attain calorie restriction-like effects within cells.
- They have been shown to limit oxidation, reduce glycation, restrict or even repair DNA damage, quell inflammation, support mitochondrial health, and enhance the function of the cellular sub-units called proteasomes and lysomes.
- In addition to the five natural CR mimetics Life Extension reviewed earlier this year, a sixth has been identified called fisetin.
- Fisetin has been shown to optimize levels of the endogenous antioxidant glutathione in cells, target factors implicated in brain aging, and may even enhance the action of resveratrol.
Protection of Vital Cellular Components

Fisetin consistently increases activity of a vital cellular waste excretion unit called the proteasome, to such an extent that it promotes nerve cell survival following withdrawal of otherwise vital growth factors. Proteasome activity is decreased in a variety of age-associated neurological disorders including Alzheimer's and Parkinson's diseases. Researchers in the laboratory of Dr. Pamela Maher of the Salk Institute for Biological Studies found that fisetin was able to modestly increase proteasome activity in primary cultures of brain cells, promoting their survival and preserving their optimal functioning.

Maher and her colleagues found that fisetin promotes long-term potentiation of brain neurons, thereby enhancing memory in two pre-clinical models of aging.

Compelling New Evidence for Established CR Mimetics

Resveratrol

Resveratrol, the most widely known of the CR mimetics, is a polyphenol found most abundantly in red wine grape skins, as well as in many other darkly colored fruits, accounting in part for their known health-promoting effects. Its ability to activate sirtuins has been thoroughly documented in the scientific literature.

While a potent sirtuin activator and antioxidant in its own right, resveratrol also mobilizes a number of antioxidant processes internal to cells. These combined effects are responsible for resveratrol's ability to prevent oxidative damage following heart attack or stroke, heading off many of its deadly consequences. Similarly, resveratrol's antioxidant function is credited with prevention of the neuronal damage observed in Alzheimer's and other neurodegenerative diseases.

Resveratrol also inhibits advanced glycation end products (AGEs) that arise from lifelong exposure to glucose in blood—both effects and causes of type 2 diabetes. Resveratrol inhibits AGE-induced smooth muscle cell overgrowth in blood vessel walls. It protects laboratory animals from kidney damage in early-stage diabetes by switching on a protective enzyme system called adenosine monophosphate-activated serine/threonine kinase (AMPK).

Resveratrol improves insulin sensitivity and regulates genetic expression of dangerous adipokines, cytokines produced by fat tissue, which are associated with development of diabetes and the consequences of the metabolic syndrome. In early 2010 it was discovered that resveratrol reduces body weight and fat content in obese animals through its effects on gene expression and enzyme activities.

Pterostilbene

Pterostilbene is a polyphenol closely related to resveratrol, but with unique attributes, including potent cancer-preventing and lipid-lowering capabilities. It has powerful antioxidant capabilities, scavenging destructive free radicals and inhibiting oxidant-induced electrolyte loss from cells. Diabetic animals supplemented with pterostilbene demonstrate marked improvements in their damaged cellular antioxidant systems. Supplemented rats experience remarkable reversal of age-related cognitive deficits. Astonishingly, pterostilbene switches on genes governing the production of intracellular antioxidant enzymes such as superoxide dismutase (SOD).

Pterostilbene has been shown to directly lower blood glucose, which may help prevent the formation of AGEs. Remarkably, pterostilbene's ability to lower glucose was comparable to that of metformin, a pharmaceutical used in the management of diabetes.

Pterostilbene displays potent cancer-preventing effects related to its ability to prevent or repair DNA damage, one of the first steps in cancer initiation. It inhibits development of pre-cancerous lesions in mouse models of breast cancer, similarly to resveratrol. And pterostilbene can prevent expression of genes that otherwise promote cancer metastasis; it has also been shown to inhibit metastatic malignant melanoma growth and extend host survival.

Like its close relative resveratrol, pterostilbene is perhaps best known for its potent inflammation-
quenching effects, which it achieves, as usual, by several complementary mechanisms. Pterostilbene inhibits the ubiquitous COX-2 enzyme responsible for producing inflammatory prostaglandins, which are also involved in creating the pain sensation. Pterostilbene also targets inflammatory cells called macrophages, reducing their ability to multiply; this has enormous application to atherosclerosis, which requires activated macrophages to initiate deadly inflammatory plaques.

Grape Seed Extract

Grape seed extracts (GSE) favorably influence expression of genes involved in cellular aging, giving them a broad array of multitargeted benefits. GSE has been shown to enhance antioxidant status and decrease free radical-induced protein oxidation in aging rats’ brains. A 2009 study of type 2 diabetics at high risk of cardiovascular disease showed that GSE significantly improved markers of inflammation, oxidative stress, and blood sugar over a 4-week period.

GSE’s remarkable cardiovascular health benefits also derive from their ability to fight advanced glycation end products (AGEs) in endothelial tissue. GSE effectively combats inflammatory responses throughout the body by modifying gene expression. One early study found beneficial alterations in expression of 13 proteins in brain tissue alone. GSE inhibited platelet inflammatory responses at doses easily attainable in humans, demonstrating an additional vascular protective effect. And GSE switched off the inflammatory “master molecule” NF-kB in mice exposed to UV radiation, helping to mitigate oxidant-induced inflammation.

Quercetin

The polyphenol quercetin protects endothelial tissue against oxidative damage by preventing oxidation of LDL cholesterol, one of the chief offenders in the atherosclerosis cascade. It also reduces the new production of fats by liver cells. Quercetin’s antioxidant capacity prevents heart enlargement caused by blood pressure overload in laboratory animals. By a different mechanism, quercetin prevents migration and proliferation of vessel wall muscle cells in response to oxidative stress and activated platelets.

Quercetin sharply reduces genetic expression of major inflammatory cytokines, suggesting its use for treatment of allergic and other inflammatory conditions. Inflammation plays a vital role in cancer development and cardiovascular disease as well, and quercetin’s anti-inflammatory effects lead to reduced invasiveness of certain breast cancers and reduced production of adhesion molecules in vascular endothelia.

Black Tea

Consumption of black tea is widely known to improve circulating antioxidant status in humans. Black tea’s polyphenols and other constituents are particularly notable for their cardiovascular protective effects. These arise through a host of interlocking antioxidant-mediated mechanisms including reduced platelet aggregation, improved endothelial function, and reduced vascular inflammation.

Components of black tea are powerful inhibitors of glycation and can prevent diabetic cataracts, further proving their calorie restriction mimicry. Unlike most of the other nutrients we’ve discussed, the
black tea polyphenols don’t directly reduce production of advanced glycation end products (AGEs); rather, they trap them as they are produced, reducing their concentrations in tissues.

**Activate Your Longevity Genes without Hunger**

Scientists estimate that 30 million Americans face the lethal risks of *excessive energy intake*, even though they appear thin and healthy. These alarming findings underscore the enormous challenge of avoiding *excess energy intake* and the obstacles of undertaking a caloric restriction regimen.

Fortunately, avant-garde research has brought to light a handful of nutrients that can safely simulate many of the effects of caloric restriction. Each operates in a multitargeted and complementary fashion. These nutrients have been shown to limit oxidation, reduce glycation, restrict or even repair DNA damage, quell inflammation, support mitochondrial health, and enhance the function of the cellular sub-units called proteasomes and lysosomes.

In addition to the five natural CR mimetics *Life Extension* reviewed earlier this year, a sixth has been identified called *fisetin*. It optimizes levels of the endogenous antioxidant *glutathione* in cells, targets factors implicated in brain aging, and may even enhance the action of resveratrol.

To read an in-depth scientific report that describes all of the documented benefits of calorie restriction mimetic nutrients, log on to [www.LifeExtension.com/Calorie-Restiction](http://www.LifeExtension.com/Calorie-Restiction)

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

**References**


YOU ARE EATING MORE CALORIES THAN YOU THINK


Achieve Multiple Health Benefits From Highly Absorbable 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.

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

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:

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.
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.

References:
3. Chandran B, Chakkiath VK, Thomas SPO. A multicentre, randomized, controlled human clinical study to assess the efficacy and safety of BioCurcumax (BCM-95) compared to diclofenac sodium. Submitted for publication. 2009.

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

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

For example, previous research funded by Life Extension showed that a combination of low-dose (20 mg) resveratrol plus grape seed extract induced many of the favorable gene expression changes observed in calorie-restricted animals.

Our comprehensive review of the scientific literature further revealed that certain compounds found in berries, such as pterostilbene, also possess potent “longevity gene” activators that work in synergy with resveratrol.

Most abundant in strawberries, fisetin has the power to “switch on” powerful cell signaling molecules that support youthful gene expression, DNA protection, and healthy cellular function.11-13 Each serving of the new CR Mimetic Longevity Formula contains fisetin in an amount equivalent to 2 cups of strawberries, helping to further emulate calorie restriction’s favorable influence on your longevity genes.

Most importantly, fisetin works in synergy with resveratrol. Researchers have uncovered compelling evidence of fisetin’s ability to stabilize resveratrol by shielding it from metabolic breakdown10 and extending its effects.

To take advantage of this extraordinary property, the new Optimized Resveratrol with Synergistic Grape-Berry Actives also includes fisetin, to enhance resveratrol’s beneficial action. Either one of these new formulas provide cutting-edge broad-spectrum support for youthful gene expression from the most scientifically validated, natural sources.
CR Mimetic Longevity Formula
A bottle containing 60 vegetarian capsules of CR Mimetic Longevity Formula retails for $39. If a member buys four bottles, the price is reduced to just $27 per bottle. The suggested daily dose of two capsules a day provides:

- **Trans-Resveratrol**: 250 mg
- **Trans-Pterostilbene**: 3 mg
- **Quercetin**: 150 mg
- **Grape seed extract**: 50 mg
- **Black tea extract**: 300 mg
- **Fisetin**: 48 mg

Optimized Resveratrol with Synergistic Grape-Berry Actives
A bottle containing 60 vegetarian capsules of Optimized Resveratrol with Synergistic Grape-Berry Actives retails for $46. If a member buys four bottles, the price is reduced to just $31 per bottle. The suggested dose of one capsule a day provides:

- **Trans-Resveratrol**: 250 mg
- **Grape-Berry Actives**: 85 mg
- **Quercetin**: 60 mg
- **Trans-Pterostilbene**: 0.5 mg
- **Fisetin**: 10 mg

Contains yeast.

References
10. Xenobiotica. 2000 Sep;30(9):857-66

TO ORDER THE NEW CR Mimetic Longevity Formula or Optimized Resveratrol with Synergistic Grape-Berry Actives, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
Life Extension is Funding Study of Therapy That Cured Cancer in 100% of Mice

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 super-charged granulocytes that successfully fight off any form of virulent transplanted cancer.¹ These super-charged granulocytes infiltrate tumor cells and destroy them. The mice given these potent granulocytes are healthy, cancer free, and have a normal life span.

This 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 tumors no matter how many cancer cells he administered. Further investigation led Dr. Cui 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 these potent granulocytes to mice with cancer, he cured them.²

This discovery was heavily publicized in 2007-2008, yet no one stepped forward to fund a clinical study to see if this immune-augmentation therapy could cure cancer in humans. When the Life Extension Foundation³ learned that this potential breakthrough was not being funded, we immediately made a $200,000 grant to help fund a human clinical trial at the South Florida Bone Marrow/Stem Cell Transplant Institute located in Boynton Beach, Florida.

The rationales behind this human study are laboratory experiments showing that some people’s immune cells can be almost 50 times more effective in fighting cancer than others.³ It is now possible to harvest these super-charged granulocytes from healthy young donors and infuse them into cancer patients with curative intent.

This 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, including transfusion of blood products, hematology, and oncology.
In January of this year, Dr. Maharaj notified the Life Extension Foundation that progress was being slowed because expected funding sources had dried up. Life Extension responded with additional funding commitments to facilitate this critical research.

Dr. Maharaj, the Director of the South Florida Bone Marrow/Stem Cell Transplant Institute, stated, “It would have been impossible for this project to exist without funding from the Life Extension Foundation.”

According to William Faloon, who co-founded the Life Extension Foundation in 1980, “These research grants have been awarded to help find a cure for cancer... Life Extension has no financial interest in the outcome of this research... Life Extension does have an interest in being able to recommend a validated cure for cancer to its millions of supporters worldwide.”

Cancer patients who want further information about participating in this new study can contact Dr. Dipnarine Maharaj, Principal Investigator at 561-752-5522 or Dr. Steven Hirsh of the Life Extension Foundation at 954-766-8433 or log on to Dr. Maharaj’s website www.bmscti.org.

The clinical trial expenses include donor costs and building a healthy Donor Registry which is crucial as these donors are the ‘medicine’ for the cancer patients. There are tremendous costs involved in screening and testing donors, for which Life Extension has provided the main initial funding. However, the clinical trial requires an additional $5 million in order to treat the study’s quota of patients (up to 29 allowed by the protocol). Until such funding is available, patients who wish to get onto the study’s waiting list are encouraged to visit Dr. Maharaj’s website at www.bmscti.org to learn more about the study and fill out an application. Those wishing to contribute financially can also find information about donations on the website.

The following article describes the unique methods used by Dr. Maharaj to treat hematological cancers at his clinic. > >
Stem cell transplants can either be the patient’s own, after having been cleaned of cancer cells, or they can be from a donor with the correct tissue match.9-12 Dr. Maharaj says the ideal situation in many cancers is to identify a compatible donor, because stem cells are then sourced from an individual who has a normal immune system. However, in the conditions which he usually treats—multiple myelomas, non-Hodgkin’s lymphomas, Hodgkin’s disease and leukemia13-16—patients typically have a better outcome when using their own stem cells. “That’s because these particular diseases tend to be more prevalent in older patients. Infections, graft rejections and other complications tend to be more frequent in older patients when a donor is involved.”

With a patient’s own stem cells, Dr. Maharaj stresses that scouring cancer while the marrow is still in the body is a crucial first step. “Many studies demonstrate that even if you purge the stem cells of the cancer in the lab, if you haven’t first gotten the patient to the point where the tumor is basically eradicated, then the outcome isn’t as positive,”14 he says. In these studies, cancer treatment centers have typically addressed cleaning the stem cells without considering how much residual cancer is still present in the patient. Patient survival in such cases is unacceptably low. “We have found that we first need to get the tumor load to the point where it is undetectable by conventional methods.15,16 Only then will we collect some of the bone...
marrow and store it, destroy the residual cancer in
the patient with high dose chemotherapy and put the
stem cells back in.”

And here is where the uniqueness of the procedure
is clearly demonstrated: Dr. Maharaj says the clean
stem cells allow the immune system to undergo what
he calls a clonal expansion. In effect, the system is
“reset” and switched back on; any remaining cancer
cells are identified and destroyed by the patient’s own
recharged immune system. “We’re enabling the body’s
own immunity to fight the cancer. It’s exciting,” says
the oncologist, betraying a bit of the engineer’s enthu-
siasm for innovative solutions.

**Home Recovery**

Innovative treatment naturally calls for a novel
approach to patient care. According to Dr. Maharaj,
the Institute’s idea is to treat cancer patients in an
environment which gives a good quality of life: spe-
cifically, an outpatient setting. “In fact, we are the only
free-standing totally outpatient stem cell cancer treat-
ment center in Florida,” he states.

Dr. Maharaj points to studies that prove the valid-
ity of this approach: in a 2004 study published in the
*Critical Care Journal,* for example, 600,000 patients in
six states across the US were examined. Incidence of
infections in cancer patients were broken up accord-
ing to disease type. Patients with acute leukemia were
66 times more likely to get an infection (sepsis) in a
hospital than a patient coming in with a heart attack.
Similar statistics were seen with multiple myeloma
(40 times greater risk), and lymphoma (16-20 times
greater). Almost 5% of the cancer patients that were
hospitalized in the six states were found to have severe
sepsis, translating to around 126,000 on average cases
nationwide. The data also showed that hospitalized
patients with cancer and severe sepsis were more than
five times as likely to die than cancer patients not suf-
fering from severe sepsis.

“Patients with hematological malignancies by their
nature have a very high risk of infection because it’s a
disease of the immune system,” Dr. Maharaj explains.
“Intermediate or high-dose chemotherapy patients
have an additional layer of risk due to the severe
immunosuppressive effects of the chemotherapy.
Some of these infections cannot be treated with even
the highest-level potency of antibiotics that we have
available. And these types of infections are prevalent
in hospitals.”

“When I came from Scotland to Florida, I was
recruited to assist in the development of the bone mar-
row program at the University of Miami,” Dr. Maharaj
recalls. “What I saw in inpatient programs were major
problems with complications directly traceable to
infections. I thought that using the same approach to
treatment while preventing the complications would
be a much more proactive way of doing things.”

At the Institute, infections are controlled by strict
attention to hand washing, as well as prophylactic use
of antibiotics. “In an inpatient setting, if you give a
patient ten times the dose of standard chemotherapy,
that means ten times the risk of infection in a hospi-
tal. By allowing a patient to recover from treatment
at home, we can largely avoid that risk.” Close scru-
tiny and evaluations also allow early intervention and
treatment in the case of post-chemotherapy toxicities,
further helping prevent in-patient hospitalizations.
“We monitor 47 potential toxicities a day,” he says. “For
each of those, we want to see no evidence of bad reac-
tions.”

Another accomplishment at the Institute is the abil-
ity to administer high doses of chemotherapy while
largely mitigating typical side effects like nausea, vom-
itng and diarrhea, or mucositis (ulceration in the
digestive tract and/or mouth). “To permit treatment
in the outpatient setting, we obviously need to avoid
these side effects or keep them to an absolute mini-
mum,” says Dr. Maharaj. “Thus we’ll give anti-nausea
medications and other drugs in advance, rather than
waiting for the problem to occur.”

**Spreading the Word**

By contrast, Dr. Maharaj says typical inpatient
hospital transplant care is reactive; i.e., treatment of
complications happens as and when they arise, which
only results in prolonged hospitalization. “Reducing
or eliminating hospital admissions results in signifi-
cant cost savings to patients, insurance companies and
employers.” At-home recovery also allows patients to
return to work or to resume normal daily activities sooner. But even more importantly, adds Dr. Maharaj, patients who receive a totally outpatient bone marrow/stem cell transplant return home following treatments and remain with their loved ones. “As many of our patients have testified, this can be especially helpful from the point of view of mental well-being, because people don’t feel as sick when they are at home compared to when they’re in a hospital.”

The stem cell transplant protocols employed by Dr. Maharaj and his South Florida Institute colleagues are medically accepted and widely utilized in many other transplant centers in the country, as is administration of high-dose chemotherapy. What is not standard, he says, is the outpatient approach to treatment. “It is difficult to understand why this isn’t more widespread,” says Dr. Maharaj. “We are successfully tackling some of the major risk factors found in hospitals, so I am at a loss to explain why there are not more centers that are treating patients with this more preventive approach.”

Indeed, some oncologists argue that the outpatient approach is risky for the patient. “I counter that by pointing to the fact that I have been giving high-dose chemotherapy in an outpatient setting since 1995, and we have a 0% procedural mortality rate as well as a demonstrated ability to prevent infections and other complications. Our patients have done very well, and in our hands the outpatient model has proven to be safe and effective.” Patient satisfaction is also high: “They love that they can receive their treatment in eight hours, instead of 24 in a typical hospital setting, and then they’re able to go home to be with their families, or back to a hotel in the case of patients visiting from outside the area.”

Dr. Maharaj stresses again that such a positive mental approach is crucial for healing. “When patients know they are going home instead of staying in a hospital, the obvious positive psychological effect improves their outcome.”

Helping Hand

The South Florida Institute is currently taking stem cell transplant research to an even higher level with a series of clinical trials designed to test the rebuilding of a cancer patient’s damaged immune system using the healthy immune systems of young individuals. “It’s a novel cancer therapy using transfusions of white blood cells from these healthy donors,” says Dr. Maharaj, adding that this newly-discovered innate activity for cancer resistance is made possible by specific populations of leukocytes (granulocytes and monocytes) that can be transfused from one individual to another.

Dr. Maharaj says he and his research team were approached by Life Extension Foundation board co-founders William Faloon and Saul Kent, who expressed interest in providing a grant to assist the Institute in getting the clinical trial up and running. “After we had received the necessary federal approvals to start the trial, we had no funding,” he says. “It was clear to me that Life Extension’s founders had been studying the background of this trial and were very interested.”

Funding Research That May Save Your Life

The Life Extension Foundation was established in 1980 with the mission to uncover scientific methods to slow and reverse aging, prevent and treat degenerative disease, and eventually enable humans to achieve indefinitely extended life span. People join the Life Extension Foundation in order to obtain the latest information that can help to extend their healthy life span. Many of the medical therapies we take for granted today, such as using low-dose aspirin to prevent heart attack, were first recommended (in 1983) by the Life Extension Foundation. Life Extension is helping to fund numerous cancer research projects today (including Dr. Maharaj’s work) because the incidence of this insidious disease spikes sharply as humans age.
well informed. After we met, I could see their commitment to wanting to help patients with cancer. They understand that the majority of treatments we have right now are simply not very effective, and this represents a possible path to a new approach in treatment.”

Dr. Maharaj says the Life Extension grant allowed the South Florida Institute to start screening healthy young volunteers for the trial. While it is obviously too early to chart results, he hopes that these clinical trials will one day lead to an effective, nontoxic treatment that can provide clear clinical benefit to cancer patients who can no longer benefit from conventional treatments. The Institute is also planning to participate in other clinical studies utilizing stem cells in the arena of regenerative medicine for cardiac repair, neurological repair, and also for diabetic patients.

It is a dynamic field of study for Dr. Maharaj, who urges individuals to have some of their own stem cells collected and stored when they are young and healthy, both from a future therapeutic point of view and being able to take advantage of the developments in genetics. “Ultimately, we may be able to predict cancer and other future diseases from your own stem cells,” he says. For Dr. Maharaj, all of this fits in neatly with Life Extension’s model. “To me, the term life extension means prolonging an individual’s life with good quality of life,” he concludes. “And that is precisely what we are trying to do.”

For more information, visit the website of the South Florida Bone Marrow Stem Cell Transplant Institute at www.bmscti.org.

References

In 2008, Life Extension® introduced Berry Complete, a unique, high-potency blend of extracts from Nature’s most powerful free radical fighters.1-3 The antioxidant strength of just one capsule equaled more than 50% of the recommended five daily servings of fruits and vegetables.

Today, we introduce an even more powerful antioxidant formula. A single capsule of the new Enhanced Berry Complete with RZD™ Açai delivers an antioxidant value equivalent to more than 100% of the recommended daily fruit and vegetable intake.

It is also the first antioxidant formula to use a cutting-edge extraction technology called Radiant Zone Drying™. This patented process delivers the most complete nutritional profile of the açai berry—for a breakthrough in antioxidant defense.

ORAC: A Measure of Antioxidant Power

To measure the antioxidant strength of various foods, scientists use what is known as the ORAC index. While berries score higher than most fruits and vegetables, açai boasts one of the highest ORAC values known to modern science.

Unfortunately, most commercial products containing açai do not reflect the full nutritional content of the fruit. Only a fraction of its phenolic content survives industrial processing, handling, and storage.

RZD™ extraction technology allows for optimal delivery of açai polyphenols, including highly beneficial anthocyanins, proanthocyanidins, and flavonoids, along with essential fatty acids and other vital compounds.

Enhanced Berry Complete with RZD™ Açai gives you a convenient way to obtain a broad spectrum of seasonal, hard-to-find, highly perishable foods, for optimal antioxidant value.

A bottle containing 60 vegetarian capsules of Enhanced Berry Complete with RZD™ Açai retails for $29. If a member buys four bottles, the cost is just $19.50 per bottle.

References

RZD™ and Radiant Zone Drying™ are trademarks of Columbia Phytotechnology, LLC.

Contains soybeans. Contains corn.

To order Enhanced Berry Complete with RZD™ Açai, call 1-800-544-4440 or visit www.LifeExtension.com

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

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.

REFERENCES:

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

Contains yeast and corn.

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.
Is Soy Safe?
Busting the Myths of a Nutritional POWERHOUSE

Rarely has a nutritional source gained such rapid acceptance and drawn the kind of hostile scrutiny focused on soy. No sooner did the FDA take the highly unusual step of allowing a health claim to be made for soy as a food in 1999, than it came under attack by a vocal minority of “concerned citizens”—some of whom were found to represent a narrow segment of the food industry threatened by soy’s profits.

Thanks to their efforts, considerable misinformation now contaminates the discussion of soy’s real impact on health. Instead of enjoying the broad range of benefits, many aging individuals are unnecessarily fearful of consuming soy products.

The good news is that the popularity and “controversy” surrounding soy have resulted in considerable clinical study and research, giving rise to a wealth of scientific literature that validates soy’s health-promoting potential.

In this article, you will find out how soy became the subject of controversy—and why it shouldn’t be. You will discover the latest findings on soy and its components, including isoflavones and soy protein. You will also learn how just 15-20 grams of soy per day, (or 50-90 mg of soy isoflavones) can operate at the cellular level to provide a formidable defense against cardiovascular disease, numerous forms of cancer, osteoporosis, and menopausal symptoms."
Soy and Estrogen: The Real Story

At the center of the controversy surrounding soy is the "estrogen-like" molecular profile of some soy-based compounds—and whether they increase the risk of certain hormone-dependent cancers and other adverse effects associated with hormonal imbalance.

Soy contains antioxidant polyphenols (plant-based compounds) known as isoflavones. Isoflavones are considered "phytoestrogens" or "dietary estrogens" because of their molecular similarity to estrogen as estradiol (17-β-estradiol), the female sex hormone. The ability of isoflavones to "mimic" some of estrogen's effects has led many doctors and scientists to characterize isoflavones as "weak estrogens."

*This is incorrect,* according to Dr. Mark F. McCarty, an internationally recognized expert in soy isoflavones.5 Advances in our understanding of how the body responds to estrogen (and estrogen-like compounds) explains why.

Estrogen exerts its influence upon cells directly through the presence of estrogen receptors. Until relatively recently, only one receptor was known to exist, now called the estrogen receptor alpha or ER-alpha. Overexpression of ER-alpha has been implicated in a variety of cancers in humans, including breast cancer, ovarian cancer, endometrial cancer, and colon cancer.6-9

In the late 1990s,5,10 a second estrogen receptor was discovered, now known as ER-beta. Expression of this receptor appears to counteract many of the cancer-causing activities of ER-alpha.10

As Dr. McCarty points out, genistein, one of the most abundant isoflavones in soy, is a highly potent activator of ER-beta. Critics of soy regard isoflavones' action on estrogen receptors as the source of concern, without recognizing there is more than one type of estrogen receptor in the body, and that they exert very different effects.

This highly selective mode of action explains why soy isoflavones promote beneficial estrogen-like effects in tissues where the ER-beta receptor predominates, but do not provoke the harmful effects of conventional estrogen replacement therapy in tissues where the ER-alpha receptor predominates.

For example, soy isoflavones have been shown to exert positive effects in tissues such as bone, vascular endothelium (blood vessel lining), and breast cells without the negative effects in those and other tissues such as liver and uterus, where side effects of estrogen therapy have been observed.5 In fact, in breast tissue possessing both estrogen receptor types, ER-beta is now known to exert a restraining influence on cell proliferation stimulated by estrogen at ER-alpha sites, reducing the risk of breast cancer.10 This balance helps to explain why soy isoflavones do not increase breast cancer risk despite their estrogen-like activity.5

Dozens of epidemiological (population-level) studies document the broad array of health benefits associated with a high-soy diet.11-13 Diets rich in soy isoflavones are associated with lower rates of cardiovascular disease, osteoporosis, cancer, and obesity-related complications such as type 2 diabetes.14-16

Soy isoflavones have relaxing effects on blood vessels, mediated by their influence on nitric oxide synthase (NOS), as well as powerful antioxidant effects, which together explain their potential for treatment and prevention of hypertension and stroke.11,17 Acting via yet another distinct mechanism, the isoflavones modulate signaling in pathways that control the interaction of oxidant stress with inflammation, leading to upregulation of detoxifying and antioxidant defense genes.18

The cumulative weight of the evidence for soy's health benefits led to the remarkable decision by the FDA to approve a food-labeling health claim for products containing 25 grams of soy proteins in the prevention of coronary heart disease in 1999.14
This claim was based on a wealth of clinical trials as well as epidemiological data showing that high soy iso-flavone intake could reduce LDL cholesterol, inhibit pro-inflammatory cytokines, reduce cell adhesion proteins, inhibit platelet aggregation, and improve blood vessel reactivity. Many nations throughout the world have now similarly endorsed soy products based on these data.10

Dr. Mark Messina, a noted soy expert at the Department of Nutrition at the Loma Linda University School of Public Health, has summarized soy’s remarkable benefits and provides specific recommendations on optimal soy intake. Messina suggests, based on the totality of available data and practical dietary standards, that aging individuals should ingest 15-20 grams of soy per day, including 50-90 mg of isoflavones—recommendations that have been echoed by other researchers worldwide.20 He adds that an intake of 25 grams per day of soy protein can be specifically used for cholesterol reduction.

**Protection from Cardiovascular Disease**

Soy products, both soy protein isolates and soy isoflavones, induce profoundly beneficial effects on the human cardiovascular system. Early human studies showed that long-term intake of soy protein rich in isoflavones could improve blood lipid profiles, at least in part by increasing expression of receptor molecules that take up LDL cholesterol.21 In fact, soy protein and isoflavones have universally been shown to lower LDL cholesterol and triglycerides, while some studies have also documented increases in beneficial HDL cholesterol as well.22,23 Along with phytic acid, another soy component, soy isoflavones significantly lower homocysteine levels and positively influence other biomarkers of cardiovascular disease risk.24-27

These benefits are obtained through multiple mechanisms of action.28,29 The various constituents of soy favorably regulate expression of numerous genes, including those involved in:

- Processing cholesterol and other lipids
- Synthesis and degradation of the cholesterol molecule
- Efficient utilization of adenosine triphosphate or ATP, the body’s fundamental unit of energy “currency.”30

These effects appear to be universal, benefiting young and the old, male and female, normal weight and obese.31-34

**Soy**

- Soy proteins and isoflavones offer comprehensive health benefits through multimodal and complementary mechanisms.
- They act by diverse pathways to block oxidation, reduce inflammation, and favorably regulate gene expression.
- Soy isoflavones in particular function as estrogen-like compounds in myriad tissues, chiefly upregulating the recently-discovered estrogen beta receptors associated with healthy outcomes such as cancer inhibition and improved cardiovascular function.
- These effects provide multimodal protection against cardiovascular disease, cancer, obesity, diabetes, osteoporosis, and many other conditions associated with aging or poor dietary habits.
- A flurry of “anti-soy” publicity in the late 1990s drew increased scientific scrutiny that has since uncovered still greater health benefits from soy than originally thought.
- A diet with varied protein sources, including substantial amounts of soy and soy isoflavones, is both safe and preventive of degenerative disease.
As the central role of inflammation in cardiovascular disease emerged, scientists became interested in how soy consumption might affect the inflammatory process. They found that short-term soy consumption reduces some markers of inflammation while increasing plasma levels of vessel-relaxing nitric oxide in postmenopausal women with metabolic syndrome, and improves signs of the metabolic syndrome in general. Soy protein also increases the activity of paraoxonase 1 (PON1), the natural antioxidant compound found in HDL cholesterol that prevents the inflammatory oxidation of cholesterol. In a preclinical model, genistein inhibited the inflammatory control complex called nuclear factor-kappaB (NF-kB) and reduced expression of a molecule essential to production of atherosclerotic plaques.

Another factor that contributes to the risk of a cardiovascular event such as heart attack or stroke is the tendency of platelets to aggregate, or clump together, forming clots that can obstruct blood flow. Platelet aggregation is a complex, multi-step process involving a number of signaling molecules—and soy isoflavones act to reduce the density of vital receptors for one such molecule, thromboxane A2, in direct proportion to the isoflavone concentration in blood. Thromboxane plays a central role in potentially lethal blood clot formation.

Short peptides (protein fragments) in soy proteins are among those recently shown to act against angiotensin-converting enzyme (ACE), thereby helping to safely lower blood pressure. Genistein inhibits the release of calcium within vascular smooth muscle cells, and helps to block constriction. These effects directly mimic those of many prescription blood pressure medications and, along with their direct influence on nitric oxide synthesis and other endothelial health factors, account for the additional vascular benefits conferred by soy products.

Several nutritional intervention studies in both animals and humans further indicate that consumption of soy protein reduces body weight and fat mass, in addition to the beneficial effects on lipid profiles. The effect on blood lipid profile was recently shown to be dramatically enhanced by the addition of a prebiotic mixture to soy. This study, conducted among a group of adults with high lipid levels, capitalized on the fact that intestinal bacteria can metabolize soy components to produce equol, a powerful lipid-lowering compound that many adults have trouble producing. The people on the prebiotic plus soy branch of the study experienced significant improvements in their lipid profiles not seen when either prebiotic or soy was taken alone.

**Combating Metabolic Syndrome**

The current epidemic of obesity and type 2 diabetes increases overall risk for cardiovascular disease and other metabolic complications. Soy components have direct benefits on several of the parameters that go awry in the development of metabolic syndrome. For example, soy proteins lower lipids, improve kidney function, and reduce urinary protein losses in type 2 diabetics with kidney disease. Soy protein combined with isoflavones improves blood sugar control, reduces insulin resistance, and lowers serum lipids in diabetic patients, and can also reduce serum CRP levels and restore lipid profiles towards normal. These effects may account for the observation that including soy in the diet can improve features of the metabolic syndrome in adults.

In a group of obese type 2 diabetics, replacement of animal-derived protein with soy protein helped improve hemoglobin A1c (a measure of long-term blood sugar control), reduced dependence on glucose-lowering drugs, lowered CRP levels, and triggered
significant weight loss.\textsuperscript{52} And soy isoflavones, particularly daidzein, can enhance gene expression of the vital metabolic regulatory protein PPARgamma, which helps cells absorb and use glucose.\textsuperscript{53}

Replacing animal-derived proteins with soy-based meals can lower body weight and fat mass, while reducing LDL cholesterol even more than would be expected from weight loss alone, and can improve body composition, increasing the ratio of lean body mass to fat.\textsuperscript{54,55} Even more exciting, soy product and isoflavone intakes were directly associated with a lower risk of developing type 2 diabetes in a group of overweight women.\textsuperscript{56}

**Strength for Aging Bones**

The intimate relationship between osteoporosis, which involves the loss of calcium from aging bones, and atherosclerosis, which involves the deposition of calcium into aging blood vessels, is growing rapidly clearer, and the connection involves the cellular signaling molecules known as inflammatory mediators.\textsuperscript{57}

Since soy products have proven value in reducing markers of inflammation and preventing atherosclerosis, it follows that they should help prevent osteoporosis. For example, soy isoflavones have the ability to interfere with production of the “all-purpose” inflammatory cytokine interleukin-6 (IL-6).\textsuperscript{58} IL-6 levels rise with advancing age, particularly after menopause and andropause, corresponding to a drop in sex hormone levels. This rise in IL-6 is associated with many of the chronic conditions of aging, including osteoporosis.\textsuperscript{58}

By blocking IL-6 production, along with numerous other pathways, soy protects against age-related bone loss (resorption).\textsuperscript{59} Animal studies show that soy extracts and purified genistein act via different mechanisms to modulate gene expression in bone tissue, resulting in beneficial three-dimensional changes in bone structure through reduced activity of multiple inflammatory pathways.\textsuperscript{60,61}

In humans, the effects are no less dramatic. Soy isoflavone supplementation decreases bone resorption in postmenopausal women.\textsuperscript{62,63} One year of supplementation with soy protein also increased bone formation.\textsuperscript{64} The combination of enhanced new bone formation and reduced bone resorption may contribute to benefits in preserving bone mineral density, the chief marker of the progress of osteoporosis.\textsuperscript{65} Notably, this effect is not limited to post-menopausal women: a 2008 study demonstrated a positive change in bone mineral density even in younger women, implying a powerful preventive effect.\textsuperscript{66}

Many of these effects can be traced to the isoflavones’ estrogen-like qualities and are borne out in multiple large epidemiological studies as well as in smaller clinical trials and laboratory research.\textsuperscript{16} Contrary to fears expressed by some early researchers and vocal critics (See SIDEBAR), soy isoflavones do not produce breast tissue changes or modify breast density on mammography. In fact, they may actually help reduce fibrocystic disease of the breast.\textsuperscript{67,68}
IS SOY SAFE? BUSTING THE MYTHS OF A NUTRITIONAL POWERHOUSE

The Soy “Controversy”: Separating Myth from Fact

A relatively small group of outspoken critics have fueled the debate over the safety of soy products, many of whom have links to industries threatened by soy’s widespread acceptance. Here in a nutshell are their specious claims—and why they don’t hold up:

“Soybeans contain ‘anti-nutrients.” In raw, unprocessed form, this is true of soybeans. In fact all raw, unprocessed beans contain a variety of enzymes and other biomolecules that can interfere with digestion and absorption of other nutrients. Soybeans are no different. Growers and processors are acutely aware of this as they develop the most nutritional cultivars of this universal food source. The way around the “problem” of anti-nutrients is simple: don’t eat raw soybeans, and be sure to eat a diet with varied sources of protein (good common sense). In fact, soy protein has been used successfully in treating mild and moderate protein-energy malnutrition in some of the world’s sickest children.

“Soybeans cause thyroid dysfunction.” Based on a 1960 article describing the occurrence of goiter (thyroid swelling) in a single infant on a pure soy diet, soy opponents extrapolated—and exaggerated—this risk to the entire population. Isoflavone molecules in soy do inhibit an enzyme involved in thyroid hormone synthesis, but that has not translated into poor thyroid function in otherwise healthy individuals (those without pre-existing thyroid disease and who have adequate iodine intake). Again, the bottom line here is not to get all your nutrition from soybeans (or any other single source), and if you have a known or suspected thyroid disorder, get frequent thyroid function tests.

“Soy causes cancer.” Again, the effects of isoflavones on hormonal function are clear. It made scientific sense early on to raise the question of whether they might adversely affect hormone-dependent cancers. A handful of studies from the mid-1990s showed cellular changes of the kind that can precede cancer—though none showed an actual increase or production of new cancers. Since then, the discovery of ER-beta estrogen receptors, their cancer-inhibiting effects, and the preferential influence of isoflavones on these receptors—in addition to extensive human epidemiological and clinical studies—provide an extremely favorable profile for soy isoflavones with regard to cancer.

Soy Protein and Isoflavones: Potent Cancer Prevention

Despite the early and isolated concerns regarding a possible link between soy products and cancer, there is now strong evidence that soy provides powerful cancer prevention. Isoflavones’ powerful multitargeted modes of action operate across numerous pathways to fight cancer on multiple fronts simultaneously. This allows reduction in cancer risk at every phase of its progression. Favorable modulation of gene expression is especially important in achieving this comprehensive effect. Exciting recent work shows that equol, the intestinal metabolite of soy isoflavones, has potent anti-cancer effects as well.
Breast Cancer

Early studies from Japan showed that frequent consumption of soy-based miso soup and isoflavones was associated with a reduced risk of breast cancer. A recent prospective study in 5,042 female breast cancer survivors in China, who were followed for a median of 3.9 years, found that consumption of isoflavone-rich soy foods was significantly associated with a 29% lower risk of death and a 32% lower risk of cancer recurrence. Additional evidence from epidemiological, animal, cell culture, and human studies has accumulated showing that isoflavones are promising agents for breast cancer chemoprevention. Daidzein, a soy isoflavone, adds protective effect to the chemotherapy agent tamoxifen in animal studies of mammary cancer. Some of this effect may be explained by soy protein’s ability to alter signaling pathways involving the hormone receptors, and some by its ability to inhibit cell growth. Genistein is unique among flavonoids of interest in cancer prevention in that it has both potent estrogen-like and growth inhibitory effects on breast cancer cells.

Increased isoflavone intake also directly influences sex hormone concentrations and menstrual cycle length in women, effects with the potential for reducing breast cancer risk. And recent exciting work demonstrates that genistein interacts directly with the notorious HER2 cancer-causing gene, inhibiting its activation by cellular machinery and preventing cancer promotion.

Prostate Cancer

Prostate cancer, like breast and uterine cancer, may be stimulated or worsened by sex hormones. Soy isoflavones, with their partial stimulatory/partial inhibitory effects, act by multiple pathways to reduce prostate cancer risk. Genistein from soy reduces signaling between early prostate cancer cells and helps prevent their progression. Genistein sensitizes cancer cells to apoptosis induced by chemotherapy drugs, and blocks activation of NF-kappaB, which is responsible for the connection between inflammation and cancer development. Related studies show that isoflavone supplementation may decrease prostate cancer risk both by reducing NF-kappaB activation and by decreasing levels of damaged DNA strands, an early step in cancer development. Several soy protein components protect against chemically-induced prostate cancer in rats, and isoflavones specifically inhibit synthesis of inflammatory prostaglandins in human prostate cancer cells and in living patients.

An entirely different mechanism of genistein in prostate cancer is the downregulation of sex hormone receptors in prostate tissue, making the cells less responsive to stimulation and cancerous growth. Other cellular signaling systems are also disrupted by genistein, further reducing cancer risk. And in men already diagnosed with prostate cancer, high-dose soy supplements produced an overall decrease in the tumor marker prostate-specific antigen (PSA), which rose alarmingly in control patients. Similarly,
IS SOY SAFE? BUSTING THE MYTHS OF A NUTRITIONAL POWER HOUSE

Slowing Menopause with Soy

Menopause produces a host of changes in a woman's body as her natural estrogen levels subside—changes that may be, at least to some extent, more safely slowed by soy isoflavones than estrogen replacement therapy. The decline in cardiovascular function that has its onset at menopause is one such change. Soy protein and isoflavones exert favorable effects on endothelial function in postmenopausal women. A low-glycemic index diet fortified with soy protein and phytosterols has been shown to reduce total and LDL cholesterol and triglycerides, and improve HDL ratios, while tending to normalize blood pressure, in a group of postmenopausal women.27

Body composition changes after menopause include increase in fat below the skin and in the abdomen, as the normal effects of estrogen fade. These changes were prevented by a daily soy protein supplement over a three-month period in a group of postmenopausal women. A similar study showed that six months of supplementation with soy protein plus isoflavones produced modest favorable effects on body composition in postmenopausal women. And many of the uncomfortable physical effects of menopause, such as hot flushes, respond well to daily doses of isoflavones, particularly genistein.102

Summary

Soy derivatives, particularly soy proteins and the isoflavones, exert powerfully beneficial effects across multiple systems of the body. Despite popular misconception at the hands of a vocal group of detractors, soy protein’s action on estrogen receptors gives them unique capabilities not found in drugs or other natural compounds. By preferentially acting upon estrogen receptors associated with cancer suppression, soy isoflavones can reduce cancer risk. Soy isoflavones demonstrate remarkable abilities to improve cardiovascular function through multiple pathways in cardiac tissue and in blood vessel linings. Soy proteins and isoflavones also act as powerful antioxidants that modulate cellular function through control of gene expression and cell signaling pathways. These effects in turn allow them to help quench inflammatory stimuli that both contribute to and result from modern scourges such as obesity, type 2 diabetes, and metabolic syndrome. •

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


Life Extension®
Grab ’n’ Go
Travel Packs

So You Never Miss a Day

Forgot to grab your supplements before you left the house? Having trouble keeping track of which ones you’ve taken? Or maybe in that last-minute rush before heading to the airport you didn’t have time to sort them out.

Then let us do it for you.

With Life Extension® Comprehensive Nutrient Packs, you’ll have in hand the 6 preferred formulas you need for optimal everyday nutritional support—in just one convenient assortment.

Each pack contains the suggested daily serving of . . .

▶ Two-Per-Day Multi-Nutrient Tablets • 2 tablets
It’s next to impossible to get all your daily nutrients through diet alone. This comprehensive formula contains a full spectrum of vitamins, minerals, antioxidants, and botanical extracts in amounts exceeding most commercial brands.

▶ Super Omega-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract • 2 softgels, yielding 1,400 mg EPA and 1,000 mg DHA
Fish oil’s critical health benefits are widely known, from protecting normal LDL against oxidation to supporting brain health. Formulated using a patented molecular distillation process, Life Extension’s fish oil was awarded a 5-star rating for purity and safety by the International Fish Oil Standards (IFOS™) program. Olive fruit extract and sesame lignans have been added to help emulate a Mediterranean diet and optimize the effects of these powerhouse nutrients.

▶ Mitochondrial Energy Optimizer • 4 capsules
Created to offset the loss of cellular vitality to mitochondrial decay and inflammation, this cutting-edge formula provides optimal amounts of 6 critical nutrients: Carnosine to counteract destructive glycation. R-lipoic acid to maintain cellular levels of glutathione, one of the body’s primary antioxidants.

Acetyl-L-carnitine arginate for brain support. Luteolin to suppress pro-inflammatory cytokines. Benfotiamine (B1) to maintain normal glucose metabolism. Pyridoxal-5’-phosphate to target advanced glycation end products.

▶ Super Ubiquinol CoQ10 • 1-100 mg softgel
One of the most potent antioxidants and cellular energizers, coenzyme Q10 supports heart health but declines in the body over time. Ubiquinol is a highly absorbable form of CoQ10, providing sustained levels in the body.

▶ Super Booster • 1 softgel
A highly cost-effective way to obtain 8 oil-soluble nutrients impossible to deliver in powdered form: Gamma-tocopherol, the hard-to-find component of vitamin E that balances cellular levels displaced by the more commonly ingested alpha-tocopherol. Sesame lignans, known to suppress free radical damage. Vitamin K2 for superior benefits to bones, arteries, and other tissues. Lycopene and lutein, carotenoid antioxidants that may support prostate health and normal cell division. Ginkgo for circulatory and cognitive support. Chlorophyllin to offset externally induced DNA damage. Selenium to optimize glutathione levels and maintain healthy cell division.

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.
Dual-Action Cruciferous Vegetable Extract with Resveratrol • 1 capsule

This unique formula combines cruciferous vegetable extracts (broccoli, Brussels sprouts, cauliflower) that help maintain healthy hormone levels—the key to any anti-aging strategy. Standardized concentrations of bioactive DNA-protective compounds, including glucosinolates, isothiocyanates, carnosic acid, and carnosol, support healthy estrogen metabolism.\textsuperscript{5-8} Trans-resveratrol has been added to quell inflammation and provide DNA support.

The Best Way to Manage Your Daily Supplement Regimen

These vital nutrients, bundled at no extra cost into a single packet, combine convenience with superior value when compared to buying each product separately.

A bottle containing a 30-day supply of Comprehensive Nutrient Packs retails for $189. If a member buys four bottles, the cost is just $128.25 per bottle.

References

To order Life Extension® Comprehensive Nutrient Packs, call 1-800-544-4440 or visit www.LifeExtension.com
Although the exact *causes* of Parkinson’s disease (PD) continue to elude scientific understanding, the single most important risk factor for its development and progression is well known: aging.¹

The first subtle signs can manifest in victims as early as age 50. The risk of onset then follows a steady rise, with incidence increasing *dramatically* at age 60.²,³ Slowed movement, tremors, mild cognitive impairment, and difficulty standing up or maintaining balance are PD’s harbingers, as the central nervous system commences a profound, irreversible decline. Over time, these early symptoms may progress to near-total immobility, accompanied by mood and personality disorders, loss of sensory function, dementia, and death.⁴

To date there is no known cure. Fortunately, great strides have been made in research into the prevention and improvement of parkinsonian symptoms *without* drugs. Natural interventions have been shown to counter aspects of the pathological aging process that accelerate the senescence and death of neurons under attack from PD.⁵,⁶

In this article, we detail the underlying physiological mechanisms implicated in Parkinson’s disease, along with a range of safe, low-cost, readily available compounds most *Life Extension®* members already take that may halt the threat of Parkinson’s *before* it takes hold. > >
HALT PARKINSON'S DISEASE

Progressive Degeneration

Parkinson's victims undergo a progressive, deadly degeneration of the basal ganglia, a compact cluster of neurons in the brain associated with motor control and memory.7 Housed within this structure are the substantia nigra, whose cells release the neurotransmitter dopamine.

The incremental but relentless destruction of these dopaminergic neurons drives the devastation seen in Parkinson’s victims.8 Dopamine plays a central role in a constellation of mental and physical functions, including:

- Voluntary movement
- Behavior and cognition
- Learning
- Motivation
- Sexual gratification
- Working memory
- Sleep
- Mood
- Attention

Every one of these functions comes under attack as Parkinson's disease (PD) kills off successive layers of cortical brain tissue.

Conventional medical treatment understandably aims to elevate and restore optimal dopamine levels. The most common approach is to use a drug such as levodopa, which is converted into dopamine in tissue. Unfortunately, only a small fraction of this conversion actually takes place in the brain, resulting in excessive dopamine levels elsewhere in the body and accounting for troubling side effects, including uncontrolled movements, nausea and vomiting, and depression.5,9

The good news is that the pressing need for a broader array of effective preventive measures, along with additional options to improve quality of life in PD sufferers, has given rise to a steadily growing body of sound research.10,11

Energy Management, Inflammation, and Nerve Damage

The human brain requires enormous blood flow to support its intensive metabolic and neurological activity. Fully one-fifth of the blood pumped with each cardiac contraction goes to the brain. Accordingly, the brain must manage the resulting flow of energy and oxygen with high efficiency or sustain potentially severe oxidative damage generated by excess free radical activity.

As it happens, neuronal tissue is highly vulnerable to free radical damage over time. This is now known to be one of the underlying causes of death for the dopaminergic cells that control movement.7,12,13 A primary contributor to this oxidative stress is mitochondrial insufficiency, the inability of the intracellular “furnaces” known as mitochondria to effectively manage energy flow, resulting in an excessive production of oxygen free radicals.5,14

Oxidative damage in turn leads to adverse inflammatory alterations in brain tissue.15,16 The resulting domino effect (oxidative stress = inflammation =...
additional oxidative stress = more inflammation, and so on) is especially destructive to the vulnerable dopamine-producing cells in the substantia nigra.17

While the inflammatory cascade characteristic of PD appears to be both progressive and inexorable, it is its very complexity that makes it a paradoxically attractive target for prevention. A comprehensive set of interventions has been identified that effectively neutralizes oxidative stress and disrupts inflammatory processes before they spiral out of control. This multi-faceted, multi-factorial approach has generated significant interest in the world of neuroscience today—and a growing body of exciting new research.5,18

**Creatine**

Creatine, a nitrogen-bearing organic acid that helps shuttle energy into muscle tissue, is also crucial to overall cellular energy management. Its deficiency in the brain has been associated with nerve damage, leading researchers to explore its neuroprotective effects.19 Several animal models have shown creatine to be effective in preventing or slowing the progression of PD owing to its potent “pro-mitochondrial” biochemical activity.20-22 As a team of influential Harvard neurologists noted in 2007, “Creatine is a critical component in maintaining cellular energy homeostasis, and its administration has been reported to be neuroprotective in a wide number of both acute and chronic experimental models of neurological disease.”23

Results from the first clinical study of creatine in humans were published in 2006 by the Neuroprotective Exploratory Trials in Parkinson’s Disease (NET-PD) team at the prestigious National Institute of Neurological Disorders and Stroke (NINDS).24 They studied 200 subjects who had had a diagnosis of Parkinson’s disease within 5 years, but who did not require medication for symptom management. Subjects were randomly assigned to receive creatine 10 grams per day, the drug minocycline 200 mg per day, or placebo for 12 months, while their scores on a standard PD rating scale were monitored.

Both performed well, though creatine showed a substantial edge in performance compared with minocycline. Tolerability of the treatment was 91% in the creatine group and only 77% in the minocycline group. This promising work was followed up in a 2008 study which provided further supportive data on creatine’s exceptional safety and tolerability.25

These findings are especially heartening given that they were derived from studies in aging individuals who already had PD, when much of the progressive damage to dopamine-producing (dopaminergic) cells had already been inflicted. It seems likely that creatine...
HALT PARKINSON’S DISEASE

may offer superior benefits when used as a preventive and truly neuroprotective supplement. In the words of British neuroscientist Anthony H. Schapira, “Early dopaminergic support for the degenerating dopaminergic system per se provides significant long-term clinical benefit for PD patients,” leading to “a novel concept for neuroprotection, and that is simply to treat early rather than delay.”

**Omega-3 Fatty Acids**

Given the inflammatory cascade’s intrinsic role in PD, it is natural that scientists would turn to explore the anti-inflammatory effects of omega-3 fatty acids. Among their many beneficial characteristics, omega-3s happen to be the molecular precursors of inflammation-fighting substances the body uses in maintaining equilibrium between infection and inflammation. Further, their concentration in nerve cell membranes is known to decrease with age, oxidative stress—and in neurodegenerative disorders such as PD.

Researchers in Norway have presented convincing evidence of systematic omega-3 deficits in PD, Alzheimer’s disease, and autism, indicating a potential therapeutic role. Supplementation with the omega-3 docosahexaenoic acid (DHA) can favorably modify brain functions and has been proposed as a natural intervention for PD and Alzheimer’s management.

Japanese scientists have shown that omega-3 treatment of nerve cells in culture prevents neuronal apoptosis, the programmed cell death that occurs in part as the result of inflammatory stimuli in the brain. Their work produced dramatically better results when treatment was introduced before the chemical stresses that induced apoptosis were imposed, leading them to conclude that “dietary supplementation with omega-3s may be beneficial as a potential means to delay the onset of the diseases and/or their rate of progression.”

Canadian researchers took this work to the next level in a study of mice given omega-3 supplementation before injection with a chemical that produces PD. The mice were fed either a control or a high omega-3 diet for 10 months prior to injection. Controls exhibited rapid loss of the dopaminergic cells in the substantia nigra and dramatic decrease of dopamine levels in brain tissue. These effects were prevented entirely in the omega-3 supplemented animals!

Researchers also demonstrated actual changes in PD symptomatology in a study of monkeys. In this study, one group of animals was first treated with the PD drug levodopa for several months before being given the omega-3 DHA, while a second group was pre-treated with DHA before being started on levodopa. The researchers’ conclusion? “DHA may represent a new approach to improve the quality of life of Parkinson’s disease patients.”

**Latest Research: Vitamin B6 May Help Prevent Parkinson’s**

A recent study reveals that inadequate dietary intake of vitamin B6 may increase the risk of developing Parkinson’s disease by 50%.

Using a hospital-based, case-control study, scientists examined the relationship between dietary intake of folate, vitamin B6, vitamin B12, and vitamin B2 and the risk of Parkinson’s disease.

Two hundred forty-nine patients with Parkinson’s disease and 368 patients without neurodegenerative disease provided comprehensive information about their dietary history during the preceding month. After adjusting for other factors, low intake of vitamin B6 was associated with an approximately 50% higher risk of Parkinson’s disease.

These findings dovetail with the results of a study published in *Neurology* in 2006, which reported that people who consumed 230.9 mcg or more of vitamin B6 daily had a 54% lower risk of developing Parkinson’s disease, compared with people who consumed 185.1 mcg or less per day.

Vitamin B6 may help reduce Parkinson’s disease risk by decreasing plasma homocysteine, an amino acid that is potentially toxic to dopaminergic brain cells.
Summarizing progress in omega-3 prevention of PD in late 2008, a leading nutritional scientist at the University of Tennessee, Knoxville concluded, “The literature reveals growing mechanistic evidence that cognitive function of the aging brain can be preserved, or loss of function can be diminished with docosahexaenoic acid, a long-chain omega-3.”

CoQ10

The strong connection between defects in mitochondrial energy management and its related oxidative stress have led neuroscientists to explore a number of supplemental compounds with energy-enhancing, antioxidant capabilities. Excellent laboratory and clinical evidence suggests that coenzyme Q10 (CoQ10), also known as ubiquinone because of its omnipresence in living cells, is an outstanding contender in this field. Deficiencies in this vital coenzyme produce disruptions in these processes that can have catastrophic consequences, contributing to many age-related neurodegenerative conditions. CoQ10 levels are known to be low in plasma and platelets drawn from patients with PD. A late 2008 study from England demonstrated for the first time that CoQ10 levels are low in vital regions of the brain itself in PD sufferers. In 2002, neuroscientists at the University of California-San Diego launched a clinical trial of CoQ10 intervention in early-stage PD sufferers. In this multicenter controlled study, 80 patients with early PD, not requiring treatment, were randomly assigned to placebo or to CoQ10 at dosages of 300, 600, or 1,200 mg per day for 16 months or until disability required drug treatment. All subjects were scored on the standard Unified Parkinson Disease Rating Scale (UPDRS), on which higher scores indicate progressively worsening disease.

The results were compelling: placebo patients ended the trial with a mean change (worsening) of 11.99 on the UPDRS score. Low-dose CoQ10 supplemented patients increased by only 8.81, middle-dose patients by 10.82, and high-dose subjects by just 6.69—a significant difference. All doses were well-tolerated. The authors concluded that “Coenzyme Q10 appears to slow the progressive deterioration of function in PD.” Two years later the same researchers showed that doses of up to 3,000 mg per day were safe and well-tolerated, though plasma levels reached a plateau at the 2,400 mg per day level.

With the introduction of the superior ubiquinol form of coenzyme Q10 in 2006, far lower doses may very well provide these same benefits. Ubiquinol CoQ10 absorbs far better into the bloodstream than conventional ubiquinone. Strong laboratory evidence for high-dose CoQ10 alone or in addition to levodopa therapy came in mid-2008 from a group exploring mitochondrial dysfunction and its role in PD. They induced PD in rats by injection of a toxin known to create an accurate model of the disease. Remarkably, after so much damage was already established, treatment with CoQ10 prevented cell death, restored ATP levels, and improved motor function in treated animals! The most dramatic effects were seen in rats given both levodopa and CoQ10 supplements—
the researchers concluded that the “addition of coenzyme Q10 in a high dose in early Parkinson’s disease could be recommended based on its proved disease-modifying role on several levels of the proposed mechanisms, including improvement of respiratory chain activity.”50

Similarly encouraging results were recently reported from neuroscience labs at Cornell University, where researchers tested the effects of various doses of CoQ10 in food, finding significant protection against loss of dopamine.51 The researchers noted that their results “provide further evidence that administration of CoQ10 is a promising therapeutic strategy for the treatment of PD.”

As our understanding of the role of the toxic amino acid homocysteine grew, however, more targeted and mechanism-based studies became possible. Homocysteine levels are closely related to folate, vitamin B6, and vitamin B12 status, and elevated homocysteine is found in cardiovascular disease and a variety of neurological and psychiatric disturbances, including PD.55-57 Paradoxically, levodopa treatment of PD can itself lead to elevations in homocysteine, potentially worsening the condition. This has prompted researchers to recommend B complex supplements in those taking the drug.58

Definitive demonstration of the value of this approach came from Singapore in 2005, where neurologists supplemented PD patients who were stable and on their best doses of levodopa with pyridoxine, a common form of vitamin B6. Mean motor and activities of daily living scores improved significantly following supplementation, and deteriorated again when the supplements were stopped.59 Low serum folate is also found in PD patients, especially those taking levodopa;57 Canadian researchers have demonstrated that a folate/B12 supplement could decrease plasma homocysteine levels in patients taking levodopa.60

A review paper in 2007 points to recent work with the active form of vitamin B6, pyridoxal-5’ phosphate (P5P), noting that a number of neurological disorders
including PD offer attractive therapeutic targets for this substance.61 Because of the association of elevated homocysteine and its deleterious effects with both PD itself and levodopa therapy, supplementation with folate, B6, and B12 is warranted.62-65

One note of caution regarding B6 supplements is if a PD patient is being treated with levodopa alone without the decarboxylase inhibitor carbidopa. Vitamin B6 may cause levadopa to convert to dopamine in the bloodstream before it crosses the blood-brain barrier (where it beneficially converts to dopamine in the brain). For safety’s sake, it is best to take vitamin B6 supplements at a time of the day furthest from the last dose of a levadopa (L-dopa)-containing medication and to have one’s blood tested periodically to make sure that excess dopamine does not accumulate in the bloodstream.

**Carnitine**

Carnitine serves as a co-factor in fatty acid metabolism—it helps to “shuttle” large fat molecules into the cellular powerhouses known as the mitochondria, where they are metabolized for energy. This makes carnitine a valuable weapon against PD.5,66 A small but burgeoning body of data indicates carnitine as a promising preventive for PD through its support of brain energy management.

Researchers at Mount Sinai Medical Center have successfully prevented experimentally-induced PD in monkeys by pre-treating them with acetyl-L-carnitine (ALC), a readily-absorbed form of the nutrient.67 Italian researchers have led the way in studies of carnitine as a neuroprotective agent in the brains of methamphetamine users, who develop an acute form of brain injury resulting from the same basic mitochondrial destruction and free radical damage observed in PD.66,68 This work has been extended in similar studies by researchers at the US National Center for Toxicological Research.69

In the most exciting recent development in this area of research, Chinese nutritional scientists in Shanghai explored the combination of ALC with another energy-related nutrient, lipoic acid, in preventing PD-like changes in human neural cells in culture.70 They found that either nutrient, or the combination, applied for 4 weeks prior to a PD-inducing chemical, protected the cells from mitochondrial dysfunction, oxidative damage, and accumulation of the dangerous alpha-synuclein protein characteristic of PD.

Most notably, the combination of supplements was effective at 100- to 1,000-fold lower concentrations than were required for either acting alone—powerful evidence for a synergy that led the researchers to conclude, “This study provides important evidence that combining mitochondrial antioxidant/nutrients at optimal doses might be an effective and safe prevention strategy for PD.”70

**Green Tea**

According to internationally-noted Israeli neuroscientist Sylvia Mandel, “Tea consumption is inversely correlated with the incidence of dementia and Alzheimer’s and Parkinson’s diseases.”71 Green tea contains valuable antioxidant polyphenols known to be protective against a host of chronic and age-related conditions. This has given rise to a tremendous scientific interest in green tea and its active compound epigallocatechin gallate or EGCG as a neuroprotectant in PD, especially because these compounds penetrate into brain tissue extremely well compared to many drugs.72-74 Israeli researchers showed in 2001, for example, that they could prevent the cellular changes associated with PD in mice by pre-treating them with either green tea extracts or EGCG ahead of inducing the condition by chemical injection,73 work that has subsequently been repeated and extended in laboratories around the world.75-80 The Israeli team also demonstrated that green tea extracts can prevent activation of the inflammation-producing nuclear factor-kappaB (NF-kB) system in brain cell cultures triggered to develop PD-like changes.81 EGCG’s specific anti-inflammatory properties have been further shown to protect cultured brain tissue from the loss of dopami-
nergic cells as well. An entirely distinct component of green and black teas, L-theanine, is a unique amino acid that can cross the blood-brain barrier. Korean scientists have recently shown it may prevent the dopaminergic cell death characteristic of PD.

Another potential benefit of green tea extracts is their ability to sustain dopamine levels in ailing brain tissue, reducing the severity of symptoms.

The multiple beneficial compounds found in green tea form a combination therapy all their own, maximize their neuroprotective effects in PD and other neurodegenerative conditions.

Resveratrol

Since dopamine itself is an oxidant compound which can contribute to the early demise of its own neurons, scientists have studied the antioxidant potential of resveratrol to prevent this paradoxical destruction. They found that human neural tissue treated with dopamine underwent rapid cell death as a result of loss of mitochondrial function, but that exposing the cells to resveratrol for just one hour prior to dopamine treatment prevented cell loss and preserved mitochondrial function. Canadian scientists showed in 2008 that they could prevent neuronal cell death caused by inflammation through the use of resveratrol.

That anti-inflammatory action was further dramatically explored by Chinese researchers, who first administered a PD-inducing chemical to rats, and then gave them resveratrol orally each day for 10 weeks. They found that even as early as 2 weeks into supplementation, the diseased rats demonstrated significant improvement in their movement disorders, and examination of their brains showed marked reduction in mitochondrial and dopaminergic cell damage. Remarkably, they also found a reduction in expression of the inflammatory markers cyclooxygenase-2 (COX-2) and tumor necrosis factor-alpha (TNF-alpha). They were led to conclude that “resveratrol exerts a neuroprotective effect on [a chemically]-induced Parkinson’s disease rat model, and this protection is related to the reduced inflammatory reaction.”

As with green tea extracts, it appears that resveratrol’s promise for PD prevention may reside in its multi-modal mechanisms of action, targeting oxidative stress, inflammation, and other cellular processes fundamental in regulating brain function.

Additional Interventions

The explosion of knowledge about the many interrelated probable causes of Parkinson’s disease in the past decade has led to a number of other nutrient molecules’ being explored for their neuroprotective, anti-parkinsonian potential. Vitamin D, for example, a known neurohormone with neuroprotective effects throughout the life span, has been shown to prevent many of the changes associated with PD in laboratory and animal studies; it is also known to be deficient in a large proportion of PD sufferers.

Curcumin, a derivative of the spices turmeric and cumin, is a natural inhibitor of inflammation through its potent modulation of the inflammatory NF-kappaB system; it prevents chemically-induced changes in lab models of PD, and exerts significant neuroprotection.

And the pineal hormone melatonin, an antioxidant in its own right, may help to preserve cells’ ability to make dopamine and to reduce accumulation of destructive alpha-synuclein proteins. It is also invaluable as a sleep aid for PD victims, who often suffer from distressing sleep disturbances.

Summary

While its precise cause remains unknown—and there is no cure—aging is the single most important risk factor for Parkinson’s disease (PD). Symptoms manifest in PD victims as early as age 50 (earlier in rare instances). The risk of onset continues to rise with advancing age. Incidence increases dramatically at age 60. Slowed movement, tremors, mild cognitive impairment, and difficulty standing up are the early warning signs. End-stage PD is marked by dementia, near-total immobility, personality and mood
disorders, and death. These are the result of multiple, interacting destructive processes triggered by oxidant stress, mitochondrial dysfunction, and inflammation. Together these processes selectively and irreversibly destroy vital movement-controlling cells deep in the brain, resulting in loss of control and gradual decline in movement and activity. Nutritional interventions acting through multiple mechanisms can slow or prevent the accumulation of brain cell damage that produces Parkinson’s disease. In particular, nutrients that enhance brain energy utilization, prevent mitochondrial dysfunction, protect against oxidant damage, and tame inflammation are among the leading contenders for anti-Parkinson’s therapies. The most promising among these include creatine, omega-3 fatty acids, coenzyme Q10, B vitamins (particularly B6 and pyridoxal-5’phosphate), carnitine, lipic acid, green tea extract, and resveratrol.

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

References

3. Bennett DA, Beckett LA, Murray AM, et al. Prevalence of Parkinson’s disease as multifactorial oxidative dysfunction, protective against oxidant damage, and tame inflammation are among the leading contenders for anti-Parkinson’s therapies. The most promising among these include creatine, omega-3 fatty acids, coenzyme Q10, B vitamins (particularly B6 and pyridoxal-5’phosphate), carnitine, lipic acid, green tea extract, and resveratrol.

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

References


ADVANCED PROTECTION FOR THE AGING BRAIN

JULY 2010 | LIFE EXTENSION | 79


104. Rajeswarai A, Sabesan M. Inhibition of monoamine oxidase-B by the polyphenolic compound, curcumin and its metabolite tetrahydrocurcumin, in a model of Parkinson's disease induced by MPTP neurodegeneration in mice. Inflammopharmacology. 2008 Apr;16(2):96-9.


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.

Super Ubiquinol CoQ10 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

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

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

References:

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

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.
Aging may be measured in years, but when it comes to your skin, every second counts. Over the course of a normal day, the epidermis, the outermost layer of your skin, naturally loses 30-40,000 cells per minute.1

As you get older, your skin replaces these dead cells more slowly and produces less natural oil, as wrinkles, lines, and areas of dry rough-looking skin begin to appear. Sun exposure, pollution, and stress also take a daily toll by heightening the activity of damaging free radicals.2

Now you can replenish these areas and preserve your skin’s youthful radiance with new Vitamin D Lotion from Cosmesis®. Created by renowned dermatologist Gary Goldfaden, MD, this cutting-edge formula supplies rejuvenating factors directly to aging skin to maintain its healthy-looking, natural glow.

The Key Nutrient for Dry, Aging Skin

Vitamin D Lotion contains a highly absorbable form of vitamin D3 called cholecalciferol.3 It readily penetrates the outer layer of your skin, nourishing dry areas by helping to lock in moisture before it’s lost. This helps to offset the visible impact of your skin’s gradually declining ability to renew itself.

Because of its quenching action, this active nutrient also helps with rough patches, dry spots, and areas of tough-looking skin that result from dehydra- tion, cold weather, irritating fabric, or repeated friction and pressure.

Upper arms, elbows, knees, hands, and extremities are especially susceptible. Applying Vitamin D Lotion helps to restore their natural appearance.

A proprietary blend of highly refined tea extracts (green, black, red, white) has been added to augment vitamin D’s moisturizing and rejuvenating effect with polyphenols and antioxidants.4-6

Use Vitamin D Lotion wherever it’s needed, for a radiant complexion and soft, supple skin.

The retail price for a 4 oz bottle of Vitamin D Lotion is $29.95. If a member buys two bottles, the cost is only $21 each.
Natural Support for Cellular Energy Production

Optimized Carnitine with GlycoCarn®

Diminished cellular energy production is an inevitable consequence of aging. As adults mature, the cellular power plants known as the mitochondria become dysfunctional. The resulting slowdown in energy production manifests in numerous health problems.

Nutritional researchers have discovered that the amino acid carnitine promotes the burning of fat for fuel in the mitochondria, thus promoting youthful levels of cellular energy production.* Researchers have now identified several optimized, next-generation forms of carnitine that not only help boost cellular energy production, but also may confer targeted benefits for the brain, heart, muscles, and central nervous system.

Optimized Carnitine with GlycoCarn® combines these advanced forms of carnitine—acetyl-L-carnitine, glycine propionyl-L-carnitine, and acetyl-L-carnitine arginate—in a single formula that provides balanced, broad-spectrum support for cellular energy production throughout the body.

Acetyl-L-carnitine readily crosses the blood-brain barrier to combat oxidative stress and promote energy production in critical brain and central nervous system tissues.1 Acetyl-L-carnitine also supports healthy brain function by stimulating the release of acetylcholine and dopamine, two neurotransmitters that play vital roles in brain health and communication.*

Acetyl-L-carnitine arginate has an added molecule of arginine that enables it to augment the effects of acetyl-L-carnitine, promoting the growth of neurites that facilitate communication among nerve cells in the brain.2

GlycoCarn® is a patented form of glycine propionyl-L-carnitine that quickly penetrates into heart, endothelial, and muscle cells, with effects that range from protecting heart muscle from lack of blood flow to combating muscle fatigue by increasing muscle energy stores of glycogen.3

Two capsules of Optimized Carnitine with GlycoCarn® provide:

<table>
<thead>
<tr>
<th></th>
<th>mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetyl-L-Carnitine HCl</td>
<td>800</td>
</tr>
<tr>
<td>ArginoCarn® Acetyl-L-Carnitine Arginate Di-HCl</td>
<td>300</td>
</tr>
<tr>
<td>GlycoCarn® Glycine Propionyl-L-Carnitine HCl</td>
<td>300</td>
</tr>
</tbody>
</table>

A bottle of 60 vegetarian capsules of Optimized Carnitine with GlycoCarn® retails for $29. If a member buys four bottles, the price is reduced to only $19.58 per bottle.

References

To order Optimized Carnitine with GlycoCarn®, call 1-800-544-4440 or visit www.LifeExtension.com

GlycoCarn® and ArginoCarn™ are trademarks of Sigma-tau HealthScience, Inc., and are protected by US patent Nos. 6,703,042 B1 and 6,245,378 B1.

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

Each **Creatine Cap** supplies 500 mg of micronized creatine from 960 mg of creatine monohydrate. The suggested dose for healthy people is 2-4 capsules a day. A bottle containing 120 **Creatine Caps** (500 mg) retails for **$10.95**. If a member buys four bottles, the price is reduced to **$6.94** per bottle.

For those wishing to take high doses of creatine (5-10 grams a day), micronized creatine is available in powder form. A 500-gram bottle of micronized **Creatine Powder** retails for **$29**. If a member buys four bottles, the price is reduced to **$19.97** per bottle.

For those seeking creatine’s ultimate benefits, Life Extension has devised a formula that provides 2000 mg of micronized creatine, 15 grams of whey isolate, and 3000 mg of glutamine in each scoop. The retail price for a 1000-gram bottle of **Creatine-Whey-Glutamine Powder** is **$45**. If a member buys four bottles, the price is reduced to **$32** per bottle.

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

Contains milk, soybeans, and corn.

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.
For the Very FIRST Time

Testosterone for Life Seminars

Presented by Best Selling Author

Abraham Morgentaler, MD

Dr. Morgentaler is recognized as one of the top international authorities on testosterone therapy. He is an Associate Clinical Professor at Harvard Medical School. Dr. Morgentaler’s scientific work has been published in *NEJM*, *JAMA* and *Lancet*. He is the author of three books: *Testosterone for Life*, *The Viagra Myth* and *The Male Body*.

Invites You to His Inaugural One-day Seminar on Testosterone Deficiency in Men

Date: September 25, 2010
Place: EPIC Hotel - Beautiful Miami, FL
  Travelers’ Choice® Top 10 Luxury Hotel
  (Seminar room rate $169/night)
Price: $895

Register Today:
www.testosteroneforlifeseminars.com

Space is Limited. Register Early.
*First 25 Registrants will receive FREE signed copy of Testosterone for Life.

Learn how Dr. Morgentaler treats testosterone deficiency in his everyday practice.

All participants will be trained to perform testosterone pellet insertion.

Register Today: www.testosteroneforlifeseminars.com
Laird Hamilton
Life Lessons from a Surf Legend

In photos, professional surfer Laird Hamilton is glowing with health—literally. It’s a natural radiance befitting a man who spent his childhood bodysurfing on the beaches of Hawaii. These days, Hamilton is hailed as the world’s greatest big-wave surfer, a man who “is to his sport what Tiger Woods, Michael Jordan, and Lance Armstrong are to theirs,” according to Lesley Stahl on television’s 60 Minutes.

But Hamilton’s life isn’t one big surfing vacation. Like any serious professional athlete, he spends hours each day building up the strength—both physical and mental—he needs to take on the challenges of his game. That game isn’t like others, though, and it’s not for nothing that Hamilton’s sport has been called the most dangerous in the world. Baseball players don’t face adversaries like big waves the size of a six-story building, and tennis players don’t risk being killed (literally) by their opponents.
Hamilton’s recent book, *Force of Nature*, affords readers a look at the mental and physical philosophy behind facing any challenge in life. It’s not just a fitness book, though, as Hamilton is quick to point out. “It’s more a guide to life,” he says. Which makes sense, when one considers that Hamilton has probably done a good deal more “living” than the average person: there is likely nothing quite like riding a 60-foot wave to make one feel alive. That said, the pages of his book—and of his life—are filled with tips that can be applied by anyone to improve their own quality of life, and to help them take on the challenges of being physically and mentally fit no matter their situation. Guest writers frequently drop into the book’s pages and offer their own advice on living well, among them Hamilton’s wife Gabrielle Reece, a former professional volleyball player and model.

**Healthy Fear**

Before we can improve any aspect of our lives, Hamilton says, we first and foremost need to get back in touch with some pretty basic instincts. As a surfer, one of his primary instincts is fear—perfectly understandable when facing a fast-moving wall of water the size of a city block. But fear is an instinct that often must also be overcome by someone facing something as seemingly non-threatening as going to a gym for the first time.

While Hamilton is frequently portrayed by the media as fearless, he says nothing could be further from the truth. “I’m actually the most scared when I’m facing that big wave.” But fear is a powerful energizer, he points out; “It can make a mother suddenly able to lift up a car to save her children.” In modern society, he feels, we’re getting farther away from our basic survival instincts with each passing generation. “If it’s hot we put on the air conditioning, if it’s cold we put on the heater. We don’t typically have to tap into raw emotions like fear that originally allowed us to flourish as a species, to escape being eaten so that we could survive to reproduce.” People get jaded when they don’t have to use those instincts on a regular basis. “They’re still there, though. You can’t just erase thousands of years of evolution.”

Whether riding a 60-foot wave, or just making the decision to take control of one’s life and embrace fitness, Hamilton believes the act of channeling our fears empowers us and brings us closer to being more fully “human.”

Parenthood has made him think more about the things he does, but it hasn’t really slowed him down—not yet, anyway. “Dying is easy; it’s staying alive that’s tricky,” he laughs. “Life is a risk. That said, of course I’m going to back off from some of the really risky things. I don’t want to leave
my kids without a father.” On the other hand, Hamilton also wants his three daughters to know him as he is: “A big wave rider and adventurer. I want them to see what it does to me spiritually, the joy it brings me, so that they’ll want some of that in their own lives. Hopefully they’ll find their big wave, or whatever it is that wakes up their instincts.”

**You Are What You Think**

Hamilton says being physically active is an important component in focusing and utilizing those instincts, as well as for one's overall health. “Obesity, diabetes, heart disease, lack of libido; they’re all related to lack of physical exertion, again resulting from not using our survival instincts.” In order to make the most of our lives, no matter what the activity, he believes it’s crucial to have a body that is going to cooperate, and therefore one that is kept in the best condition possible through regular exercise.

Some might feel Hamilton has an unfair advantage, especially after looking at the beautiful images in the book. After all, living in Hawaii, he has an entire ocean for a gym. But he says that doesn’t mean someone in, say, Kansas can’t obtain the same level of fitness. “The first and most essential part is making the decision; just to think about it. We are our own greatest inhibitors, and people don’t realize how powerful thought is. To think it is to do it.”

Hamilton mentions studies where one group of people did curls with weights, while another group just thought about doing them. “Twenty percent of the people who just thought about it had the same amount of gain as the people who lifted,” he says. “So a big part of it is the mental decision: I want to be in shape, or be more flexible. When you want to do it, it becomes real, and you start to find ways to get there.” He also doesn’t buy the excuse that people are too tired to exercise after working a full day. “Nothing will make you more tired than sleeping. Energy perpetuates energy, and if you work out, you can do more,” he says.

He is convinced that people who work 11 hours a day will find they can actually be a lot more productive if they exercise for an hour, eat some good food for an hour and then rest for another hour, than they would be if they worked those 11 hours straight. “Half the time they’re in a delirium at the end of the day, and the last three or four hours are unproductive anyway.” He feels we have a tendency to be a “sacrificial lamb” society. But are we ultimately being more industrious? Just consider the number of unhealthy Americans, he says.

**Laird Hamilton’s Supplement Routine**

A lot of what I take has to do with how it makes me feel,” says Hamilton. “The more natural it is, the more unprocessed stuff in it, the better. Then you add things if you know you’re weak in certain areas. If you’re having problems with cramping, for example, then you take magnesium, or you use arnica or comfrey for injuries. It’s about analyzing specific needs at the time.”

A glance in Laird Hamilton’s supplement cupboard these days will reveal a somewhat reduced inventory. Hamilton says rather than swallowing 20 pills a day, he increasingly looks for a few pills that can cover several bases simultaneously. That said, he has a few mainstays that will always be kept on hand:

**Brain Boosting Supplement:** “I do notice a significant difference when using it,” he says. Among other ingredients, it includes ginkgo biloba, vinpocetine, and phosphatidylserine, as well as extract of the *Bacopa monniera* herb. These nutrients have been shown to work together to increase both short- and long-term memory processing.

**Protein powder:** A requirement for any strength training. “Within an hour after training, you’ve got to eat—otherwise your body starts eating itself,” says Hamilton.

**Powdered vitamin C and powdered greens:** “They’re just about the purest form, next to eating a cartload of fruit and vegetables.”

**Maintaining the Machine**

Hamilton maintains that examining one’s eating habits is the best place to start when tackling fitness. “If you want to be healthier, eat less. Next step, eat less, but with better quality food. Then add in the working out.” The idea is that conscientious and vigorous exercise can to a certain degree help mitigate other “sins,” meaning indulgences like drinking or eating pizza at 2 a.m. Hamilton emphasizes the word vigorous, adding that it’s important to also pay attention to what you’re doing when you exercise. “It’s easy to park a piece of fitness equipment in front of the television and say, ‘hey, look at me, I did the elliptical trainer for two hours.’ But your brain has been shut off for those two hours, and you gave yourself no neurological challenge.”
Far better than plodding along while watching CNN, he says, is to bring your heart rate up to a point where all you can think about is if you can sustain the amount of load for ten minutes and make it to the end. “You get far less benefit from exercising with a lower degree of mental engagement. One could almost call it anti-exercise.”

To get the brain involved, Hamilton suggests incorporating activities that use balance, such as standing on one foot on a wobble board while doing arm exercises. Since everyone’s body has one side that is stronger than the other, this also prevents unbalanced or disproportionate development. “When you have to think about what you’re doing so that you don’t fall over, you’re a lot more focused, and you get a lot more benefit.” He also avoids routines in his fitness, which he feels are the quickest route to boredom and burnout.

In the gym Hamilton is a big proponent of circuit training, which he says dials up the intensity of your workout, keeping the heart rate in a constant elevated state. Briefly, circuit training involves moving quickly between workout stations, utilizing whatever is at hand. The beauty of circuit training is that you don’t actually even have to be in a gym. “Even if you only have a pair of dumbbells, you can create a routine that works your entire body.” In effect, you’re getting a cardio workout while you’re lifting weights. “If you apply yourself to this method of training, you’ll get much greater results in half the time.”

The vital thing, no matter what your choice of exercise, is to get some gratification from it. “Fitness doesn’t have to be a duty,” writes Hamilton in his book. “It should be a pleasurable part of your life, and it should include things that you do purely because you enjoy them.” But regardless of what activity you opt for, Hamilton stresses that intensity is key. “Go to any yoga class and you’ll see people there who aren’t even breaking a sweat, while you can barely touch your toes but you’re soaking wet. Who is getting more out of it? You, because you’re pushing yourself.”

Aside from helping him survive a 60-foot wave, Hamilton’s healthy lifestyle will, he hopes, enable him to enjoy many of the same things in his 70s that he did in his 20s. Nothing can completely negate that apprehension over growing older, however, no matter how active you are. “Age is a lot more of a decision than an actual reality,” he says. “Society sticks that age thing on professional sportspeople in particular. We are often thought to age out in our 30s, but nothing says it has to be that way.”

Still, Hamilton knows that when he’s in his 70s he can’t realistically expect to do the same physical activities, and with the same intensity, that he does today at 45—and he admits that part of him is in fact looking forward to slowing down, even if just a little. “In a way it will be a relief to put a lot of the young and foolish stuff behind me. But I’ll still be in good shape if I can help it.”

It’s easier to stay in good health if you maintain a regimen, rather than to try to recoup, he points out. “If you go completely out of shape, it’s a lot harder to get back into it. A car that stays running”—even one that has seen a lot of miles—“works a lot better than one that has sat parked.” And staying in shape physically, he adds, also helps the mind stay in peak form.

Another key to staying mentally young is to keep challenging yourself with goals. “Ideally, you want goals that modify, or evolve, so you never really achieve them,” he says. “The peak of the mountain always moves a bit, so you’re constantly striving for it. You keep going at it one step at a time.” Too many times, he says, he sees people who set goals that they achieve at age 18. “And then what? They
spend the rest of their lives going to reunions and talking about that big high school game. Keep moving. Don’t just bask in the things you have already achieved.” He admits with a laugh that he still needs some work on that last aspect.

**Supplemental Insurance**

The foundation to good health, Hamilton states again, is good nutrition. He feels that if you honestly can’t get to the gym, at least make an honest attempt to eat better, after taking the first step to eat less. It’s that second step, however, that can turn out to be the biggest stumbling block. The old adage is that you are what you eat, but Hamilton prefers the more modern version: “Garbage in equals garbage out. Our food these days is filled with additives.” He eats as close to the source (i.e., naturally) as possible, and he reads food labels. “The list of ingredients is surreal. If I can’t pronounce it or don’t know what it is, it’s not going into my body,” he says.

Organic produce and meat without any hormones or other additives form the backbone of his diet along with food that hasn’t been irradiated. “The Europeans have banned the process, but the FDA has endorsed it for all kinds of foods,” Hamilton writes in his book.

Somewhat ironically, fish is a staple for him; and sticking with his “as close to natural as possible” eating mentality, he consumes wild-caught fish whenever he can. “As a source of clean protein and omega-3s, it can’t be beat,” he states. What about increasing fears over mercury content in seafood? “I can’t speak for anyone else, but I grew up eating a lot of raw fish, and I’ve had lots of blood work done; I’ve never had any evidence of mercury trouble. The positive, for me, outweighs the negative.” For Hamilton, it goes back to that old fear instinct. He feels that while you of course have to be practical and keep informed of the possible dangers, if you were scared of everything, then you wouldn’t do anything. “You’d be scared to leave your house. But just the thought of being afraid of doing something is harder on your body than actually doing it.”

No matter how healthy you eat, however, Hamilton is a big advocate of adding supplements to his daily intake (see sidebar). “Especially these days, since our food isn’t as healthy as it used to be. So much of our fresh produce has been leached of its vitamin and mineral content,” he says.

Of course one of the best things you can do to boost your health doesn’t cost anything. “Be happy,” advises Hamilton. “Learn how to enjoy life and have fun. It’s clinically proven that positive people have stronger immune systems.” And another supplement takes even less effort: “I read that it takes 43 muscles to frown, but only 17 to smile.” And there is evidence that smiling relieves stress and produces endorphins. “Want to know the best part?” Hamilton asks. You can hear the grin in his voice: “Smiling is free.”

Women today face a growing number of health issues, including the need to support DNA gene structure in the breast. Detrimental factors such as the aging process, along with the daily bombardment of damaging environmental estrogen-like compounds, demonstrate the need to support a woman’s breast cellular structure.

A wealth of research shows that specific plant extracts can positively influence cellular status and remove some of the anxiety women face about maintaining a healthy balance of estrogens.

Two important metabolites that estrogen is broken down to in the body are: the good 2-hydroxyestrone and the bad 16-alpha-hydroxyestrone. Scientists have identified nutrients like indole-3-carbinol (I3C) that can tip the delicate balance of estrogens in favor of the good form.

Women seeking to proactively restore their youthful hormonal balance can now take a new, phytonutrient-based formula that helps support healthy estrogen activity and detoxification. Some of the active ingredients in the Breast Health Formula are:

- **Phytoestrogens** that function as selective estrogen receptor modifiers help block certain estrogen receptor sites on cells, thus preventing bad estrogen from exerting its harmful effects
- **Plant lignans** that boost beneficial enterolactone levels and favorably alter estrogen metabolism
- **Cruciferous Vegetable Extracts** (such as I3C) that effectively increase 2-hydroxyestrone while reducing undesirable 16-alpha-hydroxyestrone
- **Calcium D-Glucarate** to safely facilitate the removal of harmful estrogen from the body
- **Vitamin D** to restore healthy genetic regulatory switching to aging cells

Breast Health Formula provides nutrients that have demonstrated broad-spectrum support for preserving optimal breast health.

**The daily dose of two capsules supplies:**
- **Phytoestrogens** (isoflavones) and Group-B 34.5 mg
  - Saponins (from 111.5 mg SoySelect® soybean (Glycine max) 70:1 extract)
- **Indole-3-Carbinol** (I3C) 100 mg
- **DIM** (3,3-Bis (indolyl)methane) 14 mg
- **Calcium D-Glucarate** 137.5 mg
- **Vitamin D** (as cholecalciferol) 1000 IU
- **Enterolactone Precursors Proprietary Blend** 25 mg
  - HMRlignan™ Norway spruce (Picea abies) standardized lignan extract (knot wood) and Secoisolariciresinol diglucoside from ActiFlax™ flax (Linum usitatissimum L.) lignan extract (seed)
- **Iodine** (as potassium iodide) 2 mg
- **Cruciferous Vegetable Proprietary Blend** 550 mg
  - Broccoli (Brassica oleracea L.) GMO-free Extract [standardized to 4% glucosinolates]
  - Watercress (Nasturtium officinale) 4:1 extract (leaf)
  - Sawasabi™ Wasabi (Wasabia japonica) powder (rhizome) [standardized to 12,000 ppm Total Isothiocyanate]

The retail price for 60 vegetarian capsules of Breast Health Formula is $34. If a member buys four bottles, the price is reduced to only $22.50 per bottle. Contains soybeans, corn, and rice.

*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.
Theralac's breakthrough technology guarantees 100% LIVE DELIVERY of its probiotics into the intestinal tract, something other probiotics can't do. Once in the gut, Theralac's CLINICALLY PROVEN STRAINS are stimulated into action by LactoStim® – a patented prebiotic that feeds probiotics. Rapid colonization of intestinal surfaces follows and intestinal comfort is restored.

It's all about competitive exclusion.

Probiotics work by competitively excluding harmful microorganisms from gut surfaces. When Theralac’s probiotics are present the “bad bugs” can’t occupy the same space. Probiotics make lactic acid, a food acid that bacteria like Salmonella and E. coli hate – each lot of Theralac is pre-tested for lactic acid production which, along with CFU* and purity, is published by lot# at theralac.com.

* CFU = colony forming units – a measure of live strength.

Theralac delivers 30 billion CFU into the gut.

Big CFU numbers on a probiotic bottle mean nothing if they are killed in the stomach. At a pH below 2.0 (typical in stomach), > 99% of Lactobacillus and Bifidobacterium probiotics are killed. Theralac’s probiotics survive! A patented gel formulation utilizes sodium alginate from seaweed and grape skin extract to protect Theralac’s strains – a powerful dose of 30 billion CFU is delivered ALIVE into the gut. Theralac is guaranteed through expiration and protected by US patents 7,122,370 and 7,229,818.

Clinically proven strains in Theralac:

- L. acidophilus LA-1 (NCFM)
- L. paracasei F-19
- L. rhamnosus LR-44
- Bifidobacterium lactis BL-34 (BI-04)
- Bifidobacterium lactis BI-07

Lactobacilli work in the small intestine, Bifidobacteria in the colon. ONE BOTTLE LASTS 10 WEEKS!

To order, call 800-544-4440 or visit lifeextension.com. For more information visit theralac.com.
**Blood Testing**

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 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.

---

### **Most Popular Panels**

**Life Extension Member Pricing**

**Comprehensive Panels**

<table>
<thead>
<tr>
<th>Panel Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male Life Extension Panel (LC322582)</strong></td>
<td>$268</td>
</tr>
<tr>
<td><strong>Female Life Extension Panel (LC322535)</strong></td>
<td>$269</td>
</tr>
<tr>
<td><strong>Female Hormone Add-On Panel (LCADDF)</strong></td>
<td>$125</td>
</tr>
<tr>
<td><strong>Thyroid Add-On Panel (LCTHYROID)</strong></td>
<td>$55</td>
</tr>
<tr>
<td><strong>Life Extension Thyroid Panel (LC304131)</strong></td>
<td>$75</td>
</tr>
<tr>
<td><strong>Omega Score™</strong> (LCOMEGA)</td>
<td>$131.25</td>
</tr>
<tr>
<td><strong>Male Hormone Re-Test Profile (LCRTM)</strong></td>
<td>$275</td>
</tr>
<tr>
<td><strong>Female Hormone Re-Test Profile (LCRTF)</strong></td>
<td>$250</td>
</tr>
</tbody>
</table>

**Dr. Lichten Comprehensive Male Panel (LICHEN01M)**

<table>
<thead>
<tr>
<th>Panel Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male Life Extension Panel Plus:</strong></td>
<td>$688</td>
</tr>
<tr>
<td><strong>Female Life Extension Panel Plus:</strong></td>
<td>$688</td>
</tr>
<tr>
<td><strong>CBC/Chemistry Profile (LC381822)</strong></td>
<td>$35</td>
</tr>
<tr>
<td><strong>Lung Function Panel</strong></td>
<td></td>
</tr>
<tr>
<td><strong>24-Hour Urinary Profiles</strong></td>
<td></td>
</tr>
</tbody>
</table>

**CBC/Chemistry Profile**

- Total Cholesterol
- HDL Cholesterol
- LDL Cholesterol
- Triglycerides
- Iron

**Lung Function Panel**

- Total Bilirubin
- ALP (SGPT)
- Alkaline Phosphatase
- LDH

**Blood Mineral Panel**

- Calcium
- Sodium
- Potassium
- Phosphorus

**Blood Counts/Red and White Blood Cell Profile**

- Red Cell Count
- White Blood Cell Count
- Monocytes
- Lymphocytes
- Eosinophils
- Platelet Count
- Basophils
- Hemoglobin
- Polys (Absolute)
- Hematocrit
- Lymphs (Absolute)
- MCV
- Monocyes (Absolute)
- MCH
- Eos (Absolute)
- MCHC
- Baso (Absolute)
- Polynucleated Cells

**24-Hour Urinary Profiles**

- Total 24-Hour Urinary Steroid Profile (LCM400)          | $472.50 |
- Total 24-Hour Urinary Steroid Profile (LCM40001)        | $360   |
- Total 24-Hour Urinary Steroid Profile (LCM40002)        | $315   |
- Total 24-Hour Urinary Steroid Profile (LCM40003)        | $281.25 |
This test shows if you are taking the proper amount of DHEA. This test normally costs $100 or more at commercial laboratories.

**DIHYDROTESTOSTERONE (DHT)**  
For men and women. Determines the proper amount in the body.  

**INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN 3 (IGFBP3)**  
(Elevated levels in hypertensive individuals have been associated with a nine-fold increase of carotid arteriosclerosis.)

**INSULIN FASTING**  
Can predict those at risk of diabetes, obesity, and heart and other diseases.

**PREGNENOLONE**  
Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing’s syndrome.

**PROGESTERONE**  
(Primarily for women. Determines the proper amount in the body)

**SEX HORMONE BINDING GLOBULIN (SHBG)**  
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)**  
(Used to determine growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality.)

**TOTAL AND FREE TESTOSTERONE**  
This test is used to determine total and free testosterone levels in the body.

**URINARY 2/16 ESTROGEN METABOLITE RATIO**  
This ratio is relevant as a risk factor for estrogen-sensitive diseases including breast and cervical cancers, osteoporosis, and recurrent respiratory papillomatosis.

---

**CORTISOL**  
This test is to measure adrenal function.

**ADRENOCORTICOTROPIC HORMONE (ACTH)**  
A pituitary function test useful in evaluating adrenocortical dysfunction.

**DHEA-SULFATE**  
This test shows if you are taking the proper amount of DHEA. This test normally costs $100 or more at commercial laboratories.

**ESTRADIOL**  
For men and women. Determines the proper amount in the body.

**ESTRADIOL**  
For men and women. Determines the proper amount in the body.

**PROGESTERONE**  
(Primarily for women. Determines the proper amount in the body)

**SEX HORMONE BINDING GLOBULIN (SHBG)**  
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)**  
(Used to determine growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality.)

**TOTAL AND FREE TESTOSTERONE**  
This test is used to determine total and free testosterone levels in the body.

**URINARY 2/16 ESTROGEN METABOLITE RATIO**  
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)**  
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.

**C-REACTIVE PROTEIN (HIGH-SENSITIVITY)**  
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.

**Lp-PLA2 (PLAC TEST)**  
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.

**C-REACTIVE PROTEIN (HIGH-SENSITIVITY)**  
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.

**Lp-PLA2 (PLAC TEST)**  
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.

**C-REACTIVE PROTEIN (HIGH-SENSITIVITY)**  
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**  
(Used to determine whether testosterone replacement should be considered as a therapy for depression, abdominal obesity, low energy, poor mental performance, or loss of libido.)

**ESTRADIOL**  
Can predict those at risk of diabetes, obesity, and heart and other diseases.

**URINARY 2/16 ESTROGEN METABOLITE RATIO**  
This test measures delayed (IgG) antibody response to food. It can also be used to identify hypercalcemia.

**VAP™ TEST**  
The VAP™ cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid panel. Direct measurements, not estimations, are provided for total cholesterol, LDL, HDL, VLDL, and cholesterol subclasses.

**FREE-PSA (INCLUDES TOTAL PSA)**  
Recommended to determine if an elevated PSA is indicative of prostate cancer.

**MALE HEALTH**

**PSA (PROSTATE-SPECIFIC ANTIGEN)**  
Can provide an early warning sign for prostate disorders and possible cancer.

**FREE-PSA (INCLUDES TOTAL PSA)**  
Recommended to determine if an elevated PSA is indicative of prostate cancer.

**MALE HEALTH**

**PSA (PROSTATE-SPECIFIC ANTIGEN)**  
Can provide an early warning sign for prostate disorders and possible cancer.

**FREE-PSA (INCLUDES TOTAL PSA)**  
Recommended to determine if an elevated PSA is indicative of prostate cancer.

**Celiac Disease Antibody Screen**  
This test measures deamidated gliadin IgA, tissue transglutaminase IgA, and serum IgA.

**VITAMIN D (250H)**  
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**  
Levels of vitamin C are used to measure nutritional status.

**FOOD SAFE ALLERGY TEST**  
This test measures delayed (IgG) food allergies for 45 common foods.
**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-Cysteine Capsules
- L-Glutathione, L-Cysteine & C
- L-Glutamine Capsules
- L-Glutamine Powder
- L-Gysine Capsules
- L-Lysine Powder
- L-Methionine Powder
- L-Tyrosine Tablets
- Mega L-Glutathione Capsules
- N-Acetyl Cysteine Capsules
- Optimized Carnitine with GlycoCarn®
- PharmaGABA
- Super Carnosine Capsules
- Taurine Capsules
- Tryptopure® Tryptophan
- Taurine Capsules
- (also available with Probiotics)
- NeuroProtection Complex
- (Optimized) Tryptopure® Plus
- Acetyl-L-Carnitine
- Arginine/L-Ornithine Capsules
- Arginine Powder
- Agave Digestive-Immune Support
- Tryptopure® Tryptophan
- (Optimized) Tryptopure® Plus
- Bone Strength Formula w/KoAct™
- Chondroitin Sulfate
- Chondrox
- Fast Acting Joint Formula
- Glucosamine Chondroitin Capsules
- Cognitex with Pregnenolone & CDP Choline Capsules
- Chondroitin Sulfate
- Cuscoyate with Natural Vitamin E
- D-Ribose Capsules
- D-Ribose Powder
- Enhanced CoQ10 with Brewer’s Yeast
- Fibrinogen Resist
- Forskolin
- Homocysteine Resist
- L-Ornithine Capsules
- L-Ornithine Powder
- L-Ornithine Powder
- L-Lysine Capsules
- L-Lysine Powder
- L-Lysine Capsules
- L-Methionine Powder
- L-Tyrosine Tablets
- Mega L-Glutathione Capsules
- N-Acetyl Cysteine Capsules
- Optimized Carnitine with GlycoCarn®

**BRAIN HEALTH**
- CDP Choline Capsules
- Cognitex with NeuroProtection Complex
- Cognitex with Pregnenolone & NeuroProtection Complex
- DMAE
- DMAE-Ginkgo
- DMAE Powder (37% DMAE)
- Ginkgo Biloba Certified Extract™
- Ginkgo Powder
- Hypericum A
- Lecithin with B5 and BHA
- Lecithin Granules
- Methylcobalamin Loxegens
- Optimized Ashwagandha Extract
- Psychiatrist Extract
- 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)
- Florasorb
- Intact Digest
- Life Flora™
- Natural EosphaGuard
- NutraFlora (FOS) Powder
- N-Zymes™
- Pancreatin
- Primal Defense
- Regimi™

**DURK AND SANDY PRODUCTS**
- Blast™ Dual-C
- Inner Power™
- Memory Upgrade

**EYE CARE**
- Bilberry Extract
- Blackcurrant Freeze Dried Extract
- Bilite Eyes III
- Overcast Polarized Sunglasses
- Solarshield Sunglasses
- Super Zeaxanthin with Lutein & Meso-Zeaxanthin
- Vision Optimizer
- Apple Pectin Powder
- Chitosan
- Fiber Food
- Hr-Lignan® Nutri-Flax®
- SlimStyles® PGX®
- WellBut X PGX® Soluble Fiber Blend
- Dr. Proctor’s Advanced Hair Formula
- Dr. Proctor’s Shampoo
- Healthy Hair Spray
- Life Extension Shampoo and Conditioner
- Super-Absorbable Tocotrienols

**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

**HEART HEALTH**
- Advanced Lipid Control
- Cho-Lean
- D-Ribose Capsules
- D-Ribose Powder
- 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
- Sytrinol®
- Theraflavin Standardized Extract
- TMG Powder
- TMG Tablets
- Vascular Protect

**HERBAL/PHYTO PRODUCTS**
- Artichoke Leaf Extract
- Aspartan
- Berry Complete
- Blackcurrant Juice Concentrate
- Blueberry Extract
- Butterbur Extract w/Standardized Rosmarinic Acid
- Calcium D-Glucarate
- Celebrity
- Citrus Bioflavonoid
- Clofibrate
- Cilantro Herbal Extract
- Clinetron with Natural Vitamin E
- Kolic® Garlic Formula 105
- Kolic® Reserve
- Lycopeno
- Mega Green Tea Extract
- Mega Green Tea Extract (Decaffeinated)
- Mega Lycopeno
- Mega Silmyamin with Isosilybin B
- Nutrim
- Optimized Ashwagandha Extract
- Pomegranate Extract
- (Full-Spectrum) Pomegranate
- Pomegranate Juice Concentrate
- ProGreen®
- Pure-Gar™
- Pycnogenol

**HORMONES**
- 7-Keto® DHEA
- DHEA
- DHEA Complete
- GH Pluitary Support Day Formula
- GH Pluitary 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
- 726 Hypermune Egg
- Immune Protect with PARACTIN®
- Lactoferrin
- Maitake SX-Fraction
- Norwegian Shark Liver Oil
- Primal Defense™
- ProBoost™ Thymic Protein A
- Pure Gar™
- Sambu® Guard
- Theracapsules
- Thymic Immune Factors
- Ultimate Flora Advanced Immunity
- Vitamin C with Dihydroquercetin ZINC Lozenges with Vitamin C

**INFLAMMATORY REACTIONS**
- Arthro-Immune Joint Support
- ArthroMax™ with Thaeflavins
- Barlean’s Kids DHA
- Boswellia
- Boswellia™ Topical Cream
- Bromelain (Specially-coated)
- Coromega Kids Brain and Body (DHA)
- DHA 240
- Emulsified Norwegian Cod Liver Oil
- Emulsified Super Twin EPA/DHA
- Fast Acting Joint Formula
- 5-LOXIN®
- Mega EPA/DHA
- Mega GLA with Sesame Lignans
- MSM
- Natural Relief 1222™ Cream
- PhosphOmega™ Krill Oil
- Perilla Oil
- Seraflazine
- Shark Cartilage
- SODizyme™ with Gilisodin® and Wolfberry
- Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
- Tart Cherry
- Udo’s Choice Oil
- Zyllflam Easy

**LIVER HEALTH**
- Branch Chain Amino Acids
- HepatoPro
- Mega Silmyamin with Isosilybin B
- N-Acetyl Cysteine
- SAMA
- Silymarin

**Optimized Quercetin**
- Resveratrol with Synergistic Grape-Berry Actives
- Rhodiola Extract
- Rosmarinic Acid Extract
- Silymarin
- SODizyme™ with Gilisodin®
- Stevia Extract
- Super Bio-Curcumin®
- Super Curcumin with Bioperine®
- Super Ginkgo Extract
- Triple Action Cruciferous Vegetable Extract
- Venotone
- Whole Grape Extract
<table>
<thead>
<tr>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MINERALS</strong></td>
</tr>
<tr>
<td>Biosil</td>
</tr>
<tr>
<td>Bone Restore</td>
</tr>
<tr>
<td>Bone Strength Formula w/KoAct™</td>
</tr>
<tr>
<td>Bone-Up™</td>
</tr>
<tr>
<td>Boron Capsules</td>
</tr>
<tr>
<td>Calcium Citrate with D3</td>
</tr>
<tr>
<td>Chromium Ultra</td>
</tr>
<tr>
<td>Copper Iodoral</td>
</tr>
<tr>
<td>Iron Protein Plus</td>
</tr>
<tr>
<td>Magnesium</td>
</tr>
<tr>
<td>Magnesium Citrate</td>
</tr>
<tr>
<td>Mineral Formula for Men</td>
</tr>
<tr>
<td>Mineral Formula for Women</td>
</tr>
<tr>
<td>Only Trace Minerals</td>
</tr>
<tr>
<td>OptiZinc</td>
</tr>
<tr>
<td>Sea-Iodine™</td>
</tr>
<tr>
<td>Selenium Se-Methylselenocysteine</td>
</tr>
<tr>
<td>Vanadyl Sulfate</td>
</tr>
<tr>
<td>Zinc/Vitamin C Lozenges</td>
</tr>
<tr>
<td><strong>MISCELLANEOUS</strong></td>
</tr>
<tr>
<td>Blood Pressure Monitor Arm Cuff Medium</td>
</tr>
<tr>
<td>Cell Sensor Gauss Meter™</td>
</tr>
<tr>
<td>Empty Gelatin Capsules</td>
</tr>
<tr>
<td>The Capsule Filler Machine</td>
</tr>
<tr>
<td>The Pill Cutter and Grinder</td>
</tr>
<tr>
<td><strong>MITOCHONDRIAL SUPPORT</strong></td>
</tr>
<tr>
<td>Acetyl-L-Carnitine</td>
</tr>
<tr>
<td>Acetyl-L-Carnitine-Argetaine Mitochondrial Energy Optimizer</td>
</tr>
<tr>
<td>Optimized Carnitine with GlycoCarn™</td>
</tr>
<tr>
<td>Super Absorbable CoQ10™ w/ d-Limonene</td>
</tr>
<tr>
<td>Super Alpha Lipoic Acid with Biotin</td>
</tr>
<tr>
<td>Super R-Lipoic Acid</td>
</tr>
<tr>
<td>Super Ubiquinol CoQ10™ with Enhanced Mitochondrial™ Support</td>
</tr>
<tr>
<td><strong>MOOD RELIEF</strong></td>
</tr>
<tr>
<td>L-Theanine</td>
</tr>
<tr>
<td>Natural Stress Relief</td>
</tr>
<tr>
<td>Optimized TryptoPure™ Plus SAMe</td>
</tr>
<tr>
<td>St. John’s Wort Extract</td>
</tr>
<tr>
<td>Tryptopure™ L-Tryptophan</td>
</tr>
<tr>
<td><strong>MOUTH CARE</strong></td>
</tr>
<tr>
<td>Advanced Oral Hygiene</td>
</tr>
<tr>
<td>Dr. Tung’s Tongue Cleaner</td>
</tr>
<tr>
<td>Life Extension Mouthwash w/Pomegranate</td>
</tr>
<tr>
<td>Life Extension Toothpaste</td>
</tr>
<tr>
<td>MistOral III™ w/Beta-Sitosterol</td>
</tr>
<tr>
<td><strong>MULTIVITAMIN</strong></td>
</tr>
<tr>
<td>Children’s Formula Life Extension Mix</td>
</tr>
<tr>
<td>Comprehensive Nutrient Pack Life Extension Booster</td>
</tr>
<tr>
<td>Life Extension Mix™ Tablets</td>
</tr>
<tr>
<td>Life Extension Mix™ w/o Copper Capsules</td>
</tr>
<tr>
<td>Life Extension Mix™ w/o Copper Tablets</td>
</tr>
<tr>
<td>Life Extension Mix™ w/Extra Niacin</td>
</tr>
<tr>
<td>Life Extension Mix™ w/Extra Niacin w/o Copper</td>
</tr>
<tr>
<td>Life Extension Mix™ w/Stevia Powder</td>
</tr>
<tr>
<td>Life Extension One-Per-Day Life Extension Two-Per-Day</td>
</tr>
<tr>
<td>Super Booster Softgels w/Advanced K2 Complex Vital Greens Mix</td>
</tr>
<tr>
<td><strong>PET CARE</strong></td>
</tr>
<tr>
<td>Life Extension Cat Mix</td>
</tr>
<tr>
<td>Life Extension Dog Mix</td>
</tr>
<tr>
<td><strong>PROSTATE &amp; URINARY HEALTH</strong></td>
</tr>
<tr>
<td>BetterWOMAN® Optimized Cran-Max® with UTIRose™ 5-LOXIN® (Water-Soluble) Pumpkin Seed Extract</td>
</tr>
<tr>
<td>Super Saw Palmetto w/ Beta-Sitosterol</td>
</tr>
<tr>
<td><strong>SKIN CARE</strong></td>
</tr>
<tr>
<td>Anti-Aging Mask</td>
</tr>
<tr>
<td>Anti-Glycation Serum</td>
</tr>
<tr>
<td>Antioxidant Facial Mist</td>
</tr>
<tr>
<td>Antioxidant Rejuvenating Foot Cream</td>
</tr>
<tr>
<td>Antioxidant Rejuvenating Foot Scrub</td>
</tr>
<tr>
<td>Antioxidant Rejuvenating Hand Cream</td>
</tr>
<tr>
<td>Antioxidant Rejuvenating Hand Scrub</td>
</tr>
<tr>
<td>Anti-Redness &amp; Blemish Lotion Cellutile Suppress™ Formula</td>
</tr>
<tr>
<td>Corrective Clearing Mask Derma Whey</td>
</tr>
<tr>
<td>Dual-Action MicroDerm Abrasion Essential Plant Lipids Reparative Serum Face Master® Platinum Face Rejuvenating Antioxidant Cream Enhanced FernBlock™ w/ Sendara™ Fine Line-Less Hair Supress Formula Healing Mask Hylauronic Facial Moisturizer Hydroderm™</td>
</tr>
<tr>
<td>Lavilin Underarm Deodorant Life Extension Sun Protection Spray Lifting &amp; 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 Rejuvenex® 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 D Lotion Vitamin K Healing Cream</td>
</tr>
<tr>
<td><strong>SOY</strong></td>
</tr>
<tr>
<td>Natural Estrogen w/Pomegranate Soy Power Powder Soy Protein Concentrate Super Absorbable Soy Isoflavones Ultra Soy Extract</td>
</tr>
<tr>
<td><strong>SPECIAL PURPOSE FORMULA</strong></td>
</tr>
<tr>
<td>Anti-Alcohol Antioxidants w/ HepatoProtection Complex Benfotiamine w/Thiamine Breast Health Formula Butterbur Extract w/Standardized Rosmarinic Acid Chlorella Chlorophyllin w/Zinc Curcumin Versicolor Super Strength CR Mimetic Longevity Formula Derma-Vita™ Enhanced Cinsulin® w/Glucose Management Proprietary Blend EDTA (European Leg Solution) Diosmin95 Fen Dophilus Femmenessence MacaPause® GlucoFit™ Ideal Bowel Support 299V Lustre™ Maitake SX-Fraction™ Menopause Solutions</td>
</tr>
<tr>
<td><strong>SPORTS PERFORMANCE</strong></td>
</tr>
<tr>
<td>Enhanced Life Extension Protein DMG (N, N-dimethylglycine) Inosine L-Glutamine Capsules L-Glutamine Powder Micronized Creatine Capsules Micronized Creatine Powder Octacosanol</td>
</tr>
<tr>
<td><strong>VITAMINS</strong></td>
</tr>
<tr>
<td><strong>WEIGHT MANAGEMENT</strong></td>
</tr>
<tr>
<td>Alli® Refill Pack Belly Slim &amp; Tone Chitosan CitriChrome 7-Keto DHEA DHEA Complete Fucocanthin 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 WelIeX PGX® Soluble Fiber Blend Migra-eze™ Natural Female Support Organic Total Body Cleanse Pecta-Sol® Potassium Iodide Prelox® Natural Sex for Men® Pyridoxamine Rosmarinic Acid Extract</td>
</tr>
</tbody>
</table>
### Buyers Club Order Form

#### To order call: 1.954.766.8433 or 1.800.544.4440

### B

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail</th>
<th>Member Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B01040</td>
<td>BELLY SLIM &amp; TONE - 6 fl oz</td>
<td>$42.00</td>
<td>$31.50</td>
<td></td>
</tr>
<tr>
<td>B01040</td>
<td>BELLY SLIM &amp; TONE - 4 bottles of 6 fl oz</td>
<td>152.00</td>
<td>114.00</td>
<td></td>
</tr>
<tr>
<td>B0020</td>
<td>BENEFITamide W/ THIAMINE - 100 mg, 120 caps</td>
<td>19.95</td>
<td>14.96</td>
<td></td>
</tr>
<tr>
<td>B0020</td>
<td>BENEFITamide W/ THIAMINE - 4 bottles of 120 caps</td>
<td>74.40</td>
<td>55.80</td>
<td></td>
</tr>
<tr>
<td>B0025</td>
<td>(MEGA) BENEFITamide - 250 mg, 120 veg caps</td>
<td>30.00</td>
<td>22.50</td>
<td></td>
</tr>
<tr>
<td>B0025</td>
<td>(MEGA) BENEFITamide - 4 bottles of 120 veg caps</td>
<td>108.00</td>
<td>81.00</td>
<td></td>
</tr>
<tr>
<td>B0106</td>
<td>BERRY COMPLETE - 30 veg caps</td>
<td>21.00</td>
<td>15.75</td>
<td></td>
</tr>
<tr>
<td>B0106</td>
<td>BERRY COMPLETE - 4 bottles of veg caps</td>
<td>74.68</td>
<td>56.00</td>
<td></td>
</tr>
<tr>
<td>B0146</td>
<td>(ENHANCED) BERRY COMPLETE w/RZD® Acai - 60 veg caps</td>
<td>29.00</td>
<td>21.75</td>
<td></td>
</tr>
<tr>
<td>B0146</td>
<td>(ENHANCED) BERRY COMPLETE w/RZD® Acai - 4 bottles of veg caps</td>
<td>104.00</td>
<td>78.00</td>
<td></td>
</tr>
<tr>
<td>B0064</td>
<td>BETA-CAROTENE - 25,000 IU, 100 softgels</td>
<td>10.98</td>
<td>8.24</td>
<td></td>
</tr>
<tr>
<td>B0064</td>
<td>BETA-CAROTENE - 4 bottles of 100 softgels</td>
<td>39.32</td>
<td>29.49</td>
<td></td>
</tr>
<tr>
<td>B0063</td>
<td>BETTERWOMAN - 40 caps</td>
<td>40.00</td>
<td>30.00</td>
<td></td>
</tr>
<tr>
<td>B0063</td>
<td>BETTERWOMAN - 4 bottles of 40 caps</td>
<td>152.00</td>
<td>114.00</td>
<td></td>
</tr>
<tr>
<td>B0047</td>
<td>BILBERRY EXTRACT - 100 mg, 100 caps</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
</tr>
<tr>
<td>B0047</td>
<td>BILBERRY EXTRACT - 4 bottles of 100 caps</td>
<td>100.00</td>
<td>75.00</td>
<td></td>
</tr>
<tr>
<td>B0106</td>
<td>BLOOD PRESSURE MONITOR-ARM CUFF</td>
<td>18.95</td>
<td>15.16</td>
<td></td>
</tr>
<tr>
<td>B0107</td>
<td>BLOOD PRESSURE MONITOR- WRIST (travel size)</td>
<td>29.99</td>
<td>23.99</td>
<td></td>
</tr>
<tr>
<td>B0102</td>
<td>BLOOD PRESSURE Monitor</td>
<td>7.50</td>
<td>5.63</td>
<td></td>
</tr>
<tr>
<td>B0102</td>
<td>BLOOD PRESSURE Monitor - 4 bottles of 100 caps</td>
<td>26.00</td>
<td>19.50</td>
<td></td>
</tr>
<tr>
<td>B0145</td>
<td>BONE STORE - 30 grams of powder</td>
<td>12.50</td>
<td>9.38</td>
<td></td>
</tr>
<tr>
<td>B0145</td>
<td>BONE STORE - 4 bottles of powder</td>
<td>44.00</td>
<td>33.00</td>
<td></td>
</tr>
<tr>
<td>B0137</td>
<td>BLACKCURRANT FREEZE DRIED EXTRACT - 60 veg caps</td>
<td>21.95</td>
<td>16.46</td>
<td></td>
</tr>
<tr>
<td>B0134</td>
<td>BLACKCURRANT JUICE CONCENTRATE - 12 fl oz</td>
<td>17.95</td>
<td>13.46</td>
<td></td>
</tr>
<tr>
<td>B0108</td>
<td>BLAST™ - 600 grams of powder</td>
<td>26.95</td>
<td>20.21</td>
<td></td>
</tr>
<tr>
<td>B7000</td>
<td>BLOOD PRESSURE MONITOR-ARM CUFF (medium)</td>
<td>99.95</td>
<td>64.97</td>
<td></td>
</tr>
<tr>
<td>B7001</td>
<td>BLOOD PRESSURE MONITOR- WRIST (travel size)</td>
<td>69.95</td>
<td>45.47</td>
<td></td>
</tr>
<tr>
<td>B0124</td>
<td>BLOOD PRESSURE Monitor</td>
<td>22.50</td>
<td>16.88</td>
<td></td>
</tr>
<tr>
<td>B0124</td>
<td>BLOOD PRESSURE Monitor - 4 bottles of 60 veg caps</td>
<td>80.00</td>
<td>60.00</td>
<td></td>
</tr>
<tr>
<td>B0081</td>
<td>BONE STORE - 150 caps</td>
<td>22.50</td>
<td>16.88</td>
<td></td>
</tr>
<tr>
<td>B0081</td>
<td>BONE STORE - 4 bottles of 150 caps</td>
<td>78.00</td>
<td>58.50</td>
<td></td>
</tr>
<tr>
<td>B0121</td>
<td>BONE STRENGTH FORMULA w/KOACT™ - 120 caps</td>
<td>42.00</td>
<td>31.50</td>
<td></td>
</tr>
<tr>
<td>B0121</td>
<td>BONE STRENGTH FORMULA w/KOACT™ - 4 bottles of 120 caps</td>
<td>152.00</td>
<td>114.00</td>
<td></td>
</tr>
<tr>
<td>B0033</td>
<td>BONE-UP® - 240 caps (hydroxyapatite complex)</td>
<td>24.95</td>
<td>18.71</td>
<td></td>
</tr>
<tr>
<td>B0033</td>
<td>BONE-UP® - 4 bottles of 240 caps</td>
<td>90.00</td>
<td>67.50</td>
<td></td>
</tr>
<tr>
<td>B0179</td>
<td>BOOSTER - 60 softgels</td>
<td>48.00</td>
<td>36.00</td>
<td></td>
</tr>
<tr>
<td>B0179</td>
<td>BOOSTER - 4 bottles of 60 softgels</td>
<td>176.00</td>
<td>132.00</td>
<td></td>
</tr>
<tr>
<td>B01380</td>
<td>(SUPER) BOOSTER w/ADVANCED K2 COMPLEX - 60 softgels</td>
<td>42.00</td>
<td>31.50</td>
<td></td>
</tr>
<tr>
<td>B01380</td>
<td>(SUPER) BOOSTER w/ADVANCED K2 COMPLEX - 4 bottles of 60 softgels</td>
<td>152.00</td>
<td>114.00</td>
<td></td>
</tr>
<tr>
<td>B0061</td>
<td>BORON CAPS - 5 mg, 100 caps</td>
<td>5.95</td>
<td>4.46</td>
<td></td>
</tr>
<tr>
<td>B0061</td>
<td>BORON CAPS - 4 bottles of 100 caps</td>
<td>21.00</td>
<td>15.75</td>
<td></td>
</tr>
<tr>
<td>B0022</td>
<td>BOSWELLA - 100 caps</td>
<td>38.00</td>
<td>28.50</td>
<td></td>
</tr>
<tr>
<td>B0022</td>
<td>BOSWELLA - 4 bottles of 100 caps</td>
<td>120.00</td>
<td>90.00</td>
<td></td>
</tr>
<tr>
<td>B0025</td>
<td>BOSWELLA TOPICAL Cream - 4 oz jar</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
</tr>
<tr>
<td>B0025</td>
<td>BOSWELLA TOPICAL Cream - 4 jars</td>
<td>52.00</td>
<td>39.00</td>
<td></td>
</tr>
<tr>
<td>B00253</td>
<td>BRANCHED CHAIN AMINO ACIDS - 90 caps</td>
<td>19.95</td>
<td>14.63</td>
<td></td>
</tr>
<tr>
<td>B00253</td>
<td>BRANCHED CHAIN AMINO ACIDS - 4 bottles of 90 caps</td>
<td>68.00</td>
<td>51.00</td>
<td></td>
</tr>
<tr>
<td>B0099</td>
<td>BREAST HEALTH FORMULA - 60 veg caps</td>
<td>34.00</td>
<td>25.50</td>
<td></td>
</tr>
<tr>
<td>B0099</td>
<td>BREAST HEALTH FORMULA - 4 bottles of 60 veg caps</td>
<td>120.00</td>
<td>90.00</td>
<td></td>
</tr>
<tr>
<td>B00893</td>
<td>BRITE EYES III - 2 vials, 5 ml each</td>
<td>34.00</td>
<td>25.50</td>
<td></td>
</tr>
<tr>
<td>B00893</td>
<td>BRITE EYES III - 4 boxes</td>
<td>128.00</td>
<td>96.00</td>
<td></td>
</tr>
</tbody>
</table>

* These products are not 25% off retail price.

---

### SUB-TOTAL OF COLUMN 1

### SUB-TOTAL OF COLUMN 2

---

**JULY 2010**

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Retail Price</th>
<th>Member Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01071</td>
<td>CHROMIUM ULTRA - 100 veg. caps</td>
<td>$24.00</td>
<td>$18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00551</td>
<td>CILANTRO HERBAL EXTRACT - 1 oz</td>
<td>$12.00</td>
<td>$9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01267</td>
<td>(ENHANCED) CINSULIN® w/GLUCOSE MGMT PROP BLEND - 90 veg. caps</td>
<td>$32.00</td>
<td>$24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00223</td>
<td>CITRICHROME - 90 caps</td>
<td>$22.95</td>
<td>$17.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00669</td>
<td>CITRUS BIOFLAVONOID - 100 caps</td>
<td>$15.99</td>
<td>$11.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00818</td>
<td>(SUPER) CLA BLEND w/GUARANA &amp; SESAME - 120 softgels</td>
<td>$42.00</td>
<td>$31.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00505</td>
<td>COD LIVER OIL - 12 fl oz (355 ml) (Emulsified)</td>
<td>$14.58</td>
<td>$10.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00110</td>
<td>COMPLETE B-COMPLEX - 180 caps</td>
<td>$21.50</td>
<td>$16.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01374</td>
<td>COMPREHENSIVE NUTRIENT PACK - 30-day supply</td>
<td>$189.00</td>
<td>$141.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00119</td>
<td>COPPER CAPSULES - 2 mg, 100 caps</td>
<td>$8.95</td>
<td>$6.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00206</td>
<td>(ENHANCED) COD10 (with Brewer’s Yeast) - 30 mg, 100 caps</td>
<td>$32.00</td>
<td>$24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00949</td>
<td>(SUPER ABSORBABLE) COQ10® w/d’LIMONENONE - 50 mg, 60 softgels</td>
<td>$25.00</td>
<td>$18.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00950</td>
<td>(SUPER ABSORBABLE) COQ10® w/d’LIMONENONE - 100 mg, 60 softgels</td>
<td>$60.00</td>
<td>$45.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01226</td>
<td>(SUPER UBIQUINOL) COD10 - 100 mg, 60 softgels</td>
<td>$56.00</td>
<td>$42.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01428</td>
<td>(SUPER UBIQUINOL) COD10 w/ENH MITCHONDRIAL SUPPORT** - 100 mg, 60 softgels</td>
<td>$62.00</td>
<td>$46.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01425</td>
<td>(SUPER UBIQUINOL) COD10 w/ENH MITCHONDRIAL SUPPORT** - 50 mg, 100 softgels</td>
<td>$58.00</td>
<td>$43.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** - 10 bt of 60 softgels

Sub-Total of Column 3: $744.00

Sub-Total of Column 4: $558.00
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Qty</th>
<th>Total</th>
<th>Member Price</th>
<th>Oty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01427</td>
<td>(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™</td>
<td>1</td>
<td>$20.00</td>
<td>$15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01053</td>
<td>CORDIUS SERRIS COLOR SUPER STRENGTH - 600 mg, 150 veg. caps</td>
<td>2</td>
<td>$99.95</td>
<td>74.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00857</td>
<td>COROMEGA CHILD BRAIN &amp; BODY - (Lemon Lime) 30 packets</td>
<td>1</td>
<td>$25.00</td>
<td>18.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00118</td>
<td>COSMESIS ANTI-AGING MASK - 2 oz bottle</td>
<td>1</td>
<td>$66.60</td>
<td>49.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00134</td>
<td>COSMESIS ANTI-GLYCATION SERUM - 1 oz bottle w/BYOBERRY &amp; POMGAGNATE EXTRACTS</td>
<td>1</td>
<td>$24.00</td>
<td>18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00133</td>
<td>COSMESIS ANTI-OXIDANT FACIAL MIST - 2 oz bottle</td>
<td>1</td>
<td>$29.95</td>
<td>22.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00132</td>
<td>COSMESIS ANTI-OXIDANT FACIAL MIST - 4 oz bottle</td>
<td>1</td>
<td>$39.95</td>
<td>29.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00127</td>
<td>COSMESIS ANTI-OXIDANT REJUVENATING FOOT CREAM - 2 oz jar</td>
<td>1</td>
<td>$39.95</td>
<td>29.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00128</td>
<td>COSMESIS ANTI-OXIDANT REJUVENATING FOOT SCRUB, 2 oz tube</td>
<td>1</td>
<td>$52.95</td>
<td>39.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00117</td>
<td>COSMESIS ANTI-OXIDANT REJUVENATING HAND CREAM - 2 oz</td>
<td>1</td>
<td>$59.00</td>
<td>44.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00121</td>
<td>COSMESIS ANTI-OXIDANT REJUVENATING HAND CREAM - 2-2 oz jars</td>
<td>1</td>
<td>$52.95</td>
<td>39.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00105</td>
<td>COSMESIS ANTI-REDNESS &amp; BLEMISH LOTION - 1 oz</td>
<td>1</td>
<td>$69.95</td>
<td>52.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00120</td>
<td>COSMESIS CORRECTIVE CLEARING MASK - 2 oz jar</td>
<td>1</td>
<td>$59.95</td>
<td>44.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00108</td>
<td>COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 oz</td>
<td>1</td>
<td>$71.60</td>
<td>53.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00123</td>
<td>COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 oz jar</td>
<td>1</td>
<td>$65.00</td>
<td>48.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00107</td>
<td>COSMESIS FINE LINE-LESS - 1 oz</td>
<td>1</td>
<td>$69.95</td>
<td>52.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00131</td>
<td>COSMESIS HAIR SUPPRESS FORMULA - 4 oz bottle</td>
<td>1</td>
<td>$53.75</td>
<td>40.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00115</td>
<td>COSMESIS HEALING MASK - 2 oz bottle</td>
<td>1</td>
<td>$59.95</td>
<td>44.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00109</td>
<td>COSMESIS HYALURONIC FACIAL MOISTURIZER - 1 oz</td>
<td>1</td>
<td>$52.95</td>
<td>39.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00110</td>
<td>COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 1 oz</td>
<td>1</td>
<td>$52.95</td>
<td>39.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00103</td>
<td>COSMESIS LIFTING &amp; TIGHTENING COMPLEX - 1 oz</td>
<td>1</td>
<td>$69.95</td>
<td>52.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00135</td>
<td>COSMESIS MELATONIN CREAM - 1 oz jar</td>
<td>1</td>
<td>$28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00114</td>
<td>COSMESIS MILD FACIAL CLEANSER - 8 oz</td>
<td>1</td>
<td>$52.95</td>
<td>39.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00122</td>
<td>COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2 oz jar</td>
<td>1</td>
<td>$59.00</td>
<td>44.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00119</td>
<td>COSMESIS PEEL OFF CLEANSING MASK - 2 oz bottle</td>
<td>1</td>
<td>$59.95</td>
<td>44.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00111</td>
<td>COSMESIS PIGMENT CORRECTING CREAM - 1/2 oz</td>
<td>1</td>
<td>$69.95</td>
<td>52.46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 5**

**SUB-TOTAL OF COLUMN 6**

---

**Life Extension Members Receive 25% Off the Retail Price of All Products**

---

**To order call: 1.954.766.8433 or 1.800.544.4440**

---

**July 2010**

---

**To order call: 1.954.766.8433 or 1.800.544.4440**

---

**Life Extension Members Receive 25% Off the Retail Price of All Products**
LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Price</th>
<th>Dly Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00607</td>
<td>DHEA - 25 mg dissociate in mouth 100 tablets pharmaceutical-grade</td>
<td>$14.00</td>
<td>$10.50</td>
<td>1</td>
</tr>
<tr>
<td>01250</td>
<td>DHEA COMPLETE - 60 veg. caps</td>
<td>48.00</td>
<td>36.00</td>
<td></td>
</tr>
<tr>
<td>00355</td>
<td>DHEA COMPLETE - 4 bottles of 60 veg. caps</td>
<td>172.80</td>
<td>129.60</td>
<td></td>
</tr>
<tr>
<td>00454</td>
<td>DHEA - 15 mg, 100 caps</td>
<td>12.00</td>
<td>9.00</td>
<td></td>
</tr>
<tr>
<td>00882</td>
<td>DHEA - 50 mg, 60 caps</td>
<td>16.00</td>
<td>12.00</td>
<td></td>
</tr>
<tr>
<td>00883</td>
<td>DHEA - 100 mg, 60 caps</td>
<td>22.50</td>
<td>16.88</td>
<td></td>
</tr>
<tr>
<td>01358</td>
<td>DIGEST RC - 30 tablets</td>
<td>19.95</td>
<td>14.96</td>
<td></td>
</tr>
<tr>
<td>01272</td>
<td>(ENHANCED SUPER) DIGESTIVE ENZYMES - 100 veg. caps</td>
<td>18.95</td>
<td>14.21</td>
<td></td>
</tr>
<tr>
<td>01273</td>
<td>(ENHANCED SUPER) DIGESTIVE ENZYMES w/PROBIOTICS - 100 veg. caps</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
</tr>
<tr>
<td><strong>01042</strong></td>
<td>(EUROPEAN LEG SOLUTION) DIOSMIN - 600 mg, 30 veg. tabs</td>
<td>20.00</td>
<td>15.00</td>
<td></td>
</tr>
<tr>
<td>00354</td>
<td>D,L-PHENYLALANINE CAPSULES - 500 mg, 100 caps</td>
<td>18.75</td>
<td>14.06</td>
<td></td>
</tr>
<tr>
<td>00257</td>
<td>DMAC BITRATRATE - 150 mg, 200 caps</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
</tr>
<tr>
<td>00022</td>
<td>DMAC POWDER (37% DMAE) - 100 grams of powder</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
</tr>
<tr>
<td>00197</td>
<td>DMAC-GINKGO CAPSULES - 100 caps</td>
<td>36.00</td>
<td>27.00</td>
<td></td>
</tr>
<tr>
<td>00059</td>
<td>DMG - 125 mg dimethylglycine, 60 tablets</td>
<td>18.50</td>
<td>13.88</td>
<td></td>
</tr>
<tr>
<td>01052</td>
<td>DNA PROTECTION FORMULA - 60 veg. caps</td>
<td>88.00</td>
<td>66.00</td>
<td></td>
</tr>
<tr>
<td>00321</td>
<td>DR. PROCTOR'S ADVANCED HAIR FORMULA - 2 oz</td>
<td>39.95</td>
<td>29.96</td>
<td></td>
</tr>
<tr>
<td>00320</td>
<td>DR. PROCTOR'S HAIR FORMULA SHAMPOO - 8 oz bottle</td>
<td>24.95</td>
<td>18.71</td>
<td></td>
</tr>
<tr>
<td>00376</td>
<td>DR. TUNG'S TONGUE CLEANER</td>
<td>4.85</td>
<td>3.64</td>
<td></td>
</tr>
<tr>
<td>00999</td>
<td>DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 2.4 net oz jar</td>
<td>39.95</td>
<td>29.96</td>
<td></td>
</tr>
<tr>
<td>00240</td>
<td>DUAL-C - 90 caps</td>
<td>12.00</td>
<td>9.00</td>
<td></td>
</tr>
<tr>
<td>00388</td>
<td>ECHINACEA - 250 mg, 60 caps</td>
<td>$14.35</td>
<td>$10.76</td>
<td></td>
</tr>
<tr>
<td>01024</td>
<td>EDTA - 500 mg, 100 caps</td>
<td>50.00</td>
<td>37.50</td>
<td></td>
</tr>
<tr>
<td>01403</td>
<td>ELIGEN® B12 - 100 mcg 30 veg tablets</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
</tr>
<tr>
<td>00448</td>
<td>[EMULSIFIED SUPER TWIN] EPA/DHA - 12 fl. oz.</td>
<td>22.45</td>
<td>16.84</td>
<td></td>
</tr>
<tr>
<td>00625</td>
<td>(META) EPA/DHA - 120 softgels</td>
<td>19.95</td>
<td>14.96</td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 7**

**SUB-TOTAL OF COLUMN 8**

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Price</th>
<th>Dly Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01054</td>
<td>LIFELONG RESIST FORMULA (NATTOKINASE) - 30 veg. caps</td>
<td>$199.00</td>
<td>$199.00</td>
<td></td>
</tr>
<tr>
<td>00873</td>
<td>FLAXSEED POWDER (HI-LIGNAN NUTRI-FLAX) - 16 oz powder</td>
<td>9.95</td>
<td>7.46</td>
<td></td>
</tr>
<tr>
<td>01200</td>
<td>FLORASTORY - 250 mg, 50 caps</td>
<td>55.15</td>
<td>41.36</td>
<td></td>
</tr>
<tr>
<td>01312</td>
<td>(OPTIMIZED) FOLATE (5-METHYLTYTRAHYDROFOLATE) - 100 veg. caps</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
</tr>
<tr>
<td>00347</td>
<td>FOLIC ACID + B12 CAPSULES - 200 caps</td>
<td>10.50</td>
<td>7.88</td>
<td></td>
</tr>
<tr>
<td>00300</td>
<td>FORSKOLIN - 10 mg, 60 caps of elemental forskolin</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
</tr>
<tr>
<td>00993</td>
<td>FUCOXANTHIN-SLIM™ - 90 softgels</td>
<td>44.00</td>
<td>33.00</td>
<td></td>
</tr>
<tr>
<td>00127</td>
<td>GABA POWDER - 100 grams of powder</td>
<td>$23.75</td>
<td>$17.81</td>
<td></td>
</tr>
<tr>
<td>00559</td>
<td>GAMMA E TOCOPHEROL/TOCOTRINOLS - 60 softgels</td>
<td>42.00</td>
<td>31.50</td>
<td></td>
</tr>
<tr>
<td>00759</td>
<td>GAMMA E TOCOPHEROL W/SESAME LIGNANS - 60 softgels</td>
<td>32.00</td>
<td>24.00</td>
<td></td>
</tr>
<tr>
<td>00612</td>
<td>GELATIN CAPSULES - Set of 1000 empty caps size “0”</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
</tr>
<tr>
<td>00117</td>
<td>GELATIN CAPSULES - 4 Sets</td>
<td>56.00</td>
<td>42.00</td>
<td></td>
</tr>
<tr>
<td>01301</td>
<td>GH PITTUITARY SUPPORT DAY FORMULA - 120 vegetarian tabs</td>
<td>48.00</td>
<td>36.00</td>
<td></td>
</tr>
<tr>
<td>01302</td>
<td>GH PITTUITARY SUPPORT NIGHT FORMULA - 120 veg. caps</td>
<td>176.00</td>
<td>132.00</td>
<td></td>
</tr>
<tr>
<td>00778</td>
<td>GINKGO BILOBA CERTIFIED EXTRACT™ - 120 mg, 365 caps</td>
<td>46.00</td>
<td>34.50</td>
<td></td>
</tr>
<tr>
<td>00504</td>
<td>(SUPER) GINKGO EXTRACT - 120 mg, 100 caps</td>
<td>29.00</td>
<td>21.75</td>
<td></td>
</tr>
</tbody>
</table>

* 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.
<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Price</th>
<th>Member Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01021</td>
<td>INTACT™ DIGEST - 8 fl oz</td>
<td>29.95</td>
<td>48.46</td>
<td></td>
</tr>
<tr>
<td>01292</td>
<td>INTEGRA-LEAN® IRVINGIA - 150 mg, 60 veg. caps</td>
<td>44.00</td>
<td>33.00</td>
<td></td>
</tr>
<tr>
<td>01002</td>
<td>IODOMAL - 180 caps</td>
<td>50.00</td>
<td>37.50</td>
<td></td>
</tr>
<tr>
<td>00583</td>
<td>IRON PROTEIN PLUS - 300 mg, 100 caps</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
</tr>
<tr>
<td>01492</td>
<td>(OPTIMIZED) IRVINGIA W/PHASE 3™ - 4 bottles of 100 veg. caps</td>
<td>64.00</td>
<td>48.00</td>
<td></td>
</tr>
<tr>
<td>J, K</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00556</td>
<td>JARRO-DOPHILUS EPS™ - 60 veg. caps</td>
<td>19.95</td>
<td>14.96</td>
<td></td>
</tr>
<tr>
<td>01224</td>
<td>(SUPER) K WITH ADVANCED K2 COMPLEX - 90 softgels</td>
<td>26.00</td>
<td>19.50</td>
<td></td>
</tr>
<tr>
<td>01050</td>
<td>NKO KRILL OIL - 60 softgels</td>
<td>33.95</td>
<td>25.46</td>
<td></td>
</tr>
<tr>
<td>00316</td>
<td>KYOLIC® GARLIC FORMULA 102 - 350 mg, 200 caps</td>
<td>23.95</td>
<td>17.96</td>
<td></td>
</tr>
<tr>
<td>00214</td>
<td>KYOLIC® GARLIC FORMULA 105 - 200 caps</td>
<td>22.95</td>
<td>17.21</td>
<td></td>
</tr>
<tr>
<td>00789</td>
<td>KYOLIC® RESERVE - 600 mg, 120 caps</td>
<td>24.75</td>
<td>18.56</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00138</td>
<td>HESPERRIDIN COMPLEX POWDER - 300 grams of powder</td>
<td>19.00</td>
<td>14.25</td>
<td></td>
</tr>
<tr>
<td>00867</td>
<td>HI-LIGNAN NUTRI-FLAX - 16 oz powder</td>
<td>9.95</td>
<td>7.46</td>
<td></td>
</tr>
<tr>
<td>00800</td>
<td>HOMOCYSTEINE RESIST - 100 caps</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
</tr>
<tr>
<td>01186</td>
<td>HODDIA GORDONII - 60 caps</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
</tr>
<tr>
<td>00267</td>
<td>HUPERZINE A W/NATURAL VITAMIN E - 50 mcg, 60 caps</td>
<td>27.95</td>
<td>20.96</td>
<td></td>
</tr>
<tr>
<td>00661</td>
<td>HYDRODERM® - 1 oz bottle</td>
<td>79.95</td>
<td>59.96</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HYDRODERM® - 2 - 1 oz bottles</td>
<td>130.66</td>
<td>98.00</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00513</td>
<td>LACTOFERRIN (APOLACTOFERRIN) CAPS - 300 mg, 60 caps</td>
<td>40.00</td>
<td>30.00</td>
<td></td>
</tr>
<tr>
<td>00017</td>
<td>LAVILIN UNDERARM DEODORANT - 12.5 grams of cream</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
</tr>
<tr>
<td>01003</td>
<td>LIFE EXTENSION CAT MIX - 100 grams of powder</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
</tr>
<tr>
<td>00544</td>
<td>LIFE EXTENSION DOG MIX - 100 grams of powder</td>
<td>19.50</td>
<td>14.63</td>
<td></td>
</tr>
<tr>
<td>00010</td>
<td>LIFE EXTENSION HAIR CONDITIONER - 16 oz bottle</td>
<td>6.00</td>
<td>4.50</td>
<td></td>
</tr>
<tr>
<td>00105</td>
<td>LIFE EXTENSION HAIR CONDITIONER - 4 bottles</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
</tr>
<tr>
<td>00020</td>
<td>LIFE EXTENSION LECITHIN GRANULES - 16 oz. jar</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
</tr>
<tr>
<td>00019</td>
<td>LIFE EXTENSION LECITHIN w/B5 AND BHA - 16 oz. jar</td>
<td>50.00</td>
<td>37.50</td>
<td></td>
</tr>
<tr>
<td>00445</td>
<td>LIFE EXTENSION MIX™ - 315 tablets</td>
<td>98.00</td>
<td>73.50</td>
<td></td>
</tr>
<tr>
<td>00455</td>
<td>LIFE EXTENSION MIX™ - 4 bottles of 315 tablets</td>
<td>344.00</td>
<td>258.00</td>
<td></td>
</tr>
<tr>
<td>00456</td>
<td>LIFE EXTENSION MIX™ - 10 bottles of 315 tablets</td>
<td>695.00</td>
<td>521.25</td>
<td></td>
</tr>
<tr>
<td>00457</td>
<td>LIFE EXTENSION MIX™ w/EXTRA NIACIN - 315 tablets</td>
<td>98.00</td>
<td>73.50</td>
<td></td>
</tr>
<tr>
<td>00458</td>
<td>LIFE EXTENSION MIX™ w/EXTRA NIACIN - 4 bottles of 315 tablets</td>
<td>344.00</td>
<td>258.00</td>
<td></td>
</tr>
<tr>
<td>00459</td>
<td>LIFE EXTENSION MIX™ w/EXTRA NIACIN - 10 bottles of 315 tablets</td>
<td>695.00</td>
<td>521.25</td>
<td></td>
</tr>
<tr>
<td>00445</td>
<td>LIFE EXTENSION MIX™ - 490 caps</td>
<td>110.00</td>
<td>82.50</td>
<td></td>
</tr>
<tr>
<td>00456</td>
<td>LIFE EXTENSION MIX™ - 4 bottles of 490 caps</td>
<td>392.00</td>
<td>294.00</td>
<td></td>
</tr>
<tr>
<td>00457</td>
<td>LIFE EXTENSION MIX™ - 10 bottles of 490 caps</td>
<td>850.00</td>
<td>637.50</td>
<td></td>
</tr>
<tr>
<td>00458</td>
<td>LIFE EXTENSION MIX™ POWDER - 14.81 oz of powder</td>
<td>98.00</td>
<td>73.50</td>
<td></td>
</tr>
<tr>
<td>00459</td>
<td>LIFE EXTENSION MIX™ POWDER - 4 bottles of powder</td>
<td>344.00</td>
<td>258.00</td>
<td></td>
</tr>
<tr>
<td>00460</td>
<td>LIFE EXTENSION MIX™ POWDER - 10 bottles of powder</td>
<td>720.00</td>
<td>540.00</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Description</td>
<td>Retail</td>
<td>Member Price</td>
<td>Qty</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------</td>
<td>--------------</td>
<td>-----</td>
</tr>
<tr>
<td>01465</td>
<td>LIFE EXTENSION MIX™ - 315 tablets without copper</td>
<td>$98.00</td>
<td>$73.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION MIX™ - 4 bottles of 315 tablets without copper</td>
<td>$344.00</td>
<td>$258.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION MIX™ - 10 bottles of 315 tablets without copper</td>
<td>$695.00</td>
<td>$521.25</td>
<td></td>
</tr>
<tr>
<td>01467</td>
<td>LIFE EXTENSION MIX™/EXTRA NIACIN 315 tablets w/o copper</td>
<td>$98.00</td>
<td>$73.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION MIX™/EXTRA NIACIN 4 bottles of 315 tablets w/o copper</td>
<td>$344.00</td>
<td>$258.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION MIX™/EXTRA NIACIN 10 bottles of 315 tablets w/o copper</td>
<td>$695.00</td>
<td>$521.25</td>
<td></td>
</tr>
<tr>
<td>01464</td>
<td>LIFE EXTENSION MIX™ - 490 caps without copper</td>
<td>$110.00</td>
<td>$82.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION MIX™ - 4 bottles of 490 caps without copper</td>
<td>$392.00</td>
<td>$294.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION MIX™ - 10 bottles of 490 caps without copper</td>
<td>$850.00</td>
<td>$637.50</td>
<td></td>
</tr>
<tr>
<td>01466</td>
<td>LIFE EXTENSION MIX™ POWDER - 14.81 oz of powder without copper</td>
<td>$98.00</td>
<td>$73.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION MIX™ POWDER - 4 bottles of powder without copper</td>
<td>$344.00</td>
<td>$258.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION MIX™ POWDER - 10 bottles of powder without copper</td>
<td>$720.00</td>
<td>$540.00</td>
<td></td>
</tr>
<tr>
<td>01279</td>
<td>LIFE EXTENSION MOUTHWASH w/POMEGRANATE - 16 oz bottle</td>
<td>$18.50</td>
<td>$13.88</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION MOUTHWASH w/POMEGRANATE - 4 - 16 oz bottle</td>
<td>$68.00</td>
<td>$51.00</td>
<td></td>
</tr>
<tr>
<td>01401</td>
<td>LIFE EXTENSION ONE-PER-DAY - 60 veg. tablets</td>
<td>$19.95</td>
<td>$14.96</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION ONE-PER-DAY - 4 bottles of 60 veg. tablets</td>
<td>$72.00</td>
<td>$54.00</td>
<td></td>
</tr>
<tr>
<td>00011</td>
<td>LIFE EXTENSION SHAMPOO - 16 oz bottle</td>
<td>$6.00</td>
<td>$4.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION SHAMPOO - 4 bottles</td>
<td>$19.00</td>
<td>$14.25</td>
<td></td>
</tr>
<tr>
<td>01278</td>
<td>LIFE EXTENSION TOOTHPASTE MINT FLAVOR - 4 oz</td>
<td>$9.50</td>
<td>$7.13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION TOOTHPASTE MINT FLAVOR - 4, 4 oz tubes</td>
<td>$34.68</td>
<td>$26.00</td>
<td></td>
</tr>
<tr>
<td>01416</td>
<td>LIFE EXTENSION TWO-PER-DAY - 60 veg. tablets</td>
<td>$9.95</td>
<td>$7.46</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION TWO-PER-DAY - 4 bottles of 60 veg. tablets</td>
<td>$36.00</td>
<td>$27.00</td>
<td></td>
</tr>
<tr>
<td>01415</td>
<td>LIFE EXTENSION TWO-PER-DAY - 120 veg. tablets</td>
<td>$18.95</td>
<td>$14.21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE EXTENSION TWO-PER-DAY - 4 bottles of 120 veg. tablets</td>
<td>$68.00</td>
<td>$51.00</td>
<td></td>
</tr>
<tr>
<td>00263</td>
<td>LIFE FLORA™ - 300 mg, 120 caps</td>
<td>$20.50</td>
<td>$15.38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE FLORA™ - 4 bottles of 120 caps</td>
<td>$75.00</td>
<td>$56.25</td>
<td></td>
</tr>
<tr>
<td>00032</td>
<td>LIFE MIX - 1 lb can of powder</td>
<td>$25.00</td>
<td>$18.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIFE MIX - 4 cans of powder</td>
<td>$90.00</td>
<td>$67.50</td>
<td></td>
</tr>
<tr>
<td>00294</td>
<td>LIQUID EMULSIFIED VITAMIN A DROPS - 20,000 IU per drop</td>
<td>$27.00</td>
<td>$20.25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIQUID EMULSIFIED VITAMIN A DROPS - 4 bottles</td>
<td>$96.00</td>
<td>$72.00</td>
<td></td>
</tr>
<tr>
<td>00939</td>
<td>S-LOXIN™ - 75 mg, 100 veg. caps</td>
<td>$19.50</td>
<td>$14.63</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S-LOXIN™ - 4 bottles of 100 veg. caps</td>
<td>$69.00</td>
<td>$51.75</td>
<td></td>
</tr>
<tr>
<td>01013</td>
<td>L-LYSINE CAPSULES - 620 mg, 100 caps</td>
<td>$9.00</td>
<td>$6.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L-LYSINE CAPSULES - 4 bottles of 100 caps</td>
<td>$32.00</td>
<td>$24.00</td>
<td></td>
</tr>
<tr>
<td>01029</td>
<td>L-LYSINE POWDER - 300 grams of powder</td>
<td>$16.00</td>
<td>$12.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L-LYSINE POWDER - 4 bottles of powder</td>
<td>$55.00</td>
<td>$41.25</td>
<td></td>
</tr>
<tr>
<td>01017</td>
<td>LUSTRE™ - 90 tablets</td>
<td>$17.50</td>
<td>$13.13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LUSTRE™ - 4 bottles of 90 tablets</td>
<td>$62.00</td>
<td>$46.50</td>
<td></td>
</tr>
<tr>
<td>01028</td>
<td>LycOPENe - 10 mg, 60 softgels</td>
<td>$24.98</td>
<td>$18.74</td>
<td></td>
</tr>
<tr>
<td>00455</td>
<td>(MEGA) LycOPENe EXTRACT - 15 mg, 90 softgels</td>
<td>$35.00</td>
<td>$26.25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(MEGA) LycOPENe EXTRACT - 4 bottles of 90 softgels</td>
<td>$120.00</td>
<td>$90.00</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>01444 MAGNESIUM CAPS - 500 mg, 100 caps</td>
<td>$39.50</td>
<td>$7.13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MAGNESIUM CAPS - 4 bottles of 100 caps</td>
<td>$32.00</td>
<td>$24.00</td>
<td></td>
</tr>
<tr>
<td>00502</td>
<td>MAGNESIUM CITRATE CAPS - 160 mg, 100 caps</td>
<td>$9.00</td>
<td>$6.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MAGNESIUM CITRATE CAPS - 4 bottles of 100 caps</td>
<td>$30.00</td>
<td>$22.50</td>
<td></td>
</tr>
<tr>
<td>00704</td>
<td>MITAKE™ SX-FRACTION - 90 veg. tablets</td>
<td>$49.95</td>
<td>$37.46</td>
<td></td>
</tr>
<tr>
<td>00547</td>
<td>MELATONIN - 300 mcg, 100 caps</td>
<td>$5.75</td>
<td>$4.31</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MELATONIN - 4 bottles of 100 caps</td>
<td>$20.00</td>
<td>$15.00</td>
<td></td>
</tr>
<tr>
<td>00328</td>
<td>MELATONIN CAPSULES - 500 mcg, 200 caps</td>
<td>$16.00</td>
<td>$12.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MELATONIN CAPSULES - 4 bottles of 200 caps</td>
<td>$56.00</td>
<td>$42.00</td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 11**

**SUB-TOTAL OF COLUMN 12**
## Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

### Sub-Total of Column 13

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail</th>
<th>Member Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00010</td>
<td>$17.99</td>
<td>$13.49</td>
<td>100</td>
<td>1,349</td>
</tr>
<tr>
<td>01004</td>
<td>62.96</td>
<td>47.22</td>
<td>100</td>
<td>4,722</td>
</tr>
<tr>
<td>01483</td>
<td>18.00</td>
<td>13.50</td>
<td>100</td>
<td>1,350</td>
</tr>
<tr>
<td>01482</td>
<td>64.00</td>
<td>48.00</td>
<td>100</td>
<td>4,800</td>
</tr>
<tr>
<td>01484</td>
<td>112.00</td>
<td>84.00</td>
<td>100</td>
<td>8,400</td>
</tr>
<tr>
<td>00717</td>
<td>15.00</td>
<td>11.25</td>
<td>100</td>
<td>1,125</td>
</tr>
<tr>
<td>00915</td>
<td>5.95</td>
<td>4.46</td>
<td>100</td>
<td>446</td>
</tr>
<tr>
<td>01070</td>
<td>34.99</td>
<td>26.24</td>
<td>100</td>
<td>2,624</td>
</tr>
<tr>
<td>00043</td>
<td>24.95</td>
<td>18.71</td>
<td>100</td>
<td>1,871</td>
</tr>
<tr>
<td>00010</td>
<td>13.99</td>
<td>10.49</td>
<td>100</td>
<td>1,049</td>
</tr>
<tr>
<td>00073</td>
<td>11.99</td>
<td>8.99</td>
<td>100</td>
<td>899</td>
</tr>
</tbody>
</table>

### Sub-Total of Column 14

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail</th>
<th>Member Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00023</td>
<td>$29.00</td>
<td>$44.25</td>
<td>60</td>
<td>2,655</td>
</tr>
<tr>
<td>00342</td>
<td>99.95</td>
<td>74.96</td>
<td>4</td>
<td>299.8</td>
</tr>
<tr>
<td>00872</td>
<td>232.80</td>
<td>172.10</td>
<td>4</td>
<td>688.4</td>
</tr>
<tr>
<td>00673</td>
<td>34.95</td>
<td>26.21</td>
<td>180</td>
<td>4,713</td>
</tr>
<tr>
<td>00865</td>
<td>29.95</td>
<td>22.46</td>
<td>60</td>
<td>1,347</td>
</tr>
<tr>
<td>00388</td>
<td>54.00</td>
<td>40.50</td>
<td>100</td>
<td>4,050</td>
</tr>
<tr>
<td>01050</td>
<td>33.95</td>
<td>25.46</td>
<td>60</td>
<td>1,527</td>
</tr>
<tr>
<td>01016</td>
<td>46.00</td>
<td>34.50</td>
<td>80</td>
<td>3,520</td>
</tr>
<tr>
<td>00614</td>
<td>11.95</td>
<td>8.96</td>
<td>14</td>
<td>125.4</td>
</tr>
<tr>
<td>00561</td>
<td>24.00</td>
<td>18.00</td>
<td>60</td>
<td>1,080</td>
</tr>
<tr>
<td>00596</td>
<td>108.00</td>
<td>81.00</td>
<td>60</td>
<td>4,860</td>
</tr>
<tr>
<td>01423</td>
<td>24.00</td>
<td>18.00</td>
<td>30</td>
<td>540</td>
</tr>
<tr>
<td>00096</td>
<td>84.00</td>
<td>63.00</td>
<td>30</td>
<td>990</td>
</tr>
<tr>
<td>00374</td>
<td>19.50</td>
<td>14.63</td>
<td>180</td>
<td>2,632</td>
</tr>
<tr>
<td>00373</td>
<td>29.95</td>
<td>22.46</td>
<td>100</td>
<td>2,246</td>
</tr>
<tr>
<td>00096</td>
<td>76.00</td>
<td>57.00</td>
<td>100</td>
<td>5,700</td>
</tr>
<tr>
<td>01373</td>
<td>90.00</td>
<td>67.50</td>
<td>100</td>
<td>6,750</td>
</tr>
<tr>
<td>00302</td>
<td>24.00</td>
<td>18.00</td>
<td>50</td>
<td>900</td>
</tr>
<tr>
<td>00700</td>
<td>26.00</td>
<td>19.50</td>
<td>100</td>
<td>1,950</td>
</tr>
<tr>
<td>00395</td>
<td>90.00</td>
<td>67.50</td>
<td>100</td>
<td>6,750</td>
</tr>
<tr>
<td>00374</td>
<td>28.00</td>
<td>21.00</td>
<td>14</td>
<td>286</td>
</tr>
<tr>
<td>00525</td>
<td>72.00</td>
<td>54.00</td>
<td>50</td>
<td>2,700</td>
</tr>
<tr>
<td>01019</td>
<td>194.00</td>
<td>145.50</td>
<td>90</td>
<td>8,095</td>
</tr>
<tr>
<td>00689</td>
<td>26.00</td>
<td>19.50</td>
<td>100</td>
<td>1,950</td>
</tr>
<tr>
<td>00396</td>
<td>28.00</td>
<td>21.00</td>
<td>200</td>
<td>4,200</td>
</tr>
<tr>
<td>00010</td>
<td>104.00</td>
<td>78.00</td>
<td>100</td>
<td>7,800</td>
</tr>
<tr>
<td>00388</td>
<td>38.00</td>
<td>28.50</td>
<td>100</td>
<td>2,850</td>
</tr>
<tr>
<td>01092</td>
<td>140.00</td>
<td>105.00</td>
<td>100</td>
<td>10,500</td>
</tr>
<tr>
<td>01093</td>
<td>38.00</td>
<td>28.50</td>
<td>100</td>
<td>2,850</td>
</tr>
<tr>
<td>00010</td>
<td>144.00</td>
<td>108.00</td>
<td>100</td>
<td>10,800</td>
</tr>
<tr>
<td>01094</td>
<td>144.00</td>
<td>108.00</td>
<td>100</td>
<td>10,800</td>
</tr>
</tbody>
</table>

### Notes
- Product cannot be sold outside the USA.

---

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

---

**Sub-Total of Column 13**: $194,996.00

**Sub-Total of Column 14**: $26,370.00
LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Retail Price</th>
<th>Member Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00105</td>
<td>RED YEAST RICE (Bluebonnet) - 600 mg, 60 veg. caps</td>
<td>16.95</td>
<td>12.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00079</td>
<td>RED YEAST RICE (Nature’s Plus)- 600 mg, 60 veg. caps</td>
<td>23.20</td>
<td>17.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00060</td>
<td>RED YEAST RICE EXTENDED RELEASE (Nature’s Plus)- 30 veg. tablets</td>
<td>20.55</td>
<td>15.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00065</td>
<td>REGIMINT** - 60 enteric-coated caps</td>
<td>19.95</td>
<td>15.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00048</td>
<td>REJUVENEX® BODY LOTION - 6 oz tube</td>
<td>24.00</td>
<td>19.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00047</td>
<td>REJUVENEX® BODY LOTION - 4 tubes</td>
<td>79.20</td>
<td>63.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01200</td>
<td>(ULTRA) REJUVENEX® - 2 oz jar</td>
<td>52.00</td>
<td>41.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01190</td>
<td>(ULTRA) REJUVENEX® - 2 oz jar</td>
<td>52.00</td>
<td>41.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00676</td>
<td>(ULTRA) REJUVENIGHT (DREAM CREAM) - 2 oz jar</td>
<td>39.95</td>
<td>31.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00706</td>
<td>(ULTRA) REJUVENIGHT (DREAM CREAM) - 4 oz jar</td>
<td>14.40</td>
<td>11.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01413</td>
<td>RESVERATROL w/PTEROSTILBENE - 20 mg, 60 veg. caps</td>
<td>24.00</td>
<td>19.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01410</td>
<td>RESVERATROL w/PTEROSTILBENE - 100 mg, 60 veg. caps</td>
<td>36.00</td>
<td>28.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01430</td>
<td>(OPTIMIZED) RESVERATROL w/SYNERGISTIC GRAPE-BERRY ACTIVES - 250 mg, 60 veg. caps</td>
<td>46.00</td>
<td>36.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00889</td>
<td>RHODIOLLA EXTRACT - 250 mg, 60 veg. caps</td>
<td>11.75</td>
<td>9.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00972</td>
<td>(D) RIBOSE POWDER - 150 grams of powder</td>
<td>27.50</td>
<td>22.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00973</td>
<td>(D) RIBOSE CAPS - 120 veg. caps</td>
<td>32.00</td>
<td>25.60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** These products are not 25% off retail price.
Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Retail</th>
<th>Member Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00971</td>
<td>SUN PROTECTION SPRAY W/ BETA GLUCAN - SPF30 - 6 oz bottle</td>
<td>$14.95</td>
<td>$11.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00747</td>
<td>OVERCAST POLARIZED SUNGLASSES - gray color, large</td>
<td>$27.00</td>
<td>$20.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00748</td>
<td>OVERCAST POLARIZED SUNGLASSES - 2 pairs, gray color</td>
<td>$42.00</td>
<td>$31.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00758</td>
<td>SUPER ABSORBABLE SOY ISOFлавONES - 60 caps</td>
<td>$28.00</td>
<td>$21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01406</td>
<td>TRIPLE ACTION UNDER EYE REJUVENATOR - 0.5 oz pump</td>
<td>$24.00</td>
<td>$18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00866</td>
<td>TRYPTOPURE® - L-TRYPTOPHAN - 500 mg, 90 veg. caps</td>
<td>$38.00</td>
<td>$28.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01202</td>
<td>(OPTIMIZED) TRYPTOPURE® PLUS - 90 veg. caps</td>
<td>$40.00</td>
<td>$30.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00326</td>
<td>L-TYROSINE TABLETS - 500 mg, 100 tablets</td>
<td>$12.50</td>
<td>$9.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>L-TYROSINE TABLETS - 4 bottles of 100 tablets</td>
<td>$45.68</td>
<td>$34.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01062</td>
<td>TART CHERRY (FRUIT ADVANTAGE) - 600 mg, 60 caps</td>
<td>$18.95</td>
<td>$14.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00199</td>
<td>TAURINE CAPSULES - 1000 mg, 50 caps</td>
<td>$8.95</td>
<td>$6.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00133</td>
<td>TAURINE POWDER - 100 grams, powder</td>
<td>$32.00</td>
<td>$24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01304</td>
<td>THEAFLAVIN STANDARDIZED EXTRACT - 30 veg. caps</td>
<td>$18.00</td>
<td>$13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00555</td>
<td>(L) THEAINE - 100 mg, 60 caps</td>
<td>$24.00</td>
<td>$18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(L) THEAINE - 4 bottles of 60 caps</td>
<td>$82.00</td>
<td>$61.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>01038</strong></td>
<td>THERALAC - 30 caps</td>
<td>$44.95</td>
<td>$33.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00224</td>
<td>THYMIC IMMUNE FACTORS - 100 caps</td>
<td>$18.00</td>
<td>$13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00688</td>
<td>(METABOLIC ADVANTAGE) THYROID FORMULA - 100 caps</td>
<td>$17.95</td>
<td>$13.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00349</td>
<td>TMG - 50 grams of powder</td>
<td>$14.00</td>
<td>$10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TMG - 4 bottles of powder</td>
<td>$44.00</td>
<td>$33.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00359</td>
<td>TMG TABLETS - 500 mg, 180 tablets</td>
<td>$18.00</td>
<td>$13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00366</td>
<td>TOCOTrienOLs - 50 mg, 60 softgel caps</td>
<td>$39.95</td>
<td>$29.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOCOTrienOLs - 4 bottles of 60 softgel caps</td>
<td>$144.00</td>
<td>$108.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00781</td>
<td>TOCOTrienOLs WITH SESAME LIGNANS - 60 softgel caps</td>
<td>$38.00</td>
<td>$28.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOCOTrienOLs WITH SESAME LIGNANS - 4 bottles of 60 softgel caps</td>
<td>$144.00</td>
<td>$108.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01400</td>
<td>(SUPER-ABSORBABLE) TOCOTrienOLs - 60 softgel caps</td>
<td>$30.00</td>
<td>$22.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(SUPER-ABSORBABLE) TOCOTrienOLs - 4 bottles of 60 softgel caps</td>
<td>$112.00</td>
<td>$84.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01274</td>
<td>TOTAL SUN PROTECTION CREAM W/ METAGLUCANS - SPF 30, 4 oz Tube &amp; PHOTO-AGING RECOVERY COMPLEX</td>
<td>$28.00</td>
<td>$21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01468</td>
<td>TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT - 60 veg. caps</td>
<td>$24.00</td>
<td>$18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT - 4 bottle 60 veg. caps</td>
<td>$88.00</td>
<td>$66.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* These products are not 25% off retail price.
** Due to license restrictions, this product is not for sale to Canada.

SUB-TOTAL OF COLUMN 17

SUB-TOTAL OF COLUMN 18
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Qty</th>
<th>Retail Price</th>
<th>Member Price</th>
<th>Oty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0084</td>
<td>(BUFFERED) Vitamin C Powder - 454.6 grams of powder</td>
<td></td>
<td>$23.95</td>
<td>$17.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0084</td>
<td>(BUFFERED) Vitamin C Powder - 4 bottles of powder</td>
<td></td>
<td>88.00</td>
<td>66.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0064</td>
<td>Vitamin D - 2000 IU, 1 fl oz</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin D - 4 bottles of 1 fl oz</td>
<td>100.00</td>
<td>75.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0251</td>
<td>Vitamin D3 Caps - 1000 IU, 250 caps</td>
<td>12.50</td>
<td>9.38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin D3 Caps - 4 bottles of 250 caps</td>
<td>45.00</td>
<td>33.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00713</td>
<td>Vitamin D3 Caps - 5000 IU, 60 caps</td>
<td>11.00</td>
<td>8.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin D3 Caps - 4 bottles of 60 caps</td>
<td>39.60</td>
<td>29.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01418</td>
<td>Vitamin D3 Caps - 7000 IU, 60 caps</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin D3 Caps - 4 bottles of 60 caps</td>
<td>50.40</td>
<td>37.80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01371</td>
<td>Vitamin D3 w/SEA-IODINE - 1000 IU, 250 veg. caps</td>
<td>22.00</td>
<td>16.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin D3 w/SEA-IODINE - 4 bottles of 250 veg. caps</td>
<td>80.00</td>
<td>60.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01372</td>
<td>Vitamin D3 w/SEA-IODINE - 5000 IU, 60 veg. caps</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin D3 w/SEA-IODINE - 4 bottles of 60 veg. caps</td>
<td>50.00</td>
<td>37.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0063</td>
<td>Vitamin E Caps (Natural) - 400 IU, 100 caps</td>
<td>18.75</td>
<td>14.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin E Caps (Natural) - 4 bottles of 100 caps</td>
<td>69.00</td>
<td>51.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin E Caps (Natural) - 10 bottles of 100 caps</td>
<td>150.00</td>
<td>112.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0062</td>
<td>Vitamin E Powder (Synthetic) - 300 grams of powder</td>
<td>28.95</td>
<td>21.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vitamin E Powder (Synthetic) - 4 bottles of powder</td>
<td>100.00</td>
<td>75.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01225</td>
<td>(LOW-DOSE) Vitamin K2 (MK-7) - 45 mcg, 90 softgels</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(LOW-DOSE) Vitamin K2 (MK-7) - 4 bottles of 90 softgels</td>
<td>64.00</td>
<td>48.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z</td>
<td>(SUPER) Zeaxanthin W/Lutein &amp; Meso-Zeaxanthin - 60 softgels</td>
<td>22.00</td>
<td>$16.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(SUPER) Zeaxanthin W/Lutein &amp; Meso-Zeaxanthin - 4 bottles</td>
<td>79.20</td>
<td>59.40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01286</td>
<td>(SUPER) Zeaxanthin W/Lutein &amp; Meso-Zeaxanthin - 60 softgels</td>
<td>42.00</td>
<td>31.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PLUS Astaxanthin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(SUPER) Zeaxanthin W/Lutein &amp; Meso-Zeaxanthin</td>
<td>152.00</td>
<td>114.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PLUS Astaxanthin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0061</td>
<td>Zinc Lozenges with Vitamin C - 75 lozenges</td>
<td>9.50</td>
<td>7.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zinc Lozenges with Vitamin C - 4 bottles of 75 lozenges</td>
<td>27.00</td>
<td>20.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01051</td>
<td>Zyflamend - 120 softgels</td>
<td>60.95</td>
<td>45.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01029</td>
<td>Zyflamend Easycaps - 180 caps</td>
<td>31.95</td>
<td>23.96</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 19**
### ORDER SUBTOTALS

<table>
<thead>
<tr>
<th>Column</th>
<th>Sub-Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

### ORDER TOTALS

Sub-Total A (Sub-total of Columns 1 through 19) $5.50

Postage And Handling (Any size order, continental U.S.) $5.50

C.O.D.s (Add $7 for C.O.D. orders)

Shipping

**GRAND TOTAL** (Must be in U.S. dollars)

### BILL TO ADDRESS

<table>
<thead>
<tr>
<th>Name</th>
<th>E-MAIL</th>
</tr>
</thead>
</table>

| Address | |

| City/State/Zip-Postal Code | Country |

| Phone | Fax |

| Visa/MasterCard/American Express/Discover # | |

| Exp. Date | |

| Signature | |

### SHIP TO ADDRESS

<table>
<thead>
<tr>
<th>Name</th>
<th>E-MAIL</th>
</tr>
</thead>
</table>

| Address | |

| City/State/Zip-Postal Code | Country |

| Phone | Fax |

| Signature | |

**PRICES SUBJECT TO CHANGE WITHOUT NOTICE. PLEASE NOTIFY THE LIFE EXTENSION FOUNDATION® OF ANY ADDRESS CHANGE**
**LIFE EXTENSION MEDIA**

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Title</th>
<th>Retail</th>
<th>Member Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>33921</td>
<td><em>Weight Loss Guide</em> by Steven V. Joyal, MD and William Faloon</td>
<td>2010 $29.95</td>
<td>$22.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33920</td>
<td><em>Your Blood Doesn’t Lie!</em> by Sergey Ozogin, MD, PhD</td>
<td>2010 $24.95</td>
<td>$17.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33919</td>
<td><em>Brain Surgeon</em> by Keith Black, MD</td>
<td>2010 $24.95</td>
<td>$18.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33916</td>
<td><em>FDA, Failure, Deception, Abuse</em> by Life Extension Foundation</td>
<td>2010 $20.99</td>
<td>$15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33818</td>
<td><em>Stay Young &amp; Sexy with Bio-Identical Hormone Replacement</em> by Jonathan Wright, MD</td>
<td>2010 $19.95</td>
<td>$14.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33815</td>
<td><em>Knockout</em> by Suzanne Somers</td>
<td>2009 $25.99</td>
<td>$17.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33814</td>
<td><em>Cheating Death</em> by Sanjay Gupta, MD</td>
<td>2009 $24.98</td>
<td>$17.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33813</td>
<td><em>Timership</em> by Stephen Valentine</td>
<td>2009 $45.00</td>
<td>$33.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33812</td>
<td><em>Life Over Cancer</em> by Keith Block, MD (hardcover)</td>
<td>2009 $25.00</td>
<td>$17.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33800</td>
<td><em>Textbook of Bio-Identical Hormones</em> by Edward Lichten, MD</td>
<td>2007 $49.95</td>
<td>$37.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33811</td>
<td><em>The Great American Heart Hoax</em> by Michael Fomer, MD, FACC, FAHA</td>
<td>2009 $24.95</td>
<td>$17.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33810</td>
<td><em>The Ultramind Solution</em> by Mark Hyman, MD</td>
<td>2009 $27.50</td>
<td>$19.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33809</td>
<td><em>Testosterone for Life</em> by Abraham Morgentaler, MD</td>
<td>2008 $16.95</td>
<td>$11.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33808</td>
<td><em>Breakthrough: Eight Steps to Wellness</em> by Suzanne Somers</td>
<td>2008 $25.95</td>
<td>$18.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33599</td>
<td><em>Younger You</em> by Eric Braverman, MD</td>
<td>—— $24.95</td>
<td>$15.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33598</td>
<td><em>Ageless</em> by Suzanne Somers</td>
<td>2006 $25.00</td>
<td>$17.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33666</td>
<td><em>Ultrametabolism: The Simple Plan for Automatic Weight Loss</em> by Mark Hyman, MD</td>
<td>2006 $25.00</td>
<td>$15.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33422</td>
<td><em>Brain Longevity</em> by Dharma Singh Khalsa, MD, with Cameron Stauth</td>
<td>1997 $14.95</td>
<td>$11.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33017</td>
<td><em>Cancer Therapy</em> by Ralph W. Moss, PhD</td>
<td>1995 $19.95</td>
<td>$15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33677</td>
<td><em>Dangerous Doses</em> by Katherine Eban</td>
<td>2005 $25.00</td>
<td>$16.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33600</td>
<td><em>Disease Prevention and Treatment, Expanded Fourth Edition</em> (hardcover)</td>
<td>2003 $49.95</td>
<td>$37.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33594</td>
<td><em>The Edge Effect</em> by Eric Braverman, MD (paperback)</td>
<td>2004 $12.95</td>
<td>$9.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33700</td>
<td><em>Ending Aging</em> by Aubrey DeGrey with Michael Rae</td>
<td>2007 $28.94</td>
<td>$17.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33488</td>
<td><em>Female and Forgetful</em> by Eliza Litter, MD, PhD, and Nancy P. Bruning</td>
<td>2002 $18.99</td>
<td>$14.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33557</td>
<td><em>Forever Ageless</em> by Ron Robinson, MD, and Kathleen Becker, MA, RN</td>
<td>2001 $24.95</td>
<td>$18.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33696</td>
<td><em>Life Extension Revolution</em> by Philip Lee Miller, MD (paperback)</td>
<td>—— $16.00</td>
<td>$12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33387</td>
<td><em>Maximize Your Vitality &amp; Potency</em> by Jonathan Wright, MD</td>
<td>1999 $14.95</td>
<td>$11.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33010</td>
<td><em>MELATONIN</em> by Russ Reiter, PhD and Jo Robinson, MD</td>
<td>1996 $22.95</td>
<td>$15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33180</td>
<td><em>The Melatonin and Aging Sourcebook</em> by Roman Rozencaug, MD, and Hasnain Walji, PhD</td>
<td>1997 $79.95</td>
<td>$59.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33011</td>
<td><em>The Melatonin Miracle</em> by Walter Pierpaoli, MD, PhD, and William Regelson, MD</td>
<td>1995 $6.80</td>
<td>$5.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33637</td>
<td><em>The Metabolic Plan</em> by Stephen Chemiske, MD</td>
<td>—— $14.95</td>
<td>$11.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33805</td>
<td><em>Miami Mediterranean Diet with 300 Recipes</em> by Michael D. Ozner, MD, FACC, FAHA (hardcover)</td>
<td>2008 $24.95</td>
<td>$16.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33906</td>
<td><em>The Migraine Cure</em> by Sergey Ozogin, MD, PhD</td>
<td>2008 $24.00</td>
<td>$15.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33026</td>
<td><em>Mind Food &amp; Smart Pills</em> by Ross Pelton, PhD</td>
<td>1989 $13.95</td>
<td>$11.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33569</td>
<td><em>Overdose</em> by Jay Cohen, MD</td>
<td>—— $24.95</td>
<td>$18.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33680</td>
<td><em>Prescription for Disaster DVD</em> by Gary Null</td>
<td>2005 $18.00</td>
<td>$12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33670</td>
<td><em>A Primer on Prostate Cancer</em> (2nd edition) by Stephen B. Strum, MD, and Donna Pigliano</td>
<td>2005 $28.95</td>
<td>$21.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33652</td>
<td><em>Save Your Sight</em> by Marc Rose, MD/Michael Rose, MD</td>
<td>2006 $13.99</td>
<td>$8.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33804</td>
<td><em>Staying Young: The Owner’s Manual for Extending Your Warranty</em> by Mehmet Oz, MD</td>
<td>2008 $26.99</td>
<td>$18.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33806</td>
<td><em>The CR Way</em> by Paul McGlothin and Meredith Averill</td>
<td>2008 $15.95</td>
<td>$11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33595</td>
<td><em>The Sexy Years</em> by Suzanne Somers (hardcover)</td>
<td>2004 $25.00</td>
<td>$18.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33767</td>
<td><em>The Side Effects Bible</em> by Frederic Vagnini, MD and Barry Fox, PhD</td>
<td>—— $16.95</td>
<td>$11.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33399</td>
<td><em>Vocal Excerpts from Scientific Studies</em> by Audio Tape</td>
<td>—— $6.00</td>
<td>$3.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33695</td>
<td><em>We Become Silent</em> by Kevin Miller</td>
<td>—— $24.98</td>
<td>$18.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33303</td>
<td><em>What Your Doctor May Not Tell You About Diabetes</em> by Steven V. Joyal, MD</td>
<td>2008 $14.99</td>
<td>$10.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33703</td>
<td><em>John Abdo’s No Excuses Workout DVD</em></td>
<td>2008 $13.30</td>
<td>$9.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Sub-Total (U.S. Dollars)*

Shipping only $5.50 U.S. • $17.50 Canada • $12.50 Hawaii, Alaska, U.S. Virgin Islands, Puerto Rico • UK flat rate $25 USD

(Add $7 for C.O.D. • Add $16.00 for UPS overnight • Add $7.00 for UPS 2nd day air • International air mail costs will be added.)

**TOTAL**

---

**PLEASE MAIL TO:** Life Extension Foundation® Buyers Club, Inc.  
P.O. Box 407198 • Ft. Lauderdale, Florida 33340-7198  
Or Call Toll Free 1-800-544-4440 • Fax: 866-728-1050  
Local Number: 954-766-8433  

---

**LIFE EXTENSION FOUNDATION® MEMBERS ONLY**

**NAME**  
**E-MAIL**  
**ADDRESS**

**CITY/STATE/ZIP-POSTAL CODE**  
**COUNTRY**

**PHONE**  
**FAX**

**VISA/MASTERCARD/AMEX/DISCOVER #**  
**EXP. DATE**

**SIGNATURE**

---

**COD**  
**UPS RED LABEL**  
**UPS BLUE LABEL**

---

**PRINT MEMBERSHIP NO. FOR MEMBER DISCOUNT**

---

**NOT A MEMBER? JOIN TODAY!**

- [ ] I want to join the Life Extension Foundation®.

Enclosed is $75 for annual membership. (Canadians add $7.00, all others outside the U.S. add $35.00. Send me: Disease Prevention & Treatment Protocol Book**
Partner with an anti-aging physician and take charge of your health destiny today. Find one near you via the Physician Directory at www.worldhealth.net

Life is Good, Make it Great!
The Royal Haciendas
Playa del Carmen - Mexico

From $139 per night

LifeExtension® Vacations
Toll free Daily 8 a.m. - 8 p.m. CST 1-800-791-4403
www.royalresorts.com  mexico@levacations.com

BOOK NOW! and receive two FREE one-way airport transfers
Opportunities

If you had your life to relive, what would you do differently?

Imagine actually having the opportunity.

Cryopreservation is the science of using ultra-cold temperature to preserve human life with the intent of restoring good health when technology becomes available to do so. Call Alcor or visit our website today for your free information package.

(877) 462-5267 ext.101
www.alcor.org
Stimulate Your Natural Immune Defenses
Advanced Dual-Protection Probiotic Improves Respiratory and Gut Immunity

Ultimate Flora
Advanced Immunity
30-count
Retail price $29.99
Member price $22.49
Item #01061

Ultimate Flora Advanced Immunity™ from ReNew Life is a specially formulated probiotic that provides a unique two-part approach to enhancing immunity. Three clinically proven natural ingredients—EpiCor® immunogen, S. boulardii beneficial probiotic yeast and ResistAid™ LAG—work synergistically to promote a balanced immune system and enhance the body’s natural defenses during peak seasons.*

EpiCor® Immunogen
A natural derivative of S. cerevisiae (brewer’s yeast), EpiCor is comprised of beta-glucan, mannan oligosaccharide (MOS) and additional beneficial metabolites with immune-supporting vitamins, minerals, amino acids and potent antioxidants.*

EpiCor has been shown to activate key immune cells in the body, specifically targeting the lungs and respiratory system to promote optimal immune function during peak seasons such as spring and winter.*

Saccharomyces boulardii Probiotic Yeast
The 10 billion cultures of Saccharomyces boulardii in Ultimate Flora Advanced Immunity™ stimulate optimal immune function by strengthening the protective intestinal barrier and promoting the growth of beneficial microflora in the gut.*

One of the most promising natural immune-enhancing components, S. boulardii is a non-pathogenic yeast that has been utilized worldwide as a probiotic to support immune defenses as well as to relieve occasional diarrhea and digestive upset.* Unlike the thousands of species of microorganisms that inhabit the human digestive tract normally, S. boulardii is a transient yeast and must be obtained through supplementation. Upon ingestion, S. boulardii passes through the intestines and exerts its beneficial effects throughout the entire gastrointestinal tract.*

ResistAid™ LAG
ResistAid is a uniquely effective natural antioxidant that contains Arabinogalactan, the key component of the immune-enhancing herb Echinacea.* Found in a more bioactive form in ResistAid, arabinogalactan exhibits a stimulatory effect on the human immune system by helping to increase beneficial immune cell populations.*

Research has shown that supplementation with LAG can increase the number of immune-defending white blood cells and in turn enable the immune system to more effectively cope with seasonal and everyday stress.* The potent antioxidant capacity of ResistAid is attributed to its high levels of beneficial plant compounds known as polyphenols.*

Now you can obtain the natural benefits of each of these uniquely powerful ingredients in a single daily supplement. It’s the most advanced probiotic available for optimal immune system and respiratory function.*

To order Ultimate Flora Advanced Immunity, call 1-800-544-4440 or visit www.lef.org

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

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.

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™ contain:

- UTIRose™ (Hibiscus sabdariffa) 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.

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.

References

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

Cran-Max® registered trademark of BDM Technologies, LLC. UTIRose™ is a trademark of Burgundy Botanical Extract. Bio-Shield™ is a registered trademark of Bio-Nutra Technologies, LLC.

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.
Decades after Life Extension® exposed the dangers of acetaminophen, the FDA finally took limited action to reduce the number of lethal side effects. Conventional physicians, meanwhile, ignore non-toxic interventions to help relieve chronic pain.

Starting new research confirms that millions of normal-weight people ingest more calories than their bodies can safely utilize. Find out how a new calorie restriction mimetic offsets some of these effects and enhances the benefits of resveratrol.

Rates of melanoma have more than doubled despite widespread sunscreen use. New studies substantiate dietary interventions that activate your skin cells’ ultraviolet defenses internally.

Mice bred with super-charged granulocytes were recently shown to be 100% resistant to all forms of cancer. The Life Extension Foundation® has provided funding for the first human study using this cancer treatment.

Visit us at www.LifeExtension.com

LOWER RHEUMATOID ARTHRITIS RATES LINKED TO VITAMIN D
CALCIUM SUPPLEMENTS REDUCE BREAST CANCER RISK
LACK OF SLEEP MAY LEAD TO OVEREATING
SUPPLEMENTS LIMIT CERVICAL DYSPLASIA IN HPV-POSITIVE WOMEN