Age-Reversal Research Funded By Life Extension

Treating Autistic Children with Vitamin D

Neutralize Risk of Stroke and Alzheimer’s

Anti-Inflammatory Impact of the Mung Bean

Brain Damage Reversed in Former NFL Players

PLUS-
Higher Blood Glucose Predicts Dementia
Vitamin D Improves Cancer Survival
Omega-3s Protect Against Brain Infarction
The annual **SUPER SALE** enables members to obtain premium grade supplements at prices substantially **below** what commercial companies charge. When members buy products from the **Life Extension Foundation Buyers Club**, they know that the **quality** of the products are backed by the organization’s commitment to achieving an indefinitely extended life span. What follows are a few examples of the **savings** members enjoy during the **SUPER SALE**.

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Retail</th>
<th>Member SUPER SALE Discount Price Per Bottle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Super Omega-3 EPA/DHA with Sesame Lignans/Olive Fruit Extract</strong></td>
<td>$32</td>
<td>$16.81 (ten-bottle purchase)</td>
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<tr>
<td>120 softgels, Item # 01482</td>
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<tr>
<td>Superior refined EPA/DHA fish oil plus sesame lignans and olive fruit extract to</td>
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<tr>
<td>provide critical omega-3 fatty acids and essential components of the Mediterranean</td>
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<tr>
<td>diet.</td>
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</tr>
<tr>
<td><strong>New! Advanced Bio-Curcumin® with Ginger and Tumericones</strong></td>
<td>$30</td>
<td>$18.23 (four-bottle purchase)</td>
</tr>
<tr>
<td>30 softgels, Item # 01808</td>
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<tr>
<td>Enhanced-absorbing BCM-95 curcumin with broad-spectrum inflammation-suppressing</td>
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<td>support.</td>
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<tr>
<td><strong>New! Brain Shield™ • 600 mg, 60 vegetarian capsules, Item # 01802</strong></td>
<td>$33</td>
<td>$20.25 (four-bottle purchase)</td>
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<tr>
<td>Novel orchid extract providing unparalleled, multi-factorial support for cognitive</td>
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<td>and circulatory brain function.</td>
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<tr>
<td><strong>Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™</strong></td>
<td>$62</td>
<td>$35.10 (ten-bottle purchase)</td>
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<tr>
<td>100 mg, 60 softgels, Item # 01426</td>
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<tr>
<td>Superior ubiquinol CoQ10 plus an organic compound shown to <strong>double</strong></td>
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<tr>
<td>mitochondrial CoQ10 levels.</td>
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<tr>
<td><strong>New! European Milk Thistle • 60 softgels, Item # 01822</strong></td>
<td>$28</td>
<td>$16.88 (four-bottle purchase)</td>
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<tr>
<td>High-absorption phospholipid-enhanced formula delivers <strong>ten</strong> times more silybin</td>
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<td>to the liver to promote healthy liver function.</td>
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<tr>
<td><strong>New! Ultra Natural Prostate Formula • 60 softgels, Item # 01895</strong></td>
<td>$38</td>
<td>$21.60 (twelve bottle purchase)</td>
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<tr>
<td>Comprehensive prostate protection utilizing nettle, pygeum, saw palmetto, boswellia,</td>
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<tr>
<td>lycopene, and boron. Now in a proprietary phospholipid complex for enhanced</td>
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<td>absorption.</td>
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<tr>
<td><strong>New! Cognitex with Brain Shield™ and Pregnenolone</strong></td>
<td>$66</td>
<td>$35.10 (four-bottle purchase)</td>
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<tr>
<td>90 softgels, Item # 01896</td>
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<tr>
<td>Optimal support for the brain. Includes gastrodin, glyceryl-phosphoryl-choline,</td>
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<tr>
<td>vinpocetine, phosphatidylserine, uridine 5’-monophosphate, and more. Available</td>
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<tr>
<td>with or without pregnenolone.</td>
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<tr>
<td><strong>Bone Restore with Vitamin K2 • 120 capsules, Item # 01727</strong></td>
<td>$24</td>
<td>$14.85 (four-bottle purchase)</td>
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<tr>
<td>High-potency bone protection formula with highly <strong>absorbable</strong> forms of calcium,</td>
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<tr>
<td>magnesium, and boron. (Also available without vitamin K2.)</td>
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<tr>
<td><strong>Optimized Resveratrol with Synergistic Grape-Berry Actives</strong></td>
<td>$46</td>
<td>$27.90 (four-bottle purchase)</td>
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<td>250 mg, 60 vegetarian capsules, Item # 01430</td>
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<tr>
<td>High potency trans-resveratrol with quercetin, plus trans-pterostilbene and</td>
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<tr>
<td>fisetin to support DNA “longevity genes.” One-per-day resveratrol formula.</td>
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<tr>
<td><strong>Super Booster Softgels with Advanced K2 Complex</strong></td>
<td>$42</td>
<td>$25.65 (four-bottle purchase)</td>
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<tr>
<td>60 softgels, Item # 01680</td>
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<td></td>
</tr>
<tr>
<td>A convenient one-per-day softgel that includes optimal potencies of gamma-tocopherol,</td>
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<tr>
<td>sesame lignans, lycopene, lutein, ginkgo, chlorophyllin, and both forms of vitamin K2.</td>
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</table>

The **SUPER SALE** extends to February 3, 2014.

Members traditionally take advantage of the **SUPER SALE** to stock up on a year’s supply of their favorite supplements. To place your order, call 1-800-544-4440 or visit www.lef.org (**SUPER SALE** pricing available only to members in the US, Canada, and England.)

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.
32 AUTISM: THE IMPORTANCE OF VITAMIN D
Over the past few years, evidence has been mounting that vitamin D deficiency plays a key role in autism. Vitamin D regulates thousands of coding genes in the human genome. Research indicates that vitamin D stimulates specific factors in the body that can have a beneficial effect on this disorder.

54 CALMING NEUROTRANSMITTERS FOR MIGRAINE RELIEF
Migraines are more than just headaches. They can cause lasting neurological damage that leads to dementia and stroke. Two natural agents calm and balance the storm of neurotransmitters that contribute to a migraine, providing effective natural migraine prevention.

68 SWITCH-OFF INFLAMMATORY CYTOKINES
A biochemical "switch" that turns on many of the chronic diseases of aging has been uncovered. Known as HMGB1, this molecule triggers the release of cytokines—a collection of chemical signals—that generate inflammation in your body. In a hospital setting, researchers have shown that mung bean seed coat and green tea extract counteract HMGB1, safely quelling acute inflammation before it becomes chronic.

78 ENHANCED MILK THISTLE FOR LIVER PROTECTION
Your liver performs over 500 life-sustaining functions that include defense against environmental and internally generated toxins. Silybin, a component of milk thistle, has been shown to reverse liver damage and regenerate liver cells. When combined with phosphatidylcholine, the delivery of silybin’s protective potential to the liver is increased by ten-fold!

7 AS WE SEE IT: OUTWIT YOUR AGING BRAIN
We are zeroing in on a prime culprit behind Alzheimer’s, stroke, and cognitive impairment. The term for this disorder is “hypoperfusion.” It means an inadequate supply of blood to a body part. Hypoperfusion causes a series of harmful changes that severely diminish neurological function. Life Extension members will find comfort that their healthy lifestyle choices have been proven to help protect against hypoperfusion. This article will profoundly change how neurodegenerative disease is viewed. It provides a rational basis to prevent and reverse circulatory deficits that cripple and destroy our aging brains.

25 IN THE NEWS
Higher glucose levels may increase dementia risk; increased omega-3 fatty acid levels linked with healthier brains; hardening of the arteries boosts risk of brain plaques associated with Alzheimer’s disease; vitamin D is associated with a 41% lower risk of death among kidney disease patients; and more.

89 SUPERFOODS
Extract of mung beans, long a staple of Asian diets, has been shown to inhibit LDL oxidation, trigger apoptosis, dampen blood-sugar spikes, and increase satiety, substantially slashing the risk of age-related diseases such as cardiovascular disease, cancer, diabetes, and obesity.

97 PROFILE: CARMEN FUSCO, MSc, FORMULATOR OF ADVANCED SKIN CARE
For the past thirty years, nutritional scientist Carmen Fusco has continued to innovate and incorporate advanced nutritional compounds in her highly-acclaimed Rejuvenex® skin products. Based on research, Professor Fusco’s formula incorporates proven skin-cell renewal ingredients to produce healthier, more vital skin.
Visit the Life Extension Nutrition Center Store

• The Most Complete Line of Life Extension Supplements
• Blood Testing and Analysis
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At Life Extension Magazine® we value your opinion and welcome feedback. Please mail your comments to Life Extension Magazine®, Attn: Letters to the Editor, PO Box 407198, Fort Lauderdale, FL 33340 or email us: LEmagazine@lef.org
A large, rigorous study published in the New England Journal of Medicine confirmed the health benefits of those who switch to a Mediterranean diet rich in omega-3 fish oil as well as protective nutrients called polyphenols found in olive oil, fruits, vegetables, nuts like walnuts, and wine. The study ended early because the benefits were so overwhelming, with startling benefits for vascular health, that it was considered unethical to continue to deprive the control group.

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

LIFE EXTENSION® MEMBERS LONG AGO BENEFITED

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

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

References

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

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

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

- EPA (eicosapentaenoic acid) 1,400 mg
- DHA (docosahexaenoic acid) 1,000 mg
- Olive (fruit and leaf) Extract 600 mg (std. to 6.5% polyphenols (39 mg), 1.73% hydroxytyrosol/tyrosol (10.4 mg), 0.5% verbascoside/oleuropein (3 mg))
- Sesame Seed Lignan Extract 20 mg

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

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

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

Anna M. Cabeca, DO, FACOG, ABAARM, is a board certified Gynecologist and Obstetrician, as well as board certified in Anti-Aging and Regenerative Medicine, an expert in Functional Medicine, and an expert in women’s health. She specializes in bio-identical hormone replacement therapy and natural alternatives, successful menopause and age management medicine.

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

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 also medical director of the online heart disease prevention and reversal program, Track Your Plaque (www.trackyourplaque.com).

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

John DeLuca, MD, DC, 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, in 2008 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.

Seray A. Dzugen, MD, PhD, was formerly chief of cardiovascular surgery at the Donetsk Regional Medical Center in Donetsk, Ukraine. Dr. Dzugen’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 Medical 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 Benemenda 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.

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

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

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

Roberto Marasi, MD, is a psychiatrist in Brescia and in Piacenza, Italy. He is involved in anti-aging strategies and weight management.

Maurice D. Marholin, DC, DO, is a licensed Chiropractic Physician and Board Certified Osteopathic Family Physician. While training at the University of Alabama, he completed Fellowships in Clinical Nutrition and Behavioral Medicine. He is currently in private practice in Clermont, Florida.

Prof. Francesco Marotta, MD, PhD, gastroenterologist and nutrigenomics expert with extensive international university experience. Consulting Professor, WHO-affiliated Center for Biotech & Traditional Medicine, University of Milano, Italy. Hon. Res. Professor, Human Nutrition Dept, TWU, USA. Author of over 130 papers and 400 congress lectures.

Philip Lee Miller, MD, is founder and medical director of the Los Gatos Longevity Institute in Los Gatos, CA.

Michele G. Morrow, DO, FAAFP, is a board-certified family physician who merges mainstream and alternative medicine using functional medicine concepts, nutrition, and natural approaches.

Herbert Pardell, DO, FAAIM, practices internal medicine at the Emerlad Hills Medical Center in Hollywood, FL. He is a medical director of the Life Extension Foundation.

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

Ross Pelton, RPh, PhD, CCN, is director of nutrition and anti-aging research for Intramedicine, Inc.

Patrick Quillin, PhD, RD, CNS, is a clinical nutritionist in Carlsbad, CA, and formerly served as vice president of nutrition for Cancer Treatment Centers of America, where he was a consultant to the National Institutes of Health.

Allan Rashford, MD, graduated from the University of Iowa Medical School. Upon completing medical training, he became chief of medicine at St. Francis Hospital in South Carolina, and he was later named president of the Charleston Medical Society.

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

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

Ron Rothenberg, MD, is a full clinical professor at the University of California San Diego School of Medicine and founder of California HealthSpan Institute in San Diego, CA.

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

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

Ronald L. Shuler, BS, DDS, CCN, LN, is involved in immunoncology for the prevention and treatment of cancer, human growth hormone secretagogues, and osteoporosis. Board certified in Anti-Aging medicine.

Paul Wand, MD, Fort Lauderdale, FL, is a clinical neurologist with special expertise in treating and reversing diabetic peripheral neuropathy and brain injuries from various causes.
Örn Adalsteinsson, PhD, is chairman of the Life Extension® Scientific Advisory board. He holds a master’s and doctorate from the Massachusetts Institute of Technology (MIT). He has specialized in human therapeutics including vaccines, monoclonal antibodies, product development, nutraceuticals, formulations, artificial intelligence, hormones, and nutritional supplementation. He has also authored articles and contributed to peer-reviewed publications and served as an editor for the Journal of Medicinal Food.

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

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

Frank Eichorn, MD, is a urologist specializing in prostate cancer for 10 years. He has a private practice in Bad Reichenhall, Germany, and is prostate cancer consultant at the Urologische Klinik 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 double board-certified in internal medicine and sleep disorder 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.

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.

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

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

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

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

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

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

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

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

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

References

The suggested dose of one capsule a day provides:

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<tr>
<td>Trans-Resveratrol</td>
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<td>Grape Berry Actives</td>
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<td>Fisetin</td>
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To order Optimized Resveratrol with Synergistic Grape-Berry Actives, call 1-800-544-4444 or visit www.LifeExtension.com
Outwitting Our Aging Brain

BY WILLIAM FALOON

We are zeroing in on a prime culprit behind Alzheimer’s, stroke, and age-related cognitive impairment.

The term for this reversible disorder is “hypoperfusion.” It means an inadequate supply of blood to a body part.

Hypoperfusion of the brain occurs in response to reduced blood flow. The result of hypoperfusion is a series of harmful changes that severely diminish neurological function.

We have long known about structural changes that adversely impact the aging brain. Preceding this structural deterioration, however, is a decline in microvascular blood flow.

What researchers are increasingly recognizing is that most aging humans suffer from obstructions to cerebral blood flow that result in chronic hypoperfusion.¹ This sets in motion a cascade of neuronal injuries that can manifest as memory loss,² depression,³-⁶ and cognitive dysfunction.⁷-⁹ The long-term impact of hypoperfusion is a higher risk of stroke,¹⁰,¹¹ vascular dementia,¹²,¹³ and Alzheimer’s disease.¹⁴-¹⁶

Life Extension® members will find comfort that their healthy lifestyle choices have been proven to help protect against hypoperfusion. We must never underestimate, however, the fragile nature of our aging circulatory systems.

This article represents a compilation of new findings that will profoundly change how neurodegenerative disease is viewed. It provides a rational basis to prevent and reverse the circulatory deficits that cripple and destroy our aging brains.
Normal aging is associated with diminished blood flow to the brain. This pathology is known as hypoperfusion and causes cell injury and death. Hypertension (high blood pressure) accelerates brain atrophy in humans. It does this by damaging the cerebral circulatory system to the point that it cannot adequately transport blood. Blood vessels damaged by hypertension (and other factors) lose their ability to nourish cells, which can result in chronic hypoperfusion and loss of brain function.

The combination of hypertension and hypoperfusion is associated with smaller brain volume. Once the cerebral vasculature is damaged, lowering blood pressure will not reverse brain shrinkage, and shrinkage may continue despite successful blood pressure control. The reason is that deformed and dysfunctional cerebral arteries may require higher blood pressure to avoid hypoperfusion. In other words, in some people with cerebrovascular damage, higher blood pressure may be needed to “squeeze” blood into their brain. This “squeezing” process results in additional blood vessel damage and increased stroke risk.

While hypertension is a significant cause of arterial damage and hypoperfusion, aging humans have to do more than lower their blood pressure to reverse hypoperfusion. Hypoperfusion is no longer a controversial aspect of Alzheimer’s disease. Disrupted blood flow (hypoperfusion) is evident when Alzheimer’s manifests in its initial stage as mild cognitive impairment all the way to full-blown dementia. Hypoperfusion is also evident in cognitively healthy persons at high-risk for developing Alzheimer’s due to family history or genetic factors.

Through the advent of advanced imaging technologies, it is now known that Alzheimer’s disease is associated with both global and regional cerebral hypoperfusion. Scientists have discovered that perfusion deficits in regions of the brain observed in Alzheimer’s disease patients are also present in people at increased risk for Alzheimer’s.

While there is still debate as to whether decreased blood flow in Alzheimer’s is a cause or consequence of the disease, hypoperfusion is definitively associated with both structural and functional changes in the Alzheimer’s brain.

Aging humans now have documented opportunities to aggressively explore treatments to prevent, or at least slow the progression of diseases like Alzheimer’s and stroke by guarding against hypoperfusion, also known as cerebrovascular insufficiency.
Hypoperfusion Associated With Reduced Memory Function

Metabolic syndrome is a cluster of cardiovascular risk factors that is also associated with cognitive decline and dementia. Common characteristics of metabolic syndrome include elevated glucose, high triglycerides, insulin resistance, abdominal obesity, low testosterone (in men), and hypertension. A study of late middle-aged adults showed that mean cerebral blood flow was 15% lower in those with metabolic syndrome compared to age-matched controls. The metabolic syndrome group also had lower immediate memory function. In this study, abdominal obesity and elevated triglycerides were most strongly associated with lower cerebral blood flow (hypoperfusion).

Hypoperfusion Associated With Weakened Heart Function

A group of 211 men aged 68 went through a battery of tests to assess cognitive and cardiac function. These same men were tested 14 years later. Those with weakened hearts as measured on an echocardiogram and abnormal EKG patterns at baseline scored lower on verbal and speed-performance neurological tests. The doctors who conducted this study concluded that heart deficiencies in the study subjects were "associated with lower cognitive test results and may predict cognitive decline and silent cerebral perfusion abnormalities 14 years later."

With each heartbeat, blood is thrust into arteries that branch into smaller arterioles that branch further into capillaries where they deliver oxygen and nutrients to cells. Even medically-educated individuals forget just how tiny capillaries that oxygenate our neurons really are. A typical red blood cell is 6-10 micrometers, but capillary diameter is only 8-10 micrometers on average. Capillaries are so narrow that red blood cells often have to bend their shape to squeeze through them. Platelets are usually 2-4 micrometers, but anything that causes abnormal platelet clumping (thrombosis) creates a mass that cannot fit through thread-like capillaries. This helps explain how precarious our aging cerebral vascular system is and how readily hypoperfusion develops via disrupted capillary beds. Not only are capillaries tiny, but they are also extremely delicate. Instead of the tough layers that make up arteries, capillaries consist only of a single layer of endothelial cells lying on a basement membrane. Hypertension destroys fragile capillaries leaving in its wake hypoperfused regions of the brain, often described as cerebral perfusion deficits. Capillaries surround neurons and diffuse oxygen and nutrients into them. Any interruption to capillary blood flow has the potential to injure or kill neurons. This is why hypoperfusion must be prevented or reversed if we are to preserve our cognitive integrity. Abnormal platelet aggregation increases as humans age, which explains why thrombosis is an increasing threat with aging. Any blood particle larger than 5-10 micrometers can clog capillaries, and if enough capillaries become occluded in the brain, an ischemic stroke can occur. Risk factors in the blood that cause brain vasculature to become blocked include excess homocysteine, fibrinogen, C-reactive protein, and triglycerides. Homocysteine creates more havoc at the capillary level than it does in large blood vessels. Fibrinogen promotes occlusive thrombosis. Inflammation damages the delicate endothelium, and triglycerides clog capillary beds. Maintaining capillary integrity is essential to prevent hypoperfusion and the neurodegeneration that invariably accompanies it. Most Life Extension members already take steps to guard their overall health, which confers tremendous benefits in sustaining capillary blood flow, thus protecting against hypoperfusion.
A review of studies using enhanced neuroimaging techniques showed significant individual differences in the rate of cerebral aging (such as a decay of brain volume and reduction of blood flow) that accompanies loss of cognitive function.\(^5^4\)

One neuroimaging study looked at degeneration in regions of the brain (frontal and temporal lobes) and their relationship with hypoperfusion. The researchers found worsening of frontal-temporal degeneration in response to lower cerebral blood flow. More severe hypoperfusion related to greater functional deficit.\(^5^5\)

Preventing Progression To Senility

Mild cognitive impairment is considered an early stage of dementia. A group of researchers conducted a 3-year test and found the conversion rate from mild cognitive impairment to dementia was 11.65\% each year.\(^5^6\)

They found that cognitive decline and hypoperfusion were related to diabetes, carotid stenosis, and changes in the white matter area of the brain. The researchers conducting this study concluded:

> “... our findings could imply that controlling blood glucose, removing carotid stenosis, and improving cerebral perfusion could be effective measures to delay cognitive decline in patients with mild cognitive impairment and prevent conversion from mild cognitive impairment to dementia.”\(^5^6\)

Another study looked at structural alterations (such as amyloid beta deposition) and vascular organization in brains of aged monkeys and human Alzheimer’s brain tissue. The findings suggest that amyloid plaque formation relates to multiple underlying pathologies that occur in partnership with vascular or metabolic deficit.\(^5^7\) This data provides a mechanistic explanation for why senile plaques (as seen in Alzheimer’s) are present preferentially near the cerebral vasculature, and the importance of guarding against hypoperfusion.

Tying This All Together

A review published in 2011 titled “Cerebral microvascular pathology and neurodegeneration” provided a meticulous description as to how cerebro-
vascular dysfunction precedes and accompanies cognitive impairment and senility.\textsuperscript{58} What made this report stand out was that it utilized a novel micro-pathology technique to permit viewing the cerebral vasculature in a 3-dimensional setting.

This 2011 review detailed how perilous our cerebral blood supply becomes with aging, describing tortuous arterioles that barely transport blood, obliterated capillary beds that no longer nourish neurons, and thickened veins that impede blood flow. It went on to describe how hypoperfusion occurs early in Alzheimer’s and other degenerative brain disorders.\textsuperscript{58}

Of interest was the demonstration of a decline in cerebral angiogenesis that precludes natural repair of vascular deficits—and the dangers of particles in the blood (such as circulating clots) that destroy capillary beds, all of which contribute to the hypoperfusion and other vascular deficits that underlie neurodegenerative disease.\textsuperscript{58} This review is available in full text for members to read at www.lef.org/neuro.

An enormous volume of accumulated research reveals why virtually all aging humans suffer cognitive impairment, and why there are so many cases of crippling stroke and dementia.\textsuperscript{58}

Aggressive intervention is clearly needed to protect our memories and very identities against the microvascular pathologies that have been accepted far too long as a hallmark of “normal” aging.

The encouraging news is that nutrients, hormones, and certain drugs that Life Extension members already take are proving more than ever to protect against cerebral circulatory deficits that occur in the aging brain.

Reversing Brain Damage
In Former NFL Players

Brain injuries are common in professional football players and severe cases sometimes make headline news stories.\textsuperscript{59-62}

A clinical trial was conducted on 30 retired NFL players who demonstrated brain damage and cognitive impairment. They underwent baseline testing of cognitive function and brain perfusion as measured by SPECT imaging.\textsuperscript{63}

Participants were encouraged to lose weight (if appropriate) and take the following supplements for six months:

<table>
<thead>
<tr>
<th>Supplement</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish oil</td>
<td>1,720 mg EPA 1,160 mg DHA</td>
</tr>
<tr>
<td>Vinpocetine</td>
<td>15 mg</td>
</tr>
<tr>
<td>Ginkgo extract</td>
<td>120 mg</td>
</tr>
<tr>
<td>Alpha Lipoic Acid</td>
<td>300 mg</td>
</tr>
<tr>
<td>Acetyl L-Carnitine</td>
<td>1,000 mg</td>
</tr>
<tr>
<td>Huperzine A</td>
<td>150 mcg</td>
</tr>
<tr>
<td>N-acetyl-cysteine</td>
<td>600 mg</td>
</tr>
<tr>
<td>High-potency multivitamin</td>
<td></td>
</tr>
</tbody>
</table>

The rationale behind using these nutrients was that they were individually shown to enhance blood flow, protect against free radicals, enhance brain cell membrane structure, boost acetylcholine, enhance neuronal metabolic activity, and reduce chronic inflammatory markers.

After six months, the tests were repeated. There were statistically significant increases in scores of attention, memory, reasoning, information processing speed, and accuracy in these retired NFL players. The SPECT scan showed increased perfusion in areas throughout much of the brain. The researchers who conducted this trial concluded:

“This study demonstrates that cognitive and cerebral blood flow improvements are possible in this group with multiple interventions.”\textsuperscript{63}

Neurological trauma during football events accelerates brain aging. Life Extension members should be gratified to know that they have been taking most, if not all of the nutrients shown in this study to reverse brain damage in retired NFL players. This brain damage clearly linked hypoperfusion with cognitive impairment.
Vinpocetine Reverses Cerebral Hypoperfusion

European doctors prescribe a periwinkle-originated drug called vinpocetine to patients suffering from cognitive problems ranging from short-term memory loss to Alzheimer’s dementia.

Vinpocetine exerts several anti-aging mechanisms, but its most profound effect may be its ability to interfere with processes associated with cerebral hypoperfusion.[103] The diverse mechanisms of vinpocetine explain its beneficial effects on clinical signs and symptoms of cerebrovascular insufficiency. Life Extension has long been familiar with vinpocetine and has recommended it since the 1980s. The FDA tried to shut down our organization and incarcerate me for doing this. The FDA’s rationale was that vinpocetine was not an approved medicinal in the United States, even though it was safely and effectively being prescribed in Europe.

Fortunately, vinpocetine is now sold as a dietary supplement at a fraction of the price it would cost as an FDA-approved prescription drug. Life Extension members have obtained optimal daily doses of vinpocetine for the past three decades in a popular brain boosting formula they take.

Exercise Reverses Brain Decay

Several human studies show that aerobic exercise increases the size of the cognitive centers of the brain and improves memory.[104,105]

One study showed that 1-2 years of aerobic exercise increased hippocampal volume

Hypoperfusion Facilitates Alzheimer’s Disease

For years, neuroscientists have attributed Alzheimer’s disease to structural malformations observed in the brains of Alzheimer’s patients.[96] Terms used to describe these Alzheimer’s alterations include beta-amyloid plaque and neurofibrillary tangles.

Newer findings, however, link hypoperfusion to the formation and progression of these Alzheimer’s malformations. One recent human study found cerebral blood flow to be 20% lower in Alzheimer’s patients compared to a similar aged group with normal cognitive function.[97] This correlates with other research showing that cerebral blood flow is decreased in Alzheimer’s patients.[14,16]

Mild cognitive impairment is the transitional clinical stage between loss of cognition in normal aging and severe dementia. Both Alzheimer’s disease and mild cognitive impairment have been linked to abnormalities in brain perfusion.[98]

A study evaluated brain perfusion in patients with mild Alzheimer’s dementia and patients with mild cognitive impairment, and compared them to cognitively healthy elderly controls. The researchers found lower cerebral perfusion throughout many regions of the brain in patients with mild cognitive impairment and Alzheimer’s and suggested that evaluating cerebral perfusion might better diagnose those with serious neurological impairment.[99]

In an intriguing study that shatters conventional wisdom, researchers identified elderly people that had significant amounts of beta-amyloid plaque and neurofibrillary tangles, but were not demented. The researchers compared these non-demented individuals to Alzheimer’s patients. The difference was the amount of amyloid plaque found in the vasculature was almost 2-fold higher in the Alzheimer’s patients. This led the scientists to conclude that in addition to Alzheimer’s structural abnormalities, “vascular integrity must play an important role in cognitive failure.”[100]

Another study performed mental tests and brain perfusion tests (SPECT scans) on normal elderly individuals, those with mild cognitive impairment, and those with Alzheimer’s patients. Over a two-year period, there was a worsening of the mental test scores in the two cognitively dysfunctional groups. In the mild cognitive impairment and Alzheimer’s groups, cerebral perfusion fell in the left postsubicular area of the brain.[101] The postsubicular region is necessary for the recognition of familiar environments, and is required for the formation of new object-place associations that support recognition memory.[102]

This study showed that Alzheimer’s patients had extensive cerebral perfusion reductions. Worsening of mental test scores was related to decreased perfusion in multiple regions of the brain (bilateral middle, posterior cingulate, left frontal, temporal and parietal areas, and postsubicular area). [101]

This corroborates other studies that correlate cerebral hypoperfusion with diagnosis of Alzheimer’s disease.
by 2%, which was accompanied by improved memory function. Considering hippocampal volume often shrinks with aging, this improvement in size should be viewed as substantial.

A review of several studies showed better physical fitness to be associated with improved cognitive functioning. This review showed that beneficial mechanisms behind the effect of exercise on cognitive health were “increases in brain perfusion and the ability of cerebral blood vessels to respond to demand.”

Green Tea Inhibits Hypoperfusion Damage

Cerebral hypoperfusion results in oxidative stress that leads to neurodegenerative disease.

Health conscious people today take antioxidant supplements to protect against free radicals and the oxidative damage they inflict.

A study was done on rats where experimental cerebral hypoperfusion was induced and the effects of green tea extract evaluated. The scientists wanted to see if two different doses of green tea polyphenols over a 4-8 week time period could prevent cognitive deficits and the oxidative brain cell damage that occurs in response to hypoperfusion.

High-dose green tea extract was found to scavenge oxygen free radicals, enhance antioxidant potential, decrease lipid peroxide production, and reduce oxidative DNA damage. The high-dose group had better spatial learning and memory than saline-treated rats. These beneficial effects, however, were not found in the lower-dose group.

The human equivalent amount of green tea extract in the high-dose group would be about 4,800 mg/day. The low dose human equivalent amount would be 1,200 mg of green tea extract daily.

The first supplement I take upon wakening is a 725 mg green tea extract capsule. There’s no particular reason for this, but since I don’t drink coffee or tea regularly, it seems to make sense to swallow a tea extract capsule when my day starts. To emulate this rat study, I would have to swallow six of these green tea extract capsules.

I do not believe, however, that I or most of our members need to take anywhere near this high dose of green tea. That’s because we take so many other antioxidants like gamma tocopherol, astaxanthin, benfotiamine, PQQ, lipoic acid, and carnosine that are proven to guard against oxidative stress in the brain.

So I will continue my one green tea extract capsule each morning and rely on the many other antioxidants I take to suppress the free radicals that are inevitably generated in my 59-year-old brain.

New Way To Protect Against Brain Aging

Proven methods exist to help reverse hypoperfusion and better oxygenate our brain. That alone, however, will not fully restore youthful cerebral functions. Additional pathologic mechanisms underlie age-associated mental impairment. These damaging factors should all be corrected if we are to achieve meaningful improvement in our thinking ability.

It is refreshing to know that studies are documenting the brain benefits of fish oil, carnitine, lipoic acid, vinpocetine and other nutrients Life Extension members have long used.
What’s needed now is something to fill “missing gaps” that enable degenerative aging processes to destroy our precious neurons.

A solution has been found in an extract from an Oriental orchid called *Gastrodia elata*, which is used in China to treat neurological disorders, just as *vinpocetine* is prescribed in Europe for conditions relating to *hypoperfusion*.

*Gastrodia* acts as a “brain shield,” calming neurons and protecting them from oxidant, inflammatory and excitatory damage associated with *hypoperfusion* and stroke. As a result, *Gastrodia* helps prevent cognitive decline and memory loss.

As you’ll read, *Gastrodia* has even been shown to protect against cognitive impairment inflicted during heart bypass surgery.

## Surgery-Induced Hypoperfusion

Each year, hundreds of thousands of Americans undergo heart surgery that requires that they be placed on a heart-lung machine. A tragic side effect to this procedure is that it can cause capillary blockage in the brain that leads to *hypoperfusion* and severe cognitive deficits.

Scientists have recently uncovered a unique reason why this occurs. During heart surgery, blood bleeding from surgical wounds is suctioned up into the cardio-pulmonary circuit of the heart-lung machine and then reintroduced into the patient.

This suctioned blood is laden with *lipids* (fats), especially from the *sternal bone marrow* in the chest that has to be cut through to gain access to the heart. These lipid globules slip by the normal filters of the heart-lung machine and travel to the brain where they become lodged in capillaries as *microemboli*.

While some of these microemboli pass through the brain in a few hours or days, some remain impacted for weeks or longer. These microemboli block capillary blood flow, causing *hypoperfusion* and eventual death to affected brain cells.

A novel method of protecting the brain against this type of *hypoperfusion* is to run suctioned blood through a special device called a “cell saver” that cleanses blood of lipids as it separates out red cells. This technique has been documented in experimental models to improve surgical outcomes.

Some surgical patients undergo accelerated cognitive declines that can continue 3-5 years after heart surgeries and can lead to dementia. It is thus well worth implementing multiple strategies to protect against the *hypoperfusion* that results when lipid globules rapidly release into the bloodstream.

### Gastrodia Extract Proven Under Toughest Conditions

A study of 200 cardiac surgery patients was done where prior to surgery, half the group was administered *Gastrodia extract* intravenously and the other half a placebo. Five different areas of cognitive function were measured before surgery began.

After the surgery and just prior to being discharged from the hospital, 42% of the placebo patients had a deficit in at least one area of cognitive measurement, which is about the standard number expected. In the group given *Gastrodia extract*, however, only 9% showed any evidence of cognitive impairment.

A three-month follow-up evaluation showed that 31% of the placebo arm still had at least one cognitive deficit, as opposed to only 6% of patients given *Gastrodia extract*. This follow-up reveals how long cognitive deficits persist in patients undergoing heart surgery and the statistically and clinically significant protection conferred by *Gastrodia extract*. 
The kind of brain injury suffered during cardiac surgery is analogous to accelerated aging, though much worse in some ways. That’s because the sudden release of lipid globules is not a natural event that your body has a defense against. The most common natural type of emboli comes from blood clots that break lose inside blood vessels. Your body has enzymes that may dissolve these tiny blood clots, but not necessarily the lipid globules released during certain surgeries. While surgery-induced capillary impaction occurs acutely, its effects may persist indefinitely as chronically hypoperfused areas of the brain slowly die.

The ability of *Gastrodia* to protect humans undergoing this massive attack of lipid (fat) globules signifies a tremendous ability of this orchid extract to protect against “normal” pathologies in the aging brain. These include inflammation, excitotoxicity, oxidation, hypoperfusion, and structural changes in neurons. The science, in fact, shows that *Gastrodia* provides a virtual “shield” against the most common causes of brain aging.

**Gastrodia extract** has been added to the most popular formula *Life Extension* members take to protect and enhance their neurological functions. It’s also available as a stand-alone supplement.

### Our “Fragile” Aging Brains

The most important organ in our body is also the most fragile. Stroke is a leading cause of death in the United States. Alzheimer’s incidence is spiraling upwards. Both are related to hypoperfusion, as is the mental slowdown that aging people encounter.

We will soon be publishing an article on a disease that virtually none of you knew existed. This disease (leukoaraiosis) involves deleterious changes in the brain’s vital white matter where transmission of nerve impulses enables one part of the brain to communicate with other parts of the brain. Enhanced imaging technologies are enabling doctors to identify this cognitive-robbing disorder in huge numbers of aging individuals. It shouldn’t surprise you to learn that an underlying culprit behind this white matter disorder is hypoperfusion. This means all the good steps you are taking to protect against known brain disorders may also shield you against this new one.

We’re also going to discuss the science behind keeping one’s overall neurological function in the most youthful condition possible, such as exercising your brain by reading articles like this that inundate you with new information.

An achievable New Year’s resolution is to take assertive steps to improve your cognitive function while slashing your risk of neurodegenerative disease. This article has provided practical steps that can be initiated immediately, including adding *Gastrodia* to one’s daily supplement program.

### Time Of Year To Stock Up On Life-Saving Supplements

Once a year, we discount all of our cutting-edge formulas so that our members can stock up at extra-low prices.

We hope you’ll take advantage of this year’s Super Sale to obtain premium-grade supplements to protect your health today, while helping to support biomedical research aimed at achieving unprecedented life span extensions.

In 2012, Life Extension spent a record $14.6 million on some of the world’s most ambitious projects to halt aging and eliminate premature death. In this issue, we describe recent grants made to pioneering young scientists. These aggressive research programs are only made possible through the generous support of our many members.
I cannot tell you how much your support through product purchases is needed and appreciated to battle inept bureaucrats who would prefer our non-profit research foundation cease to exist.

Until February 3, 2014, members take advantage of Super Sale discounts to stock up on cutting-edge formulas designed to circumvent aging processes (including loss of neurological function) that used to be considered inevitable consequences of living too long!

For longer life,

William Falon

References


122. Kim HJ, Hwang IK, Won MH, Vanillin, 4-hydroxybenzyl aldehyde and 4-hydroxybenzaldehyde inhibit hippocampal CA1 cell death following global ischemia. Brain Res. 2007 Nov;1181:130-41.


143. Available at: http://stroke.ahajournals. org/content/15;7;e21891 Accessed October 13, 2013.


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

Bone Restore includes highly absorbable forms of calcium and boron, along with vitamin D3, magnesium, zinc, manganese, and silicon. Bone Restore is available with or without vitamin K2 (MK-7).

Bone Restore now contains 300 mg of magnesium. The retail price for 120 capsules of Bone Restore is $24. If a member buys four bottles during Super Sale, the price is reduced to $14.85 per bottle. (Item# 01727)

The same Bone Restore formula without vitamin K2 (MK-7) is available as well. The retail price for 120 capsules is $22. If a member buys four bottles during Super Sale, the price is reduced to $12.83 per bottle. (Item# 01726)

Note: Those who take Super Booster or Super K usually do not need additional vitamin K2. They should order Bone Restore without vitamin K2. Those taking the anti-coagulant drug Coumadin® (warfarin) should use BONE RESTORE without vitamin K2.

Just four capsules of Bone Restore provide:

- Highly Absorbable Calcium 700 mg (as DimaCal® dicalcium malate, TRAACS® calcium bisglycinate chelate, calcium fructoborate)
- Vitamin D3 1,000 IU
- Vitamin K2 (as menaquinone-7) 200 mcg
- Magnesium (as magnesium oxide) 300 mg
- Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®) 3 mg
- Zinc (as zinc amino acid chelate) 2 mg
- Manganese (as amino acid chelate) 1 mg
- Silicon (from horsetail extract) 5 mg

FruiteX B® and OsteoBoron® are registered trademarks of VDF Futureceuticals, Inc. U.S. patent #5,762,049. 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. These products are not intended to diagnose, treat, cure, or prevent any disease.
Brain decline affects all aging humans. Scientific studies demonstrate more youthful cognition and memory in response to the proper nutrients. Cognitex® provides the following brain boosting ingredients in one advanced formula:

- **Gastrodin** acts as a “brain shield,” calming brain cells and helping to protect against oxidant, inflammatory, and excitatory damage. Gastrodin's multiple modes of action work together with other nutrients to improve circulation and shield the brain from age-related insults.

- **Alpha-glyceryl phosphoryl choline** boosts levels of **acetylcholine**, a neurotransmitter that enables brain cells to communicate. Acetylcholine is intimately involved in memory and learning. Acetylcholine levels markedly decline as humans age past 30.

- **Vinpocetine** enhances circulation, oxygenation, electrical conductivity of brain cells, and helps support healthy blood flow.

- **Pregnenolone** is a hormone involved in synchronization of brain cells that declines in normal aging brains.

- **Hops** and **rosemary** have all been shown to help suppress inflammatory cytokines.

The retail price for 90 softgels of **Cognitex® with Brain Shield™** is $62 (Item# 01897). If a member buys four bottles during **Super Sale**, the price per bottle is $35.78. If eight bottles are purchased during **Super Sale**, the cost per bottle drops to $33.75. Cognitex® is also available without pregnenolone at a slightly lower price.

**Most Advanced Neurological Formula at New Lower Prices**

- **Alpha-Glyceryl Phosphoryl Choline (A-GPC)** 600 mg
- **Phosphatidylserine (from Sharp-PS®)** 100 mg
- **Brain Shield™ (Gastrodin)** 50 mg
- **Vinpocetine** 20 mg
- **Grape Seed Extract** 150 mg
- **Wild Blueberry Extract** 150 mg
- **Uridine-5'-Monophosphate (disodium)** 50 mg
- **Gastrodin’s Brain Shield™** 50 mg

**To order Cognitex® with Brain Shield™,**

**call 1-800-544-4440 or visit www.LifeExtension.com**

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

Now With Thymoquinone

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

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

- **Thymoquinone** targets prostate cells to promote healthy apoptosis (orderly removal of senescent cells).1,9
- **Standardized lignans** convert to enterolactone in the intestine, which is then absorbed into the bloodstream to provide support for prostate cells against excess estrogen levels.10-12
- **AprèsFlex**, supports normal inhibition of 5-lipoxygenase or 5-LOX, an enzyme that is associated with undesirable cell division changes.13,14
- **Stinging and Dwarf nettle root extracts** help support prostate cells against excess estrogen levels.15,16
- **Saw Palmetto CO2 extract** helps inhibit dihydrotestosterone (DHT) activity in the prostate, helps support normal urinary flow, and helps regulate inflammatory reactions in the prostate.17-20
- **Pygeum (Pygeum africanum)** extract helps suppress prostaglandin production in the prostate and supports healthy urination patterns.21,22
- **Pumpkin seed oil**, from select pumpkins, enhances the composition of free fatty acids and augments saw palmetto’s benefits.23-25
- **Beta-sitosterol** enhances the protective effects of other botanical extracts and helps improve quality of life.26-28
- **Graminex® Flower Pollen Extract™**, has been shown to help relax the smooth muscles of the urethra and help regulate inflammatory reactions.29-31
- **Boron** has been shown to slow elevation of prostate-specific antigen (PSA).22-34
- **Lycopene**, supports efficient cellular communication, helps maintain healthy DNA, regulates hormonal metabolism, and promotes healthy prostate size and structure.35-41

**References**

32. Urol Int. 2009 Sep;83(3):344-51.

A bottle of 60 softgels of Ultra Natural Prostate retails for $38. If a member buys four bottles during Super Sale, the price is reduced to $23.63 per bottle. Contains soybeans.

Ultra Natural Prostate providing:

- **Saw Palmetto CO2 extract** (fruit) [providing 272 mg total fatty acids] 320 mg
- **Graminex® Flower Pollen Extract™** (from rye) 252 mg
- **Stinging and Dwarf nettle extracts** (root) 240 mg
- **Beta-Sitosterol** (from pine) 180 mg
- **ThymoQ** Phospholipid Complex [Phospholipids, thymoquinone (10 mg)] 170 mg
- **Pygeum extract** (bark) 100 mg
- **Pumpkin seed oil** [providing 170 mg total fatty acids] 200 mg
- **AprèsFlex® Indian frankincense** (Boswellia serrata) extract [gum resin] (providing 14 mg AKBA) 70 mg
- **Proprietary Enterolactone Precursors Blend** [HMRlignan™ Norway spruce (Picea abies) (knot wood) and Flax (seed) lignin extracts] 20 mg
- **Lycopene** [from natural tomato extract (fruit)] 10 mg
- **Boron** (as Albion® bororganic glycine) 3 mg

1 3-O-acetyl-11-keto-ß-boswellic acid

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

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Your brain is under constant onslaught from environmental and stress-related challenges, as well as normal aging processes.1,2

Fortunately, our brain cells have built-in, self-healing systems that provide natural defenses against these ongoing threats.1 Even more remarkable, molecular science is revealing that the human brain has the capacity to preserve the neurons involved in brain remodeling (plasticity).3

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

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

**MULTI-FACTORIAL BENEFITS!**

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

- To retain normal function, the aging brain relies on adequate blood flow to get sufficient oxygen and fuel.1 It has been repeatedly shown that formulas containing gastrodin beneficially support normal, healthy levels of brain blood flow in both animals and in humans.4,7

- The body maintains a delicate balance of neurotransmitters, such as GABA, which is of tremendous importance to healthy brain function. Studies show that alone or in combination the active compounds in gastrodin help maintain healthy levels of vital neurotransmitters in those whose levels are already within the normal range.5-9

- With aging, short-term memory function is often impaired. Studies show that gastrodin and its active constituents help support the healthy body’s normal defenses against the mild memory problems associated with aging.12

- Scientists have shown that the breakdown metabolites of gastrodin help provide support against the normal stress and tension of daily life.11,14

- And Brain Shield™ helps alleviate the occasional cranial pain associated with daily life.15

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

A bottle of 60 300 mg vegetarian capsules of Brain Shield™ retails for $72. If a member buys four bottles during Super Sale, the price is reduced to $20.25 per bottle.

To order Life Extension® Brain Shield™, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Every winter, human immune systems are overworked as they provide essential defense against seasonal challenges—especially the immune systems of the elderly and very young.¹,⁴

A crucial part of this protection comes from the immune system’s production of new antibodies when the new winter season’s pathogens are first introduced, which boosts the body’s preparedness for upcoming challenges during peak winter outbreaks.⁵

In a remarkable discovery, the amino acids in Winter Wellness™ have been shown to work together to prime the immune system to optimize immune responsiveness.¹,⁶-⁸

Taken daily, they support the host immune system’s primary defenders by enhancing the function of key immune cells to generate antibodies and naturally prime readiness—especially when taken at least two weeks prior to the first pre-season exposure to the winter’s new antigen challenges.⁵,⁶⁷

Optimized Immune Responsiveness to New Winter Challenges

L-theanine is a distinctive amino acid typically found almost exclusively in tea leaves.⁶ L-cystine is an amino acid synthesized by the body from the cysteine molecules found in many plant and animal food sources.⁹ Scientists have found that L-theanine and L-cystine have potent, complementary effects on immune responsiveness.⁵,⁷

Now combined in the next-generation, immune-supporting product Winter Wellness™, L-theanine and L-cystine promote the natural enhancement in responsiveness that follows pre-season antigen-exposure by:

• Helping to enhance gamma delta T cells, ensuring an optimum state of readiness to respond through secretion of interleukin-2—a powerful immune regulator.⁶
• Supporting the release of immune system proteins that coordinate interactions between T cells and antibodies—further promoting immune responsiveness.¹⁰
• Contributing to the synthesis of glutathione—a potent endogenous antioxidant—that has a marked effect on immune function.⁴,⁹,¹¹

Scientific data supports that when these potent amino acids are used together, they support an enhanced post-exposure immune response.⁴,⁶-⁸

References

To order Life Extension® Winter Wellness™, 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.
Elevated Glucose Levels Risk Factor For Dementia

A recent study in the New England Journal of Medicine measured glucose and hemoglobin A1c levels from over 2,000 participants without dementia to examine the relationship between glucose and future risk of dementia.*

Participants were from a study that included 839 men and 1,228 women whose mean age at baseline was 76 years; 232 participants had diabetes, and 1,835 did not. During a median follow-up of 6.8 years, dementia developed in 524 participants. Among participants without diabetes, higher average glucose levels within the preceding 5 years were related to an increased risk of dementia. Diabetics with higher average glucose levels were also related to an increased risk of dementia.

The study, funded by the National Institutes of Health, concluded that, “Higher glucose levels may be a risk factor for dementia, even among persons without diabetes.”

—M. Richmond


Healthy Brains Associated With High Levels Of Omega-3s

A recent issue of the Journal of the American Heart Association features a report by Finnish researchers that associates higher omega-3 fatty acid levels with healthier brains. The background of the study, performed at the University of Eastern Finland, is that the consumption of tuna or other broiled or baked fish, but not fried fish, is linked to fewer subclinical brain abnormalities on magnetic resonance imaging (MRI).*

The team investigated the association between plasma phospholipid omega-3 fatty acids, objective biomarkers of exposure, and subclinical brain abnormalities on MRI.

In the community-based Cardiovascular Health Study, 3,660 participants aged 65 or younger underwent brain MRI in 1992-1994, and 2,313 were rescanned 5 years later.

The conclusion of the report stated that, “Among older adults, higher phospholipid long-chain omega-3 PUFA content was associated with lower prevalence of subclinical infarcts and better white matter grade on MRI. Our results support the beneficial effects of fish consumption, the major source of long-chain omega-3 PUFAs, on brain health in later life.”

—M. Richmond

* Available at: http://jaha.ahajournals.org/content/2/5/e000305.full Accessed October 25, 2013.
Vitamin D Therapy Associated With Lower Risk Of Mortality Among Kidney Disease Patients

BMC Nephrology published the results of a meta-analysis of kidney disease patients, which found an association between supplementation with active forms of vitamin D and a lower risk of dying over follow-up.*

For their analysis, researchers selected 17 studies involving a total of 489,254 end stage renal disease patients receiving dialysis and three studies that included 2,603 chronic kidney patients not on dialysis. Subjects were treated with active vitamin D sterols that included alfalcaldiol, doxercalciferol, calcitriol, maxacalcitol, falecalcitriol, or paricalcitol. Follow-up periods ranged from 12 to 140 months.

In comparison with no treatment, subjects who received active vitamin D compounds had an up to 39% lower risk of dying from all causes over follow-up.*

Editor’s Note: When cardiovascular mortality was examined, active vitamin D was associated with a 41% lower adjusted risk of death over follow-up.

Brain Plaque Associated With Hardened Arteries In Elderly Individuals

In an online issue of Neurology, the medical journal of the American Academy of Neurology, a study was recently published indicating that aging individuals with hardened arteries are more likely to have brain plaques associated with Alzheimer’s disease—even if the person does not have any signs of dementia.*

The study involved 91 people with an average age of 87 who did not have dementia. Researchers took scans of the participants’ brains to measure any plaques in the brain. The amount of stiffness in the participants’ arteries was measured about two years later. Half of all participants had beta-amyloid plaques. People with beta-amyloid plaques were more likely to have high systolic blood pressure, higher average blood pressure, and higher arterial stiffness as measured with the brachial-ankle method.

“This study adds to growing evidence that hardening of the arteries is associated with cerebrovascular disease that does not show symptoms. Now we can add Alzheimer’s type lesions to the list,” study author Timothy M. Hughes, PhD, of the University of Pittsburgh, said.

Higher Magnesium Intake Associated With Reduced Risk Of Metabolic Impairment

In the journal Diabetes Care, researchers report an association between greater magnesium intake and a lower risk of developing diabetes over a 6.9 year average period.*

The study included 2,582 men and women enrolled in the Framingham Heart Study Offspring cohort. Between 1991 and 1995, the subjects participated in examinations that included glucose tolerance testing and dietary assessment, and were followed through 1998 to 2001, when they were re-examined.

Thirty-six percent of the participants were classified as metabolically impaired, defined as impaired fasting glucose, impaired glucose tolerance, insulin resistance or hyperinsulinemia, at the time of the 1991-1995 examinations. Among those without the condition, 18% developed metabolic impairment by the end of follow-up. Those without metabolic impairment whose magnesium intake from food and supplements was among the top one-fifth of participants had a 37% lower risk of becoming impaired over follow-up compared with those whose intake was among the lowest fifth.

Editor’s Note: In those classified as metabolically impaired at baseline, 16.6% became diabetic by the end of follow-up. Having a magnesium intake that was among the highest fifth lowered the risk of developing diabetes in this group by 32% in comparison with an intake that was lowest. When the entire study population was considered, those whose magnesium intake was highest had approximately half the risk of becoming diabetic over follow-up than subjects whose intake was lowest.


—D. Dye
Folic Acid Associated With Lower Heart Disease Risk In Kidney Disease Patients

In the journal *Clinical Nutrition*, researchers report the findings of a meta-analysis of randomized trials of folic acid supplementation in men and women with kidney disease, which concluded that treatment with the vitamin may help reduce the risk of cardiovascular disease, which is increased in this population.*

Xiaobin Wang and colleagues selected nine randomized trials for their analysis that examined the relationship between folic acid therapy and cardiovascular disease. Pooled analysis of the 8,234 subjects found a 10% lower risk of cardiovascular disease among those who received the vitamin in comparison with those who did not receive it. When trials involving patients who did not consume grains fortified with folic acid were separately examined, the risk was further reduced. The researchers also uncovered a greater benefit for folic acid supplementation in trials involving patients with advanced or end-stage disease, or which had a lower percentage of diabetics upon enrollment.

Editor’s Note: Folic acid is a B vitamin that helps reduce homocysteine which, when elevated, increases cardiovascular disease risk. Those with renal impairment suffer higher homocysteine levels.

—D. Dye


Higher Vitamin D Levels Correlated With Improved Breast Cancer Prognosis

An article published in *Breast Cancer Research and Treatment* reports the results of a meta-analysis which found an association between higher serum levels of vitamin D and better prognosis for women with early stage breast cancer.*

For their analysis, Pamela J. Goodwin of the University of Toronto and her colleagues selected eight studies involving a total of 5,691 women diagnosed with breast cancer. Blood samples were collected, on average, within 90 days of diagnosis or shortly before treatment. Deficient levels of vitamin D were uncovered in 36.8% of the subjects. When the lowest versus highest categories of serum vitamin D were compared in a pooled analysis, women whose levels were low had a risk of recurrence that was more than double that of subjects whose levels were high and a risk of death that was 76% higher.

Editor’s Note: The authors remark that vitamin D, when activated, can alter the transcription and expression of specific genes, resulting in growth arrest, apoptosis, aromatase suppression, decreased inflammation, and inhibition of angiogenesis, invasion and metastasis, all of which help combat cancer.

—D. Dye


Delivering Aging Predicted To Increase Years Spent In Good Health

The journal *Health Affairs* published a study by researchers at the University of Southern California, Harvard University, and other institutions, which concluded that delaying aging would be a better way to reduce disability than focusing on specific disease therapies.*

By employing a microsimulation of the future health and spending of older men and women, Dana Goldman and colleagues compared disease-specific scenarios with a delayed aging scenario. The team determined that delayed aging could add 2.2 years spent primarily in good health to average life expectancy, while addressing separate diseases would result in lesser improvements in health and longevity.

“‘In the last half-century, major life expectancy gains were driven by finding ways to reduce mortality from fatal diseases,’” Dr. Goldman stated. “‘If we can age more slowly, we can delay the onset and progression of many disabling diseases simultaneously.’”

Editor’s Note: “Even a marginal success in slowing aging is going to have a huge impact on health and quality of life,” added coauthor Jay S. Olshansky. “This is a fundamentally new approach to public health that would attack the underlying risk factors for all fatal and disabling diseases. We need to begin the research now.”

—D. Dye

Active Form Of Vitamin D Shows Promise In Animal Model Of Multiple Sclerosis

The Journal of Neuroimmunology published an article which reveals a benefit for calcitriol, the active form of vitamin D, in a mouse model of multiple sclerosis (MS).

Coleen E. Hayes and her associates tested the effect of calcitriol and vitamin D3 in mice with experimental autoimmune encephalitis, a disease in which demyelination of the nerves occurs as in MS. While vitamin D3 alone was not effective, the combination of calcitriol followed by supplementation with the vitamin resulted in improvement.*

“All of the animals just got better and better; and the longer we watched them, the more neurological function they regained,” Dr. Hayes reported. “The treatment shows potential to help halt the disease’s progress in humans, for whom currently available therapies have limited effectiveness. And in the long term they don’t halt the disease process that relentlessly eats away at the neurons. So there’s an unmet need for better treatments.”

Editor’s Note: The experimental treatment was more effective than methylprednisone, which is used to treat neurological problems experienced by MS patients.

—D. Dye


Bioequivalent Estradiol May Be Safer Than Conjugated Equine Estrogens

JAMA Internal Medicine published an article which reported a lower risk of venous blood clots in association with the use of orally administered bioequivalent estradiol in comparison with conjugated equine (horse urine derived) estrogens for the treatment of menopausal symptoms.*

The investigation included 384 postmenopausal women who were enrolled in the Heart and Vascular Health Study, a case-control study of cardiovascular events involving subjects between the ages of 30 to 79 years. Subjects in the current study used oral horse urine derived estrogens or estradiol from 2003 to 2009. Sixty-eight women who had experienced venous thrombosis (deep vein thrombosis or pulmonary embolism), 67 women who had undergone a heart attack, and 48 subjects who had an ischemic stroke were matched for age and other factors with 201 control subjects. Among women who used horse urine derived estrogens, the risk of experiencing venous thrombosis was more than double that of subjects who used estradiol.

Editor’s Note: Analysis of plasma samples from 140 control subjects also indicated stronger propensity for blood clotting among those who used conjugated equine (horse urine derived) estrogens.

—D. Dye


Higher Vitamin K Levels Associated With Improved Verbal Episodic Memory

The journal Neurobiology of Aging describes a study conducted by researchers at the University of Montréal which uncovered an association between higher serum phylloquinone (vitamin K1) levels and better verbal episodic memory in older adults.*

The current investigation utilized data from 320 subjects between the ages of 70 to 85 years who were free of cognitive impairment upon enrollment in the Québec Longitudinal Study on Nutrition and Successful Aging, which recruited 1,793 men and women from 2003 to 2005. Follow-up interviews were conducted yearly for up to three years following enrollment. The current study’s subjects underwent cognitive evaluation between 2006 and 2008, and blood samples collected at this time period were analyzed for phylloquinone and other factors.

An association was found between higher vitamin K levels and the scores of three immediate free recall trials and 20 minute delayed free recall, which evaluated verbal episodic memory.

Editor’s Note: Episodic memory refers to the memory of events with their space-time context.

—D. Dye

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>
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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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<tr>
<td>Vitamin B12</td>
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<tr>
<td>Vitamin C</td>
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A bottle of 60 Super Booster softgels retails for $42. If a member buys four bottles during Super Sale, the price is reduced to $25.65 per bottle.

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

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

Contains soybeans.

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

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.
The retail price for a bottle containing 90 softgels is $30. If a member buys four bottles during Super Sale, the price is reduced to $18.23 per bottle. Since each bottle lasts for three months, members pay as little as $6.08 a month for this high-potency blend of all three active forms of vitamin K during the Super Sale.

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

Warning to Coumadin® (warfarin) Drug Users
Patients prescribed vitamin K-antagonist anti-coagulant prescription drugs like warfarin should consult their physician before taking vitamin K supplements like Super K and Super Booster. There is evidence, however, that users of drugs like warfarin could benefit from a consistent low dose of supplemental vitamin K. Ask your doctor if you can take a low dose (45 mcg a day) of vitamin K2 in the long-acting MK-7 form for the purpose of stabilizing your INR levels and also protecting your body against long-term vitamin K deficit. Do not initiate any form of vitamin K supplementation without full cooperation of your treating doctor, as your doctor may need to increase your dose of warfarin to compensate for the vitamin K you supplement with. Life Extension provides several forms of low-dose vitamin K for physician consideration.

Super K formula provides in just one daily softgel:

| Vitamin K2 (MK-7) | 200 mcg |
| Vitamin K2 (MK-4) | 1000 mcg |
| Vitamin K1        | 1000 mcg |

The retail price for a bottle containing 90 softgels is $30. If a member buys four bottles during Super Sale, the price is reduced to $18.23 per bottle. Since each bottle lasts for three months, members pay as little as $6.08 a month for this high-potency blend of all three active forms of vitamin K during the Super Sale.

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

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

VITAMIN K2 is usually found in meats, dairy, and egg yolks. Since you may be avoiding these foods for health reasons, ingesting a K2 supplement is essential. MK-4 is the most rapidly absorbed form of K2, and MK-7 boasts a very long half-life in the body, making both forms the perfect complement to any vitamin K regimen.

References

To order
Super K with Advanced K2 Complex or Super Booster, 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.
**Astaxanthin** is a fat-soluble carotenoid compound. The challenge to deriving maximum benefits is its normally limited absorption—as low as about 50%. Assimilation of astaxanthin is impeded by limited uptake and intestinal degradation.

**Astaxanthin 4 mg with Phospholipids** combines 4 milligrams of natural astaxanthin with a proprietary blend of phospholipids.

By incorporating phospholipids, scientific study shows that carotenoid absorption may be enhanced several-fold.

**Astaxanthin 4 mg with Phospholipids** uses four different phospholipids to facilitate maximum absorption of astaxanthin into the bloodstream, where it is transported to cells throughout the body.

**ASTAXANTHIN**

Each softgel of **Astaxanthin with Phospholipids** provides 4 mg of natural astaxanthin along with 80 mg of proprietary phospholipid blend. Just one softgel a day provides tremendous systemic cellular support!

A bottle of 30 softgels of **Astaxanthin 4 mg with Phospholipids** retails for $16. If a member buys four bottles during Super Sale, the price is reduced to $9.45 per bottle.

Contains soybeans.

References
I (John Cannell, MD) recently learned that I have the Broad Autism Phenotype, or what some people call mild autism. Learning about this was like “coming out of the closet.” It explains so much of myself to me, especially my tendency to get obsessed with things. For the last 11 years, I have been obsessed with vitamin D and for the last four years, I have been obsessed with vitamin D and autism.

I first became interested in vitamin D when I learned it is not a vitamin. Instead, it is the only known substrate of a seco-steroid neurohormone that functions, like all steroids, by turning genes “on” and “off”. That means it has as many different mechanisms of action as it does genes it regulates. Moreover, vitamin D regulates hundreds, if not thousands, of the 21,000 identified coding genes of the human genome.\(^1-3\)

Over the past few years, evidence has been mounting that vitamin D is involved in the autism epidemic.
In 2008, I first published and later extended epidemiological and animal data connecting vitamin D deficiency with autism. My second article is open access, discusses some of the autism/vitamin D evidence, and can be fully accessed at: www.lef.org/autism.

In 2009, Life Extension® Magazine published a detailed description of the theory.

In 2009, Emily Deans, MD, wrote an extensive piece in Psychology Today outlining the theory of the connection between autism and vitamin D.

In 2009, Scientific American asked, "What if vitamin D deficiency is a cause of autism?"

In 2010, Kinney and colleagues at Harvard endorsed the vitamin D connection to autism.

In 2012, Kočovská and colleagues, with senior author Professor Christopher Gillberg of the Gillberg Neuropsychiatric Institute in Sweden, reviewed the evidence supporting the vitamin D connection to autism and called for "urgent research" into the connection.

For the last year, I have been helping parents of autistic children correct their child’s vitamin D deficiency. My very preliminary and unscientific impressions are that if the child takes enough vitamin D (as long as they take enough cofactors with the vitamin D), about 25% of the parents report dramatic improvements in their child’s autistic symptoms, about 50% of parents report significant improvements, and 25% of parents report no change.

How could vitamin D help autism, a condition that is highly genetic? Research has demonstrated that vitamin D has multiple mechanisms of action, many of which have been demonstrated to play a role in autism. Let's take a look at four:
levels of anti-Mag were associated with significantly lower levels of vitamin D. In the same study, low serum levels of 25-hydroxyvitamin D were significantly associated with higher scores on an autism diagnostic assessment known as the Childhood Autism Rating Scale, indicating increasing severity of autism symptoms.

**Could vitamin D help autistic children by reducing the blood levels of autoantibodies in autistic children?**

**Autoimmune Actions**

There are at least 80 recognized human autoimmune diseases with new diseases frequently added to the list. A number of autoantibodies to the brain have been identified in autistic children, causing some to believe that many cases of autism are autoimmune. Furthermore, the levels of such antibodies are directly associated with the severity of autism.

A recent study found that the level of one anti-neuronal autoantibody (anti-MAG) was elevated in 70% of patients with autism. The study found that higher levels of anti-Mag were associated with significantly lower levels of vitamin D. In the same study, low serum levels of 25-hydroxyvitamin D were significantly associated with higher scores on an autism diagnostic assessment known as the Childhood Autism Rating Scale, indicating increasing severity of autism symptoms.

**Could vitamin D help autistic children by reducing inflammation?**

**Neurotrophins**

Neurotrophins are the family of proteins that induce the development, function, and survival of nerve and brain cells. Vitamin D upregulates neurotrophins, such as NGF (nerve growth factor) and GDNF (glial-derived neurotropic factor), up to five-fold.

**Could vitamin D help autistic children by increasing neurotrophins and thus help a damaged brain develop properly?**

**Antioxidants**

Several research groups report that vitamin D upregulates the antioxidant glutathione in the brain. Glutathione is involved in the brain detoxification process because it participates in the scavenging of oxidative byproducts and the chelation (capture and excretion) of heavy metals. Glutathione protects nerve cells and nerve conduction critical to mental processing, especially from toxins such as mercury. Other research teams have reported that recent gene profiling has revealed several more antioxidants whose genes are directly upregulated by vitamin D. This includes thioredoxin reductase 1 and superoxide dismutase, both of which function as antioxidants and detoxification agents.

**Could vitamin D help autistic children by upregulating numerous antioxidants?**

**Theoretical Only**

It’s clear that various reasonable mechanisms exist for how vitamin D could help children with autism. Be it via anti-inflammatory actions, anti-autoimmune activities, upregulation of neurotrophins, or stimulation of antioxidant pathways, adequate doses of
vitamin D (enough to obtain natural blood levels of 50-80 ng/mL of 25-hydroxyvitamin D) may be a potential treatment for some cases of autism.

However, such a claim is entirely theoretical. There are no randomized controlled trials, no open label trials, no case series, and not even one published case report of vitamin D helping autism.

Even though there are no studies proving the benefits of vitamin D in autism specifically, the proven safety and benefits of vitamin D, added together with the fact that vitamin D has been shown to have a beneficial effect on many of the mechanisms of action that underlie autism, make vitamin D a smart option for children with autism.

Parents who want to try it should thoroughly understand that no evidence, other than theoretical, exists for such an effect.

**How To Start Your Child On Vitamin D**

For parents who want to proceed on their own, the key to success is obtaining high physiological 25-hydroxyvitamin D blood levels around 80 ng/mL (the same levels that are obtained by lifeguards in August).

As all studies show that autistic children are low in vitamin D, getting a 25-hydroxyvitamin D blood test to start is usually unnecessary.

The first step is simply to give your child 50 IU of vitamin D3 per pound of body weight per day. Liquid vitamin D is available from several sources.

So a 25-pound child would be started on 1,250 IU each day of D3, a 50-pound child on 2,500 IU each day, etc. This dose will usually result in mid-range physiological 25-hydroxyvitamin D levels (40-60 ng/mL), although some children may obtain higher physiological levels (60-70 ng/mL) on this dose.

The child should also be started on vitamin D’s cofactors, such as vitamin K2 (3 mcg per pound of body weight) and nutrients in a multi-nutrient powder formula. If Life Extension Mix™ powder is used, ½ a scoop for every 25 pounds of body weight can be blended in juice or a smoothie. The roughly 700 IU of vitamin D3 in one scoop of powder will help raise vitamin D levels.

After three months on the initial vitamin D dose, obtain another 25-hydroxyvitamin D blood test. If the 25-hydroxyvitamin D level is by any chance over 80 ng/mL, then the child’s dose is adequate and nothing else needs to be done but to hopefully watch for improvements in core symptoms.

If 25-hydroxyvitamin D levels remain below 80 ng/mL, then a proportional dose increase of 25 IU vitamin D3 per pound of body weight is indicated.

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### Role Of Vitamin D In Autism

- Vitamin D inhibits the synthesis and biological actions of pro-inflammatory prostaglandins, which are elevated in autism.
- A number of autoantibodies to the brain have been identified in autistic children, causing some to believe that many cases of autism are autoimmune.
- Research has shown that high levels of certain brain-antibodies are associated with low vitamin D status.
- Vitamin D upregulates neurotrophins, the family of proteins that induce the development, function, and survival of nerve and brain cells, up to 5-fold.
- Vitamin D stimulates production of glutathione and several other antioxidant and detoxification enzymes.
- Even though there are no studies proving the benefits of vitamin D in autism specifically, the proven safety and benefits of vitamin D, added together with the fact that vitamin D has been shown to have a beneficial effect on many of the mechanisms of action that underlie autism, make vitamin D a smart option for children with autism.
Response Rates

To date, I have noticed that children who fall in one of the following categories tend to respond positively to vitamin D:

1. Children with reported seasonality of autistic symptoms (such as those with summer access to a swimming pool or similar extensive outdoor activities, in which the child is much better in late summer than he or she is in late winter) usually respond better.
2. Children who had a period of early normal development (as opposed to those who seem affected even as infants) seem to respond better.
3. Children with mild or moderate autism seem to respond better.
4. Children under the age of eight seem to respond better than older children do.

However, none of these, except perhaps a very distinct seasonality of symptoms, clearly predicts a response to vitamin D. In the same vein, some parents tell me that children with infantile onset of symptoms, children with more severe autism, or children older than eight have responded.

Unfortunately, my experience is that the 10-20% of children with known genetic causes of autism (such as those with.
as Rett syndrome, fragile X syndrome, tuberous sclerosis, clear mitochondrial defects, submicroscopic deletions or duplications in DNA sequences, or deletions or duplications of chromosome regions) do not respond to vitamin D.

Parents who want me to participate in the diagnosis and treatment of their autistic child should contact my office in San Luis Obispo, California, for an appointment. There I will fully assess your child and give treatment recommendations to the parents. I will also be available for a limited number of tele-educational sessions via Skype, in which I will educate parents about vitamin D and its cofactors.

**Summary**

Over the past few years evidence has been mounting that vitamin D is involved in the autism epidemic. Research has demonstrated that vitamin D has multiple mechanisms of action, many of which have been demonstrated to play a role in autism. Scientific data have made it clear that various reasonable mechanisms exist for how vitamin D could help children with autism. Be it via anti-inflammatory actions, anti-autoimmune activities, upregulation of neurotrophins, or stimulation of antioxidant pathways, adequate doses of vitamin D (enough to obtain natural levels of 50-80 ng/mL) may be a potential treatment for some cases of autism.

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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805-439-2569
autisminfo@sloim.com
http://sloim.com/autism/

**References**


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 during Super Sale, the price is reduced to $19.58 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).

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

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VITAMIN D3 SOFTGELS
FOR SUPERIOR ABSORPTION

Study after study confirms the vital importance of maintaining optimal levels of vitamin D. Research often indicates that a blood level between 50–80 ng/mL of 25-hydroxyvitamin D is ideal. Because people have individual requirements, Life Extension® has created a large selection of vitamin D supplements to ensure that you achieve your vitamin D3 goals.

Keep in mind that you may already be getting 1,000-3,000 IU of vitamin D in your multi-nutrient formulas. Vitamin D is now available in superior absorbing softgels. A recent study demonstrated that the use of one 5,000 IU vitamin D softgel daily resulted in a near 30% increase in vitamin D levels in just 60 days.

**VITAMIN D3 1,000 IU**
250 softgels
Retail: $12.50
Four-bottle Member Price during Super Sale: $7.59 ea.
Commercial companies offered only 400 IU vitamin D products when Life Extension long ago introduced a 1,000 IU version. For most people, this 1,000 IU potency is insufficient to attain optimal vitamin D blood levels. For smaller individuals who obtain 2,000-3,000 IU in their multi-nutrient formulas (and children), this potency of vitamin D may be suitable. Item # 01751

**VITAMIN D3 5,000 IU**
60 softgels
Retail: $14
Four-bottle Member Price during Super Sale: $8.44 ea.
Most people do not ingest enough vitamin D and iodine, especially those seeking to reduce their salt intake. Combining 5,000 IU of vitamin D3 and 1,000 mcg of iodine into one capsule makes taking these two nutrients economical and convenient. Due to the source of kelp, this product may contain fish and shellfish. Item # 01573

**VITAMIN D3 7,000 IU**
60 softgels
Retail: $14
Four-bottle Member Price during Super Sale: $8.51 ea.
Some individuals (such as those weighing more than 180 pounds) may require higher potencies of vitamin D. When combined with 1,000-3,000 IU obtained from multi-nutrient formulas, this 7,000 IU vitamin D3 softgel should enable these individuals to attain 25-hydroxyvitamin D blood levels above the desired range of 50 ng/mL. Item # 01718

**VITAMIN D3 LIQUID**
2,000 IU (Natural mint flavor)
1 ounce
Retail: $28
Four-bottle Member Price during Super Sale: $16.88 ea.
For those rare individuals who have difficulty absorbing enough vitamin D3 from softgels, this liquid of vitamin D can be used. Item # 01732

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

CAUTION: Individuals consuming more than 2,000 IU/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxyvitamin D measurement. Do not exceed 10,000 IU per day unless recommended by your doctor. Vitamin D supplementation is not recommended for individuals with high blood calcium levels.

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

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.
Critical Importance of Mitochondria

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.1,2

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.3 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.2,3 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. 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 result is the highest quality PQQ available on the market today called BioPQQ®.

A bottle containing 30 20 mg vegetarian capsules of PQQ Caps with BioPQQ® retails for $40. If a member buys four bottles during Super Sale, the price is reduced to $24.30 per bottle.

The recommended daily dose for PQQ is 20 mg. Those taking Mitochondrial Energy Optimizer or Mitochondria Basics only require an additional 10 mg of PQQ since these formulas already provide 10 mg of PQQ. The retail price for 30 10 mg PQQ caps is $24. If a member buys four bottles during Super Sale, the price is reduced to only $14.85 per bottle. (Item #01500)

BioPQQ® is a registered trademark of MGC (Japan).

References
Funding Research to Help Fill the Government Void

The National Institutes of Health is the world’s largest supporter of biomedical research.

Due to deep budget cuts, scientists who may be on the cusp of significant advances are finding it difficult to obtain federal funding.1 Rather than see vital projects fall by the wayside, the Life Extension Foundation® has stepped up to provide grants to scientists involved in promising fields of research.

While Life Extension Foundation® support of multi-million dollar research programs remains intact, we report here on seven individual scientists who are efficiently working in biomedical arenas overlooked by the mainstream. What’s remarkable is how much these talented individuals can do with so few dollars.

To put these small grants in context, we looked at the early career of Jonas Salk, the discoverer of the polio vaccine. Polio was the most frightening public health problem in the United States in the early 1950s.2,3
Jonas Salk graduated from medical school, but his interest went beyond practicing medicine. Dr. Salk applied for research positions at universities, but found these were closed to him because of the “Jewish quotas” that prevailed in much of the medical establishment at the time.

Dr. Salk was relegated to a cramped, unequipped quarters in the basement of an old municipal hospital. As time went on, however, Salk was able to secure private grants to build a working virology laboratory, where he helped develop flu vaccines.

Jonas Salk’s talents were eventually recognized, and he was later asked by the National Foundation for Infantile Paralysis to participate in the foundation’s polio project.

On April 12, 1955, the results of a huge human trial of Salk's polio vaccine were announced: It was safe and effective. In the two years before the vaccine was widely available, the average number of polio cases in the U.S. was more than 45,000. By 1962, that number had dropped to 910.

Salk never patented the vaccine, nor did he earn any money from his discovery, preferring to see it distributed as widely as possible.
It is impossible to know if the small grants Life Extension Foundation is making to these young scientists will result in medical breakthroughs, but there are interesting parallels to the cramped laboratory that Dr. Salk was initially relegated to and what some of these individuals did with their own limited funds to advance cancer and aging research.

The scientists that Life Extension Foundation have recently funded describe their work here, along with their stories about having been unable to obtain funding from government sources. We want to warn that some of the following research descriptions are technical in nature and may not be fully comprehensible to all our readers.

**John Schloendorn, PhD**
**Independent Stem Cell Researcher (PhD in Molecular Biology)**

I study human embryonic stem cells as a means to develop meaningful life-extending rejuvenation therapies. Federal government funding of stem cell research is still far too restrictive, even under President Obama. State and private funding are generally more interested in pedigree and reputation, rather than risk-taking and innovation. My grant applications to mainstream funding agencies were virtually always declined with words like “unproven” or “too speculative.” However, my view is that if we are to create tomorrow’s life extension medicine, then a certain amount of “unproven” and “speculative” work is going to be required. Therefore, I left my academic position and set out to do this work on my own. Fortunately, my skills and accomplishments are better appreciated in the life extension community.

In 2010, I was able to raise a small amount of venture capital for my first startup company, ImmunePath, Inc. At ImmunePath, we derived immune cells from mouse progenitor cells, and were able to use those cells to save the lives of mice that had been administered what would have otherwise have been fatal infectious pathogens. There were no immune system incompatibilities, and no immunological matching was required. The next step for ImmunePath would have been human clinical trials. But this would have required $15 million, a sum of money we ultimately failed to raise.

After ImmunePath failed, I have re-built my stem cell laboratory. I had to learn to obtain used laboratory equipment from failing biotechnology companies for cents on the dollar, or even for free. Nonetheless, I had to spend most of my personal savings to re-build my stem cell laboratory in this way. I am able to keep my lab operational by renting out access to my equipment, doing contract research for others, or producing biological components for universities involved in stem cell research. But it’s still difficult to make the economics work and takes a lot of my time. The $50,000 grant Life Extension Foundation provided will be sufficient to put my laboratory on a self-sustaining path. Thus I would become free to focus entirely on my “unproven” stem cell research, where I can potentially make a very large impact on extending our healthy life span.

I am therefore very grateful to the Life Extension Foundation for granting me $50,000. I believe that with that seed money I can fairly rapidly develop self-sustaining infrastructure that will give me the means to concentrate on regenerative medicine. My goal is to substantially extend human life and health. I am hopeful that I can soon concentrate on research that will achieve these ends. Citations to some of my scientific research papers, along with papers of my colleagues appear at the end of this article.

**Andrei Seluanov, PhD**
**Assistant Professor at the University of Rochester, Rochester, New York**

Because of my research into the molecular mechanisms of aging and cancer, I maintain the second largest colony of naked mole rats in the world. Naked mole rats are the size of mice, but they live about ten times longer than mice. In protected environments mice normally can live up to three years, usually dying of cancer. Naked mole rats have never been observed to develop cancer. Nor do they show much sign of aging or aging-associated disease. Understanding the reasons for the exceptional longevity of naked mole rats, and the means by which they avoid cancer, has been the focus of my recent research.

In 2009 I published an article in the *Proceedings of the National Academy of Sciences of the United*
States of America in which I demonstrated that naked mole rats avoid cancer through contact inhibition. In some species, cancer cells can multiply without restraint, ultimately becoming big masses of tumor cells that crowd-out normal functioning cells. Contact inhibition is the impediment of excessive growth of cells by neighboring cells. The National Academy of Sciences also awarded me the Cozzarelli prize for having the most exceptionally excellent paper on the subject of biomedical sciences for the year 2009.

After further research I determined that the contact inhibition and cancer resistance in naked mole rats is due to high levels of a molecule called hyaluronan between the cells. A similar, although less potent compound, has already been applied in the clinic and as a food supplement. I have been wanting to determine the molecular mechanisms by which hyaluronan prevents contact inhibition, establish whether hyaluronan also plays a role in extending life by means other than contact inhibition, and explore the potential for making the benefits of hyaluronan available to humans through research on mice.

But when I applied to the Federal Government (the National Institutes of Health) for funding, my grant application was declined. One of the reviewers advocating the decline argued that there is no need for further research with naked mole rats because that animal’s genome has been sequenced. Without grant money I would be unable to continue my research. I turned to the Life Extension Foundation for support. I am greatly pleased that the Life Extension Foundation is giving me $50,000 every six months, with progress reports required before each new six-month grant. These grants will enable me to look for ways to extend human life and health.
Several applications to the Federal Government for support to conduct this and related research have not been successful. The Summaries of Discussion indicated that reviewers were sharply divided, which inevitably results in a score that is not fundable even though two of the three critiques were positive. Just a single comment can be fatal, even an obviously biased one such as that little new could be added by this study “in light of the fact that the age-1 pathway has been extensively characterized by a number of groups.”

Another reviewer required that I show evidence of the effectiveness of the drugs I am seeking before I can be funded to look for them. Fortunately, the people at the Life Extension Foundation® have a remarkably positive attitude to supporting research that can make a significant difference to human longevity. Life Extension Foundation® is giving me $50,000 every six months for at least two years as long as progress reports (before each new six-month period) indicate that my research is productive. This open-ended funding arrangement benefits everyone, because Life Extension Foundation® is assured that their money is put to good use, while the grant recipient knows that funding can continue as long as the results warrant it.

Vera Gorbunova, PhD
Professor in the Department of Biology at the University of Rochester, Rochester, New York.

My research is concerned with how DNA damage and repair contribute to aging and cancer. DNA damage often leads to mutation and cancer, but DNA damage may also contribute to aging. I am hopeful that what I can learn about what causes DNA damage and what I can learn about facilitating repair of DNA damage can lead to a reduction of aging and cancer in humans.

There has been much interest among life extensionists in resveratrol, a substance found on the skin of red grapes which some scientists believe has been shown to extend the life span of nematode worms. It was proposed that the ability of resveratrol to activate sirtuin activity is the basis of the benefits of resveratrol.

There are seven sirtuins in mammals, numbered SIRT1 to SIRT7. The sirtuin in mammals that is activated by resveratrol is SIRT1. Resveratrol has been shown to protect obese mice from diabetes, and SIRT6, on the other hand, is able to protect normal mice from DNA damage, and SIRT6 promotes repair of DNA damage. SIRT6 activity increases the DNA repair mechanisms for double-strand breaks.

DNA double-strand breaks are dangerous. DNA lesions that can cause cell death or genomic rear-

rangements are frequently found in aged and cancerous cells. Activation of the SIRT6 gene in mice has been shown to extend their life span. Some rodents have a more effective SIRT6 gene than other rodents, so I am seeking to understand the difference.

I would like to find a chemical that activates SIRT6 much as resveratrol is thought to activate SIRT1. I would like to understand what makes some SIRT6 genes better than others in order to get the best effect. Our laboratory has developed assays of SIRT6 biochemical activity, which we will optimize to be able to screen large numbers of chemicals including natural compounds and identify those that activate SIRT6.

Although program officers at the National Institute on Aging are supportive of my work, the budgets are shrinking, and outside reviewers can have divergent opinions. My application for funding was declined because the reviewers believed that SIRT6 may not be the only means by which DNA repair may be better or worse between species.

Fortunately, the Life Extension Foundation® has granted me the research money I need to learn how SIRT6 can best be utilized to protect against DNA damage. Life Extension Foundation® is giving me $50,000 every six months, with progress reports required before each new six-month grant. Life Extension Foundation® appreciates that if I can find one means of protecting against aging and cancer today, that will not stop me from finding another means tomorrow.
Justin Rebo, MD
Research Scientist, SENS Foundation

My goal has always been to help people live longer, healthier, lives. To that end after I received my MD I moved to Silicon Valley and co-founded a regenerative medicine startup. We made blood cells from embryonic stem cells and used them successfully in a preclinical model, and I developed methods to induce total immune system tolerance of transplanted tissue mismatched on all MHC loci (Major Histocompatibility Complex) using simple blood stem cell transplants. The expertise I’ve developed through the research I’ve accomplished so far is linked in that it all uses the blood system as a means of promoting or allowing some kind of rejuvenation. This work is exactly what Life Extension Foundation® is helping me to continue.

Blood, the fluid that transports nutrients, gases, immune cells, and a host of other factors throughout our bodies, declines in function with age. For example, hematopoietic stem cells (HSCs) from older mice, which give rise to the cellular component of blood, have multiple functional defects, including lineage changes, reduced self-renewal, homing efficiency, and a delayed proliferative response. The acellular component of blood, plasma, also declines in function; young mice injected intravenously with plasma from old mice exhibit decreased neurogenesis. Blood’s decline exacerbates the age-related functional decline of all other human organs and systems, since these are exposed to and depend on blood. For example, CCL11, a normal eosinophil associated chemokine, increases in plasma with age and when administered to young mice reduces neurogenesis. Heterochronic parabiosis, the joining of the circulatory systems of two animals of different ages, has been used for decades to study the effects of circulating factors both on the young parabiont and the old. The exposure of young blood to old animals has been found to rejuvenate aged muscle, and restore hepatocyte proliferation to levels seen in young animals. This indicates that the restoration of a young systemic environment can at least partially rejuvenate old tissues and stem cells.

It follows that any intervention that can functionally rejuvenate blood may also have some rejuvenating effect on the rest of the body’s systems.

With Life Extension Foundation® funding, I will test the effects of replacing old components in blood with young ones so the tissues can exist in a young systemic environment. This can mean the cellular or acellular components of blood, or some combination. Similar technologies have already been successfully applied in humans for treating several diseases, but no one has yet extended these methods to treat the pathological effects of aging.

In particular, I will study the rejuvenating effects of plasma exchange. This means transfusing the plasma of young animals into tissue-typed older animals. Further I will directly remove specific aged factors from plasma including those factors already known and also those elucidated during the course of this study using high throughput proteomics of young vs. aged plasma.

After as little as two years the goal is to begin human clinical development.

This research has thus far remained completely unfundable through traditional funding sources, which is why it’s so important that Life Extension Foundation® is stepping forward to fill the gap to help bring these potentially lifesaving therapies to the clinic. Life Extension is funding $130,000 towards my research.
The bowhead whale (*Balaena mysticetus*) has not only been estimated to live over 200 years, making it the longest-lived mammal, but clearly these animals remain disease-free until much more advanced ages than humans can. The mechanisms for the longevity and resistance to aging-related diseases of bowhead whales are unknown, but it is clear they must possess aging prevention mechanisms. In particular in the context of cancer, bowhead whales must have anti-tumour mechanisms, because given their large size and longevity their cells must have a massively lower chance of developing into cancer when compared to human cells.

In this project supported by the Life Extension Foundation®, we are sequencing the genome of the bowhead whale. We are also performing analyses to identify promising candidate genes for further study and identify possible mechanisms that may explain the long life span and resistance to age-related diseases of bowhead whales. Overall, this project will provide a key resource for studying the bowhead whale’s exceptional longevity and resistance to diseases. Studying a species so long-lived and with such an extraordinary resistance to age-related diseases will help elucidate mechanisms and genes conferring longevity and disease resistance in mammals that in the future may be applied to improve human health.

This is the sort of high-risk, high-reward project that is rarely supported by government funding bodies, and indeed my grant applications to study long-lived organisms have been invariably rejected (including by the National Institutes of Health and NHGRI, in spite of widespread support from the research community) for being too risky and often labelled as “overambitious.” I am therefore very grateful to the Life Extension Foundation® for contributing $23,000 for this project. All data and results from this project will be made available to the scientific community to encourage research using data from long-lived species.

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**João Pedro de Magalhães, PhD**

Senior Lecturer (equivalent to an Associate Professor in the US) at the University of Liverpool, Liverpool, United Kingdom.

My Integrative Genomics of Ageing Group broadly aims to help understand the genetic, cellular, and molecular mechanisms of ageing. Although our research integrates different strategies, its focal point is developing and applying experimental and computational methods that help bridge the gap between genotype and phenotype, a key challenge of the post-genome era, and help decipher the human genome and how it regulates ageing and longevity. In the long-term, I would like our work to contribute to the development of interventions that preserve health and combat disease by manipulating the ageing process.

Biomedical research, including most research on human diseases, is usually based on animal models that develop the disease under study at a higher incidence and rate than normal. An unexplored paradigm in biomedical research, however, is the use of disease-resistant organisms to identify genes, mechanisms, and processes that protect against (rather than cause) disease. While disease models may be useful to develop treatments, models of resistance to disease may prove valuable for human disease prevention. In this context, we are interested in studying the unique genetics, physiology, and cell biology of long-lived animals. For example, we have employed next-generation sequencing platforms to study the long-lived naked mole-rat.

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**Maximus Peto**

Independent Protein Manufacturer  
(BBA Finance, MBA, Undergraduate Biochemistry)

Most stem cell research requires the use of recombinant cytokines in the stem cell growth media. But current retail prices are very high, which markedly inhibits the advance of stem cell therapies that could save human lives.

I currently work at developing very low-cost recombinant cytokines (a specialized type of protein), because these proteins are used ubiquitously in stem cell research.
I first learned how to successfully produce recombinant proteins in my work at the SENS Foundation. “SENS” stands for “Strategies of Engineered Negligible Senescence” and is headed by Dr. Aubrey de Grey.

At SENS Foundation, I worked on making enzymes for their LysoSENS program for two years. Prior to joining SENS Foundation in 2010, I published a peer-reviewed research paper on iron and aluminium accumulation in humans with age, and how to remove these metals. During my time at SENS Foundation, I also experimented with producing recombinant cytokines in my personal lab, which I invested several thousand dollars of my own funds into building. After some initial successes on a small scale using techniques I developed, I was very surprised at how inexpensively these proteins can be synthesized. However, with my cheap, small-scale equipment, I was unsuccessful in making and purifying enough cytokines for distribution to scientists in need. I discovered that a large proportion of the budget (10-50%) of many stem cell labs is spent on these recombinant cytokines. Upon the realization that the high cost of these cytokines was hampering life saving research, I decided that it would be greatly beneficial in accelerating stem cell research if I made these proteins inexpensively on a larger scale. I currently intend to lower the retail cost of recombinant cytokines by 50-90%, and plan to give away cytokines to avant garde stem cell researchers working directly in the fields of life-extending research.

I approached the Life Extension Foundation® for funding my development processes. I am thankful and excited Life Extension has understood the far-reaching implications of my work for advancing stem cell research. After about five months of discussions, Life Extension Foundation® has committed $100,000 of funding to this project that I envision will help lead to technologies that will slow and reverse human aging processes.

How Life Extension Foundation Awards Grants

To obtain funding from Life Extension Foundation®, researchers are directed to a website page containing a form which they are instructed to complete. The applications are discussed by the Life Extension Foundation® research funding committee, which either politely declines the request or asks for more information, sending a more detailed application form. The more detailed forms are then discussed by the Life Extension Foundation® research funding committee. Pointed questions are asked of the researchers if more information is still needed. The funding committee then makes recommendations concerning whether proposals are to be funded or not. Large research grants must be approved by the Life Extension Foundation® Board of Directors. For large research grants, the Life Extension Foundation® typically only gives six months of funding, pending submission of acceptable progress reports by the researchers.

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


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.

Falling down is responsible for 70% of accidental deaths in older people.1 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.2

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

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 and C3G provides:

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<td>OptiLut®, Lutein Plus® and MZ®</td>
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<td>Marigold (Tagetes erecta) extract (flower) [lutein equivalent 10 mg]</td>
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<td>Zeaxanthin &amp; Meso-zeaxanthin blend</td>
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<td>[Paprika (capsicum annuum) extract (fruit), OptiLut®, Lutein Plus® and MZ® Marigold Extract (flower)]</td>
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<td>C3G (Glycadin-3-glucoside)</td>
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<td>[from European black currant (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 and C3G is $22. If a member buys four bottles during Super Sale, the price is reduced to $13.37 per bottle.

References

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 6,218,436 & 6,329,432.

To order Super Zeaxanthin with Lutein, Meso-Zeaxanthin and C3G, 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.
Systemic inflammation is involved in most undesirable health conditions. Life Extension® members have access to a state-of-the-art nutritional formula called MITOCHONDRIAL ENERGY OPTIMIZER WITH BioPQQ® that helps protect delicate cellular structures and enables cells to perform life-sustaining metabolic processes.

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

- **CARNOSINE**: As humans age, proteins in their bodies become **irreversibly damaged by glycation**. Glycation is the cross-linking of proteins and sugar to form **non-functioning structures** called advanced glycation end products in the body, which can lead to alterations of normal cell function. **Carnosine** is not only a powerful **anti-glycating agent**, but it also protects **neurons** against reactive and cytotoxic protein carbonyl species associated with normal aging.1-6

- **PQQ**: This breakthrough micronutrient has been shown to **trigger mitochondrial biogenesis** — the growth of new mitochondria in aging cells!6 PQQ also facilitates youthful **mitochondrial energy output** while guarding against **free radicals**. Two forms of lipic acid are sold on the supplement market, but **R-lipoic acid** is far more potent.25-28

- **ACETYL-L-CARNITINE ARGINATE**:

  - **LUTEOolin**: Systemic inflammation is involved in most undesirable consequences of aging. Culprits behind inflammatory reactions are **pro-inflammatory cytokines**, such as interleukin-1 and tumor necrosis factor-alpha. **Luteolin** is a flavonoid that has been shown to help suppress these inflammatory cytokines.17-20

- **Benfotiamine**: Effectively modulates multiple destructive biochemical pathways that are induced by higher than desirable blood glucose levels. Human mortality studies indicate that **ideal fasting glucose levels are between 74–85 mg/dL**. Yet many aging people have fasting glucose above 90 mg/dL, which is less than optimal.16 Benfotiamine protects endothelial cell integrity from the effects of high glucose levels. In addition, benfotiamine exhibits direct antioxidant capacity and supports DNA function.20

- **PYRIDOXAL 5’-PHOSPHATE**: Aging results in the formation of advanced glycation end products throughout the body. **Pyridoxal 5’-phosphate** is the active form of vitamin B6 that has been shown to protect against both lipid and protein glycation reactions.21-24

- **R-LIPOIC ACID**: Destructive free-radical activity in the mitochondria plays a major role in the loss of cellular vitality. A microencapsulated Bio-Enhanced® **R-lipoic acid** facilitates youthful **mitochondrial energy output** while guarding against **free radicals**. Two forms of lipic acid are sold on the supplement market, but **R-lipoic acid** is far more potent.25-28

- **ACETYL-L-CARNITINE ARGINATE**: The amino acid L-carnitine is required to transport fats into the mitochondria to be burned for cellular energy. **Acetyl-L-carnitine arginate** is a patented form of carnitine that also supports neurites in the brain.29

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

A bottle of Mitochondrial Energy Optimizer with BioPQQ® containing 120 capsules retails for $94. If a member buys four bottles during Super Sale, the price is reduced to $56.70 per bottle.

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

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

**References**


Bio-Enhanced® is a registered trademark of Genova Research, Inc. ArginoCarn® is a registered trademark of Sigma-tau HealthScience, and is manufactured exclusively under U.S. production patent 6,703,042 and worldwide production patent EP1202956. The combination of Acetyl-L-Carnitine and Alpha Lipoic Acid is patented by Sigma-tau under U.S. patent 6,345,822. BioPQQ® is a registered trademark of MGC (Japan).
A high percentage of men will endure some form of prostate-induced discomfort over the course of their lifetimes. A placebo-controlled, double-blind trial presented September 2013 reported that a specific blend of pomegranate, green tea, turmeric, and broccoli—formulated together in a capsule called Pomi-T™—powerfully maintained healthy levels of prostate specific antigen (PSA)

Life Extension® now offers this same capsule for men who are serious about supporting and protecting their prostate as they age—by targeting PSA. The four foods in Pomi-T™ have healthful benefits for your entire body. But their constituent molecules, naturally present in food, have now been shown to concentrate within prostate tissue and provide a rich array of complementary, prostate-supporting, PSA-modulating mechanisms.

**POMEGRANATE**
- Specifically concentrates in prostate tissue
- Supports healthy apoptosis, your body’s system of removing senescent cells when needed
- Promotes healthy levels of inflammatory response, inhibits androgen receptor expression, and inhibits abnormal cell migration

**GREEN TEA**
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**References**
Control Underlying Factors Behind MIGRAINES

Migraines are more than just headaches. They are serious disorders that can cause lasting neurological damage and increase the risk of stroke as well as dementia.1-5

Large-scale epidemiological studies reveal that in the US, around 16-22% of adults reported migraine or severe headache symptoms.6 Migraines and severe head pain are significant public health concerns with head pain representing the fifth leading cause of emergency room visits each year.6

As scientists delve into the biochemistry of the human brain, they are discovering that migraines can cause lasting damage that is similar to the changes seen in seizures, strokes, and dementia.1,2,7 Physicians are finding that a patient’s history of migraines can be a risk factor for some of the most-feared chronic brain disorders.1-5,7

Current migraine treatments include drugs originally developed for treating epilepsy.8-10 In the short-term, these drugs are effective because they help reduce the over-excitation in the brain that produces a seizure or a migraine.9 But as with most pharmaceutical drugs, they are fraught with side effects and fail to address the underlying cause.8,10

As scientists searched for treatment alternatives to anti-epileptic drugs, they uncovered two compounds that provide a therapeutic dual action against the changes in the brain that lead to migraines.
Both of these substances, gastrodin and magnesium, are thought to modulate the sudden changes in neurotransmitters that can set off a crippling migraine as well as support healthy blood flow to the brain. Gastrodin and magnesium work to calm and balance the storm of neurotransmitters that can lead to a migraine while nourishing the brain with improved blood flow.¹¹⁻¹⁴

This article explains how gastrodin and magnesium provide relief and protection for sufferers of migraine headaches. >
The Inner Workings Of A Migraine

While we still have much to learn, scientists are discovering that migraines share several basic features with other brain disorders.

Before and during a migraine attack, blood flow in specific brain regions begins to drop, causing disturbances in the brain’s balance and affecting neurological function. A reduction in brain blood flow also occurs during a stroke, and more gradually in the condition known as vascular dementia, which reduces your ability to reason and maintain memories. In all three cases, the result is increased vulnerability of brain cells to dysfunction, degeneration, and eventually death.

Brain scans show that people with migraines have visible abnormalities that are similar to those seen in stroke victims and in people with dementia. And some studies suggest that people with chronic migraines are at an increased risk for strokes and dementia.

In addition to problems with blood flow to the brain, people with migraines show a harmful imbalance in the brain’s excitatory and inhibitory activity. Normally, the brain maintains a healthy balance between excitatory and inhibitory activity by modulating the relative amounts of neurotransmitters that brain cells use to communicate across their connections, or synapses.

Sudden and excessive excitation of brain cells, combined with insufficient amounts of the calming GABA neurotransmitter, produces the electrical “storm” we see as an epileptic seizure. It’s now thought that a milder version of this process occurs during a migraine. The longer-term effects of this imbalance result in a condition called excitotoxicity, which also occurs in strokes and in the neurodegenerative disorders that produce dementia, such as Alzheimer’s disease.

Because the imbalance between excitatory and inhibitory neurotransmitters is common to both migraines and to seizures, neurologists have begun exploring anti-epileptic drugs in the treatment of migraines. Such drugs generally elevate the GABA-related activity in the brain in an attempt to move the brain’s balance back to normal.

But seizure drugs are extremely powerful medicines with plenty of adverse effects, and physicians and patients alike are understandably reluctant to use them continuously to prevent migraine attacks.

Gastrodin: A Powerful, Multi-Targeted Brain Shield

The extract of the root of the orchid Gastrodia elata has been used for centuries in traditional Chinese medicine formulas, especially for disorders involving the central nervous system. Studies show that gastrodin-based formulations improve brain blood flow, which is commonly reduced during migraines. This benefit of gastrodin has been used successfully in China to treat stroke victims, whose decrease in brain blood flow is potentially life-threatening.

Gastrodin’s most exciting mechanism of action stems from its ability to modulate both excitatory and inhibitory neurotransmitters, which makes it particularly beneficial to migraine patients.
Laboratory studies demonstrate that gastrodin inhibits the enzymes that break down the calming GABA neurotransmitter. By blocking these enzymes, gastrodin helps raise GABA levels back to normal.12,28

While increasing the calming GABA, gastrodin also decreases levels of excitatory neurotransmitters in a brain stressed by reduced blood flow.27,29,30

Restoring this balance has been shown to be neuroprotective, even against the massive decrease in brain blood flow seen in strokes.27,29

The cumulative impact of gastrodin’s increase in blood flow and reduction in the excitatory/inhibitory ratio may be behind its impressive success in clinical trials for migraine relief.31

In a study of 90 migraine patients, the subjects were given either gastrodin (50 mg three times daily) or the prescription drug flunarizine (a calcium channel blocker that may enhance blood flow) over a 6-week period.31 Both treatments were equally effective at reducing both the duration and total number of migraine attacks. However, gastrodin was more effective than the drug overall, with a higher proportion of people achieving a benefit of 91% compared with just 76% in the drug-treated group.31

In other studies gastrodin showed a higher overall therapeutic effective rate vs. flunarizine.32-34

Clearly, gastrodin’s ability to boost brain blood flow, shield brain cells from excitotoxicity, and restore the calming inhibitory effects of GABA is effective in migraine headaches as well as in the more immediately-threatening disorders like strokes.27,29,31

Now let’s look at the element magnesium to see how it augments gastrodin for comprehensive migraine prevention.

**Magnesium Complements Gastrodin For Migraines**

Magnesium is essential in controlling brain electrical activity, especially with regard to brain blood flow and modulating the excitatory-to-inhibitory actions of brain cells.35 Studies show that up to 50% of migraine patients are deficient in the amounts of magnesium in their blood during an attack, and that they can have a high ratio of calcium to magnesium.36-38 This imbalance sets the stage for the contraction of brain blood vessels resulting in a reduction of blood flow. Because of this benefit, magnesium is increasingly indicated for migraine prevention.14,36-38

Treatment with magnesium does increase both brain blood flow and its velocity, as shown by researchers using high-tech Doppler ultrasound to look through the skull and measure blood flow velocity in a major brain artery.39,40

**What You Need to Know**

**Minimize Migraine Attacks**

- Migraine headaches are common and debilitating.
- Mainstream medicine has made little progress at preventing these excruciating episodes, while evidence is accumulating that recurrent migraines place you at risk for strokes and dementia over the long-term.
- Mainstream medicine has turned to anti-epileptic drugs that treat seizures because of a strong similarity between the brain chemistry of seizures and migraines, but these drugs are burdened with many side effects.
- Two natural substances, gastrodin and magnesium, work on similar biochemical pathways to anti-epileptic drugs to restore the balance of brain neurotransmitters and calm the excited brains of migraine sufferers.
- As a bonus, both gastrodin and magnesium boost brain blood flow, which is diminished at the outset of a migraine headache.
- Gastrodin and magnesium have proven safe and effective in clinical trials of migraine and many other serious neurological conditions.
- Safe, natural migraine prevention is now available in a capsule containing both gastrodin and magnesium.
Like gastrodin, magnesium also has beneficial effects on the balance of excitatory to inhibitory neurotransmitter signaling in the brain. Magnesium is a natural blocker of an excitatory receptor on brain cells, so when ample magnesium is available, those receptors don’t trigger the excitatory electrical impulse. This allows the brain to move into its more balanced, calm mode. In addition to blocking excitatory receptors, magnesium also supports brain GABA activity, helping to induce a calming environment and further reduce the excessive brain electrical activity associated with migraines and seizures.

And magnesium supplementation has now been proven to be effective at preventing migraine headaches. One early study evaluated women with migraine during their menstrual cycles, a common time for attacks to increase. Using 360 mg of magnesium daily vs. placebo, researchers showed that the number of days with headache was reduced only in the magnesium group. Magnesium also improved premenstrual complaints.

A broader study of migraine patients demonstrated a significant reduction in the incidence of migraine headaches using a dose of 600 mg/day of magnesium dicitrate. Another, similar study showed that irritation of facial and neck muscles, common in migraines, was also reduced by magnesium supplementation. The frequency of migraine attacks was reduced by nearly 42% in a group treated with magnesium dicitrate 600 mg/day, compared with around 15% of placebo-treated subjects.

Several dramatic studies have now appeared in which complete elimination of migraine pain was accomplished using intravenous magnesium citrate. One study revealed an 80% rate of pain resolution within 15 minutes of the injection, along with complete elimination of hypersensitivity to light or sound, common migraine features. Another study found response to treatment in 100% of those given the IV magnesium (7% in placebo), with complete disappearance of pain in 87% (0% of placebo); all patients receiving IV magnesium had resolution of accompanying symptoms.

What Makes A Headache A Migraine?

Migraine headaches are now ranked in the top 20 on the World Health Organization’s list of diseases causing disability worldwide. There are two major subtypes of migraines.

Migraines without auras are the most common type. These headaches have a higher attack frequency and are usually more disabling than migraines with auras.

A typical migraine without aura lasts as little as 4 hours and as long as 72, with classic symptoms of a single-sided headache, pulsating pain of moderate or severe intensity, along with nausea (and often vomiting) and an aversion to light or sounds. These headaches are aggravated by routine physical activity.

Migraines with auras involve recurrent episodes of localized neurological symptoms (weakness, tingling, ringing in the ears, etc.) that develop over 5 to 20 minutes and last usually for less than an hour (the aura itself). A headache like that of a migraine without aura usually, but not always, follows the aura symptoms.

“Premonitory” symptoms, or warning signs of a migraine, can occur hours to a few days prior to a migraine attack; these arise both in people with auras and those without, and these symptoms should not be confused with the presence of an aura. Such symptoms include fatigue, concentration difficulty, and muscle stiffness particularly in the neck.
In total, at least half a dozen good clinical trials have now demonstrated the utility of oral magnesium in the form of magnesium oxide and trimagnesium dicitrate for preventing migraines and reducing their severity. Intravenous magnesium sulfate has proven its effectiveness in hospitals, including emergency room departments, to treat an existing migraine headache.

Summary

Migraine headaches are common, affecting 18% of American women and 6% of men. They rank near the top of disorders that cause debilitation and loss of work or recreational time. And mainstream medicine has yet to find a safe, long-term way to prevent migraines before they begin.

Two natural substances, gastrodin and magnesium, have shown efficacy in preventing and sometimes treating migraine headaches. Both work to improve brain blood flow, which is decreased at the beginning of a migraine attack. Both also act in specific (but different) ways to increase brain concentrations of the calming neurotransmitter GABA, while reducing the impact of the excitatory, potentially damaging neurotransmitter glutamate.

These two natural compounds act in similar ways to the desired effects of the anti-epileptic drugs now in widespread use in migraine treatment, and for good reason. Anti-epileptic drugs lower excitatory glutamate levels while boosting calming GABA levels, similar to gastrodin and magnesium. The downside to these drugs, however, are side effects that decrease their usefulness in the long-term.

If you suffer from migraine headaches, gastrodin formulations and magnesium have been shown to calm the brain, reduce dangerous levels of excitotoxicity, and minimize or eliminate migraine headaches. This is especially important as we learn how much migraines have in common with debilitating disorders such as strokes and dementia—and how greatly migraines raise your risk for those conditions.

How Anti-Epileptic Drugs Mitigate Migraines

Migraine headaches and epileptic seizures share many clinical and biochemical features. They both occur in unpredictable episodes, though the onset of individual attacks may be preceded by a warning aura. Within the brain, both involve an imbalance between neuronal excitation and inhibition, with excitation coming out on top and explaining most of the symptoms.

These similarities have led many physicians to use anti-epileptic drugs “off-label,” to attempt to prevent migraine headaches. Three drugs in particular, valproic acid, gabapentin, and topiramate, are heavily used in this fashion.

All of these drugs act by increasing concentrations of the neurotransmitter GABA, which has a calming, inhibitory effect on the brain. These and other drugs also appear to reduce concentrations of excitatory glutamate, further restoring a normal balance.

But all anti-epileptic drugs have serious side effects that become increasingly likely with long-term use. In 2008, the US Food and Drug Administration issued a warning that all anti-epileptic drugs are associated with increased risk of suicidal ideation and behavior.

Fortunately, gastrodin and magnesium, two natural substances, act on similar biochemical pathways as anti-epileptic drugs to quell excitation and promote brain cell relaxation in migraine sufferers.
References


33. Youlai Z. Controlled clinical trial of gastrodine combined with flunarizine in prevention of migraine attack. Journal of Mudanjiang Medical University. 2009;30(1).


35. Youlai Z. Controlled clinical trial of gastrodine combined with flunarizine in prevention of migraine attack. Journal of Mudanjiang Medical University. 2009;30(1).


CONTROL UNDERLYING FACTORS BEHIND MIGRAINES


58. Available at: [http://ihs-classification.org/en/02_klassifikation/02_teil1/01.01.00_migraine.html](http://ihs-classification.org/en/02_klassifikation/02_teil1/01.01.00_migraine.html). Accessed October 14, 2013.


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References

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References

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In a remarkable series of discoveries, scientists have uncovered the main biochemical “switch” that turns on many of the chronic diseases of aging. Known as HMGB1 (for “High Mobility Group Box-1”), this intriguing protein molecule triggers the release of the cytokines—a collection of chemical signals—that generate inflammation in your body.1

And as inflammation accumulates, aging accelerates, to the point that most scientists now speak about “inflammaging” as a single entity that underlies disorders that cause premature death, including conditions ranging from diabetes and atherosclerosis to lung disease and cancer, to name just a few.2-4

In an exciting new development, the discovery of HMGB1 as the switch that turns “on” accelerated aging has led to the development of a safe and effective means of turning “off” that switch and reducing premature senescence.

Research over the past few years has demonstrated that two natural ingredients can directly control HMGB1, switching off the massive cytokine flow that generates age-related inflammation and leads to disease and premature death.
Tested in prestigious hospital research laboratories, two plant extracts, mung bean seed coat and green tea, extended life spans and increased survival rate caused by inflammation in blood poisoning (sepsis) by up to 82%.5,6

This combination of natural ingredients can reduce total body exposure to the ravages of inflammation. By doing so, maturing individuals can protect themselves from accelerated aging, guard against inflammation-induced chronic disorders, and live a longer and more productive life.
HMGB1: The “Cytokine Switch”

Inflammation is a helpful reaction when your body is under attack by germs, or following an injury. Under those circumstances, inflammation represents the first step in the healing process, bringing in white blood cells to clean up after the invaders have been destroyed and boosting blood supply to the injured or damaged area.

But ongoing, chronic inflammation is another matter entirely—it has been linked with many age-related, lifespan-shortening disorders, including heart disease, cancer, chronic obstructive pulmonary disease (COPD), diabetes, and others.3,4

Scientists have now discovered that HMGB1 has been implicated in acute inflammation—and that sustained high levels of HMGB1 are responsible for maintaining the chronic inflammation that speeds the aging process.1

It turns out that HMGB1 inside your body cells is very much a good thing; it helps regulate the way your genes are expressed, acting as a kind of “general manager” of cellular processes.7 But when a cell is damaged, its contents of HMGB1 leak out, and trouble begins.8

HMGB1 And The “Cytokine Storm”

This released HMGB1 binds to receptor molecules on immune system cells, acting as a “danger signal” that triggers them to release cytokines.1,7 Cytokines, in turn, are chemical signaling molecules that call in still more white blood cells, which release still more cytokines, in a deadly frenzy of activity.

Taken to the extreme, such activity can result in a “cytokine storm,” a massive, body-wide release of cytokines that can shut down your body’s entire system.9,11 During a cytokine storm, which can be potentially lethal, over 150 inflammatory mediators are released throughout the body.12 We dealt with the prospect of a cytokine storm on a large scale during the 2003 outbreak of SARS (“severe acute respiratory syndrome”) and more recently in 2009 during the H1N1 outbreak.13,15

Fortunately, most of us never have to face a true cytokine storm. Instead, we experience the cumulative effects of lower levels of cytokines, maintaining a steady and rising drumbeat of chronic inflammation that destroys our blood vessels, bones, and joints, promotes cancer development, and lays waste to our brain cells to rob us of memory and cognition.1,16-45

Elevated HMGB1 levels have now been found to be associated with many acute and chronic inflammation-related disorders, including:

- Asthma and chronic obstructive pulmonary disease (COPD)16-19
- Atherosclerosis, lipid disturbances, and their consequences, coronary artery disease, heart attacks, strokes, and congestive heart failure20-28
- Autoimmune disorders, including lupus, multiple sclerosis, rheumatoid arthritis, type I diabetes, and others29-34
- Cancer35,36
- Diabetes27,28,31,34,37
- Inflammatory bowel diseases (Crohn’s disease and ulcerative colitis)38,39
- Neurodegenerative disorders21,23,29
- Obesity40
- Surgical procedures, even those without obvious complications33
- Trauma, including hemorrhagic shock, traumatic brain injury, acute lung injury and bone fractures41,42,44,45
- Viral and other infections46,47
Fighting HMGB1 To Reduce Inflammation

Impeding HMGB1 is turning out to be a powerful means of slowing and reversing inflammatory processes, with laboratory results showing an increase in survival rate in the face of ongoing inflammatory damage. Scientists are just now beginning to make strides in the fight against inflammation in asthma, in arthritis, in multiple sclerosis, and in inflammatory bowel diseases (Crohn’s disease and ulcerative colitis), using specialized large molecules (antibodies) that bind HMGB1 and prevent its cytokine-mediated effects.

Don’t expect to see these treatments available from Big Pharma any time soon, though. Therapies employing HMGB1-neutralizing antibodies have shown promise in animal models; however, they have not been tested in clinical trials. Moreover, neutralizing antibody treatments are faced with several challenges, including poor drug response and adverse side effects like acute hypersensitivity reactions.

But there’s hope for all of us who recognize the importance of suppressing inflammation in pursuit of a long and healthy life. The anti-HMGB1 properties of mung bean seed coat and EGCG from green tea leaf have now been harnessed to tamp down inflammation and slow the accelerated aging that accompanies chronic inflammatory processes.

Since these products are natural and have millennia of human use to back their safety, you can use them as a daily supplement to gain protection from chronic, inflammation-induced diseases, and slow down certain aging processes in your body.

Both mung bean and green tea are components of traditional Asian cuisine and medicines. Mung bean is an excellent source of protein that, unlike most other beans, is virtually free of flatulence-inducing factors, making it a natural food for the ill. And mung bean soup is credited with having “cooling” properties in traditional Chinese medicine, a prescient idea that accords perfectly with present-day discoveries about the bean’s anti-inflammatory properties.

Green tea has been consumed in China for millennia and has been used as a health aid since at least the 12th century for its many beneficial effects. Today, green tea is known to be one of the most prominent sources of plant polyphenols with anti-inflammatory actions.

The sources of the anti-inflammatory properties of these two ancient health-promoting substances are becoming increasingly clear under the scrutiny of modern science. Both of these ingredients have been shown to interfere at several different points in the cascade of events that leads to HMGB1 release from stressed or damaged cells, making them...
The most dramatic illustration of how mung bean seed coat and EGCG from green tea leaves can save lives comes from two recent studies at the Department of Emergency Medicine, North Shore University Hospital on Long Island, New York; University School of Medicine, New York; and the Feinstein Institute for Medical Research, Manhasset, New York.5,6

Researchers were interested in the therapeutic role of targeting HMGB1 in sepsis. Sepsis, commonly called blood poisoning, kills more than 225,000 Americans (mostly older adults) every year in intensive care units, despite modern antibiotics and life-saving technologies.64 It is also a useful model for understanding the role of anti-HMGB1 therapies in the most extreme example of out-of-control inflammation. In sepsis, massive amounts of HMGB1 trigger an outpouring of cytokines. It is this resulting inflammation, and not the infecting germ, that ultimately kills the patient.65,66 And once those cytokines are on the loose, it’s typically too late to fight back with anti-cytokine therapies.67-69

Instead of turning to expensive and dangerous anti-HMGB1 antibodies, however, as other researchers had done, researchers at the North Shore University Hospital and Feinstein Institute for Medical Research chose to study mung bean seed coat extract and EGCG from green tea leaf extract, based on their known anti-HMGB1 activities.
The experiments were simple but dramatic. The researchers first induced sepsis in laboratory mice, dooming them to almost certain death without intervention. In half of the mice, however, the researchers did intervene—but not until 24 hours after the induction of sepsis.

In their first experiment, the scientists gave the mice EGCG from green tea, or a salt-water control, at 24, 48, and 72 hours following the onset of sepsis. There was no other intervention: no antibiotics, no IV fluids, no ICU drugs or equipment.

As described in Figure 1, repeated administration of EGCG conferred protection against lethal sepsis by significantly increasing the survival rate of animals from 53% to 82%.

Encouraged by this result, the researchers turned to mung bean seed coat extract. You can see this outcome in Figure 2; using the same experimental design as in the previous study, the mice were given the extract (or saline control) beginning the day after induction of sepsis. Mung bean seed coat conferred a significant protection against lethal sepsis, increasing animal survival rates from nearly 30% to just over 70%.

It’s impossible to overstate the significance of these results. In unprecedented research, septic shock was significantly prevented, and animals were rescued from an otherwise likely death, using a simple, natural, oral treatment. The secret to their success was the sharp drop in HMGB1 levels induced by both EGCG and mung bean seed coat extract.

How does all this relate to you? Most of us will, mercifully, never have to deal with sepsis or the out-of-control inflammation that it can produce. The combination of EGCG and mung bean seed coat that contain such potent HMGB1-suppressing activity means that we can all benefit from reduced levels of total-body chronic inflammation.

Chronic inflammation has recently been shown to reduce the length of telomeres, the “living fuses” in our chromosomes that shorten with age. Thus, reduced chronic inflammation might translate to a longer and
healthier life. This is a very literal demonstration of how chronic inflammation acts as an aging accelerator, fueled by excessively high HMGB1 levels. Mung bean seed coat extract and EGCG might help you to literally slow down your aging processes and prolong your life.

Summary

Chronic inflammation accelerates aging, producing symptoms that we recognize as diseases that cause early death. Scientists have now discovered the accelerator switch, in the form of HMGB1, the molecule that triggers the release of inflammatory cytokines under a wide variety of circumstances.

Anti-HMGB1 therapies, therefore, are avidly sought-after by big pharma companies. While producing dramatic results in the laboratory, however, no anti-HMGB1 drug is anywhere near market-ready because treatments to date use large antibody molecules that can’t be given orally and that have unacceptable side effects.

But mung beans and green tea, in use for thousands of years in traditional Chinese medicine, contain safe, powerful HMGB1-fighting substances. Extracts of mung bean seed coat and EGCG from green tea leaf extract can be given orally, and in preclinical studies have proven to be highly effective at shutting down HMGB1-induced inflammation in a life-saving fashion.

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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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.

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

References

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

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

CYTOKINE SUPPRESS™
with EGCG

For Balanced Inflammation Control

Inflammation is a natural process that affects every cell and organ in the body. As we age, maintaining a balanced inflammatory response becomes increasingly critical to guarding our whole-body health.1-3

Fortunately, there’s something we can do every day to support this process at a deep molecular level.

Cytokine Suppress™ with EGCG provides two natural food ingredients—long used in traditional Asian cuisine and medicine—that have the ability to promote a healthy inflammatory immune response.4-6

Key constituents found in mung beans and green tea support the natural process of the immune system’s inflammatory activity. This potent benefit is delivered by the novel flavonoids and other molecules found primarily in the seed coat of the mung bean,4,7 and the compound EGCG (epigallocatechin-3-gallate), the major beneficial component in green tea.5

Acting together, these mung bean and green tea compounds help regulate levels, among those within the normal range, of a protein molecule known as HMGB1.4-6 This molecule is responsible for controlling the signaling compounds known as cytokines that generate inflammation.8,9

Also, mung bean seed coat extract has been shown to support the body’s natural antioxidant defense system.7

The result of this beneficial modulatory support is a healthy and balanced inflammatory response—which is particularly important as we age.

Life Extension® Cytokine Suppress™ with EGCG supports healthy inflammatory levels.4-6,8,9

The suggested daily dosage of one vegetarian capsule of Life Extension® Cytokine Suppress™ with EGCG provides:

<table>
<thead>
<tr>
<th>Cytokine Suppress™ mung bean extract (coat)</th>
<th>240 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>(providing 24 mg vitexin, 24 mg isovitexin)</td>
<td></td>
</tr>
<tr>
<td>Epigallocatechin gallate (EGCG)</td>
<td>300 mg</td>
</tr>
<tr>
<td>(from green tea extract (leaf))</td>
<td></td>
</tr>
</tbody>
</table>

A bottle of 30 vegetarian capsules of Life Extension® Cytokine Suppress™ with EGCG retails for $30. If a member buys four bottles during Super Sale, the price is reduced to $18.23 per bottle.

To order Life Extension® Cytokine Suppress™ with EGCG, call 1-800-544-4440 or visit www.LifeExtension.com

References:

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.
### Discount Prices For Premium-Quality Products

Life Extension® members are longevity enthusiasts who take extraordinary steps to stave off disease, aging, and death. When members buy products from the Life Extension Foundation Buyers Club, they are assured of receiving the highest quality products based on the latest scientific studies that demonstrate benefits.

The discounts available to Foundation members enable them to purchase premium-quality supplements at prices below those charged by commercial companies. Here are some examples of savings members enjoy during the annual **Super Sale**:

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Our Low Retail Price</th>
<th>SUPER SALE Member-Volume Discount Price Per Bottle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Super Omega-3 EPA/DHA with Sesame Lignans &amp; Olive Fruit Extract</strong></td>
<td>$32</td>
<td>$16.81 (ten-bottle purchase)</td>
</tr>
<tr>
<td>120 softgels, Item # 01482</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Super purified EPA/DHA fish oil plus sesame lignans and potent olive (fruit and leaf) extract to provide critical omega-3 fatty acids and essential components of the Mediterranean diet.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™</strong></td>
<td>$62</td>
<td>$35.10 (ten-bottle purchase)</td>
</tr>
<tr>
<td>100 mg, 60 softgels, Item # 01426</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The superior ubiquinol form of CoQ10 plus a natural compound (shilajit) shown to double mitochondrial CoQ10 levels.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Life Extension Mix™ • 315 tablets, Item # 01855</strong></td>
<td>$98</td>
<td>$46.91 (ten-bottle purchase)</td>
</tr>
<tr>
<td>High-potency multi-nutrient formula now with the bioactive methylcobalamin form of B-12 and Wild Maqui extract to provide a boost of powerful delphinidin anthocyanins.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vitamin D3 • 5,000 IU, 60 softgels, Item # 01713</strong></td>
<td>$11</td>
<td>$6.68 (four-bottle purchase)</td>
</tr>
<tr>
<td>High-potency vitamin D in a softgel to provide greater absorption into the bloodstream.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ultra Natural Prostate</strong></td>
<td>$38</td>
<td>$21.60 (twelve-bottle purchase)</td>
</tr>
<tr>
<td>60 softgels, Item # 01895</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensive support for an aging prostate gland utilizing botanical extracts plus boron and now with ThymoQ™ Phospholipid Complex for enhanced absorption.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Super Zeaxanthin with Lutein, Meso-Zeaxanthin, and C3G</strong></td>
<td>$22</td>
<td>$13.37 (four-bottle purchase)</td>
</tr>
<tr>
<td>60 softgels, Item # 01685</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supports night vision and macular density.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Super K with Advanced K2 Complex • 90 softgels, Item # 01724</strong></td>
<td>$30</td>
<td>$18.23 (four-bottle purchase)</td>
</tr>
<tr>
<td>More potent formula includes 200 mcg of long-acting MK-7 form of vitamin K2 plus 1,000 mcg of K1 and 1,000 mcg of the MK-4 form of vitamin K2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PQQ Caps with BioPQQ® • 10 mg, 30 vegetarian capsules, Item # 01500</strong></td>
<td>$24</td>
<td>$14.85 (four-bottle purchase)</td>
</tr>
<tr>
<td>Promotes mitochondrial biogenesis (generation of new mitochondria) in aging cells.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DHEA (Dehydroepiandrosterone) • 25 mg, 100 capsules, Item # 00335</strong></td>
<td>$18</td>
<td>$10.13 (four-bottle purchase)</td>
</tr>
<tr>
<td>A hormone that declines with aging, benefits overall health.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mitochondrial Energy Optimizer with BioPQQ® • 120 capsules, Item # 01768</strong></td>
<td>$94</td>
<td>$56.70 (four-bottle purchase)</td>
</tr>
<tr>
<td>To maintain healthy cellular function, protein structural integrity, and mitochondrial biogenesis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Super Bio-Curcumin® • 400 mg, 60 vegetarian capsules, Item # 00407</strong></td>
<td>$38</td>
<td>$23.63 (four-bottle purchase)</td>
</tr>
<tr>
<td>Super-absorbable formulation promotes healthy lipids, joint function, and healthy DNA. Absorbs up to seven times greater than conventional curcumin.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CoffeeGenic® Weight Management™ with Green Coffee Extract</strong></td>
<td>$48</td>
<td>$28.35 (four-bottle purchase)</td>
</tr>
<tr>
<td>90 capsules, Item # 01707</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green Coffee Extract (350 mg) plus irvingia, chromium, and green tea extract.*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Optimized Resveratrol with Synergistic Grape-Berry Actives</strong></td>
<td>$46</td>
<td>$27.90 (four-bottle purchase)</td>
</tr>
<tr>
<td>250 mg, 60 vegetarian capsules, Item # 01430</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High potency trans-resveratrol with quercetin, plus trans-pterostilbene and fisetin to support DNA “longevity genes.” One per day resveratrol formula.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Product Description</th>
<th>Quantity</th>
<th>Item #</th>
<th>Retail Price</th>
<th>Member-Volume Discount Price Per Bottle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bone Restore with Vitamin K2 • 120 capsules, Item # 01727</td>
<td></td>
<td></td>
<td>$24</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Highly absorbable forms of calcium plus FruiteX® OsteoBoron®, magnesium, zinc and K2. Available with or without vitamin K2.</td>
<td></td>
<td></td>
<td>$14.85</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Cognitex with Brain Shield™ and Pregnenolone • 90 softgels, Item # 01897</td>
<td></td>
<td></td>
<td>$62</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Optimal support for the brain. Includes gatrodin, alpha glyceryl-phosphoryl-choline, vinpocetine, phosphatidyserine, uridine 5'-monophosphate, and more. Available with or without pregnenolone.</td>
<td></td>
<td></td>
<td>$35.78</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Brain Shield™ 600 mg, 60 vegetarian capsules, Item # 01802</td>
<td></td>
<td></td>
<td>$33</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Gastrodin provides unparalleled, multi-factorial support for cognitive and circulatory brain function.</td>
<td></td>
<td></td>
<td>$20.25</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Reishi Extract Mushroom Complex • 60 vegetarian capsules, Item # 01708</td>
<td></td>
<td></td>
<td>$30</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Standardized mushroom extract to restore and regulate immune system function.</td>
<td></td>
<td></td>
<td>$18.23</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Triple Action Cruciferous Vegetable Extract 60 vegetarian capsules, Item # 01468</td>
<td></td>
<td></td>
<td>$24</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Comprehensive cruciferous plant extract formulation, with IBC, DIM, apigenin, and other DNA-protecting vegetable concentrates.</td>
<td></td>
<td></td>
<td>$14.85</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>European Milk Thistle • 60 softgels, Item # 01822</td>
<td></td>
<td></td>
<td>$28</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>High-absorption phospholipid-enhanced formula delivers nearly five times more active components to the bloodstream to support detoxification processes as well as promote liver health and function.</td>
<td></td>
<td></td>
<td>$16.88</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Super R-Lipoic Acid • 300 mg, 60 vegetarian capsules, Item # 01208</td>
<td></td>
<td></td>
<td>$49</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Superior efficacy compared to alpha-lipoic acid—supplies 240 mg of stabilized R-lipoic acid.</td>
<td></td>
<td></td>
<td>$30.38</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>ArthroMax® Advanced with UC-II® and AprèsFlex® • 60 capsules, Item # 01618</td>
<td></td>
<td></td>
<td>$36</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Promotes joint health and may promote comfortable joint structure and function.</td>
<td></td>
<td></td>
<td>$21.60</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>FlorAssist™ Probiotic Liquid Vegetarian Capsules 60 liquid vegetarian capsules, Item # 01806</td>
<td></td>
<td></td>
<td>$33</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Supports digestive health by utilizing a novel “capsule in a capsule” delivery system to provide 15 billion CFU of six clinically validated strains of beneficial bacteria to all areas of the digestive tract.</td>
<td></td>
<td></td>
<td>$20.25</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Advanced Bio-Curcumin® with Ginger and Tumerones • 60 softgels, Item # 01808</td>
<td></td>
<td></td>
<td>$30</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Triple action formula acting on multiple signaling pathways to deliver broad-spectrum protection against inflammation.</td>
<td></td>
<td></td>
<td>$18.23</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Natural Stress Relief • 30 vegetarian capsules, Item # 00987</td>
<td></td>
<td></td>
<td>$28</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>With lemon balm extract to help relieve stress and sleeplessness, and L-theanine to promote relaxation without drowsiness.</td>
<td></td>
<td></td>
<td>$16.20</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Gamma E Tocopherol with Sesame Lignans • 60 softgels, Item # 00759</td>
<td></td>
<td></td>
<td>$32</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Provides the critical gamma tocopherol form of vitamin E plus sesame lignans to enhance the free radical scavenging benefits of alpha and gamma tocopherols.</td>
<td></td>
<td></td>
<td>$19.58</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Cytokine Suppress™ with EGCG • 30 vegetarian capsules, Item # 01804</td>
<td></td>
<td></td>
<td>$30</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Combines mung bean seed coat and EGCG from green tea to modulate a healthy inflammatory response and support immune function.</td>
<td></td>
<td></td>
<td>$18.23</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Super Booster Softgels with Advanced K2 Complex • 60 softgels, Item # 01680</td>
<td></td>
<td></td>
<td>$42</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>A convenient once per day softgel that includes optimal potencies of gamma-tocopherol, sesame lignans, lycopene, lutein, ginkgo, chlorophyllin, and both forms of vitamin K2.</td>
<td></td>
<td></td>
<td>$25.65</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Neuro-Mag™ Magnesium L-Threonate • 90 vegetarian capsules Item # 01603</td>
<td></td>
<td></td>
<td>$40</td>
<td>(four-bottle purchase)</td>
</tr>
<tr>
<td>Optimal form of magnesium to protect synaptic density of neurons.</td>
<td></td>
<td></td>
<td>$24.30</td>
<td>(four-bottle purchase)</td>
</tr>
</tbody>
</table>

To order call toll-free 1-800-544-4440

Order online at www.LifeExtension.com/SuperSale

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

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The liver functions to cleanse our body of pollutants and internally-generated waste products like ammonia.\textsuperscript{1} It is the largest organ inside your body and has at least 500 life-sustaining functions.\textsuperscript{1}

Liver function declines with aging.\textsuperscript{2} Left unchecked, toxic overload can lead to conditions ranging from cirrhosis and hepatitis to non-alcoholic fatty liver disease and even cancer.\textsuperscript{3-6}

Optimal liver function is critical to all aspects of health.\textsuperscript{1} Maintaining robust liver capacity ensures our body will effectively rid itself of heavy metals, pollutants, and other toxins.\textsuperscript{1}

Milk thistle has been used to detoxify the liver and even help liver cells regenerate themselves for over 2,000 years.\textsuperscript{6,7} Studies confirm that milk thistle can protect liver function, prevent liver damage, and normalize elevated liver enzyme levels.\textsuperscript{8-10}

Scientists have discovered a novel way of delivering more of the active constituents in milk thistle to your liver—about ten times more—which as you’ll soon read is great news.\textsuperscript{11,12} This new delivery system also resulted in 5-fold greater concentrations of silybin in the bloodstream which is important because milk thistle extracts have potent systemic benefits.\textsuperscript{13}
Extracts from milk thistle (Silybum marianum) have been used for centuries for their preventive and curative properties for liver disease.\(^7,9\) Modern science has identified the specific components in milk thistle extracts responsible for these protective effects,\(^9\) one being silymarin.\(^{14,15}\)

Silymarin is a potent antioxidant and anti-inflammatory, which helps it fight the root causes of liver disease.\(^6,16-19\) Further research has identified a specific molecule, called silybin, as the most active component in silymarin.\(^9,20\)
**Why Our Livers Love Milk Thistle**

There are many different kinds of liver disease, each with its own set of causes, symptoms, and impact. But virtually all liver disorders come down to a few main causes, namely oxidative stress and inflammation that lead to liver cell damage and loss of function.3

While most of us take our liver for granted, this workhouse of the body labors tirelessly to rid the body of accumulated toxins. Fortunately, the liver is well-equipped to deal with those toxins, operating a diverse field of enzyme-driven detoxification systems to neutralize the majority of threats.2

But those systems operate at a high cost to the liver itself, generating massive amounts of free radicals that damage liver cell membranes and release inflammatory cytokines.21

Over time, all of those insults can damage your liver, impairing its ability to carry out its multiple detoxification tasks, and also its many other functions, such as producing bile to aid digestion, ridding the body of dangerous ammonia, making coagulation factors that help blood clot properly, manufacturing hormones, and a host of other physiological processes essential to life.

That is what makes prevention absolutely essential—and what makes milk thistle so vital to maintaining a healthy liver.

---

**Daily Protection For Your Liver**

Milk thistle works in various unique ways to protect your liver on a daily basis from the onslaught of toxic materials and oxidative stress. Here are just a few of the ways that milk thistle provides protection for one of your most valuable organs.

- Silymarin’s potent antioxidant properties help to prevent and even reverse the oxidation of fats in liver cell membranes that lead to inflammation and leakage of liver cell contents into the bloodstream.9,22,23 Silymarin boosts liver cells’ levels of natural antioxidant molecules such as glutathione, helping cells recover more quickly from oxidative stress.5,24

- Silymarin reduces liver inflammation by inhibiting enzymes, such as 5-LOX, COX, and NFkB, that produce inflammatory cytokines and other deleterious signaling molecules that contribute to liver damage.25,26 Even if liver damage has already occurred (as it has in most of us by middle age), silymarin has powerful regenerative properties, boosting liver cells’ ability to make new proteins and repair damage before it can spread.25

- Silymarin has been shown to prevent liver fibrosis, the first step in the last stage of advanced liver disease, by protecting normal liver structural cells and blocking them from turning into fibrous, muscle-like cells.27,28

- Silymarin has the ability to block “Phase-I” liver enzymes that can activate toxins we ingest.25 “Phase-I” liver enzymes convert certain compounds into oxidative substances that are difficult for the body to excrete.2 In the presence of silymarin, these dangerous molecules can be excreted harmlessly in urine.

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**Alcoholic Liver Disease**

Of all the substances that can damage your liver, one of the best-known is alcohol. While low-level consumption of alcohol (especially wine) has proven health benefits, larger amounts impose extreme oxidative stress on liver tissue.29 Ultimately, that leads to inflammatory changes and the release of cytokines that damage the liver and other tissues, which creates a vicious cycle and leads to still further oxidative stress.2,19,30 Animal studies have found that silymarin has the potential to reverse alcohol-induced liver damage.16,19
In animal studies, acute alcohol administration produced prominent accumulations of fat in liver cells, with small areas of dead tissue (necrosis), accompanied by a rise in liver enzymes in the blood (from leaking, dying cells). Alcohol also sharply lowers the liver’s content of glutathione (the main intracellular antioxidant), leaving cells vulnerable to further oxidant damage. In addition, excessive alcohol consumption markedly increases levels of the destructive cytokine TNF-alpha. Amazingly, when the animals were supplemented with silymarin, all of these adverse alcohol-induced changes were prevented.

A human study of 36 people with chronic alcoholic liver disease revealed similar findings. Patients took either silymarin or placebo every day for six months. At baseline, all patients had elevations of liver enzymes and other markers of liver damage in their blood; they also had biopsy-proven tissue damage. Following treatment, however, all of the markers of liver damage had normalized in the silymarin group, with minimal changes among placebo recipients. Repeated biopsies revealed improvement in the silymarin group, but no changes in the placebo patients. This study was a powerful demonstration of silymarin’s liver-protective activity, and its ability to improve liver function in alcoholic patients.

**Non-Alcoholic Fatty Liver Disease**

Non-alcoholic fatty liver disease (NAFLD) has rapidly become the most common cause of chronic liver disease in industrialized nations. The disease is a direct consequence of our high-fat, high-carbohydrate diets and our sedentary lifestyles.

Mainstream medicine has little to offer for those suffering from non-alcoholic fatty liver disease. Fortunately, silymarin holds out substantial promise. In fact, one study found that silybin was more effective than prescription rosiglitazone in certain areas of treatment.

Animal studies have shown that both silymarin and silybin reduce oxidation of liver cell membranes, reduce blood liver enzyme levels, and enhance production of protective adiponectin.

Human studies have also been very encouraging. Because non-alcoholic fatty liver disease is part of the metabolic syndrome, attempts have been made...
to treat it with insulin sensitizing drugs like metformin and pioglitazone, but with only modest success. In a 2012 study, researchers compared both drugs with silymarin (140 mg/day). All three treatments produced improvements in fasting blood sugar, lipid profiles, insulin levels, and insulin resistance, along with decreases in blood levels of liver enzymes. But the greatest decrease in the liver enzymes was seen in the silymarin group, indicating greater protection against liver damage.

As promising as silybin is on its own, the availability of silybin in combination with phosphatidylcholine has proven to be a major step forward in managing non-alcoholic fatty liver disease. One early study of patients with non-alcoholic fatty liver disease, with or without the complication of hepatitis C infection, showed significant reductions in plasma markers of liver fibrosis (the first step towards deadly non-alcoholic steatohepatitis known as NASH), and significant improvements in insulin resistance, using a combination of silybin, vitamin E, and phospholipids.

A more recent, larger trial of a unique combination of silybin with phosphatidylcholine and vitamin E demonstrated significant improvements in liver enzymes, insulin resistance, and the appearance of liver tissue on biopsy, none of which were seen in placebo recipients. In addition, body mass index was completely normalized in 15% of supplemented patients, compared with just 2% of controls. And in patients with hepatitis C infection, the supplement improved markers of liver fibrosis.

Increasing Milk Thistle Absorption

As beneficial as milk thistle is, there’s one thing keeping it from reaching its fullest potential: silybin, the star component of silymarin, does not dissolve well in water. That makes it have poor bioavailability, meaning it’s difficult for your body to absorb. But scientists have now developed a simple but effective technology to overcome silybin’s poor bioavailability. The solution is to mix the silybin with a nutrient called phosphatidylcholine.

Phosphatidylcholine is a major component of cell membranes; it can facilitate transport across the cells lining the intestines, making it an ideal “carrier molecule” for silybin. Scientists believe that the phosphatidylcholine molecularly bonds to the silybin molecule and wraps around it, ushering it through the membranes of cells in the intestinal tract.

The silybin-phosphatidylcholine complex is absorbed nearly 5 times better than silymarin alone, and its ultimate concentration to the liver, its target organ, is 10-fold greater than silymarin alone. In a study of rats exposed to various liver toxins (including dry-cleaning fluid, acetaminophen, and alcohol), silybin plus phosphatidylcholine protected against the telltale rise in plasma levels of liver enzymes (a marker of liver damage), while the same doses of either nutrient alone had no detectable effect.

A series of human trials has found that this complex also has better results than silymarin or silybin alone, lowering serum levels of liver enzymes and producing clinical improvement in studies of liver cirrhosis and hepatitis caused by alcohol, drugs, and viruses.
NOVEL METHOD BOOSTS MILK THISTLE LIVER CONCENTRATION 10-FOLD!

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Viral Hepatitis

Viral hepatitis is a catch-all phrase for infections by several very different viruses that affect the liver, causing liver damage and raising the risk for liver cancer—especially in the case of hepatitis B and C. Both hepatitis B and C can set up chronic, long-lived infection (chronic active hepatitis) that can progress to fibrosis and cirrhosis.38

Silymarin treatment in acute viral hepatitis can speed the normalization of liver enzymes in the blood, indicating a regression of active liver damage.39

A group of patients with chronic active hepatitis took 240 mg of silybin combined with phosphatidylcholine, or placebo, twice daily for 7 days.40 Supplemented patients had significant drops in all markers of liver damage, while control patients experienced no changes.

While effective against hepatitis-induced liver damage, oral silymarin produces no reduction in the number of virus particles infecting the body, but studies of silymarin given intravenously reveal a substantial antiviral effect in hepatitis C patients who have not responded to standard antiviral treatment.41

The characteristic yellowish skin of hepatitis victims is the result of high levels of bilirubin, a liver-produced substance normally excreted in stool. But patients receiving oral silymarin for hepatitis (regardless of which virus type) had earlier improvement in both skin coloration and clinical markers of liver damage compared to control patients.42

Cirrhosis

Milk thistle extracts have been shown to benefit cirrhosis, the end-stage result of liver damage. Cirrhosis can result from multiple causes, including alcoholic and non-alcoholic fatty liver disease, viral hepatitis, and many toxins.43 In other words, cirrhosis doesn’t represent a single diagnosis, but a largely preventable progression of the oxidation and inflammation produced by all those other causes.

Unfortunately, prevention has so far eluded most medical interventions. As a result, those with cirrhosis are faced with either a slow and uncomfortable death, or a liver transplant, which is costly, dangerous, and not available to everyone.
Fortunately, milk thistle extracts are showing considerable promise in this desperate situation. One early study found that in people with alcohol-induced cirrhosis, those taking silymarin survived longer than control subjects.\(^4\) A later study confirmed that finding, with 58% of silymarin-treated patients surviving longer than 4 years, compared with just 39% of the placebo group.\(^5\)

Even when liver disease has reached the stage of cirrhosis, silymarin treatment can normalize elevated liver enzymes in the blood, indicating that it has slowed the progression of liver damage.\(^6\) Proof of this comes from a study in an extremely challenging population: alcoholic diabetics with cirrhosis. In that group, silymarin treatment, \(600 \text{ mg/day}\), reduced markers of cell membrane oxidation and improved insulin resistance.\(^3\) In fact, silymarin recipients had less overproduction of their own insulin, and required less insulin by injection, compared with control patients.\(^3\) The early stages of type II diabetes are characterized by excess pancreatic secretion of insulin to suppress elevated glucose. As type II diabetes progresses, the pancreas loses its ability to produce enough insulin and some patients require insulin injections. A therapy that reduces the amount of insulin needed by injection, or its excess production in the pancreas is considered beneficial.

**Summary**

The seed extract of the common milk thistle, rich in silymarin and its active component, silybin, has now been thoroughly proven to mitigate and, in some cases, reverse liver damage. These compounds have efficacy in liver disease caused by alcohol, by diet and inactivity, by viruses, and by exogenous toxins. They can slow the deadly progression to cirrhosis, the end-stage of all liver diseases.

Researchers have found that when silybin is combined with phosphatidylcholine, the absorption and bioavailability of an oral dose of silybin is increased 10-fold.\(^11\) This breakthrough improves the delivery of the benefits of milk thistle extracts for liver health. "

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

**References**


Excess calorie consumption has become epidemic in the United States. The invariable result is more overweight Americans and a litany of associated health problems.

A crucial component of a longevity or weight loss program is reducing portion size and the quantity of ingested calories.

A natural supplement has been developed to help tame hunger and promote satiety so more people can adhere to lower-calorie diets.

The Body’s Appetite Hormones

Hunger and satiety are controlled by hormones. Advanced Natural Appetite Suppress contains a Italian Borlottto variety bean extract that helps support normal levels of the gut hormones that control appetite and satiety. The result is reduced desire for food and less food intake. The stomach hormone ghrelin produces feelings of hunger, while the hormones cholecystokinin (CCK), glucagon-like peptide-1 (GLP1), and peptide YY (PYY) produce feelings of food satisfaction and fullness. Advanced Natural Appetite Suppress provides a potent dose of a novel Italian Borlottto variety bean extract. Studies show this proprietary extract helps the body modulate levels of ghrelin and the satiety hormones CCK, GLP1, and PYY. This helps reduce food intake and supports normal, healthy levels of hunger and fullness. This extract also modulates alpha-amylase, the enzyme that converts dietary starch into simple sugars. This can affect the rate at which free sugars are absorbed from the digestive tract into the blood stream.

Remarkable Clinical Research

In a recent human trial in which all overweight participants avoided making intentional dietary or exercise changes, those taking this Italian Borlottto variety bean extract lost 9 pounds on average in 12 weeks — versus only one-third of a pound in those taking placebo! The supplemented subjects also lost 2.5 inches in waist size — a 4.2 times greater reduction than the placebo subjects. The supplemented participants had reduced appetite levels and increased satiety, and no significant side effects were reported. Advanced Natural Appetite Suppress contains the identical Italian Borlottto variety bean extract used in this study. The suggested twice daily dosage of one (1) vegetarian capsule of Advanced Natural Appetite Suppress provides:

European (Italian Borlottto variety) white kidney bean extract 200 mg

A bottle of 60 vegetarian capsules of the new Advanced Natural Appetite Suppress retails for $38. If a member buys four bottles during Super Sale, the price is reduced to $22.95 per bottle.

Beanblock® is a registered trademark of Indena S.p.A.

References


To order Advanced Natural Appetite Suppress, 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.
Milk thistle extract is one of nature’s most potent weapons to support liver health. Until recently, however, the technology hasn’t been available to fully harness this plant’s full benefits.

The problem has been that the star component of milk thistle, called silybin, does not dissolve well in water. This makes it difficult for your body to absorb all of it.

Scientists have developed a novel technology to overcome silybin’s poor bioavailability. The solution is to mix silybin with a nutrient called phosphatidylcholine. Phosphatidylcholine facilitates transport across the intestinal lining into the bloodstream, making it an ideal “carrier molecule” for silybin. Scientists believe that phosphatidylcholine molecularly bonds to silybin, ushering it through the membranes of cells in the intestinal tract.

This new silybin-phosphatidylcholine complex is absorbed nearly 5 times better than silymarin alone, and its concentration in the liver, its target organ, is 10-fold greater than silymarin alone.

The suggested twice daily dosage of one softgel provides:

Milk Thistle Phospholipid Proprietary Blend 760 mg
Milk Thistle Extract (seed) [std. to 80% silymarin (480 mg), 30% Silybin (180 mg), and 8% Isosilybin A and Isosilybin B (48 mg)], Phospholipids

SILIPHOS® Phytosome Milk Thistle Extract (seed) 160 mg [std to 29.7% silybin (47.52 mg)]

A bottle containing 60 softgels of the new absorption-enhanced Milk Thistle retails for $28. If a member buys four bottles during Super Sale, the cost is reduced to only $16.88 per bottle—a savings of nearly one third!

This novel Milk Thistle extract with phosphatidylcholine contains standardized concentrations of silybin and isosilybin A and B not found in other milk thistle extracts! Compare the price of Milk Thistle to commercial silymarin supplements, and members will see that this new formula is available at one of the lowest costs per milligram.

Contains soybeans.

SILIPHOS® is a registered trademark of Indena S.p.A., Italy.

To order European Milk Thistle with Advanced Phospholipid Delivery call 1-800-544-4440 or visit www.LifeExtension.com

Reference
“Health Benefits of the Mediterranean Diet”
Sailing Roundtrip from Venice to the Greek Isles
Aboard the Norwegian Jade
June 7 - 14, 2014

Come cruise with noted Cardiologist and author Michael Ozner, M.D. as he discusses the keys to achieving optimal health and ideal body weight with the Mediterranean Diet & Lifestyle.

You Will Learn Firsthand:
- The keys to optimal health and longevity
- How to achieve ideal body weight
- Heart-healthy Mediterranean cuisine with live cooking demonstrations

This cruise offers you an affordable 7 days of fun and a chance to spend face-to-face time with one of America’s leading authorities on the Mediterranean diet and heart disease prevention.

<table>
<thead>
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<th>Date</th>
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<th>Depart</th>
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Cruise Prices Starting At:
- Interior $1,199
- Balcony $1,699
- Oceanview $1,399
- Mini-Suite $1,899

Rates are per person based on double occupancy and subject to availability. Port charges, taxes, & gratuities included.

INCLUDED:
- An autographed copy of Dr. Ozner’s book The Complete Mediterranean Diet
- Welcome and Farewell Receptions
- Mediterranean cooking demonstrations
- All meeting related lectures and activities

8 AMA PRA Category 1 Credits™ - are available for medical professionals

Disclaimer: This activity is for informational purposes only and is not intended to serve as a substitute for professional medical advice. You should always discuss all medical information and recommendations with your personal treating physician.

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For More Information Contact:
Jodi Murphy, Managing Member
Cruise and Travel Partners
P: (610) 399-4501
E: cruiseandtravelpartners@comcast.net
www.cruiseandtravelpartners.com

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Cruise and Travel Partners, LLC is a California Seller of Travel Registration No. 2107023-40
The Mighty Mung Bean

The expression “good things come in small packages” certainly holds true for mung beans. With its dense phenol content and broad array of nutrients, the mung bean forges an impressive defense against several chronic, age-related diseases including cardiovascular disease, diabetes, cancer, and obesity.

Mung Bean’s Tale

Archeological evidence suggests that mung beans (Vigna radiata) were domesticated in India as early as 1500 BC before spreading throughout Asia and finally to the United States. Their medicinal properties, such as protection against heatstroke, and high nutritional content have been valued for centuries. These tiny, oval-shaped beans are available in several forms, with the peeled spilt version popular in Indian dishes, and the processed version of bean sprouts and starch noodles more common in Asian cuisine. Although mung beans have been cultivated in America since the 1830s, 75% of the 15-20 million pounds of mung beans consumed in the US each year are imported.
Combating Heart Disease

Oxidized LDL cholesterol is one of the most powerful predictors of future cardiovascular events. It accumulates within the endothelium (inner lining of blood vessels) and triggers a series of inflammatory events that result in the formation of foam cells, a key factor in the early development of arterial plaque. In a study published in the journal *Human and Experimental Toxicology*, scientists discovered that mung beans are highly effective at inhibiting LDL oxidation due to their potent free-radical scavenging properties.

The versatile mung bean has also been shown to target another significant cardiovascular disease risk factor in high blood pressure. Hypertensive rats supplemented with mung bean sprout extracts for one month experienced significant reductions in systolic blood pressure. This antihypertensive effect might be related to mung bean's high concentration of protein fragments known as peptides, which act to reduce the activity of angiotensin-converting enzyme (ACE) that constricts blood vessels and raises blood pressure.

Magnesium deficiency is widespread among Americans, with an estimated nearly seven out of 10 adults consuming less than the recommended daily allowance (RDA). This is alarming data since a recent study involving more than 58,000 men and women aged 40-79 revealed that those with the lowest intakes of dietary magnesium had a 51% increased risk of heart disease mortality, compared to those with the highest intakes. Replacing processed foods with magnesium-rich ones like mung beans is a simple strategy for improving your magnesium status and averting cardiovascular and other health consequences.

Controlling Diabetes

Low-glycemic index foods are ideal for people with type II diabetes, since they cause a small, slow rise in postprandial (after-meal) blood glucose levels. This prevents dangerous rapid spikes in blood sugar and insulin that impair vascular health and increase cardiovascular disease. When human volunteers ate a 50-gram portion of low-glycemic beans like mung beans, they exhibited a 45% lower glucose response than when they ate an equivalent amount of other carbohydrate foods, such as grains, breads, pasta, and breakfast cereals. Other research shows that adding beans to a meal with a high-glycemic food lowered overall postprandial glucose response in individuals with type II diabetes.

In a study reported in the *Journal of Agricultural and Food Chemistry*, type II diabetic mice supplemented with mung bean extract daily for five weeks resulted in significant reductions in blood glucose levels and plasma C-peptide, an indicator of insulin release, thereby producing measurable improvements in glucose metabolism and insulin sensitivity. Researchers also noted that elevated triglycerides, a common lipid abnormality among type II diabetics, were also significantly decreased.

Advanced glycation endproducts (AGEs) form as the result of the chemical reaction between glucose and proteins in the body. These dysfunctional molecules damage tissue in the kidneys and retina, which accelerates the diabetic complications of kidney dysfunction and blindness. When Chinese researchers analyzed the AGE inhibition activity of sixteen legumes, mung beans ranked second only to the common bean. This positive effect is believed to be attributed to their two main constituents, vitexin and isovitexin.
A recent study reported in the journal *BMC Complementary and Alternative Medicine* showed that mung beans suppress the growth of human liver and highly aggressive cervical cancer lines through multiple mechanisms, including cytotoxicity, inducing anti-cancer cytokines, halting cancer cell cycle, and triggering apoptosis (programmed cell death).\(^{15}\)

These beneficial modes of action might be responsible for mung bean’s protection against other cancers as well. Korean researchers compared dietary factors in 213 stomach cancer patients with an equal number of controls. Those who consumed a modest amount of mung bean pancakes daily exhibited a lower risk of stomach cancer.\(^{16}\)

Harvard School of Public Health researchers studied the relationship between phenolic-rich foods and the risk of breast cancer, one of the most commonly diagnosed cancers among American women.\(^{17}\) They reported that consuming beans like mung beans at least twice per week slashed breast cancer risk by \(24\%\).\(^{17}\)

Mung beans contain a high amount of insoluble fiber and resistant starch, which undergo bacterial fermentation in the large intestine to produce butyrate. This short-chain fatty acid provides substantial protection against colon cancer by inhibiting DNA damage and cutting off the blood supply tumors require for growth.\(^{18}\) In one study, daily bean intake was associated with an up to \(42\%\) reduction in colon cancer risk after researchers adjusted for several potential confounding factors including age and gender.\(^{19}\)

The one-two punch of fiber and protein makes mung beans one of the most effective dietary foods to combat obesity and enhance weight loss. In a study published in the *Journal of Nutrition*, researchers observed that a single test meal with high-fiber beans produced a **two-fold** greater increase in the satiety hormone *cholecystokinin* (CCK), compared to a control test meal without beans.\(^{20}\)

To investigate whether this short-term satiety effect translates into reduced food intake and weight loss in the long-term, scientists conducted a randomized controlled trial in 173 obese men and women. Subjects were assigned to a high-fiber, bean-rich diet containing **1.5 cups** of beans daily or a low-carbohydrate diet for 16 weeks. Both groups did not
restrict calories intentionally. At the end of the intervention period, the bean group decreased its body weight by over 9 pounds on average, results that were similar to the low-carbohydrate diet group.

Summary

Substituting processed foods with mung beans fits the bill perfectly for filling in the nutritional gaps of the standard American diet, while substantially decreasing the risk for age-related diseases including cardiovascular disease, cancer, diabetes, and obesity.

References

Stimulant-Free Natural Energy

ASIAN ENERGY BOOST

Most people rely on stimulants, particularly caffeine, to boost sagging energy levels during the day.1 The result is often a roller coaster of intense energy followed by deep lulls that can lead to further exhaustion. But there is a better way. For sustained vigor, the secret is to boost the body’s own energy source, ATP (adenosine triphosphate).

**Asian Energy Boost** is specifically designed to provide all-natural support for cellular and physical energy levels to help you stay alert without negative effects, such as crashing or uncomfortable jitters.

**Support for Energy Homeostasis**

Your body’s natural mechanism of homeostasis maintains normal balance during daily challenges, helping you remain energized and focused—when properly supported. Ongoing stress, however, means your body seldom gets time to restore your natural equilibrium.

For individuals seeking optimum homeostasis and sustainable energy, **Asian Energy Boost** combines the potent Asian mushroom **Cordyceps sinensis** and a specially fermented form of the **Panax ginseng** root. Combined, they deliver potent energy support.

**Cordyceps sinensis**

One of the most valued medicinal mushrooms in China, **Cordyceps sinensis** has been revered traditionally for its multiple benefits, including support for energy and endurance.2,3 Studies show that the Cordyceps in **Asian Energy Boost** supports energy levels by promoting healthy levels of ATP4—*the energy currency used throughout the body.*

**Cordyceps** also supports healthy insulin sensitivity in those already within normal range,5 allowing your cells to efficiently take up sugar from your blood to enable stable energy output.

In one study, healthy adults age 50–75 took **333 milligrams** of Cordyceps extract **three times daily** for 12 weeks. These study subjects were able to perform a stationary bicycle exercise at maximal levels for over **10% longer** before muscle fatigue could be scientifically detected.6

**Panax ginseng**

**Panax ginseng** is an important adaptogenic herb that can improve our ability to manage stress.6,7 Recognized as one of the most beneficial ginsengs available, it is the species traditionally used in China and Asia. For enhanced potency, **Asian Energy Boost** uses **Panax ginseng** that has been naturally fermented, a process shown to increase absorption of the active compound—Compound K (Ginsenosides metabolite)—by over 15-fold.10

Evidence indicates that ginseng supports ATP production in the mitochondria.11,12 Studies have shown that this extract promotes both physical and mental energy, including cognitive performance.13–18

**Complementary Effects**

The Cordyceps and fermented **Panax ginseng** in **Asian Energy Boost** work in a complementary fashion to help maintain ATP levels and your body’s energy stores.

**Cordyceps** extract supports ATP production when oxygen availability is insufficient.3 **Panax ginseng** supports ATP production at the much higher levels possible when more sufficient oxygen is available—such as a challenging but prolonged task.19

The suggested daily dosage of three vegetarian capsules of **Asian Energy Boost** provides:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Dosage</th>
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<tbody>
<tr>
<td>Cordyceps (Paecilomyces hepiali) extract (mycelia)</td>
<td>1,000 mg</td>
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<td>(providing 70 mg cordycepic acid)</td>
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</tr>
<tr>
<td>GS15–4™ Fermented Asian ginseng extract (root)</td>
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A bottle of 90 vegetarian capsules of **Life Extension® Asian Energy Boost** retails for $24. If a member buys four bottles during **Super Sale**, the price is reduced to **$14.85** per bottle. Contains soybeans.

**References**

A Delicious Asian-Style Soup Rich in Vital Plant Nutrients

Mung Bean Soup with Turmeric

INTRODUCING Rich Rewards™

A Delicious Asian-Style Soup Rich in Vital Plant Nutrients
If you’re looking for a different food to try, you’ll be delighted with our Mung Bean Soup with Turmeric. The mung beans have a chewy texture and unique taste that will make you feel you’re eating something new for the first time.

The mung bean, a legume used since ancient times, is considered in Traditional Chinese Medicine to be a “cooling food” and is a favorite among many Asian cultures.*

This new healthy food choice soup contains green mung beans, turmeric, ginger, coriander, olive oil, and lemon juice. It’s a refreshing, non-tomato based soup suitable for vegans.

**No High-Glycemic Carbs**

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 such as corn, sugar, and sometimes omega-6 fats (such as cottonseed oil). So for less than $2, you get a relatively high-carb-calorie soup that provides virtually no health benefits.

**Rich Rewards™ soups contain only healthy ingredients without the cheap starches.**

**Rich Taste—Low Calories**

Each serving of Rich Rewards™ Mung Bean Soup with Turmeric contains only 130 calories. It is an excellent source of fiber and provides 6 grams of protein. You can consume the entire contents or use a smaller portion of the soup as part of a meal for you (or several people).

The entire container provides about 3.5 servings of mung beans, turmeric, and other ingredients—with none of the glucose-spiking fillers found in commercial soups.

**Rich Rewards™ Mung Bean Soup with Turmeric** is packaged in a re-closable bottle free of BPA. While the FDA says the BPA lining in most cans is safe, we at Life Extension have always used BPA-free containers for our soups.

The retail price for a 3.5 serving bottle of Rich Rewards™ Mung Bean Soup with Turmeric is $13. During Super Sale the member price is $8.78.


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**Nutrition Facts**

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<tr>
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<tbody>
<tr>
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<tr>
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<tr>
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<td>Protein</td>
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<td>Vitamin C</td>
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<tr>
<td>Calcium</td>
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*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

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<td>Sodium</td>
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<tr>
<td>Dietary Fiber</td>
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**Ingredients:** Water, Green Mung Beans, Lemon Juice, Olive Oil, Ginger, Coriander, Turmeric, Citric Acid, Salt, Garlic, Bay Leaf.

---

**Mung Bean Soup with Turmeric**

**One Smart Bowl of Soup**

A delicious vegetarian soup suitable for vegans.

---

To order your fresh supply of Rich Rewards™ Mung Bean Soup with Turmeric, call 1-800-544-4440 or visit www.lef.org/soup.
While people use probiotics for intestinal health, compelling new evidence indicates that they have a broad-spectrum of health benefits.1,6 Scientists are finding that having the proper balance of good-to-bad bacteria can wreak havoc throughout the body.7-11 FlorAssist™ offers a new way to help maintain the proper balance of intestinal flora.

Why Don't Probiotics Always Work?
One of the complications many commercial probiotics face is their inability to overcome hurdles in the digestive tract before hitting their target area—an aspect that can greatly limit their beneficial effects.12 FlorAssist™ Probiotic Liquid Vegetarian Capsules utilize a "dual encapsulation" technology to combat the shortcomings of many commercial probiotics, delivering unprecedented amounts of live bacterial colonies to where your body needs them.

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

Choosing the Right Probiotic for You
While many supplements provide just one type of bacteria, taking a probiotic with multiple varieties of good bacteria can help better fight off bad bacteria.13

FlorAssist™ Probiotic Liquid Vegetarian Capsules provides a proprietary blend of six bacterial strains! Each FlorAssist™ dual capsule contains 15 Billion CFU (Colony Forming Units)† consisting of:
- Lactobacillus acidophilus LA-14
- Bifidobacterium lactis BL-04
- Lactobacillus paracasei LPC-37
- Lactobacillus rhamnosus LR-32
- Bifidobacterium bifidum/lactis BB-02
- Bifidobacterium longum BL-05

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

The retail price for a bottle containing 30 capsules of FlorAssist™ Probiotic Liquid Vegetarian Capsules is $33. If a member buys four bottles during Super Sale, the price is reduced to just $20.25 per bottle.

†Colony Forming Units.

References

To order FlorAssist™ Probiotic Liquid Vegetarian Capsules, 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.
Behind mainstream topical creams is a faceless corporation that mixes together ingredients with varying degrees of efficacy and potency. While most consumers pay exorbitant fees for anti-aging face creams, Life Extension readers have been kept abreast of the newest formulations by one of the most respected names in the nutrition and skin-care business, Carmen Fusco.

Fusco is a research scientist with a Master of Science from New York Medical College. Along with that, she has an extensive list of credits in the academic world, including having spent time as a faculty member at both Syracuse University and Cornell University as an instructor in pharmacology. She is also a member of the Clinical Nutrition Research Unit sponsored by the Strang Cancer Prevention Center, Weil Medical College of Cornell, Rockefeller University, and New York Medical College. As an Associate Professor of Nutrition at New York Medical College, she also taught third-year medical students how to read blood tests for health, not just disease. But if you’ve been reading Life Extension magazine, you know her best as the scientist behind the highly-acclaimed Rejuvenex® line of skin products, the first of which was created over 30 years ago.
Revolutionizing Skin Care

“I began working in nutritional medicine with Dr. Benjamin Frank, who was a pioneer of RNA and RNA cream,” Fusco says. “When we first put RNA on the skin, it was very drying. I wanted to add the natural moisturizing factor. I was the first person to include an alpha hydroxy lactic acid in a skin cream, which has now become standard in countless skin care products. At the time, I was motivated by many of the patients in my nutritional practice who were always telling me that if they looked good, they felt good. When I see patients, I give them a program for life. In particular, Rejuvenex® Factor serum improves the health of our most visible organ, the skin. I have seen thousands of patients since the first cream came out and it is true, part of feeling good is looking good!”

In the beginning, Rejuvenex® was an RNA-based cream with a few additional ingredients and natural moisturizers like Sodium PCA. And this is where Fusco separates herself from the pack of most commercial companies that develop a product and then pump out the same formula forever. Despite the success of Fusco’s first iteration of Rejuvenex®, which was a tremendous hit with Life Extension members, she immediately began thinking about ways to upgrade it.

But this isn’t the story of a formulator simply pouring over medical journals and then ordering ingredients from a factory to mix into her creams without knowing how it would come out. That’s not how she does things. Fusco, who prides herself on going the distance for her clients and her products, took a completely hands-on approach, even going so far as picking Ginkgo leaves in Central Park, near her home, and then experimenting with them herself to see how much she could stimulate cell renewal.

“I work directly with my chemists and have tested every single batch of Rejuvenex®, “ she explains. “That’s my philosophy. I like my products to deliver and also have side benefits, rather than side effects.”

From that first formula to today, Fusco has experimented with a plethora of ingredients, many of which, even though she was the first to use them, have been widely copied by international skin-care corporations. For instance, while much of the anti-aging skin care world was promoting a vitamin A analog called Retin-A that showed an ability to reverse photoaging, Fusco had already been using a natural version of the vitamin, called retinyl palmitate in Rejuvenex®, which has similar cell renewal properties. She was also on the forefront of blocking harmful UV rays long before cosmetic companies had recognized their danger, which led her to include vitamins C and E in her formulations to quench skin-damaging free radicals.

Today’s Rejuvenex® Factor serum contains over two dozen ingredients, with some of the most recent additions being taurine, which helps neutralize free radicals and inhibit premature aging of the skin, and modified hyaluronic acid, which holds more moisture in skin cells and helps target free radicals.

“As the product has evolved, I have continued to incorporate every item and test them myself,” Fusco says. “One of my proudest moments was when Rejuvenex® was exhibited at the Johns Hopkins Medicine event called ‘A Woman’s Journey.’ The exhibit was named

'Carmen Fusco’s Supplement List'

- Melatonin
- Multivitamin/Mineral antioxidant formula (in divided doses)
- CoQ10
- Acetyl L-Carnitine
- R-Lipoic Acid
- Evening Primrose Oil as a source of GLA
- Magnesium Aspartate

Beyond Rejuvenex®

Celebrity praise is nothing new for Fusco, who has seen film icon Tom Cruise, legendary comedian Rodney Dangerfield, and baseball Hall of Famer Whitey Ford as clients. But whether you’re a household name or simply someone looking to improve their health, in her practice, Fusco suggests nutrition and supplement strategies that she herself lives by.
“When I see clients I request full blood tests for health, not just for disease,” she says. “I have spent a lot of time studying the circadian rhythm and I recommend that all of my clients eat according to the body clock in order to produce the optimum amount of serotonin from tryptophan for sleeping and to provide the adequate amount of sleep to recover from the stresses of the day.”

Every morning Fusco starts her day with some fresh fruit (no juices) to restore the glycogen used up during sleep, followed by protein, either plant protein or organic eggs for energy and alertness. She then follows that up with a lunch of two cups of vegetables and fish, like sardines, salmon, cod, or scrod. Occasionally, she’ll substitute turkey for the fish.

At night she likes to have a meal including some carbohydrates, because carbohydrates stimulate insulin to quickly remove amino acids from the bloodstream except tryptophan. Since tryptophan competes with other amino acids for absorption into the brain, by clearing the bloodstream other amino acids, tryptophan gets a free pass through the blood-brain barrier were it is converted to soothing serotonin. Serotonin provides the recovery period from daily stress, and as we age and our pineal gland atrophies, serotonin can be converted to melatonin for recovery sleep.

“I started seeing patients in 1976 and so many people who saw me were surprised at the foods that I’d recommend they eat,” Fusco says. “I’d say that you can have one cup of coffee in the morning, one glass of wine at night and one piece of dark chocolate, all of which are filled with antioxidants.”

In addition, she exercises on a regular basis for overall health to complement her diet.

“I play an hour of singles tennis against a pro two mornings a week so I can challenge myself and improve my strokes,” she says. “I don’t like chopping the ball or hammering it. I play on Tuesdays and Fridays and there is an indoor tennis court that I can use in the winter. You have got to exercise to decrease triglycerides and reduce stress hormones. For me, living and working in New York City along with the kind of stress I have, it takes more than recovery sleep, exercise, and supplements to combat stress. Listening to music helps promote the joy and beauty of relaxation so necessary to a healthy life.”

On the supplement front, she takes magnesium every night in addition to Life Extension’s melatonin. She takes a multivitamin, CoQ10, acetyl l-carnitine, and R-lipoic acid. Just like the side benefits she refers to in her face cream, the side benefits of the lifestyle Fusco recommends have given her boundless energy, which also proves the inverse of what she said early on, “when you feel good, you look good.” ●
Today's skincare revolution began in 1983 when a pioneering RNA-based cream known as Rejuvenex® moved out of its tightly controlled clinical setting and became available to the public.

The original formulation that launched numerous copycat products was developed by research scientist, university instructor of pharmacology, and nutrition consultant, Carmen Fusco.

For three decades, Fusco has continually updated Rejuvenex® to reflect the very latest anti-aging findings backed by extensive scientific research. Most commercial face creams, on the other hand, contain only a fraction of the ingredients shown to produce noticeable improvements in aging skin.

Carmen Fusco's latest Rejuvenex® Factor formulation comes in a serum format that ensures superior absorption of its total of 28 active, skin-enhancing compounds.

To get this entire network of synergistic skin protecting and rejuvenating compounds elsewhere, you'd need to layer on a dozen expensive creams—each providing only 2 or 3 of these active ingredients.

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, and more vibrant skin.
Rejuvenex® Factor Firming Serum Provides 28 Active Compounds

**Taurine**: Helps neutralize free radicals and inhibit premature aging of the skin.

**Salicylic acid**: Supports production of new skin cells.

**Ceramide-2**: Promotes the shedding of old skin cells and helps retain moisture.

**Thioctic acid (alpha lipoic acid)**: Supports the skin’s normal antioxidant protection.

**Lactic acid**: Helps the body shed dead skin cells.

**Vitamin C (ascorbyl phosphate)**: Helps strengthen the skin barrier and promote collagen production.

**Hylasome® EG10 (hyaluronate crosspolymer)**: Holds more moisture in skin cells and targets free radicals.

**Glycerin**: Minimizes the appearance of wrinkles by supporting elasticity and moisture retention.

**Avobenzone**: Helps protect the skin from the visible effects of sunlight exposure.

**Glycine soja (soybean) oil**: Promotes collagen production and skin elasticity and supports UV defense.

**Panthenol**: Potent support for skin’s normal moisturizing ability.

**DMAE (dimethylaminoethanol)**: Helps smoothe and firm skin.

**Botanimoist® AMS (Pyrus malus)**: Helps boost hydration of skin cells.

**Botanistat® PF-64**: Helps preserves serum against environmental toxins (avoiding the preservative paraben).

**Pomegranate (Punica granatum) extract**: Reduces visible signs of aging by promoting skin cell turnover.

**Green tea (Camellia sinensis) extract**: Provides antioxidant support to help inhibit signs of premature aging.

**White tea (Camellia sinensis) extract**: Protects the skin from visible signs of UV exposure.

**QuSome® delivery system**: Breakthrough delivery system delivers maximum active ingredients directly into the skin.

**Matrixyl® synthe’6™**: Helps minimize the appearance of fine lines and wrinkles.

**Vegetal Filling Spheres™**: Expand with moisture to allow plumping of wrinkles.

**PolyP (sodium polyphosphate)**: Supports production of collagen.

**Pichia-fermented Resveratrol extract**: Increases hydration, diminishing the appearance of lines.

**Tocopherol (vitamin E)**: Superior penetration helps reduce the appearance of fine lines and wrinkles.

**Tocopheryl acetate (vitamin E)**: Promotes skin repair and natural defenses against premature skin aging.

**Beta-glucan**: Supports collagen formation, defense against UV exposure, and healthy skin.

**RNA**: Promotes production and turnover of new skin cells.

**Sodium PCA**: Helps skin stay moisturized, soft, supple, and firm.

**Hydroxydecyl ubiquinone (CoQ10)**: Supports collagen and elastin for smoother, younger-looking skin.

Rejuvenex® Factor Firming Serum

**Serum vs Cream**—comes in a more concentrated serum format that is thinner than a cream and provides deeper penetration of its 28 skin-enhancing compounds.

**Airless Pump**—protects the integrity and potency of the bioactive ingredients.

**QuSome™ Technology**—utilizes a patented, deep-layer cellular delivery system that provides sustained release for 6 to 8 hours!

**All Natural**—uniquely free of paraben, irritants, estrogenic chemicals, mineral oil, and synthetic fragrances.

Save 60% During Super Sale

A 1.7 oz bottle of Rejuvenex® Factor Firming Serum retails for $65. If a member buys two bottles, the price is reduced to $38 a bottle. If six bottles are purchased during Super Sale, the price is only $26 a bottle, which represents a huge 60% discount off the retail price.

Six Rejuvenex® Factor Firming Serums will last most people an entire year! Members can thus obtain a 12-month supply of multi-ingredient Rejuvenex® Factor for less than they might pay for one single jar of cream in a department store.

To order Rejuvenex® Factor Firming Serum call 1-800-544-4440 or visit www.LifeExtension.com

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

**Five Easy Steps:**
1. Call 1-800-208-3444 to discuss and place your order with one of our knowledgeable health advisors. (This order form can also be faxed to 1-866-728-1050 or mailed). Online orders can also be placed at www.lifeextension.com.
2. After your order is placed, you will be mailed either a requisition form to take to your local LabCorp Patient Service Center or a Blood Draw Kit; whichever is applicable (Please note: If a blood draw kit is used, an additional local draw fee may be incurred.)
3. Have your blood drawn.
4. Your blood test results will be sent directly to you by Life Extension.
5. Take the opportunity to discuss the results with one of our knowledgeable health advisors by calling 1-800-226-2370; or review the results with your personal physician. It's that simple! Don't delay—call today!

**For Our Local Members:** For those residing in the Ft. Lauderdale, Florida area, blood-draws are also performed at the Life Extension Nutrition Center from 9:00 am to 2:00 pm Monday through Saturday. Simply purchase the blood test and have it drawn with no wait! Our address is 5990 North Federal Highway, Ft. Lauderdale, FL, 33308-2633.

**Blood Testing The Ultimate Information**

**MOST POPULAR PANELS**

**Life Extension Member Pricing**

<table>
<thead>
<tr>
<th>Panel Description</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>MALE LIFE EXTENSION PANEL (LC322582)</td>
<td>$269</td>
</tr>
<tr>
<td>Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: C-Reactive Protein, DHEA-S, TSH for thyroid function, Estradiol, Testosterone, Vitamin D 25-hydroxy, Hemoglobin A1c.</td>
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<tr>
<td>FEMALE LIFE EXTENSION PANEL (LC322535)</td>
<td>$269</td>
</tr>
<tr>
<td>Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: C-Reactive Protein, DHEA-S, TSH for thyroid function, Estradiol, Testosterone, Vitamin D 25-hydroxy, Hemoglobin A1c.</td>
<td></td>
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<tr>
<td>MALE WEIGHT LOSS PANEL (LCWLM)</td>
<td>$299</td>
</tr>
<tr>
<td>Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: C-Reactive Protein, DHEA-S, SHBG, Free Testosterone, Estradiol, Total Testosterone.</td>
<td></td>
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<tr>
<td>FEMALE WEIGHT LOSS PANEL (LCWLF)</td>
<td>$299</td>
</tr>
<tr>
<td>Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: C-Reactive Protein, DHEA-S, Insulin, SHBG, Testosterone, Estradiol, Total Testosterone.</td>
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<tr>
<td>MALE MUSCLE &amp; ALLERGY PANEL (LCADD)*</td>
<td>$155</td>
</tr>
<tr>
<td>Pregnenolone and Dihydrotestosterone (DHT) to provide an even more in-depth analysis of a man’s hormone status. Life Extension has created this panel as an addition to the Male Life Extension Panel. This panel provides valuable information about a testosterone metabolite that can affect the prostate, and the mother hormone that acts as a precursor to all other hormones.</td>
<td></td>
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<tr>
<td>FEMALE MUSCLE &amp; ALLERGY PANEL (LCADD)*</td>
<td>$125</td>
</tr>
<tr>
<td>Pregnenolone and Total Estrogens to provide an even more in-depth analysis of a woman’s hormone status. Life Extension has created this panel as an addition to the Female Life Extension Panel. This panel provides valuable information about total estrogen status, and the mother hormone that acts as a precursor to all other hormones.</td>
<td></td>
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<tr>
<td>LIFE EXTENSION THYROID PANEL (LC004131)</td>
<td>$75</td>
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<tr>
<td>TSH, T4, Free T3, Free T4.</td>
<td></td>
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<tr>
<td>FEMALE COMPREHENSIVE HORMONE PANEL* (LC100011)</td>
<td>$299</td>
</tr>
<tr>
<td>CBC/Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: DHEA-S, Estradiol, Total Testosterone, Progesterone, Estrone, Insulin, Hemoglobin A1c.</td>
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<tr>
<td>MALE COMPREHENSIVE HORMONE PANEL* (LC100010)</td>
<td>$299</td>
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<tr>
<td>CBC/Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: DHEA-S, Estradiol, Testosterone, Vitamin D 25-hydroxy, Hemoglobin A1c.</td>
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<tr>
<td>THE CBC/CHEMISTRY PROFILE (LC381822)</td>
<td>$35</td>
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<tr>
<td>(See description above), DHEA-S, Estradiol, Testosterone, Progesterone, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.</td>
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</tbody>
</table>

**Comprehensive Panel Add-Ons**

<table>
<thead>
<tr>
<th>Panel Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>COMPREHENSIVE THYROID PANEL (LC100018)</td>
<td>$199</td>
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<tr>
<td>TSH, T4, Free T4, Free T3, Reverse T3, TPO, ATA.</td>
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<tr>
<td>FOOD SAFE ALLERGY TEST** (LC073001)</td>
<td>$198</td>
</tr>
<tr>
<td>This test measures delayed (IgG) food allergies for 95 common foods.</td>
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</tr>
<tr>
<td>ADRENAL FUNCTION PANEL (LC100021)</td>
<td>$136</td>
</tr>
<tr>
<td>DHEA-S, AMP, Cortisol, Glucose, Insulin, Lipid Panel, RBC magnesium.</td>
<td></td>
</tr>
<tr>
<td>OMEGA SCORE™** (LCOMEGA)</td>
<td>$131.25</td>
</tr>
<tr>
<td>Provides valuable information on your risk of developing heart disease, sudden heart attack, and cardiac death. The Omega Score™ also includes your AA/EPA ratio, allowing you to determine and track a major factor in total body inflammation.</td>
<td></td>
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<tr>
<td>MITOCHONDRIAL FUNCTION PANEL* (LC100020)</td>
<td>$159</td>
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<tr>
<td>Carnitine (Free with Total), CoQ10, Glucose.</td>
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<tr>
<td>VAP™ TEST** (LC804500)</td>
<td>$90</td>
</tr>
<tr>
<td>The VAP™ cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid profile. Direct measurements, not estimations, are provided for total cholesterol, LDL, HDL, VLDL, and cholesterol subclasses.</td>
<td></td>
</tr>
</tbody>
</table>

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

** This test is packaged as a kit, requiring a finger stick performed at home.
This test is used to check the blood level of DHEA. This test normally costs $100 or more at commercial laboratories.

**Disability Panel** (LC100019)
- Glucose, Insulin, HbA1c, VAP™
- Cortisol, C-Reactive Protein

**Male Basic Hormone Panel** (LC100012)
- DHEA-S, Estradiol, Free and Total Testosterone, PSA

**Female Basic Hormone Panel** (LC100013)
- DHEA-S, Estradiol, Free and Total Testosterone, Progesterone

**Dihydrotestosterone (DHT)** (LC500142)
- Measures serum concentrations of DHT.

** Estradiol** (LC004515)
- For men and women. Determines the proper amount in the body.

**Insulin Fastiging** (LC004333)
- Can predict those at risk of diabetes, obesity, and heart and other diseases.

**Peptidone** (LC140707)
- Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing’s syndrome.

**Progesterone** (LC004317)
- Primarily for women. Determines the proper amount in the body.

**Sex Hormone Binding Globulin (SHBG)** (LC0082016)
- This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens.

**Bone Health**

- **Vitamin D (25OHD)** (LC081950)
- This test is used to rule out vitamin D deficiency as a cause of bone disease. It can also be used to identify hypercalcemia.

- **Osteocalcin** (LC100249)
- Osteocalcin is often used as a biochemical marker, or biomarker, for the bone formation process. It has been routinely observed that higher serum osteocalcin levels are relatively well correlated with bone diseases characterized by increased bone turnover, especially osteoporosis.

- **DPD Cross Link Urine Test** (LC511105)
- The deoxypyridinoline (DPD) urine test can be used to measure bone re-absorption rates in healthy individuals and in those with enhanced risk of developing metabolic bone diseases. Deoxypyridinoline can be used to monitor therapies (which may include bisphosphonate drugs) in people diagnosed with osteoporosis.
AMINO ACIDS
Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Branched Chain Amino Acids
D, L-Phenylalanine Capsules
Glycine Capsules
L-Arginine Capsules
Arginine/L-Ornithine Capsules
L-Carnitine Capsules
L-Carnitine Powder Natural Lemon Flavor
L-Glutathione, L-Cysteine & C
L-Glutamine Capsules
L-Glutamine Powder
L-Lysine Capsules
L-Tyrosine Tablets
Mega L-Glutathione Capsules
N-Acetyl-L-Cysteine Capsules
Optimized Carnitine with GlycoCarn®
PharmaGABA
Super Carnosine Capsules
Taurine Capsules

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

BRAIN HEALTH
Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Brain Shield™
CDP Choline Capsules
Cognitex® with Brain Shield™
Cognitex® with Pregnenolone & Brain Shield™
Cognitex® Basics
DMAE Bitartrate
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin Granules
Methycobalamin Lozenges
Migra-Mag with Brain Shield™
Neuro-Mag™ Magnesium L-Threonate
Optimized Ashwagandha Extract
Phosphatidylserine Capsules
Rhodiola Extract
Super Ginkgo Extract
Vinpocetine

DIGESTIVE
Bifido GL Balance
Carno-LOX w/PicroProtect
Digest RC™
Esophageal Guardian
Enhanced Super Digestive Enzymes
Extraordinary Enzymes
FlorAssist™
LACTOSOL™ Long Lasting Digestion
Life Flora™
Pancreatin
Regimint
Theralac® Probiotics

DURK AND SANDY PRODUCTS
Blast™
Inner Power™

EYE CARE
Bilberry Extract
Brite Eyes III
Eye Pressure Support with Mirtogenol®
Solarshield Sunglasses
Super Zeaxanthin with Lutein & Meso-Zeaxanthin Plus Astaxanthin and C3G

FIBER
AppleWise Polyphenol
Fiber Food
TruFiber®
WellBetx PXG® plus Mulberry

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

HAIR CARE
Dr. Proctor’s Advanced Hair Formula
Dr. Proctor’s Shampoo
Super-Absorbable Tocotrienols

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

HERBAL/PHYTO PRODUCTS
Artichoke Leaf Extract
Asian Energy Boost
Astraxanthin w/Phospholipids
Berry Complete
Blueberry Extract
Blueberry Extract w/Pomegranate
Butterbur Extract w/Standardized Rosmarinic Acid
Calcium D-Glucarate
Enhanced Berry Complete with Acai Full-Spectrum Pomegranate™
Grapeseed Extract with Resveratrol & Pterostilbene
Huperzine A
Kyolic® Garlic Formula 102 + 105
Kyolic® Reserve
Mega Green Tea Extract
Mega Green Tea Extract (Decaffeinated) (also w/CoffeeGenic® Green Coffee Extract)
Mega Lycopene Extract
Optimized Ashwagandha Extract
Optimized Garlic
Pomegranate Extract
Pomegranate Juice Concentrate
Pycnogenol

IMMUNE ENHANCEMENT
AHCC® (Active Hexose Correlated Compound)
Black Cumin Seed Oil
Black Cumin Seed Oil w/Bio-Curcumin®
Buttered Vitamin C Powder
Echinacea Extract
FlorAssist™ Probiotic
iZ6 Hyperimmune Egg
Immune Modulator w/Tinofend®
Immune Protect with PARACTIN®
Lactoferrin
Norwegian Shark Liver Oil
Optimized Fucoidan w/Maritech® 926
ProBoost™ Thymic Protein A
Reishi Extract Mushroom Complex
Vitamin C w/Dihydroquercetin
Winter Wellness™
Zinc Lozenges

INFLAMMATORY REACTIONS
Arthro-Immune Joint Support
ArthroMax® with Theaflavins
Boswellia
Bromelain (Specially-coated)
Cytokine Suppress™ with EGCG
DHA (Vegetarian Sourced)
Fast Acting Joint Formula
Ginger Force
Kril Healthy Joint Formula
L-LOX Inhibitor w/AprèsFlex®
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Omega-3 Whirl
SerraEnzyme
SOĐyme™ with GiIgOSDin® and Wolfberry
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Tart Cherry w/Standardized CherryPURE®
Zyflamend® W Whole Body

LIVER HEALTH
Branch Chain Amino Acids
N-Acetyl Cysteine
Liver Efficiency Formula
European Milk Thistle
Advanced Phospholipid Delivery
Hepatopro
SAMe
Silymarin

Optimized Quercetin
Resveratrol with Synergistic Grape-Berry Actives
Rhodiola Extract
Silymarin
SOĐyme™ with GiIgOSDin®
Stevia Extract
Advanced Bio-Curcumin®
with Ginger & Turmerones
Super Bio-Curcumin®
Super Ginkgo Extract
Triple Action Cruciferous Vegetable Extract
Venotone
Whole Grape Extract

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

LIVER HEALTH
Branch Chain Amino Acids
N-Acetyl Cysteine
Liver Efficiency Formula
European Milk Thistle
Advanced Phospholipid Delivery
Hepatopro
SAMe
Silymarin

Optimized Quercetin
Resveratrol with Synergistic Grape-Berry Actives
Rhodiola Extract
Silymarin
SOĐyme™ with GiIgOSDin®
Stevia Extract
Advanced Bio-Curcumin®
with Ginger & Turmerones
Super Bio-Curcumin®
Super Ginkgo Extract
Triple Action Cruciferous Vegetable Extract
Venotone
Whole Grape Extract

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

IMMUNE ENHANCEMENT
AHCC® (Active Hexose Correlated Compound)
Black Cumin Seed Oil
Black Cumin Seed Oil w/Bio-Curcumin®
Buttered Vitamin C Powder
Echinacea Extract
FlorAssist™ Probiotic
iZ6 Hyperimmune Egg
Immune Modulator w/Tinofend®
Immune Protect with PARACTIN®
Lactoferrin
Norwegian Shark Liver Oil
Optimized Fucoidan w/Maritech® 926
ProBoost™ Thymic Protein A
Reishi Extract Mushroom Complex
Vitamin C w/Dihydroquercetin
Winter Wellness™
Zinc Lozenges

INFLAMMATORY REACTIONS
Artho-Immune Joint Support
ArthroMax® with Theaflavins
Boswellia
Bromelain (Specially-coated)
Cytokine Suppress™ with EGCG
DHA (Vegetarian Sourced)
Fast Acting Joint Formula
Ginger Force
Kril Healthy Joint Formula
L-LOX Inhibitor w/AprèsFlex®
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Omega-3 Whirl
SerraEnzyme
SOĐyme™ with GiIgOSDin® and Wolfberry
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Tart Cherry w/Standardized CherryPURE®
Zyflamend® W Whole Body

LIVER HEALTH
Branch Chain Amino Acids
N-Acetyl Cysteine
Liver Efficiency Formula
European Milk Thistle
Advanced Phospholipid Delivery
Hepatopro
SAMe
Silymarin
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**SUB-TOTAL OF COLUMN 1**

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**SUB-TOTAL OF COLUMN 2**

**DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE**

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS
### Buyers Club Order Form

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**SUB-TOTAL OF COLUMN 3**

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**SUB-TOTAL OF COLUMN 4**

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*Life Extension Members receive 25% off the retail price of all products.*

**Deduct an additional 10% on all products during Super Sale**
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<td>COSMEISIS TIGHTENING &amp; FIRMING NECK CREAM - 2 oz jar</td>
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<td>COSMEISIS E-ESSENTIAL CREAM - 1 oz</td>
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<td>CREATINE CAPSULES - 120 veg. caps</td>
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<td>CREATINE WHEY GLUTAMINE POWDEER - 454 grams (vanilla)</td>
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<td>CR MIMETIC LONGEVITY FORMULA - 60 veg. caps</td>
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**SUPER SALE SAVINGS ON ALL PRODUCTS**

To order call 1-800-544-4440

<table>
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**DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE**
**LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS**

**OFFER ENDS FEBRUARY 3, 2014**

To order online visit www.LifeExtension.com/SuperSale

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**Buyers Club Order Form**

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**SUB-TOTAL OF COLUMN 7**

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

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**SUB-TOTAL OF COLUMN 8**

JANUARY 2014

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE
### Buyers Club Order Form

#### JANUARY 2014

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

**SUPER SALE SAVINGS ON ALL PRODUCTS**

**To order call 1-800-544-4440**

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<td>LEOTHEIN - 16 oz. granules</td>
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<td>L-LYSINE - 620 mg, 100 veg. caps</td>
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<td>S-LOX INHIBITOR W/APRESFLEX® - 100 mg, 60 veg. caps</td>
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<td>Lycopene EXTRACT (Mega) - 15 mg, 90 softgels</td>
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**SUB-TOTAL OF COLUMN 9**

**SUB-TOTAL OF COLUMN 10**

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

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<td>HCA (Garcinia) - 90 veg. caps</td>
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<td>HEPATOMID - 900 mg, 60 softgels</td>
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<td>INTEGRA-LEAM® AFRICAN MANGO IRVINGIA - 150 mg, 60 veg. caps</td>
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<td>IODORAL® - 180 tabs</td>
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<td>IRON PRoTEIN PLUS - 300 mg, 100 veg. caps</td>
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<td>IRVINGIA W/PHASE 3™ - 120 veg. caps</td>
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<td>(KK) KRILL OIL PHOSPH OMEGA - 60 softgels</td>
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<td>KYLIC® GARLIC FORMULA 102 - 200 caps</td>
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<td>MELATONIN TIME RELEASE - 300 mcg, 100 veg. tabs</td>
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<td>MIGRA-MAG w/ BRAIN SHIELD™ - 90 veg. caps</td>
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<td>MSM (METHYLSULFONYLMETHANE) - 1,000 mg, 100 caps</td>
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<td>NATURAL FEMALE SUPPORT - 30 veg. caps</td>
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**SUB-TOTAL OF COLUMN 1**

- **SUB-TOTAL OF COLUMN 11**

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

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

JANUARY 2014
## Buyers Club Order Form

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<td>Pecta Sol-C* Modified Citrus Pectin</td>
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<td>Pecta Sol-C* Modified Citrus Pectin</td>
<td>270 veg. caps</td>
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<td>PGX® Plus Mulberry (Wellbetx®)</td>
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<td>Pharmagaba®</td>
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<td>Phosphoextra®</td>
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<td>Policosanol</td>
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<td>Pomegranate Therapeutic (Full-Spectrum)</td>
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<td>Pomegranate Extract</td>
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<td>- 16 oz. liquid</td>
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<td>Pomo™</td>
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<td>Potassium Iodide</td>
<td>- 1 box, 14 tablets</td>
<td>$6.95</td>
<td>$5.21</td>
</tr>
<tr>
<td>01500</td>
<td>PQQ Caps w/BioPQQ®</td>
<td>- 10 mg, 30 veg. caps</td>
<td>$24.00</td>
<td>$18.00</td>
</tr>
<tr>
<td>01647</td>
<td>PQQ Caps w/BioPQQ®</td>
<td>- 20 mg, 30 veg. caps</td>
<td>$40.00</td>
<td>$30.00</td>
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<tr>
<td>00302</td>
<td>Presenilone</td>
<td>- 50 mg, 100 caps</td>
<td>$26.00</td>
<td>$19.50</td>
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<tr>
<td>00700</td>
<td>Presenilone</td>
<td>- 100 mg, 100 caps</td>
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<td>$22.50</td>
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<tr>
<td><strong>01373</strong></td>
<td>Prelox® Natural Sex For Men*</td>
<td>- 60 tablets</td>
<td>$52.00</td>
<td>$39.00</td>
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<tr>
<td>00525</td>
<td>ProbioThyme Protein A®</td>
<td>- 4 mg, 30 packets</td>
<td>$95.95</td>
<td>$44.96</td>
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<tr>
<td>01441</td>
<td>Progestacare For Women</td>
<td>- 4 oz cream</td>
<td>$35.00</td>
<td>$26.25</td>
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<tr>
<td>01895</td>
<td>Prostate Formula (Ultra NAT)</td>
<td>60 softgels</td>
<td>$28.50</td>
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<tr>
<td>01742</td>
<td>Protein Isolate (Whey) Vanilla</td>
<td>- 1 lb. powder</td>
<td>$30.00</td>
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<tr>
<td>01743</td>
<td>Protein Isolate (Whey) Chocolate</td>
<td>- 1 lb. powder</td>
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<tr>
<td>01770</td>
<td>Protein Concentrate (New Zealand Whey) Vanilla</td>
<td>-520 gr</td>
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<tr>
<td>01771</td>
<td>Protein Concentrate (New Zealand Whey) Chocolate</td>
<td>-660 gr</td>
<td>$30.00</td>
<td>$22.50</td>
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<tr>
<td>01508</td>
<td>Pteropure™</td>
<td>- 50 mg Pterostilbene</td>
<td>$32.00</td>
<td>$24.00</td>
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<td>01587</td>
<td>Pure Plant Protein</td>
<td>- Veg. Vanilla 540 grams powder</td>
<td>$38.00</td>
<td>$28.50</td>
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<tr>
<td>01209</td>
<td>Pumpkin Seed Extract (Water-Soluble)</td>
<td>- 60 veg. caps</td>
<td>$20.00</td>
<td>$15.00</td>
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**SUB-TOTAL OF COLUMN 13**

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<tr>
<td>01210</td>
<td>Pumpkin Seed Extract</td>
<td>w/Goy Isolflavones (Water-Soluble)</td>
<td>- 60 veg. caps</td>
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<td>01637</td>
<td>Pychogemol® French Maritime Pine Bark Extract</td>
<td>-100 mg, 60 veg. caps</td>
<td>$64.00</td>
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<td>01217</td>
<td>Pyridoxal 5-phosphate</td>
<td>- 100 mg, 60 veg. caps</td>
<td>$22.00</td>
<td>$16.50</td>
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<tr>
<td><strong>01309</strong></td>
<td>Quercetin (Optimized)</td>
<td>- 250 mg, 60 veg. caps</td>
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<td>$16.50</td>
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<td>01039</td>
<td>Red Yeast Rice (Bluebonnet)</td>
<td>- 600 mg, 60 veg. caps</td>
<td>$16.95</td>
<td>$13.56</td>
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<td>00605</td>
<td>Regiment</td>
<td>- 60 enteric-coated caps</td>
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<td>$14.96</td>
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<td>01708</td>
<td>Reshin Extract Mushroom Complex</td>
<td>- 60 veg. caps</td>
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<td>01448</td>
<td>Rejuvenex® Body Lotion</td>
<td>- 6 oz</td>
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<td>01621</td>
<td>Rejuvenex® Factor Firming Serum</td>
<td>- 1.7 oz</td>
<td>$65.00</td>
<td>$48.75</td>
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<td>01220</td>
<td>Rejuvenex® (Ultra)</td>
<td>- 2 oz</td>
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<td>01430</td>
<td>Resveratrol w/Synergistic</td>
<td>Grape Berry Actives (Optimized)</td>
<td>- 250 mg, 60 veg. caps</td>
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<td>00676</td>
<td>Rejuvenight® (Ultra)</td>
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<td>Resveratrol w/Pterostilbene</td>
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<tr>
<td>01410</td>
<td>Resveratrol w/Pterostilbene</td>
<td>- 100 mg, 60 veg. caps</td>
<td>$36.00</td>
<td>$27.00</td>
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<tr>
<td>01430</td>
<td>Resveratrol w/Synergistic</td>
<td>Grape Berry Actives (Optimized)</td>
<td>- 250 mg, 60 veg. caps</td>
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<td>00389</td>
<td>Rhodiola Extract</td>
<td>- 250 mg, 60 veg. caps</td>
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<td>00972</td>
<td>(O) Ribose Powder</td>
<td>- 150 grams</td>
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<td>01473</td>
<td>(O) Ribose Tablets</td>
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<td>01609</td>
<td>Rich Rewards® Breakfast Ground Coffee</td>
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<td>Rich Rewards® Breakfast Blend Ground Coffee</td>
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**SUB-TOTAL OF COLUMN 14**

January 2014

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

*DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE*
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<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
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<tr>
<td>01723</td>
<td>TART CHERRY EXTRACT w/STANDARDIZED CHERRYPURE® - 60 veg. caps</td>
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<td>00199</td>
<td>TAUROPSIN - 1,000 mg, 50 caps</td>
<td>8.95</td>
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<td>00133</td>
<td>TAUROPSIN POWDER - 300 caps</td>
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<tr>
<td>01304</td>
<td>THEOPHILIN STANDARDIZED EXTRACT - 30 veg. caps</td>
<td>18.00</td>
<td>13.50</td>
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<tr>
<td>01683</td>
<td>(L) THEANINE - 100 mg, 60 veg. caps</td>
<td>24.00</td>
<td>18.00</td>
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<tr>
<td>00135</td>
<td>THERALAC PROBIOTICS - 30 caps</td>
<td>47.95</td>
<td>35.96</td>
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<td>00668</td>
<td>THYROID FORMULAS® (METABOLIC ADVANTAGE) - 100 caps</td>
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<td>00349</td>
<td>TING POWDER - 50 caps</td>
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<td>01559</td>
<td>TIM - 500 mg, 60 veg. tablets</td>
<td>11.00</td>
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<td>01071</td>
<td>TOCOFENOLS WITH SESAME LIGNANS - 60 softgels</td>
<td>38.00</td>
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<tr>
<td>01400</td>
<td>TOCOFENOLS (SUPER-ABSORBABLE) - 60 softgels</td>
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<td>01278</td>
<td>TOOTHPASTE - 4 oz (Mint)</td>
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<tr>
<td>01468</td>
<td>TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT - 60 veg caps</td>
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<tr>
<td>01469</td>
<td>TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESERVIATOL - 60 veg caps</td>
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<td>24.00</td>
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<tr>
<td>01803</td>
<td>TNI SUGAR SHIELD® - 60 caps</td>
<td>36.00</td>
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<td>01386</td>
<td>TRIFUBER® - 180 caps</td>
<td>32.95</td>
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<td>01389</td>
<td>TRIFLORA PROBIOTICS &amp; ENZYMES - 32 veg. caps</td>
<td>42.95</td>
<td>32.21</td>
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<tr>
<td>01722</td>
<td>L-TRYTOPHAN - 500 mg, 90 veg. caps</td>
<td>33.00</td>
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<td>01721</td>
<td>TRYPTOPHAN PLUS (OPTIMIZED) - 90 veg. caps</td>
<td>32.00</td>
<td>22.50</td>
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<td>01816</td>
<td>TWO-PER-DAY - 60 tablets</td>
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<td>01815</td>
<td>TWO-PER-DAY - 120 tablets</td>
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<td>15.00</td>
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<td>01814</td>
<td>TWO-PER-DAY - 120 capsules</td>
<td>22.00</td>
<td>16.50</td>
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<td>00326</td>
<td>L-TYROSINE - 500 mg, 100 tablets</td>
<td>12.98</td>
<td>9.74</td>
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<td>00213</td>
<td>VANADYL SULFATE - 7.5 mg, 100 tablets</td>
<td>15.00</td>
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<td>00408</td>
<td>VENOTONE - 60 caps</td>
<td>18.95</td>
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<td>01327</td>
<td>VINPOCETINE - 10 mg, 100 tablets</td>
<td>18.00</td>
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<td>01526</td>
<td>VITAMIN B3 NIACIN - 1,000 mg, 100 veg. caps</td>
<td>12.75</td>
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<tr>
<td>00372</td>
<td>VITAMIN B3 NIACIN - 500 mg, 100 caps</td>
<td>7.65</td>
<td>5.74</td>
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**SUB-TOTAL OF COLUMN 15**

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

**DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE**

**SUB-TOTAL OF COLUMN 16**

JANUARY 2014
### Buyers Club Order Form

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

#### Super Sale Savings on All Products

To order call 1-800-544-4440

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
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<td>00098</td>
<td>$10.50</td>
<td>$7.88</td>
<td>Buy 4 bottles, price each</td>
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<td>01535</td>
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<td>00361</td>
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<td>6.56</td>
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<td>34.60</td>
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<td>30.00</td>
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<td>00927</td>
<td>25.50</td>
<td>19.13</td>
<td>Buy 4 bottles, price each</td>
<td>101.40</td>
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<td>00084</td>
<td>23.95</td>
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<td>01736</td>
<td>20.00</td>
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<td>01732</td>
<td>28.00</td>
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<td>01753</td>
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<td>Buy 4 bottles, price each</td>
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<td>01763</td>
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<td>00101</td>
<td>8.00</td>
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<td>Buy 4 bottles, price each</td>
<td>32.00</td>
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**Total Sub-Order Amount:** $203.80

*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.
††Due to license restrictions, this product is not for sale to Canada.

**SUB-TOTAL OF COLUMN 17**

---

**JANUARY 2014**

**SUPER SALE SAVINGS ON ALL PRODUCTS**

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE
**Buyers Club Order Form**

**ORDER SUBTOTALS**

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<tr>
<td>17</td>
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**ORDER TOTALS**

- Sub-Total A (Sub-total of Columns 1 through 17)
- **SUPER SALE DEDUCT 10%** (Subtotal x 10%) Ends 02/03/14
- Postage And Handling (Any size order, continental U.S.) $5.50
- C.O.D.s (Add $7 for C.O.D. orders)
- Shipping
- **GRAND TOTAL** (Must be in U.S. dollars)

**BILL TO ADDRESS**

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<tbody>
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</tr>
<tr>
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**SHIP TO ADDRESS**

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**LIFE EXTENSION FOUNDATION® MEMBERS ONLY**

- **MEMBER NO.**
- **PRINT MEMBERSHIP NO. FOR MEMBER DISCOUNT**
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I want to contribute to your research efforts to extend the healthy human life span. Enclosed is my first year’s membership donation of $75 to join the most elite group of longevity enthusiasts in the world. (Canadians add $7, all others outside the U.S. add $35) Item code: MEMB1. Call for multiple year membership rates.

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**Broccoli** is one of the vegetables best documented to protect healthy DNA. The broccoli concentrate in LIFE EXTENSION MIX™ is standardized to provide sulforaphane and other glucosinolates, compounds responsible for broccoli’s protective benefits.

**Olive polyphenols** help protect against LDL oxidation, quench free radicals, and stabilize cell membranes. LIFE EXTENSION MIX™ contains an olive extract standardized to provide the best-documented polyphenol called hydroxytyrosol.

**Luteolin** is a flavonoid found in parsley, artichoke, basil, celery, and other foods. It has shown the ability to help protect against DNA oxidative damage. When measured against 27 other citrus flavonoids, luteolin proved one of the most beneficial at maintaining healthy DNA. Luteolin also suppresses excess levels of interleukin-6 and interleukin-1b. LIFE EXTENSION MIX™ contains a standardized dose of 8 mg of luteolin.

**Lycopene** is the red carotenoid in tomatoes that supports a healthy prostate and helps promote healthy lipid profiles for those already within a normal range.

**Lutein** is found in spinach and collard greens and has been shown to help maintain eye macula pigment structure.

**Pomegranate** may be the most effective plant to help maintain optimal endothelial function. This pomegranate extract is standardized to provide the punicalagins and other polyphenols found in up to 2.6 ounces of pomegranate juice.

**Sesame lignans** increase tissue levels of vitamin E, including gamma tocopherol, and inhibit the formation of an inflammatory precursor called arachidonic acid.

**Wild blueberry extract**, standardized to help maintain optimal neuronal function.

**Pterostilbene** is a compound naturally found in blueberries and grapes that has been shown to have beneficial, anti-aging effects.

**Cyanidin-3-Glucoside** is a berry compound that promotes healthy function of the retina to help support night vision.

**Pyridoxal 5’-phosphate** helps protect against glycation reactions, a toxic process in which sugars bind to lipids and proteins to form non-functional structures in the body.

**D-glucarate** is found in grapefruit, apples, oranges, broccoli, and Brussels sprouts. D-glucarate supports a detoxification process that helps to remove DNA toxins.

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**Vegetable-Fruit Complex**

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<td>Decaffeinated Green tea extract (45% EGCG)</td>
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<tr>
<td>Broccoli sprout concentrate extracts and calcium D-Glucarate (providing sulforaphane, glucosinolates, D-3T, and PEITC)</td>
<td>725 mg</td>
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<tr>
<td>Olive juice extract (providing polyphenols, hydroxytyrosol, tyrosol, oleuropein)</td>
<td>12.5 mg</td>
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<tr>
<td>Grape seed proanthocyanidin extract (Leucoselect™)</td>
<td>25 mg</td>
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<tr>
<td>Grape (proanthocyanidin) extract (BioVin™)</td>
<td>25 mg</td>
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<tr>
<td>Luteolin (from orange extract)</td>
<td>8 mg</td>
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<tr>
<td>Lycopene (natural tomato extract) (Tomat-O-Red™)</td>
<td>3 mg</td>
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<tr>
<td>Lutein (marigold extract)</td>
<td>15 mg</td>
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<td>(465 mcg trans-zeaxanthin)</td>
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<td>Maqui Berry (Aristotelia chilensis) anthocyanin extract</td>
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<td>Milk thistle extract (85% silymarin)</td>
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<td>Bromelain (from pineapple)</td>
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<td>Citrus Bioflavonoids (50% hesperidin)</td>
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<td>Acerola extract 4:1</td>
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<td>Bilberry extract (MirtoSelect™)</td>
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<tr>
<td>Pomegranate extract (30% punicalagins) (POMELLA™)</td>
<td>85 mg</td>
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<tr>
<td>Sesame seed lignan extract</td>
<td>10 mg</td>
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<tr>
<td>Fruit/Berry Complex blend</td>
<td>300 mg</td>
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<tr>
<td>(proprietary blend of concentrated blackberry, blueberry, cherry, cranberry, elderberry, persimmon, prune powders)</td>
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<tr>
<td>Wild Blueberry anthocyanin extract (fruit)</td>
<td>150 mg</td>
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<tr>
<td>trans-Pterostilbene (from pTeroPure™)</td>
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<td>Cyanidin-3-Glucoside (C3G) (from blackcurrant extract)</td>
<td>1.25 mg</td>
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<td>CherryPure® Tart Cherry (Prunus cerasus) proanthocyanidin extract</td>
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<td>Delphphinidins</td>
<td>2 mg</td>
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<td>(from Delphinol® Maqui berry (Aristotelia chilensis) extract)</td>
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**Water-Soluble Vitamins and Enzymatic Activators**

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<tr>
<td>Vitamin C</td>
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<td>as: ascorbic acid, calcium, magnesium &amp; niacinamide ascorbates, ascorbyl palmitate, acerola extract</td>
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<tr>
<td>Natural Folate (from lemon extract)</td>
<td>400 mcg</td>
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<td>Biotin</td>
<td>3,000 mcg</td>
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<td>Trimethylglycine (TMG)</td>
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<td>Vitamin B1 (thiamine HCl)</td>
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<td>Vitamin B2 (riboflavin)</td>
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<tr>
<td>Supplying: Riboflavin 5’-phosphate</td>
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<tr>
<td>Vitamin B3 (niacinamide and niacinamide ascorbate)</td>
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<tr>
<td>Vitamin B3 (niacin)</td>
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<td>Vitamin B5 (p-calcium pantothenate)</td>
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<td>Vitamin B6 (pyridoxine HCl)</td>
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<td>Pyridoxal 5’-phosphate (vitamin B6)</td>
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<tr>
<td>Vitamin B12 (methylcobalamin)</td>
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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.
Published scientific studies document that people who eat the most fruits and vegetables have much lower incidences of health problems. Few people, however, consistently eat enough plant foods to protect against common age-related decline, and commercial multivitamins do not provide all of the vital plant components needed to maintain good health. 1 Life Extension Mix™ provides a broad array of vegetable/fruit extracts.

Life Extension Mix™ now contains an upgraded vitamin B12 that offers superior absorption compared to other forms of B12.

**Fat-Soluble Vitamins**

| Vitamin A (as Betatene® natural beta-carotene from dunaliella and acetate) | 5,000 IU |
| Vitamin D3 (cholecalciferol) | 2,000 IU |
| Vitamin E (as calcium ascorbate, ascorbic acid, ascorbyl palmitate, magnesium ascorbate, niacinamide ascorbate, acerola extract) | 2,000 mg |
| Vitamin E (natural alpha tocopherol succinate and alpha tocopherol) | 100 IU |
| Natural mixed tocopherols (producing gamma, delta, alpha, and beta tocopherols) | 60 mg |

**Amino Acid Complex**

| N-acetyl-L-cysteine | 600 mg |
| Taurine | 200 mg |

**Mineral Complex**

| Selenium (from Se-methyl L-selenocysteine) | 100 mcg |
| Selenium (from L-selenomethionine—SelenoPure™) | 50 mcg |
| Selenium (from sodium selenite) | 50 mcg |
| Zinc (as zinc citrate) | 20 mg |
| Zinc (monomethionine) (OptiZinc®) | 15 mg |
| Boron (Alibion® bororganic glycine) | 3 mg |
| Calcium | 218 mg |
| Copper (as copper bisglycinate chelate TRAACS®) | 1 mg |
| Chromium (as Cominex 3+ chromium stabilized with Capros® and PrimaVie® Shilajit) | 500 mcg |
| Potassium chloride (37.4 mg elemental) | 71.3 mg |
| Molybdenum (sodium molybdate) | 125 mcg |
| Manganese (gluconate) | 1 mg |
| Iodine (potassium iodide) | 150 mcg |
| Magnesium oxide (335.96 mg elemental) | 560 mg |
| Magnesium citrate (35.28 mg elemental) | 261.3 mg |
| Magnesium glycinate (11.74 mg elemental) | 100 mg |
| Magnesium taurinate (7.83 mg elemental) | 100 mg |
| Magnesium arginate (5.87 mg elemental) | 100 mg |
| Magnesium ascorbate (3.40 mg elemental) | 58.1 mg |

**Cholinergic Complex**

| Choline (from bitartrate) | 120 mg |
| Phosphatidylcholine (from soy) | 150 mg |
| Inositol | 250 mg |

**Vitamin D3** helps maintain healthy bone density and DNA. There is five times more vitamin D in LIFE EXTENSION MIX™ compared to conventional multivitamins.

**The Life Extension Mix™ utilizes natural mixed tocopherols** that provide natural vitamin E from alpha tocopherol and a small amount of gamma tocopherol (40 mg). Compared to synthetic vitamin E, the natural form is far more bioavailable to the body.

**N-acetyl-L-cysteine** suppresses free radicals inside the cell and maintains healthy glutathione levels. Taurine may protect against free radicals between cells and supports eye health.

Life Extension Mix™ contains the sodium selenite, selenomethionine, and Se-methyl L-selenocysteine forms of selenium. Some scientific evidence suggests that consumption of selenium may reduce the risk of certain forms of cancer; however, the FDA has determined that this evidence is limited and not conclusive.

**Zinc** is often poorly absorbed, but LIFE EXTENSION MIX™ provides two of the most bioavailable forms of zinc.

**Boron** is not only needed to maintain healthy bone density but may also help promote healthy prostate cell function.

**LIFE EXTENSION MIX™** provides a high amount of an optimal form of chromium to help maintain arterial wall structure and already normal glucose levels.

**Magnesium** helps protect arteries and heart valves, and supports heart and brain cells. LIFE EXTENSION MIX™ provides high potencies of six different forms of magnesium to fully saturate the body with this life-saving mineral.

**Maintaining high levels of acetylcholine** in the brain helps support cognitive function and memory.

Contains soybeans. Contains fish (Tilapia).

1) Betatene® is a registered trademark of BASF SE.  2) Delphinol® is a registered trademark of MNL protected by U.S. patent application US 13/076,117 and WPO PCT/IB2010/002698.  3) OptiZinc® is a registered trademark of InterHealth Nutritional, Inc.  4) SelenoPure™ is a trademark of Nutrition 21.  5) Cominex 3+® Capros® and PrimaVie® are registered trademarks of Nutrend, Inc.  6) Lecusel® is a registered trademark of Indena S.p.A.  7) BioVitan® is a registered trademark of Cyvex Nutrition.  8) Tomat-O-Red® is a registered trademark of LycoRed Ltd.  9) POMELLA® Extract is covered under U.S. Patent 7,638,640 and POMELLA® is a registered trademark of Venture Sciences, Inc.  10) pTeroPure™ is a trademark of ChromaDex, Inc.  11) Melatonin® is a registered trademark of Indena, S.p.A., Milan, Italy.  12) TRAACS® and Albion® are registered trademark of Albon Laboratories, Inc.  13) CherryPure® is a registered trademark of Shoreline fruit LLC.

CAUTION: Some people choose a high-niacin version of Life Extension Mix that provides 862 mg in the daily dose, of which 345 mg is the form of niacin that can cause temporary flushing, itching or gastric disturbances. Liver function testing is recommended when niacin is taken in excess of 500 mg daily. Those with gout or liver diseases should avoid taking high doses of niacin. Consult with your doctor before using this product if you are taking anticoagulant medications. Individuals consuming more than 2,000 IU/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxyvitamin D measurement. Vitamin D supplementation is not recommended for individuals with high blood calcium levels.


References

To order call toll-free 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.
Phloridzin

Phloridzin is a natural polyphenol found in various fruit trees.13 Phloridzin helps maintain healthy blood sugar levels, among those in the normal range by:

- Targeting carrier protein SGLT1, in turn helping to block the absorption of glucose into the bloodstream.14,15
- Targeting carrier protein SGLT2, in turn supporting glucose elimination via urine.16

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

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

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

A bottle of 60 vegetarian capsules of Life Extension® Tri Sugar Shield™ retails for $36. If a member buys four bottles during Super Sale, the price is reduced to $21.60 per bottle.

MULTI-PRONGED APPROACH

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

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

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

**Mulberry Leaf Extract**
Mulberry leaf has been used in Chinese traditional medicine for centuries. Like sorghum, mulberry leaf extract targets three different mechanisms:

- Targets the alpha-glucosidase enzyme to regulate conversion of starch into glucose.8,9
- Supports glucose transporter GLUT4 that moves glucose out of the bloodstream and into muscle and liver cells.10,11
- Promotes insulin sensitivity.12

**References**

To order Life Extension® Tri Sugar Shield™, call 1-800-544-4440 or visit www.LifeExtension.com
Curcumin is an active compound derived from the Indian spice turmeric. It has been widely acclaimed for its diverse health-promoting effects on nearly every organ system in the body, including its support for the body’s natural inflammatory response system. But most curcumin is neither absorbed well nor retained well in the blood—posing a challenge to those who wish to maximize its benefits.

Life Extension® took the lead in resolving this issue several years ago by introducing Super Bio-Curcumin®, a patented, bioenhanced preparation of curcumin that has been shown to reach up to 7 times higher concentration in the blood than standard curcumin.

Now, an exciting next generation curcumin formula has become available! The new Advanced Bio-Curcumin® with Ginger & Turmerones provides additional compounds that further boost absorption of curcumin’s highly beneficial phytonutrients.

UNRIVALED POTENCY AND ABSORBABILITY
In addition to BCM-95®, this new curcumin formula contains:

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

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

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

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

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

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

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

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

A bottle of 30 softgels of Advanced Bio-Curcumin® with Ginger & Turmerones retails for $30. If a member buys four bottles during Super Sale, the price is reduced to $18.23 per bottle. Contains soybeans.

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

References

Bio-Curcumin® and BCM-95® are registered trademarks of Dolcas-Biotech, LLC. US Patent Nos. 7,883,726,7,736,679 and 7,879,373. 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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