Protect Against Deadly Arterial Calcification

Who Really Makes Popular Dietary Supplements?

How Calcium May Cause Heart Attack

Suppress Cravings for Sugary Snacks

PLUS–
Doctors Overlook Most Thyroid Disorders
Profile of Bioidentical Hormone Pioneer
Multiple Benefits of Pycnogenol®
Maintaining healthy, flexible joints is essential to quality of life. Joint stiffness and discomfort can stand in the way of performing even simple everyday tasks. Most people do not obtain critical nutrients shown to support youthful joint function and mobility.

To meet this urgent need, Life Extension® introduced Krill Healthy Joint Formula, a patent-pending blend of deep-sea whole krill oil sourced in Antarctica, combined with hyaluronic acid and astaxanthin.

In a recent clinical trial involving over 100 maturing individuals, a 55% reduction in joint discomfort was observed in less than three months, with 63% of participants maintaining ease of motion.1

### THREE SYNERGISTIC COMPOUNDS FOR SUPERIOR BENEFIT

The data reveals that the fatty acids found in krill oil are particularly effective for joint health.2 These unique fatty acids have been shown to specifically target joint tissue.2,3

**Hyaluronic acid** occurs naturally in the joints,4 where it acts to lubricate and cushion against repeated physical impacts.5 Because it forms a major component of cartilage and soft tissue,4 it is widely used to promote joint health.4-8

The difficulty has been that hyaluronic acid is a large molecule not well absorbed by the body. When combined with krill oil, it has been shown to reach significantly higher levels in the bloodstream than in standalone form.8

Krill oil is a natural source of the antioxidant carotenoid astaxanthin. Astaxanthin works in multiple ways, including suppression of free radical activity and enhanced mitochondrial function.9 It also maintains krill oil’s molecular stability.

Most commercially available krill oils do not contain significant amounts of astaxanthin because it is nearly eliminated during processing. Krill Healthy Joint Formula is fortified with astaxanthin, for maximum stability and superior benefit.

### JUST ONE SOFTGEL DAILY

The suggested daily serving of one Krill Healthy Joint Formula softgel daily supplies 353 mg of this proprietary blend.

A bottle containing 30 softgels of Krill Healthy Joint Formula retails for $32. If a member buys four bottles, the price is reduced to $21.75 per bottle. Just one softgel a day of Krill Healthy Joint Formula duplicates a successful human clinical trial.

### References


**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 crustacean shellfish (krill).

Licensed from Valensa International.

Zanthin® is a registered trademark of Valensa International, Inc.

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To order Krill Healthy Joint Formula
call 1-800-544-4440 or visit www.LifeExtension.com

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

Pycnogenol®, a plant extract from the French Maritime pine tree, has been shown to modulate *five major mechanisms of aging*. Laboratory results demonstrate significant improvements in skin elasticity, blood glucose, cellular function, and capillary health with the use of this broad spectrum phyto-compound.

**42 SAFELY MANAGE JOINT INFLAMMATION**

Most physicians treat rheumatoid and osteoarthritis pain with side effect-laden prescription drugs. A recent clinical trial reports that BCM-95® — a *superior-absorbing curcumin complex*, safely circumvents multiple inflammatory targets rather than simply masking arthritis pain.

**56 BLOCK CRAVINGS FOR SUGARY SNACKS**

Snacking can easily sabotage any weight loss program. Studies indicate that *safron extract* targets food compulsions in the brain at the neurotransmitter level. Research has shown that safron extract can safely inhibit the snacking impulse and block the increased appetite for food known as *reactional hyperphagia*.

**68 DON’T OVERLOOK YOUR THYROID**

The thyroid affects every cell in your body and is a key regulator of your energy, metabolism, and body weight. Too frequently, physicians overlook a malfunctioning thyroid as a cause for fatigue, lack of concentration, and even hair loss! Eva Cwynar, MD, explains why it is essential to test your thyroid, especially as you age.

**82 SKIN PROTECTION EFFECTS OF VITAMIN E**

Everyday sun exposure, pollutants, and free radical damage accelerate skin aging and collagen destruction. Scientists have discovered that topical application of the *gamma tocotrienol* form of vitamin E regulates gene signals in the skin to reduce common causes of skin deterioration.
Since Life Extension® introduced CoQ10 in 1983, our scientists have continued to develop increased potency and absorbability. Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™ contains PrimaVie® shilajit that doubles levels of CoQ10 in the mitochondria. Combining CoQ10 and shilajit produced a 56% increase in energy production in the brain, and in muscle there was a 144% increase in energy production. The primary reason people take CoQ10 supplements is to help restore youthful energy levels.

Shilajit boosts CoQ10’s beneficial effects by stabilizing CoQ10 in the superior ubiquinol form, which prolongs its action at the cellular level. Additionally, shilajit facilitates the more efficient delivery of CoQ10 into the mitochondria, which results in enhanced cellular energy. Shilajit helps the mitochondria convert fats and sugars into the body’s main source of energy, ATP (adenosine triphosphate). Combining ubiquinol CoQ10 with shilajit generates a powerful synergy that supports more youthful cellular energy production than CoQ10 alone.

Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™

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

The retail price for 30 200 mg softgels of Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™ is $62. If a member buys four bottles, the price is reduced to $42 per bottle. Item # 01431

References

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.
A former member of the Bahamian Parliament, he served as Minister of Health and Minister of Youth, Sports, Information, Science, and Technology. He is a board-certified plastic surgeon, was formerly chief of the Bahamas Plastic Surgery Clinic, and is a co-founder of the Bahamas Medical Institute in Nassau, Bahamas.

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.

William Davis, MD, is a preventive cardiologist and author of Wheat Belly: Lose the Wheat, Lose the Weight and Find Your Path Back to Health. He is a research scientist at the Anti-Aging Medical Institute in Boston, MA.

Dr. John DeLuca is a 2005 graduate of St. George’s University School of Medicine. He completed his Internal Medicine residency at Monmouth Medical Center in Long Branch, New Jersey, and is board certified by the American Board of Internal Medicine. Dr. DeLuca is a Diplomate of the American Academy of Anti-Aging Medicine and has obtained certifications in hyperbaric medicine, pain management, nutrition, strength and conditioning, and manipulation under anesthesia.

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

Patrick M. Fratellone, MD, RH, is the founder and executive medical director of Fratellone Associates. He completed his Internal Medicine and Cardiology Fellowship at Lenox Hill Hospital in 1994, before becoming the medical director for the Atkins Center for Complementary Medicine.

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

Norman R. Gay, MD, is proprietor of the Bahamas Anti-Aging Institute in Nassau, Bahamas. A former member of the Bahamian Parliament, he served as Minister of Health and Minister of Youth and Sports.

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.

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.

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.

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

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John Crisler, DO, is an osteopathic physician and president of The All Things Male Center for Men’s Health in Lansing, MI. Dr. Crisler is a distinguished leader in the field of anti-aging medicine.

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That Can Save Your Life

You

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 Cancer Patient) and currently publishes a monthly nutrition newsletter, The Blaylock Wellness Report.

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

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 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 for 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 an international network of experts to improve treatment outcomes for prostate cancer patients with a special focus on natural and translational medicine.

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

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

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

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

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

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

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

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

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

**Just one **SUPER BOOSTER provides:**

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

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

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

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

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

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

**JUST ONE SOFTGEL OF SUPER BOOSTER SUPPLIES:**

<table>
<thead>
<tr>
<th>Nutrient</th>
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<tr>
<td>Vitamin K2 (as menaquinone-7)</td>
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<td>Vitamin K2 (as menaquinone-4)</td>
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<td>Vitamin K1 (as phytonadione)</td>
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<td>Vitamin C</td>
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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**

Contains soybeans, corn and sesame.

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

Tomat-O-Red® is a registered trademark of LycoRed, Ltd.

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.
Potential Danger of Calcium Supplements

BY WILLIAM FALOON*

One reason I find life so addicting is that virtually every week, new findings either confirm or contradict scientific positions Life Extension® has taken over the past 32 years.

A study published in May 2012 showed that calcium supplements may increase risk of cardiovascular disease. This study tracked almost 24,000 Europeans and suggested (in a subgroup analysis) that people taking only calcium supplements were about twice as likely to have a heart attack.¹

We carefully examined this report and found multiple design flaws that clearly skewed the results. But for the purposes of this editorial, I am going to assume this finding is accurate and explain how to protect against deadly calcification processes.

Later in this piece, I’ll reveal startling information as to who really makes the most popular dietary supplements in America.

* As I approach 58 years of age, I am taking even more aggressive steps to slow my rate of aging, like reducing calorie intake and getting in a bit more physical activity. I recently shaved my moustache to modernize my appearance for some TV shows scheduled later this year.
Those involved in nutritional medicine have long known that people who supplement with calcium should also take adequate amounts of magnesium. The reason is that magnesium is a natural calcium channel blocker. Magnesium deficiency can induce elevation of intracellular calcium concentrations, and accelerate atherosclerosis. Calcium is a component of atherosclerotic plaque and when calcium salts build up in soft tissues it causes hardening, which is technically called calcification.

Exposure to excess amounts of calcium over time, without adequate magnesium sets the stage for endothelial dysfunction and formation of atherosclerotic plaque.

We have published an overwhelming number of articles about the importance of magnesium. I’ll never forget when the FDA raided us at gunpoint in 1987 and seized literature we published stating that nutrients like fish oil and magnesium prevent heart attack. They ridiculed the notion that nutrients had any effect on disease risk. That day the FDA had the upper hand and seized our property under the pretext that we were promoting “unapproved drugs” since the FDA did not recognize any health benefit to supplements like magnesium and fish oil.

We later sued in Federal Court and won everything back, along with a small check from the US Treasury that covered some of our legal costs.

If calcium supplements do increase heart attack and stroke risk, a lot has to do with magnesium deficiency. The US Department of Agriculture admits that 57% of the American public suffers inadequate magnesium intake. The reality is an even higher percentage of Americans are not getting optimal amounts of magnesium. Too bad the FDA forcibly suppressed the dissemination of information about magnesium, while another department of government (Department of Agriculture) warned of an epidemic magnesium deficit.

If a person takes high amounts of calcium without magnesium, they may very well be accelerating the occlusion of arteries in their heart and brain.

Despite threats of incarceration, we and others have repeatedly advised people to supplement with lots of magnesium. We have fortified many of our supplements with extra magnesium, causing some members to call and ask why so much magnesium and so little calcium? Our answer is that most fail to get enough magnesium to protect against vascular disease, whereas more calcium can readily be obtained from dietary and supplement sources.

Assuming that excess calcium intake without regards to magnesium intake may increase heart attack and stroke risk, this may indeed validate what Life Extension® has long espoused about the critical need to balance calcium and magnesium.

Let’s not forget that insufficient calcium intake will cause bone loss leading to osteoporosis and life-ending fractures.

In fact, insufficient calcium itself accelerates atherosclerosis by causing excess removal of calcium from bone into the bloodstream where it calcifies arteries. For example, in validated models of atherosclerosis, calcium-deficient diets increase the rate of tissue calcification by 170% while calcium-supplemented diets reduce calcification by 62%. 

Dangers Of Insufficient Calcium

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The take home message is to ensure sufficient ingestion of calcium and magnesium and as you’ll read next—vitamin K2. Regrettably, the majority of aging women still take calcium supplements with no magnesium or vitamin K2, thus setting the stage for arterial calcification and subsequent heart attack and ischemic stroke.12-20

**Vitamin K2 Keeps Calcium Out Of Arteries**

Calcium is so essential that if blood levels fall too low, you will die from an electrolyte imbalance that causes your heart to lose contractile rhythm needed to circulate blood.

Remember there are four chambers to your heart that have to precisely expand and contract or your heart will not beat in a stable manner. Electrolytes are minerals such as potassium, magnesium, and calcium that are needed to maintain the heart’s electrical synchronicity.

Adequate calcium is so critical that your body has evolved mechanisms to saturate your blood with calcium if there is even a perception of calcium deficit. In the presence of low calcium, parathyroid hormone is secreted that often pulls too much calcium from bones.21 The downside to this as we age is our arterial walls can become infiltrated with calcium (i.e. calcification).

Fortunately, nature has developed a protective mechanism to keep excess calcium out of your arteries. For this important mechanism to function, vitamin K2 is required. The problem is that our diet provides little vitamin K2 and the result is that virtually all aged people suffer calcification of their brain, glands, heart valves, and arteries.

Published data about the ability of vitamin K2 to protect against cardiovascular disease is compelling. For instance, people with higher intake of vitamin K2 intake have a 57% reduction in risk of dying from cardiovascular disease.17 Those with blocked arteries and damaged heart valves show low vitamin K2 status.23-26 Women taking vitamin K2 have reductions in nonvertebral fractures as high as 81%.27

The reason vitamin K maintains bone density while simultaneously protecting against atherosclerosis is that it activates factors in bone to grab and retain calcium while functioning as a lock in the arterial wall to keep calcium out.15,28-32

To explain this further, just imagine a set of calcium-regulating proteins in your arteries that determine whether calcium is allowed in or kept out. If these proteins are locked, they won’t allow calcium to enter arterial cells. If the proteins are unlocked, calcium freely flows into cells and destroys them.

The key to turning on calcium-regulating proteins in your body is vitamin K2. If enough K2 is present, these proteins prevent calcium infiltration into soft tissues.33-37 (The name of this vitamin K-dependent calcium-blocking protein in arteries is matrix Gla protein).

Bones contain a protein called osteocalcin that functions like studs in a house. When activated by vitamin K2, osteocalcin grabs on to calcium and holds it in place.28,38-44 Without adequate K2, osteocalcin is not sufficiently activated, which results in calcium leaving bone and depositing into arteries.24,34,45-47

Life Extension first issued an urgent warning about the lethal risks of vitamin K deficit in 1999. I regret we did not discover this sooner as I know of members (including my own father) who perished from systemic calcification brought on by lack of vitamin K2.

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**AS WE SEE IT**

**EFFECTS OF HIGHER INGESTION OF VITAMIN K**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Reduction in All-Cause Mortality</td>
<td>26%</td>
</tr>
<tr>
<td>Reduction in Severe Aortic Calcification</td>
<td>52%</td>
</tr>
<tr>
<td>Reduction in Coronary Artery Disease</td>
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gevity. This has been proven over and over as pharmaceutical companies face criminal charges for selling drugs they knew would kill human beings!

As we reported two years ago, Pfizer pled guilty (through a shell company) to a criminal charge that it fraudulently promoted the drug Bextra® in dangerously high doses to relieve acute surgical pain. Bextra® was never approved for this use. In an analysis presented at the American Heart Association, Bextra® was shown to more than double the risk of heart attack or stroke. Pfizer paid a record-breaking criminal settlement to the federal government of $1.195 billion for the fraudulent marketing of Bextra®. By using a subsidiary to plead guilty, Pfizer continues receiving lucrative Medicare/Medicaid reimbursement on its many other drugs.

An article I wrote last year titled “FDA’s Most Heinous Drug Approval” described how Bayer covered up the lethal side effects of a drug it made called Trasylol®. By delaying the withdrawal of Trasylol® from the market, Bayer caused the deaths of 1,000 human beings a month. Experts estimate that had Bayer not hidden findings about the dangers of Trasylol®, that 22,000 lives could have been spared.

Would you trust dietary supplements sold by Pfizer, Bayer, or other pharmaceutical giants who financially benefit if you fall ill? Their track record shows a complete disregard of moral legitimacy. The scary part is that large corporations are increasingly dominating the dietary supplement marketplace by buying up name-brand vitamin companies.

Small Vitamin Companies Gobbled Up By Corporate Behemoths

As the public discovers the disease-preventing properties of nutrients, large corporations realize they have fallen behind the curve. A look at the primitive formulations of Centrum® and One-A-Day® provides a stark example of what happens when drug companies try to make effective dietary supplements.

Vitamin K And Magnesium Remain Overlooked Nutrients

The ability of vitamin K2 to activate calcium-regulating proteins, and thus maintain bone density and inhibit calcification is undisputed, yet the majority of aging Americans do not supplement with vitamin K2. This is slowly changing as word spreads about the critical importance of this overlooked nutrient.

Regrettably, knowledge about the benefits of calcium in protecting against osteoporosis has been widespread for over 30 years, and the result is that aging women have been gobbling down large potencies of calcium supplements without concurrently taking magnesium and vitamin K2.

So it is not surprising for a study to show higher rates of heart attacks and stroke in those using calcium supplements without also taking magnesium and vitamin K. We at Life Extension warned of this risk long ago, yet few outside our membership paid attention. The tragic result may have been revealed in this recent study showing higher heart attack risk in calcium supplement users.

Drug Companies Sell Most Dietary Supplements

Health conscious people may be shocked to learn that the most popular dietary supplements are not made by people dedicated to keeping you alive.

Commercial supplement sales are dominated by Centrum® (made by a division of Pfizer) and One-A-Day® (made by a division of Bayer). These companies do not care about your health or longevity. This has been proven over and over as pharmaceutical companies face criminal charges for selling drugs they knew would kill human beings!
A disturbing trend has been corporate giants buying out venerable supplement companies like the recent purchase of New Chapter by Proctor and Gamble (world’s largest consumer products company) and Alacer (maker of Emergen-C® effervescent vitamin C) bought out by Pfizer (world’s largest drug company).

Proctor and Gamble who makes Tide laundry detergent and Pringles potato chips will soon be bringing you supplements under the New Chapter brand (a frequent advertiser in this magazine). There is no need to panic, since the founders of New Chapter will stay on for a while and it will be run for now as an independent subsidiary of Proctor and Gamble. That usually works until the corporate cost-cutters come in to find ways to earn more money from their acquisition.

Solgar® was once a bedrock of nutritional credibility, but was purchased by NBTY (formerly known as Nature’s Bounty), which then sold to private equity giant Carlyle Group in 2010 for $4 billion. (NBTY bought out a number of vitamin companies before selling itself to Carlyle Group—a conglomerate that invests in businesses as diverse as automotive, real estate, energy, and defense contracting).

GNC had its founding in 1935 as a small health food store in Pittsburgh. It grew to become the largest vitamin retail chain in the world. In 1999, Dutch company Royal Numico purchased GNC at a premium. In 2003, Numico sold GNC at a huge loss to private-equity firm Apollo Management. In 2007, Apollo sold GNC to an affiliate of the Ontario Teachers’ Pension Plan. In April 2011, GNC launched a successful initial public offering and became a publically traded corporation again.

As you’ll read next, large corporations lack the agility, expertise, and commitment to enable humans to stave off aging-related disease.

Pharmacy Chains Don’t Care If You Live Or Die

Displayed prominently at the check-out counter when you walk in to most Walgreen’s or CVS stores is a tall wall of tobacco products. These large pharmacy chains offer all kinds of packaged junk foods, toxic OTC drugs like acetaminophen, and of course any side-effect prone prescription drug your doctor may have been duped into prescribing.

We have previously written about the immorality of openly selling cigarettes since it provides nicotine addicts with an easy opportunity to continue or resume their lethal habit. An argument could be made to organize boycotts against pharmacy chains until they stop selling cigarettes. The sad fact is that the public has become far too apathetic for this kind of boycott to succeed in removing tobacco products from pharmacy shelves.

The typical consumer trusts the private label brands of pharmacy chains and even supermarkets, yet these corporate behemoths lack the scientific integrity to make state-of-the-art nutritional formulas.

To give you a startling example of how poorly formulated products made by pharmacy giants are, look at a fiber product made by Walgreen’s. It has an attractive-colored label, a healthy sounding name “Wal-Mucil 100% Natural Fiber” and a low price of just $10.99. There is even a health claim on the side panel stating that the fiber in this product may reduce risk of heart disease.

You may recall that the primary benefit of fiber taken before meals is to slow the absorption of carbohydrates into the bloodstream, or stated differently, to reduce dangerous after-meal blood glucose surges that cause heart attacks and strokes.
Now hold on to your seat as you find out what’s really in Walgreen’s fiber supplement. One of the top ingredients in this fiber product is sugar (sucrose). Each serving provides 3 grams of sugars and only 3 grams of fiber.67 Those seeking to use Walgreen’s fiber to prevent diabetes and vascular disease would inadvertently increase these risks by using—according to the label—a “Dietary Fiber Supplement.”

Life Extension and other quality supplement companies have long made fiber products that do not contain sugar. Walgreen’s may or may not have known about the dangers of excess sugar consumption. What we know is that sugar is a cheap filler ingredient and it made their product taste good. Walgreen’s was either oblivious or didn’t care that their fiber product would inflict serious health problems on someone who regularly used it.

I directly learned almost 20 years ago that these pharmacy giant’s only concern is the financial bottom line—not their customer’s health. As the first organization to launch melatonin, we were besieged by calls from pharmacy chains after prestigious mainstream doctors began endorsing it. Back in those days we were the only ones able to make virtually 100% pure melatonin. The best our competition at the time could do was 98% purity. Pharmacy chains who called us were only concerned with the cost and whether we had product liability insurance.

One of these companies I talked to complained we were slightly overpriced. I warned that the 2% impurities in our competitor’s product might cause a health risk analogous to contaminated tryptophan (since the biosynthesizing processes were similar). I will never forget when a major pharmacy chain representative told me:

“We don’t care about the quality of the ingredient. Our only concern is lowest price and whether you have product liability insurance to cover lawsuits that might be filed if your ingredient harms someone.”

Life Extension® seldom carries product liability insurance (because of the confidence in our ingredients) and 100% melatonin cost more to make than 98% material, so we never benefited in a major way financially from an ingredient (melatonin) that we were the first to introduce.

Based on my direct interactions with pharmacy chains, they don’t care if you live another day, while I will feel perpetually guilty for not identifying the disease-preventing properties of vitamin K before 1999.

Why We Are Different...

Life Extension® has been, and continues to be structured as an entity that will fund biomedical research in perpetuity. We will not sell out to large corporate interests and our mission to indefinitely extend the healthy human life span will not alter.

How can we assure this? Each year, we fund a scholarship program that brings the most committed life extensionists under age 31 to South Florida. Through a meticulous screening process, we identify incredibly bright young people who are determined to vanquish aging, disease, and death. We enlighten these young life extensionists as to what we expect of them when it comes to their participation in fraternal organizations that will forever ensure that Life Extension® continues its unswerving scientific commitments.

Each year, we also support a long weekend meeting of some of the wealthiest and enlightened individuals on the planet who, like the under age 31 group, are also personally determined to vanquish aging, disease, and death. These individuals have the option of joining perpetual oversight organizations that will forever ensure that Life Extension® continues its biomedical research initiatives.
These arrangements to fund lifesaving research are irrevocable and permanent. Professional trustees are in place to guarantee that these provisions are not changed. So you will not hear that Life Extension has sold out to Pfizer, Bayer, Proctor and Gamble or any other company whose sole purpose is to make money.

No one in history has done what we have to safeguard a benevolent mission. As a member of the Life Extension Foundation®, you help support a historic undertaking to overcome the absurdly short life spans that currently afflict the human race.

For longer life,

William Faloon

References


Brain degeneration affects all aging adults. Enhancing communication between neurons may hold the key to maintaining youthful cognition and memory.  

**Cognitex® with NeuroProtection Complex** provides **nine** cutting-edge **brain boosting** ingredients in **one** exciting formula!  

**Uridine-5’-monophosphate (UMP)** is a compound naturally found in the milk of nursing mothers and is essential to humans when their brains are the youngest. UMP also supports superior cognitive function in aging adults and is included in **Cognitex®**.  

To bolster UMP’s impact on brain function, **Cognitex®** contains **Sharp-PS® GOLD** to promote normal neuronal cell membrane activities and structure. With this structure in place, **vinpocetine** enhances circulation and oxygenation of brain cells while **phospholipid-grape seed extract** improves blood vessel tone and elasticity, thus boosting oxygen flow to the brain.  

**Wild blueberry extract** is included to protect against free-radical damage, and **pregnenolone** has shown beneficial properties as well.  

In order to protect against inflammation to a healthy brain, a **proprietary NeuroProtection Complex Blend** contains standardized extracts of hops, ginger, and rosemary—all known to help suppress inflammatory cytokines.  

With a healthy brain in place, the proper levels of **acetylcholine** are needed to enable brain neurons to communicate. To maintain these levels, **Cognitex®** includes **alpha-glyceryl phosphoryl choline** to boost acetylcholine and **Sensoril® ashwagandha extract** to inhibit an enzyme that degrades acetylcholine in the aging brain.  

The retail price for 90 softgels of **Cognitex® with NeuroProtection Complex** (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.  

To order **Cognitex® with NeuroProtection Complex**, call **1-800-544-4440** or visit [www.LifeExtension.com](http://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.  

*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. US Patent No. 7,935,365  

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

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These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
Back in 1983, Life Extension® was the first to introduce CoQ10 as a proven method to enhance mitochondrial energy production. CoQ10 has since gained universal recognition for its role in supporting cellular performance throughout the body.¹⁶

In an unprecedented breakthrough, a compound called PQQ (pyrroloquinoline quinone) has been shown to support mitochondrial biogenesis—the spontaneous generation of new mitochondria in aging cells.⁷ PQQ is available as a low-cost dietary supplement.

Mitochondria are cellular energy generators that supply virtually all the power your body requires for a healthy life span. An abundance of published studies underscores the critical importance of the mitochondria to overall health, especially as we age.⁵⁻⁶⁴ Energy-intensive organs like the heart and brain are dense with mitochondria.

Until recently, the only natural ways for aging individuals to increase the number of mitochondria in their bodies were long-term calorie restriction or exhaustive physical activity—which are difficult or impractical for most people to implement.

PQQ offers a viable alternative.
The Ultimate Cell Rejuvenator

The enormous amount of energy generated within the mitochondria exposes them to constant free radical attack. The resulting mitochondrial decay is a hallmark of aging.

PQQ protects and augments delicate mitochondrial structures to promote youthful cellular function in three distinct ways:

- **Antioxidant power.** Like CoQ10, PQQ is a highly potent antioxidant. Its extraordinary molecular stability enables it to facilitate thousands of biochemical reactions in the mitochondria, without breaking down, for maximum antioxidant and bioenergetic support.15

- **Favorably modulates gene expression.** PQQ activates genes that promote formation of new mitochondria7—and beneficially interacts with genes directly involved in mitochondrial health. These same genes also support healthy body weight, normal fat and sugar metabolism, and youthful cellular proliferation.16

- **Mitochondrial defense.** Mitochondria possess their own DNA, distinct from the DNA contained in the nucleus. Unfortunately, compared to nuclear DNA, mitochondrial DNA is relatively unprotected. PQQ's antioxidant potency and favorable gene expression profile act to support mitochondrial defense.

Vital Protection for the Aging Heart and Brain

PQQ is an essential nutrient, meaning your body cannot make it on its own. A growing body of research indicates that PQQ’s unique nutritional profile supports heart health and cognitive function—alone and in combination with CoQ10.17,18 This comes as no surprise, given how much energy these vital organs need.

Research shows that PQQ supports heart cell function in the presence of free radicals and promotes blood flow in heart muscle.19

When taken in combination with CoQ10, just 20 mg per day of PQQ has been shown to promote memory, attention, and cognition in maturing individuals.20

A Breakthrough Weapon in the Battle Against Aging

Life Extension® has identified a purified, highly potent form of PQQ from Japan that is produced through a unique fermentation process. The result is the highest quality PQQ available on the market today called BioPQQ™.

A bottle containing 30 10 mg vegetarian capsules of PQQ Caps with BioPQQ™ retails for $24. If a member buys four bottles, the price is reduced to just $16.50 per bottle.

A 10 mg dose of PQQ is also included in the Mitochondrial Energy Optimizer with BioPQQ™ and Mitochondrial Basics with BioPQQ™ formulas.

Contains rice.

To order PQQ Caps with BioPQQ™ standalone or any other PQQ-containing formula call 1-800-544-4440 or visit www.LifeExtension.com

BioPQQ™ is a trademark of MGC (Japan).

References
Rich Rewards™

Cruciferous Vegetable Soups

The World's Healthiest Vegetables
One Smart Bowl of Soup™
Processed food companies sell vegetable soups so cheaply because they load them with *high-glycemic* carbohydrates (rice, potatoes, pasta) that cost virtually nothing. They then add inexpensive ingredients like corn, sugar, and sometimes omega-6 fats (like cottonseed oil). So for less than $2, you get a relatively high-carb-calorie soup that provides virtually no health benefits.

**Life Extension** has formulated two vegetable soups that contain only healthy ingredients, including loads of *cruciferous vegetables* (cauliflower, broccoli, cabbage, etc.), *extra-virgin olive oil*, and a host of other beneficial *plant foods*.

Each serving of **Rich Rewards Cruciferous Vegetable** and **Rich Rewards Spicy Cruciferous Vegetable** soup contains only **60 to 70 calories** of the best-documented foods to maintain your precious health. You can consume the entire contents or use a smaller portion of the soup as part of a meal for you (or several people).

Each **60-70 calorie** portion of these new soups provides a **full serving** of the world’s healthiest vegetables. The entire container supplies about **3.5 servings** of these vegetables—with none of the glucose-spiking fillers found in commercial soups.

The retail price for a **3.5 serving bottle** of **Rich Rewards Cruciferous Vegetable** or **Rich Rewards Spicy Cruciferous Vegetable** soups is $11.95. Member price is **$8.96**. If a **Life Extension** member purchases any assortment of six bottles, the price is reduced to **$8.44 per bottle** (or **$2.56 per serving**).

To order your fresh supply of **Life Extension**’s **Rich Rewards Cruciferous Vegetable** or **Rich Rewards Spicy Cruciferous Vegetable** soups, call 1-800-544-4440 or visit www.lef.org/soup
Vitamin C’s popularity is undeniable—and so are its benefits! It has been over 80 years since this critical vitamin was isolated, and its importance in our diet cannot be overstated. However, since humans don’t manufacture vitamin C internally, it must be obtained through dietary sources or supplements.

This can be problematic because vitamin C is a water-soluble nutrient that is quickly oxidized and released by the body, which means that for those seeking vitamin C’s optimal health benefits, they have to consume the vitamin several times a day.1

Fortunately, a flavonoid antioxidant known as dihydroquercetin functions as a vitamin C “supercharger.” Studies demonstrate that dihydroquercetin acts to inhibit the oxidation of vitamin C, thereby helping to maintain its concentration and to recycle vitamin C throughout the body.2,3 This synergistic relationship between dihydroquercetin and vitamin C greatly enhances the efficacy of both molecules in the body’s organs and tissues.

Vitamin C with Dihydroquercetin was formulated for those seeking to obtain optimal efficacy and antioxidant protection from their vitamin C supplement. The suggested daily dose of one tablet of this formula supplies 1,000 mg of vitamin C (as ascorbic acid), along with 10 mg of dihydroquercetin-3-rhamnoside, a highly bioavailable form of dihydroquercetin derived from grape leaf extract.

A bottle containing 250 tablets of Vitamin C with Dihydroquercetin retails for $25.50. If a member buys four bottles, the price is reduced to just $17.44 per bottle.

References

To order VITAMIN C with Dihydroquercetin, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Increased Vitamin D Intake Linked with Lower Stroke Risk Over 34-Years of Follow-Up

An article published recently in Stroke reports a protective effect for greater vitamin D intake against the risk of ischemic stroke in Japanese-American men.*

Gotaro Kojima, MD, and colleagues utilized data obtained from 7,385 Japanese-American men who were between the ages of 45 to 68 upon enrolling in the Honolulu Heart Program. Dietary interviews conducted upon enrollment were analyzed for the intake of vitamin D from food.

Over the 34-year follow-up period, stroke was documented in 960 subjects. For men whose vitamin D intake was among the lowest 25% of participants, the risk of stroke was 22% higher compared to the risk experienced by those whose intake was among the top 25%. When stroke was analyzed by type, the risk of thromboembolic stroke was 27% higher for those whose vitamin D intake was lowest in comparison with the highest group.

Editor’s Note: “Based on the results of this and other epidemiological studies, higher vitamin D intake or vitamin D supplementation may be beneficial for stroke prevention,” the authors write.

—D. Dye

Curcumin to Be Tried in Colon Cancer Patients

An upcoming trial conducted by the Cancer Research UK and National Institute for Health Research Experimental Cancer Medicine Centre (ECMC) in Leicester, England, will evaluate the effectiveness of curcumin, a compound that occurs in turmeric, as a means of improving the effectiveness of standard chemotherapy for metastatic colon cancer.*

In previous experiments, curcumin was shown to enhance chemotherapy’s ability to kill cultured colon cancer cells. Colorectal cancer patients are commonly treated with a combination of three chemotherapy drugs, yet approximately half of those treated fail to respond and those who do respond are frequently plagued with side effects such as severe nerve pain.

The trial will recruit 40 patients with colon cancer that has metastasized to the liver. Three-fourths of the participants will be administered curcumin supplements for one week prior to being treated with standard chemotherapy drugs, while the remainder will receive chemotherapy alone, and the benefits and side effects of treatment will be evaluated.

Editor’s Note: “The prospect that curcumin might increase the sensitivity of cancer cells to chemotherapy is exciting because it could mean giving lower doses, so patients have fewer side effects and can keep having treatment for longer,” commented chief investigator William Steward, who is the ECMC director at the University of Leicester.

—D. Dye

* Experimental Cancer Medicine Centre (ECMC), Leicester, England.
IN THE NEWS

Curcumin Helps Improve Immune Function

In a recent article in the Journal of Nutritional Biochemistry, researchers from Oregon State University reported a benefit for curcumin, a compound found in the spice turmeric, in innate immune function.*

Adrian Gombart and colleagues discovered that curcumin nearly tripled the expression of a gene that encodes a protein known as cathelicidin antimicrobial peptide (CAMP), which can help combat bacteria, viruses, and fungi that have not been previously encountered by the immune system. CAMP is the only known antimicrobial peptide of its kind in humans, and is able to destroy a wide range of bacteria (including that which causes tuberculosis) as well as help prevent sepsis. While curcumin’s effect on CAMP is not as potent as that previously found for vitamin D, the compound may still be of value in improving immune function, in addition to providing anti-inflammatory and antioxidant benefits.

Editor’s Note: Dr. Gombart remarked that although curcumin is generally consumed in low levels, “It’s possible that sustained consumption over time may be healthy and help protect against infection, especially in the stomach and intestinal tract.” —D. Dye


Probiotics Help Prevent Antibiotic-Associated Diarrhea

A review and meta-analysis reported in the Journal of the American Medical Association found a protective effect for orally-administered probiotics against diarrhea that often develops as a response to antibiotic drugs.*

Susanne Hempel, PhD, and her colleagues reviewed 82 randomized clinical trials of patients receiving antibiotics that compared the effects of a probiotic to no treatment, a placebo, or a different probiotic or probiotic dose. A pooled analysis of 63 of the trials, which included a total of 11,811 participants, concluded that the use of probiotics was associated with a 42% lower risk of developing diarrhea as a result of antibiotic use compared to not consuming probiotics.

“The pooled evidence suggests that probiotics are associated with a reduction in antibiotic-associated diarrhea,” the authors conclude. “More research is needed to determine which probiotics are associated with the greatest efficacy and for which patients receiving which specific antibiotics.”

Editor’s Note: While antibiotics destroy harmful as well as beneficial bacteria, probiotics consist of beneficial live microorganisms whose presence in the digestive tract can help prevent the overgrowth of unhealthy organisms. —D. Dye


Consuming Berries Could Delay Brain Aging Up to Two and a Half Years

An article published in the Annals of Neurology reports a protective effect for diets containing high amounts of blueberries and strawberries against cognitive decline in older women.*

Dr. Elizabeth Devore of Harvard Medical School and her associates evaluated data from women who were enrolled in the Nurses’ Health Study in 1976. Questionnaires completed every four years since 1980 were analyzed for the frequency of berry intake as well as the intake of 31 individual flavonoids. Cognitive function was tested every two years in 16,010 participants who were over the age of 70 between 1995 and 2001.

Consuming a high amount of blueberries or strawberries was associated with a slower decline in cognitive function test scores over the follow-up period compared to women whose intake was lower, resulting in a delay in cognitive aging of up to 2.5 years.

Editor’s Note: Berries are high in compounds known as flavonoids, which may help reduce the negative impact of inflammation and stress on cognitive function. In this study, greater intake of the anthocyanidin class of flavonoids and total flavonoids was also associated with a reduced rate of cognitive decline. —D. Dye

IN THE NEWS

Celery and Parsley Compound May Treat Breast Cancer

A recent study performed at the University of Missouri showed that apigenin, a natural substance found in celery and parsley, may be a nontoxic treatment for an aggressive form of human breast cancer.* According to Salman Hyder, the Zalk Endowed Professor in Tumor Angiogenesis and professor of biomedical sciences in the College of Veterinary Medicine and the Dalton Cardiovascular Research Center, apigenin slowed the progression of human breast cancer cells in three ways: By inducing cell death, by inhibiting cell proliferation, and by reducing expression of a gene associated with cancer growth. Blood vessels responsible for feeding cancer cells also had smaller diameters in apigenin-treated mice compared to untreated mice. Smaller vessels mean restricted nutrient flow to the tumors and may have served to starve the cancer as well as limiting its ability to spread.

“This is the first study to show that apigenin, which can be extracted from celery, parsley, and many other natural sources, is effective against human breast cancer cells that had been influenced by a certain chemical used in hormone replacement therapy,” Hyder concluded.

—M. Richmond


Clinical Trial Finds Heart-Protective Benefits for Resveratrol

The results of a trial published in The American Journal of Cardiology reveal a benefit for resveratrol in reducing cardiovascular disease risk factors in men and women taking statin drugs.*

Spanish researchers divided 75 participants who were at high risk of cardiovascular disease to receive a grape extract containing 8 mg resveratrol, a grape supplement without resveratrol or a placebo daily for six months, followed by a six month period during which the dose of the treatments was doubled. The pro-inflammatory cytokine interleukin-6 increased and the anti-inflammatory molecule interleukin-10 decreased by the end of the study in the placebo group, but no changes were observed among those who received grape extract without resveratrol. Subjects who received resveratrol experienced a 26% decrease in C-reactive protein as well as a 19.8% decline in TNF-α by the end of twelve months, indicating a significant decrease in inflammation.

Editor’s Note: Additionally, plasminogen activator inhibitor type 1 (PAI-1) was reduced, reflecting a reduction in the risk of excessive blood clotting, while adiponectin and interleukin 10 were increased in the group that received grape extract with resveratrol.

—D. Dye

* Am J Cardiol. 2012 Apr 19.

Testosterone Linked to Weight Loss in Obese Men

Researchers with Bayer Pharma AG, of Berlin, Germany reported in a new study that testosterone replacement may promote weight loss in obese older men who have low levels of the hormone.* The purpose of the study was to discover improved ways that obese men could lose weight.

Traditionally, reducing caloric intake does result in a reduction of overall weight, however, lean body mass is reduced as well. The researchers acknowledged that adding a moderate exercise program to a diet that limits food intake can maintain lean body mass and improve insulin sensitivity in obese men, but in the long run, sticking to these measures is difficult for most men. While surgery may be an option for some men, a few clinical and pre-clinical studies have pointed to a role for testosterone to combat obesity.

The researchers found that overall, lower levels of testosterone increase the accumulation of fat deposits around the midsection. This layer of fat is commonly related to increased risk for metabolic syndrome, type 2 diabetes mellitus, and cardiovascular disease. Taking this into account, the researchers concluded that testosterone treatment in obese men may increase energy, mood, and reduce fatigue, which could allow these men a greater chance at success in terms of committing to an exercise program and maintaining a reduction in daily calorie consumption.

—J. Finkel

Comprehensive Pomegranate Protection!

FULL-SPECTRUM POMEGRANATE FORMULA

Few nutritional sources have gained as much scientific validation as pomegranate. The vast majority of research has focused on extracts from the fruit. Only recently have scientists identified the synergistic action of compounds specific to other parts of the pomegranate—most notably its seeds and flowers.

The Next-Generation Pomegranate Formula

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

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

These little-known nutrients include: punicanolic acid, a member of the triterpene family of essential oils that provides cellular support to help with inflammation, and pomegranate, to combat age-related metabolic changes.

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

One softgel of Full-Spectrum Pomegranate™ contains:

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

Full-Spectrum Pomegranate™
A bottle containing 30 softgels of Full-Spectrum Pomegranate™ retails for $24. If a member buys four bottles, the price is reduced to just $15.75 per bottle. Item # 01423

Contains soybeans.

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

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

References:
Advanced RESVERATROL Formula

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

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

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

High-Potency Resveratrol with Synergistic Activators

Life Extension® members gain access to standardized trans-resveratrol combined with plant extracts that favorably influence longevity gene expression. Unlike many commercial formulas, Life Extension standardizes to trans-resveratrol, which researchers contend is the most active constituent.

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

To order Optimized Resveratrol with Synergistic Grape-Berry Actives, 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.

**References**

10. Xenobiotica. 2000 Sep;30(9):857-66
When Life Extension® introduced 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 original price.

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 three 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 vegetarian capsules 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 or as low as $6.41 a month based on the typical intake of just one capsule a day. Contains rice.
The Ultimate Two-Per-Day Formula

Compare CENTRUM® to TWO-PER-DAY:

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<th>LIFE EXTENSION® TWO-PER-DAY</th>
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<tr>
<td>Manganese</td>
<td>2 mg</td>
<td>2.3 mg</td>
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<tr>
<td>Iodine</td>
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<tr>
<td>Potassium</td>
<td>25 mg</td>
<td>80 mg</td>
</tr>
<tr>
<td>Vitamin A (as beta-carotene)</td>
<td>4,500 IU</td>
<td>1,000 IU</td>
</tr>
<tr>
<td>Vitamin A (preformed)</td>
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<td>1,500 IU</td>
</tr>
<tr>
<td>Choline (as bitartrate)</td>
<td>20 mg</td>
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</tr>
<tr>
<td>Inositol</td>
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<td>(none)</td>
</tr>
<tr>
<td>PABA</td>
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<td>(none)</td>
</tr>
<tr>
<td>Calcium</td>
<td>12 mg</td>
<td>220 mg</td>
</tr>
<tr>
<td>Alpha Lipoic Acid</td>
<td>125 mg</td>
<td>(none)</td>
</tr>
</tbody>
</table>

Compared to Centrum® Silver® Adults 50+, Two-Per-Day Tablets or Capsules provide about:
- 4 times more Vitamin D
- 8 times more Vitamin C
- 2 times more Vitamin E
- 10 times more Biotin
- 20 times more Boron
- 4 times more Selenium
- 25 times more Vitamin B6
- 50 times more Vitamin B1
- 12 times more Vitamin B12
- More than twice as much niacin, zinc, and many other nutrients

Two-Per-Day Tablets retail for $20, but members pay only $13.50 each when four bottles are purchased. Two-Per-Day Capsules retail for $22, but cost members only $15 each when four are purchased.

Each bottle of Two-Per-Day lasts 60 days, so members can obtain the benefits of this high-potency formula for as little as $7.50 per month.

To order Life Extension Two-Per-Day Tablets or Two-Per-Day Capsules, 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.
PYCNOGENOL®:
Multi-Modal Defense Against Aging
Wrinkles, loss of skin elasticity, and collagen destruction are the first visible signs of aging. More than skin deep, these degradations also are reflective of our internal aging as well. By slowing the factors that cause skin aging, we can also slow total body aging. That’s because the same basic mechanisms are at work to age us on the outside as well as the inside: oxidant stress, inflammation, damage to DNA, glycation, and cell membrane damage.

Extensive research into a plant extract Pycnogenol® from the French Maritime pine tree has shown that this collection of phyto-molecules not only rejuvenates skin elasticity and reduces collagen degradation, but works internally to lower blood glucose levels, increase nitric oxide to dilate blood vessels, restore capillary health, and normalize blood pressure. And it does all this by attacking the same fundamental aging mechanisms.

Pycnogenol® is a natural plant extract that contains procyanidins, bioflavonoids, and other health-giving molecules that act synergistically on five of the major processes that cause your skin—and your entire body—to age too quickly.1-3

BY JANET SARTO
immune system are also the hallmarks of optimal health. The animals also showed increased production of blood cells from their bone marrow, becoming more like normal younger animals.\textsuperscript{7}

The researchers concluded that Pycnogenol®, a unique natural mixture of health-promoting substances, was able to rejuvenate the experimental animals’ biology in ways that no single drug, or even nutrient, could do. Pycnogenol® synergistically restored many of the important defense factors that help us fight off various diseases when we are young, but that deteriorate with age.

Armed with this insight, scientists began to explore other ways that Pycnogenol® fights the primary aging mechanisms and slows the aging process in many different organs and systems at once.

**Beauty from Within:**
**Pycnogenol® Rejuvenates Skin**

Let’s first examine Pycnogenol’s® impact on preserving and restoring skin health and vitality before we turn to its internal health benefits. Skin ages for many reasons; leading to the visible signs we associate with older people. Numerous studies have shown that Pycnogenol® can reduce many of the aging factors that destroy supple skin by reducing free radical damage and protecting collagen and elastin from enzymatic degradation. To many scientists’ surprise, Pycnogenol® can block UV light’s damaging effects.

With the wealth of published data on the broad spectrum health benefits of Pycnogenol®, scientists began digging deeper into the impact that this extract has on the numerous factors of aging. In order to better understand the various benefits of Pycnogenol® researchers created a study using accelerated aging mice,\textsuperscript{7} which grow old much faster than normal animals. These specially bred mice show the typical effects of aging, such as decreased immune function, poor blood cell production, and learning and memory deficits.

When researchers fed a group of age-accelerated mice a diet supplemented with Pycnogenol®, the mice demonstrated significant improvements in cellular function, particularly their immune system’s infection- and tumor-fighting cells.\textsuperscript{7} These hallmarks of a strong
thereby preventing the inflammation and protein loss that ultimately leads to wrinkling.\(^8-10\)

In one study, researchers showed that Pycnogenol\(^\text{®}\) supplementation (75 to 125 mg/day) protected human volunteers from damaging sunburn after exposure to UV light.\(^9\) In other words, Pycnogenol\(^\text{®}\) acts as an internal sun-screen, reducing your exposure to this major cause of wrinkles.

Pycnogenol\(^\text{®}\) further prevents wrinkling by protecting vital skin proteins from degradation, while increasing their natural production.\(^11-13\) These proteins break down by UV-induced inflammatory processes caused by sun exposure. Healthy protein levels give youthful skin its supple, taut, elastic quality; their loss is a major contributor to wrinkling.

In animal studies, mice supplemented with a mixture containing Pycnogenol\(^\text{®}\) had significantly fewer wrinkles after exposure to UV light.\(^13\) They also had reduced UV-induced skin thickening and toughening, problems that also age human skin.

In a key human study, 62 women ages 45-73 took part in a double-blind, placebo-controlled trial of a similar Pycnogenol\(^\text{®}\)-containing oral mixture. Skin elasticity improved by an impressive 9% after 6 weeks of treatment, compared to the placebo group.\(^14\) By 12 weeks of supplementation, skin roughness was also significantly reduced by 6%.\(^14\)

Another study in 2012 showed that Pycnogenol\(^\text{®}\) alone, at a dose of 75 mg/day, increased skin hydration by 8% after just 6 weeks; in women with dry skin at baseline the increase was 21%.\(^11\) Skin elasticity increased, and skin fatigue decreased significantly in this study as well, further lowering the wrinkling risk.

Pycnogenol\(^\text{®}\) Protects Against Premature Aging

- Your skin provides an excellent reflection of your entire body’s aging.
- Skin, like the rest of your body, ages as the result of a handful of biological events.
- Pycnogenol\(^\text{®}\), a complex mixture of flavonoids and other beneficial molecules from the bark of a European pine, combats 5 of those major aging causes.
- By the same basic mechanisms, Pycnogenol\(^\text{®}\) reduces the risk of other age-related diseases, including heart disease, diabetes, cognitive decline, and arthritis.
- You should be supplementing with Pycnogenol\(^\text{®}\) to optimize your defense against premature aging.

**Figure 2. Skin Elasticity in 62 Women**

<table>
<thead>
<tr>
<th>baseline</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pycnogenol(^\text{®})</td>
<td>+9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placebo control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin elasticity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2: After 6 weeks supplementation with a Pycnogenol\(^\text{®}\)-containing supplement, skin elasticity improved by 9% over the placebo group.\(^14\)
Pycnogenol® also has favorable effects on the uneven and undesirable pigmentation of skin known as melasma which is typically seen on facial areas with high sun exposure.

In a study, 30 women with melasma took 75 mg/day of Pycnogenol® for 30 days. At the end of the study, the size of their unwanted skin pigmentation was significantly reduced. Other areas of skin became lighter as well, as the density of pigment decreased.

Chronic venous insufficiency, unlike wrinkling and melasma, is often part of a life-threatening process, such as congestive heart failure or a blood clot. The resulting skin breakdown and ulceration also opens victims up to the risk of serious infections.

Two large clinical studies showed Pycnogenol’s® benefits in fighting chronic venous insufficiency. In the first, patients took 150 or 300 mg/day for 8 weeks, in comparison with an established drug treatment called Daflon. Pycnogenol® supplemented patients had reduced leg swelling, along with improvements in oxygen and carbon dioxide content of the tissue. These changes all indicated improved blood flow and decreased capillary fluid leakage compared with the Daflon group.

The second study compared Pycnogenol® 150 mg/day with a placebo, over an 8-week period. Supplemented patients had a 26% decrease in ankle swelling and a 64% reduction in tissue fluid (edema). That netted patients a 60% decrease in overall symptoms including pain, restless limbs, and skin alterations.

Clearly Pycnogenol® battles aging skin both internally and externally. Let’s look now at how it fights the effects of age in some other tissues and organs.

**Pycnogenol® for Heart and Artery Health**

More than 27 million Americans have heart disease; nearly 600,000 die from it each year. Age-related dysfunction of the endothelium (the layer of cells lining arteries and smaller vessels), is to blame for many cardiovascular diseases. A malfunctioning endothelium can’t properly control blood flow and pressure.

Excessive platelet function is another cause of heart disease and stroke. When platelets are overactive, clots form inside blood vessels, blocking blood flow.

The result of endothelial dysfunction and platelet activation can be a heart attack or stroke. Pycnogenol® improves both conditions.

Pycnogenol’s® antioxidant function helps protect endothelial cells from damage. In addition, it may bind to proteins in blood vessel walls, helping to “seal” them and prevent capillary leakage. Studies demonstrate how these effects play out in human subjects with endothelial dysfunction. When patients with high blood pressure were given 100 mg/day of Pycnogenol® for 12 weeks, they were able to reduce their blood pressure medication.

In another study, 125 mg Pycnogenol®/day helped normalize blood pressure in 58% of hypertensive diabetic patients, while cutting their need for blood pressure medication by 50%. Supplementation can also reduce the fluid accumulation that is a common side effect of blood pressure medications. Insight into how Pycnogenol® works to lower blood pressure comes from human studies using ultrasound to measure blood flow. Healthy young men treated with 180 mg/day of Pycnogenol® had a 41% increase in blood flow response to the vascular-response neurotransmitter acetyl choline indicating significantly lower risk for cardiovascular complications.
A similar study done in patients with existing coronary artery disease, (who were considered at high risk for heart attacks) showed that 200 mg of Pycnogenol® per day along with standard cardiovascular therapy, produced a 32% increase in coronary blood flow, but no change occurred in placebo patients.24 Another benefit of improved blood flow is better erectile function in men. A dramatic study showed that a combination of L-arginine aspartate and Pycnogenol® intake for one month restored erectile dysfunction to normal, and doubled the frequency of intercourse.25 Along the way, cholesterol and blood pressure were also reduced.

The physiology behind the improvement in erectile function is important, and applies equally to men and women. That’s because nitric oxide, a signaling compound, is essential in dilating blood vessels, not only to allow a normal erection, but also to control blood pressure throughout the body. Our bodies relax their arteries by increasing nitric oxide levels in the vessels’ lining cells, or endothelium.26 Pycnogenol® beneficially modulates nitric oxide production.27 In endothelial cells, Pycnogenol® boosts levels of endothelial nitric oxide synthase (eNOS), the enzyme system that produces vessel-relaxing nitric oxide in response to blood flow and blood pressure.28 That effect is powerful enough to overcome the vessel-constricting, blood pressure-elevating effects of adrenaline and other stress-induced compounds.28 The result is an increase in blood flow to vital tissues, and a decrease in blood pressure.27

Animal and human studies have repeatedly shown that treatment of hypertension with Pycnogenol® results in lowered blood pressure and reduced damage to blood vessels and organs such as the kidney.27,29 And the positive elevation of nitric oxide in endothelial tissue can also inhibit LDL cholesterol oxidation, slowing the early development of atherosclerotic plaques.28

Among the most exciting developments with Pycnogenol® and nitric oxide are studies showing that Pycnogenol® can mitigate the effects of congestive heart failure. In this condition, chronically elevated pressures within the heart cause the muscle to become floppy and ineffective. Victims become weak, fluid accumulates in their tissues, and death often results from increasingly insufficient blood flow.

Changes in heart structure during congestive heart failure are the direct result of impaired nitric oxide production. Supplementing animals with Pycnogenol® reverses that remodeling in congestive heart failure, reduces the gradual degradation of heart muscle proteins, and restores the heart’s ability to pump blood normally.10,31

Boosting nitric oxide in endothelial cells and platelets also gives Pycnogenol® impressive effects on platelet function. It reduces their “stickiness,” which lowers the risk that these tiny blood cells will produce a deadly clot in one of your vessels.28

Smokers, who are at high risk for blood clots, participated in a study that showed 200 mg of Pycnogenol® was sufficient to reduce over-activated platelet function.32 This effect is likely due to reduction in thromboxane, a clot-inducing protein that is elevated in many high-risk conditions including diabetes and obesity.33
### Pycnogenol® Protects Against Five Mechanisms of Aging

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Problem</th>
<th>Resulting Diseases</th>
<th>Pycnogenol® Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidant Stress</td>
<td>Oxidant stress releases free radicals that “burn” cells and tissues. That damages DNA and cell membranes, and triggers dangerous inflammation.</td>
<td>Oxidant stress underlies neurocognitive disorders like Alzheimer’s and Parkinson’s diseases, as well as atherosclerosis and cancer.</td>
<td>Pycnogenol® reduces free radical production, boosts cells’ natural antioxidant systems, and scavenges free radicals, preventing the development of oxidant-related diseases.²⁴⁷⁵⁵⁵⁸</td>
</tr>
<tr>
<td>Membrane Damage</td>
<td>Damage to membranes of cells and their internal organelles disrupts cellular structure and communication.</td>
<td>Damage to cell and mitochondrial membranes is implicated in chronic obstructive pulmonary disease (COPD) and congestive heart failure.</td>
<td>Pycnogenol® stabilizes membranes, protects them against toxic injury, restores their normal characteristics, and prevents their rupture and leakage.⁴⁵¹⁹⁵⁹</td>
</tr>
<tr>
<td>DNA Damage</td>
<td>Damaged DNA can fail to produce working proteins, and can lose control over cell replication.</td>
<td>The best-known consequence of DNA damage is cancer, but it is also involved in Alzheimer’s disease, attention deficit/hyperactivity disorder (AHDH) and atherosclerosis.</td>
<td>Pycnogenol® reduces DNA damage by its antioxidant effect and possibly other mechanisms.³⁵⁸⁶⁰⁶¹</td>
</tr>
<tr>
<td>Inflammation</td>
<td>Chronic inflammation damages almost every component of cells and their organelles.</td>
<td>Inflammation is involved in every chronic, age-related disease, including atherosclerosis, osteoporosis, kidney disease, arthritis, and cancer, to name just a few.</td>
<td>Pycnogenol® fights inflammation by switching off a central inflammation-generating system and reducing the production of inflammatory cytokine molecules.⁸⁵⁴⁶²⁶⁴</td>
</tr>
<tr>
<td>Glycation</td>
<td>Proteins and fats become “glycated” when sugar molecules bond to them. Glycated molecules function abnormally and trigger oxidation and inflammation.</td>
<td>Glycation is implicated in cancer, cardiovascular disease, Alzheimer’s disease, osteoporosis, and arthritis. It also contributes to obesity, itself a cause of inflammation and chronic disease.</td>
<td>Pycnogenol® prevents glycation by lowering blood sugar levels and preventing sugar absorption in the intestine.⁶³⁸⁶⁵⁶⁶</td>
</tr>
</tbody>
</table>

Five major molecular mechanisms contribute substantially to aging and chronic diseases. Studies show that Pycnogenol® combats all five mechanisms and prevents disease.
When you sit still for long periods of time (for example, on a long airplane flight), you are at risk for developing dangerous blood clots in your legs. These clots can travel, eventually blocking major arteries from the heart to the lungs, and cause sudden death.

Pycnogenol® shows a unique ability to prevent these so-called thrombotic events. When a group of 99 long-haul airline passengers were given 200 mg of Pycnogenol® before departure, and another 200 mg 6 hours later, then 100 mg next day, they had zero thrombotic events, compared with 5 such events in a similar-sized group of placebo patients.34

**Pycnogenol® Helps Control Diabetes**

People with diabetes are in a constant state of accelerated aging, vulnerable to all five of the key mechanisms described on the preceding page. Controlling blood sugar levels is vital to prevent these age-enhancing effects.

Pycnogenol® supplementation lowers blood sugar levels, especially in the critical after-meal period when high sugar leads most powerfully to heart disease.35,36 One way Pycnogenol® works is by blocking starch breakdown in the intestine.37 This slows glucose absorption (we get much of our glucose from breaking down starch), and helps level off the blood sugar flux throughout the day. Pycnogenol® also stimulates cells to take up excess glucose from the blood, reducing blood sugar even more.38,39 Patients treated with 125 mg/day of Pycnogenol® saw a drop in fasting blood sugar of 23.7 mg/dL, compared with a decrease of just 5.7 in controls. Hemoglobin A1c, a marker of long-term blood sugar levels, dropped by 0.8% in supplemented patients, compared with just 0.1% in controls. LDL (bad) cholesterol dropped by 12.7 mg/dL as well.4 In a second study involving 30 individuals with type II diabetes who were not on conventional therapy, Pycnogenol® showed dose dependent lowering of blood sugar levels.35 The participants were administered 50 mg of Pycnogenol® for 3 weeks, followed by 100 mg for 3 weeks, and finally 200 mg for 3 additional weeks. As little as 50 mg per day of Pycnogenol® had significant blood sugar lowering effects not just on fasting blood sugar but post-meal blood sugar as well. However, the benefit of taking 100 mg or 200 mg of Pycnogenol® was even more dramatic. Many people with diabetes need to lose weight. Strict control of blood sugar and weight loss will reduce, but not eliminate, the risk of diabetic complications. Many of these complications result from small blood vessel damage in the eye, the skin, and the nerves.

Pycnogenol® slows progression of blood vessel disease in the eye (diabetic retinopathy) by reducing capillary damage in the retina and improving blood flow.39,41 One study using 150 mg/day for 2 months completely blocked the loss of retinal function in diabetic patients.20 Placebo patients just got worse. Supplemented patients showed no deterioration of retinal function, instead experienced a significant recovery in visual acuity (ability to see according to the standard “Snellen” eye chart).20 Blood vessel studies in supplemented patients demonstrated improved distribution of blood vessels, and a reduction in the “leakiness” of capillaries that damages vision.
PYCNOGENOL®: MULTI-MODAL DEFENSE AGAINST AGING

neuropathy. People with this condition experience burning, stinging sensations; meanwhile, their nerves conduct impulses more slowly than normal.

PYCNOGENOL® has been shown to slow declines in nerve conduction velocity, even under diabetic conditions.36

Pycnogenol® Boosts Brain and Memory Function

Our delicate brain tissue is especially vulnerable to the effects of aging. The brain receives 30% of overall blood flow, which is good, but which also exposes it to very high levels of oxidant stress. Over time, the other aging mechanisms also accumulate in the brain, eventually leading to loss of memory, slowed learning, and specific conditions like Alzheimer's disease.

Pycnogenol® is especially good at protecting brain cells from oxidant and inflammatory damage in Alzheimer's disease.19,44 It slows cell death following exposure to the dangerous "Alzheimer's protein" called Abeta (amyloid beta), and other oxidant stressors.44,45

Studies show that Pycnogenol® not only blocks oxidant damage, but also increases levels of natural antioxidants in brain cells, further increasing their resilience.44,46

These biochemical effects produce real results in older adults. Three months’ supplementation with Pycnogenol® 150 mg/day in healthy older adults produced significant improvements in working memory.47 That’s the kind of memory you use, for example, when you look up a phone number and remember it long enough to dial it, or to find your way back to your room in a new house or hotel.

Pycnogenol® also helps improve spatial memory in aged animals with low testosterone (a common finding in men after “male menopause”).48 Spatial memory is what you use to remember where you put something, for example.

Menopause in women also causes loss of memory and some other brain functions. Pycnogenol® decreased overall menopausal symptoms in women by 46%, compared with no change in placebo patients, with specific improvement in memory function, concentration, mood, and sleeping patterns.49

Even people at the other end of the age spectrum can benefit from Pycnogenol® supplementation for memory. Healthy students supplemented with Pycnogenol® experienced improved attention, memory, and mood ratings.50 Not only that, but they performed better on real tests. Control students failed 10.7% of their tests, while supplemented students failed only 6.25%; average test scores were 7.6% better in those on supplements.

An independent study at a different hospital showed similar results.41 Eighteen out of 24 patients had subjective improvement in their vision, and the average visual acuity on the Snellen chart improved by 21.4% after just 2 months of treatment. No change was found in the placebo group.

Diabetic damage to capillaries in the skin (microangiopathy) produces skin breakdown and ulcers. Oral Pycnogenol® at 150 mg/day can produce complete healing of ulcers in up to 85% of patients.42,43

Prolonged exposure to elevated glucose damages nerves, producing a painful condition called diabetic neuropathy. People with this condition experience burning, stinging sensations; meanwhile, their nerves conduct impulses more slowly than normal.

Figure 3: In Type II diabetics not requiring medication, 50-200 mg of Pycnogenol® lowered both fasting and after meal glucose levels.35

Figure 4: Pycnogenol® use has afforded improvements in visual acuity on the Snellen chart by an average 21.4%, even for those already afflicted with serious eye disease such as retinopathy.41
Pycnogenol® Eases Arthritis

Stiff, aching joints are almost a stereotype of an aging person. Joints age for the same reason that other tissues do; they succumb to the 5 basic mechanisms of aging that we’ve been discussing.

The most common consequence of aging in joints is osteoarthritis, suffered by fully one-third of people over age 65.51

Pycnogenol® offers dramatic relief for osteoarthritis sufferers, as demonstrated by a 3-month study of 156 people.52 Just 100 mg/day produced a 56% reduction in the global WOMAC score, (a standard arthritis self-assessment test that evaluates pain, stiffness, and functional limitation of arthritic joints), while placebo recipients’ scores dropped only 9%. Before supplementation, patients could walk only about 223 feet; that distance increased 66% to 650 feet after treatment. Placebo recipients saw little change.

In the same study, drug use dropped by 58% in supplemented patients, and just 1% in controls.52 Meanwhile, stomach complications (common in people taking high doses of arthritis drugs), dropped 63% (and only 3% in placebo patients).

Similar studies have shown identical results for osteoarthritis, 53 and also improvement in arthritis caused by gout. 54 The benefits of Pycnogenol® on arthritic joints are likely the result of sharp reductions in inflammatory markers in the blood, which signal diminished damage in joints.54,55

Summary

Aging is accelerated by multiple pathological events. It is most evident in the skin, our largest and most visible organ. But the same processes take place throughout the body. Pycnogenol®, a natural mixture of health-promoting phyto-molecules, dramatically improves skin aging, reducing the risk of wrinkles, abnormal pigmentation, and even the thinning and ulceration that accompanies vascular insufficiency. Studies show that Pycnogenol® synergistically attacks five of the most prominent causes of aging in skin and in many other organs and systems. The multiple anti-aging mechanisms of Pycnogenol® would be expected to substantively reduce risk for cardiovascular disease, diabetes, cognitive decline, and arthritis.

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


Foundation members can now choose between SolarShield® sunglasses or OveRxCast polarized lenses that provide the same eye protection, plus improved vision under difficult weather conditions.

Life Extension’s SolarShield® sunglasses are recognized as the number-one doctor-recommended sunglass in the world, with more than 50 million pairs sold to date. Patented SolarShield® sunglasses with durable polycarbonate lenses and 100% UV protection fit comfortably over prescription eyewear, providing convenient protection from the harmful effects of ultraviolet radiation.

For those who desire the added benefit of lenses that reduce distracting glare, Life Extension’s OveRxCast sunglasses come with polarized gray lenses that provide natural color definition with 100% UV protection. Like the SolarShield® sunglasses, OveRxCast polarized sunglasses are designed to be worn over your prescription eyeglasses.

The SolarShield® sunglasses retail for $12.99 for one pair, and the member price is $9.74. If a member buys two pairs, the price is reduced to only $8.63 a pair.

One pair of OveRxCast sunglasses retails for $27, and the member price is $20.25. If a member orders two pairs, the price is reduced to just $15.75 per pair.

To order SolarShield® or OveRxCast sunglasses, call 1-800-544-4440 or visit www.LifeExtension.com

SolarShield® is a registered trademark of Dioptics, Inc.
Life Extension® Pycnogenol® French Maritime Pine Bark Extract is a natural plant extract containing procyanidins, bioflavonoids, and other health-giving molecules that synergistically support the body’s natural defenses against 5 major processes that characterize premature aging. Its effectiveness is backed by 20 years of study.

Life Extension® Pycnogenol® French Maritime Pine Bark Extract is designed to counteract premature-aging-related changes by providing support for the following mechanisms:

**MEMBRANE FUNCTION:** Pycnogenol® promotes the integrity and normal characteristics of cell membranes.1-4

**DNA FUNCTION:** Pycnogenol® helps support normal DNA function through antioxidant activity and possibly other mechanisms.5-8

**EASE INFLAMMATION:** Pycnogenol® helps ease inflammation by normal modulation of inflammatory cytokine molecules.9-13

**OXIDATIVE STRESS:** Pycnogenol® supports the normal functioning of healthy antioxidant systems to help suppress free radicals and protect DNA.14-19

**GLYCAITION:** Pycnogenol® supports cellular metabolism of sugar, healthy fasting, and post-meal blood sugar levels already within normal range, and normal sugar absorption in the intestine.20-25

Unlike other forms of pine bark extract, Pycnogenol® is a superior patented and standardized ingredient that has undergone extensive human clinical research to substantiate its numerous anti-aging properties. A bottle of Life Extension® Pycnogenol® French Maritime Pine Bark Extract containing 60 vegetarian capsules retails for $64. If a member buys four bottles, the price is reduced to $54 per bottle. The dose for most people is one capsule daily, so each bottle lasts two months.

Each capsule of Life Extension® Pycnogenol® French Maritime Pine Bark Extract provides:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pycnogenol® dried French Maritime pine (Pinus pinaster) extract (bark) (std. to 65% procyanidins (65 mg))</td>
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</tr>
<tr>
<td>Vitamin C (as ascorbyl palmitate)</td>
<td>4 mg</td>
</tr>
</tbody>
</table>

References

6. Drug Dev Ind Pharm. 1998 Feb;24(2):139-44.
11. Inflamm (Lond). 2006;3(1).
19. Drug Dev Ind Pharm. 1998 Feb;24(2):139-44.

Pycnogenol® is a registered trademark of Horphag Research Ltd. Use of this product may be protected by one or more U.S. patents and other international patents.

To order Life Extension® Pycnogenol® French Maritime Pine Bark Extract, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Safely Manage JOINT INFLAMMATION
The standard of care for the arthritic patient is prescription drugs with a long list of side effects.1-3 These drugs do nothing to stop the bone and joint destruction caused by osteoarthritis or rheumatoid arthritis.4,5 Beyond that, the patient must learn to live with their crippling pain and limited mobility.

Fortunately, help is readily available. A highly specialized complex of curcumin known as BCM-95® fights the joint-damaging effects of arthritis by attacking multiple inflammatory targets at once.

A team of internationally recognized scientists has published an impressive clinical trial of this superior-absorbing curcumin complex that most Life Extension® members have used for the past several years. The study subjects were rheumatoid arthritis patients who suffered from sky-high levels of inflammation that affected not only their joints but other vital tissues as well.5

In this 2012 study, curcumin beat out the standard arthritis drug diclofenac on most measures of effectiveness.5 Curcumin was free of any of the side effects that so often accompany drug therapy.

The study also showed this superior-absorbing curcumin directly attacked the source of the problem—inflammation—rather than simply masking pain and other symptoms.5

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Curcumin

BY SUSAN EVANS
Curcumin’s ability to safely quash inflammation in such a broad-spectrum manner makes it a compelling topic among anti-aging researchers. It is being studied for its potential benefits in a number of inflammation based diseases such as Alzheimer’s, cardiovascular disease, cancer, multiple sclerosis, and diabetes. To explore curcumin’s therapeutic potential for rheumatoid arthritis, one of the most inflammatory diseases known, a distinguished team of international researchers decided to examine the benefits of curcumin. Based in the US at Baylor University Medical Center and in India at the Nirmala Medical Centre, the team’s members represent some of the most advanced thinkers in the field.

### Curcumin’s Effectiveness Against Rheumatoid Arthritis

The researchers enrolled 45 people with active rheumatoid arthritis during a flare-up of the disease. That strategy allowed the researchers to test curcumin’s effects at the peak of the inflammatory response. Each of the 45 patients was randomly assigned to one of three study groups. **Group 1** was the curcumin-only group. Each patient in this group received 500 mg/day of the superior-absorbing curcumin. **Group 2** received the curcumin formulation in addition to 50 mg/day of the non-steroidal anti-inflammatory drug diclofenac sodium. **Group 3** received only diclofenac.

### Applying Curcumin’s Multitargeted Benefits To Arthritis

Curcumin is derived from the bright yellow Indian spice turmeric and has been used by traditional medicine for almost four thousand years. Curcumin is well-established in the medical literature as a powerful anti-inflammatory ingredient. Unlike pharmaceuticals, curcumin acts through multiple pathways and on numerous targets to limit the inflammatory response that underlies both rheumatoid and osteoarthritis (See table 1 at bottom of this page).

Scientists now universally recognize that multitargeted therapies like curcumin are vastly superior to the typical single-targeted mechanisms of conventional drug treatments. Curcumin is a potent antioxidant, and also boosts natural antioxidant systems inside your cells. Curcumin can also enhance other natural detoxifying machinery in your liver. By slowing naturally occurring cell death in joint tissue, curcumin can help preserve supple, youthful joints.

But where curcumin really shines is in directly suppressing the inflammation that underlies not only rheumatoid arthritis, but also most of the chronic diseases of aging that afflict all of us sooner or later. One recent report showed that curcumin can reduce all of the inflammation-promoting molecular targets for which the FDA currently approves single-targeted (and often dangerous) pharmaceuticals.

### Curcumin’s Effectiveness

<table>
<thead>
<tr>
<th>Molecular Target Inhibited by Curcumin</th>
<th>Pathologic Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tumor Necrosis Factor (TNF)</td>
<td>Destroys joint cartilage and other tissues</td>
</tr>
<tr>
<td>Vascular Endothelial Growth Factor (VEGF)</td>
<td>Promotes excessive blood vessel growth in inflamed joints and in cancers</td>
</tr>
<tr>
<td>Human Epidermal Growth Factor (EGF)</td>
<td>Promotes growth and activity of cells involved in joint destruction in rheumatoid arthritis and in many cancers</td>
</tr>
<tr>
<td>Estrogen Receptors</td>
<td>Promote growth of many breast cancers; also decrease effectiveness of drugs used in rheumatoid arthritis</td>
</tr>
<tr>
<td>Nuclear factor-kappa B (NF-kB)</td>
<td>Potent inducer of the inflammatory cascade by activating the genes responsible for producing inflammatory compounds</td>
</tr>
</tbody>
</table>

Curcumin suppresses activity of at least 5 categories of molecular signals that promote inflammation and joint destruction in rheumatoid arthritis, and are implicated in many cancers.
All patients took their assigned drug regimen for 8 weeks. Throughout the study, the patients were evaluated using a standard rheumatoid arthritis disease activity score. In addition, blood tests were done at the beginning and the end of the treatment period, to determine the patients’ overall degree of inflammatory responses. Patients also assessed their own pain levels on a 0-10 scale. Finally, the researchers tracked the number of patients who achieved improvements of 20%, 50%, or 70% in tenderness or swollen joints by the end of the study.

The results were compelling, and demonstrated the practical advantages of curcumin over the standard drug treatment.

Curcumin-treated patients hurt less. All patients in the study experienced significant improvements in their disease activity scores by the end of the study. Patients in the curcumin-only group showed improvement of 44.5%; improvement was 44.4% in the curcumin plus diclofenac group, and 42.1% in the diclofenac-only group. (Patients’ self-measured pain scores showed a greater difference in favor of the curcumin-only group, which had a mean 60% reduction in pain scores; the curcumin-plus-diclofenac group’s mean reduction was 56%; and that of the diclofenac-only group was 50%.)

Curcumin-treated patients’ joints were less swollen and tender. The curcumin-only group had the largest number of patients experiencing 20%, 50%, or 70% reductions in overall joint swelling and tenderness (93%, 73%, and 33%, respectively).

Curcumin-induced measurable changes on blood tests of inflammation. These impressive improvements in joint pain and swelling were matched by changes in blood markers of inflammation. For scientists, these improvements in the patients’ blood markers of inflammation are exciting proof that curcumin is hitting its multiple targets and quelling the inflammatory process.

For example, the curcumin-only and curcumin-plus-diclofenac groups saw reductions of 11.2 and 13.3% in the erythrocyte sedimentation rate test, a measure of inflammation; the diclofenac-only group had just an 8.3% reduction. Still more dramatic results were seen on the more sensitive C-reactive-protein (CRP) measurement that is capable of detecting systemic inflammation; the curcumin-only group had a 52% reduction in CRP, the curcumin-plus-diclofenac group had a 26.9% CRP reduction, and the diclofenac-only group had a 1.5% increase in CRP.

Curcumin-treated patients had no side effects. While patients in the groups receiving diclofenac experienced drug-related adverse events, those in the curcumin-only group had none at all.
In summary, this study was the first to demonstrate that curcumin is superior to a standard anti-inflammatory drug for use in rheumatoid arthritis. It also showed that adding the standard drug did little to enhance the effect of curcumin acting alone; indeed, on many of the study's measures, curcumin alone outperformed the drug/curcumin combination. Let's now look at the special characteristics of the curcumin formulation that was used in this study. Those characteristics not only explain this study's success, but they also open the door to similar improvements in other inflammatory diseases for which curcumin holds promise.

**Enhanced Bioavailability**

Despite its clear ability to reduce markers of inflammation in laboratory studies, development of curcumin as a human nutraceutical has been hampered by one major obstacle. Curcumin in its natural state is not well absorbed from the human intestinal tract. In addition, it appears to be rapidly broken down both in the intestine and after absorption into the bloodstream,14,16,17 That has meant the need to deliver very large doses of the supplement, doses so large that in some cases people have balked at the size and number of capsules required to achieve a good effect.14,18,19 Doses as high as 12,000 mg (that's 12 grams, more than a third of an ounce) have been used in efforts to get significant amounts of curcumin into the bloodstream.18 At such high doses, even curcumin can produce uncomfortable symptoms such as abdominal fullness and bloating, though no true toxicity has been demonstrated.19

To improve effectiveness and reduce the dose size required, researchers in the rheumatoid arthritis study made use of a specialized curcumin complex that has increased bioavailability. Bioavailability is a measure of how much of a given dose of a drug or nutrient makes it into the bloodstream for delivery to target tissues. Researchers showed in 2008 that curcumin's bioavailability could be enhanced through a very simple expedient process.14 Curcumin is first extracted from the turmeric root. Next, it is highly purified, cushions the joint, and eventually they even erode away the bone itself. That can deform the joint and further impair movement.

Symptoms of rheumatoid arthritis are pain, swelling, and redness of the joints. It can begin at any age (unlike osteoarthritis, which doesn't occur until at least mid-life). There is as yet no known cure for rheumatoid arthritis.37

Recent science is showing that osteoarthritis has a major inflammatory component as well, contrary to our long-held beliefs.38 That's good news for the millions of sufferers of osteoarthritis, because curcumin's powerful and multi-targeted suppression of inflammation may offer relief for them as well as for those with rheumatoid disease.
and then reconstituted with certain other components of the original turmeric plant. Those constituents are thought to increase intestinal absorption and also reduce natural breakdown of curcumin in the body. The reconstituted curcumin mixture used by most Life Extension members today is called BCM-95®.14

Clinical studies of BCM-95® in human volunteers have shown that its bioavailability is nearly **seven times** greater than that of a standard extract of curcumin.14,15 BCM-95® was also more than **six times** as bioavailable as a leading mixture of curcumin with two other natural products, lecithin and piperine.14 BCM-95® is not only better absorbed than standard curcumin, it achieves significant blood levels and remains in the blood longer (See figure 1 above).15 This means that your body can reap the beneficial effects of curcumin for considerably longer. This advantage applies not only to rheumatoid arthritis, but to other conditions for which curcumin may be indicated.

### Figure 1. Bioavailability of Curcumin vs. BCM-95®

Results from a study of BCM-95® and regular curcumin in human volunteers.15 Volunteers consumed equivalent doses of standard curcumin and BCM-95® supplements. Blood was drawn before the dose, and at 2, 4, 6, 8, 10, and 12 hours after. Curcumin levels in blood were determined using standard laboratory techniques. Peak blood levels of curcumin in blood of BCM-95® recipients were **5-7 times** greater than those in standard curcumin recipients.

### Curcumin and Osteoarthritis

**Osteoarthritis**, long thought to be a purely “degenerative” disease, is now recognized to have multiple inflammatory components. Scientists are rapidly exploring curcumin’s potential role in suppressing those inflammatory processes.

One of the key features of osteoarthritis is the breakdown of the slippery cartilage that lines joints, lubricating them and cushioning them from the impact of constant use.12 That cartilage breakdown is triggered by multiple pro-inflammatory signaling molecules, many of which are secreted from the membranes that line the joint.10

Studies now show that curcumin can protect this vital lubricating cartilage in several ways. Curcumin directly counteracts the effect of those inflammatory molecules, especially within cartilage cells themselves.12 In the joint-lining membranes, curcumin suppresses the growth of the inflammatory cells that are responsible for cartilage destruction.20 And curcumin even inhibits the “cartilage-eating” enzymes that carry out the destructive process itself.21,22

### Highly Bioavailable Curcumin Fights Fat-Related Inflammation

The availability of the highly bioavailable form of curcumin, BCM-95®, is making possible new progress in old diseases. BCM-95® was recently shown in an animal study to reduce the amount of inflammation associated with obesity, a major cause of accelerated aging, diabetes, and other chronic diseases.24,39 In that study BCM-95® also reduced levels of one particular inflammatory molecule, IL-2 that is associated with loss of brain cells in Alzheimer’s disease.39 These early reports illustrate the tremendous potential associated with the dramatic enhancement in bioavailability of curcumin in tissues throughout the body.
Curcumin is taking center stage in the fight against cancer. To date, curcumin has been shown in human clinical trials to prevent or mitigate cancers of the gastrointestinal tract (such as colorectal and esophageal cancers), the breast, prostate, liver, cervix, and skin, as well as a form of leukemia, chronic lymphocytic leukemia, common in older adults. Promising results are also being published in studies of curcumin and pancreatic cancer, one of the deadliest cancers that afflict humans. Most of these trials have been early stage studies, with small numbers of subjects, but their preliminary results are encouraging.

Animal and basic lab science studies are shedding increasingly clear light on just how curcumin exerts its anticancer activities. Here’s what we know:

**Curcumin prevents DNA damage.** Damage to your DNA is inevitably the first step in cancer development. Damaged or “mutated” DNA can trigger unbridled growth of cells that lack normal restraints, leading to a full-blown tumor. Studies show that curcumin can reduce the rate of cancer-inducing DNA damage.

In one human study, colon cancer patients supplemented with curcumin (up to 3.6 g/day for 7 days) had a 58% reduction in DNA damage in their intestinal tissue.

**Curcumin ramps up liver detoxifying enzymes.** Many cancer-causing chemicals enter your body each day; your body relies on sophisticated detoxification systems, mostly in the liver, to render those toxins harmless. Curcumin powerfully increases production of those enzymes, boosting your body’s ability to rid itself of dangerous tumor-inducing substances.

**Curcumin quenches the fires of inflammation.** Inflammatory processes throughout your body promote cancer development. Curcumin acts at multiple molecular targets to shut down chronic inflammation and reduce production of the chemical cytokines that promote it, directly reducing your risk of developing a tumor. When a group of colon cancer victims took curcumin (3.6 g/day for four months), their blood levels of inflammatory cytokines dropped by up to 62%.

**Curcumin promotes cancer cell suicide.** Normal cells are equipped with a “self-destruct” program that causes them to die if they begin to reproduce too fast or become damaged in ways that could harm your body. Cancer cells disable that program early in their progression, allowing their explosive replication. Curcumin switches the self-destruct program back on, causing abnormal cells to quickly bow out.

**Curcumin breaks the link between obesity and cancer.** The risk of almost all cancers is increased in obesity. That’s in part because of raised insulin levels seen in obese people and those with type 2 diabetes (insulin is a growth factor that promotes cancer development). By reducing insulin resistance, curcumin helps lower your insulin levels and reduce your cancer risk.

**Curcumin suppresses molecules cancers need to sustain their growth and invade your tissues.** As tumors grow, they stimulate formation of new blood vessels to support their voracious appetites for nutrients and oxygen. They over-produce molecules that help them “stick” to adjacent tissue and invade it. Finally, they make enzymes that literally “melt” the protein glue that holds normal tissues together, allowing them to spread to far away parts of the body through metastasis. Curcumin acts to suppress production of many of these cancer-promoting chemicals.

**Curcumin stops pre-malignant tissue from progressing.** Cancers in some organs, such as the intestine and cervix, develop slowly enough that we can detect areas of abnormality before they turn malignant. Removing them, however, requires invasive procedures that don’t always catch every lesion and that bring with them some risk of their own. Human studies show that curcumin supplementation triggers improvement in precancerous lesions of the bladder, mouth, stomach, and cervix. Curcumin supplementation reduced the number and size of precancerous intestinal polyps by 60% and 51%, respectively, in people at high risk for colon cancer.
A pair of human studies showed that joint pain was reduced and joint function was improved, in patients taking a commercial curcumin complex that was formulated to improve absorption. Those studies, like the one detailed above, also demonstrated improvements in blood tests measuring inflammation.

**Summary**

Inflammation lies at the heart of virtually all diseases associated with aging. In fact, people with inflammatory conditions experience accelerated aging that affects every tissue and organ in their bodies.

Rheumatoid arthritis is one of the most aggressive and destructive of the inflammatory conditions that afflict humans, and it is one that has proven resistant to all but the most dangerous forms of standard medical treatment.

Curcumin has held out great hope for management of all kinds of inflammatory diseases, but its benefits have been hampered by its poor absorption and availability to inflamed tissues. A superior-absorbing curcumin formulation (BCM-95®) has up to 7 times the bioavailability of commercial products.

A clinical trial of BCM-95® among sufferers of active rheumatoid arthritis demonstrated not only that the formula was safe, but also that the effectiveness of only 500 mg a day exceeded that of a standard anti-inflammatory drug.

Additional new studies suggest that this curcumin formula can reduce obesity-associated inflammation as well. Together, these findings suggest that highly bioavailable curcumin represents an entirely new chapter in the management of one of humankind’s most feared diseases.

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**


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**TABLE 2: Arthritis Drugs, Their Effects, and Side-Effects**

<table>
<thead>
<tr>
<th>Drug Category</th>
<th>Used In</th>
<th>Intended Effect</th>
<th>Side Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Steroidal Anti-inflammatory Drugs (NSAIDs, e.g., ibuprofen, diclofenac)</td>
<td>Osteoarthritis and Rheumatoid Arthritis</td>
<td>Relieve joint pain and inflammation</td>
<td>Gastrointestinal bleeding, liver toxicity, allergic reactions(^5,25)</td>
</tr>
<tr>
<td>Glucocorticoids (steroids given orally or by injection into the joint)</td>
<td>Osteoarthritis and Rheumatoid Arthritis</td>
<td>Relieve inflammation</td>
<td>Gastrointestinal bleeding, high blood pressure, osteoporosis, immune suppression, weight gain, loss of insulin sensitivity(^26)</td>
</tr>
<tr>
<td>“Conventional” Disease-Modifying Anti-Rheumatic Drugs (DMARDs, e.g., methotrexate, leflunomide, sulfasalazine,)</td>
<td>Rheumatoid Arthritis</td>
<td>Slow disease progression</td>
<td>Immune suppression, increased infection risk, may interfere with responses to vaccination(^27)</td>
</tr>
<tr>
<td>“Biologic” DMARDs (e.g., infliximab, etanercept)</td>
<td>Rheumatoid Arthritis</td>
<td>Block or reduce production of inflammatory mediators</td>
<td>Increased risk of infection(^28-30), injection site reactions,(^28,29) may interfere with responses to vaccination,(^27) disturbed lipid profile(^31)</td>
</tr>
</tbody>
</table>


**HALF OF AGING HUMANS IN THE DEVELOPED WORLD ARE MAGNESIUM DEFICIENT!**

*You may be one of them.*

Optimal uptake of magnesium may now be obtained in a novel, highly absorbable form called Neuro-Mag™ Magnesium L-Threonate, available in capsules or tasty natural lemon-flavored powder.

**A Critical Brain Booster...**

Magnesium is needed for more than 300 biochemical reactions in the body.2 Long known for its role in cardiovascular3-5 and bone health,6 energy metabolism7 and mood,8 researchers are now focusing intensely on magnesium’s benefits for cognitive function.2

Unfortunately, it is very hard for your body to maintain optimal levels of magnesium in the brain.2 This problem is of special concern for maturing individuals, as magnesium deficiency increases over time.1

**Scientifically Advanced, Lab Tested**

Most commercially available magnesium supplements are not readily absorbed into the central nervous system.

To overcome this obstacle, an innovative form of magnesium is being introduced called Neuro-Mag™, shown to specifically target the aging brain and nervous system.

In pre-clinical models, magnesium L-threonate contained in Neuro-Mag™ boosted magnesium levels in spinal fluid by an impressive 15% compared to no increase with conventional magnesium.2 Even more compelling, animal models revealed improvements of 18% for short-term memory and 100% for long-term memory using the Neuro-Mag™ form of magnesium.2

**Capsules or Powder...Value Priced**

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

This highly absorbable brain health-supporting magnesium is also available in a good tasting powder mix called Neuro-Mag™ Magnesium L-Threonate with Calcium and Vitamin D3 Powder. In addition to its appealing natural lemon flavor, the one-scoop per day serving size supplies the same amount of magnesium plus 500 mg of calcium (as calcium lactate gluconate—a highly soluble form of calcium) and 1,000 IU of vitamin D3. This offers maturing individuals an easy way to obtain these key nutrients in one simple formula.

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

**References**


Magtein™ is a trademark of Magceutics, Inc, distributed exclusively by AIDP, Inc. Patent pending.

To order Neuro-Mag™ Magnesium L-Threonate Capsules or Powder call 1-800-544-4440 or visit www.LifeExtension.com
Curcumin is the health-promoting trace compound derived from the Indian spice turmeric. But not all turmeric is alike.

The curcumin found in the vast majority of dietary supplements is derived from turmeric that is nutritionally inferior.

Why? Almost all growers harvest turmeric at the point when the turmeric root turns its signature yellow color, but before it has fully matured.

The turmeric root requires more time in the ground for highly beneficial phytonutrients called curcuminoïds and sesquiterpenoids to attain peak concentrations.

Life Extension®’s Super Bio-Curcumin® derives from turmeric that is grown with organic practices, cultivated to maturity, then specially transported and processed to preserve and deliver the root’s most complete nutritional profile.

In recent studies comparing the effects of standard curcumin against turmeric extracts comparable to Super Bio-Curcumin®, researchers observed:1,2

- Nearly twice the support for immune health.
- Approximately twice the support for inflammatory issues.
- Almost double the antioxidant support.

A separate study indicated that an antioxidant-rich curcumin extract3 provided powerful support for heart health.

Unrivaled Potency and Absorability with BCM-95®

Curcumin is neither absorbed nor retained well in the blood, which is another challenge facing those who wish to maximize its benefits.

The highly popular Super Bio-Curcumin® uses BCM-95®, a patented, bioenhanced preparation of curcumin. It has been shown to reach up to 7 times higher concentration in the blood than standard curcumin.4

The graphs on this page illustrate that one 400 mg vegetarian capsule per day of Super Bio-Curcumin® supplies the equivalent of 2,500–2,800 mg of commercial curcumin supplements.

A bottle containing 60 vegetarian capsules of Super Bio-Curcumin® retails for $38. If a member buys four bottles, the price is reduced to only $26.25 per bottle. Contains rice.

References

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

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

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

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

AprèsFlex™ represents a quantum leap forward in the delivery to aging joints of boswellia, long prized for its ability to help with inflammatory issues. It is a superior inhibitor of the enzyme 5-lipoxygenase or 5-LOX.

Excess activity of 5-LOX results in the accumulation of leukotriene B4, a pro-inflammatory compound that affects aging joints. Boswellia has been shown to bind directly to the 5-LOX enzyme in our bodies, preventing it from facilitating production of pro-inflammatory leukotrienes.1 2

AprèsFlex™ boswellia absorbs into the blood 52% better than previously available forms of boswellia, for superior effectiveness.

Now with Dual-Action Support for Aging Joints!

As you grow older, age-related stiffness and discomfort in the joints becomes a fact of life. Activities once routine become a challenge as limited mobility hampers your every move.

You now have a more potent option to provide broad-spectrum support for aging joints.

ArthroMax™ Advanced with UC-II® and AprèsFlex™ is a multi-nutrient formula based on the very latest data on natural support for joint health. The new ArthroMax™ formula provides more joint support than ever before, enhanced with two innovative, clinically validated ingredients: AprèsFlex™ and UC-II®.

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**ArthroMax™ Advanced with UC-II® and AprèsFlex™**

In addition to AprèsFlex™, the new ArthroMax™ contains a novel standardized chicken cartilage: UC-II®. New data show it helps with immune issues that can impact joint discomfort and ease of motion in aging individuals.

Two capsules of the new ArthroMax™ Advanced with UC-II® and AprèsFlex™ provide the following nutrients in one convenient, joint-protecting formula:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>UC-II® standardized chicken cartilage</td>
<td>40 mg</td>
</tr>
<tr>
<td>Glucosamine sulfate 2KCl (from corn)</td>
<td>1500 mg</td>
</tr>
<tr>
<td>AprèsFlex™ (Boswellia serrata) extract</td>
<td>100 mg</td>
</tr>
<tr>
<td>Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)</td>
<td>1.5 mg</td>
</tr>
</tbody>
</table>

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

**ArthroMax™ with Theaflavins and AprèsFlex™**

ArthroMax is also available with Black Tea Theaflavins (without UC-II®) to protect against immune attack in the joints via a separate mechanism.

Inflammatory reactions are regulated by a series of "cytokines" produced in the body. Normal aging results in an unfavorable balance of these cytokines that contributes to persistent inflammatory conditions. Studies have shown that a special fraction found in black tea suppresses proinflammatory cytokines at the genomic level. Scientists have found that these compounds called theaflavins uniquely downregulate the expression of genes and cytokines associated with inflammatory conditions.

ArthroMax™ with Theaflavins formula provides these bioactive theaflavin fractions along with methylsulfonylmethane (MSM), which contains sulfur components that are critically important in maintaining comfortable joint function.* ArthroMax™ with Theaflavins also contains FruiteX B® OsteoBoron®, a patented form of boron that is identical to natural plant forms found in food. Considered more bioavailable than other forms of boron, FruiteX B® OsteoBoron® also supports healthy bones and joints.*

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AprèsFlex™ (Boswellia serrata) extract</td>
<td>100 mg</td>
</tr>
<tr>
<td>Glucosamine sulfate 2KCl (from corn)</td>
<td>2000 mg</td>
</tr>
<tr>
<td>Methylsulfonylmethane (MSM)</td>
<td>1000 mg</td>
</tr>
<tr>
<td>Black Tea (Camellia sinensis) extract</td>
<td>440 mg</td>
</tr>
<tr>
<td>Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)</td>
<td>1.5 mg</td>
</tr>
</tbody>
</table>

The retail price of a bottle of 120 vegetarian capsules of ArthroMax™ with Theaflavins and AprèsFlex™ is $44. If a member buys four bottles, the price is reduced to $30 per bottle.

To order the new ArthroMax™ Advanced with UC-II® and AprèsFlex™ or ArthroMax™ with Theaflavins and AprèsFlex™, call 1-800-544-4440 or visit www.LifeExtension.com

Contains corn.

AprèsFlex™ is a trademark of Laila Nutraceuticals exclusively licensed to PL Thomas—Laila Nutra LLC. International patents pending. FruiteX B® and OsteoBoron® are registered trademarks of VDF FutureCeuticals, Inc. U.S. Patent No. 5,962,049. UC-II® is a registered trademark of InterHealth N.I. UC-II® brand undenatured type II collagen. U.S. Patents 5,645,851, 5,637,321, 5,529,786, 5,750,144, 7,083,820, EPO Patent EP1435906B1, U.S. and world-wide patents pending.

References

*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.
Block **Food Cravings** at Their Molecular Root
Dieting alone is ineffective for most overweight adults, and even those who successfully lose weight often gain it back soon afterward. The snacking impulse is a common source of weight-loss sabotage.

Scientists have discovered that the inability to lose weight often stems from the powerful effects of emotional stress and depression on the brain. This chemically triggers strong cravings for comfort foods and snacks. If this is your problem, you may be suffering from an abnormal increased appetite for consumption of food known as reactional hyperphagia. Simply put, emotional stress causes brain-chemical and hormonal changes that decrease feelings of satiety (fullness) and promote—and “reward”—the compulsion to snack, especially on comfort foods.

In this article, you will learn how a saffron extract targets appetite dysregulation at the neurotransmitter level, inhibiting the compulsion-reward cycle and reducing the snacking impulse.

In one small 4-week study, a decrease in between-meal snacking was reported by women taking a proprietary extract of saffron! And in another human study using the same extract, the overall number of snacking episodes was reduced within 8 weeks—by 55%!
To maintain a healthy weight comfortably, it is important to interrupt and block this sabotaging hyperphagic cycle.

The good news is that scientists have developed a botanical formulation that helps break this pattern.

Saffron is a spice that is constituted from the red stigmas of *Crocus sativus* L. In randomized, placebo-controlled research on humans, a standardized and proprietary extract of saffron reduced the desire to snack, diminished the craving for comfort foods, produced satiety, and facilitated weight loss—without any stimulant effect, side effect risk, or unrealistic level of continuous willpower.

**The ‘Feed-Feedback’ Cycle**

Many weight-loss drugs that are meant to reduce appetite are dangerous. For example, phenylpropanolamine is associated with hemorrhagic stroke.17

However, a particular extract of saffron appears to be unique in its ability to target the neurochemical pathways underlying the craving for comfort foods and the compulsion to eat between meals (reactional hyperphagia).

Growing research has been shedding light on these pathways of compulsive snacking, and how they set up a feed-feedback cycle that is essentially stress, stress-relief, stress, stress-relief, and so on.

Early research showed that the food restrictions of weight-loss diets are major sources of stress and anxiety. Some people respond to this greater stress by developing cravings for specific (comfort) foods associated with stress relief, making them more susceptible to obesity than others.3-6

In 2004, a rodent study demonstrated that during chronic stress, glucocorticoids—hormones that are generated by the hypothalamus-pituitary-adrenal (HPA) axis and that predominantly affect metabolism—often stimulate activities in the brain that induce a preference for comfort food. Rats under stress consumed no more calories than the placebo group, but showed a distinct desire for getting a greater proportion of their calories from comfort food. Ingestion of comfort food diminished the signs of stress, creating a reward feedback—completing the feed-feedback cycle.7

A study in 2007 reviewed earlier research on both animals and humans, and proposed a theory termed Reward Based Stress Eating. Evidence indicated that during stress, cortisol (a glucocorticoid), together with the body’s reward circuitry, causes dysregulation of the finely tuned balance of appetite control. Cravings increase stress, which triggers an increase in the reward value of highly palatable (comfort) food.
The result is an increased intake of high-calorie snack food, and a greater accumulation of visceral fat.8

Then, in 2009, researchers found that—in response to glucocorticoid-induced increases in comfort food intake—circular insulin levels rise. These increases, as well as greater deposition of abdominal fat, are directly and specifically linked to higher consumption of comfort-foods—rather than to higher consumption of calories from any source. These insulin effects appeared to dampen the response to stress, thus providing reward feedback (stress relief) for eating comfort foods.9

In a landmark study published in 2010, researchers found that the dysregulated brain reward pathways that trigger drug and alcohol addiction are identical to the biomolecular mechanisms behind comfort-food cravings.10

In a 2011 study, scientists discussed the circular relationship between hyperphagia (increased appetite), comfort food intake, and obesity. They suggested that in some individuals, the presence of this feed-back cycle at an early age may lead directly to obesity later in life. They further suggested that obesity itself may increase signaling along inflammatory, oxidative, and mitochondrial stress pathways—altering normal reward functions and promoting compulsive snacking.12

On the heels of these findings, and with obesity at epidemic levels, scientists searched in earnest for a way to safely break the feed-back cycle.

Targeting the Biochemistry of Appetite

In the quest for a novel intervention to block reacational hyperphagia and the cycle of compulsive snacking, attention quickly turned to the active components in saffron—and for a number of good reasons.

First, now that dieting and stress had been found to increase the reward value of comfort food for many people,8 it was natural to examine agents believed to modulate stress in order to identify those that might beneficially affect the appetite and snacking impulse. In ancient medical systems, saffron has traditionally been used to reduce anxiety, relieve stress, and enhance mood.19

Second, no effective FDA-approved drug is available that can regulate the neurochemistry of appetite without substantially dangerous side effects,20 which have been found to include pulmonary hypertension and heart valve disease.21 Scientists realized that—if verified to be effective in inhibiting the snacking compulsion in placebo-controlled studies on humans—saffron would constitute a safe and natural alternative.

What You Need to Know

Cut Cravings With Saffron

- Stress, anxiety, or depression can induce a biomolecular mechanism that causes the comfort-food cravings and compulsive snacking that sabotage many weight-loss programs.
- Normal brain reward pathways are disrupted by this unbalancing of hormones and neurotransmitters, resulting in the feed-feedback cycle that causes food cravings and emotion-based snacking.
- A study recently found this negative cycle, known as reacational hyperphagia, to be virtually identical to the mechanism underlying drug addiction.10
- An extract of saffron (Crocus sativus) uniquely targets this appetite dysregulation at the neurotransmitter level and inhibits the snacking compulsion.
- Placebo-controlled studies found that 176.5 mg a day of a proprietary saffron extract decreased snacking events by an average of 55%!1,2
Third, neurotransmitter imbalance, particularly low levels of serotonin, has been shown to increase vulnerability to overeating, food cravings, and depression.22 A number of journal-published studies had shown that safranal and crocin, active constituents of saffron, have demonstrated effects comparable to prescription medications in mitigating the symptoms of depression.23-25 One of the most commonly prescribed group of anti-depressant medications are the selective serotonin reuptake inhibitors (SSRI), which are well known to produce a number of adverse side effects, including sedation, weight gain, sexual dysfunction, and suicidal thoughts.26-28 This improved serotonin-enhancing activity suggested that saffron may be a safe and potent weapon to break the feed-back cycle and inhibit reactional hyperphagia—for several reasons:

1. Stress increases levels of cortisol, which can cause dysregulation of appetite—serotonin, through serotonergic neurons, regulates appetite.12
2. Stress activates the entire HPA axis, which is involved in the feed-back cycle—and serotonin regulates and normalizes HPA activity.29
3. Compulsive snacking and reactional hyperphagia are strongly related to depression, anxiety, and mood—and serotonin can improve all of these snacking-related emotional states.30
4. Stress increases levels of glucocorticoids, which can diminish the transport efficiency of serotonin, in turn lowering serotonin activity and negatively affecting both mood and appetite31—promoting serotonin activity would be a natural way to counter this transport effect and favorably modulate both mood and appetite.

In subsequent animal and human studies, saffron extracts proved highly effective in safely managing depression and anxiety32-35—the same emotional disorders that trigger reactional hyperphagia. However, this constituted only an indirect link between saffron and modulation of the snacking compulsion. Scientists still needed to prove that saffron’s powerful ability to modulate stress would in turn translate into a significant reduction in hyperphagic snacking, both in terms of desire and behavior.

For the gold standard in scientific proof, this would demand investigating the effects of saffron extract—specifically on snacking desire and frequency—by conducting randomized, placebo-controlled, double-blind studies on humans.
Inhibiting the Snacking Impulse in Humans

To corroborate that a proprietary extract of saffron targets the neurochemistry at the root of compulsive eating, scientists first conducted a small placebo-controlled, double-blind pilot study on a small group of 16 women. Half of the women were given the proprietary saffron (Crocus sativus) daily for 4 weeks, while the other half took placebo. Remarkably, all of the women taking the saffron extract decreased their between-meal snacking, while women taking the placebo experienced no improvement! Equally noteworthy, the women in the saffron group reported decreased feelings of hunger at lunch and dinner. There was an average weight loss, largely in the form of fat from the thighs, of 3.63 pounds.1

Following these findings, scientists launched a full-scale, randomized, double-blind, placebo-controlled clinical trial, enlisting 60 mildly overweight, female volunteers ranging in age from 25 to 45. This time, however, at least half of the women selected suffered from compulsive between-meal snacking behavior, although participants were not assessed specifically for their level of anxiety or stress. Women were excluded if they had any history of cancer, diabetes, gastric surgery, pathological eating disorders (such as anorexia and bulimia nervosa), abnormal liver or kidney function or were currently using any medications (such as antidepressants) or supplements that might interfere with the results.

As before, half of the subjects were given daily doses of 176.5 mg of patented saffron extract—but this time, for a full 8 weeks—while the others took an identical-looking placebo. All subjects were instructed to otherwise maintain their normal dietary and lifestyle habits, and all between-meal food consumption was recorded.

The saffron extract significantly reduced the frequency of snacking events to a degree that the journal-published study described as “most striking.” At the beginning of the study, both groups indulged in an average of 12 between-meal snacks per week. After 8 weeks, the number of snacking events for the placebo group fell somewhat to 8.9 per week, a decrease of 28%. By comparison, between-meal snacks for the saffron group decreased to just 5.8 per week, a snacking decrease, over 8 weeks—of 55%!2

The reduction in snacking events among the saffron-extract group paralleled an increase in satiety sensation. These women reported significantly reduced feelings of hunger before meals, and a reduced feeling of the “need” to snack between meals. These saffron subjects experienced significantly greater feelings of alertness and energy.

The key objective of the study was to assess the effect of saffron extract on the frequency of snacking, and because the volunteers were only mildly overweight, substantial weight loss was not expected. Still, the increased satiety and 55% decreased snacking had an effect on weight. The saffron group experienced an average weight loss of over 2 pounds during this 8-week period of eating normally!2

While no conclusions could be reached regarding the mechanism of action for saffron extract, the study team did note that new saffron research data suggests that the benefits could be related to saffron’s impact on mild-moderate anxiety.2 This finding was upheld in the current study when during the administration of a global health survey at the end of supplementation, those in the saffron group reported feeling significantly more alert and energetic than those in the placebo group. This same trend continued on follow up several weeks after completion of supplementation.2 This modest weight loss shows why more than just reduced calorie consumption is needed to produce meaningful fat loss. Taking standardized green coffeeberry extract before each meal resulted in 17.6 pounds of weight loss in a study published in 2012.36
Broader Benefits

In addition to its ability to target the biochemical root of compulsive snacking, saffron has been shown to exert a wide range of other protective health effects. The mechanisms behind these broader benefits are not yet clear, but they may stem from the ability of saffron’s constituents to modulate the HPA axis, as well as serotonin and other neurotransmitters.

Cancer is a growing health concern worldwide, causing more than 7.5 million deaths each year. Botanical extracts have been one of the main sources for development of chemopreventive agents. Recent scientific evidence, both in vitro and in vivo, has suggested that saffron extract and its main active constituents, can help inhibit carcinogenesis and tumorigenesis. Rodent studies demonstrate that saffron can reduce the side effects of the anticancer drug Cisplatin® (cisplatinum). These findings have prompted extensive current research on saffron and its components, including safranal and crocin, as promising chemopreventive agents.

The mechanism for saffron’s anticancer potential is not known but may be related to its demonstrated high free-radical scavenging activity. Saffron is thought to have some action in supporting the serotonergic system in the brain and is well supported through research as a natural anti-anxiety and antidepressant agent that does not include the side effects of pharmaceutical options. This same potential serotonin effect is believed to be largely behind its ability to inhibit comfort food impulses, compulsive snacking, and sugar cravings, as well as to promote weight loss.

Another benefit, research has suggested, is the potential of saffron to slow the progress of the eye conditions, macular degeneration and retinitis pigmentosa.

In traditional and folk medicine, saffron is used for many medical benefits, including as a remedy for pain (an analgesic), poor digestion, high blood pressure, high cholesterol, respiratory diseases, and Alzheimer’s disease.

Summary

Scientists have discovered that there is a stress-induced mechanism behind the comfort-food cravings and compulsive snacking that sabotage many weight-loss programs.

Unbalanced hormones and neurotransmitters disrupt the normal brain reward pathways. The result is an induced feed-back cycle, known as reactional hyperphagia, which causes food cravings.

Saffron

Saffron is a spice derived from the flower of the Crocus sativus plant, which is indigenous to southwest Asia. It is the most expensive spice in the world by weight—and for good reason.

Each plant holds a maximum of four flowers, and each flower holds three deep crimson stigmas. The tiny stigma, and the thin filament stalk connecting it to the flower, are harvested—by hand—and dried to make saffron.

There has been a great deal of scientific interest in the many complex metabolites found in saffron. Although saffron is estimated to contain over 150 chemical compounds, only about 40 to 50 constituents have so far been identified, two of which have been extensively studied. The two main, pharmacologically active compounds in saffron are crocin and safranal. Crocin is a saffron-colored, water-soluble carotenoid, which provides saffron’s color. Safranal is the volatile oil responsible of the odor that is characteristic of saffron. Other constituents include proteins, sugars, vitamins, flavonoids, amino acids, mineral matter, gums, and other chemical compounds.

Saffron has a long history of medicinal use in traditional folk medicine. Studies have concluded that extract of saffron combats depression, anxiety, and emotional stress. Some research suggests saffron’s constituents have anti-carcinogenic (cancer-suppressing) and antioxidant properties.

Placebo-controlled studies on humans have recently established that a proprietary extract of saffron containing crocin and safranal uniquely targets appetite dysregulation at the neurotransmitter level. This substantially improves mood, and reduces food cravings and between-meal snacks.
A study recently found this cycle to be all but identical to the mechanism underlying drug addiction. A proprietary extract of *saffron* (*Crocus sativus*) uniquely targets this *appetite dysregulation* at the *neurotransmitter* level, inhibiting the snacking compulsion.

Placebo-controlled studies found that a daily dose of 176.5 mg of a proprietary saffron extract decreased the average number of snacking incidents by 55% and decreased between-meal snacking—for all of the women taking saffron.1,2

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**


Bone Restore combines critical bone boosting nutrients into one superior formula.

Bone Restore includes highly absorbable forms of calcium, a bioavailable form of boron, along with vitamin D3, magnesium, zinc, manganese, and silicon.

Bone Restore contains magnesium citrate, which is one of the most absorbable forms of magnesium.

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

Just five capsules of Bone Restore provide:

<table>
<thead>
<tr>
<th>Highly Absorbable Calcium</th>
<th>1,200 mg</th>
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<tbody>
<tr>
<td>(as DimaCal® dicalcium malate, TRAACS® calcium glycinate chelate, calcium fructoborate)</td>
<td></td>
</tr>
<tr>
<td>Vitamin D3</td>
<td>1,000 IU</td>
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<tr>
<td>Magnesium (as magnesium citrate)</td>
<td>100 mg</td>
</tr>
<tr>
<td>Boron</td>
<td>3 mg</td>
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<tr>
<td>(calcium fructoborate as patented Fruitex B® OsteoBoron®)</td>
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<tr>
<td>Zinc</td>
<td>2 mg</td>
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<tr>
<td>Manganese</td>
<td>1 mg</td>
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<tr>
<td>Silicon</td>
<td>5 mg</td>
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Contains corn and rice.

Fruitex B® and OsteoBoron® are registered trademarks of VDF Futureceuticals, Inc. U.S. patent #5,962,049.

DimaCal® and TRAACS® are registered trademarks of Albion Laboratories, Inc. Malate is covered by U.S. Patent 6,706,904 and patents pending.

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

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
CoffeeGenic™ Green Coffee Extract with Glucose Control Complex

CoffeeGenic™ Green Coffee Extract with Glucose Control Complex contains 200 mg of CoffeeGenic™ Green Coffee Extract along with 4 ingredients formulated to help support healthy blood glucose levels already within normal range. Take one capsule 20-30 minutes before each meal to obtain the following nutrients in addition to Green Coffee Bean extract:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
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<tr>
<td>CoffeeGenic™ Green Coffee (Coffea arabica) Extract (bean)</td>
<td>200 mg (std to 50% Chlorogenic acid (100 mg))</td>
</tr>
<tr>
<td>Iodine</td>
<td>25 mcg (typical value naturally occurring from Ascophyllum nodosum and Fucus vesiculosus)</td>
</tr>
<tr>
<td>Chromium</td>
<td>150 mcg (as Crominex 3+ chromium stabilized with Capros (Phyllanthus emblica) Extract (fruit) and PrimaVe (Shilajit))</td>
</tr>
<tr>
<td>InSea2® proprietary composition of demineralized polyphenols from brown seaweeds Kelp (Ascophyllum nodosum) and Bladderwrack (Fucus vesiculosus)</td>
<td>125 mg</td>
</tr>
<tr>
<td>Integra-Lean® African Mango (Irvingia gabonensis) proprietary Extract (seed)</td>
<td>100 mg</td>
</tr>
<tr>
<td>Green Tea (Camellia sinensis) Decaffeinated Extract (leaf)</td>
<td>100 mg (std. to 98% polyphenols by UV (98 mg), 45% EGCG by HPLC (45 mg))]</td>
</tr>
</tbody>
</table>

Why CoffeeGenic™ Green Coffee Extract

CoffeeGenic™ Green Coffee Extract is produced through a patented extraction process to deliver an extraordinarily high proportion of chlorogenic acid for maximum potency. The coffee beans sourced for CoffeeGenic™ Green Coffee Extract are organically grown.

For those who want to take CoffeeGenic as a standalone, it is available in 200 mg and 400 mg potencies. One vegetarian capsule of CoffeeGenic™ Green Coffee Extract should be taken before heavy meals. This Green Coffee Extract is standardized to 50% chlorogenic acid.

- CoffeeGenic™ Green Coffee Extract (200 mg) • Item # 01604
  (Each serving contains approximately 6 mg caffeine)
  A bottle containing 90 200 mg vegetarian capsules of CoffeeGenic™ Green Coffee Extract retails for $25. If a member buys four bottles, the price is reduced to just $16.50 per bottle.

- CoffeeGenic™ Green Coffee Extract (400 mg) • Item # 01620
  (Each serving contains approximately 12 mg caffeine)
  A bottle containing 90 400 mg vegetarian capsules of CoffeeGenic™ Green Coffee Extract retails for $38. If a member buys four bottles, the price is reduced to just $25.50 per bottle. Those seeking to emulate the dose used in the 2012 study that induced an average 17.6 pounds of weight loss should take one 400 mg capsule of standardized green coffee bean extract three times a day.

Caution: Because this product may lower blood glucose, consult your healthcare provider before taking this product if you are taking blood glucose lowering medication.

To order any of the Green Coffee Extract formulas, call 1-800-544-4440 or visit www.LifeExtension.com

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

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.
People who struggle with weight loss often point to several “Achilles’ heels” that sabotage their efforts to keep off the pounds: eating between meals, grazing at night, and a constant desire to snack, are among the most common.

The fantastic news is that a proprietary extract of saffron, called Satiereal®, is clinically proven to deal with nearly all of the above issues. In fact, women involved in Satiereal® studies experienced the following amazing results1–6:

- 100% reduction in the desire to snack
- 50% fewer instances of eating between meals
- Less hunger
- Moderate weight loss
- More energy
- Better mood

Say goodbye to “kitchen raids” and say hello to “weight control” with Optimized Saffron with Satiereal®.

A bottle containing 60 vegetarian capsules of Optimized Saffron with Satiereal® retails for $36. If a member buys four bottles, the cost is just $24 per bottle.

References

Satiereal® is a registered trademark of INORÉAL. International patents pending.

The fact that Satiereal® induced significant reductions (100%) in the desire to snack, but with only moderate weight loss, is further support for the multi-pronged approach needed to effectively manage weight that has long been espoused by Life Extension®.

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

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.
Don’t Overlook Your THYROID

Too often, uninformed physicians diagnose fatigue, difficulty concentrating, unwanted weight gain, and hair loss in their patients as the inevitable results of aging. This blanket diagnosis may be flat-out wrong.

In fact, your lack of energy and inability to focus may have nothing at all to do with your age! You may simply need to adjust a thyroid malfunction.

The thyroid affects every cell in your body and is a key regulator of your energy, metabolism, heart, and bones. In her new book, The Fatigue Solution, Eva Cwynar, MD, urges readers to have their thyroid checked with a simple blood test. > >
The Thyroid: What, Where, and How

One woman in eight will develop a thyroid disorder during her lifetime. And by the time they reach age 60, more than 20 percent of American women will have a thyroid disorder. I personally believe the numbers may be even higher because so many women haven't been officially diagnosed.

The simplest way to describe your thyroid and its function is to compare it to a furnace that is run by a thermostat (the pituitary gland). Together, they regulate how much energy and stamina you have on a daily basis. The amount of thyroid hormone you have affects how well you have slept, how you feel when you get up in the morning, and how effectively you will make it through your day.

Thyroid function affects every cell in the body. It is the main regulator of basal metabolism, which is the amount of energy needed to maintain essential physiologic functions when you are at complete rest, both physically and mentally. If your thyroid gland is not producing optimally, your cells cannot properly take in the nutrients they need, receive the right amount of oxygen, or get rid of waste materials efficiently. Thyroid hormones also affect your heart, muscles, bones, and cholesterol, to name just several of its jobs.

Microscopic image of a thyroid gland.

Check Your Thyroid

When was the last time you went to the doctor and he checked your thyroid? You would know if he did, because to manually examine the thyroid, you have to step behind the patient and put your hands around the patient's neck as if you were going to choke her. That's the only way you can feel for the butterfly-shaped thyroid gland, which is located at the front of the neck near the collar bone (right where a man would wear a bowtie). When I introduce this examination to my patients, I always get the same reaction: “Why are you doing that? No doctor has ever done that to me before!”

You can’t breathe without the thyroid, you can’t think without the thyroid, you’d constantly be constipated without a thyroid, and yet it’s way down at the bottom of the list of possible causes of some very common symptoms. Are you losing your hair? It could be your thyroid. Is your voice getting hoarse and raspy? It could be your thyroid. Are you always cold? It could be your thyroid. Are you having trouble concentrating? It could be your thyroid. And if it is, it’s something that is easily fixed. That’s why I get so angry and excited at the same time about the subject. People are suffering needlessly, some for many years, when they could be leading much more energetic, productive lives with the right diagnosis and treatment.
Introducing the 3s and 4s

There are two main hormones produced by the thyroid:

- Triiodothyronine, known as T3
- Tetraiodothyronine, known as T4

You may have noticed a portion of the word “iodine” in each of the hormones above. That’s because the function of the thyroid gland is to take iodine, found in many foods, and convert it into thyroid hormones. Thyroid cells are the only cells in the body that can absorb iodine.

These cells combine iodine and the amino acid tyrosine to make T3 and T4.

There is one more factor we have to mention to complete this process, and that is Thyroid Stimulating Hormone (TSH), which is produced by the pituitary gland in the brain and gives that gland its thermostat-like function. So the thyroid is the furnace that provides “heat” in the form of the T3 and T4 hormones and the pituitary gland is the thermostat that goes on and off according to the amount of heat in the body. TSH tells the thyroid to raise or lower the heat.

The process goes like this:

- T3 and T4 travel through the bloodstream, producing heat
- The pituitary gland senses the heat; the thermostat shuts off; TSH production slows down
- The body cools as the level of thyroid hormones decrease
- The furnace produces more heat

When your body temperature drops, your metabolic rate drops, too. You produce less energy, and you store more calories as fat—in other words, you gain weight. You also suffer from fatigue, irritability, and the inability to concentrate.

Too Few Hormones

The most common form of thyroid disorder is hypothyroidism. Hypothyroidism occurs when the thyroid is not producing enough of its hormones. Approximately 25 million people suffer from hypothyroidism, and about half of them are undiagnosed. It is usually found in women, particularly older women; the percentage of patients with hypothyroidism is greater for women for each decade of age after age 34. That is because thyroid hormone production decreases with age.

One of the reasons that hypothyroidism often goes undiagnosed is that symptoms usually appear slowly over time, and they may appear to be signs of normal aging.

Symptoms include:

- Anxiety and nightmares
- Difficulty losing weight
- Dry skin
- Easy weight gain
- Impaired concentration and memory
- Menstrual irregularities
- Mood swings
- Severe fatigue
- Thinning eyebrows
- Thinning hair
- Yellow skin from poor conversion of beta carotene to vitamin A

There are many women who have no symptoms and feel perfectly healthy, and yet, when tested, are diagnosed with hypothyroidism. These women need to be treated as well as those who have symptoms,
Too Many Hormones

When everything is functioning properly, the thyroid and pituitary work together to produce just the right amount of hormones. But there are times when the thyroid malfunctions and produces either too many or too few hormones. When the thyroid becomes overactive and produces too many hormones, you end up with a condition called hyperthyroidism. This condition affects 10 times more women than men, and usually occurs in women under 40. Here are some of the symptoms of hyperthyroidism:

- Being nervous, moody, weak, or tired
- Excessive sweating
- Fine hair that is falling out
- More bowel movements than usual
- Rapid heartbeat
- Red, itchy skin
- Shaky hands
- Shortness of breath

The most common form of this disorder is Graves’ disease, which was made “famous” when first lady Barbara Bush was diagnosed with the illness in 1989 (coincidentally, her husband, President George H. W. Bush, was later diagnosed with the same disease, as was their dog, Millie). One of the stranger symptoms of Graves’ disease is known as “frog eyes” where the eyeballs get pushed forward and protrude because fat builds up behind them. Graves’ disease can be life threatening and can lead to heart problems if left untreated. This type of hyperthyroidism is an autoimmune disease that is genetically inherited. It causes mood and body changes when the immune system “mistakenly attacks” the thyroid gland, causing overproduction of the thyroid hormones.

People who have hyperthyroidism are often confused when they hear the diagnosis. My patients tell me, “I thought if I had hyperthyroidism, I’d be full of energy and losing weight and able to multitask like crazy! How come I’m so tired all the time?” Although this line of thinking is correct in most situations, the answer in other situations is that the overactive thyroid is burning out your body. It’s affecting other organs (such as the adrenal gland) that are being compromised. It’s like an engine that is constantly revving at a very high speed and going nowhere. Eventually, the parts will burn out and the engine will stop going.

Another type of hyperthyroidism is subacute thyroiditis, which involves swelling (inflammation) of the thyroid gland and is thought to be produced by a virus that usually follows an infection of the upper respiratory tract. It is often treated with anti-inflammatory drugs such as aspirin or ibuprofen to decrease both the production and the release of thyroid hormone. A beta-blocker (usually given for heart disease or hypertension or even tremor or anxiety) is also given to slow down the heart rate and make the patient more...
comfortable until the situation spontaneously resolves itself. This disease usually lasts for only a few months and heals itself naturally, but if left untreated can be life threatening.

**Testing Your Thyroid**

The good news is that there is a simple blood test that can measure thyroid function to determine whether or not your hormone production is normal (the “gold standard” is to test one of many thyroid functions, which is the production of thyroid stimulating hormone). The bad news is that if you get five doctors in a room, you’ll get five different opinions on what is “normal” and what is not. In my practice, I don’t rely on blood tests alone because over the years I have found that what is normal for one person, and even normal for the population at large, may be abnormal for someone else. I use other tests as well (such as one that tests for particular antibodies) and palpation (examining with my hands) of the thyroid to determine its size, shape, firmness, or location to check for abnormalities. Internists may do this as well, but since they do not palpate the gland as frequently as endocrinologists do, they may miss the diagnosis. Some doctors may recommend an ultrasound of the thyroid as well.

Here’s where the tricky part comes in. As of 2010, at most laboratories in the United States, the official normal reference range for the thyroid stimulating hormone blood test runs from approximately .5 to 5.0 (measured in micrograms per deciliter). Reference range is what determines—for the vast majority of physicians, who rely on blood tests almost exclusively—whether or not thyroid disease is even diagnosed at all, much less treated, and when diagnosed, how it is treated. In January of 2003, the American Association of Clinical Endocrinologists recommended that doctors “consider treatment for patients who test outside the boundaries of a narrower margin based on a target TSH level of 0.3 to 3.0.” Even though many years have passed since the new range was established, some doctors use it and some don’t. The issue that it raises is this: One study found that using a TSH upper normal range of 5.0, approximately 5 percent of the population is hypothyroid. However, if you use 3.0 as the top of the normal range, approximately 20 percent of the population would be hypothyroid. That means that millions of patients with hypothyroidism are being undiagnosed and untreated.

There are now more effective blood tests that provide a complete picture of how well the thyroid produces T4, how well the body converts T4 into T3, how much of the active form T3 is created, and whether there are significant anti-thyroid antibodies present.
A complete panel would also include levels of free (unbound) T3 and T4. You might want to suggest to your doctor that she use the free T3 and T4, as the “regular” T3 and T4 totals may not be as accurate.

One of the problems with thyroid testing is that they are typically not on the list of things that are regularly checked in a standard or even a more comprehensive blood test panel. Just like the guidelines we have established for testing for colon cancer, for instance, beginning at age 50 and not before, it’s not until you reach the age of 65 that your doctor will routinely request thyroid testing.

When you complain to your doctor about putting on weight, losing a little hair, fatigue, lack of libido—most of the time you get the same response: “Well, you are getting older, it’s to be expected.” If you are suffering from any of these symptoms and your doctor doesn’t suggest testing, bring it up yourself. Most doctors, even though they may be skeptical, will order the testing if you insist.

**I Keep Forgetting What You Said About Thyroids . . .**

Here is a frightening thought: many doctors have diagnosed patients with dementia and Alzheimer’s disease, when in reality what they had was a thyroid disorder. A 2008 study published in the *Archives of Internal Medicine* found that older women who had levels of TSH that were either too high or too low had more than twice the risk of Alzheimer’s disease than those with more moderate levels (the same was not true of men). This is another reason that testing your thyroid become part of your standard testing routine as you get older!

**Your Numbers, Your Doctor, and You**

Here’s an important point to remember if do get tested and your numbers are not “normal.” Hypothyroidism has a huge range, from very mild to quite severe. Not only that, one person whose TSH tests result in a reading of 2.5 may feel perfectly fine, while another person with the same reading may be suffering a battery of symptoms. The numbers and the symptoms don’t always correlate. Most of the time, taking thyroid medication will cure your symptoms and you will feel better within a matter of days; by six weeks on the medication you’ll have a very good idea of how it’s working. Unless you tell your doctor how you’re feeling, he or she has nothing to go on but your test results. You need to share with your doctor if your symptoms are getting better (or worse), and you need to be consistently retested to see how your medication is working. Your numbers may go back to normal, but if you’re still not feeling well it’s your responsibility to tell your doctor so that more tests can be taken or your medication can be tweaked until you find what works best for you.

It is possible, however, to go overboard with thyroid medication. Some of my patients have the “if some is good, more is better” attitude. However, too much
thyroid medication can stress out the adrenal glands, which will then overproduce cortisol as well as dys-regulate (impair) the ratio of cortisol and DHEA and epinephrine and norepinephrine. This will leave you more fatigued than you were in the first place, because the rest of your body's systems will not be able to produce the energy needed to keep up with your now revved-up thyroid.

**Iodine Deficiency and the Thyroid**

Since iodine is needed for the production of thyroid hormone, and the body does not make iodine, we have to get through what we eat. It is commonly found in foods such as saltwater fish, seaweed, sea vegetables, shellfish, bread, cheese, and iodine-containing multivitamins.

Iodized salt is now the main source of iodine in the American diet, but only about 20 percent of the salt America eats contains the micronutrient. Increasingly popular “designer” table salts, such as sea salts and Kosher salts, usually do not have much iodine. However, the majority of salt intake in the United States comes from processed foods, and food manufacturers almost always use noniodized salt in processed foods. Add to that the ubiquitous warnings against using too much salt because of our ever-pressing issues of hypertension, congestive heart disease, and other coronary artery diseases, and iodine deficiency becomes a real threat for some people in the United States. Whereas, just a few years ago iodine was mandated by the FDA to be included in salts (and was for decades), now most medical advice states that, due to the large variety of food sources available from all over the world, iodine in salt is no longer necessary in the United States and other Western countries. Iodization of salt is now voluntary in America. It appears that iodine intake has declined by 50 percent in North America in the past 30 to 40 years and the anticipated rate of future hypothyroid cases has risen dramatically.

Before the 1920s, iodine deficiency was common in the Great Lakes, Appalachian, and Northwestern regions of the United States and Canada; however, the introduction of iodized salt has virtually eliminated the problem in those areas. Iodine deficiency can lead to goiter, hypothyroidism, and even to mental retardation in infants and children (the term “cretin” comes from the fetus not getting enough iodine while in the mother’s womb).

Worldwide, the number one cause of hypothyroidism is iodine deficiency, which remains a public health problem in 47 countries, and about 2.2 billion people (38 percent of the world’s population) live in areas with iodine deficiency. An article in The Lancet in 2008 stated that, “According to WHO, in 2007, nearly 2 billion individuals had insufficient iodine intake, a third being of school age. Thus iodine deficiency, as the single greatest preventable cause of mental retardation, is an important public health problem.”

There are many different types and brands of iodine supplementation available over the counter. It’s important, however, that you get guidance from your doctor or health professional before taking any iodine supplementation. If you take too much, you can develop hyperthyroidism.

**Thyroid Treatments**

One of the first thyroid treatments that was commercially available was Armour Thyroid, which was a natural product made of desiccated pig and cow thyroid glands put into pill form. It is still available today. It contains both T3 and T4 hormones. It fell out of favor over the years because quality control of this medication was difficult. In recent years, however, production has become much more stable and it is back in use again. Your doctor may prescribe Armour Thyroid if you have had problems with a synthetic therapy, or if you or your doctor prefer natural products.

The most commonly prescribed synthetic drug for hypothyroidism is called levothyroxine, known under the brand names Synthroid, Levothroid, Levoxyl, and Unithroid. A more recent addition is a drug called Tirosent, which is made in Switzerland and
distributed in the United States. It has fewer additives and preservatives than the other synthetic medications, so it may be a good choice for you if you find you’re allergic to any of the other brands.

Another popular drug is called Cytomel, which contains only T3. Synthroid contains only T4, which must be converted to T3 by the body. Some people respond better to T3 preparations because they have trouble converting T4 into T3; those people fare better with either a combination of T3/T4 or T3 alone.

The mineral selenium decreases the antibodies that form in Hashimoto’s thyroiditis, thereby decreasing the inflammation, which is why I recommend selenium to everyone who has hypothyroidism. It is also useful as a messenger in the brain helping with the communication between the thyroid and the adrenal gland.

How to Take Thyroid Medication

Although thyroid problems are usually easily treated with medication, it can be tricky to take because of how thyroid hormones react with other substances. Tell your doctor about all the prescription and over-the-counter medications you use because there are many other medicines that can affect thyroid medications. This includes vitamins, minerals, and herbal products. There are also some substances that block the absorption of thyroid medications (e.g., soy, calcium, iron, some mood altering prescription medications), which is why some patients don’t see the results they’d like.

- Do not take thyroid medication within two hours of eating as food may delay or reduce its absorption.
- Do not take estrogen, birth control pills, or hormone replacement therapy in the pill form at the same time you’re taking thyroid medication (you can take them in the same day, just not at the same time of the day). Any form of oral estrogen may be a problem if taken at the same time as thyroid because both estrogen and thyroid hormone share the same binding globulin (a protein to which thyroid hormone binds in the blood and from which it is released into tissue cells) in the liver. If you take them both at the same time, you’re not absorbing as much of either one. This does not apply if you are taking other forms of birth control, such as the patch or the NuvaRing; transdermal (through the skin) hormone replacement; or sublingual (dissolving directly into the bloodstream from drops or lozenges into the mouth) hormone replacement. That’s another reason why I treat my menopausal women who have hypothyroidism with a hormone CREAM instead of the standard oral prescription pill.
- Calcium also prevents absorption of thyroid medication, so they should not be taken at the same time.
- Iron, whether alone, or as part of a multivitamin or prenatal vitamin supplement, interferes with thyroid hormone absorption. You should not take your iron supplements or your vitamins with iron at the same time as your thyroid hormone, and should allow at least two hours (four being the optimal time frame) between taking them.
changed women’s lives. They have accepted their “lot in life” for so long that they have almost forgotten what it’s like to have energy and focus and fun in their lives. I’m here to tell you, don’t just accept it. Get tested. Check your results. Ask for a copy of your labs. See a specialist. Don’t settle—if you don’t agree with your doctor, go somewhere else. You know your body better than anyone else. Listen to it and get your life and your health back in your hands.

The “Check Your Thyroid” Jump Start Tip

Taking Matters into Your Own Hands—or Armpits. If you suspect you’re having thyroid problems and you want to check yourself out at home, there is a simple test you can do called the basal temperature test. Here are the steps:

- Get a basal thermometer (the kind you can use under your tongue). Leave it overnight on your bedside table.
- First thing in the morning, before you get out of bed, tuck the thermometer under your armpit and lay completely still for 10 minutes. Set a timer before you begin so that you don’t have to move around to look at the clock.
- Record your temperature for there to five days. If your temperature is consistently below 97.8°F, you may have a thyroid problem, and you should have yourself evaluated by a health professional.

Remember, thyroid disease is not just about fatigue, it can ultimately affect your morbidity as well as your mortality. Take control, but do it with the assistance of an expert.

Your Thyroid and Menopause

Although it is very rarely mentioned, your thyroid and your reproductive cycle are closely related. Thyroid problems can cause irregularities in the menstrual cycle, and even infertility in extreme cases. As you get older, these problems can become exacerbated. In fact, untreated hypothyroidism can cause a woman to be in an artificial premature perimenopause or even throw her into menopause.

It’s important to remember that the thyroid is part of the overall endocrine system, and when any of this system’s hormones get out of balance, all of the parts suffer. So when you go through times when hormonal imbalance is more than likely—such as pregnancy, perimenopause, and menopause—your thyroid is also more than likely to get out of whack as well.

That is why women over 50 should be tested for thyroid problems every few years (earlier if you have a family history) and woman over 65 should be tested annually. Any woman of any age should be tested at any time and as frequently as needed if she has symptoms of hypothyroidism. Your doctor will then be able to determine whether you need thyroid hormone medication, and/or iodine or other supplementation.

In dealing with thyroid problems, it’s important to find a doctor who will listen to your symptoms and be open to the newest research, the latest reference range recommendations, inclusive testing, and who understands that each patient will react differently to various treatments. You may need to see an endocrinologist, someone who is trained in the art and science of working with hormones, to get the results you need and deserve.

It makes me frustrated to know that there are so many women who suffer unnecessarily for so many years. I hear it over and over again, how finally being diagnosed and treated for thyroid problems has

Excerpted with permission from The Fatigue Solution by Eva Cwynar, MD, published by Hay House. For more information on Dr. Eva Cwynar, visit www.dreva.com.

To order The Fatigue Solution call 1-800-544-4440. Item # 33847 Retail price $24.95 Member price $18.71

If you have any questions on the scientific content of this article, please call a Life Extension Health Advisor at 1-866-864-3027.
Scientists have found that topically applied sulforaphane has the ability to help protect the skin against the visible signs of sun damage! Sulforaphane promotes the production of certain enzymes—such as glutathione S-transferase—that help support the skin’s natural ability to fortify itself against the visible damage caused by sun radiation.¹²

Brocoli contains glucoraphanin, which is enzymatically converted into sulforaphane. Three-day-old broccoli sprouts are packed with up to 100 times more glucoraphanin by weight than mature broccoli plants!¹²

The extracts from glucoraphanin-rich broccoli sprouts—found in Cosmesis Broccoli Sprout cream—offer maximum support against the visible effects of UV rays!

VISIBLE PHOTO-AGING AND ANTIOXIDANT SYNERGY

In addition to glucoraphanin, several potent antioxidants are included such as aspalathin from rooibos tea and epigallocatechin-3-gallate from green tea to help reduce visible effects of UV radiation and oxidative stress.⁶⁻⁷

Most of the visible effects of skin aging are caused by radiation from the sun. Applied directly to the skin, the unique and synergistic combination of extracts in the concentrated Broccoli Sprout Cream provides maximum, targeted support against the visible effects of sun-related stress on the skin.

The retail price of a 1 oz. jar of Cosmesis Broccoli Sprout Cream is $46. If a member buys two jars, the price is reduced to just $29.25 a jar.

References

To order Cosmesis Broccoli Sprout Cream, call 1-800-544-4440 or visit www.LifeExtension.com.
Milk thistle extract has long been thought of as one of nature’s most potent weapons to support human health, but until recently, the technology hasn’t been available to fully harness this plant’s potential. Among the compounds waiting to be unlocked are a slew of nourishing antioxidants and flavonolignans valued for their role in ensuring healthy liver function.1

Life Extension® has uncovered an advanced extraction technology that has enabled scientists to isolate silymarin constituents and to test their efficacy against various cell lines. Among the compounds tested, silymarin constituents isosilybin A and B proved to be the most efficient in maintaining healthy cell division.2

Certified European Milk Thistle is the first milk thistle extract to contain standardized, high potencies of silymarin, silibinins, and isosilybin A and B—providing the full spectrum of milk thistle’s liver and prostate protective compounds. Each capsule of this advanced formula provides:

- **Milk Thistle (Silybum marianum) Extract (seed)** 750 mg
  - [std. to 80% Silymarin (600 mg), 30% Silibinins (225 mg), and 8% Isosilybin A and Isosilybin B (60 mg)]

A 60 vegetarian capsule bottle of Certified European Milk Thistle retails for $34. If a member buys four bottles, the cost is reduced to only $22.50 per bottle—a savings of nearly one third!

Compare the price of Certified European Milk Thistle to commercial silymarin supplements, and members will see that this new formula is available at one of the lowest costs per milligram—with standardized concentrations of silibinins and isosilybin A and B not found in other milk thistle extracts!

Contains rice.

Reference
EPA/DHA

There’s no debating the power of omega-3 fatty acids. From support for heart health and brain function to help with inflammation, their broad-spectrum benefits have been firmly established in a wealth of studies.1-9

To ensure the purest, most stable, and easy-to-tolerate fish oil supplement, Life Extension® SUPER OMEGA-3 EPA/DHA is molecularly distilled. This proprietary technology ensures any environmental pollutants are reduced to extremely low levels. The result? Our fish oil enjoys a 5-star rating for purity, quality, and concentration from the International Fish Oil Standards program (IFOS)—the highest possible ranking from the world’s premier testing laboratory.

Sesame Lignans and Standardized Olive Fruit Extract for Enhanced Benefits

Fish oils (and other fatty acids) have a tendency to oxidize, rendering them nutritionally inferior. Scientific studies show that when added to fish oil, sesame lignans safeguard against oxidation and direct fatty acids toward pathways that help with inflammatory reactions.10

To further emulate the benefits of a Mediterranean diet, Super Omega-3 delivers standardized, high-potency olive fruit extract. Research shows that fish oil combined with olive oil help with inflammation better than fish oil alone.11

Olive also contains the compounds hydroxytyrosol, tyrosol, and oleuropein. Together these nutrients counter the action of free radicals, delay aging in specialized skin cells, prevent undesirable LDL oxidation, and help maintain normal platelet activation.12-15

Super Omega-3 (4 softgels) supplies the equivalent content of 6 tablespoons of extra virgin olive oil. Take two softgels twice daily with meals.

A bottle containing 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 just $21 per bottle. If 10 bottles are purchased, the cost is just $18.68 per bottle. (Item # 01482)

A SMALLER SOFTGEL for easier swallowing!

Some members have requested we make Super Omega-3 available in a smaller capsule for easier swallowing. We have accomplished this by making half-size softgels available.

A bottle containing 240 half-size softgels of Super Omega-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract retails for $34. If a member buys four bottles, the price is reduced to just $21 per bottle. If 10 bottles are purchased, the cost is just $18.68 per bottle. (Item # 01619)

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

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

References

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, mackerel), sesame, and corn. Supports but not conclusive evidence shown that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease. IFOS® certification mark is a registered trademark of Nutrasource Diagnostics, Inc. These products have been tested to the quality and purity standards of the IFOS™ program conducted at Nutrasource Diagnostics, Inc.
Enhanced Night Vision!

EYE PROTECTION FORMULA

Falling down is responsible for 70% of accidental deaths in older people. Poor lighting conditions are often the culprit.

Fortunately, C3G derived from black currant extract supports eyesight in dark conditions by promoting the healthy function of delicate structures within the retina that support night vision.

Super Zeaxanthin contains a potent dose of C3G to nourish cells throughout the body.

Maintain Macular Density

The macular pigment is composed of lutein, zeaxanthin, and meso-zeaxanthin. The density of the macula is essential to proper vision. Macular density declines naturally over time.

Eating lots of lutein- and zeaxanthin-containing vegetables can help maintain the structural integrity of the macula. However, since meso-zeaxanthin is not part of the typical diet, it cannot be easily replaced. Young people convert lutein into meso-zeaxanthin inside their macula. Some aging people, however, lose their ability to convert lutein into meso-zeaxanthin.

The Super Zeaxanthin formula provides zeaxanthin, lutein and meso-zeaxanthin to help maintain macular density.

Combat “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 contains a potent dose of astaxanthin, a carotenoid found in red algae. 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.

Comprehensive Ocular Protection in One Daily Softgel

The Super Zeaxanthin formula provides ingredients that have been shown to promote healthy eyesight. Just one softgel of Super Zeaxanthin with Lutein, Meso-Zeaxanthin plus Astaxanthin and C3G provides:

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<tr>
<th>Ingredient</th>
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<tr>
<td>OptiLut®, Lutein Plus® and MZ®</td>
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<td>Marigold (Tagetes erecta) extract</td>
<td>[free lutein equivalent 10 mg]</td>
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<td>Zeaxanthin &amp; Meso-zeaxanthin blend</td>
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<td>Natural Astaxanthin</td>
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<td>(AstaREAL® and Zanthin® CO2</td>
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<td>C3G (Cyanidin-3-glucoside)</td>
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<td>[from European black currant</td>
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<td>(Ribes nigrum) extract (fruit)</td>
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The retail price for a bottle containing 60 softgels of Super Zeaxanthin with Lutein, Meso-zeaxanthin Plus Astaxanthin and C3G 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 and C3G, call 1-800-544-4440 or visit www.LifeExtension.com

OptiLut® is a registered trademark of NutriScience Innovations, LLC. LuteinPlus® and MZ® are registered trademarks of Nutriproducts Ltd., 7 Marfleet, CB22 5LA, UK, licensed under US Patents 6,718,436 & 6,929,432. AstaREAL® is a registered trademark of Fuji Chemical Industry Co., Ltd. Zanthin® is a registered trademark of Valensa International, Inc., used under license. U.S. Patent 5,927,333.

References
SKIN PROTECTION EFFECTS OF VITAMIN E
Over the course of time, healthy skin often succumbs to the cumulative effects of external factors such as ultraviolet radiation and environmental pollutants. Free radical damage caused by normal cell functioning ultimately takes its toll as well, destroying the skin’s integrity from the inside.

Fortunately, there are a number of safe and natural substances that have been scientifically proven to effectively help counteract, and in some cases, even help reverse the physical signs of skin aging such as wrinkles and hyperpigmentation. One of these is topically applied vitamin E.

In the article that follows, you will learn about the ability of vitamin E to beautify, nurture, and protect a reason why it has become one of the most common ingredients in skin care formulations today. > >
Normally, when an antioxidant molecule accepts a free electron from an oxygen radical, it too becomes inactive. But vitamin E enjoys a special relationship with two other antioxidants, vitamin C and alpha lipoic acid, that allow it to continue protecting the skin. Both vitamin C and alpha lipoic acid have the ability to take away the extra electron from a used vitamin E molecule, effectively reactivating it. This capacity to recycle and restore its power makes vitamin E a prominent factor in the skin’s first line of defense against free radicals.

Natural Age-Defying Benefits

The process of skin aging has been linked to the destruction caused by free radicals over time. Although there are many different factors at work, wrinkled skin is largely the result of cumulative UV exposure. UV rays from the sun make the oxygen molecules in the dermis “spin,” causing them to split into two free radicals. The destructive power of these toxic molecules gradually breaks down healthy collagen and compromises the skin’s integrity. Fortunately, scientists have found that the gamma tocotrienol form of vitamin E may regulate certain gene signals in the skin that help prevent the damage typically seen after UVB exposure.

In a recent study on both hairless mice and human skin cells, researchers discovered that gamma tocotrienol reduced several of the inflammatory signals that follow UVB radiation exposure. Some of the dangerous inflammatory signals found to be inhibited by gamma tocotrienol were COX-2, interleukin-1beta, IL-6, and monocyte chemotactic protein-1. When applied topically, gamma tocotrienol can help defend against the adverse effects of UV radiation such as abnormal cell development and premature aging.

A Safe and Effective Answer to Clearer Skin

Antioxidant activity and photoprotection are not the only benefits that vitamin E offers. Scientists have found that delta tocotrienols are quite effective at slowing the production of melanin, the skin pigment responsible for unsightly age spots. One recent study found that these two forms of vitamin E are very adept at suppressing the activity of an enzyme called tyrosinase, a key player in melanin formation. Furthermore, this ability to block the biosynthesis of melanin was found to be effective even at very low doses. Compared to other popular water soluble skin lightening agents...
such as kojic acid, arbutin, and sodium lactate, vitamin E penetrates more deeply and delivers its active ingredients in a more controlled and constant manner, making it a very safe and effective alternative.

Another key finding of the same study concerns the production of melanin induced by ultraviolet light (UVB). This process takes place through a different mechanism than the normal activation of tyrosinase.

**Keeping Your Skin Soft and Smooth**

The skin has a waterproof seal that keeps moisture in and prevents evaporation and moisture loss. However, the natural aging process and environmental influences can cause this protective barrier to break down, allowing the skin to lose moisture and become dry. The good news here is that vitamin E plays an important role in maintaining the barrier function. Vitamin E appears to enhance the penetration and resorption of skin lipids. Taken together, these factors suggest a complex regulatory mechanism for restoring and maintaining the barrier function. Topically applied vitamin E is an excellent moisturizer that helps keep the skin healthy and soft. This valuable nutrient locks moisture into the skin and prevents dehydration.

**Summary**

The process of skin aging has been linked to the destruction caused by free radicals over time. Although there are many different factors at work, wrinkled skin is largely the result of cumulative UV exposure and exposure to chemical pollutants in the environment, as well as oxidative stress created by normal cellular processes in the body. The destructive power of these toxic molecules gradually breaks down healthy collagen and compromises the skin’s integrity. Vitamin E is a well-known antioxidant and its unique chemical structure enables it to effectively and safely quench free radicals. Research has shown that vitamin E, particularly the gamma tocotrienol form,
can modulate genetic signals in skin cells to help prevent oxidative damage. Additionally, scientists have found that delta tocotrienols are quite effective at slowing the production of melanin, the skin pigment responsible for unsightly age spots. Vitamin E plays an important role in maintaining the barrier function of the skin as well. Topically applied vitamin E is an excellent moisturizer that helps keep the skin healthy and soft. This valuable nutrient locks moisture into the skin and prevents dehydration. Vitamin E is able to deeply penetrate the skin and provides broad spectrum defense against signs of skin aging from the inside out.

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

**UNDERSTANDING VITAMIN E**

Vitamin E is not a single entity, but a family unit consisting of two main branches: tocopherols and tocotrienols. Each of these major subgroups contains four different kinds of molecules (alpha, beta, gamma, and delta), making a grand total of 8 distinct forms of vitamin E. To the untrained eye, all these molecules look alike, resembling a tadpole with a prominent head and tail. However, tiny differences in the length and composition of the tail determine whether a vitamin E molecule will belong to the tocopherol or tocotrienol family. Tocotrienols have shorter, unsaturated tails with three double bonds that make them more flexible. Tocopherols have longer, saturated tails that lack these all-important double bonds. It’s the added flexibility of the tail that gives tocotrienols the ability to cover a much larger surface area of the cell membranes. This increased mobility is one reason why tocotrienols are 40-60 times more effective at quenching free radicals than tocopherols.

However, the chromanol head structure is really the fundamental unit of vitamin E. It’s the known site of all antioxidant activity. In addition, the size of the head determines whether it’s an alpha, beta, gamma, or delta form. In general, gamma and delta (collectively called desmethyl-) heads are much smaller, enabling them to penetrate the cell membranes more effectively.

**References**

A Potent, Immune Enhancing Strain of Bifidobacteria

Researchers have shown that a unique well-studied strain of the bifidobacteria probiotic called BB536® increases the number of healthy bacteria in the colon. An *in vivo* study demonstrated a significant increase in longevity in mice supplemented with bifidobacteria. Long studied by Japanese scientists, BB536® was found to reduce production of inflammatory cytokines that often accompany seasonal symptom development.

BB536® is a highly researched active probiotic. Each capsule provides 2,000,000,000 (two billion) colony forming units of viable healthy bacteria.

A bottle containing 60 capsules of Bifido GI Balance retails for $20. If a member buys four bottles, the price is reduced to just $13.50 per bottle.

Contains milk.

BB536® is a registered trademark of Morinaga Milk Industry Co., Ltd.

References

To order Bifido GI Balance call 1-800-544-4440, or visit www.LifeExtension.com

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

Note: Use topical sunscreens whenever exposed to sunlight. This product is not a sunscreen.

Patent Pending Sendara® is a registered trademark of NutraGenesis LLC.
FernBlock® is a registered trademark of Industrial Farmaceutica Cantabria, S.A.
Emerging research indicates that topically applied vitamin E has the ability to deeply penetrate vital skin layers. There, it accumulates and “locks-in” to support the skin’s natural barrier against the visible effects of—sun damage, moisture loss, and lipid peroxidation!

Prevent Premature Skin Aging

External stressors such as weather, sun, and dehydration weaken the skin’s natural ability to replenish itself and maintain its youthful appearance.

Because it is a lipid-soluble nutrient, topical vitamin E has been used for skin protection for years. But there are 8 distinctly different forms of vitamin E—and some forms, known as tocotrienols have been shown to be 40-60 times more effective at supporting antioxidant activities than other forms.

Scientists have found that applying vitamin E to the skin greatly enhances dermal penetration and retention of moisture and natural skin lipids!

Properly supported at a deep level, the skin’s dermal barrier helps minimize the appearance of dry, dehydrated skin and inhibits premature skin aging!

Support your skin’s natural ability to fight environmental stress and free radicals. Turn to the potent capacity of full spectrum vitamin E to help replenish the appearance of youthful skin!

The retail price of a 1 oz. jar of Cosmesis Vitamin E-ssential Cream is $28. If a member buys two jars, the price is reduced to just $19.50 a jar.

References

RejuveneX® Factor provides 10 new compounds to improve the health and appearance of your skin.

The new RejuveneX® Factor delivers a total of 28 proven active ingredients in a nutrient-dense, deep-penetrating serum. Contrast this with commercial creams that merely sit on top of the skin.

Comprehensive Nutrition for the Skin
The full name of this new formula is:
RejuveneX® Factor
Firming Serum

To get this entire network of 28 synergistic bioactives anywhere else, you’d need to layer on a dozen skin creams—each providing only 2 or 3 of these active ingredients—with some creams costing as much as $600!

The good news is that—for a fraction of the cost—RejuveneX® Factor Firming Serum delivers optimal dosages of the full range of clinically proven technologies… to promote the appearance of youthful, firmer, healthier, and more vibrant skin.

Serum vs. Cream
RejuveneX® Factor is a serum—a more advanced and concentrated format that is thinner than a cream and ensures superior absorption of its 28 skin-enhancing compounds.

RejuveneX® Factor Firming Serum comes in an airless pump to protect the integrity of the bioactives, and also utilizes QuSome®, the patented deep-layer cellular delivery system that provides sustained release for 6 to 8 hours!
And RejuveneX® Factor Firming Serum is uniquely free of paraben, irritants, estrogenic chemicals, mineral oil, and synthetic fragrances.
A 1.7 oz bottle of RejuveneX® Factor Firming Serum retails for $65. If a member buys four bottles, the price is reduced to $41.25 a bottle. If eight bottles are purchased, the price is only $37.43 a bottle. Each bottle will last two months with once daily application to the face (or one month if used twice daily.)

References

QuSome® and Advanced Efficacy are registered trademarks of BioZone Laboratories, Inc. US Patent No. 6,610,322, 6,958,160, 7,150,883, 6,998,421.
Hylasome™ is a trademark of Genzyme Corporation, the use of which is licensed to HylaMed Research Inc.

To order RejuveneX® Factor Firming Serum, call 1-800-544-4440 or visit www.LifeExtension.com
Join us in Los Angeles for the 2012 Prostate Cancer Conference, September 7-9, at the Marriott Los Angeles Airport Hotel. This year’s conference will focus on “Quality of Life” issues for men dealing with prostate cancer. PCRI has collected an outstanding faculty to discuss important subjects ranging from new treatments, sexual health, erectile dysfunction, immunotherapy, hormone treatments, radiation, chemotherapy and much more!

**Conference Highlights**

- Presentations on:
  - Active Surveillance
  - Treating High-Risk Prostate Cancer
  - Relapsed Prostate Cancer
  - Prostate Cancer that has Metastasized
  - New Treatments
  - Treatment-Related Side Effects
  - Issues of Intimacy

- Round-Table Discussions: watch and hear speakers’ multi-disciplinary approach to actual clinical cases

- Opportunities to interact with speakers after their presentations

- Ask the Experts: question-and-answer sessions with participating faculty and other experts and conference attendees

- Exhibits from participating supporters and other members of the prostate cancer community

- Support group meetings will be held all throughout the conference – courtesy of LsToo and Women Against Prostate Cancer

- Saturday Night Gala Dinner with Live Entertainment, The Harry Pinchot and Catalyst Awards

**Conference Faculty Include:** Duke Bahn, MD, John Blasko, MD, Lori Buckley, PsyD, Robert Dreicer, MD, Eugene Kwon, MD, Richard Lam, MD, Mark Moyad, MD, John Mulhall, MD, Charles Myers, MD, Mark Scholz, MD, Michael Steinberg, MD, & Stephen Strum, MD

Sponsorship Opportunities are available! Visit [www.pcri.org](http://www.pcri.org) or call 310.743.2116
They say that if you want to enact lasting change, start with yourself. That’s exactly what physician and bioidentical hormone expert Dr. Erika Schwartz did. In 1996, she was in her mid 40s. By that time, Schwartz was no stranger to overcoming obstacles—in her teens her family fled the communist regime of her native Romania for Rome. From there, with her sights set on the US, she earned a full scholarship to New York University, and then went to medical school. She became an emergency room doctor, successfully leading one of the largest tertiary care emergency centers in New York, and then built and directed the largest internal medicine practice in Westchester County. But at age 46, she faced a daunting dilemma that, even as a doctor, she couldn’t fix—her own menopause.
“The tipping point for me came when I was 46,” says Schwartz. “I had a traumatic menopause, and at the time was trying the conventional route of taking Premarin® and birth control pills and feeling really, really horrible.” Just like many of her patients. “I was bloated, severely anemic because when I started taking the Premarin® and birth control pills I started bleeding excessively and was gaining weight. This was not the way I wanted to age.”

Then a patient asked Dr. Schwartz to sign a prescription for hormones to be filled by a compounding pharmacy in California. Schwartz was curious and perplexed. “What exactly am I signing?” Schwartz asked her patient. The patient explained it was for special hormones mixed specifically for her symptoms. And the symptoms were exactly what Schwartz was experiencing.

Schwartz agreed to sign the prescription but called the pharmacy for more information. “I said, ‘I need to understand what you are doing with these compounded drugs. I was under the impression that only drugs that are FDA approved can be prescribed. This is what I had been doing for 15 years,’” explains Schwartz. “He sent me some information which was not useful. However, my interest was piqued and I began researching this topic on my own.”

Because Schwartz was so desperate to find relief for her own symptoms, she ordered the same concoction of hormones, at the cost of $450. Within a week she received several powders and creams—some needed refrigeration, some in syringes, some in jars—and all had elaborate directions. “It was insane,” says Schwartz. “But when you’re desperate, you do anything that you think will correct the problem. At 46 years old, I was not about to resign myself to a compromised old age.”

Being a scientist, Schwartz painstakingly and methodically investigated the literature on hormones. She finally assembled a workable protocol for herself that was based on published studies.

Within a week she felt like herself again, and within six weeks, her weight had decreased, her mood stabilized, and she felt energetic. Schwartz knew she was on to something, but she needed the pharmacist’s help if she wanted to make a difference for her patients, especially considering the enormous cost involved. After six weeks, she called the pharmacy again seeking guidance. She told the pharmacist, “I have a lot of patients with nondescript symptoms that no one wants to take care of, who are taking birth control pills or antidepressants and/or sleeping pills and feeling horrible. Patients who will probably benefit from what you are doing, but $450 a month may be a burden on some of my patients who need this treatment the most.” Dr. Schwartz was looking for a way to make this protocol more affordable for her patients. “Fortunately for me, this man said, ‘I don’t need you or your patients. I have enough here so go away.’ So this is the guy I can thank for the rest of my life, because it prompted me to find a better solution,” remembers Schwartz. “You know in everybody’s history, there’s that moment when we get rejected and that rejection turns into the biggest success of your life.” And so began Schwartz’s journey to become one of the world’s foremost experts and advocates for bioidentical hormones.

Finding a Way

Not one to give up, Schwartz instead contacted a local compounding pharmacy in New York that was compounding for hospitals. “The pharmacist was interested enough in sharing his information to bring me into his lab,” says Schwartz.
She then spent the next few years working with him and her patients developing a protocol that has become a gold standard of bioidentical hormone care. Schwartz now teaches it to physicians for continuing medical education credits. “The approach has stood the test of time, because 16 years later most of the patients I work with still line up within the protocols.” It’s also a procedure that patients and doctors can easily follow, notes Schwartz.

Over the years, the FDA has approved some bioidentical hormones, some of which Schwartz uses in her protocols, but she will clarify that it’s only the delivery method that’s actually been approved. “The only thing that is different between compounded and FDA approved bioidentical hormones is the method of delivery, as in creams versus gels, patch versus oral. It’s simply the vehicle through which the same hormone is delivered.”

Schwartz points out that for many doctors compounding hormones is unfortunately overly complicated, “because there aren’t enough doctors teaching it the right way.” Currently, there are no FDA-approved combination products or FDA-approved testosterone versions for women. “And women do need testosterone.”

Where the Trouble Began—Research Gone Wrong

As Schwartz sees it, bioidentical hormones are the most natural way to restore hormone function. So why aren’t more doctors using bioidentical hormones?

According to Schwartz, the US got hoodwinked into believing that synthetic hormones, like Premarin®, were the only way to treat menopause and other hormone imbalances when the Women’s Health Initiative (WHI), a massive nationwide research study, began in the 1990s. “Bioidenticals have been around since the 30s, but they got lumped in with synthetics by the FDA and NIH when the Women’s Health Initiative occurred,” explains Schwartz.

The WHI was a 15-year study started by the NIH to find ways to prevent cardiovascular disease, cancer, and osteoporosis. The study compared horse urine-derived, unnatural to the human body estrogen (Premarin®)/synthetic progestin (Provera®) versus placebo, and horse urine-derived unnatural to the human body estrogen (Premarin®) versus placebo, with both products supplied by then manufacturer Wyeth Pharmaceuticals Inc. Premarin® was the typical choice as it had been around in the US since the 1950s, says Schwartz, but many physicians and patients alike were not aware that natural options also existed. What most doctors were unaware of was that European countries, such as Germany, have never used Premarin®.

At the time, most doctors did not know there were more natural forms of estrogen and progesterone available, including an FDA approved bioidentical estrogen patch.

According to Schwartz, the academic institutions were uneducated and uninformed and “took money and product” instead of researching other options. The results were catastrophic. The WHI ended up showing that the synthetic hormone options increased a woman’s risk of heart attack, stroke and in some cases, cancer. “So, when in 2002 the WHI went bust because Premarin® and Provera® actually increased the risk rather than decreased the risk of cancer and heart attack and stroke, the party line became all hormones were the same.”

But Schwartz, and the head of the International Menopause Society (IMS), contend there is no class effect, meaning not all estrogens behave the same, and not all progesterones behave the same. “To say hormones have a class effect is an assumption that is critically wrong. It’s an assumption that’s affected more than 100 million women over the past 10 years.”

Editor’s note: Life Extension’s prior analyses shows that synthetic progestins (Provera®—Used in the WHI study) are quite dangerous and that natural progesterone (used by enlightened women) may confer protective effects. Conflicting data exists as to the safety of various estrogen drugs, but the preponderance of data indicates women in need of estrogen should consider a compounded formula of primarily estriol, with smaller amounts estradiol, and follow the safety caveats outlined on the website, www.lef.org/femalehormone.
Despite international consensus that there is no class effect of hormones, except in the United States, Schwartz is fighting an uphill battle. "I am a conventional doctor, who for personal reasons, found another way that works better," says Schwartz. "And also discovered facts that maybe everybody should have known, including the physicians, who to this day, are still being brainwashed."

“I see patients every day who come to me and say ‘My doctor told me that bioidentical hormones are dangerous or don’t work or not as effective as those made by the big drug companies,” laments Schwartz. “To this day, things aren’t changing dramatically, but hopefully with what I am doing and others are doing, it will keep getting better.”

Yes, Schwartz has successfully and healthfully moved through her own menopause. She’s dedicated her medical practice to helping men and women change their lives through bioidentical hormones, proper nutrition, and stress management. She’s written four best-selling books, including The Hormone Solution, The 30-Day Natural Hormone Plan, The Hormone Friendly Diet, and Dr. Erika’s Hormone Solution for your Daughter. And she’s personally treated more than 20,000 patients around the world.

But as she sees it, the power of big pharma is still influencing doctors. "Pfizer, who owns Wyeth, has such a huge hold over the academic institutions, NIH, and the whole pharmaceutical environment in which we function," says Schwartz. "As a result, medical knowledge is often dictated by the pharmaceutical companies, not by science. Around 2009, I was invited by the head of the department of OB/GYN at Harvard University to lecture on hormones because I had published an article in the Medical Clinic of North America. When I asked the OB/GYNs why is it that I, who am a clinician, have to do their research, they gave me a very disturbing answer;” recalls Schwartz. “Their answer was that there was a whole generation of physicians that’s been trained to prescribe Premarin® and Provera® and don’t know any other way. These indoctrinated physicians will have to die out before a new generation of physicians can start prescribing to women what they truly need. I find that criminal.”

Interestingly, Schwartz still believes ignorance and lack of understanding is more to blame than money and greed. "It’s not about the fact that you make more money with Premarin®. Yes, Pfizer makes money with Premarin®. But you can make a ton more money with estradiol and progesterone and you can also have healthier women who won’t need to be taking antidepressants and sleeping pills,” she says. "Women who won’t be getting into car accidents because they are driving around like zombies.”

She asserts that the problem is simply not enough conventional doctors have taken the time to educate themselves on the use and benefits of bioidentical hormones. It is for this reason that she founded the non-profit Bioidentical Hormone Initiative to educate physicians and dispel the idea that there’s a class effect with bioidenticals. “The moment you gain the support of the conventional medical world, you can make real differences.”

And real differences for men and women of all ages, says Schwartz, because, “everybody needs hormones, they are the juice of life.” We all need hormones, Schwartz says. “And they prevent the need for antidepressants, which nobody needs. They’re dangerous drugs. They’re addictive. And trillions of dollars are spent on them. I can’t tell you how many women and men I take off of them.”

“There are trillions of dollars being spent on research on drugs that we know don’t work, and yet we are hiding the information about bioidentical hormones and how they help us prevent disease, stay well, and continue as active participants in life,” she concludes.

To review Life Extension’s Female Hormone Restoration Protocol log on to: lef.org/femalehormone.

For further information on Dr. Erika Schwartz please visit www.drerika.com.

If you have any questions on the scientific content of this article, please call a Life Extension® Health Advisor at 1-866-864-3027.
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According to the Proceedings of the National Academy of Sciences, alpha tocopherol (regular vitamin E) displaces critically important gamma tocopherol in the cells. While alpha tocopherol inhibits free-radical production, gamma tocopherol is required to trap and neutralize existing free radicals.

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

NOTE: Those taking Super Booster do not usually require additional gamma tocopherol.

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

References

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

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
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<tr>
<th>PLEASE ANSWER YES OR NO</th>
<th>YES</th>
<th>NO</th>
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<tr>
<td>1. Do you have a decrease in libido (sex drive)?</td>
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<td>2. Do you have a lack of energy?</td>
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<td>3. Do you have a decrease in strength and/or endurance?</td>
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<td>4. Have you lost height?</td>
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<td>5. Have you noticed a decreased “enjoyment of life”?</td>
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<td>6. Are you sad and/or grumpy?</td>
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<td>7. Are your erections less strong?</td>
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<td>8. Have you noticed a recent deterioration in your ability to play sports?</td>
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<td>9. Are you falling asleep after dinner?</td>
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<td>10. Has there been a recent deterioration in your work performance?</td>
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The above ADAM questionnaire was developed by John E. Monks, M.B., B.Ch.
It is to be used solely as a screening tool to assist a physician in diagnosing androgen (testosterone) deficiency. Androgen Deficiency is the Aging Male.

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<th>Code</th>
<th>Price</th>
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<tr>
<td>CBC/Chemistry Profile</td>
<td>(LC381822)</td>
<td>$35</td>
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- Overcast Polarized Sunglasses
- SolarShield Sunglasses
- Super Zeaxanthin with Lutein & Mezo-Zeaxanthin and C3G
- Vision Optimizer

## Fiber
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- Fiber Food
- Hi-Lignan® Nutri-Flax®
- TruFiber®
- WellBetX PGX® Soluble Fiber Blend

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- Cruciferous Vegetable Soup
- Rich Rewards Coffee

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- Dr. Proctor’s Shampoo
- Life Extension Shampoo and Conditioner
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- Blueberry Extract w/Pomegranate
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- Mega Lycopene Extract
- Nutrim
- Optimized Ashwagandha Extract
- Optimized Garlic
- Pomegranate Extract
- Pomegranate Juice Concentrate
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- Super Gingko Extract
- Triple Action Cruciferous Vegetable Extract
- Venotone
- Whole Grape Extract

## Hormones
- Advanced Natural Sex for Women®
- Cordyceps CS-4
- 7-Keto® DHEA
- DHEA
- DHEA Complete
- GH Putitary Support Day Formula
- GH Putitary Support Night Formula
- Melatonin
- Melatonin Timed Release
- Natural Estrogen with Pomegranate Extract
- Pregnenolone
- ProFem Cream
- Pure IGF
- Super Miraforte with Standardized Lignans

## Immune Enhancement
- AHCC® (Active Hexose Correlated Compound)
- Aloe Vera Force™
- Buffered Vitamin C Powder
- Echinacea
- Enhanced Life Extension Whey Protein
- Hyperimmune Egg
- Immune Protect with PARACTIN®
- Lactoferrin
- Lifeshield™ Immunity™
- Maitake SX-Fraction
- Norwegian Shark Liver Oil
- Optimized Fucoidan w/Martitech® 926
- Primal Defense™
- ProBoost™ Thymic Protein A
- Pure Gar™
- Sambu® Guard
- SuperCritical Oroganoforce™
- Thymic Immune Factors
- Ultimate Flora Advanced Immunity
- Vitamin C with Dihydroquercetin
- Zinc Lozenges with Vitamin C

## Inflammatory Reactions
- Arthro-Immune Joint Support
- ArthroMax™ with Theaflavins
- Boswellia
- Boswellia® topical Cream
- Bromelain (Specially-coated)
- DHA 240
- Emulsified Norwegian Cod Liver Oil
- Emulsified Super Twin EPA/DHA
- Fast Acting Joint Formula
- Ginger Force
- Krill Oil
- 5-LOX Inhibitor w/AprèsFlex™
- MegA EPA/DHA
- Mega GLA with Sesame Lignans
- MSM
- Natural Relief 1222™ Cream
- Omega-3 Chewables
- SerraLzyme
- SODisyme™ with GliSODin® and Wolfberry
- Super Omega-3 EPA/DHA
- Witega Max with Pomegranate Extract

## Liver Health
- Branch Chain Amino Acids
- N-Acetyl Cysteine
- Liver Force
- Liver Efficiency Formula
- Certified European Milk Thistle
- Hepatoprotein
- SAAm
- Silymarin

## Minerals
- Biosil
- Bone Restore
- Bone Strength Formula w/KoAc®
- Bone-Up™
- Boron Capsules
- Calcium Citrate with D3
- Chromium Ultra
- Copper
- Dr. Strum’s Intensive Bone Formula
Buy 4 bottles, price each

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**AUGUST 2012**

**LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS**
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**SUB-TOTAL OF COLUMN 4**

**LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS AUGUST 2012**

To order online visit: www.LifeExtension.com
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To order call: 1.954.766.8433 or 1.800.544.4440
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**SUB-TOTAL OF COLUMN 7**

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**SUB-TOTAL OF COLUMN 8**
Buyers Club Order Form

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**SUB-TOTAL OF COLUMN 9**

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<th>Member Each</th>
<th>Qty</th>
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<td>IMMUNE PROTECT W/PRACTIN™ - 30 veg. caps</td>
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<td>INOSITOL CAPSULES - 1000 mg, 360 caps</td>
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**SUB-TOTAL OF COLUMN 10**

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<td>00056</td>
<td>JARRO-DOPHILUS EPS™ - 60 veg. caps</td>
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<td>JARRO-DOPHILUS ORAL PROBIOTIC GUM - Pom-Berry flavor, 8 pieces</td>
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<td>JARRO-DOPHILUS ORAL PROBIOTIC LOZENGE - Pom-Berry flavor, 8 pieces</td>
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<td>K w/ADVANCED K2 COMPLEX (SUPER) - 90 softgels</td>
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<td>KRILL HEALTHY JOINT FORMULA - 30 softgels</td>
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<td>KYOLIC® GARCIL FORMULA 105 - 200 caps</td>
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<td>KYOLIC® RESERVE - 600 mg, 120 caps</td>
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<td>00513</td>
<td>LACTOFERRIN (APOLACTOFERRIN) CAPS - 60 caps</td>
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<td>LAVLIN UNDERARM DEODORANT - 12.5 grams cream</td>
<td>$16.99</td>
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<td>LECITHIN - 16 oz, granules</td>
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<td>$73.50</td>
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## Buyers Club Order Form

### LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS  AUGUST 2012

<table>
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<th>No.</th>
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<td>01667</td>
<td>LIFE EXTENSION MIX™ w/ EXTRA NIACIN 315 tablets w/o copper</td>
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<td>$78.00</td>
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<td>$312.00</td>
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<td>Buy 4 bottles, price each</td>
<td>86.00</td>
<td>68.00</td>
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<tr>
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<td>Buy 10 bottles, price each</td>
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<td>55.60</td>
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<td>Buy 4 bottles, price each</td>
<td>98.00</td>
<td>78.40</td>
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</tr>
<tr>
<td></td>
<td>Buy 10 bottles, price each</td>
<td>85.00</td>
<td>68.00</td>
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<tr>
<td>01666</td>
<td>LIFE EXTENSION MIX™ POWDER - 14.81 oz w/o copper</td>
<td>$98.00</td>
<td>$73.50</td>
<td>4</td>
<td>$308.00</td>
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<td></td>
<td>Buy 4 bottles, price each</td>
<td>86.00</td>
<td>64.50</td>
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<td>LIVER FORCE - 30 veg. caps</td>
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<td>5-LOX INHIBITOR W/APRESFLEX™ - 100 mg, 60 veg. caps</td>
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<td>$86.00</td>
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<td>20.00</td>
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<td>Buy 4 bottles, price each</td>
<td>8.00</td>
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<td>L-LYSINE POWDER - 300 grams</td>
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<td>Buy 4 bottles, price each</td>
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<td>01470</td>
<td>LURALEAN™ CAPS SPECIAL PROPOLISMANAN PARTICLE SIZE - 120 veg. caps</td>
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<td>Buy 4 bottles, price each</td>
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<td>LYPOPENE EXTRACT (Mega) - 15 mg, 90 softgels</td>
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<td>$105.00</td>
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### SUB-TOTAL OF COLUMN 11

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<td>01009</td>
<td>MEMORY UPGRADE™ - 600 grams powder</td>
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<td>$157.50</td>
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<td>01536</td>
<td>METHYLCOBALAMIN - 1 mg, 60 lozenges (vanilla)</td>
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<td>$7.46</td>
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<td>$59.70</td>
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<td>01537</td>
<td>METHYLCOBALAMIN - 5 mg, 60 lozenges (vanilla)</td>
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<td>$192.00</td>
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<td>MIGRA-EZZE™ (BUTTERBUR) - 60 softgels</td>
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<td>$174.60</td>
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<td>MILK THISTLE (CERTIFIED EUROPEAN) - 750 mg, 60 veg. caps</td>
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<td>MILK THISTLE (CERTIFIED EUROPEAN) - 120 veg. caps</td>
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<td>$308.00</td>
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<td>00623</td>
<td>MINERAL FORMULA FOR MEN - 100 caps</td>
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<td>$11.25</td>
<td>6</td>
<td>$91.50</td>
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<td>00624</td>
<td>MINERAL FORMULA FOR WOMEN - 100 caps</td>
<td>$15.00</td>
<td>$11.25</td>
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<td>01315</td>
<td>MIRAFORTÉ w/STANDARDIZED LIGNANS (SUPER) - 120 caps</td>
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<td>01569</td>
<td>MITOCHONDRIAL BASICS w/BIOPPQ™ - 30 caps</td>
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<td>$39.00</td>
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<td>01568</td>
<td>MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPPQ™ - 120 caps</td>
<td>$94.00</td>
<td>$70.50</td>
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<td>$543.00</td>
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<td>MIST ORAL III w/CQ10 - 2 fl oz</td>
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<td>$168.00</td>
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<td>MK-7 - 90 mcg, 60 softgels</td>
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<td>$21.00</td>
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<td>$168.00</td>
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<td>MOUTHWASH w/ POMEGRANATE - 16 oz</td>
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<td>MSM (METHYSULFONYLMETHANE) - 1000 mg, 100 caps</td>
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<td>$84.00</td>
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<td><strong>$415.50</strong></td>
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### SUB-TOTAL OF COLUMN 12

[To order online visit: www.LifeExtension.com]
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<td>NATURAL SLEEP** - 3 mg, 60 veg. caps</td>
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<td>NATURAL SLEEP MELATONIN** - 5 mg, 60 veg. caps</td>
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<td>00987</td>
<td>NATURAL STRESS RELIEF - 30 veg. caps</td>
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<td>NEURO-MAG** MAGNESIUM L-THREONATE - 90 veg. caps</td>
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<td>NEURO-MAG**L-THREONATE W/CALCIUM &amp; VITAMIN D 205 grams - Lemon flavor</td>
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<td>00373</td>
<td>NO-FLUSH NIACIN - 800 mg, 100 caps</td>
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<td>NATURIM - 225 grams powder</td>
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<td>OLIVE LEAF VASCULAR SUPPORT - 500 mg, 60 veg. caps</td>
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<td>OMEGA 3 EPA/DHA w/SESAME LIGNANS &amp; OLIVE FRUIT EXTRACT (SUPER) - 60 softgels</td>
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<tr>
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<td>OMEGA 3 EPA/DHA w/SESAME LIGNANS &amp; - 240 softgels OLIVE FRUIT EXTRACT (SUPER) (SMALL SOFTGEL)</td>
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<td>ONE-PER-DAY - 60 veg. tablets</td>
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<td>ONLY TRACE MINERALS - 90 caps</td>
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<td>00915</td>
<td>OPTIZIMO™ - 30 mg, 90 veg. caps</td>
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<td>OREGANOFOCE** - 30 softgels</td>
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<td>01070</td>
<td>ORGANIC TOTAL BODY CLEANSE™ - 14-day supply</td>
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<tr>
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<td>PECTA SOL-C® MODIFIED CITRUS PECTIN - 454 grams powder</td>
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<td>PECTA SOL-C® MODIFIED CITRUS PECTIN - 270 veg. caps</td>
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<td>PHARMAGABA™ - 60 chewable tablets</td>
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<td>PHOSPHATIDYLESERINE CAPS - 100 mg, 100 caps</td>
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<td>PHOSPHOMEGA - 60 softgels</td>
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<td>29.96</td>
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<td>POLICOSANOL - 10 mg, 60 tablets</td>
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<tr>
<td>01423</td>
<td>POMEGRANATE™ (FULL-SPECTRUM) - 30 softgels</td>
<td>24.00</td>
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<td>00956</td>
<td>POMEGRANATE EXTRACT - 30 veg. caps</td>
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<td>POMEGRANATE JUICE CONCENTRATE - 16 oz. liquid</td>
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<td>PQX CAPS W/BIOPOD™ - 10 mg, 30 veg. caps</td>
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<td>PREGNENOLONE - 50 mg, 100 caps</td>
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<tr>
<td>00700</td>
<td>PREGNENOLONE - 100 mg, 100 caps</td>
<td>26.00</td>
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<td>00173</td>
<td>PRELOX® NATURAL SEX FOR MEN® - 60 tablets</td>
<td>52.00</td>
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<td>00571</td>
<td>PRIMAL DEFENSE® - 90 caplets</td>
<td>49.95</td>
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<td>PROBIOTIC ALL-FLORA™ - 60 veg. caps</td>
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<td>PROBIOTIC ANTI-AGING™ - 90 veg. caps</td>
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<td>01324</td>
<td>PROBIOTIC CLEANSE™ - 90 caps</td>
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<td>01322</td>
<td>PROBIOTIC COLON™ - 90 veg. caps</td>
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<td>00525</td>
<td>PROBOOST THYMIC PROTEIN A™ - 4 mg, 30 packets</td>
<td>59.95</td>
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<td>00869</td>
<td>PRO FEM CREAM - 2 fl oz (Progesterone Cream)</td>
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<td>01020</td>
<td>PROGRESS™ - 15 stick pack</td>
<td>22.50</td>
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<td>01072</td>
<td>PRO-M INTERNAL DEODORIZER - 500 mg, 100 veg. caps</td>
<td>28.00</td>
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<td>PROSTATE FORMULA W/APHRESFLEX™ STAND. LIGNANS (ULTRA NAT) 60 softgels</td>
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<td>PROTEIN - VANILLA - (Enhanced Life Extension) -1000 grams powder</td>
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<td>PROTEIN - CHOCOLATE - (Enhanced Life Extension) -1000 grams powder</td>
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<td>PROTEIN - NATURAL - (Enhanced Life Extension) -1000 grams powder</td>
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<td>PROTEIN - BERRY - (Enhanced Life Extension) -1000 grams powder</td>
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<td>PTEROPURE™ - 50 mg Pterostilbene 60 veg. caps</td>
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<td>01075</td>
<td>PURE PLANT PROTEIN - Natural Vanilla 450 grams powder</td>
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SUB-TOTAL OF COLUMN 13

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<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
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<tbody>
<tr>
<td>00017</td>
<td>FABA CAPS - 500 mg, 100 caps</td>
<td>$15.42</td>
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<td>PANCREATIN - 500 mg, 50 caps</td>
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<td>PEAK ATP® WITH GLYCOCAR® - 60 veg. caps</td>
<td>59.00</td>
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</table>

SUB-TOTAL OF COLUMN 14

AUGUST 2012

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

To order call: 1.954.766.8433 or 1.800.544.4440
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
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<tbody>
<tr>
<td>01209</td>
<td>PUMPKIN SEED EXTRACT (WATER-SOLUBLE) - 60 veg. caps</td>
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<td>01210</td>
<td>PUMPKIN SEED EXT w/JOY ISOFLAVONES (WATER-SOLUBLE) - 60 veg. caps</td>
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<td>01637</td>
<td>PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT-100 mg, 60 veg. caps</td>
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<td>01217</td>
<td>PYRIDOXAL 5'-PHOSPHATE - 100 mg, 60 veg. caps</td>
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<td>QUERCETIN (OPTIMIZED) - 250 mg, 60 veg. caps</td>
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<td>01030</td>
<td>RED YEAST RICE (Bluebonnet) - 600 mg, 60 veg. caps</td>
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<tr>
<td>00979</td>
<td>RED YEAST RICE (Nature's Plus) - 600 mg, 60 veg. caps</td>
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<tr>
<td>00660</td>
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<td>00805</td>
<td>REGIMINT - 60 enteric-coated caps</td>
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<td>01448</td>
<td>REJUVENEX® BODY LOTION - 6 oz</td>
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<tr>
<td>00918</td>
<td>REJUVENEX® FACTOR - 1.7 oz airless pump</td>
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<td>REJUVENEX® FACTOR FIRMING SERUM - 1.7 oz</td>
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<td>REJUVENEX® (ULTRA) - 2 oz</td>
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<td>00676</td>
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<td>REJUVENIGHT® w/PROGESTERONE (ULTRA) - 2 oz</td>
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<tr>
<td>01410</td>
<td>RESVERATROL W/TEROSTILBENE - 100 mg, 60 veg. caps</td>
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<td>RESVERATROL w/SYNERGISTIC GRAPE-BERRY ACTIVES (OPTIMIZED) - 250 mg, 60 veg. caps</td>
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<td>RHODIOLA EXTRACT - 250 mg, 60 veg. caps</td>
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<tr>
<td>00972</td>
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<td>01473</td>
<td>(D) RIBOSE TABLETS - 100 veg. tabs</td>
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<td>RICH REWARDS BREAKFAST GROUND COFFEE - 12 oz. bag</td>
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<tr>
<td>01610</td>
<td>RICH REWARDS DECAFEMINATED ROAST GROUND COFFEE - 12 oz. bag</td>
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<td>RNA CAPSULES - 500 mg, 100 caps</td>
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<td>ROSMARINIC ACID EXTRACT - 60 veg. caps</td>
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SUB-TOTAL OF COLUMN 15

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<th>Qty</th>
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<td>SAFFRON w/SATIEREAL (OPTIMIZED) - 60 veg. caps</td>
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<td>SAME (S-ADENOSYL-METHIONINE) - 200 mg, 50 enteric coated tablets</td>
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<td>SEA-IONINE™ - 1000 mcg, 60 veg. caps</td>
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<td>SELENIUM - 2 oz dropper bottle</td>
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<td>SERRALAFLAZYME - 100 tablets</td>
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<td>SHAMPOO - 16 fl oz</td>
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<td>SHARK LIVER OIL (NORWEGIAN) - 1000 mg, 30 softgels</td>
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<tr>
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<td>SILYMARIN - 100 mg, 50 caps</td>
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<tr>
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<td>SODIUM+ w/GLIODIOR® AND WOLFBERRY - 90 veg. caps</td>
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<td>SOLARSHIELD SUNGLASSES - 1 pair smoke color</td>
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<td>SOY EXTRACT (ULTRA) - 150 veg. caps</td>
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<td>SOY PROTEIN CONCENTRATE - 16 oz of powder</td>
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<td>00432</td>
<td>STEVIA EXTRACT - 100 packets, 1 gram each</td>
<td>$9.95</td>
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<td>01396</td>
<td>ST. JOHN'S WORT EXTRACT - 300 mg, 60 veg. caps</td>
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<td>ST. JOHN'S WORT EXTRACT (PLANETARY) - 600 mg, 60 tablets</td>
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<td>STRONTIUM - 750 mg, 90 veg. caps</td>
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<td>SUNGLASSES (OVERXCAST POLARIZED) - gray, large</td>
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<td>SUNGLASSES (OVERXCAST POLARIZED) - gray, medium</td>
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<td>SUPER ABSORBABLE ISOFLAVONES - 60 caps</td>
<td>$28.00</td>
<td>21.00</td>
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</tr>
</tbody>
</table>

SUB-TOTAL OF COLUMN 16

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

AUGUST 2012

To order online visit: www.LifeExtension.com
**Buyers Club Order Form**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
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<tbody>
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</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>26.00</td>
<td>19.50</td>
<td></td>
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<tr>
<td></td>
<td>Buy 12 bottles, price each</td>
<td>24.00</td>
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<td></td>
<td>Buy 12 bottles, price each</td>
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<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>10.00</td>
<td>7.50</td>
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<tr>
<td></td>
<td>Buy 12 bottles, price each</td>
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<tr>
<td>00674</td>
<td>SYTRINOL® - 60 softgels</td>
<td>32.00</td>
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<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>28.00</td>
<td>21.00</td>
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<td></td>
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<tr>
<td></td>
<td>TAL - SHII® COSMETICS • For information please call 1-800-544-4440 or visit <a href="http://www.LifeExtension.com">www.LifeExtension.com</a></td>
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<tr>
<td>01062</td>
<td>TART CHERRY - 600 mg, 60 caps</td>
<td>$18.95</td>
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<td>TAURINE - 1000 mg, 50 caps</td>
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<td></td>
<td>Buy 4 bottles, price each</td>
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<tr>
<td>01304</td>
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<td>Buy 4 bottles, price each</td>
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**SUB-TOTAL OF COLUMN 17**
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**SUB-TOTAL OF COLUMN 19**

* These products are not 25% off retail price.
**Not eligible for member discount or member renewal product credit.
***Due to license restrictions, this product is not for sale to customers outside of the USA.
†Member pricing not valid on this item.

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**Address**

**City**

**ST**

**ZIP**

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**Address**

**City**

**ST**

**ZIP**

**Email**

Phone

☐ Check enclosed (payable to Life Extension Foundation®)

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Card #

Exp.
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- Check Here For Ups Red Label (Overnight)
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The good news is that life expectancy is rising every year. In 2007 the Centers for Disease Control and Prevention (CDC) announced that the average American’s life expectancy is 77.9 years. This means that we are starting to figure out how to take better care of our bodies and allow for a natural aging process. Adopting a lifestyle that includes regular physical exercise, rest, and a healthy diet with targeted herbals can be the best way to aging gracefully.

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