CREATE NEW MITOCHONDRIA IN BRAIN CELLS

Life Extension

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

November 2011

Combat Stubborn Arthritis Pain

What Kills Health-Conscious People?

Topical Resveratrol for Youthful Skin

European Treatment For Aortic Stenosis

Blunting Lethal Impact of Nuclear Factor-kappaB

OLYMPIC CHAMPION
DARA TORRES

How Does She Keep Winning Medals Past Age 40?
Life Extension® introduced resveratrol in 2003 to favorably alter genes that respond to calorie restriction. Since then, additional compounds have been discovered that enable cellular DNA to exhibit more youthful gene expression.

Just two capsules a day of CR Mimetic Longevity Formula supply:

- **Trans-Resveratrol** is the form of resveratrol used in scientific studies documenting remarkable longevity-enhancing effects. You would have to drink many bottles of red wine to obtain a fraction of the **trans-resveratrol** (250 mg) found in CR Mimetic Longevity Formula.

- **Quercetin** inhibits the actions of enzymes in the liver from rapidly breaking down resveratrol in the bloodstream, thus enabling resveratrol to remain active longer in the body.

- **Pterostilbene** directly activates genes "downstream" from the sites of resveratrol's action, providing a powerful complementary stimulus to resveratrol's ability to induce youthful gene expression. You would have to eat 135 cups of blueberries to obtain the amount of pterostilbene contained in the CR Mimetic Longevity Formula.

- **Grape seed extract** provides proanthocyanidins that have multiple health benefits and work together with resveratrol to trigger favorable gene expression changes.

- **Fisetin** is an extract from strawberries that "switches on" cell signaling molecules that support youthful expression of longevity genes and works in synergy with resveratrol. You would have to eat two cups of strawberries to obtain the amount of fisetin contained in the CR Mimetic Longevity Formula.

- **Theaflavins** from black tea suppress the deadly pro-inflammatory transcription factor NF-κB, and stimulate the longevity factor Forkhead box 1 (FOXO1) in invertebrate and mammalian cells. You would have to drink 12 six ounce cups of black tea each day to obtain the amount of theaflavins contained in CR Mimetic Longevity Formula.

Two capsules a day of CR Mimetic Longevity Formula provide:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trans-Resveratrol</td>
<td>250 mg</td>
</tr>
<tr>
<td>Black Tea Theaflavins</td>
<td>300 mg</td>
</tr>
<tr>
<td>Grape Seed Polyphenols</td>
<td>50 mg</td>
</tr>
<tr>
<td>Pterostilbene</td>
<td>3 mg</td>
</tr>
<tr>
<td>Fisetin</td>
<td>48 mg</td>
</tr>
<tr>
<td>Quercetin</td>
<td>150 mg</td>
</tr>
</tbody>
</table>

A bottle containing 60 vegetarian capsules of CR Mimetic Longevity Formula retails for $39. If a member buys four bottles, the price is reduced to just $27 per bottle. The cost of taking the highly purified plant extracts individually would be significantly higher compared to the optimal doses found in CR Mimetic Longevity Formula.


To order CR Mimetic Longevity Formula call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
42 PROTECT YOUR BRAIN WITH PQQ
Hundreds of published studies confirm mitochondrial decay as a primary cause of most neurodegenerative diseases. Antioxidants alone cannot prevent this kind of brain cell death. A compound called pyrroloquinoline quinone or PQQ triggers aging brain cells to grow new mitochondria and stimulates nerve cell growth, which may help to prevent Parkinson’s, Alzheimer’s, and other degenerative brain disorders.

54 THE INFLAMMATORY FACTOR BEHIND MOST CANCERS
As many as 95% of all cancers utilize a molecule called nuclear factor-kappaB or NF-kB. It is the master regulator of inflammatory processes that cancers use to grow and spread. A variety of nutrients have been shown to suppress NF-kB and blunt its impact, including fish oil, curcumin, and green tea.

66 AGE-DEFYING OLYMPIAN DARA TORRES
Swimming icon Dara Torres has won 12 Olympic medals in her career. Most impressive are the three silver medals she won in 2008 at the age of 41. Dara plans on competing again in 2012. Here she discusses the keys to her career longevity, her quest for another Olympic win, and the supplements that help fuel her success.

76 TOPICAL RESVERATROL COMBATS SKIN AGING
Years of research confirm resveratrol’s power to boost longevity when taken orally. Dermatologists are now discovering that when applied topically, resveratrol also protects against skin aging, with 17 times the antioxidant potency of the expensive anti-wrinkle drug idebenone.

30 KRILL OIL COMBATS ARTHRITIS PAIN
Conventional medicine’s preferred treatments for arthritis fail to provide safe, long-term relief. One problem is they do not neutralize the many pro-inflammatory molecules that attack aging joints. New data indicate that in combination with hyaluronic acid and astaxanthin, low-dose krill oil specifically targets these joint-damaging molecules. In one clinical trial, over 60% of arthritis sufferers were pain-free in less than three months!

7 AVOIDING THE CATASTROPHIC EVENT
What kills those who take extraordinary steps to stay healthy? Often just one catastrophic event can launch a cascade of degenerative processes ending in death. Aortic stenosis is one such catastrophe. Health pioneer Jack LaLanne did almost everything right, but he may have fallen victim to one omission that resulted in him developing aortic stenosis.

21 IN THE NEWS
Omega-3s prevent cognitive decline; garlic and grape seed supplements lower blood cancer risk; green tea protects against influenza; and more.

85 SUPERFOODS: THE AMAZING ARTICHOKE
Artichokes are packed with a host of disease-fighting nutrients known to ward off liver dysfunction, high cholesterol, and diabetes. These include quercetin, rutin, gallic acid, and cynarin.
Visit the Life Extension Nutrition Center Store
• The Most Complete Line of Life Extension Supplements
• Blood Testing and Analysis
• Personal Consultation with Life Extension Product/Health Advisors

Nutrition Center of Florida, Inc.
5990 North Federal Highway,
Fort Lauderdale, FL 33308-2633 • 954-766-8144
Monday–Friday 9 am–8 pm, Saturday 9 am–6 pm, Sunday 11 am–5 pm

THE MOST COMPLETE LINE OF LIFE EXTENSION SUPPLEMENTS

BLOOD TESTING AND ANALYSIS

PERSONAL CONSULTATION WITH LIFE EXTENSION PRODUCT/HEALTH ADVISORS

Address changes to LE Publications, Inc., 954-766-8144.

For instant access to special offers and promotions, product news, and exclusive health and wellness information.

Facebook.com/LifeExtension
For up-to-the-minute health tips, breaking industry news, and the latest updates in medical research.

Join us on the Life Extension forums:
ask.lef.org
Post your questions, add your comments, and access useful information on health, nutrition, prevention, anti-aging, and more.

Visit the Life Extension Nutrition Center Store
• The Most Complete Line of Life Extension Supplements
• Blood Testing and Analysis
• Personal Consultation with Life Extension Product/Health Advisors

Nutrition Center of Florida, Inc.
5990 North Federal Highway,
Fort Lauderdale, FL 33308-2633 • 954-766-8144
Monday–Friday 9 am–8 pm, Saturday 9 am–6 pm, Sunday 11 am–5 pm

CONNECT WITH LIFE EXTENSION ON THE WEB!

Facebook.com/LifeExtension
For instant access to special offers and promotions, product news, and exclusive health and wellness information.

Twitter.com/LifeExtension
For up-to-the-minute health tips, breaking industry news, and the latest updates in medical research.

Join us on the Life Extension forums:
ask.lef.org
Post your questions, add your comments, and access useful information on health, nutrition, prevention, anti-aging, and more.

Visit the Life Extension Nutrition Center Store
• The Most Complete Line of Life Extension Supplements
• Blood Testing and Analysis
• Personal Consultation with Life Extension Product/Health Advisors

Nutrition Center of Florida, Inc.
5990 North Federal Highway,
Fort Lauderdale, FL 33308-2633 • 954-766-8144
Monday–Friday 9 am–8 pm, Saturday 9 am–6 pm, Sunday 11 am–5 pm

THE MOST COMPLETE LINE OF LIFE EXTENSION SUPPLEMENTS

BLOOD TESTING AND ANALYSIS

PERSONAL CONSULTATION WITH LIFE EXTENSION PRODUCT/HEALTH ADVISORS

Address changes to LE Publications, Inc., 954-766-8144.

For instant access to special offers and promotions, product news, and exclusive health and wellness information.

Facebook.com/LifeExtension
For up-to-the-minute health tips, breaking industry news, and the latest updates in medical research.

Join us on the Life Extension forums:
ask.lef.org
Post your questions, add your comments, and access useful information on health, nutrition, prevention, anti-aging, and more.

Visit the Life Extension Nutrition Center Store
• The Most Complete Line of Life Extension Supplements
• Blood Testing and Analysis
• Personal Consultation with Life Extension Product/Health Advisors

Nutrition Center of Florida, Inc.
5990 North Federal Highway,
Fort Lauderdale, FL 33308-2633 • 954-766-8144
Monday–Friday 9 am–8 pm, Saturday 9 am–6 pm, Sunday 11 am–5 pm

CONNECT WITH LIFE EXTENSION ON THE WEB!

Facebook.com/LifeExtension
For instant access to special offers and promotions, product news, and exclusive health and wellness information.

Twitter.com/LifeExtension
For up-to-the-minute health tips, breaking industry news, and the latest updates in medical research.

Join us on the Life Extension forums:
ask.lef.org
Post your questions, add your comments, and access useful information on health, nutrition, prevention, anti-aging, and more.

Visit the Life Extension Nutrition Center Store
• The Most Complete Line of Life Extension Supplements
• Blood Testing and Analysis
• Personal Consultation with Life Extension Product/Health Advisors

Nutrition Center of Florida, Inc.
5990 North Federal Highway,
Fort Lauderdale, FL 33308-2633 • 954-766-8144
Monday–Friday 9 am–8 pm, Saturday 9 am–6 pm, Sunday 11 am–5 pm

THE MOST COMPLETE LINE OF LIFE EXTENSION SUPPLEMENTS

BLOOD TESTING AND ANALYSIS

PERSONAL CONSULTATION WITH LIFE EXTENSION PRODUCT/HEALTH ADVISORS

Address changes to LE Publications, Inc., 954-766-8144.

For instant access to special offers and promotions, product news, and exclusive health and wellness information.

Facebook.com/LifeExtension
For up-to-the-minute health tips, breaking industry news, and the latest updates in medical research.

Join us on the Life Extension forums:
ask.lef.org
Post your questions, add your comments, and access useful information on health, nutrition, prevention, anti-aging, and more.
Most people don’t get enough oil-based nutrients like vitamin K, lycopene, and gamma tocopherol. This problem is solved with a one-per-day softgel called Life Extension® Super Booster. It provides high potencies of fat-soluble compounds lacking in dry powder formulas, along with other nutrients.

**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.

A bottle of 60 Super Booster softgels retails for $42. If a member buys four bottles, the price is reduced to just $28.50 per bottle. The Super Booster saves consumers huge dollars by combining a wide variety of costly nutrients into one daily softgel. If you add up the price of the individual ingredients contained in the Super Booster, you would spend two to three times more for this potency if taken separately.

**JUST ONE SUPER BOOSTER** supplies:

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin K2 (as menaquinone-7)</td>
<td>100 mcg</td>
</tr>
<tr>
<td>Vitamin K2 (as menaquinone-4)</td>
<td>1000 mcg</td>
</tr>
<tr>
<td>Vitamin K1 (as phytonadione)</td>
<td>1000 mcg</td>
</tr>
<tr>
<td>Mixed tocopherols (providing Gamma Tocopherol 230 mg)</td>
<td>359 mg</td>
</tr>
<tr>
<td>Ginkgo extract</td>
<td>120 mg</td>
</tr>
<tr>
<td>Chlorophyllin</td>
<td>100 mg</td>
</tr>
<tr>
<td>Sesame lignans</td>
<td>20 mg</td>
</tr>
<tr>
<td>Lycopene</td>
<td>10 mg</td>
</tr>
<tr>
<td>Lutein</td>
<td>2 mg</td>
</tr>
<tr>
<td>Selenium (as Se-Methyl L-Selenocysteine)</td>
<td>67 mcg</td>
</tr>
<tr>
<td>Selenium (as L-Selenomethionine)</td>
<td>67 mcg</td>
</tr>
<tr>
<td>Selenium (as Sodium selenite)</td>
<td>67 mcg</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>300 mcg</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>95 mg</td>
</tr>
<tr>
<td>Zinc</td>
<td>10 mg</td>
</tr>
</tbody>
</table>

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

Contains corn and sesame. CAUTION: If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product. Lyc-O-Mato® is a registered trademark of LycoRed Natural Products Limited.

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 a physiologist in Caracas to specialize in anti-aging medicine.

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

Thomas F. Crais, MD, FACS, is a board-certified plastic surgeon, was medical director of the microsurgical research and training lab at Southwestern Medical Center in Dallas, TX, and currently practices in Sun Valley, ID.

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

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 (www.trackyourplaque.com). He is a distinguished leader in the field of anti-aging medicine.

Patrick M. Fratellone, MD, is an 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 the Atkins Foundation.

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.

Dr. John DeLuca is a 2005 graduate of St. George’s University School of Medicine. He completed his Internal Medicine residency at Monmouth Medical Center in Long Branch, New Jersey, 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.

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

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 1984, before becoming the medical director for the Atkins Center for the Atkins Foundation.

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

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

Mitchell J. Ghent, DO, PhD, holds a doctorate in holistic health and anti-aging and serves on the faculty of medicine at the Benemerita Universidad Autonoma De Puebla, Mexico, as a professor of cellular hematopoetic 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, DDC, DO, is a licensed osteopathic physician and chiropractor. He completed a NIH Fellowship in nutrition at UAB. Board certified in family medicine with a CNS in nutrition, he is currently the medical director at Leon County Jail. He is responsible for 1,100–1,200 inmates’ medical needs.

Prof. Francesco Marotta, MD, PhD, is a 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 a 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 Emerald 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 Quilllin, PhD, RD, CNS, is a clinical nutritionist in Carlisle, PA, 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, is a medical oncologist who specializes in using immunotherapy to enhance the safety and efficacy of conventional cancer therapies.

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.
HUGE SAVINGS ON GENERIC DRUGS

High-cost prescription drugs are bankrupting the United States, but you can fight back by switching to equivalent generic drugs.

The Life Extension Pharmacy® charges such LOW prices for generics that they are often less than what your co-pay would be if you went through your own insurance.

To find out how much you can save on your prescription medications, call the courteous staff at the Life Extension Pharmacy today at:
1-877-877-9700

<table>
<thead>
<tr>
<th>HISTORIC BRAND PRICE:</th>
<th>LOW-COST GENERIC EQUIVALENT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucophage® 500 mg • 30 tablets</td>
<td>$37.06</td>
</tr>
<tr>
<td>Metformin 500 mg • 30 tablets</td>
<td>$9.01</td>
</tr>
<tr>
<td>Zocor® 20 mg • 30 tablets</td>
<td>$162.49</td>
</tr>
<tr>
<td>Simvastatin 20 mg • 30 tablets</td>
<td>$6.91</td>
</tr>
<tr>
<td>Arimidex® 1 mg • 30 tablets</td>
<td>$417.37</td>
</tr>
<tr>
<td>Anastrozole 1 mg • 30 tablets</td>
<td>$59.99</td>
</tr>
<tr>
<td>Cozaar® 50 mg • 30 tablets</td>
<td>$80.61</td>
</tr>
<tr>
<td>Losartan 50 mg • 30 tablets</td>
<td>$15.83</td>
</tr>
</tbody>
</table>
A question we are asked nowadays is, “What causes people to die who take extraordinary steps to remain healthy?”

Our response is that in many cases, there is one precipitating catastrophic event that ignites a cascade of degenerative changes that culminate in death.

A classic example is an otherwise fit elderly individual who sustains a bone fracture. The combination of trauma, systemic inflammation, loss of mobility, hospital confinement, and psychological stress can result in several diseases emerging that conspire to kill the victim in a relatively short time.

Catastrophic events are by no means limited to accidents. Surgical trauma or the impact of temporary loss of blood flow can also initiate a downward spiral from which an aging person never recovers.

Aortic stenosis is a catastrophic event that strikes aging individuals, but may be thwarted by a supplement that was introduced in 1999.\textsuperscript{1,2}

It is too early to know for sure, but there is provocative evidence that what members already do to protect against atherosclerosis and bone loss also prevents calcification of the aortic valve.\textsuperscript{3,4}
The Aortic Valve

Blood exits the heart to nourish the body from the left ventricle. With each heartbeat, the aortic valve opens (to let blood out) and closes to enable the left ventricle to fill with fresh oxygenated blood from the lungs.

In aortic stenosis, the aortic valve narrows and does not open fully. The result is the left heart ventricle enlarges as it desperately tries to force blood out through the constricted aortic valve. If not treated surgically, the aortic valve may either constrict so tightly that blood cannot exit the heart, or congestive heart failure may set in as the left ventricle deteriorates in response to having to squeeze harder to push blood through the narrowed aortic valve.

In the case of aortic stenosis, the catastrophic life-threatening event can emanate from surgical trauma (which can inflict short- and long-term side-effects) and anticoagulant drugs like warfarin.

Prevalence of Aortic Stenosis

While 2-9% of people over age 65 are diagnosed with aortic stenosis, 12 48% of those over age 85 have aortic sclerosis, which is the calcification and thickening of the valve without left ventricular constriction.

Aortic sclerosis is considered a precursor for eventual constriction (obstruction of blood flow out of the heart) that is ultimately diagnosed as aortic stenosis. Most of those with aortic sclerosis succumb to another disease before frank stenosis manifests.

Historically, most cases of aortic stenosis were thought to result from the "wear and tear" of aging. This perception is changing.

Taking steps to protect against calcification and thickening of the aortic valve would be expected to significantly reduce stenosis risk in one's older years, when surgical procedures are of particular risk.

What Causes Aortic Calcification?

Calcium is always circulating in the blood. Our body goes to great lengths to maintain calcium blood levels in a very narrow range. Too much or too little blood calcium is invariably fatal.

Lining our arteries and heart valves is a protein that regulates whether or not circulating blood calcium infiltrates (calcifies) our vasculature. The name of this calcium-regulating protein is matrix gamma-carboxyglutamic acid. To avoid having to repeat this tongue-twister again, we will refer to it from now on as MGP.

MGP is synthesized in the vascular walls and plays a key role in regulating vascular calcification. Whether MGP allows vascular calcification or inhibits it depends on its state of carboxylation. When MGP is under-carboxylated, vascular calcification spontaneously occurs. When MGP is fully carboxylated, it functions as a potent inhibitor of vascular calcification.

Carboxylation of MGP is dependent on vitamin K. In fact, MGP is classified as a vitamin K-dependent protein because it cannot shield against calcification without adequate vitamin K.
Epidemic of Systemic Calcification

In the aged population, vascular calcification is ubiquitous. Autopsy reports show that 75-95% of men and women suffer some degree of vascular calcification. Since calcification occurs in soft tissues throughout our body, including the kidneys, lungs, heart, and brain, this calcification epidemic is of great concern to those seeking to avoid a “catastrophic event” that precipitates a lethal downward spiral.27,28

It is fortunate that we are not dependent on a future breakthrough discovery to protect against vascular calcification as it may be prevented by correcting a vitamin K deficiency.29-32

Human Clinical Data

An interesting study published in 2008 measured the amount of under-carboxylated MGP in the blood of healthy individuals and compared it to those with severe vascular diseases including aortic stenosis. The findings showed that virtually all diseased subjects had under-carboxylated MGP levels below the normal adult range.20 If only these individuals with severe vascular disease had maintained adequate vitamin K status, they may not have been on death’s door.

The most frequently cited data about vitamin K and vascular disease risk came from a study of more than 4,800 subjects who were followed for 7-10 years in the Netherlands. People in the highest one-third of vitamin K2 intake had a 57% reduction in risk of dying from cardiovascular disease, compared to those with the lowest intake. In the group with the highest vitamin K2 intake, risk of severe aortic calcification plummeted by 52%.2

It is doubtful that any of these European study subjects were taking vitamin K supplements. This means that just the tiny microgram amounts obtained in their diets is what may have produced this 52% reduction in risk of severe aortic calcification.

Based on findings that maximal carboxylation of MGP requires significantly higher levels of vitamin K than obtained through diet, those taking vitamin K supplements might obtain greater benefit.33-36

The missing part of this puzzle is controlled clinical studies showing that vitamin K supplements themselves prevent aortic stenosis. Instead, we rely on intriguing clinical data that consistently show low vitamin K status in those who develop aortic valve calcification.1,35-37 We know that vitamin K is essential for MGP-carboxylation, which in turn shields heart valves and arteries from pathological calcification.37 We also know that vascular calcification is an active and therefore potentially preventable process if vitamin K intake is increased.38,39

AS WE SEE IT

Gross anatomy of an atherosclerotic human aorta showing plaque accumulation.

Illustration of balloon valvuloplasty for aortic stenosis: dilation of a stenotic aortic valve by inflation of a wire-guided balloon.
Europeans Have Access to Less Invasive Technique

Since 2007, Europeans have had an option to avoid the horrific surgical trauma associated with aortic valve replacement.40

Instead of open heart surgery, a balloon catheter carrying a highly compressed bovine tissue replacement valve is inserted into an artery in the leg and threaded to the heart. Once the catheter reaches the beating heart, the balloon inflates and secures the new valve in place to replace the calcified aortic valve. Patients are functional within days as opposed to sometimes months of recuperation required for conventional open heart procedures. In addition to improved survival, patients experienced substantially better quality of life afterwards.41

This method is being used around the world, but the FDA has not yet approved it. This is unfortunate as many elderly Americans are so sick that they cannot qualify for open heart surgery, and if they do, they may die from surgical complications.

By way of real world example, an 88-year-old relative of this magazine’s editor was told by her cardiologist that she had only a short time to live if she did not have her aortic valve replaced. She was taken to four different surgeons in New York City, who all wanted to do conventional open heart surgery. There are many concerns with a person this age, including cognitive deficits that occur in many patients placed on heart-lung machines and heightened risk of pneumonia and other infections during the long recovery phase.

Dr. Michael Ozner, a member of Life Extension’s Scientific Advisory Board, informed our editor of the PARTNER trial in which surgeons were inserting a bovine tissue valve with a cobalt-chromium frame via catheter without open heart surgery. None of the top-rated surgeons who were initially visited were aware of this new procedure. The editor found that there was a trial location in New York at Columbia-Presbyterian Hospital. His relative was enrolled in the program knowing if she would be randomized for open heart surgery or this new procedure. Fortunately, she was chosen to be a part of the experimental group and was spared open heart surgery. The procedure was done on Thursday, she was up and walking on Friday, and was home on Monday. Two years after the procedure and now approaching age 91, she continues to work out with her trainer and takes her supplements. Equally as impressive, she does not need to take Coumadin® or other anti-coagulant drugs that mechanical valve patients require for life. Coumadin® increases vascular calcification and accelerates osteoporosis by depleting vitamin K.42

The PARTNER trial reported preliminary results on April 3, 2011, at the annual meeting of the American College of Cardiology. The study compared 699 elderly patients. Half received the catheter-inserted aortic valve while the other half received an open-heart surgery-implanted valve. The overall death rate was slightly lower at one year for the group receiving the catheter-implanted valve, though there were twice as many major strokes in the catheter-implanted group in the post-surgical period.43 Doctors anticipated improvements in future versions would reduce stroke risk.

The study is scheduled to enroll a total of 1,040 patients with a completion date anticipated in year 2014.

If you or someone you know needs aortic valve replacement surgery, you can find out about clinical trials being conducted throughout the United States by logging on to www.lef.org/aortic.
Other Factors Involved in Aortic Stenosis

Like the modern day scourge of atherosclerosis, there are many risk factors for aortic stenosis. While the majority of individuals who develop coronary atherosclerosis do not suffer aortic stenosis, the two diseases nonetheless share common risk factors.

Those with elevated LDL,
triglycerides,
and other atherogenic lipids have higher rates of aortic stenosis. Elevated C-reactive protein levels are also correlated with aortic valve disease.

Underlying conditions that predispose people to coronary atherosclerosis such as hypertension, smoking, and diabetes have been consistently linked to the development of aortic stenosis.

Other factors associated with aortic stenosis include osteoporosis, which is also strongly associated with vitamin K deficit. Those suffering from elevated blood calcium, obesity, and renal failure have higher incidences of aortic stenosis, which is why annual blood testing is so important to identify correctable problems before irreversible disease takes hold.

Please remember that the use of calcium supplements is not the cause of increased blood calcium levels. Healthy persons have an intricate regulatory system that precisely controls how calcium is utilized in the body. When calcium is deficient in the blood, parathyroid hormone acts to remove it from the bone to ensure blood levels are maintained.

Without adequate calcium intake, parathyroid hormone will continue to remove calcium from bone to the point that a person becomes osteoporotic. Since calcium is required for vital life functions beyond bone density, the body will continuously rob bones of calcium to ensure stable blood levels if there is not sufficient intake from diet or supplements. So the body makes sure there is always enough calcium in the blood to sustain vital life functions. The side effect of the body’s vigilant maintenance of blood calcium is that this calcium is freely available to calcify tissues (including our heart valves).

In the presence of enough vitamin K, however, calcium binds to the skeletal matrix where it is needed to maintain bone density and is simultaneously inhibited from infiltrating the vasculature (including arteries and valves).

Risk Factors for Aortic Stenosis Overlooked by Most Doctors

In order for calcium to infiltrate the aortic valve, there is first an initial injury to the endothelium (inner vascular lining). Homocysteine is a prime culprit that causes the initial endothelial injury that leads to atherosclerosis and possibly aortic stenosis later in life. What conventional doctors fail to acknowledge today is homocysteine’s role in initiating damage to the vascular system.
A group of doctors at the Cleveland Clinic assessed the association between homocysteine levels and various degrees of aortic valve disease in 76 surgical patients. In patients with normal aortic valves, mean homocysteine level was 10.9 (μmol/L). Patients with aortic sclerosis had homocysteine mean levels of 11.4. Those with the more severe aortic stenosis had a significantly higher mean homocysteine level of 15.4! While the small size of this study limited its predictive value, the doctors stated, “It is conceivable that the elevated homocysteine levels seen in patients with renal impairment or older age could contribute to the more rapid progression of aortic stenosis observed in these patient populations.”

Triumphs and Tragedy of Jack LaLanne

In December 2009, Jack LaLanne at age 95 underwent aortic valve replacement surgery. A little over 13 months later, he died at age 96 of respiratory failure due to pneumonia. Even in healthy elderly individuals, the traumatic impact of aortic valve surgery can be the “catastrophic event” that leads to a rapid downward spiral culminating in death.

There may never be a better example than Jack LaLanne of someone who did virtually everything right, but appears to have missed out on one key nutrient—vitamin K2—that may have prevented calcification of his aortic valve. Jack LaLanne was a pioneer hero who promoted and followed very healthy lifestyle practices—decades before others knew about them.

When Jack LaLanne first proposed intensive exercise with...
weights in 1936, mainstream doctors warned that it would cause all kinds of terrible medical problems. This was the same medical establishment who said cigarette smoking was not dangerous. Jack LaLanne not only promoted lifelong physical activity, but also calorie moderation and avoiding all unhealthy foods.

Jack LaLanne’s last book was published in 2003. The supplement regimen he recommended, however, appears to have been trapped in 1970s ideology. He mentioned the importance of vitamin K1 only in the context of normal blood clotting and recommended green leafy vegetables as the main source. We now know, of course, that almost everyone obtains enough vitamin K for their blood to clot, but not nearly enough vitamin K2 to protect against soft tissue calcification.

As we often observe with elderly individuals, they tend to remember facts dating back decades but find new concepts difficult to grasp. Out of enormous respect for Jack LaLanne being scientifically ahead of his time regarding healthy eating and exercise, nowhere in his last book is there any mention about other critical steps that aging men should follow, such as maintaining youthful hormone balance. Low DHEA, for example, can compromise immune function, and the pneumonia Jack LaLanne acutely died of is common in elderly individuals with weakened immunity.

We don’t know what supplements Jack LaLanne was using, but based on the recommendations made in his last book, there was no mention of omega-3s, CoQ10, amino acids like carnitine, dipeptides like carnosine, vitamin K2, higher-dose vitamin D, or many of the other nutrients that enlightened individuals take today.

In reading Jack LaLanne’s last book (titled Revitalize Your Life), I can confidently state that if everyone in America followed his strict dietary and exercise programs, incidence of today’s major killers would plummet to extremely low levels. Jack LaLanne’s stern recommendations to avoid junk and other unhealthy foods alone could bail this country out of the health care cost crisis it now faces.

At the same time we pay tribute to Jack LaLanne’s foresight, we must acknowledge the lethal consequence of omission. New information is published daily that provides clues as to what aging individuals can do to prevent the lethal “catastrophic event” that initiates a downward spiral of endless degenerative disease. When these clues become substantiated in well-controlled human studies, it is imperative for aging individuals to incorporate them into their own daily programs. We fear Jack LaLanne’s omissions may have created his personal catastrophic event.
What is not yet known is whether higher intakes of vitamin K2 will reverse aortic calcification. Based on what has been published to date, there is a considerable basis to believe it will inhibit calcification in tissues throughout our aging bodies, thus reducing our odds of encountering the “catastrophic event” that could prematurely terminate our lives.

For longer life,

William Faloon

References


(References continue on page 16.)
MALE AND FEMALE BLOOD TEST PANELS

Unlike commercial blood tests that evaluate only a narrow range of risk factors, Life Extension’s **Male** and **Female Blood Test Panels** measure a wide range of blood markers that predispose people to common age-related diseases. Just look at the huge numbers of parameters included in the **Male and Female Blood Test Panels**:

### MALE PANEL

**LIPID PROFILE**
- LDL (low-density lipoprotein) calculated
- HDL (high-density lipoprotein)
- Triglycerides
- Total Cholesterol

**CARDIAC MARKERS**
- C-Reactive Protein (high sensitivity)
- Homocysteine

**HORMONES**
- DHEA-S
- Free Testosterone
- Total Testosterone
- Estradiol (an estrogen)
- TSH (thyroid function)
- Sex Hormone-Binding Globulin (SHBG)

**METABOLIC PROFILE**
- Glucose
- Kidney function tests: creatinine, BUN, uric acid, BUN/creatinine ratio
- Liver function tests: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase
- Blood minerals: calcium, potassium, phosphorus, sodium, chloride, iron
- Blood proteins: albumin, globulin, total protein, albumin/globulin ratio

**COMPLETE BLOOD COUNT (CBC)**
- Red Blood Cell count including: hemoglobin, hematocrit, MCV, MCH, MCHC, RDW
- White Blood Cell count including: lymphocytes, monocytes, eosinophils, neutrophils, basophils
- Platelet count

**CANCER MARKER**
- PSA (Prostate Specific Antigen)

### FEMALE PANEL

**LIPID PROFILE**
- LDL (low-density lipoprotein) calculated
- HDL (high-density lipoprotein)
- Triglycerides
- Total Cholesterol

**CARDIAC MARKERS**
- C-Reactive Protein (high sensitivity)
- Homocysteine

**HORMONES**
- Progesterone
- DHEA-S
- Free and Total Testosterone
- Estradiol (an estrogen)
- TSH (thyroid function)
- Sex Hormone-Binding Globulin (SHBG)

**METABOLIC PROFILE**
- Glucose
- Kidney function tests: creatinine, BUN, uric acid, BUN/creatinine ratio
- Liver function tests: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase
- Blood minerals: calcium, potassium, phosphorus, sodium, chloride, iron
- Blood proteins: albumin, globulin, total protein, albumin/globulin ratio

**COMPLETE BLOOD COUNT (CBC)**
- Red Blood Cell count including: hemoglobin, hematocrit, MCV, MCH, MCHC, RDW
- White Blood Cell count including: lymphocytes, monocytes, eosinophils, neutrophils, basophils
- Platelet count

Non-member retail price: $400 • Everyday member price: $269

To obtain these comprehensive **Male** or **Female** Panels at these low prices, **call 1-800-208-3444 to order your requisition forms.**

Then—at your convenience—you can visit one of the blood-drawing facilities provided by LabCorp in your area. (Restrictions apply in NY, NJ, RI, MA)

If you plan to use the result of these blood tests to assist in a medically supervised weight loss program, consider ordering the Male or Female **Weight Loss Panel** for the member price of $299. These panels were designed to offer additional hormones for those desiring assistance with weight loss.


49. Swierzcz J, Dubiel JS, Milewicz T, Sztelek K, Krzyśkiewicz J. Smoking, increase in plasma lipoprotein (a) and triglycerides, as well as decrease in plasma HDL-cholesterol concentrations seem to be linked with aortic valve stenosis and its progression. *Preegl Lek.* 2009; 66(4):159-65.


Cruciferous Vegetable Soup

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

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

Each serving of Cruciferous Vegetable and Asian Cruciferous Vegetable soup contains only 80 to 90 calories of the best-documented foods to maintain your precious health. You can consume the entire contents as a healthy lunch or dinner, or use a smaller portion of the soup as part of a meal for you (or several people).

Each 80-90 calorie serving of these new soups provides a full serving of the world’s healthiest vegetables. The entire pouch supplies about 3.5 servings of these vegetables—with none of the cheap starch fillers found in commercial soups.

The retail price of either the Cruciferous Vegetable or Asian Cruciferous Vegetable soups is $11.95. Member price is $8.96. If a Life Extension® member purchases any assortment of six pouches, the price is reduced to $8.44 per pouch.

To order your fresh supply of Life Extension’s Cruciferous Vegetable or the Asian Cruciferous Vegetable soups, call 1-800-544-4440 or visit www.lef.org/soup
There are three forms of vitamin K that the human body can utilize to promote arterial health and bone support.\(^1\)\(^-\)\(^8\)

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

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

**Vitamin K2** is usually found in meats, dairy, and egg yolks. Since you may be avoiding these foods for health reasons, ingesting a K2 supplement is essential. MK-4 is the most rapidly absorbed form of K2, and MK-7 boasts a very long half-life in the body, making both forms the perfect complement to any vitamin K regimen.\(^9\)

The retail price for a bottle containing 90 softgels (three-month supply) is $26. If a member buys four bottles, the price is reduced to just $17.25 per bottle.

*Super K* formula provides in just one daily softgel:

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin K1</td>
<td>1000 mcg</td>
</tr>
<tr>
<td>Vitamin K2 (MK-4)</td>
<td>1000 mcg</td>
</tr>
<tr>
<td>Vitamin K2 (MK-7)</td>
<td>100 mcg</td>
</tr>
</tbody>
</table>

The same *Super K* formula consisting of Vitamin K1, K2 (MK-4) and K2 (MK-7) can be found in the *Life Extension\(^{\circledR}\) Super Booster*. If you take the *Super Booster*, you do not need additional *Super K* softgels.

Contains tree nuts (coconut).

**Warning to Coumadin\(^{\circledR}\) (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.

**To order Super K 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.
Garlic and Grape Seed Supplementation Associated with Fewer Blood Cancers

An article published in the journal Cancer Epidemiology, Biomarkers & Prevention reveals a link between increased use of garlic or grape seed supplements and a lower risk of hematologic malignancies, including Hodgkin and non-Hodgkin lymphomas, and leukemia.*

Researchers examined data from 66,227 men and women enrolled in the VITamins And Lifestyle study. Responses to questionnaires completed between 2000 and 2002 were used to estimate the ten year average daily dose of each supplemental vitamin, mineral or specialty supplement consumed prior to enrollment.

Five hundred eighty-eight hematologic malignancies were identified among the subjects through December 2008. Among those who reported using garlic supplements for at least four days a week over three or more years, there was a 45% lower adjusted risk of a hematologic cancer compared to those who reported no use. For grape seed, the risk was 43% lower in those who reported ever using the supplement compared to nonusers.

Editor’s Note: Daily use of multivitamin supplements for at least eight years was associated with a non-significant 20% lower risk of hematologic malignancies in comparison with no use.

–D. Dye


Omega-3 Fatty Acid Supplementation Associated with Decreased Cognitive Decline in Older Men and Women

An article published in The Journal of Nutrition, Health & Aging establishes a link between the use of omega-3 fatty acid supplements and a reduced risk of cognitive impairment.*

The current study sought to determine the association of omega-3 from supplements with the development of cognitive decline. Researchers at National University of Singapore analyzed data from 1,475 participants in the Singapore Longitudinal Aging Studies who did not have dementia upon enrollment. Questionnaires administered at the beginning of the study were analyzed for the frequency of omega-3 fatty acid supplement use and for the intake of fish, from which these fatty acids are derived. Cognitive performance was evaluated at enrollment and at a median of 1.5 years later.

Compared to those who did not report daily supplementation, those who supplemented had a 63% lower adjusted risk of being diagnosed with cognitive decline over follow-up.

–D. Dye

Meta-Analysis Affirms Efficacy for Zinc Lozenges in Common Cold

The outcome of a meta-analysis published in the Open Respiratory Medicine Journal concludes that zinc lozenges are beneficial in reducing the length of colds if the mineral is available in sufficient quantities.*

Dr. Harri Hemilä of the University of Helsinki selected thirteen placebo-controlled trials examining the effects of zinc lozenges on cold duration. Three trials tested zinc acetate and five trials tested other forms of zinc in daily doses of greater than 75 milligrams. The remaining five trials evaluated the use of lozenges that contained lower doses of the mineral.

While pooled analysis of the five trials that analyzed the effects of less than 75 milligrams zinc found no benefit, zinc acetate consumed in doses higher than 75 milligrams per day was associated with a 42% reduction in cold duration. Consuming more than 75 milligrams of other forms of zinc was associated with a 20% decrease in the length of colds.

Editor’s Note: Although no long-term adverse effects were observed, high doses of zinc consumed for extended periods of time are not recommended. Nevertheless, Dr. Hemilä remarks that 150 milligrams per day of zinc has been administered for therapeutic uses for months or years in specific patients, and that a trial involving six weeks of supplementation at this level failed to result in a deficiency of copper (a potential side effect of prolonged intake of high amounts of zinc).


Antioxidants Show Potential for Infertility

An analysis published online in the journal Pharmacological Research reviews the role of antioxidants in the treatment of infertility issues in men and women and concludes that the compounds show significant promise via their effects on vascular function.*

“While the direct effects of antioxidant treatment on the quality of semen and oocytes are still under investigation, a significant body of evidence points to loss of vascular tone as a root-cause of erectile dysfunction and, possibly, alterations to female reproduction,” write authors Francesco Visioli and Tory M. Hagen.

The authors remark that nitric oxide synthesis and bioavailability, which play a major role in vascular function, are impaired by compounds known as free radicals. These damaging molecules can be controlled, in part, by increasing the availability of antioxidants. While commonly supplemented antioxidants, including vitamins C and E, may be helpful, other antioxidants, such as lipoic acid, may have a more profound benefit.

Editor’s Note: Dr. Hagen added that treatment with antioxidants, “Might help prevent other critical health problems as well, at an early stage when nutritional therapies often work best.”


Protein Supplementation Lowers Blood Pressure

In an article published online in Circulation: Journal of the American Heart Association, Jiang He, MD, PhD, and associates report the outcome of a crossover trial which found that milk and soy protein supplements lower systolic blood pressure among those in the early stages of hypertension.*

A team led by Dr. He divided 352 adults with prehypertension or stage 1 high blood pressure to receive 40 grams of soy or milk protein, or a refined carbohydrate supplement daily for eight weeks, followed by a three week wash-out period in which no supplements were given. The subjects then participated in two additional treatment phases in which they received supplements that had not previously been administered.

The trial revealed a reduction in systolic blood pressure associated with protein, but not carbohydrate, supplementation. “The systolic blood pressure differences we found are small for the individual, but they are important at the population level,” Dr. He stated.

Editor’s note: The authors remark that the study’s findings suggest that partially replacing carbohydrate with soy or milk protein could become part of a nutritional intervention to help prevent or treat high blood pressure.

Meta-Analysis Adds Evidence to Association Between Omega-3 Supplementation and Homocysteine Reduction

The outcome of a meta-analysis of 11 trials published in the journal *Nutrition* uncovered a significant reduction in plasma homocysteine in association with greater intake of omega-3 polyunsaturated fatty acids.*

Researchers in China pooled the results from 702 participants in randomized trials that compared the effects of supplementation with omega-3 fatty acids to a placebo. Treatment periods ranged from 6 to 48 weeks, and doses varied between 0.2 and 6 grams per day.

The analysis confirmed a reduction in plasma homocysteine levels in association with omega-3 fatty acid supplementation, with an average decrease of 1.59 micromoles per liter experienced by those who supplemented compared to those who received a placebo.

“Our systematic review provides, to our knowledge, the most comprehensive assessment to date of the effects of omega-3 polyunsaturated fatty acids on plasma homocysteine,” the authors announce.

*Editor's Note:* The authors suggest modulation of gene expression of enzymes involved in the formation and metabolism of plasma homocysteine as a possible mechanism of action for omega-3.

--D. Dye

* *Nutrition.* 2011 Sep;27(9):863-7.

---

CoQ10 Levels Reduced in Septic Shock

An article published in the journal *Critical Care* documents the finding of decreased levels of coenzyme Q10 (CoQ10) in patients with septic shock.*

Harvard researchers utilized data from 14 patients with septic shock who participated in a placebo-controlled trial of statin drugs. Blood samples drawn from the septic patients prior to treatment and from 16 healthy controls were analyzed for coenzyme Q10, low-density lipoprotein (LDL), and vascular endothelial and inflammatory markers.

While the control group had a median CoQ10 level of 0.95 micromoles per liter, which is similar to levels previously measured in healthy patients, the median baseline level for those with septic shock was 0.49 micromoles/liter. Higher CoQ10 levels were associated with lower levels of vascular endothelial biomarkers and inflammatory cytokines, although only vascular cell adhesion molecule (VCAM) and interleukin-10 remained lower following the adjusted analysis.

*Editor's Note:* Sepsis is an inflammatory state resulting from the spread of infectious agents in the bloodstream. Sepsis and septic shock are major causes of illness and mortality in the US, with over 215,000 deaths occurring each year.

--D. Dye


---

Green Tea Intake Shows Protective Effect Against Flu

In addition to ensuring optimal intake of vitamins C and D during the upcoming flu season, it may be wise to regularly indulge in a soothing pot of green tea, according to the results of a Japanese study published in the *Journal of Nutrition.*

Researchers at the University of Shizuoka conducted surveys of 2,050 pupils during influenza season from 2008 to 2009. The responses provided information concerning the quantity of green tea intake, preventive measures taken against influenza, and the incidence and duration of infections.

Among children who reported drinking tea at least six days per week there was a 40% lower risk of being diagnosed with influenza compared to those who consumed tea fewer than three days per week. Subjects who consumed three to five cups per day had a 46% lower risk of contracting flu in comparison with those who consumed less than one cup daily.

*Editor's Note:* “Contrary to the results of green tea consumption, general preventive measures (such as influenza vaccination, hand hygiene, and the use of facemasks) were not associated with the incidence of influenza infection,” the authors remark.

--D. Dye

* *J Nutr.* 2011 Aug 10.
Saffron Prevents Liver Cancer in Animal Model

In the journal *Hepatology*, Arab researchers report a protective effect for saffron against cancer of the liver in rats.*

Amr Amin and colleagues divided 48 rats into six groups. Liver tumors were induced in four of the groups by the administration of DEN, a potent carcinogen. While one group given DEN received no additional treatment, the three other groups received varying doses of saffron beginning two weeks prior to injection with the carcinogen. Rats that were not treated with DEN were given water or saffron throughout the course of the 20-week study.

Among rats that received the carcinogen, fewer of the saffron-treated animals had liver masses at the end of the treatment period in comparison with rats that were not pretreated, and the number of nodules detected was lower. No nodules were found in the rats that received the highest dose of saffron.

* *Hepatology*. 2011 May 23.

Omega-3 Fatty Acid Protects Brain from Severe Stroke Damage

In an article published in the journal *Stroke*, researchers at Université Laval Quebec report that the administration of the omega-3 fatty acid docosahexaenoic acid (DHA), which occurs in fish oil, reduces damage caused by stroke in an animal model.*

The team gave male mice a diet supplemented with DHA, a diet deficient in omega-3 fatty acids, or a control diet for three months. Stroke was induced by middle cerebral artery occlusion, and the size of the damaged areas was assessed. Blood samples were analyzed for markers of inflammation and other factors.

Mice that were treated with DHA had areas of ischemic damage that were 25% smaller and higher levels of a molecule that prevents programmed cell death compared with the other groups. The DHA-treated animals also had lower levels of the inflammatory markers COX-2 and interleukin-1, as well as a higher ratio of omega-3 to omega-6 fatty acid levels.

* *Stroke*. 2011 Aug 18.

Omega-3 Users Are Different

The International Conference on Alzheimer’s Disease was the site of a presentation by Lori Daiello, Pharm.D. of the finding of differences in brain structure between individuals who supplement with fish oil and those who do not.*

The current study included 819 participants in the Alzheimer’s Disease Neuroimaging Initiative, which conducted periodic brain magnetic resonance imaging and memory testing on older adults with normal cognitive function, mild cognitive impairment and Alzheimer’s disease over a three year period. Dr. Daiello and her colleagues compared data obtained from 117 men and women who reported regular fish oil supplement use with data from 702 nonusers.

The team found greater brain volume and better cognitive function over follow-up in fish oil users who did not test positive for the APOE4 gene, which is a risk factor for Alzheimer’s disease. “In other words, fish oil use was associated with less brain shrinkage,” Dr. Daiello stated.


Editor’s Note: In separate experiments in cultured liver cancer cells, the administration of saffron was shown to arrest growth and increase programmed cell death.

–D. Dye

Editor’s Note: Fish oil contains the omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which have been associated with improved cognitive function.

–D. Dye


Editor’s Note: Co-author Frédéric Calon observed that “Since DHA is readily available, inexpensive, and reduces the risk of a number of health problems without causing significant side effects, the risk:benefit ratio tends to favor the regular consumption of fish or DHA.”

–D. Dye
The following table compares the daily dosage of key nutrients included in both the Life Extension® Two-Per-Day Tablet and Centrum®’s Daily Tablet:

<table>
<thead>
<tr>
<th>SAMPLE INGREDIENT COMPARISON</th>
<th>LIFE EXTENSION TWO-PER-DAY</th>
<th>CENTRUM®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin C</td>
<td>500 mg</td>
<td>60 mg</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>2,000 IU</td>
<td>400 IU</td>
</tr>
<tr>
<td>Vitamin B1</td>
<td>75 mg</td>
<td>1.5 mg</td>
</tr>
<tr>
<td>Vitamin B2</td>
<td>50 mg</td>
<td>1.7 mg</td>
</tr>
<tr>
<td>Vitamin B6</td>
<td>75 mg</td>
<td>2 mg</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>300 mcg</td>
<td>6 mcg</td>
</tr>
<tr>
<td>Niacin (as niacinamide)</td>
<td>50 mg</td>
<td>20 mg</td>
</tr>
<tr>
<td>Pantothentic acid</td>
<td>100 mcg</td>
<td>10 mg</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>200 IU (natural)</td>
<td>30 IU (synthetic)</td>
</tr>
<tr>
<td>Natural Folate</td>
<td>400 mcg</td>
<td>400 mcg</td>
</tr>
<tr>
<td>Zinc</td>
<td>30 mg</td>
<td>11 mg</td>
</tr>
<tr>
<td>Selenium</td>
<td>200 mcg</td>
<td>55 mcg</td>
</tr>
<tr>
<td>Lutein</td>
<td>5 mg</td>
<td>(none)*</td>
</tr>
<tr>
<td>Lycopene</td>
<td>2 mg</td>
<td>(none)*</td>
</tr>
<tr>
<td>Biotin</td>
<td>300 mcg</td>
<td>30 mcg</td>
</tr>
<tr>
<td>Boron</td>
<td>3 mg</td>
<td>75 mcg</td>
</tr>
<tr>
<td>Chromium</td>
<td>200 mcg</td>
<td>35 mcg</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>100 mcg</td>
<td>45 mcg</td>
</tr>
<tr>
<td>Magnesium</td>
<td>100 mg</td>
<td>50 mg</td>
</tr>
<tr>
<td>Manganese</td>
<td>2 mg</td>
<td>2.3 mg</td>
</tr>
<tr>
<td>Iodine</td>
<td>150 mcg</td>
<td>150 mcg</td>
</tr>
<tr>
<td>Potassium</td>
<td>25 mg</td>
<td>80 mg</td>
</tr>
<tr>
<td>Vitamin A (as beta-carotene)</td>
<td>500 IU</td>
<td>1,015 IU</td>
</tr>
<tr>
<td>Vitamin A (as beta-carotene)</td>
<td>4,500 IU</td>
<td>2,485 IU</td>
</tr>
<tr>
<td>Choline (as bitartrate)</td>
<td>20 mg</td>
<td>(none)</td>
</tr>
<tr>
<td>Inositol</td>
<td>50 mg</td>
<td>(none)</td>
</tr>
<tr>
<td>PABA</td>
<td>30 mg</td>
<td>(none)</td>
</tr>
<tr>
<td>Calcium</td>
<td>12 mg</td>
<td>200 mg</td>
</tr>
</tbody>
</table>

For many years, Life Extension® members had to rely on commercial “one-a-day” supplements that provide very low potencies.

In response to requests for a science-based multi-nutrient, a special formula was compounded to provide the greatest potencies that can fit into two tablets. When compared to conventional “one-a-day” products, Life Extension Two-Per-Day contains up to 50 times more potency!

The box on this page reveals how much more potent the Two-Per-Day formula is compared to the leading commercial multi-vitamin. Few consumers realize that commercial supplements often contain the cheapest form of nutrients that don’t provide optimal benefits. For example, the 30 IU of synthetic vitamin E contained in Centrum® may provide relatively little vitamin E to the bloodstream. The 200 IU of natural vitamin E contained in Two-Per-Day thus provides about 7 times more vitamin E activity than does Centrum®.

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

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

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

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

To order Life Extension Two-Per-Day Tablets, call 1-800-544-4440 or visit www.LifeExtension.com

Contains soybeans, rice, and corn.

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

CAUTION: Individuals consuming more than 2,000 IU/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxy vitamin D measurement. Vitamin D supplementation is not recommended for individuals with hypercalcemia (high blood calcium levels).

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.
If you’re struggling to maintain healthy body weight, you’re not alone. Up to 65% of Americans face the same challenge. Even a modest increase in fat pounds can have an impact on overall health, especially when it’s stubborn belly or visceral fat.

The problem is that conventional methods to combat age-related changes that predispose us to weight gain have proven ineffective. Adjustments in diet and lifestyle alone are often not enough. But there’s hope . . .

**State-of-the-Art**

**Dual Plant Extract Technology**

To help maturing individuals deal effectively with this serious health issue, Life Extension® introduces a brand new, clinically validated solution: Advanced Anti-Adipocyte Formula with AdipoStat.

AdipoStat is the first dietary intervention to support healthy body weight using these innovative approaches. Through multiple pathways, it targets the mechanisms by which fat-storing cells or adipocytes become bloated and metabolically dysfunctional.

This widely overlooked cellular condition leads to excess fat accumulations in the belly and throughout your body.

After careful scientific analysis of over 1,000 plant extracts, researchers identified the two species included in AdipoStat that target adipocytes: *Sphaeranthus indicus* flower (*S. indicus*) and the mangosteen fruit (*Garcinia mangostana*).

Optimal results were shown in studies when these two plant extracts were combined.
Three Ways to Fight Fat Cell Derangements

AdipoStat functions via the following mechanisms to support healthy body weight:

1. AdipoStat targets adipocyte (fat cell) creation.
3. AdipoStat induces fat in adipocytes to break down (lipolysis).

Success in Clinical Trials

AdipoStat’s performance in clinical studies indicates it can safely deliver impressive results.

In a key study, 30 adults with difficulty maintaining healthy body weight ingested 800 mg per day of AdipoStat while following a 2,000-calorie-per-day diet and were asked to walk just 30 minutes five days a week. A group of equal size was given placebo.

After just eight weeks, the AdipoStat group:

- Lost 4.05 inches of harmful belly fat—2.0 times the placebo group.
- Experienced a 2.05 drop in body mass index (BMI)—3.9 times over placebo.
- Shed 11.4 pounds of total body weight—3.7 times over placebo.

These improvements began to emerge after just 14 days.

After eight weeks, the AdipoStat group saw:

- Improved triglycerides.
- Reduced abdominal fat.
- Improved fasting blood levels.
- Increased insulin sensitivity.
- Reduced waist-to-hip ratio.

They also exhibited favorably elevated levels of a hormone called adiponectin. Adiponectin sends command signals that determine how big your fat cells get, how much they break down (lipolysis), and how often they are produced (adipogenesis).

A second human clinical trial yielded similar results, confirming AdipoStat’s beneficial effects.

The AdipoStat Formulas

There are two ways you can easily incorporate AdipoStat into your daily supplement program.

The first option is to take AdipoStat by itself. The daily dose of one vegetarian capsule of Anti-Adipocyte Formula with AdipoStat taken 30 minutes before each of the two heaviest meals of the day provides:

AdipoStat Proprietary Blend ........................................... 800 mg
(Sphaeranthus indicus extract and Garcinia mangostana extract)

The second option enables consumers to obtain the same dose of AdipoStat along with the highly popular Integra-Lean® (Irvingia gabonensis). Irvingia operates via additional mechanisms to combat surplus fat storage, including inhibition of glycerol-3-phosphate dehydrogenase, an enzyme involved in the conversion of glucose and triglycerides into adipocyte fat storage.

The Advanced Anti-Adipocyte Formula with AdipoStat and Integra-Lean® African Mango Irvingia supplies 800 mg of AdipoStat and 300 mg of proprietary Irvingia extract in the same suggested daily serving of one vegetarian capsule before each of the two heaviest meals.

Anti-Adipocyte Formula with AdipoStat
Item # 01510

A bottle containing 60 vegetarian capsules of Anti-Adipocyte Formula with AdipoStat retails for $35. If a member buys four bottles, the price is reduced to just $24 per bottle.

Advanced Anti-Adipocyte Formula with AdipoStat and Integra-Lean®
African Mango Irvingia
Item # 01509

A bottle containing 60 vegetarian capsules of Advanced Anti-Adipocyte Formula with AdipoStat and Integra-Lean® African Mango Irvingia retails for $39. If a member buys four bottles, the price is reduced to just $27 per bottle.

To order either of the Anti-Adipocyte Formulas call 1-800-544-4440 or visit www.LifeExtension.com

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

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

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

References
2. Results based on initial analyses of unpublished research data.
5. Lipids Health Dis. 2008 Nov 13;7:44.
Large volumes of published scientific findings validate the multiple health benefits of green tea. The active constituents in green tea are polyphenols, with epigallocatechin-3-gallate (EGCG) being the most powerful. The antioxidant activity of EGCG is about 25-100 times more potent than vitamins C and E.

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

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

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

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

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

Contains rice.

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

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

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

Energy to burn. It’s more than just a phrase. It’s the key to a healthy life span.

Behind every process your body needs to survive and thrive are the cellular energy generators known as mitochondria. Their function is so crucial that a growing number of scientists now believe mitochondrial longevity may determine overall longevity in aging humans. That’s why Life Extension has remained at the forefront in identifying innovative compounds that specifically support mitochondrial health.

In addition to the more comprehensive Mitochondrial Energy Optimizer with BioPQQ™ and standalone PQ products, we now offer a one capsule per day formula for individuals seeking a simplified, low-cost option called Mitochondrial Basics with BioPQQ™.

The reason? We want all members to have access to targeted nutrients required to support mitochondrial function and the generation of healthy new mitochondria.

Three Premium Compounds in One Low-Cost Formula

Mitochondrial Basics with BioPQQ™ brings together cutting-edge mitochondrial energizers, including the most exciting nutrient to emerge in recent years called pyrroloquinoline quinone or PQQ. The three ingredients in value-priced Mitochondrial Basics with BioPQQ™ are:

1. **PQQ.** This breakthrough micronutrient has recently been shown to trigger mitochondrial biogenesis—the growth of new mitochondria in aging cells! PQQ also activates genes involved in protecting the delicate structures within the mitochondria.7-10

2. **R-lipoic acid.** The detrimental effects of free radicals comprise one of the chief obstacles to optimal mitochondrial energy production. Published studies confirm R-lipoic acid’s power to promote mitochondrial bioenergetics while simultaneously blunting free radical activity.11-16 Mitochondrial Basics with BioPQQ™ contains the superior Bio-Enhanced® R-lipoic acid and is in a proprietary microencapsulated form for better absorption.

3. **Acetyl-L-carnitine arginate.** Fats are shuttled into the mitochondria for metabolic combustion by the amino acid carnitine. The acetylated form of carnitine helps to facilitate more efficient utilization of fats than carnitine alone.

Life Extension® members continue to enjoy access to a full range of targeted supplements clinically shown to optimize energy production in the mitochondria. Just one capsule a day of Mitochondrial Basics with BioPQQ™ supplies:

- **BioPQQ™** ............... 10 mg
- **R-lipoic acid** ............ 100 mg
- **Acetyl-L-carnitine** ...... 250 mg
dihydrochloride

A bottle containing 30 capsules of Mitochondrial Basics with BioPQQ™ retails for $52. If a member buys four bottles, the price is reduced to just $34.50 per bottle. PQ can also be obtained as a low-cost standalone or in the Mitochondrial Energy Optimizer with BioPQQ™ formula.

To order Mitochondrial Basics with BioPQQ™
call 1-800-544-4440 or visit www.LifeExtension.com

BioPQQ™ is a trademark of MGc (Japan). Bio-Enhanced® is a registered trademark of Geronova Research, Inc. ArginoCarr® is a registered trademark of Sigma-tau Health Sciences, Inc. and is protected by US patents 6,365,622, US 6,703,042, and EP 1202956.

References

Contains soybeans.

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.
If you or someone you know suffers arthritic pain and swelling, you’re aware that conventional medicine has largely failed to offer long-term relief.

The reason for this failure is simple. To date, the preferred interventions—drugs, exercise, heat, cold therapy, joint protection, and physiotherapy treatment—do not effectively and safely target the pro-inflammatory factors behind arthritis.

Chief among these factors are destructive molecules synthesized by the aging body that attack joint tissue. This activity must be suppressed in order to eliminate arthritis symptoms.

Emerging data suggest that fatty acids from small shrimp-like organisms called krill act in synergy with other natural anti-inflammatory compounds such as omega-3 fish oils.

New data indicate krill may help treat arthritic joint tissue by neutralizing pro-inflammatory activity.

In a group of aging individuals inflicted with arthritic pain, 300 mg per day of krill oil alone slashed pro-inflammatory C-reactive protein activity in half after just one month.\(^1\)

In a separate study of krill oil combined with hyaluronic acid and astaxanthin—both of which target pro-inflammatory agents in the body—arthritic patients reported a 55% pain reduction in under three months, with 63% entirely pain-free!\(^2\)
**Krill** are among the most populous animal species on the planet.¹ Tiny, shrimp-like crustaceans, krill flourish in the frigid waters of the Antarctic Ocean.³,⁴ Because the temperature in that salty environment hovers near the freezing point of fresh water, krill evolved a way to keep their cell membranes fluid.

Unlike long-chain polyunsaturated fatty acids from other animal sources, a high proportion of krill oil fats are found in a form known as phospholipids, which may help explain their unique function in the joints.⁴

---

**Rapid Relief from Joint Pain**

**Osteoarthritis** (OA) is the leading cause of joint pain and disability in middle-aged and elderly people.⁵,⁶ Osteoarthritis is characterized by progressive loss of joint cartilage that eventually leads to degradation of many important components of the joint.⁵ Unchecked, osteoarthritis progresses to greater degrees of inflammation and the release of destructive enzymes that literally tear the joint apart.⁵,⁷

To date, no drug therapy has proved effective at slowing or reversing joint damage in osteoarthritis.⁶,⁸ Natural compounds like glucosamine and chondroitin have shown some benefit at relieving symptoms, especially in patients with moderate to severe disease.⁸,⁹

Glucosamine and chondroitin help protect cartilage from further damage.¹⁰ Used over the long term, they can restore joint cartilage to a more youthful state, increasing its pressure resistance and naturally high elasticity.¹⁰ Laboratory and clinical studies show glucosamine and chondroitin can modify, stabilize, retard, or even help reverse the joint damage in osteoarthritis.¹⁰,¹¹

But arthritic joints need more than structural repair. They need something to slow or even stop the inflammatory processes that steadily destroy their cartilage. Marine oils such as those from fish and krill, rich in omega-3 fatty acids, offer exceptional anti-inflammatory protection. One study showed that adding the omega-3s EPA and DHA from marine oils to a glucosamine supplement produced superior pain relief compared with the glucosamine supplement alone.¹²

So why not simply supplement with fish oil along with your regular joint health supplements? Fish oils, after all, lower levels of inflammatory cytokines throughout the body. They also provide major cardiovascular benefits, as is well known.¹³,¹⁴

It turns out that there are subtle but important differences. Both fish oil and krill oil increase blood levels of omega-3s at about the same rate, which is good.¹⁵ But krill oil is superior at protecting joint cartilage from inflammatory damage, while fish oils are better at suppressing the circulating inflammatory cytokines that cause cardiovascular disease.¹⁴,¹⁶

So those with arthritic concerns should continue using fish oil to support heart health and add a lower dose of krill oil to manage joint pain, as we’ll now see.

---

**Exciting Findings in Animal Studies**

Animal models of experimentally induced arthritis have provided the first supportive data on the value of krill oil as a powerful and safe joint-targeted anti-inflammatory agent.

Arthritis-prone mice were fed diets supplemented with fish oil (known to have anti-inflammatory effects), krill oil, or placebo.²² The placebo group of the control-fed mice all developed arthritis by day 60.²² Fifty-seven percent of the control animals suffered such severe inflammation that they died. By contrast, the mice fed fish oil or krill oil demonstrated much milder disease, which progressed much more slowly. By day 54, only 15% of the krill oil group had detectable arthritis, compared with 43% of controls.²² Clinical arthritis scores were significantly lower in the krill oil group throughout, while fish oil-supplemented mice had lower scores only on about half of the days when scores were measured. Those mice that were fed the special fish oil diet significantly reduced their arthritis scores and paw swelling early in the study, but the krill oil group saw significant relief during the later phase. In addition, the krill oil–supplemented group had lower amounts of infiltration of inflammatory white blood cells into the joint and its lining, an important measure of arthritis severity.

Interestingly, the krill oil-supplemented animals had no changes in serum pro-inflammatory cytokines such as interleukin-1 beta, a dangerous cell-signaling molecule involved in a host of degenerative diseases. That meant that the anti-inflammatory effects and reduction in joint symptoms were attributable to a different mechanism than what is commonly seen with fish oil supplementation, in which inflammatory cytokine levels drop dramatically.²³,²⁵
This is a highly significant result: it demonstrates how krill oil works in synergy with fish oil to attack inflammation on multiple levels and optimize arthritis control. Based on his study, supplementing with both of these natural products (krill and fish oil) provides the best opportunity to combat inflammation on multiple levels and maximize joint and total body benefits.

**Potent Anti-Arthritis Effects Observed in Humans**

*Human studies* of krill oil in arthritis and other joint-health conditions are even more compelling. In one study, the effect of a krill oil extract on patients with arthritis and chronic inflammation was evaluated.1

One group received 300 mg/day of krill oil, and the other group received placebo. At days 7, 14, and 30, C-reactive protein (CRP, a measure of inflammation) and the widely used WOMAC arthritis score were determined.

The WOMAC score assesses levels of pain and stiffness in patients with osteoarthritis. After just 7 days of supplementation, CRP was significantly reduced by 19.3% in the krill-supplemented group, while it rose by 15.7% in the placebo group.1 CRP dropped an additional 30% and 31% at days 14 and 30, respectively, in the krill arm of the study, while it rose by 32% at day 14 in the placebo group.

Of greater clinical significance for the arthritis sufferers, WOMAC severity scores dropped significantly on all three parameters: pain, stiffness, and functional impairment.1 These improvements were not just temporary, but were sustained, with patients continuing to experience greater relief at each time point. No significant improvements were seen in the placebo recipients (See table 1 below).

**TABLE 1. Krill Oil Progressively Improves WOMAC Arthritis Scores**

<table>
<thead>
<tr>
<th>Study Day</th>
<th>Improvement in Pain</th>
<th>Improvement in Stiffness</th>
<th>Improvement in Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>29%</td>
<td>20%</td>
<td>23%</td>
</tr>
<tr>
<td>14</td>
<td>26%</td>
<td>26%</td>
<td>29%</td>
</tr>
<tr>
<td>30</td>
<td>38%</td>
<td>39%</td>
<td>36%</td>
</tr>
</tbody>
</table>

Improvements in arthritis scores were progressive in krill oil-supplemented patients, showing significant gains at each successive day of evaluation.

**Krill Oil**

- Conventional medicine has failed to effectively alleviate arthritis symptoms.
- Available treatments do not safely inhibit pro-inflammatory factors in the body, including specific proteins, cell-signaling molecules, enzymes, and immune cells.
- Krill oil suppresses the activity of C-reactive protein, a contributor to arthritic inflammation, by as much as 50%.
- Hyaluronic acid and astaxanthin operate via distinct but similar mechanisms to suppress pro-inflammatory agents.
- In a study combining krill oil with hyaluronic acid and astaxanthin, subjects reported a 55% pain reduction in under three months, with 63% entirely pain-free.
In breaking news, a second, still more compelling clinical trial has just been completed, with an even more effective krill oil formulation. The new formulation contains several valuable additional ingredients along with purified krill oil. Together, these compounds were found to augment krill oil’s clinical effectiveness in treating joint pain.

**Hyaluronic Acid Blocks Cartilage Destruction**

Hyaluronic acid (HA) is a naturally occurring polysaccharide that is a major component of joint and connective tissue. In joints, its natural function is to lubricate and cushion the joint lining from repeated impacts and microscopic trauma. It is also involved in wound repair and regeneration.

Hyaluronic acid fights arthritis via multiple mechanisms, most notably by inhibiting the enzyme MMP-13, which is a key element in the joint destruction seen in osteoarthritis. MMP-13 (which stands for matrix metalloproteinase-13) dissolves cartilage, leaving the joint space unprotected and vulnerable to friction and traumatic injury. By inhibiting MMP-13, hyaluronic acid quenches the joint degradation and slows the painful and destructive progress of arthritis.

Hyaluronic acid is now in widespread clinical use for treatment of knee osteoarthritis, where it is administered by direct injection into the joint. Recent studies have demonstrated significant improvement in arthritis sufferers’ quality of life when hyaluronic acid from natural sources is administered orally.

One potential problem with orally administered hyaluronic acid is bioavailability. Hyaluronic acid is a very large molecule that is not readily absorbed from the digestive tract by itself, limiting how much is available to help heal damaged joint tissues. But when hyaluronic acid is provided in a mixture rich in phospholipids, as found in krill oil, absorption is markedly improved, with blood levels significantly exceeding those obtained when hyaluronic acid is administered alone.

---

**Kril Oil and Fish Oil: Different Mechanisms, Greater Benefit**

Kril oil and fish oil are both healthful marine oils from ocean-dwelling animals. Both are rich in the beneficial fats known as omega-3 fatty acids, and both fight inflammation in your body.

What distinguishes krill oil from fish oil? Why is it essential for some people to supplement with both? Despite their apparent similarities, there are three important differences between these two marine oil products, differences that you need to understand in order to optimize your fight against dangerous inflammatory processes.

1. The first point of differentiation is the intended benefit and dosage. Fish oil is widely recognized for promoting cardiovascular health and favorably affecting blood lipids. Fish oil taken in sufficient doses lowers triglycerides and favorably modifies other vascular risk factors such as small, dense LDL. Optimal doses for most people of EPA is 1,400 mg and DHA is 1,000 mg. Krill oil also provides EPA and DHA (in the phospholipid forms), but it does not provide them in levels high enough for optimal cardiovascular protection.

2. The second point of differentiation is the site of action of the two marine oils. Fish oils favorably modulate inflammatory cytokines circulating in the blood, thereby reducing total body inflammation (that’s in part how they exert their beneficial cardiovascular effects). Krill oil, on the other hand, has beneficial effects locally in the joint. In one study, krill oil, but not fish oil, reduced infiltration of inflammatory cells into the joint and joint-lining tissues, a vital effect in reducing the pain, swelling, and loss of function in arthritis. In that same study, fish oil, but not krill oil, modulated blood levels of inflammatory cytokines. This study provides a neat picture of the complementary nature of these two marine oils.

3. Purified fish oil concentrates are a more cost-effective way of obtaining high doses of EPA/DHA required to protect against a wide range of degenerative disorders. Just 300 mg a day of krill oil has been shown to relieve joint pain, whereas 2,400 mg of EPA/DHA are needed each day to provide the systemic benefits of EPA and DHA omega-3s. For comparison, one would need to take approximately 30 softgels containing about 300 mg of krill oil to obtain similar amounts of DHA as found in just two purified and concentrated fish oil softgels.

Taken together, these three important points of distinction explain why it’s essential to continue supplementation with high-dose fish oil to maintain optimal cardioprotection and generalized protection from inflammation and to add krill oil to manage pain and prevent joint destruction.
Krill Oil Optimizes Multimodal Arthritis Control

**Astaxanthin Adds Anti-Inflammatory Potency**

A second additional component of a new joint health formulation is astaxanthin, a naturally occurring carotenoid pigment found abundantly in ocean-dwelling algae. Krill avidly consume these algae and accumulate high concentrations of astaxanthin. Unfortunately, standard processing practices destroy astaxanthin, depleting it from the finished krill oil product. However, this new formulation of krill and hyaluronic acid is further enriched with natural astaxanthin to maximize its therapeutic effect and enhance its stability.

Astaxanthin is a powerful antioxidant and natural anti-inflammatory agent. It is widely studied for its beneficial effects on chronic inflammatory conditions such as arthritis. Astaxanthin exerts its anti-inflammatory effects via multiple pathways, always an important plus for natural supplements over single-targeted drugs. First, its antioxidant powers reduce levels of tissue oxidation that lead to inflammation. Astaxanthin also down-regulates production and activity of several enzymes that manufacture inflammatory cytokines. Importantly, astaxanthin also reduces inducible nitric oxide synthase (iNOS), which is known to be an important inflammatory trigger in osteoarthritis.

Astaxanthin has additional, direct benefits on joint health. It inhibits apoptosis, the programmed cell death that underlies many chronic, inflammatory diseases. Apoptosis is a significant cause of cartilage loss in osteoarthritis. And like hyaluronic acid, astaxanthin inhibits the destructive enzyme MMP-13, thereby preventing the joint degradation seen in osteoarthritis.

**Clinical Benefits Accrue from Natural Krill Oil Formulation**

A new, multi-component, multi-targeted krill oil formulation with hyaluronic acid and astaxanthin has proven benefits on joint health. In a recently completed clinical trial, the formulation was compared with both a placebo and a “positive control” consisting of a glucosamine/chondroitin supplement. Two separate measures of joint pain were used, the standard WOMAC score, and also a patient-driven Visual Analogue Scale to maximize validity. A total of 107 people with joint pain completed the study in June, 2011.

The results were impressive. WOMAC scores measured on days 14, 28, and 56 of the study demonstrated a progressive drop in pain severity. When the effect of the placebo was controlled for, the krill oil formulation vividly outperformed the glucosamine/chondroitin positive control as well, achieving a 55% reduction in WOMAC pain score reduction by day 56 (See table 2 below).

**TABLE 2. Advanced Krill Oil Formulation Superior to Standard Therapy Alone**

<table>
<thead>
<tr>
<th>Study Day</th>
<th>Drop in WOMAC Score</th>
<th>Drop in VAS Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Krill Oil</td>
<td>Glucosamine/Chondroitin</td>
</tr>
<tr>
<td>7</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>14</td>
<td>35%</td>
<td>20%</td>
</tr>
<tr>
<td>28</td>
<td>44%</td>
<td>31%</td>
</tr>
<tr>
<td>56</td>
<td>55%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Percent drop in pain scores using standard WOMAC and patient-driven Visual Analogue Scale scales for subjects receiving advanced krill oil formula or standard glucosamine/chondroitin therapy.

Particularly impressive was the proportion of subjects who became entirely pain-free, attaining a WOMAC score of less than 10. A total of 63% of subjects reached this milestone by the end of the study. And an impressive 30% were pain-free already by day 14.
Scores on the Visual Analogue Scale measurement showed strikingly similar improvements, decreasing in a linear fashion from day 7 through day 56 (Table 2). A total of 68% of subjects reported themselves to be pain-free by the end of the study, consistent with the WOMAC scores.

Statistical analysis of the mean WOMAC and Visual Analogue Scale pain scores further demonstrated the superiority of the advanced krill oil formulation. The krill oil-supplemented group had a significantly higher mean treatment effect than either the glucosamine/chondroitin group or the placebo group.2

In conclusion, the krill oil supplement, enhanced with hyaluronic acid, astaxanthin, and additional antioxidant stabilizers proved clinically superior, not only to a placebo control, but to an active glucosamine/chondroitin supplement. The beneficial effects grew linearly, continuing to increase over time right up until the study's termination at 8 weeks. With two-thirds of the multi-supplemented (krill oil-hyaluronic acid-astaxanthin) patients attaining a pain-free status in that time period, this advanced triple ingredient formula has much to offer for those suffering from debilitating joint pain.

Summary

Conventional medicine has failed to effectively alleviate arthritis symptoms because the available treatments do not safely inhibit pro-inflammatory factors in the body.

Krill oil reduces infiltration of inflammatory cells into the joint and joint-lining tissues, a vital effect in reducing the pain, swelling, and loss of function in arthritis. Hyaluronic acid and astaxanthin operate via distinct but similar mechanisms to suppress pro-inflammatory agents.

In a study combining krill oil with hyaluronic acid and astaxanthin, subjects in the active group reported a 55% pain reduction in less than three months, with 63% entirely pain-free.

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

How Astaxanthin Suppresses Inflammatory Fires

Astaxanthin is a natural carotenoid with anti-inflammatory benefits. It acts by at least four distinct mechanisms.35

First it reduces oxidant-provoked cell death and mitochondrial dysfunction, two basic triggers of inflammation. Astaxanthin then enhances natural cellular antioxidant function and decreases formation of reactive oxygen species (ROS) and their lipid oxidation byproducts, both additional inflammation triggers.35

Astaxanthin also suppresses activity of caspase-3, a protein necessary to produce the cell death by apoptosis that is a feature of osteoarthritis.43 Finally, astaxanthin reduces release of inflammatory cytokines such as IL-1, IL-6, and TNF-alpha.35

References

2. Valensa. FlexPro MD Clinical Trial Overview and Results. (Data on File.) 2011.


Since Life Extension® introduced CoQ10 in 1983, our scientists have continued to develop increased potency and absorbability. **Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™** contains PrimaVie® shilajit that doubles levels of CoQ10 in the mitochondria.1

Combining CoQ10 and shilajit produced a 56% increase in cellular energy production in the brain, and in muscle there was a 144% increase in cellular energy production.2

Shilajit boosts CoQ10’s beneficial effects by stabilizing CoQ10 in the superior ubiquinol form, which prolongs its action at the cellular level.3,4 Additionally, shilajit facilitates the more efficient delivery of CoQ10 into the mitochondria, which results in enhanced cellular energy.5-9

Shilajit helps the mitochondria convert fats and sugars into the body’s main source of energy, ATP (adenosine triphosphate).5-9

Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™

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

References:

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

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

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

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

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

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
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 introduces Krill Healthy Joint Formula, a patent-pending blend of deep-sea 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

New data reveal that the phospholipid form of essential fatty acids found in krill oil is particularly effective for joint health.2 These unique phospholipid omega-3s 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 CAPSULE DAILY

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

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

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.

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

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

* It should be noted that krill oil is not a substitute for fish oil. Purified fish oil is a far more cost-effective way to obtain the recommended 1,400 mg EPA and 1,000 mg DHA per day. For example, you would have to take approximately 30 softgels of Krill Healthy Joint Formula to obtain the same amount of DHA contained in just two softgels of Life Extension’s Super Omega-3.
The degeneration of cartilage that cushions the ends of bones results in joint problems. Dehydration of the cartilage is a major culprit of this joint destruction. The symptoms range from annoying to debilitating: morning stiffness, cracking joints, and joint discomfort. The good news is, you don’t have to live with it!

Glucosamine and chondroitin have been shown in clinical studies to support healthy cartilage and joint function.* As a component of cartilage, glucosamine is key for joint function and repair. Our bodies produce a certain amount, but as we grow older, we lose the capacity to make enough. This leads to drying of the cartilage in areas such as the knees, hips, and hands, which in turn causes the cartilage to harden. With this comes joint discomfort, stiffness, and sometimes deformity.

Like glucosamine, chondroitin is another major component of cartilage and attracts fluid and helps stimulate the production of cartilage. Chondroitin acts as a carrier of liquid nutrient to the joints, thus supporting healthy fluid balance and joint movement and mobility.*

Life Extension Glucosamine/Chondroitin Caps are the highest quality supplement available on the market today. This combination uses only pharmaceutical-grade sources, yet is priced lower than products of comparable potency sold by commercial companies.

Each capsule of Glucosamine/Chondroitin Caps provide:

- **Glucosamine sulfate** (from shellfish) 400 mg
  (potassium-based)
  (from 544 mg of glucosamine sulfate 2KCl)

- **Chondroitin sulfate** 450 mg
  (from 500 mg of chondroitin sulfate sodium)

Suggested dose: One to eight caps a day.

**HIGH QUALITY, LOW PRICE**
The retail price of a 100-capsule bottle of Life Extension’s high-potency Glucosamine/Chondroitin Caps is $38. If a member buys four bottles, the price is reduced to only $24 per bottle.

Contains crustacean shellfish (shrimp, crab).

To order Glucosamine/Chondroitin 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.
Super Omega-3
EPA/DHA

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

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

Sesame Lignans and Standardized Olive Fruit Extract for Enhanced Benefits

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

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

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

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

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

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

- EPA Pure+™ Extract (eicosapentaenoic acid) 1400 mg
- DHA Pure+™ Extract (docosahexaenoic acid) 1000 mg
- Olive Fruit Extract [std. to 6.5% polyphenols (39 mg), 1.73% hydroxytyrosol/tyrosol (10.4 mg), 0.5% verbascoside/oleuropein (3 mg)] 600 mg
- Sesame Seed Lignan Extract 20 mg

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

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

CAUTION: If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product. Contains fish (anchovy, mackerel), soybeans, and sesame.

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.

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.
Go to Google and enter “mitochondria” and “neurodegeneration.” You’ll find hundreds of published studies linking the two.

The decay of mitochondria in brain cells is a primary cause of all neurodegenerative disorders, from Parkinson’s to dementia.\textsuperscript{1,2}

This deadly process begins when free radicals inflict damage to nerve cells. But increased antioxidant intake by itself is not enough to halt this degenerative cascade. As one team of scientists stated in a study published in July 2011:

\textit{“Once the mitochondria are destabilized, cells are destined to commit suicide. Therefore, antioxidative agents alone are not sufficient to protect neuronal loss in many neurodegenerative diseases.”}\textsuperscript{1}

The encouraging news is that a novel strategy exists to replenish aging cells by triggering them to grow new mitochondria. The result is that many disorders related to brain aging may be halted and reversed.

In this article, you will discover how a compound called pyrroloquinoline quinone or PQQ triggers aging cells to grow new mitochondria.\textsuperscript{3} This process, called mitochondrial biogenesis, can prevent age-related cell death that accelerates brain degeneration.

You will also find evidence of PQQ’s power to stimulate nerve growth factor, combat stroke, Alzheimer’s, and Parkinson’s, and speed regeneration of damaged nerve cells.\textsuperscript{4-9}
Mitochondrial Decay and Brain Degeneration

Every human cell contains tiny “organelles” called mitochondria that are essential to life itself. Mitochondria efficiently convert our intake of food and oxygen into clean energy.

Because of their constant exposure to high levels of energy and oxygen, mitochondria are especially vulnerable to damage by oxidative stress. With time, they lose their ability to efficiently manage energy transfer through the flow of electrons. As they become increasingly inefficient, mitochondria accumulate structural and functional damage, which then leads to a vicious cycle of further inefficiency and damage. Oxidative mitochondrial decay is now recognized as a major contributor to aging.

It is now clear that the brain is a primary target of mitochondrial aging. As one of the body’s greatest consumers of energy and oxygen, the brain is an organ that is highly vulnerable to mitochondrial decay. That decay is evident in brain tissue as a selective loss of brain cells in areas associated with mobility and with learning and memory, which is why those functions deteriorate most rapidly with aging.

In neurodegenerative diseases such as Alzheimer’s and Parkinson’s disease, mitochondrial dysfunction is associated with abnormal brain cell activity and accumulation of toxic proteins. Older individuals who suffer strokes, with their impaired brain cell mitochondrial function, have more brain tissue injury and slower, less complete recovery than younger stroke victims.

Even in apparently healthy older people, free of neurodegenerative diseases and strokes, mitochondrial dysfunction in brain cells leaves them with precious little reserve. Evidence strongly suggests that, while aged neurons can function adequately during normal activity, they quickly become vulnerable to the other metabolic stresses of aging. That’s why a minor illness or minimal trauma can so suddenly lead to massive—and irreversible—loss of cognitive function in an older adult.

There is now solid evidence that if we can prevent mitochondrial decay, or if we can reverse it by stimulating production of new mitochondria, we can slow down the aging process itself. And just as the brain is a principal target of mitochondrial aging, studies suggest that it also may be a main beneficiary of this “mitochondrial medicine” approach. That’s why mitochondria-targeted therapies are now captivating specialists in brain aging, cognition, and neurodegenerative diseases.

As it turns out, PQQ provides impressive mitochondria-targeted therapy. Let’s examine the compelling evidence for PQQ’s direct neuroprotective effects in greater detail, in order to understand how supplementing with PQQ can prevent your brain from aging too rapidly.
The Science Behind PQQ's Brain Anti-Aging Benefits

The most notable ways in which PQQ protects the brain from aging are related to its powerful redox cycling abilities. By far the most robust of the redox cyclers available (either as medications or as nutrients), PQQ potently blunts the deadly effects of reactive oxygen species (ROS) in brain tissue, thereby helping to keep existing mitochondria intact.27,28 There’s strong evidence that PQQ also scavenges existing reactive oxygen species,29,30 which offers further promise in reducing the oxidant load on brain mitochondria.

PQQ also stimulates the brain to produce healthy new mitochondria in the process known as mitochondrial biogenesis.3 Mitochondrial biogenesis is a powerful natural response to declining mitochondrial function.31 The use of “mitochondrial nutrients” such as PQQ that stimulate biogenesis may represent an important stride in preserving youthful brain function.32

But PQQ also exerts two additional effects that add to its already-impressive oxidant protection and mitochondrial preservation.

PQQ stimulates natural production of nerve growth factor (NGF)4,5 which triggers growth and branching of nerve cells.33 Nerve growth factor is vital in repairing damage caused by a stroke, by ischemia (loss of blood flow), or by an injury. In other words, PQQ shows promise in stimulating brain and nerve tissue to heal itself.34 That’s important both for people who’ve suffered overt injuries (from trauma or strokes), and also for those who’ve suffered the more subtle damage that can lead to so-called multi-infarct dementia.35-38

Treatment with PQQ reduces the impact of excitotoxicity in brain cells.39,40 Excitotoxicity occurs when neurons become electrically or chemically over-stimulated. It is one of the underlying causes of many age-related states of cognitive impairment, including Alzheimer’s and Parkinson’s diseases. Excitotoxicity is also associated with certain forms of epilepsy.41

PQQ’s powerful redox cycling abilities help it to chemically modify receptors for the most potent excitotoxic neurotransmitter, known as NMDA (N-Methyl-D-aspartic acid).42 Under the influence of PQQ, the NMDA receptors literally “quiet down” and stop producing the toxic effects that lead to neuronal dysfunction.6,43-45 In related actions, PQQ protects against environmental neurotoxicity as well, as in the case of deadly mercury poisoning.46

PQQ and Mitochondria

- Loss of mitochondrial function is now known to be a chief cause of aging in human tissues.
- That loss is especially profound in brain cells, which suffer a disproportionate exposure to the oxidative stress that damages mitochondria.
- The result is an unnecessary—and preventable—acceleration of brain aging.
- An ancient mitochondrial nutrient, PQQ, which is common to many living things, has recently been produced in meaningful quantities, thanks to a new process originating in Japan.
- PQQ protects and restores age-related mitochondrial function, and even increases the number of mitochondria in your tissues.
- PQQ offers proven neuroprotection by combating mitochondrial dysfunction in brain and peripheral nerve cells.
- PQQ’s unique actions offer hope in prevention of age-related cognitive decline, stroke-related neurological deficits, and neurodegenerative diseases.
- PQQ also offers cardioprotection and enhanced immune function, both of vital concern in increasing longevity.

What You Need to Know
**LIFE EXTENSION**

**NOVEMBER 2011**

**POWERFUL AND PROVEN NEUROPROTECTION**

PQQ's neuroprotection in the laboratory translates into impressive prevention of age-related cognitive deficits. Here are the compelling data:

**Strokes** are the third leading cause of death in older Americans, killing nearly 136,000 of us annually, and six million Americans live with the debilitating after-effects of a stroke.47 PQQ treatment of stroke in an animal study produced a significant reduction in size of the damaged brain area compared with control treatment—even when given after the stroke was induced.6 Another animal study demonstrated significant improvements in neurobehavioral scores following PQQ supplementation after a stroke.48

**Cognitive decline caused by Alzheimer's and Parkinson's diseases** robs hundreds of thousands of older Americans of joy and satisfaction in life each year. PQQ protects brain cells from two deadly proteins called beta-amyloid and alpha-synuclein that trigger those conditions.7,8 The result is that fewer brain cells die, and brain function is preserved, brightening the outlook for sufferers of these devastating diseases.7

Cognitive decline frequently occurs *even in the absence of a diagnosed neurodegenerative condition or a stroke*. Recent studies from Japan, where PQQ science is most advanced, show that a PQQ-supplemented diet improves learning ability in healthy animals.49 When the animals were subjected to 48 hours of extreme oxidant stress to mimic accelerated aging, the PQQ-supplemented group showed better memory function than the control group, and that improvement was sustained long after the stress.

In a similar study, aged animals (like many aging humans) demonstrated very poor learning ability at baseline.50 When supplemented with PQQ, however, the old individuals learned to navigate a maze with ease and retained their knowledge over time much better than did untreated animals, which showed a memory loss of about 60%.

PQQ's neuronal benefits are not limited to cognitive factors, however. They also apply to other common age-related problems such as seizures and peripheral nerve injury.

---

**PQQ: From Stardust to Stellar Mitochondrial Protection**

PQQ was discovered only three decades ago,60,61 but its origins seem to be as old as the universe itself. A powerful and essential component of energy-transfer processes in a diverse range of living cells, PQQ is an advanced organic molecule that scientists believe they have identified in stardust collected from comets passing through our solar system.27,62,63

PQQ's widespread presence in living matter and its ancient origins in the cosmos has intrigued scientists and stimulated massive amounts of research. Fueling this research is the recent discovery of a process for readily producing PQQ by natural bacterial fermentation.64-68 Scientific work since has revealed that PQQ functions as an essential human nutrient—a new vitamin, according to eminent researchers.39,69,70

PQQ stimulates growth and development in living things from bacteria to higher mammals.27,71 In mammals (including humans), PQQ directly modulates and slows *mitochondrial aging*.27,72

Studies have shown that animals deficient in PQQ develop many of the *typical signs of aging*: slowed tissue growth, poor reproductive function, impaired skin, bone, and connective tissue integrity, weakened immune systems, and most notably, impaired cognition.27,59,73,74 When PQQ is restored, those abnormalities are reversed.27,72,74

PQQ acts in living cells as a "redox cycler," meaning that it modulates the flow of electrons that determine if a given chemical reaction produces oxidation or its opposite, known as reduction (hence "red-ox").39,68 Redox cyclers are essential for protecting mitochondria from the vicious attacks of reactive oxygen species (ROS) generated during energy transfer activities.27,39

Many beneficial antioxidant nutrients, such as *quercetin*, *green tea extracts*, and *vitamin C*, are technically redox cyclers and thereby offer some mitochondrial protection.27 But PQQ is tremendously more robust. A single PQQ molecule can undergo more than 20,000 cycles of oxidation/reduction before it is destroyed, while more conventional redox cyclers give out after at most about 800 cycles.27

That incredible potency gives PQQ a tremendous advantage as a mitochondrial protector. In bacterial cultures in the laboratory, it requires only picogram quantities (one-trillionth of a gram) to support healthy growth and reproductive parameters.71

It's clear that PQQ protects mitochondria, and that in doing so it protects brain cells from the ravages of mitochondrial aging, with all the deficits that entails.
Seizures occur with increasing frequency as our brains age and can be responsible for physical injury as well as neurological deficits. By combating the seizure-inducing excitatory effects of the NMDA neurotransmitter, PQQ suppresses spontaneous seizure activity and shortens duration of chemically induced seizures in animals. Importantly, PQQ achieves this effect without inhibiting normal NMDA receptor performance or baseline behavior.

Damage to spinal and peripheral nerves causes substantial loss of function in older adults, the result of major or minor trauma and bony degeneration of the spinal column. Such functional losses lead to decreased mobility, impaired bowel and bladder function, loss of sexual enjoyment, and early death from complications. Dramatic results have been achieved in animals that capitalize on PQQ’s stimulation of nerve growth factor production and secretion. PQQ-induced nerve growth factor stimulation accelerates growth of cells that produce nerve cells’ vital insulating sheaths and speeds natural repair of damaged nerves. In one study, a one-centimeter gap in the sciatic nerve underwent rapid healing after treatment with PQQ, demonstrating improved nerve conduction velocity, strength of the nerve impulse, and increased numbers of nerve cells inside the sheath.

Improving Immunity and Cardiovascular Health

PQQ’s remarkable anti-aging benefits are not restricted to the brain. Emerging science is demonstrating remarkable effects on two other systems vital to your longevity: the heart and the immune system.

Mitochondria make up an astonishing one-third of the mass of the human heart. Reliable quality control of cardiac mitochondria is therefore a major new target in preventing heart disease. PQQ is a highly effective cardioprotective agent as a result of its free radical scavenging and mitochondrial protecting characteristics.

PQQ treatment either before or after experimentally induced heart attacks in animal models has multiple beneficial effects. PQQ reduced the size of the damaged (infarcted) area of heart muscle, resulting in a desirable increase in pumping pressure from the left ventricle. Treatment also reduced the number of episodes of ventricular fibrillation, a common and deadly complication of heart attacks. In a related study, PQQ performed as well as the prescription heart medication metoprolol in reducing infarct size. And PQQ proved superior to metoprolol in protecting mitochondria from oxidative damage arising from the infarction.

Immune system cells rely heavily on adequate supplies of PQQ for normal function. That’s especially important for older people, in whom immune function reliably falls off with increasing age. PQQ deficiency produces defects in multiple branches of the immune system, impairing its ability to respond to invading stimuli and raising the risk of infection. A human equivalent dose of as little as 100-400 micrograms of PQQ per day maximizes sensitivity of important B- and T-lymphocytes (infection-fighting white blood cells) to external stimuli.

Summary

Loss of mitochondrial function is both a cause and a consequence of aging, producing a vicious cycle of oxidative damage that destroys brain cells. While antioxidant intake is critical, researchers now recognize it as only one part of a comprehensive preventive strategy.

The nutrient PQQ, essential for many forms of life on Earth, comprises a powerful strategy to combat brain aging. PQQ protects mitochondria from cumulative oxidative damage and stimulates growth of healthy new mitochondria, thereby restoring youthful brain cell function.
PQQ's effects on brain mitochondria, coupled with its other beneficial neuroprotective characteristics, make it a natural solution for preserving brain function as you age. Taken together with PQQ's recently discovered cardioprotection and well-established immune enhancement, there is every reason to include PQQ in your supplement program.

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

Health-conscious individuals know the vital importance of the omega-3s found in fish oil for heart health and brain support. Over 14,000 scientific studies in the past 35 years confirm the benefits of the omega-3 fatty acids EPA and DHA at any stage in life.

Yet many young people aren’t getting enough. Omega-3 Chewables offer a low-dose way to augment their current nutritional regimen.

**Cutting-Edge Delivery System**

Omega-3 Chewables feature a state-of-the-art micro-encapsulation technology.

This “double-shell” protection system keeps the fish oil locked into tiny capsules contained in each soft chew. They pass intact into your gastrointestinal tract, where they’re broken down and absorbed.

No fishy taste, no aftertaste.

**Molecularly Distilled, Lab Tested**

Sourced from small-species fish harvested in pristine waters off the coast of South America, the fish oil in Omega-3 Chewables is thoroughly tested for safety and purity. It conforms to global health standards, including those established by the European Union, Health Canada, and the Food and Drug Administration (FDA).

A Convenient Way to Eat Your Omega-3s

Each Omega-3 Chewable supplies 120 mg of EPA and DHA fatty acids. It’s a nice way to help children (and some adults) increase their omega-3 intake.

Most adults will continue to rely on Super Omega-3 with Sesame Lignans and Olive Fruit Extract softgel capsules to meet optimal potencies.

A re-sealable pouch containing 60 individually wrapped soft chews retails for $24. If a member buys 4 pouches, the price is reduced to only $16.50 per pouch.

Contains fish (anchovy, sardine).

Contains corn and rice.

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

**Caution:** If you are taking anti-coagulant or anti-platelet medications, consult with your healthcare provider before taking this product.

To order **Omega-3 Chewables**, call 1-800-544-4440 or visit www.LifeExtension.com

**NEW** Item# 01518

Fresh Orange Burst Flavor!

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.
Enhanced Night Vision!

EYE PROTECTION FORMULA

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 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.

Maintain Macular Density

The macular pigment is composed of lutein, zeaxanthin, and mesozeaxanthin. 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 mesozeaxanthin is not part of the typical diet, it cannot be easily replaced. Young people convert lutein into mesozeaxanthin inside their macula. Some aging people, however, lose their ability to convert lutein into mesozeaxanthin.

Super Zeaxanthin formula provides zeaxanthin, lutein and mesozeaxanthin to help maintain macular density.

Combat “Eye Fatigue”

Staring at a fixed-distance object such as a computer screen for a long period of time can cause the muscles that focus your eyes (called the ciliary body) to tire or go into spasm. This can result in physical symptoms such as head discomfort, sensitivity to glare, tiredness, soreness, dryness, and blurry vision.

Super Zeaxanthin contains a potent dose of astaxanthin, a carotenoid found in red algae. Studies show that taking astaxanthin with other carotenoids protects against free radical–induced DNA damage, repairs UVA-irradiated cells, and inhibits inflammatory cell infiltration.3-6 Astaxanthin also helps support vascular health within the eye and improves visual acuity. Its fat-soluble nature offers protection to sensitive cells inside the eye.7

Comprehensive Ocular Protection in One Daily Capsule

The new Super Zeaxanthin formula provides natural plant extracts that have been shown to promote healthy eyesight. Just one softgel of Super Zeaxanthin with Lutein, Meso-Zeaxanthin Plus Astaxanthin and C3G provides:

- OptiLut®, Lutein Plus® and MZ® ......................... 38 mg
  Marigold (Tagetes erecta) Extract (flower) [free lutein equivalent 10 mg]
- Zeaxanthin & Meso-zeaxanthin blend .................. 3.75 mg
  [micronized zeaxanthin, OptiLut®, Lutein Plus® and MZ® Marigold Extract (flower)]
- Natural Astaxanthin ........................................... 6 mg
  (AstaREAL® and Zanthin® CO2 extracts of Haematococcus pluvialis algae)
- C3G (Cyanidin-3-glucoside) ................................. 2.2 mg
  [from European black currant (Ribes nigrum) extract (fruit)]

The retail price for a bottle containing 60 softgels of Super Zeaxanthin with Lutein, Meso-zeaxanthin Plus Astaxanthin and C3G is $42. If a member buys four bottles, the price is reduced to just $28.50 per bottle.

Enhanced Night Vision!

EYE PROTECTION FORMULA

To order Super Zeaxanthin with Lutein, Meso-zeaxanthin Plus Astaxanthin and C3G, call 1-800-544-4440 or visit www.LifeExtension.com

OptiLut® is a registered trademark of NutriScience Innovations, LLC. LuteinPlus® and MZ® are registered trademarks of Nutraceuticals Ltd., 7 Marfleet, CB22 5LA, UK, licensed under US Patents 6,218,436 & 6,329,432.

AstaREAL® is a registered trademark of Fuji Chemical Industry Co., Ltd. Zanthin® is a registered trademark of Valensa International, Inc., used under license. U.S. Patent 5,527,533.

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.
Critical Importance of Mitochondria

Back in 1983, Life Extension® was the first to introduce CoQ10 as a proven method to enhance mitochondrial energy production.

CoQ10 has since gained universal recognition for its role in supporting cellular performance throughout the body.¹-⁶

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

Mitochondria are cellular energy generators that supply virtually all the power your body requires for a healthy life span. An abundance of published studies underscores the critical importance of the mitochondria to overall health, especially as we age.⁸-¹⁴ Energy-intensive organs like the heart and brain are dense with mitochondria.

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

PQQ offers a viable alternative.

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 Ultimate Cell Rejuvenator**

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

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

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

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

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

**Vital Protection for the Aging Heart and Brain**

PQQ is an **essential nutrient**, meaning your body cannot make it on its own. A growing body of research indicates that PQQ’s unique nutritional profile supports heart health and cognitive function—alone and in combination with CoQ10.17,18

This comes as no surprise, given how much energy these vital organs need.

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

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

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

**References**


BioPQQ™ is a trademark of MGC (Japan).

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.
Implicated in the onset of 95% of all cancers is a common but under-recognized molecule most people have never heard of: nuclear factor-kappaB or NF-kB.\textsuperscript{1-3}

Emerging research is validating the danger it poses to maturing individuals.

For example, a landmark study\textsuperscript{4} published late last year confirmed, for the first time, NF-kB’s central role in the onset of malignant breast cancer.

A team of researchers found that breast cancer cells require a specific inflammatory cascade in order to proliferate and metastasize.

As one of the proteins that activates genes involved in inflammation, NF-kB is the master regulator of this pathologic cancer-causing process.

Fortunately, there exists a broad array of nutrients many Life Extension\textsuperscript{®} members already take that have been shown to neutralize and even reverse the cancer-causing inflammatory cascade mediated by NF-kB.

In this article, a comprehensive survey of NF-kB-inhibiting compounds is detailed. You will learn how NF-kB triggers the growth and development of many kinds of tumors, operating as the master switch for cells “pre-loaded” with cancer-causing genes. You’ll also discover compelling evidence about low-cost interventions that suppress NF-kB, switch off lethal cancer genes, and disrupt the inflammatory cascade cancer cells need in order to spread. >>
Since its discovery in 1986, NF-kB has been known to be closely associated with development of cancer. Today we know that most, if not all cancers have abnormally high levels of active NF-kB, which keeps them in a state of sustained inflammation. Conversely, certain so-called oncogenes (abnormal genes that can initiate cancer development) act in part by activating NF-kB. Together these facts conspire to produce a steady stream of inflammatory and cancer-promoting cytokines within a growing tumor.

The production of these cell signaling molecules makes it much more likely that a given cancer-prone cell will go on to form a malignant tumor. It can also mean that a given tumor is much more resistant to radiation and chemotherapy, since NF-kB generally promotes cancer cell survival.

**The NF-kB-Cancer Blockade**

NF-kB triggers the cascade of events that link inflammation with cancer development. Once that process has been initiated, NF-kB continues to fan the flames, contributing to cancer cells’ invasiveness, ability to stimulate a fresh blood supply, and ability to spread by metastasis throughout the body.

But our knowledge about the damage done by NF-kB can be turned to good. Almost as soon as it was discovered, forward-thinking researchers recognized that if they could block activation of NF-kB, they might break an essential link in cancer development.

We’ve known for nearly 12 years, for example, that we could reduce inflammation in colon cancer cells by treatment with the spice curcumin, a well-known inhibitor of NF-kB activation. Blocking NF-kB activation can also sensitize human prostate cancer cells to apoptosis—the programmed cell death that keeps cancers under control. And natural molecules that inhibit NF-kB can limit inflammatory changes in the pancreas caused by alcohol.

The potential for blocking NF-kB offers hope in the context of the deadly HER-2 breast cancer gene. HER-2 cancers are normally highly treatment-resistant and carry a poor prognosis. Blocking NF-kB can make the breast cancer cells more amenable to chemotherapy.

Not surprisingly, Big Pharma is intensely interested in discovering new (and profitable) drugs that block NF-kB. But nature has provided us with a substantial number of substances that block or inhibit the pro-inflammatory, pro-cancer effects of renegade NF-kB—and they are readily available, affordable, and safe. Let’s look at a sampling.

**Nutrients to Quell NF-kB’s Inflammatory, Pro-Cancer Effects**

By some estimates, anywhere from 67% to 90% of human cancers could be prevented by modifications to lifestyle, specifically to diet. Suppression of NF-kB by phytochemicals present in fruits, vegetables, etc.,...
and many spices has in fact been said to provide the molecular basis for their ability to prevent cancer.\(^{16,17}\)

The following nutraceutical agents can bring us closer to successful chemoprevention through their ability to oppose NF-kB’s pro-inflammatory, pro-cancer effects. Unlike single-targeted drugs, most nutraceuticals are multitargeted. That gives them astonishing efficiency and can augment their effectiveness, especially when acting to interrupt complex signaling pathways like those involved with NF-kB.\(^{18}\)

**Antioxidants**

Oxidative damage to DNA, proteins, and other vital structures is a major factor in the initiation, promotion, and spread of cancers. That makes antioxidants important agents in the fight to prevent cancer.\(^{19}\) But many antioxidants can also block NF-kB, adding a valuable degree of specificity to their effects. They do this via a number of closely related but distinctive mechanisms.\(^{14}\)

One important way of blocking NF-kB activity is to prevent it from becoming activated by moving into the cell nucleus. That denies NF-kB access to the pro-inflammatory genes that it regulates, thereby preventing the inflammatory response before it starts. Cells with greater levels of internal antioxidant defenses generally have less NF-kB activation. Increasing those defenses is correlated with reduced NF-kB expression in cell nuclei.\(^{20,21}\)

A large number of antioxidants are under review for specific NF-kB-blocking activity. These include vitamins C and E, carotenoids, the so-called thiol antioxidants (glutathione, thioredoxin, and lipoic acid), flavonoids and polyphenols, selenium, zinc, and others.\(^{14,19,22,23}\) The flavonoid luteolin, for example, can sensitize cancer cells to chemotherapy agents by suppressing a variety of cell-survival pathways, including NF-kB.\(^{24}\) And zinc, an essential trace element, inhibits NF-kB indirectly by inducing a separate regulatory protein called A-20.\(^{25}\)

Milk thistle extracts enhance prostate cancer cell death through apoptosis by reducing levels of NF-kB in the cell nucleus.\(^{26,27}\) The tomato carotenoid pigment lycopene prevents NF-kB activation in prostate cancer by a different mechanism.\(^{28}\) A form of vitamin E called gamma-tocotrienol downregulates NF-kB in pancreatic tumor cells.\(^{29}\) Even certain coffee components, the antioxidant molecules called diterpenes, suppress NF-kB activation.\(^{30}\) And a host of antioxidant compounds derived from black pepper reduce NF-kB activation.\(^{31}\) Finally, the tomato polyphenol lycopene reduces NF-kB activation in a variety of cancer cell types.\(^{28}\)

---

**The Inflammatory Factor Underlying Most Cancers**

- A breakthrough study revealed that inflammation is necessary in order for breast cancer cells to proliferate and metastasize.
- The master control complex called nuclear factor-kappaB or NF-kB triggers and regulates this inflammatory cascade, which has been implicated in the onset and development of 95% of all cancers.
- NF-kB stimulates genes to produce inflammatory cytokines and other signaling molecules that promote cancer growth and development.
- Inhibition of NF-kB is a powerful target for cancer prevention and has been shown to reduce cancer-stimulative events at every level of carcinogenesis (cancer development).
- A broad array of natural dietary interventions powerfully inhibits pathologic NF-kB activity, comprising a critical strategy in the fight against cancer.

---

**What You Need to Know**
Clearly, the list of antioxidant nutrients with NF-kB-suppressing effects is growing rapidly. A good general rule for the present is to make certain that you are including an adequate supply of potent, high-quality antioxidants as part of your health regimen. Let’s now turn to some specific nutrients that have additional NF-kB-blocking effects that can optimize your cancer protection.

**Curcumin**

Curcumin is an extraordinary molecule extracted from the spice we know as turmeric. It is among the most potent of the natural inhibitors of NF-kB, and as such has been intensely studied for its anticancer potential.

Curcumin is beneficial at all three major stages of carcinogenesis: initiation, progression, and promotion. Most of that benefit has been linked to its inhibition of NF-kB and subsequent inhibition of pro-inflammatory signaling. NF-kB inhibition is also credited with curcumin’s ability to inhibit cancer cell proliferation, invasion, new blood vessel formation, and metastasis. Another major consequence of NF-kB inhibition by curcumin is to allow the natural course of apoptosis to take place in cancer cells, triggering them to die off rather than multiply and spread.

Curcumin is showing promise in treating or preventing some of mankind’s most common, and most dangerous, malignancies. These include chronic

**NF-kB and the Cancer Switch**

NF-kB is scientifically known as a “transcription factor.” It regulates how and when the information in certain human genes becomes translated into new protein molecules.

Key among those genes are those that promote inflammatory responses, many of which also promote cell growth, survival, and transformation into cancer. In fact, in the early 2000s it became clear that NF-kB was the “missing link” between inflammation and cancer. Of course, that’s not its only role.

In healthy people, NF-kB serves a vital function just by remaining inactive. That helps to keep the powerful cellular machinery of inflammation running just at idle. When a threat arises, however, NF-kB becomes activated and goes to work within the nuclei of cells (hence the term “nuclear factor”).

A cell’s nucleus is where all the genetic information is stored in the form of DNA in our chromosomes. Under normal circumstances, NF-kB “lives” not in the nucleus, but in the cell’s cytoplasm, the main body of the cell. When an infection or other foreign invader threatens, NF-kB moves from the cell’s cytoplasm into its nucleus. Once inside the nucleus, NF-kB binds to specific portions of the chromosome, where it activates transcription of a gene into its protein product.

Many genes that come under the control of NF-kB are pro-inflammatory genes, that is, their products are inflammatory cytokines such as interleukins, tumor necrosis factor, and others. Once the inflammatory stimulus goes away, NF-kB normally disengages from the chromosome and returns to the cytoplasm, and the inflammatory gene stops producing its cytokines. In other words, under normal circumstances, inflammation dies away when it is no longer beneficial.

But that’s only under normal circumstances, and cancer is anything but normal.
lymphocytic leukemias, lymphomas, pancreatic cancers, bladder cancer, colon cancer, and cancer of the bile ducts. And curcumin can help to suppress the cancer-provoking inflammation generated by obesity, one of today’s most pressing health problems.

**Garlic Extracts**

Garlic, like turmeric, has a lengthy history of use in traditional medical systems. When garlic extracts are allowed to age, they stabilize and retain strong antioxidant powers that indirectly down-regulate NF-kB. Individual components from such garlic extracts include diallyl sulfide, diallyl disulfide, and thiacremonone, all of which demonstrate direct NF-kB-inhibitory activities.

NF-kB inhibition by garlic extracts is showing promise in preventing growth and spread of many tumor types, including colon cancer, malignant neuroblastoma, and melanoma. Garlic extracts also powerfully induce cancer cell death by apoptosis.

**Ginger**

Ginger is a spice from southern Asia, that has many health-giving specific components. Gingerol is the chief of these; it is a phenolic compound with

---

**Current NF-kB Research**

Here’s what we know in 2011 about the relationship between NF-kB and cancer, courtesy of Dr. Sahdeo Prasad of the Cytokine Research Laboratory at the MD Anderson Cancer Center in Houston:

NF-kB becomes activated in response to a host of factors that account for as much as 95% of all cancers. These triggers include tobacco, stress, dietary components, obesity, alcohol, infections, radiation, and environmental toxins.

NF-kB activation has been linked with the transformation of normal cells into cancer cells (thus NF-kB can be thought of as promoting cancer development).

NF-kB is active at a higher rate in cancer cells than in healthy cells. A developing cancer also increases the amount of active NF-kB.

NF-kB has been linked to the survival of dangerous cancer stem cells, the early “parent” cells of many cancers that are now known to exist in otherwise normal tissues. Cancer stem cells can “self-renew” more successfully than healthy cells.

NF-kB stimulates production of gene products that keep cancer cells from dying naturally through the process of programmed cell death, or apoptosis.

NF-kB also increases production of gene products associated with proliferation, the rapid and repeated cell divisions that give cancers their aggressive growth characteristics.

NF-kB controls expression of gene products linked with invasion, new blood vessel growth (angiogenesis), and metastatic spread of tumors.

Many carcinogens activate NF-kB, but most effective cancer-preventing (chemopreventive) compounds suppress NF-kB activation.

Prasad notes that these observations highlight just how intertwined NF-kB is with cancer growth and metastasis. Others have gone on to point out that, though a powerful nemesis, NF-kB also offers myriad opportunities to intervene powerfully and block cancers in their tracks. As we continue to clarify the close relationship between chronic inflammation and cancer, more and more such opportunities are becoming evident.
antioxidant, anti-inflammatory, and anti-tumor properties. Gingerol suppresses inflammation by blocking the movement of NF-kB into the nucleus, with the resulting down-regulation of such inflammatory cytokines as TNF-alpha, as well as inducible nitric oxide synthase (iNOS). Another major ginger compound, zerumbone, suppresses NF-kB activation induced by a host of common carcinogens, blocking metastasis and invasion while increasing apoptosis.

Ginger extracts have been used to reduce the viability of gastric cancer cells, ovarian cancers, cancers of the breast, liver, colon, and lung, as well as UV light-induced skin cancers.

Green Tea

Green tea extracts are widely known for their benefits in preventing many common chronic diseases. Their chief constituents, the catechin family of polyphenols, are powerful antioxidants that are given credit for most of tea's beneficial effects. Catechins act at many different targets. Inhibition of NF-kB by green tea catechins has recently been found to be a major mechanism by which they block each stage of carcinogenesis.

NF-kB inhibition by green tea extracts rich in epigallocatechin gallate (EGCG) has been of particular interest. EGCG has been shown to produce apoptosis in experimental prostate cancer, inhibit growth of squamous cell carcinomas of the head and neck, inhibit production and limit invasion of experimentally induced breast cancers, reduce the incidence of carcinogen-induced lung cancers, and sensitize melanoma cells to growth inhibition by other agents.

Isoflavones

Isoflavones and isoflavonoids are molecules found in many plants, particularly the bean family. Plants use them as disease-fighting compounds, and also as stimulants for the symbiotic bacteria that help them use nitrogen to build proteins. Isoflavones from soylesbeans have many beneficial and protective effects in humans as well. The low rate of hormone-related cancers (e.g., breast and prostate cancers) in Asian countries is partially attributed to the high consumption of soy isoflavones in most traditional Asian diets.

Soy isoflavones like genistein are powerful modulators of NF-kB. Genistein acts both by preventing NF-kB’s movement into the nucleus to activate inflammatory genes and also by preventing earlier molecular events that would lead to its activation. Genistein promotes cancer cell death by apoptosis as a result of down-regulation of NF-kB.

Isoflavone blockade of NF-kB effects contributes to prevention and modulation of colon and lung cancers. Isoflavone treatment also makes certain cancer cells increasingly susceptible to radiation and chemotherapy effects, largely because decreased NF-kB activity impairs the cancer cells’ survival signaling pathways.

Omega-3 Fatty Acids

Diets rich in omega-3 fatty acids from fish are associated with reduced risk of several types of cancer and other chronic conditions. The omega-3s are known to be powerful anti-inflammatory agents through their effects on the important inflammatory enzymes like COX-2 and 5-LOX. But recent research is also showing that omega-3s can inhibit NF-kB activation by multiple mechanisms, giving them still more powerful control over the inflammation that can lead to cancers.

Omega-3s are now associated with NF-kB-related reduction in inflammation-mediated growth of pancreatic, breast, prostate, colon, and skin cancer cells. In the case of pancreatic cancer, the omega-3 EPA preserved the integrity of the natural inhibitor of NF-kB. Omega-3s used in combination with conventional chemotherapy act synergistically to kill tumor cells, largely through NF-kB inhibition that promotes apoptosis.
Summary

A breakthrough study published late last year revealed that inflammation is necessary in order for breast cancer cells to proliferate and metastasize. The master control complex called nuclear factor-kappaB or NF-kB triggers and regulates this inflammatory cascade, which has been implicated in the onset and development of 95% of all cancers.

NF-kB stimulates genes to produce inflammatory cytokines and other signaling molecules that promote cancer growth and development. Inhibition of NF-kB is a powerful target for cancer prevention and has been shown to reduce cancer-stimulative events at every level of carcinogenesis (cancer development). A broad array of natural dietary interventions powerfully inhibits pathologic NF-kB activity, comprising a critical strategy in the fight against cancer. Scores of new studies detail the effects of NF-kB inhibition on cancer prevention. The low rates of cancers in countries with high dietary intake of natural NF-kB inhibitors points strongly to the value of such agents as functional foods and as nutraceuticals.

In addition to the many natural products outlined here, there’s now strong evidence that vitamin D, Withania somnifera (ashwagandha), and pomegranate extracts have similar NF-kB-blocking capabilities.102-104

The good news for Life Extension members is that they have been using potent NF-kB-inhibiting nutrients for many decades.

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


The inflammatory factor underlying most cancers


IS YOUR FOLIC ACID WORKING FOR YOU?

Folate is involved in neurotransmitter synthesis and critical enzymatic reactions throughout the body. By depleting excess homocysteine, folate benefits cardiovascular health and nervous system function.

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

A BIOACTIVE FORM OF FOLATE

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

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

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

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

References

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

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Are You Getting Curcumin’s Benefits?

Curcumin is the health-promoting trace compound derived from the Indian spice turmeric. But not all turmeric is alike. The curcumin found in the vast majority of dietary supplements is derived from turmeric that is nutritionally inferior. Why? Almost all growers harvest turmeric at the point when the turmeric root turns its signature yellow color, but before it has fully matured. The turmeric root requires more time in the ground for highly beneficial phytonutrients called curcuminoids and sesquiterpenoids to attain peak concentrations.

Life Extension’s Super Bio-Curcumin® derives from turmeric that is organic, cultivated to maturity, then specially transported and processed to preserve and deliver the root’s most complete nutritional profile. In recent studies comparing the effects of standard curcumin against turmeric extracts comparable to Super Bio-Curcumin®, researchers observed:

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

A separate study indicated powerful support for heart health using a comparable extract.

Unrivaled Potency and Absorbability with BCM-95®

Curcumin is neither absorbed nor retained well in the blood, which is another challenge facing those who wish to maximize its benefits. The highly popular Super Bio-Curcumin® uses BCM-95®, a patented, bioenhanced preparation of curcumin. It has been shown to reach 7 times higher concentration in the blood than standard curcumin. Absorption studies further demonstrate that just one 400 mg vegetarian capsule per day of Super Bio-Curcumin® supplies the equivalent of 2,500-2,800 mg of commercial curcumin supplements.

A bottle containing 60 vegetarian capsules of Super Bio-Curcumin® retails for $38. If a member buys 4 bottles, the price is reduced to only $26.25 per bottle.

References

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

Contains rice.

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

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

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.
AGE-DEFYING DARA

Olympic swimming icon Dara Torres talks to Life Extension® about ignoring your age, the power of amino acids, and her quest to make the 2012 Olympics as a 45-year-old.

BY JON FINKEL
OUTSMARTING FATHER TIME

"At my age, you can't just wake up every morning and assume that you have recovered from the previous day's workout," Torres says. "The water doesn't know my age, so I don't get any breaks. That was my philosophy and my guiding light. I have to be smarter about what I do now than when I was younger. I need to be more focused and conserve my energy for maximum efficiency."

For those unfamiliar to the way swimmers train, this last concept of conserving energy for maximum efficiency is particularly important. When training for a major meet, swimmers often log over 10,000 meters a day in the pool, usually in a morning and afternoon session, with a dry land workout mixed in three or four days a week. Swimmers need to build up a powerful aerobic base so that they can hold perfect form throughout an entire race. Fatigue is the single biggest enemy of perfect form, which is why swimmers bank so many meters each day. The idea is to eliminate fatigue from the racing equation as much as possible in order to focus on the things that win races: powerful starts, efficient strokes, flawless turns, and well-timed wall touches, among the most critical.

When Torres talks about conserving energy, she's talking about recognizing how her body has changed over the years and how it responds to training. There's no point in hammering away at the same workout she did in her twenties if the body she has in her forties won't respond well to it. The key is to constantly

This was the mantra of 5-time Olympian Dara Torres in the lead-up to the 2008 Olympics in Beijing, China. Substitute your goals for the word “water” in this now famous quote and it could become your personal mantra as well. If you’re thinking about taking up running, “the road doesn’t know how old you are” applies to you. Same goes for the grass on a golf course; or the clay on a tennis court; or if you’ve always wanted to learn an instrument, a piano or guitar doesn’t know how old you are either.

Torres’ quote is full of limitless possibilities, but its weight is grounded in the concrete achievement of her performance at the 2008 Olympic Games, where, as a 41-year-old mother, she won three silver medals—one of them a mere one one-hundredth of a second from being a gold.

All told, the three medals Torres won at the 2008 games brought her lifetime Olympic medal total to twelve (including three gold medals). With an Olympic career that has spanned 24 years, there have been innumerable “firsts” for which she is famous, but the one that garnered her the most attention was the achievement of becoming the first woman in history to make an Olympic swim team past the age of 40. In a sport where women are often crowned world champions before they are old enough to be crowned prom queen, what Torres has done simply defies what we thought we knew about the limits of the aging human body.
evaluate what currently works, not what worked last week, last month, or last year. For Torres, that evaluation has led to a renewed focus on the details. “My training now is much more razor-focused on replicating my stroke in the water,” she says. “My trainer, Andy O’Brien, and my coaches have all created a very high-level program where I waste no time, energy, and effort. I do everything with a purpose. Everything has a goal in mind.”

Reaching these small, daily goals helps Torres get one step closer to achieving bigger goals, like winning Olympic medals. To ward off the monotony of performing the thousands and thousands of daily repetitions of tiny movements in the water that are necessary to swim the perfect race, Torres finds inspiration in a number of places, from her own mother to mothers across the world.

**MOTHERLY MOTIVATION**

“I look at mothers all over the world who I have met and when they tell me their stories they move me in a way that is so intense,” Torres says. “I am part of a community that includes businesswomen, sportswomen, housewives, teachers, doctors, and mothers. Each and every one of them has their dreams.”

Whatever your particular dream is, the overall theme of Torres’ philosophy is that age should never be a reason not to achieve it. “As long as someone has a passion, a desire to be the best, I say they should have that opportunity,” she says. “I draw on the passion of women like my mother and other great women who continue to achieve excellence at any age.”
The flip side of this, of course, is that millions of women look to Torres for their own inspiration, making the relationship between her and her fans a symbiotic one.

“It is insanely flattering how many women want to share with me what watching my journey meant to them and how it has changed their lives,” she says. “Or when I hear how they bought one of my books, Age is Just a Number or Gold Medal Fitness because I motivated them. My Twitter following has exploded (@daratorresswims) and I can share my life in a real, honest way. And my fans can communicate back to me.”

Among this communication is her announced desire to compete as a 45-year-old in the 2012 Olympic Games in London, England.

“The truth is, in many ways I feel like 2012 is my opportunity to give back to so many women and moms who have given to me emotionally through a short comment or e-mail,” Torres says.

24 YEARS OF OLYMPIC MEDALS

1984
Gold Medal, 4x100-meter freestyle relay

1988
Silver Medal, 4x100-meter medley relay
Bronze Medal, 4x100-meter freestyle relay

1992
Gold Medal, 4x100-meter freestyle relay

2000
Gold Medal, 4x100-meter freestyle relay
Gold Medal, 4x100-meter medley relay
Bronze Medal, 50-meter freestyle
Bronze Medal, 100-meter freestyle
Bronze Medal, 100-meter butterfly

2008
Silver Medal, 4x100-meter medley relay
Silver Medal, 4x100-meter freestyle relay
Silver Medal, 50-meter freestyle

THE ROAD TO 2012

Just as Torres’ training has evolved through the years, so has her nutrition and eating habits. Like many athletes, she didn’t have a specific “diet” when she first started training as a teenager. The main goal at that age was to eat as much as she could to fuel the next workout. Our knowledge about how to use foods as part of training and recovery has improved exponentially over the years, which is why Torres now pays close attention to what she eats.

“When I was younger, I ate anything that was put in front of me,” she says. “I am still not a ‘dieter’ but I am more aware of what I put into my body. Fitness Nutrition’s Amino Acids have become a huge factor in my recovery. I have also changed over to Susta, which is an all-natural sweetener. I have learned that you should eat sensibly but nothing too extreme. Living healthy is also about living happily.”

Living happily in 2012 will mean making the United States Olympic Swim Team at an age when many of the women Torres swam against in her supposed “prime” have been retired for twenty-five years. We’ll have to wait to find out whether she succeeds in making the team, but one thing’s for certain: whether she’s in London at the end of next July or not, Torres has already succeeded in proving that age, truly, is just a number.
PRE-WORKOUT
Dara Torres starts her day with a comprehensive meal replacement shake that includes a full battery of multivitamins and minerals, along with extracts from organic superfoods, potent enzymes, stomach-aiding probiotics, herbs, and antioxidants. The shake includes supplements Life Extension® readers are familiar with, like CoQ10, alpha lipoic acid, quercetin, resveratrol, and many others. She takes this one hour prior to exercise.

POST-WORKOUT
Post-exercise, she takes an amino acid supplement to help boost her recovery and aid in muscle repair. While training for major meets or the Olympics, she takes amino acids several times a day.

Branched chain amino acids are valuable to the human body in many ways. Since cells are able to oxidize BCAAs in their mitochondria, they can be used to provide an energy boost and may serve as fuel sources for muscles. BCAAs are also referred to by athletes as building blocks of muscle and can be taken both during, before, and after workouts to increase endurance and performance. For non-athletes, BCAAs can be used to improve overall energy levels and there have been several studies that show BCAAs may be a potent longevity booster as well.

For more information on Dara Torres, visit www.daratorres.com.
A common complaint among older adults is loss of physical and mental energy. As people age, their cells’ ability to produce energy is diminished. Many scientists believe that cellular energy deficit is a critical factor in the onset of many problems.

The Russian herb rhodiola (Rhodiola rosea) has demonstrated a remarkable ability to support cellular energy metabolism. Rhodiola promotes higher levels of ATP (adenosine triphosphate) and CP (creatine phosphate) in the cellular power plants known as the mitochondria, thus providing more of the energy molecules need to power many daily activities.

In a human trial, rhodiola aided exercise endurance after just a single dose. In another double-blind, crossover human trial, rhodiola increased several measures of mental performance, including associative thinking, short-term memory, calculation, concentration, and speed of audiovisual perception. Statistically significant improvements were reported after just two weeks of supplementation.

Life Extension® has formulated a Rhodiola Extract that provides 250 mg of Rhodiola rosea extract in each capsule.

Unlike other rhodiola supplements on the market today, Rhodiola Extract uses only the authentic Rhodiola rosea species and is standardized to contain the proven 3:1 ratio of 3% rosavins and 1% salidrosides—matching the concentrations of active “adaptogens” used in clinical trials.

Rhodiola Extract is an extremely low-cost supplement. The retail price of a bottle of 60 vegetarian capsules (a two-month supply) of Rhodiola Extract is just $11.75. If a member orders four bottles, the price is reduced to only $7.94 per bottle!

Contains rice.

Caution: Individuals with manic or bipolar disorder should not use Rhodiola. Take early in the day if Rhodiola Extract interferes with your sleep.

To order Rhodiola Extract, 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.
The ABCs of BCAAs

Muscle Maintenance.
Muscle Growth.
Muscle Recovery.
It’s just that simple.

One of the strongest names in the supplement industry proudly introduces a product designed to keep you strong:

Life Extension®’s Branched Chain Amino Acids

After age 50, it’s estimated that you’ll begin losing about 1% of strength per year due to muscle deterioration. Without proper exercise and supplements, that rate may increase exponentially, causing a rapid decrease in quality of life.

Life Extension’s Branched Chain Amino Acids provides all three BCAAs to support healthy muscle maintenance:

1,200 mg of L-Leucine
600 mg of L-Isoleucine
600 mg of L-Valine

Muscles Matter. Protect yours with Branched Chain Amino Acids.

A bottle containing 90 vegetarian capsules of Branched Chain Amino Acids retails for $19.50. If a member buys four bottles, the price is reduced to $12.75 per bottle.

To order Branched Chain Amino Acids, call 1-800-544-4440 or visit www.LifeExtension.com

Contains rice.
Caution: Individuals with ALS or disorders impairing the metabolism of branched chain amino acids should not use this product.

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.
Turns out, the advice you got as a child to "eat your greens" could pay major dividends as an adult. Scientists have recently identified extracts from green vegetables like broccoli, cabbage, and Brussels sprouts that help maintain healthy hormone levels. Having optimal hormone levels is essential to any anti-aging strategy. In addition, many of these extracts contain glucosinolates, isothiocyanates, carnosic acid, and carnosol – bioactive compounds that have a wide variety of favorable effects on estrogen metabolism and cell division.1-4

**Triple Action Cruciferous Vegetable Extract with Apigenin** combines a **broccoli Super Concentrate** with watercress, **Indole-3-Carbinol (I3C)**, rosemary extract, cat’s claw extract, **cabbage extract**, **DIM**, and **apigenin**, a powerful plant flavonoid found in plants such as parsley and celery, to form the most comprehensive cruciferous vegetable supplement available.5

For those who don’t have the time to consume each of the above vegetables each and every day, **Triple Action Cruciferous Vegetable Extract with Apigenin** is the perfect solution to making sure your body gets the important extracts it needs from these crucial food sources. For those weighing less than 160 pounds, just one vegetarian capsule a day provides optimal potencies. Those weighing over 160 pounds should consider taking two capsules a day. A 60-vegetarian capsule bottle of **Triple Action Cruciferous Vegetable Extract** retails for $24. If a member buys four bottles, the price is reduced to only $16.50 per bottle.

Those who want to obtain the benefits of **resveratrol** can order **Triple Action Cruciferous Vegetable Extract with Resveratrol**. Each capsule provides 20 mg of resveratrol in addition to the vegetable extracts and retails for $32 per 60-capsule bottle. When a member buys four bottles, the price is reduced to only $22.20 per bottle.

**REFERENCES:**

**Triple Action Cruciferous Vegetable Extract** provides the following concentrates in just one vegetarian capsule:

- **Broccoli Super Concentrate** 400 mg (standardized to 4% glucosinolates (16 mg))
- **Watercress** 4:1 extract 50 mg
- **Indole-3-Carbinol (I3C)** 80 mg
- **Rosemary Extract** 50 mg
- **Cat’s Claw Extract** 50 mg
- **Cabbage Extract** 25 mg
- **DIM (di-indolyl-methane)** 14 mg
- **Apigenin** 25 mg

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.
Preserve Youthful Cellular ENERGY with Next-Generation LIPOIC ACID

Published studies have shown the critical importance of lipoic acid in supporting healthy mitochondrial function. Unlike other forms of lipoic acid, SUPER R-Lipoic Acid is more bioavailable, stable, and potent, achieving 10-30 times higher peak blood levels than pure R-lipoic acid. This unique sodium-R-lipoate can help you reach peak plasma concentrations within just 10-20 minutes of supplementation. Super R-Lipoic Acid provides more of the active “R” form of lipoic acid than any other supplement.

A bottle of Super R-Lipoic Acid containing 60 vegetarian capsules retails for $49. If a member buys four bottles, the cost is only $33.75 per bottle. Each capsule contains 300 mg of stabilized, Bio-Enhanced® Super R-lipoic acid supplying 240 mg of R-lipoic acid. Suggested dose is one capsule each day.

Contains rice.

References:

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

CAUTION: If you are sensitive to changes in blood sugar and/or being treated for diabetes with blood sugar-lowering drugs, please consult with your physician before supplementing with R-lipoic acid. In this context, start with a low dose and assess for effect. Inform your physician should you notice any changes while taking this product.

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.
Years of clinical study have shown that resveratrol, when taken orally, may boost healthy life span by activating “longevity genes.”

What may surprise you is mounting scientific data suggesting that topical resveratrol may provide significant protection against skin aging as well.

Dermatology researchers have found that topical resveratrol possesses 17-fold greater antioxidant potency than idebenone, an expensive and powerful antioxidant drug used in certain anti-wrinkle creams.

In this article, dermatology experts Robert Goldfaden and Gary Goldfaden, MD, provide Life Extension® readers with the most recent data on topical resveratrol’s rejuvenating, protective effects on the skin. >>
In nature, resveratrol functions as part of a plant’s defensive arsenal. Resveratrol is an antimicrobial substance produced by plants in response to stress, infection, or strong UV radiation. In recent years, resveratrol in particular has become the subject of intense interest due to its powerful antioxidant and anti-aging properties.

It appears that resveratrol exerts its potent antioxidant effects on two distinct levels: (1) by scavenging existing free radicals and (2) by preventing their formation.

The antioxidant ability of resveratrol is known to be both potent and efficient. In fact, it has been shown to be greater than that of vitamins E and C. One study demonstrated that resveratrol was 95% efficient at preventing lipid peroxidation, compared to 65% for vitamin E and 37% for vitamin C.

In a recent study, the antioxidant strength of 1% resveratrol was compared to that of 1% idebenone. Idebenone is a powerful pharmaceutical antioxidant. Its benefits include shielding the skin from environmental damage, improving the appearance of fine lines and wrinkles, reducing dryness, and smoothing skin texture. The results of the study revealed that resveratrol had a stunning 17-fold greater antioxidant capacity than idebenone!

Topical application of resveratrol to protect against UVB-mediated skin damage as well as inhibit UVB-induced oxidative stress has been observed in a number of additional studies. It has also been shown to prevent UVA damage and abnormal cellular proliferation.

Resveratrol is also able to form soluble, complex molecules with certain metal ions, inactivating the ions so they cannot produce free radical formation. This action, in combination with its powerful antioxidant capability, makes resveratrol highly effective in combating the damaging effect of free radicals that leads to skin aging. Resveratrol is also reported to stimulate healthy cell proliferation as well as collagen synthesis by protecting the dermal matrix from harmful enzymes and improving the function of fibroblasts that create healthy collagen.

Tea Extracts’ Benefits for Skin Health

Scientific studies have shown that the polyphenols in tea extracts are highly effective at reducing the inflammation and oxidative stress that can destroy the health of your skin cells. Tea contains catechins, a very powerful group of water-soluble polyphenol antioxidants that are easily oxidized. Green tea, which is manufactured from fresh, unfermented tea leaves in which oxidation is minimal, has catechins present in significant quantities.

Epigallocatechin gallate or EGCG makes up the bulk of the total catechin content in green tea (about 10-50%) and is the most powerful of all the catechins, with an antioxidant capacity roughly 25-100 times more potent than that of vitamins C and E. The protective strength of this powerful antioxidant can
safeguard your skin from the ravages of UV exposure and DNA damage. EGCG has also been shown to help maintain or improve skin health by enhancing viability of skin fibroblasts. In addition, green tea extract enhances the activity of the enzyme superoxide dismutase, which helps quench excess superoxide radicals and other reactive oxygen species that lead to premature aging. This benefit is naturally important to elderly adults whose skin gradually loses its capacity to produce sufficient quantities of SOD to adequately neutralize free radical attack.

White tea, which is made from the buds and young leaves of the tea plant, is steamed or fired to inactivate the polyphenol oxidase, and then dried. Therefore, because of its minimal oxidation, white tea also retains a very high concentration of polyphenols.

The process used in the manufacture of black tea intentionally maximizes the interaction between the catechins and polyphenol oxidase. Because black tea is allowed to completely oxidize before drying, it is generally rich in thearubigins and theaflavins, but relatively low in monomeric catechins such as EGCG that provide greater antioxidant potential.

In addition to their potent polyphenol activity, tea extracts also possess vitamin C activity that aids in the formation of new collagen, which improves both skin tone and structure. The vitamin C activity of tea also enhances the powerful free radical-fighting capabilities of vitamin E and helps promote lighter and brighter skin. The outstanding free radical-quenching ability of topical tea extracts combined with many other benefits in countering the normal effects of aging make them highly desirable ingredients in any skin care regimen.

Red tea in particular possesses impressive antioxidant capacity. Unlike green, black, and white teas, however, that come from the leaves of Camellia sinensis, red tea is not a true tea. Red tea (or rooibos) is made from the oxidized and dried leaves of the Aspalathus linearis plant that only grows in one spot on Earth—the Cederberg Mountain region of South Africa in Western Cape Province. This unique herb has been used by the native Khoisan bushmen as a natural remedy to cure all sorts of ailments ranging from infantile colic to asthma.

Red tea contains many different bioactive polyphenols. Among these are aspalathin and nothofagin, which belong to a unique class of flavonoids called dihydrochalcones that occur very rarely in plants. In fact, red tea is the only known natural source for aspalathin. Unique in terms of their chemical structure, aspalathin and nothofagin are primarily responsible for red tea’s impressive antioxidant power. Aspalathin in particular has demonstrated an even
greater antioxidant activity than the epigallocatechin gallate (EGCG) in green tea.\textsuperscript{21} Although the free radical–fighting potential of nothofagin is impressive, it’s not quite as potent an antioxidant as aspalathin.\textsuperscript{21}

Chrysoeriol is another important polyphenol in the rooibos herb. This compound is known for its potent antioxidant capacity, as well as its anti-inflammatory and antimicrobial properties.\textsuperscript{22} Chrysoeriol has been shown to be an effective inhibitor of the matrix metalloprotein that damages collagen and elastin and cause premature skin aging.\textsuperscript{23}

Rutin, also found in red tea,\textsuperscript{24} has strong antioxidant properties as well.\textsuperscript{25} Known as vitamin P1, rutin has the ability to chelate metal ions such as iron, making it highly effective at limiting the Fenton reaction that produces skin-damaging free radicals.\textsuperscript{26} Rutin also appears to stabilize and intensify the activity of vitamin C, which is vital to healthy collagen production. These and other antioxidant polyphenols in red tea such as quercetin, luteolin, and orientin make rooibos a uniquely powerful skin care ingredient that fights aging on many levels.\textsuperscript{24}

**Summary**

While resveratrol’s anti-aging power has been firmly established when taken orally, a growing body of evidence shows it can slow skin aging when applied topically. Recent research reveals it has 17\textsuperscript{times} greater antioxidant activity than idebenone, a powerful pharmaceutical antioxidant used in anti-wrinkle creams. When topically applied, polyphenols from green tea, white tea, and black tea extracts also offer a wealth of benefits for the skin. Red tea from the *Aspalathus linearis* (rooibos) plant of South Africa offers further topical support for youthful, healthy skin.

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

---

**Polyphenols: Nature’s Answer to the Free Radical Onslaught**

An abundance of studies shows that free radicals can wreak havoc on various cellular structures, such as your DNA, proteins, and cellular membranes. Virtually any compound in your body that contains an oxygen molecule, such as hydrogen peroxide, can trigger free radical production. This destructive process happens about 10,000 times every single day, in each of the trillions of cells in your body.\textsuperscript{27}

In your skin, free radical damage ultimately leads to the breakdown of collagen fibers, resulting in fine wrinkles and a loose, sagging appearance.

Under ideal circumstances, your skin uses its own natural supply of enzymatic and non-enzymatic antioxidants to defend itself against free radical attacks.\textsuperscript{28} It is well known that exposure to UV light depletes naturally occurring antioxidants as, of course, does chronologic aging.\textsuperscript{29,30} Without adequate antioxidant protection, the free radicals generated by your body eventually overwhelm your skin, resulting in premature aging.

Topical application of antioxidants, including polyphenols, has been scientifically shown to provide protection from sun-induced damage, slow down skin aging, reduce inflammation, and ultimately improve skin appearance.\textsuperscript{31-33}

Polyphenols are a dynamic group of approximately 8,000 organic compounds that are widely distributed in the plant kingdom. Polyphenol antioxidants have the ability to neutralize reactive oxygen species such as peroxyl, hydroxyl, and superoxide radicals by donating one of their electrons, thus stabilizing the molecule and breaking the oxidative chain. In addition, some polyphenol antioxidants appear to be capable of affecting cell-to-cell signaling, receptor sensitivity, inflammatory enzyme activity, and gene regulation, which gives them added free radical-quenching ability.\textsuperscript{34-36}


9. Gawlik M, Czajka A. The effect of green, black and white tea on the level of alpha and gamma tocopherols in free radical induced oxidative damage of human red blood cells. Acta Pol Pharm. 2007 Mar-Apr;64(2):159-64.


Whether you’re a man or a woman, the visible effects of aging on your appearance are always the same. Skin tone eventually loses its luster. The firm, supple look of your younger years begins to fade. Your face and neck become noticeably dry and wrinkled instead of refreshed and vibrant.

Now you can combat these unsightly changes with new DNA Repair Cream by Cosmesis®.

An innovation in skin care, this new formula features teprenone and caprylic acid, two key ingredients that help restore your skin's youthful glow.

Teprenone has a molecular structure similar to vitamin K, while caprylic acid occurs naturally in palm and coconut oils—topical ingredients dermatologists have relied on for years to help men and women enhance their skin’s appearance.

**A Clinically Studied Beautifier**

Teprenone is more than just a moisturizer. It has been shown to improve a host of visible age-related changes most maturing individuals face with the passage of time.

A group of women aged 52-64 applying teprenone twice daily experienced a 45% improvement in skin tone, 56% improvement in the appearance of spots and blemishes—and visibly more moist-looking skin in all the women tested after just one month.*

The new DNA Repair Cream also features hyaluronic acid, a compound found in high concentrations in your skin when you’re young whose levels inevitably decline over time.

Abundant in olive oil and similar to vitamin A in molecular structure, the moisturizer squalane also occurs in your skin naturally and gradually diminishes over the years.

The quenching action of red tea extract in DNA Repair Cream also lends your skin a fresher look.

Together, this novel combination of beautifiers works to replenish youthful skin appearance—and helps you stay young-looking as you grow older.

A 1 oz jar of DNA Repair Cream retails for $49. If a member buys two jars, the price is reduced to only $31.50 per jar.


**To order Cosmesis® DNA Repair Cream**
call 1-800-544-4440 or visit www.LifeExtension.com
In recent years, scientists have focused intensely on the many benefits of resveratrol supplements in supporting healthy life span.

Now cutting-edge dermatologists have uncovered the singular power of topical resveratrol to combat the appearance of wrinkles, fine lines, and other unsightly effects of skin aging.

Plants evolved resveratrol to defend against stress, infection, and the harsh, damaging effects of daylong exposure to the sun’s destructive ultraviolet rays.

The interaction of oxygen and sunlight generates an enormous volume of free radicals, gradually dehydrating and destroying the surface of plant’s skin.

It turns out that human skin is highly receptive to resveratrol’s quenching action—especially the outer layer known as the epidermis, where the visible effects of aging are most apparent.1

Resveratrol effectively neutralizes intense free radical activity. Scientific analysis has shown that topical resveratrol quenches free radicals at 95% efficiency, compared to 65% for vitamin E and 37% for vitamin C.2

ADDITIONAL POLYPHENOL PROTECTION

Resveratrol is just one of approximately 8,000 plant-based compounds known as polyphenols. To complement its beautifying effects on aging skin, a selection of high-potency tea polyphenols is included in the new Resveratrol Antioxidant Serum formula.

Black, green, and white tea extracts have been shown to preserve youthful skin tone and luster through their antioxidant activity.3-5

Also featured is the Aspalathus linearis herb found only in a mountainous region of South Africa. Although called “red tea” in the West, it is actually an herb. It happens to be one of the only sources of aspalathin, a potent antioxidant polyphenol whose distinct molecular structure complements the free radical–neutralizing action of resveratrol and tea polyphenols.6

A 1 oz bottle of Resveratrol Antioxidant Serum retails for $46. If a member buys two bottles, the cost is just $29.25 each.

References

To order Resveratrol Antioxidant Serum call 1-800-544-4440 or visit www.LifeExtension.com
Weak, brittle bones increase the risk of injury for many aging humans. Bone injuries, such as fractures, splinters, and bruises, can be extraordinarily painful and may result in months of uncomfortable rehab or long-term disability. In order to protect yourself from potentially life-altering problems, Life Extension® has formulated an exciting product made with chelated calcium and collagen called KoAct® to maintain bone strength and mineral density.

KoAct® allows for greater flexibility...so your bones can absorb energy, reducing the risk of age-related injuries. Additional plant extracts are included for their bone-protective minerals and polyphenols.

A bottle of Bone Strength Formula with KoAct® retails for $42. If a member buys four bottles, the price is reduced to $28.50 per bottle.

Contains corn.

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

Four capsules of Bone Strength Formula with KoAct® provide:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collagen (from 3,000 mg KoAct® Calcium Collagen Chelate)</td>
<td>2,700 mg</td>
</tr>
<tr>
<td>Calcium (from 3,000 mg KoAct® Calcium Collagen Chelate and calcium fructoborate)</td>
<td>300 mg</td>
</tr>
<tr>
<td>Vitamin D3 (as cholecalciferol)</td>
<td>1,000 IU</td>
</tr>
<tr>
<td>Magnesium (as magnesium citrate)</td>
<td>100 mg</td>
</tr>
<tr>
<td>Silica [from standardized Bamboo (Bambusa vulgaris) extract (stem)]</td>
<td>5 mg</td>
</tr>
<tr>
<td>Dried Plum (Prunus domestica) extract (fruit) [standardized to 50% polyphenols (50 mg)]</td>
<td>100 mg</td>
</tr>
<tr>
<td>Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)</td>
<td>3 mg</td>
</tr>
</tbody>
</table>

If you need extra bone support, ask your healthcare professional how Bone Strength Formula with KoAct® can be part of a comprehensive nutritional program in conjunction with proper resistance exercise. Life Extension offers many mineral formulas that may complement Bone Strength Formula with KoAct® to ensure optimal mineral intake.

KoAct® is a registered trademark of AIDP, Inc. FruiteX B® and OsteoBoron® are registered trademarks of VDF FutureCeuticals, Inc., U.S. Patent #5,962,049.

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.
Artichokes are packed with phytonutrients such as quercetin, rutin, gallic acid, and cynarin.

While artichokes may not be the easiest food to consume, the sheer volume of nutrients, minerals, and phytochemicals found in this extraordinary vegetable make eating them well worth it. Most people’s favorite part of the artichoke is the heart, but the leaves are actually the source of a vast majority of its health benefits. In fact, artichoke leaf extract has proven to be an extremely beneficial food with a host of illness-fighting, age-extending properties.

Artichokes are packed with phytonutrients such as quercetin, rutin, gallic acid, and cynarin, all working to protect against many health risks including cancer, heart disease, liver dysfunction, high cholesterol, and diabetes.1 In 2004, the United States Department of Agriculture conducted its largest, most comprehensive study analyzing the antioxidant content of the most commonly consumed foods. To the surprise of many, artichokes ranked in the top four vegetables and seventh overall.2 Throughout this article you’ll learn about the numerous ways that incorporating artichokes into your diet can benefit your health and well-being.
The globe artichoke, or *Cynara scolymus*, is the immature flowers of a thistle plant and is known as one of the oldest cultivated vegetables in the world. Most likely, artichokes originated in the Mediterranean, although they have been seen in ancient Egyptian writings as symbols of sacrifice and fertility. The Spanish eventually brought them to California in 1600, but they didn’t actually catch on with Americans until the 1920s. California provides nearly 100 percent of the artichoke crop in the United States, with Castroville, a town in the California Central Coast farm country, calling itself the “artichoke center of the world.” There are several varieties of artichokes such as Green Globe, Desert Globe, Big Heart, and Imperial Star, ranging in color from dark purple to pale green.

Before cooking your artichoke, make sure to cut off the stem, if your artichoke still has it attached. Also, you can trim off the very sharp leaf tips and use your fingers to slightly open up the leaves, allowing it to cook more effectively.

Whether you boil or steam your artichoke, you can tell it’s done when the petal near the center pulls out easily.

Don’t worry, the artichoke is one of the only foods where it is both proper and polite to eat with your fingers.

Artichokes can be served hot or cold. To eat, just pull out the outer petals one at a time. Dip it in your favorite sauce and pull the leaves through your teeth, removing the soft pulpy portion. Discard the remaining portion of the leaf.

Continue this until all the petals have been removed. Use a spoon and remove the fuzzy center at the base of the artichoke and discard it. What remains is the heart of the artichoke and it is entirely edible. Enjoy!11

High cholesterol is associated with an increased risk for coronary heart disease and atherosclerosis. Artichokes and artichoke leaf extract reduce cholesterol levels. The efforts to study this idea date back all the way to the 1970s, when scientists began examining cynarin and cholesterol in their labs.4 In a 12-week, double-blind study, 75 patients received placebo or 1,280 mg standardized artichoke leaf daily. At the end of the 12 weeks, the treated group recorded a modest reduction in total cholesterol of 4.2%.5 To further demonstrate the artichoke’s heart-healthy powers, scientists set up a randomized, placebo-controlled study to examine the effect of artichoke leaf extract in patients with high cholesterol.
Cancer Prevention

There are many other powerful polyphenol-type antioxidants found in artichokes that researchers believe can contribute to the prevention and management of prostate cancer, breast cancer, and leukemia. Studies have shown that the antioxidants rutin, quercetin, and gallic acid found in artichoke leaf extract are able to induce apoptosis (cell death) and reduce the proliferation of cancer cells.¹

In research done at Comenius University in Slovakia, artichoke leaf extract was studied for its ability to inhibit growth of leukemia cells. Over a 24-hour period, leukemia cells were treated with a variety of concentrations of artichoke leaf extract, with results suggesting that it exerts an anti-proliferative activity on leukemia cells while inducing apoptosis of these cells as well.⁹ In addition,

Digestive Health

The high concentration of cynarin in artichokes not only affects cholesterol, but also can contribute to aiding in digestive health. Cynarin is known to stimulate the production of bile, which enables us to digest fats and absorb vitamins from our food, making artichokes an excellent way to start any meal.³

Studies have shown that artichoke leaf extract can be very helpful for people suffering from irritable bowel syndrome (IBS) and dyspepsia, or upset stomachs. In a study done at the University of Reading in the United Kingdom, 208 adults who suffered from IBS and dyspepsia were monitored over a two-month period of intervention with artichoke leaf extract. Results showed a 26.4% reduction in IBS incidence among the participants at the end of the trial. A significant shift of self-reported bowel patterns away from “alternating constipation/diarrhea” toward “normal” was observed as well. Dyspepsia symptoms also decreased by 41% after treatment, and in general, the participants noted a 20% increase in quality of life after treatment.⁷

Liver Function

The boost in bile production you gain from eating artichokes can also be attributed to cynarin, which can be very beneficial to the health of your liver. The bile that your liver produces helps to remove dangerous toxins and digest fats. Artichokes also contain the flavonoid silymarin, a powerful liver protectant. Silymarin averts the process of lipid peroxidation from occurring in the cell membranes of the tissues of the liver, making the artichoke an ideal weapon in your arsenal to help you obtain optimal liver function.⁸
researchers at the University of Georg-August in Germany have said that the many phytochemicals in artichokes help to block the secretion of cancer agents, thus inhibiting the angiogenesis related to cancer.10

References


If you have any questions on the scientific content of this article, please call a Life Extension® Health Advisor at 1-866-864-3027.
Shocking data just released reveal that someone in America develops an age-related brain deficit every 69 seconds!1

Within 20 years, an astounding 71 million aging individuals will be at risk for cognitive problems.1 Thankfully, new research indicates that some of the factors behind this alarming trend may lie within your control. The key is to maintain a steady supply of special nutrients clinically shown to support brain health as you age.

FOOD FOR THOUGHT
A healthy adult brain has about 100 billion nerve cells. Each cell requires specific dietary support for optimum performance. Most aging individuals, however, are unwittingly starving their brains of these critical nutrients. You may be one of them.

The reason? Healthy dieting. Many of the foods you should rightfully avoid—eggs, red meat, cheese—contain these vital brain-boosting nutrients.

Life Extension® developed the comprehensive Cognitex® formula back in 1982 to provide optimal support for the aging brain.

Cognitex® Basics is a simplified, low-cost formula featuring two important compounds missing from a healthy diet—for maximum cognitive support and lifelong mental power. These two nutrients are:

1. ALPHA-GPC: A PRESCRIPTION DRUG IN EUROPE
The neurotransmitter acetylcholine is critically involved in memory, cognition, sleep, and motor control. The nutrient Alpha-GPC (alpha-glyceryl phosphoryl choline) is an acetylcholine “precursor.” Your brain needs it to produce optimal amounts of acetylcholine. Owing to the clinical studies validating its brain-supporting power, Alpha-GPC is sold as an expensive prescription drug in Europe. The suggested serving of two softgels of Cognitex® Basics supplies 600 mg of Alpha-GPC.

2. AN FDA-SUPPORTED BRAIN HEALTH PROMOTER
Found in human milk, phosphatidylserine is essential in helping brain neurons support memory and promoting healthy nerve cell division and repair. Research shows it can benefit people of all ages. So much so that since 2003, the FDA has recognized that phosphatidylserine consumption may reduce the risk of dementia and cognitive dysfunction in the elderly.2 The suggested daily serving of Cognitex® Basics provides 100 mg of phosphatidylserine.

Age-related cognitive decline is often referred to as a “senior moment”, “brain fog”, or “drawing a blank.” These problems lie in store for anyone who lives long enough. Taking precautionary measures can yield huge neurological health dividends in the future.

A bottle containing 60 softgels of Cognitex® Basics retails for $38. If a member buys four bottles, the price is reduced to just $26.25 per bottle.

Two softgels of Cognitex® Basics provide:
Sharp-GPC™ Active Alpha-Glyceryl ............ 600 mg
Phosphoryl Choline (A-GPC)
Sharp-PS® Phosphatidylserine ................. 100 mg

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

References:

Contains soybeans. Sharp-PS® is a registered trademark and Sharp-GPC™ Active is a trademark of Enzymotec Ltd.
CAUTION: If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product.

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.
Assert Control over the Calories You Eat!

Would you spend hours at the beach without wearing sunglasses and sun protection lotion? The answer should be a resounding no!

Yet most aging individuals do little to protect their bodies against the excess calories they ingest each day.

Few of us realize the deadly impact that large meals inflict. For instance, chronic overeating results in our bloodstreams being bloated with glucose, insulin, and triglycerides long after a meal is finished. This occurs not only because we absorbed too many calories, but also from the age-associated impairment to our internal regulators of carbohydrate and fat metabolism. This helps explain why, with advancing age, we tend to accumulate unwanted body weight even as we try to cut down on food intake and exercise more.

The good news is that scientists have identified documented methods to reduce the toxic damage from excess calorie intake by taking the proper nutrients before heavy meals.

Comprehensive Calorie Management

The Calorie Control Weight Management Formula with African Mango Irvingia is designed to be taken before the two heaviest daily meals to help neutralize the dangers of caloric excess. The ingredients were chosen based on scientific findings that age-associated fat accumulation is at least partially caused by the loss of one’s metabolic capacity to utilize ingested calories. Each scoop of this good-tasting powdered drink mix contains:

1. A proprietary fiber called LuraLean® that swells in the stomach after ingestion with water to help reduce calorie consumption. LuraLean® binds to bile acids in the small intestine and helps transport them out of the body. These bile acids otherwise facilitate the digestion and assimilation of dietary fat into the bloodstream. LuraLean® also slows the rapid emptying of ingested food into the small intestine, thereby reducing the surge of glucose entering the bloodstream. LuraLean® works better than other fibers because its own enzymes have been removed, thus sparing it from degradation in the digestive tract. This enables LuraLean® to form a stable viscous barrier to help impede calorie absorption and maintain its sponge-like activity throughout the digestive tract. In placebo-controlled studies, LuraLean® has induced weight loss along with significant reductions in fasting lipid and post-meal glucose/insulin levels.

2. A white kidney bean extract called Phaseolus vulgaris that inhibits the amylase enzyme in the digestive tract. Amylase breaks down carbohydrates that are then absorbed into the bloodstream as glucose. Phaseolus vulgaris has produced weight loss and abdominal fat reductions, along with significant reductions of triglycerides, in placebo-controlled trials.

3. An African plant extract called African Mango Irvingia gabonensis that favorably regulates leptin to decrease appetite and facilitate triglyceride removal from adipocytes; inhibits glycerol-3-phosphate dehydrogenase to reduce fatty acid storage in adipocytes; and up-regulates adiponectin to facilitate insulin sensitivity. Irvingia has demonstrated favorable weight loss results in placebo-controlled trials.

4. A proprietary green tea phytosome that absorbs much better into the bloodstream to boost resting metabolic rate. In a controlled clinical study, this green tea phytosome induced 30.1 pounds of weight loss on average in 90 days when combined with a reduced calorie diet.

Life-Saving Importance of Taking Calorie Control Weight Management Formula with African Mango Irvingia Before Heavy Meals

Once we accept the danger that each surplus calorie poses to our aging body, it becomes easy to understand the critical need to impede the absorption and effects of ingested foods by taking the Calorie Control Weight Management Formula with African Mango Irvingia before the two heaviest meals of the day.

The retail price for a one month (60-serving) supply of Calorie Control Weight Management Formula with African Mango Irvingia is $50. If a member buys four jars, the price is reduced to $33.

If eight jars are purchased the member price is slashed to only $30 per jar.

Contains soybeans, tree nuts, and corn. LuraLean® is a registered trademark of AHD International LLC. This supplement should be taken in conjunction with a healthy diet and regular exercise. Results may vary.

CAUTION: Take at least two hours apart from medications. Because this product may lower blood glucose, consult your healthcare provider before taking this product if you are taking blood glucose lowering medication. Taking fiber products without adequate liquid may increase the risk of choking. Consult your healthcare provider before taking this product if you have difficulty swallowing or esophageal narrowing.

To order the Calorie Control Weight Management Formula with African Mango Irvingia, call 1-800-544-4440 or visit www.LifeExtension.com/calorie-control

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.
Artichoke Leaf Extract is made from the long, serrated basal leaves of the plant, which contain the highest concentration of biologically active compounds. These compounds have displayed the ability to maintain healthy digestion and liver function. Chlorogenic acid and cynarin are two of the active compounds found in this extract. Chlorogenic acid positively affects glucose levels in the body in those already within normal range and may support healthy body weight. The compound cynarin, which is found almost exclusively in artichokes, may support digestion and maintain cholesterol levels already within a healthy range.

Those who may benefit from these natural compounds may want to add Artichoke Leaf Extract to their supplement regimen. Some people will take one capsule with meals that contain fat to facilitate digestion.

- The retail price for a bottle of 180 vegetarian capsules of Life Extension’s Artichoke Leaf Extract is $28. If a member buys four bottles, the price is reduced to $19.04 per bottle.

To order Artichoke Leaf Extract, call 1-800-544-4440 or visit www.LifeExtension.com

Caution: If you have gallstones or a biliary tract obstruction, do not use this product.

Contains corn.

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

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

Imagine actually having the opportunity.

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

(877) 462-5267 ext.101
www.alcor.org
19th Annual World Congress on Anti-Aging & Aesthetic Medicine
December 8-10, 2011 | Las Vegas, NV
Practicing the Medicine of the Future Today...

Join Us for the LARGEST 3-day CME Event in Las Vegas!
Become part of the Anti-Aging Solution

Takeaway Comprehensive Training for Optimal Patient Outcome

What can you expect from this event?
• Case Studies with Real Patients
• Daily Q&A with Faculty
• Panel Discussions on the Metabolic and Functional Treatments
• State-of-the-Art Exhibits
• Evening Workshops
• Networking Opportunities

DON’T MISS OUT ON

KEYNOTE SPEAKER:
MARTIN S. LEVINE, DO, MPH, FACOFP
President of the American Osteopathic Association (AOA)

SPECIAL GUEST SPEAKER:
COACH MIKE DitKA
Pro Football Hall of Fame player; Super Bowl-winning coach and NFL analyst

Location:
The Venetian Hotel & Resort
3355 Las Vegas Blvd. South, Las Vegas, NV 89109
Tel: 847-759-4280
Room rates - $129/night (Sun.-Thurs.)
$169/night (Fri.-Sat.)

REGISTER EARLY and SAVE!
1-888-997-0112  www.a4m.com
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.)
2. After your order is placed, you will be mailed either a requisition form to take to your local LabCorp Patient Service Center or a Blood Draw Kit; whichever is applicable. (Please note: If a blood draw kit is used, an additional local draw fee may be incurred.)
3. Have your blood drawn.
4. Your blood test results will be mailed directly to you by Life Extension.
5. Take the opportunity to discuss the results with one of our knowledgeable health advisors by calling 1-800-226-2370; or review the results with your personal physician.

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

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

**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.**

---

**Blood Testing**

**The Ultimate Information**

**MOST POPULAR PANELS**

**Life Extension Member Pricing**

**COMPREHENSIVE PANELS**

**MALE WEIGHT LOSS PANEL (LCWLM)** $299
- CBC/Chemistry Profile
- DHEA-S
- Insulin
- Free Testosterone (prostate-specific antigen)
- Estradiol
- Total Testosterone
- C-Reactive Protein (high sensitivity)

**FEMALE WEIGHT LOSS PANEL (LCWLF)** $299
- CBC/Chemistry Profile
- DHEA-S
- Progesterone
- Free Testosterone (prostate-specific antigen)
- Estradiol
- TSH
- C-Reactive Protein (high sensitivity)

**MALE LIFE EXTENSION PANEL (LC32582)** $269
- CBC/Chemistry Profile
- DHEA-S
- Homocysteine
- TSH for thyroid function
- Free Testosterone
- Total Testosterone
- Estradiol
- TSH
- Free T3
- Free T4
- C-Reactive Protein (high sensitivity)

**FEMALE LIFE EXTENSION PANEL (LC32535)** $269
- CBC/Chemistry Profile
- DHEA-S
- Estradiol
- Homocysteine
- Progesterone
- TSH for thyroid function
- Free Testosterone
- Total Testosterone
- C-Reactive Protein (high sensitivity)

**MALE HORMONE ADD-ON PANEL (LCADDM)** $155
- Pregnenolone and Dihydrotestosterone (DHT)

**FEMALE HORMONE ADD-ON PANEL (LCADDF)** $125
- Pregnenolone and Total Estrogens

**LIFE EXTENSION THYROID PANEL (LC304131)** $75
- TSH, T4, Free T3, Free T4

**MALE HORMONE RE-TEST PROFILE (LCRTM)** $275
- CBC/Chemistry Profile, DHEA-S, Dihydrotestosterone (DHT), Estradiol, PSA, Pregnenolone, Total and Free Testosterone, and TSH. Continual monitoring of hormone levels is necessary for men seeking to maintain optimal blood level values.

**FEMALE HORMONE RE-TEST PROFILE (LCRTF)** $250
- CBC/Chemistry Profile, DHEA-S, Total Estrogen, Pregnenolone, Progesterone, and TSH. Continual monitoring of hormone levels is necessary for women seeking to maintain optimal blood level values.

**THE CBC/CHEMISTRY PROFILE (LC381822)** $35
- Over 40 Parameters Tested
- Cardiovascular Risk Profile
- Total Cholesterol
- Cholesterol/HDL Ratio
- HDL Cholesterol
- Estimated CHD Risk
- LDL Cholesterol
- Glucose
- Triglycerides
- Iron

**LIVER FUNCTION PANEL**
- AST (SGOT)
- Total Bilirubin
- ALT (SGPT)
- Alkaline Phosphatase
- LDH

**KIDNEY FUNCTION PANEL**
- BUN
- Creatinine
- Uric Acid

**BLOOD PROTEIN LEVELS**
- Total Protein
- Globulin
- Albumin
- Albumin/Globulin Ratio

**BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE**
- Red Blood Cell Count
- Monocytes
- White Blood Cell Count
- Lymphocytes
- Eosinophils
- Platelet Count
- Basophils
- Hemoglobin
- Polys (Absolute)
- Hematocrit
- Lymphs (Absolute)
- MCV
- Monocytes (Absolute)
- MCH
- Eos (Absolute)
- MCHC
- Baso (Absolute)
- Polynucleated Cells
- RDW

**BLOOD MINERAL PANEL**
- Calcium
- Sodium
- Potassium
- Chloride
- Phosphorus
- Iodine

**GENERAL HEALTH**
- Hemoglobin A1C (HbA1C) (LC001453)
- Total Protein
- Globulin
- Albumin/Globulin Ratio

**VITAMIN D (25OH) (LC081950)** $47
- This test is used to rule out vitamin D deficiency as a cause of bone disease. It can also be used to identify hypercalcemia.

**FOOD SAFE ALLERGY TEST (LCM73001)** $174
- This test measures delayed (IgG) food allergies for 95 common foods.

**CYTOKINE PANEL (LCCTY)** $398
- Includes TNF-alpha, IL-6, IL-1 beta and IL-8.
- Cytokines are proteins that modulate the inflammatory response. This panel is used to identify elevated levels of specific cytokines.

**OMEGA SCORE (LCOMEGA)** $131.25
- 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.

**COQ10 (LCENZYME Q10) (LC120251)** $145
- This test is used to check the blood level of CoQ10 and will enable more precise dosing for anyone seeking to achieve and maintain high levels of this critical antioxidant.

---

For more information, please visit www.lifeextension.com.

Life Extension® offers...

**FEMALE HORMONE RE-TEST PROFILE**
- Estradiol
- Total and Free Testosterone
- Progesterone
- Total Estrogen
- Continual monitoring of hormone levels is necessary for women seeking to maintain optimal blood level values.

**MALE LIFE EXTENSION PANEL**
- Total and Free Testosterone
- Estradiol
- Total Testosterone
- Continual monitoring of hormone levels is necessary for men seeking to maintain optimal blood level values.

**FEMALE LIFE EXTENSION PANEL**
- Total Testosterone
- Estradiol
- Free Testosterone
- Continual monitoring of hormone levels is necessary for women seeking to maintain optimal blood level values.

**THE CBC/CHEMISTRY PROFILE**
- Total Cholesterol
- HDL Cholesterol
- LDL Cholesterol
- Triglycerides
- Iron

**LIVER FUNCTION PANEL**
- AST (SGOT)
- ALT (SGPT)
- Total Bilirubin
- Alkaline Phosphatase
- LDH

**KIDNEY FUNCTION PANEL**
- BUN
- Creatinine
- Uric Acid

**BLOOD PROTEIN LEVELS**
- Total Protein
- Globulin
- Albumin
- Albumin/Globulin Ratio

**BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE**
- Red Blood Cell Count
- Monocytes
- White Blood Cell Count
- Lymphocytes
- Eosinophils
- Platelet Count
- Basophils
- Hemoglobin
- Polys (Absolute)
- Hematocrit
- Lymphs (Absolute)
- MCV
- Monocytes (Absolute)
- MCH
- Eos (Absolute)
- MCHC
- Baso (Absolute)
- Polynucleated Cells
- RDW

**BLOOD MINERAL PANEL**
- Calcium
- Sodium
- Potassium
- Chloride
- Phosphorus
- Iodine

**GENERAL HEALTH**
- Hemoglobin A1C (HbA1C) (LC001453)
- Total Protein
- Globulin
- Albumin/Globulin Ratio

**VITAMIN D (25OH) (LC081950)** $47
- This test is used to rule out vitamin D deficiency as a cause of bone disease. It can also be used to identify hypercalcemia.

**FOOD SAFE ALLERGY TEST (LCM73001)** $174
- This test measures delayed (IgG) food allergies for 95 common foods.

**CYTOKINE PANEL (LCCTY)** $398
- Includes TNF-alpha, IL-6, IL-1 beta and IL-8.
- Cytokines are proteins that modulate the inflammatory response. This panel is used to identify elevated levels of specific cytokines.

**OMEGA SCORE (LCOMEGA)** $131.25
- 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.

**COQ10 (LCENZYME Q10) (LC120251)** $145
- This test is used to check the blood level of CoQ10 and will enable more precise dosing for anyone seeking to achieve and maintain high levels of this critical antioxidant.

---

* 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.
HORMONES

- **CORTISOL** (LC004051)
  - This test is to measure adrenal function. $39

- **ADRENOCORTICOTROPIC HORMONE (ACTH)** (LC004440)
  - A pituitary function test useful in evaluating adrenocortical dysfunction. $91.50

- **DHEA-SULFATE** (LC004020)
  - This test shows if you are taking the proper amount of DHEA. This test normally costs $100 or more at commercial laboratories. $61

- **DIHYDROTESTOSTERONE (DHT)** (LC500142)
  - Measures serum concentrations of DHT. $98

- **Estradiol** (LC004515)
  - For men and women. Determines the proper amount in the body. $33

- **INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN 3 (IGFBP3)** (LC140152)
  - Elevated levels in hypertensive individuals have been associated with a nine-fold increase of carotid atherosclerosis. $47

- **INSULIN FASTING** (LC004333)
  - Can predict those at risk of diabetes, obesity, and heart and other diseases. $42

- **PREGNENOLONE** (LC010707)
  - Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing’s syndrome. $116

- **PROGESTERONE** (LC004317)
  - Primarily for women. Determines the proper amount in the body. $55

- **SEX HORMONE BINDING GLOBULIN (SHBG)** (LC082016)
  - This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens. $33

- **SOMATOMEDIN C (IGF-1)** (LC010363)
  - Indicates growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality. $75

- **TOTAL AND FREE TESTOSTERONE** (LC140103)
  - Determines whether testosterone replacement should be considered as a therapy for depression, abdominal obesity, low energy, poor mental performance, or loss of libido. $99

CARDIAC RISK

- **Lp-PLA2 (PLAC TEST)** (LC123240)
  - This test is used to aid in predicting risk for coronary heart disease, and ischemic stroke associated with atherosclerosis. Lp-PLA2 is a cardiovascular risk factor that provides unique information about the stability of the plaque inside your arteries. $125

- **C-REACTIVE PROTEIN (HIGH-SENSITIVITY)** (LC120766)
  - Measures inflammation factors in arteries. Recent studies indicate that C-reactive protein may be the most accurate risk factor for predicting heart attack and stroke. $42

- **APOLIPOPROTEIN ASSESSMENT (APO A1 + APO B + RATIO)** (LC216010)
  - This ratio correlates with risk of coronary artery disease and is useful in the presence of borderline elevations of cholesterol. $55

- **FIBRINOGEN** (LC001610)
  - High levels of this blood-clotting factor increase the risk of heart attack and stroke. $31

- **HOMOCYSTEINE** (LC070694)
  - Can indicate if you are likely to have a heart attack or stroke. Even if you take folic acid, you still may have dangerously high levels of this artery-clotting metabolic debris that can be lowered with high doses of TMG and vitamin B6. $64

- **VAP™ TEST** (LC004500)
  - The VAP cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid profile. $90

- **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. $79

TERMS AND CONDITIONS

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

Signature of Life Extension Member

X

Life Extension Foundation Members only

MEMBER NO.

- Male
- Female

Name

Date of Birth (required) / /

Address

City

State Zip

Phone

Credit Card No.

Expiration Date /

Mail your order form to:

Life Extension
NATIONAL DIAGNOSTICS, INC.
5990 North Federal Highway, Ft. Lauderdale, FL 33308-2633

Phone your order to: 1-800-208-3444
Fax your order to: 1-866-728-1050

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

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

## BONE & JOINT HEALTH
- ArthroMax™ with Theaflavins
- Bone-Up™
- Bone Restore™
- Bone Strength Formula w/KoAct™
- Chondroitin Sulfate
- Chondroitin
- Fast Acting Joint Formula
- Glucosamine Chondroitin Capsules

## BRAIN HEALTH
- Acetyl-L-Carnitine
- Acetyl-L-Carnitine-Argetinate
- CDP Choline Capsules
- Cognitex® with NeuroProtection Complex
- Cognitex® with Pregnenolone & NeuroProtection Complex
- Cognitex® Basics
- DMAE
- Ginkgo Biloba Certified Extract™
- Hupehine A
- Lecithin with B5 and BHA
- Lecithin Granules
- Methylcobalamin Lozenges
- Optimized Ashwagandha Extract
- Phosphatidylserine Capsules
- Rhodiola Extract
- Super Ginkgo Extract
- Vinpocetine

## DIGESTIVE
- Bromelain Powder
- Carmsoothe w/PicroProtect
- Daily Ginger®
- Digest RQ®
- Enhanced Super Digestive Enzymes (also available with Probiotics)
- Florastor
- Intact Digest
- Life Flora™
- Natural EsohaGuard
- N-Zimes™
- Pancreatin
- Primal Defense™
- Probiotic All-Flora®
- Probiotic Anti-Aging
- Probiotic Cleanse™
- Probiotic Colon™
- Regimint
- Saccharomyces Boulardii-los
- Theralac Probiotics

## DUNK AND SANDY PRODUCTS
- Blast™
- Dual-C
- Inner Power™
- Memory Upgrade™

## EYE CARE
- Bilberry Extract
- Blackcurrent Freeze Dried Extract
- Brite Eyes
- Eye Pressure Support with Mirtogenol®

## FIBER
- Overcast Polarized Sunglasses
- Solarshield Sunglasses
- Super Zeaxanthin with Lutein & Meso-Zeaxanthin and C3G (Plus Astaxanthin also available)
- Vision Optimizer

## FOOD
- Asian Cruciferous Vegetable Soup
- Cruciferous Vegetable Soup

## HAIR CARE
- Dr. Proctor's Advanced Hair Formula
- Dr. Proctor's Shampoo
- Life Extension Shampoo and Conditioner
- Super-Absorbable Tocotrienols

## HEART HEALTH
- Advanced Lipid Control
- Asparin (Enteric Coated)
- Cho-Less™
- D-Ribose Capsules
- D-Ribose Powder
- Endothelial Defense™ with Full-Spectrum Pomegranate™
- Fibrinogen Resist
- Forsoklin
- Garlicforce™
- Homocysteine Resist
- Krill Healthy Joint Formula
- Natural BP Management
- Peak ATP® with GlycoCarn®
- Policosanol
- Red Yeast Rice
- Super Absorbable CoQ10™ with d-Limonene
- Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
- Super Ubiquinol CoQ10 with Enhanced Mitochondrial™ Support
- Sytrinol™
- Theaflavin Standardized Extract
- TMG Powder
- TMG Tablets

## HERBAL/PHYTO PRODUCTS
- Artichoke Leaf Extract
- Astaxanthin
- Berry Complete
- Blueberry Extract
- Blueberry Extract w/Pomegranate
- Butterbur Extract w/Standardized Rosmarinic Acid
- Calcium D-Glucarate
- Citrus Bioflavonoid
- Enhanced Berry Complete with RZD™ Acai
- Floradix® Iron & Herbs
- Floravital® Iron & Herbs
- Flaxseed
- Full-Spectrum Pomegranate™
- Grapeseed Extract with Resveratrol & Sirtuin™
- Huperzine A with Natural Vitamin E
- Kyolic® Garlic Formula 105
- Kyolic® Reserve
- Mega Green Tea Extract
- Mega Green Tea Extract (Decaffeinated)
- Mega Lycopene Extract
- Nutrim
- Optimized Ashwagandha Extract
- Optimized Garlic
- Pomegranate Extract
- Pomegranate Juice Concentrate
- ProGreens®
- Pure G9™
- Pycnogenol
- Optimized Quercetin
- Resveratrol with Synergistic Grape-Berry Actives
- Rhodiola Extract
- Rosmarinic Acid Extract
- Silymarin
- SODzyme™ with GilSODin®
- Stevia Extract
- Super Bio-Curcumin®
- Super Ginkgo Extract

## INFLAMMATORY REACTIONS
- Arthro-Max™ with Theaflavins
- Barlean's Kids DHA
- Boswellia
- Boswellia® Topical Cream
- Bromelain (Specially-coated)
- Coromega Kids Brain and Body (DHA) DHA 240
- Emulsified Norwegian Cod Liver Oil
- Emulsified Super Twin EPA/DHA
- Fast Acting Joint Formula
- Ginger Force
- Krill Oil
- 5-LOXIN®
- Mega EPA/DHA
- Mega GLA with Sesame Lignans
- MSM
- Natural Relief 1222™ Cream
- Omega-3 Chewables
- Serrafazyme
- SODzyme™ with GilSODin® and Wolfberry
- Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
- Tart Cherry
- Udo’s Choice Oil
- Zymflamend Easy

## LIVER HEALTH
- Branch Chain Amino Acids
- N-Acetyl Cysteine
- Liver Force
- Certified European Milk Thistle
- PhosChol® (Nutrasal)
- SAMe
- Silymarin

## MINERALS
- Boswellia
- Bone Restore
- Bone Strength Formula w/KoAct™
- Bone-Up™
- Boron Capsules
- Calcium Citrate with D3
- Chromium Ultra
- Copper
- Dr. Strum’s Intensive Bone Formula
- Iodoral

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

## IMMUNE ENHANCEMENT
- Agave Digestive-Immune Support
- AHCC® (Active Hexose Correlated Compound)
- Aloe Vera Force™
- Buffered Vitamin C Powder
- Echinacea
- Enhanced Life Extension Whey Protein
- 126 Hyperimmune Egg
- Immune Protect with PARACTIN™
- Lactoferrin
- Lifeshield™ Immunity™
- Maitake SX-Fraction
- Norwegian Shark Liver Oil
- Optimized Fucoidan w/Maritech® 926
- Primal Defense™
- ProBoost™ Thymic Protein A
- Pure G9™
- Sambu’s Guard
- Supercritical Oreganoforce™
- Thymic Immune Factors
- Ultimate Flora Advanced Immunity
- Vitamin C with Dihydroquercetin
- Zinc Lozenges with Vitamin C

## INFLAMMATORY REACTIONS
- Arthro-Max™ with Theaflavins
- Barlean’s Kids DHA
- Boswellia
- Boswellia® Topical Cream
- Bromelain (Specially-coated)
- Coromega Kids Brain and Body (DHA) DHA 240
- Emulsified Norwegian Cod Liver Oil
- Emulsified Super Twin EPA/DHA
- Fast Acting Joint Formula
- Ginger Force
- Krill Oil
- 5-LOXIN®
- Mega EPA/DHA
- Mega GLA with Sesame Lignans
- MSM
- Natural Relief 1222™ Cream
- Omega-3 Chewables
- Serrafazyme
- SODzyme™ with GilSODin® and Wolfberry
- Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
- Tart Cherry
- Udo’s Choice Oil
- Zymflamend Easy

## LIVER HEALTH
- Branch Chain Amino Acids
- N-Acetyl Cysteine
- Liver Force
- Certified European Milk Thistle
- PhosChol® (Nutrasal)
- SAMe
- Silymarin

## MINERALS
- Boswellia
- Bone Restore
- Bone Strength Formula w/KoAct™
- Bone-Up™
- Boron Capsules
- Calcium Citrate with D3
- Chromium Ultra
- Copper
- Dr. Strum’s Intensive Bone Formula
- Iodoral
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>ACETYL-L-CARNITINE - 500 mg, 100 caps</td>
<td>25.00</td>
<td>19.50</td>
<td>4</td>
<td>77.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>25.00</td>
<td>19.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00788</td>
<td>ACETYL-L-CARNITINE ARGINATE - 100 caps</td>
<td>18.00</td>
<td>13.50</td>
<td>4</td>
<td>54.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01308</td>
<td>ADVANCED LIPID CONTROL - 60 veg. caps</td>
<td>20.00</td>
<td>15.00</td>
<td>2</td>
<td>40.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>20.00</td>
<td>15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01300</td>
<td>ADVANCED ORAL HYGIENE - 60 veg. mint lozenges</td>
<td>18.00</td>
<td>13.50</td>
<td>2</td>
<td>36.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00688</td>
<td>ASHWAGANDHA EXTRACT (OPTIMIZED) - 60 veg. caps</td>
<td>30.00</td>
<td>22.50</td>
<td>4</td>
<td>120.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>30.00</td>
<td>22.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01066</td>
<td>ASPRIN - 81 mg, 300 enteric coated tablets</td>
<td>5.00</td>
<td>3.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>5.00</td>
<td>3.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00708</td>
<td>ASTAXANTHIN - 2 mg, 30 softgels</td>
<td>20.00</td>
<td>15.00</td>
<td>10</td>
<td>200.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>20.00</td>
<td>15.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 1**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>BENVOTIamine W/ THIAMINE - 100 mg, 120 veg. caps</td>
<td>14.96</td>
<td>11.97</td>
<td>4</td>
<td>59.84</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>14.96</td>
<td>11.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00925</td>
<td>BENVOTIamine (MEGA)- 250 mg, 120 veg. caps</td>
<td>22.50</td>
<td>17.00</td>
<td>4</td>
<td>89.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>22.50</td>
<td>17.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01206</td>
<td>BERRY COMPLETE - 30 veg. caps</td>
<td>15.75</td>
<td>12.00</td>
<td>4</td>
<td>63.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>15.75</td>
<td>12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01406</td>
<td>BERRY COMPLETE w/RIZOD® ACAI (ENHANCED) - 60 veg. caps</td>
<td>19.50</td>
<td>15.00</td>
<td>4</td>
<td>78.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>19.50</td>
<td>15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00664</td>
<td>BETACAROTENE - 25,000 IU, 100 softgels</td>
<td>7.80</td>
<td>6.24</td>
<td>4</td>
<td>31.20</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>7.80</td>
<td>6.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00653</td>
<td>BETTERWOMAN® - 40 caps</td>
<td>30.00</td>
<td>22.50</td>
<td>4</td>
<td>120.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>30.00</td>
<td>22.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01073</td>
<td>BILBERRY EXTRACT - 100 mg, 100 veg. caps</td>
<td>21.00</td>
<td>16.50</td>
<td>4</td>
<td>84.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>21.00</td>
<td>16.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01512</td>
<td>BIOACTIVE MILK PEPTIDES - 30 caps</td>
<td>13.50</td>
<td>10.12</td>
<td>4</td>
<td>54.00</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>13.50</td>
<td>10.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01006</td>
<td>BIOSIL™ - 5 mg, 30 veg. caps</td>
<td>15.16</td>
<td>11.32</td>
<td>4</td>
<td>60.64</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>15.16</td>
<td>11.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01007</td>
<td>BIOSIL™ - 1 fl oz</td>
<td>23.99</td>
<td>18.79</td>
<td>4</td>
<td>95.96</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>23.99</td>
<td>18.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01102</td>
<td>BIOTIN - 600 mg, 100 caps</td>
<td>6.63</td>
<td>5.00</td>
<td>4</td>
<td>26.52</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>6.63</td>
<td>5.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00145</td>
<td>BILITRONIC POWDER - 30 caps</td>
<td>9.38</td>
<td>7.04</td>
<td>4</td>
<td>37.44</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>9.38</td>
<td>7.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01008</td>
<td>BLAST™ - 600 grams of powder</td>
<td>20.21</td>
<td>15.66</td>
<td>4</td>
<td>80.84</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>20.21</td>
<td>15.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01526</td>
<td>BLENDECOR - 2 oz bottle</td>
<td>6.74</td>
<td>5.06</td>
<td>4</td>
<td>27.04</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>6.74</td>
<td>5.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70000</td>
<td>BLOOD PRESSURE MONITOR-ARM CUFF (medium)</td>
<td>64.97</td>
<td>49.48</td>
<td>4</td>
<td>257.88</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>64.97</td>
<td>49.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70001</td>
<td>BLOOD PRESSURE MONITOR- WRIST (travel size)</td>
<td>45.47</td>
<td>34.18</td>
<td>4</td>
<td>177.88</td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>45.47</td>
<td>34.18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 2**
To order online visit: www.LifeExtension.com

Buyers Club Order Form

No.  | Retail Each | Member Each | Qty | Total
---|-------------|-------------|-----|------
01503 | $38.00 | $29.50 | Buy 4 bottles, price each | $156.00 | $116.75 |
00069 | CITRUS BIOFLAVONOID - 100 caps | Buy 4 bottles, price each | $15.56 | $11.67 |
00818 | CLA BLEND w/Sesame Lignans (Super) - 1000 mg, 120 softgels | Buy 4 bottles, price each | $26.33 | $19.75 |
00819 | CLA BLEND w/Guarana & Sesame (Super) - 1000 mg, 120 softgels | Buy 4 bottles, price each | $38.33 | $28.75 |
01078 | CLEANSE SMART - 60 caps | Buy 4 bottles, price each | $35.00 | $26.25 |
00050 | COD LIVER OIL (Emulsified) - 10 fl oz (355 ml) | Buy 4 bottles, price each | $10.34 | $7.76 |
00293 | COD LIVER OIL (Emulsified) - 100 softgels (Emulsified) | Buy 4 bottles, price each | $10.34 | $7.76 |
00922 | COGNITEX® w/Pregnenolone & Neuroprotection Complex - 90 softgels | Buy 4 bottles, price each | $66.60 | $49.95 |
00921 | COGNITEX® w/Pregnenolone & Neuroprotection Complex - 90 softgels | Buy 4 bottles, price each | $64.00 | $48.00 |
01421 | COGNITEX® Basics - 60 softgels | Buy 4 bottles, price each | $35.00 | $26.25 |
00110 | COMPLETE B-COMPLEX - 180 caps | Buy 4 bottles, price each | $21.50 | $16.13 |
01575 | COMPREHENSIVE NUTRIENT PACK - 30-day supply | Buy 4 bottles, price each | $171.00 | $128.25 |
00119 | COPPER CAPSULES - 2 mg, 100 caps | Buy 4 bottles, price each | 8.96 | 6.72 |
00949 | COQ10 w/alpha-Limonene (Super Absorbable) - 50 mg, 60 softgels | Buy 4 bottles, price each | $22.00 | $16.50 |
00950 | COQ10 w/alpha-Limonene (Super Absorbable) - 100 mg, 100 softgels | Buy 4 bottles, price each | $60.00 | $45.00 |
01226 | COQ10 (Super Ubiquinol) - 100 mg, 60 softgels | Buy 4 bottles, price each | $56.00 | $42.00 |
01426 | COQ10 w/ENH Mitochondrial Support™ (Super Ubiquinol) - 200 mg, 60 softgels | Buy 4 bottles, price each | $56.00 | $42.00 |
01425 | COQ10 w/ENH Mitochondrial Support™ (Super Ubiquinol) - 10 mg, 100 softgels | Buy 4 bottles, price each | $53.00 | $39.75 |
01431 | COQ10 w/ENH Mitochondrial Support™ (Super Ubiquinol) - 10 mg, 100 softgels | Buy 4 bottles, price each | $52.00 | $39.00 |
001053 | COROLIUS SUPER STRENGTH - 600 mg, 150 veg. caps | Buy 4 boxes, price each | $99.95 | $74.96 |
00857 | COROMEGA CHILD BRAIN & BODY - (Lemon Lime) 30 packets | Buy 4 boxes, price each | $22.50 | $16.75 |
### Buyers Club Order Form

**To order call: 1.954.766.8433 or 1.800.544.4440**

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>80140</td>
<td>COSMESIS RESVERATROL ANTI-OXIDANT SERUM - 1 oz</td>
<td>$46.00</td>
<td>$34.50</td>
<td></td>
</tr>
<tr>
<td>80080</td>
<td>COSMESIS DHEA - 240 mg, 60 softgels</td>
<td>19.00</td>
<td>14.25</td>
<td></td>
</tr>
<tr>
<td>80112</td>
<td>COSMESIS SKIN LIGHTENING SERUM - 1/2 oz</td>
<td>85.00</td>
<td>63.75</td>
<td></td>
</tr>
<tr>
<td>80130</td>
<td>COSMESIS SKIN STEM CELL SERUM - 1 oz</td>
<td>74.00</td>
<td>55.50</td>
<td></td>
</tr>
<tr>
<td>80116</td>
<td>COSMESIS ULTRA LIP PLUMPER - 1/3 oz</td>
<td>64.00</td>
<td>48.00</td>
<td></td>
</tr>
<tr>
<td>80101</td>
<td>COSMESIS ULTRA WRINKLE RELAXER - 1 oz</td>
<td>89.95</td>
<td>67.46</td>
<td></td>
</tr>
<tr>
<td>80113</td>
<td>COSMESIS UNDER EYE REFINING SERUM - 1/2 oz</td>
<td>74.50</td>
<td>55.88</td>
<td></td>
</tr>
<tr>
<td>80104</td>
<td>COSMESIS UNDER EYE RESCUE CREAM - 1 oz</td>
<td>74.50</td>
<td>55.88</td>
<td></td>
</tr>
<tr>
<td>80129</td>
<td>COSMESIS VITAMIN C SERUM - 1 oz</td>
<td>85.00</td>
<td>63.75</td>
<td></td>
</tr>
<tr>
<td>80136</td>
<td>COSMESIS VITAMIN D LOTION - 4 oz</td>
<td>36.00</td>
<td>27.00</td>
<td></td>
</tr>
<tr>
<td>80102</td>
<td>COSMESIS VITAMIN K HEALING CREAM - 1 oz</td>
<td>79.50</td>
<td>59.63</td>
<td></td>
</tr>
<tr>
<td>00962</td>
<td>CRAN-MAX® - 500 mg, 60 veg. caps</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
</tr>
<tr>
<td>01424</td>
<td>CRAN-MAX® with UVI™ (OPTIMIZED) - 60 veg. caps</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
</tr>
<tr>
<td>00609</td>
<td>CREATINE CAPSULES - 120 caps</td>
<td>10.95</td>
<td>8.21</td>
<td></td>
</tr>
<tr>
<td>00610</td>
<td>CREATINE POWDER - 500 grams</td>
<td>29.00</td>
<td>21.75</td>
<td></td>
</tr>
<tr>
<td>01096</td>
<td>CREATINE WHEY GLUTAMINE POWDER - 1000 grams (vanilla)</td>
<td>45.00</td>
<td>33.75</td>
<td></td>
</tr>
<tr>
<td>01089</td>
<td>CRUCIFEROUS VEGETABLE SOUP - 32 oz. pouch</td>
<td>11.95</td>
<td>8.96</td>
<td></td>
</tr>
<tr>
<td>01090</td>
<td>CRUCIFEROUS VEGETABLE SOUP - 32 oz. pouch</td>
<td>11.95</td>
<td>8.96</td>
<td></td>
</tr>
<tr>
<td>01429</td>
<td>CR MIMETIC LONGEVITY FORMULA - 60 veg. caps</td>
<td>39.00</td>
<td>29.25</td>
<td></td>
</tr>
<tr>
<td>00395</td>
<td>CR WAY OPTIMAL HEALTH PROGRAM SOFTWARE</td>
<td>195.00</td>
<td>195.00</td>
<td></td>
</tr>
<tr>
<td>00407</td>
<td>CURCUMIN® (SUPER B) - 400 mg, 60 veg. caps</td>
<td>38.00</td>
<td>28.50</td>
<td></td>
</tr>
<tr>
<td>00136</td>
<td>DAILY GINGER® - 90 veg. caps</td>
<td>$21.95</td>
<td>$16.46</td>
<td></td>
</tr>
<tr>
<td>00163</td>
<td>DERMA-VITS™ - 90 caps</td>
<td>14.99</td>
<td>11.24</td>
<td></td>
</tr>
<tr>
<td>00131</td>
<td>DERMAWHEY - 400 mg, 60 caps</td>
<td>65.00</td>
<td>48.75</td>
<td></td>
</tr>
<tr>
<td>00856</td>
<td>DHA (BARLEAIN'S KID'S) 8 fl. oz (Fruit Punch)</td>
<td>22.00</td>
<td>16.50</td>
<td></td>
</tr>
<tr>
<td>00995</td>
<td>DHA 240 - 240 mg, 60 softgels</td>
<td>19.00</td>
<td>14.25</td>
<td></td>
</tr>
<tr>
<td>00658</td>
<td>7-KETO® DHEA METABOLITE - 25 mg, 100 caps</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
</tr>
<tr>
<td>01271</td>
<td>7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps</td>
<td>40.00</td>
<td>30.00</td>
<td></td>
</tr>
<tr>
<td>00067</td>
<td>DHEA - 25 mg, 100 tablets (dissolve in mouth)</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
</tr>
</tbody>
</table>

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

---

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>80140</td>
<td>COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS - 33 oz</td>
<td>$49.00</td>
<td>$36.75</td>
<td></td>
</tr>
<tr>
<td>80139</td>
<td>COSMESIS AMBER SELF MICRODERMABRASION - 2 oz</td>
<td>49.00</td>
<td>36.75</td>
<td></td>
</tr>
<tr>
<td>80118</td>
<td>COSMESIS ANTI-AGING MASK - 2 oz</td>
<td>72.00</td>
<td>54.00</td>
<td></td>
</tr>
<tr>
<td>80134</td>
<td>COSMESIS ANTI-DIETY SERUM - 1 oz</td>
<td>33.00</td>
<td>24.75</td>
<td></td>
</tr>
<tr>
<td>80133</td>
<td>COSMESIS ANTIOXIDANT FACIAL MIST - 2 oz</td>
<td>32.00</td>
<td>24.00</td>
<td></td>
</tr>
<tr>
<td>80127</td>
<td>COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2 oz</td>
<td>45.00</td>
<td>33.75</td>
<td></td>
</tr>
<tr>
<td>80128</td>
<td>COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2 oz</td>
<td>59.00</td>
<td>44.25</td>
<td></td>
</tr>
<tr>
<td>80117</td>
<td>COSMESIS ANTIOXIDANT REJUVENATING HAIR CREAM - 2 oz</td>
<td>64.00</td>
<td>48.00</td>
<td></td>
</tr>
<tr>
<td>80121</td>
<td>COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2 oz</td>
<td>58.00</td>
<td>43.50</td>
<td></td>
</tr>
<tr>
<td>80105</td>
<td>COSMESIS ANTI-REDNESS &amp; BLEMISH LOTION - 1 oz</td>
<td>74.50</td>
<td>55.88</td>
<td></td>
</tr>
<tr>
<td>80120</td>
<td>COSMESIS CORRECTIVE CLEARING MASK - 2 oz</td>
<td>64.50</td>
<td>48.38</td>
<td></td>
</tr>
<tr>
<td>80111</td>
<td>COSMESIS DNA REPAIR CREAM - 1 oz</td>
<td>49.00</td>
<td>36.75</td>
<td></td>
</tr>
<tr>
<td>80108</td>
<td>COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 oz</td>
<td>74.95</td>
<td>56.21</td>
<td></td>
</tr>
<tr>
<td>80123</td>
<td>COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 oz</td>
<td>69.50</td>
<td>52.13</td>
<td></td>
</tr>
<tr>
<td>80107</td>
<td>COSMESIS FINE LINE-LESS - 1 oz</td>
<td>74.50</td>
<td>55.88</td>
<td></td>
</tr>
<tr>
<td>80131</td>
<td>COSMESIS HAIR SUPPRESS FORMULA - 4 oz</td>
<td>59.00</td>
<td>44.25</td>
<td></td>
</tr>
</tbody>
</table>
| 80137 | C

---

**SUB-TOTAL OF COLUMN 5**

**SUB-TOTAL OF COLUMN 6**

---

**NOVEMBER 2011**

---

**C. CONTINUED**

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>80142</td>
<td>COSMESIS痤疮抗炎抗氧霜 - 1 oz</td>
<td>$46.00</td>
<td>$34.50</td>
<td></td>
</tr>
<tr>
<td>80112</td>
<td>COSMESIS痤疮抗炎抗氧霜 - 1/2 oz</td>
<td>85.00</td>
<td>63.75</td>
<td></td>
</tr>
<tr>
<td>80130</td>
<td>COSMESIS痤疮抗炎抗氧霜 - 1 oz</td>
<td>74.00</td>
<td>55.50</td>
<td></td>
</tr>
<tr>
<td>80116</td>
<td>COSMESIS痤疮抗炎抗氧霜 - 1/3 oz</td>
<td>64.00</td>
<td>48.00</td>
<td></td>
</tr>
<tr>
<td>80101</td>
<td>COSMESIS痤疮抗炎抗氧霜 - 1 oz</td>
<td>89.95</td>
<td>67.46</td>
<td></td>
</tr>
<tr>
<td>80113</td>
<td>COSMESIS痤疮抗炎抗氧霜 - 1/2 oz</td>
<td>74.50</td>
<td>55.88</td>
<td></td>
</tr>
<tr>
<td>80104</td>
<td>COSMESIS痤疮抗炎抗氧霜 - 1/2 oz</td>
<td>74.50</td>
<td>55.88</td>
<td></td>
</tr>
<tr>
<td>80129</td>
<td>COSMESIS痤疮抗炎抗氧霜 - 1 oz</td>
<td>85.00</td>
<td>63.75</td>
<td></td>
</tr>
<tr>
<td>80136</td>
<td>COSMESIS痤疮抗炎抗氧霜 - 4 oz</td>
<td>36.00</td>
<td>27.00</td>
<td></td>
</tr>
<tr>
<td>80102</td>
<td>COSMESIS痤疮抗炎抗氧霜 - 1 oz</td>
<td>79.50</td>
<td>59.63</td>
<td></td>
</tr>
<tr>
<td>00962</td>
<td>CRAN-MAX® - 500 mg, 60 veg. caps</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
</tr>
<tr>
<td>01424</td>
<td>CRAN-MAX® with UVI™ (OPTIMIZED) - 60 veg. caps</td>
<td>16.00</td>
<td>12.00</td>
<td></td>
</tr>
<tr>
<td>00609</td>
<td>CREATINE CAPSULES - 120 caps</td>
<td>10.95</td>
<td>8.21</td>
<td></td>
</tr>
<tr>
<td>00610</td>
<td>CREATINE POWDER - 500 grams</td>
<td>29.00</td>
<td>21.75</td>
<td></td>
</tr>
<tr>
<td>01096</td>
<td>CREATINE WHEY GLUTAMINE POWDER - 1000 grams (vanilla)</td>
<td>45.00</td>
<td>33.75</td>
<td></td>
</tr>
<tr>
<td>00856</td>
<td>DHA (BARLEAIN'S KID'S) 8 fl. oz (Fruit Punch)</td>
<td>22.00</td>
<td>16.50</td>
<td></td>
</tr>
<tr>
<td>00995</td>
<td>DHA 240 - 240 mg, 60 softgels</td>
<td>19.00</td>
<td>14.25</td>
<td></td>
</tr>
<tr>
<td>00658</td>
<td>7-KETO® DHEA METABOLITE - 25 mg, 100 caps</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
</tr>
<tr>
<td>01271</td>
<td>7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps</td>
<td>40.00</td>
<td>30.00</td>
<td></td>
</tr>
<tr>
<td>00067</td>
<td>DHEA - 25 mg, 100 tablets (dissolve in mouth)</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
</tr>
</tbody>
</table>

---

**D.**

---

**To order call: 1.954.766.8433 or 1.800.544.4440**
<table>
<thead>
<tr>
<th>No.</th>
<th>Product Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01250</td>
<td>DHEA COMPLETE - 60 veg. caps</td>
<td>$48.00</td>
<td>$36.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00335</td>
<td>DHEA - 25 mg, 100 caps</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00454</td>
<td>DHEA - 15 mg, 100 caps</td>
<td>12.00</td>
<td>9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00882</td>
<td>DHEA - 50 mg, 60 caps</td>
<td>16.00</td>
<td>12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00883</td>
<td>DHEA - 100 mg, 60 caps</td>
<td>22.50</td>
<td>16.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01358</td>
<td>DIGEST RC - 30 tablets</td>
<td>19.95</td>
<td>14.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01272</td>
<td>DIGESTIVE ENZYMES (ENHANCED SUPER) - 100 veg. caps</td>
<td>18.95</td>
<td>14.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01273</td>
<td>DIGESTIVE ENZYMES w/PROBIOTICS (ENHANCED SUPER) - 100 veg. caps</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00034</td>
<td>D.L-PHENYLALANINE CAPSULES - 500 mg, 100 caps</td>
<td>18.75</td>
<td>14.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00257</td>
<td>DIME BITARTRATE - 150 mg, 200 caps</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00059</td>
<td>DIMG - 125 mg, 60 tablets</td>
<td>18.50</td>
<td>13.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01547</td>
<td>DNA PROTECTION FORMULA - 60 veg. caps</td>
<td>30.00</td>
<td>22.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00544</td>
<td>DOG MIX - 100 gm powder</td>
<td>13.50</td>
<td>9.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00321</td>
<td>DR. PROCTOR'S ADVANCED HAIR FORMULA - 1 oz</td>
<td>39.95</td>
<td>29.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00320</td>
<td>DR. PROCTOR'S HAIR FORMULA SHAMPOO - 8 oz</td>
<td>24.95</td>
<td>18.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00376</td>
<td>DR. TUNG'S TONGUE CLEANER</td>
<td>8.45</td>
<td>6.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00899</td>
<td>DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 2 oz</td>
<td>39.95</td>
<td>29.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00240</td>
<td>DUAL-C - 90 caps</td>
<td>12.00</td>
<td>9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00977</td>
<td>ENDOTHELIAL DEFENSE™ w/GLISODIN® - 60 veg. caps</td>
<td>52.00</td>
<td>39.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00625</td>
<td>EPA/DHA (MEGA) - 120 softgels</td>
<td>19.95</td>
<td>14.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01428</td>
<td>ESSENTIAL FAT-SOLUBLE NUTRIENTS - 30 softgels</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>**01042</td>
<td>EUROPEAN LEG SOLUTION DIOSSIDIN 95 - 600 mg, 30 veg. tabs</td>
<td>20.00</td>
<td>15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01514</td>
<td>EYE PRESSURE SUPPORT w/MIRTGENOL® - 30 veg. caps</td>
<td>38.00</td>
<td>28.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 7**

<table>
<thead>
<tr>
<th>No.</th>
<th>Product Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>FACE MASTER™ PLATINUM</td>
<td>$199.00</td>
<td>$199.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00965</td>
<td>FAST-ACTING JOINT FORMULA - 30 caps</td>
<td>39.00</td>
<td>29.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20053</td>
<td>FEM DOPHILUS® - 30 caps</td>
<td>25.95</td>
<td>19.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20055</td>
<td>FEM DOPHILUS® - 60 caps</td>
<td>39.95</td>
<td>29.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01064</td>
<td>FEMENESSENCE MACAPOS® - 120 veg. caps</td>
<td>34.99</td>
<td>26.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01311</td>
<td>FERNBLOCK® w/SENDARA® (ENHANCED) - 30 veg. caps</td>
<td>39.00</td>
<td>29.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00229</td>
<td>FIBER FOOD CAPS - 200 caps</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00718</td>
<td>FIBRINOPEN RESIST™ - 30 caps</td>
<td>49.00</td>
<td>36.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00873</td>
<td>FLAXSEED POWDER (H-LIGNAN® NUTRI-FLAX*) - 16 oz powder</td>
<td>9.95</td>
<td>7.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01384</td>
<td>FLORDIA® IRON &amp; HERBS - 17 fl. oz</td>
<td>43.49</td>
<td>32.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01200</td>
<td>FLORASTORY® - 250 mg, 50 caps</td>
<td>55.15</td>
<td>41.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01382</td>
<td>FLORAVITAL® IRON &amp; HERBS - 17 fl. oz</td>
<td>43.49</td>
<td>32.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01212</td>
<td>FLUSH + BE FIT - 2- week cleanse for women</td>
<td>29.99</td>
<td>22.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01439</td>
<td>FOLATE (OPTIMIZED) (L-METHYLFOATE) - 1000 mg, 100 caps</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00347</td>
<td>FOLIC ACID + B12 CAPSULES - 200 caps</td>
<td>10.50</td>
<td>7.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00300</td>
<td>FORSKOLIN - 10 mg, 60 caps</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01513</td>
<td>FUCOIDAN w/MARITECH® 925 (OPTIMIZED) - 60 caps</td>
<td>36.00</td>
<td>27.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00993</td>
<td>FUCOXANTHIN-SLIM™ - 90 softgels</td>
<td>44.00</td>
<td>33.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>**00127</td>
<td>GABA POWDER - 100 grams</td>
<td>$23.75</td>
<td>$17.81</td>
<td></td>
</tr>
<tr>
<td>00559</td>
<td>GAMMA E TOCOPHEROL/TOCOTRIENOLS - 60 softgels</td>
<td>42.00</td>
<td>31.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00759</td>
<td>GAMMA E TOCOPHEROL W/SESAME LIGNANS - 60 softgels</td>
<td>32.00</td>
<td>24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01394</td>
<td>(OPTIMIZED) GARLIC - 200 veg. caps</td>
<td>24.95</td>
<td>18.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01378</td>
<td>GARLIC FORCE™ - 30 softgels</td>
<td>31.95</td>
<td>23.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00117</td>
<td>GELATIN CAPSULES - 1000 empty caps size “00”</td>
<td>19.00</td>
<td>14.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01301</td>
<td>GH PITUITARY SUPPORT DAY FORMULA - 120 vegetarian tabs</td>
<td>48.00</td>
<td>36.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01302</td>
<td>GH PITUITARY SUPPORT NIGHT FORMULA - 120 veg. caps</td>
<td>25.00</td>
<td>18.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01228</td>
<td>GINFER FORCE - 60 softgels</td>
<td>29.95</td>
<td>22.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00778</td>
<td>GINKGO BILOBA CERTIFIED EXTRACT™ - 120 mg, 365 caps</td>
<td>46.00</td>
<td>34.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00504</td>
<td>GINKGO EXTRACT (SUPER) - 120 mg, 100 caps</td>
<td>29.00</td>
<td>19.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01032</td>
<td>PANAX RED GINSENG - 60 veg. caps</td>
<td>29.99</td>
<td>22.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00756</td>
<td>GLA WITH SESAME LIGNANS (MEGA) - 60 softgels</td>
<td>19.50</td>
<td>14.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00345</td>
<td>(L) GLUTAMINE CAPSULES - 500 mg, 100 caps</td>
<td>14.95</td>
<td>11.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00141</td>
<td>(L)-GLUTAMINE POWDER - 100 grams</td>
<td>19.00</td>
<td>14.25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 8**

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

NOVEMBER 2011
### Buyers Club Order Form

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0052</td>
<td>GLUCOSAMINE/CHONDROITIN CAPSULES - 100 caps</td>
<td>$38.00</td>
<td>$28.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00512</td>
<td>GLUCOFIT™ - 100 softgels</td>
<td>$28.00</td>
<td>$21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00113</td>
<td>GLUTATHIONE, CYSTEINE A &amp; C - 750 mg, 100 caps</td>
<td>$18.00</td>
<td>$13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00314</td>
<td>L-GLUTATHIONE (Mega) - 250 mg, 60 caps</td>
<td>$39.64</td>
<td>$27.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00795</td>
<td>GLYCINE - 1000 mg, 100 caps</td>
<td>$12.00</td>
<td>$9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00128</td>
<td>GLYCINE POWDER - 300 grams</td>
<td>$18.00</td>
<td>$13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01091</td>
<td>GRAPE EXTRACT w/RESVERATROL (WHOLE) - 60 veg. caps</td>
<td>$36.00</td>
<td>$27.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01411</td>
<td>GRAPE SEED EXTRACT w/RESVERATROL &amp; PTEROSTILBENE - 100 mg, 60 veg. caps</td>
<td>$36.00</td>
<td>$27.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00953</td>
<td>GREEN TEA EXTRACT (Mega) - lightly caffeinated - 100 veg. caps</td>
<td>$28.00</td>
<td>$21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00954</td>
<td>GREEN TEA EXTRACT (Mega) - decaffeinated - 100 veg. caps</td>
<td>$28.00</td>
<td>$21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01074</td>
<td>5-HTP - 100 mg, 60 caps</td>
<td>$27.95</td>
<td>$20.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00010</td>
<td>HAIR CONDITIONER - 16 oz</td>
<td>$6.00</td>
<td>$4.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00230</td>
<td>HCA - 90 caps</td>
<td>$18.00</td>
<td>$13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01433</td>
<td>HOLY BASIL - 60 softgel caps</td>
<td>$31.95</td>
<td>$23.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01434</td>
<td>HOLY BASIL - 120 softgel caps</td>
<td>$51.95</td>
<td>$38.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01435</td>
<td>HOMOCYTEINE RESIST - 100 caps</td>
<td>$24.00</td>
<td>$18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00067</td>
<td>HOODIA GORDONII - 60 caps</td>
<td>$14.00</td>
<td>$10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00627</td>
<td>HUPERZINE A W/NATURAL VITAMIN E - 50 mcg, 60 caps</td>
<td>$27.95</td>
<td>$20.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00661</td>
<td>HYDRODERM™ - 1 oz</td>
<td>$79.95</td>
<td>$59.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01060</td>
<td>I26 HYPERIMMUNE EGG - 140 grams powder</td>
<td>$49.99</td>
<td>$42.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01319</td>
<td>I26 HYPERIMMUNE EGG - 135 capsules</td>
<td>$31.99</td>
<td>$25.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01318</td>
<td>I26 HYPERIMMUNE EGG CHEWABLES - (vanilla) 45 tablets</td>
<td>$31.99</td>
<td>$25.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01065</td>
<td>IDEAL BOWEL SUPPORT 290V - 30 veg. caps</td>
<td>$21.95</td>
<td>$16.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00955</td>
<td>IMMUNE PROTECT W/PARACTIN® - 30 veg. caps</td>
<td>$29.50</td>
<td>$22.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01049</td>
<td>INNERPOWER™ - 555 grams powder</td>
<td>$42.00</td>
<td>$31.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00155</td>
<td>INSINE - 500 mg, 60 caps</td>
<td>$22.95</td>
<td>$17.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00410</td>
<td>INOSITOL CAPSULES - 1000 mg, 360 caps</td>
<td>$48.00</td>
<td>$36.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00108</td>
<td>INOSITOL POWDER - 100 grams</td>
<td>$18.00</td>
<td>$13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01021</td>
<td>INTACT DIGEST™ - 8 fl oz</td>
<td>$35.00</td>
<td>$26.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01292</td>
<td>INTEGRA-LEAN® IRVINIA - 150 mg, 60 veg. caps</td>
<td>$28.00</td>
<td>$21.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 9**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00563</td>
<td>IRON PROTEIN PLUS - 300 mg, 100 caps</td>
<td>$24.00</td>
<td>$18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01492</td>
<td>IRWINIA W/PAGE 3® - 120 veg. caps CALCIUM CONTROL COMPLEX (OPTIMIZED)</td>
<td>$56.00</td>
<td>$42.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00508</td>
<td>JARRIO-DOPHILUS EPS™ - 60 veg. caps</td>
<td>$21.95</td>
<td>$16.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01224</td>
<td>K w/ADVANCED K2 COMPLEX (SUPER) - 90 softgels</td>
<td>$26.00</td>
<td>$19.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01600</td>
<td>KRILL HEALTHY JOINT FORMULA - 30 softgels</td>
<td>$32.00</td>
<td>$24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01509</td>
<td>(NKO) KRILL OIL - 60 softgels</td>
<td>$33.95</td>
<td>$25.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00316</td>
<td>KYOLIC® GARLIC FORMULA 102 - 200 caps</td>
<td>$23.95</td>
<td>$17.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00214</td>
<td>KYOLIC® GARLIC FORMULA 105 - 200 caps</td>
<td>$22.95</td>
<td>$17.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00798</td>
<td>KYOLIC® RESERVE - 600 mg, 120 caps</td>
<td>$24.75</td>
<td>$18.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00513</td>
<td>LACTOFERRIN (APOLACTOFERRIN) CAPS - 60 caps</td>
<td>$40.00</td>
<td>$30.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00017</td>
<td>LAVULIN UNDERARM DEODORANT - 12.5 grams cream</td>
<td>$15.00</td>
<td>$11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00200</td>
<td>LECDITHN - 16 oz. granules</td>
<td>$15.00</td>
<td>$11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01555</td>
<td>LIFE EXTENSION MIX™ - 315 tablets</td>
<td>$98.00</td>
<td>$73.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01557</td>
<td>LIFE EXTENSION MIX™ W/EXTRA NIACIN - 315 tablets</td>
<td>$98.00</td>
<td>$73.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01554</td>
<td>LIFE EXTENSION MIX™ - 490 caps</td>
<td>$110.00</td>
<td>$82.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01556</td>
<td>LIFE EXTENSION MIX™ POWDER - 14.81 oz</td>
<td>$98.00</td>
<td>$73.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01565</td>
<td>LIFE EXTENSION MIX™ - 315 tablets w/o copper</td>
<td>$98.00</td>
<td>$73.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01567</td>
<td>LIFE EXTENSION MIX™ W/EXTRA NIACIN 315 tablets w/o copper</td>
<td>$98.00</td>
<td>$73.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01564</td>
<td>LIFE EXTENSION MIX™ - 490 caps w/o copper</td>
<td>$110.00</td>
<td>$82.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01566</td>
<td>LIFE EXTENSION MIX™ POWDER - 14.81 oz w/o copper</td>
<td>$98.00</td>
<td>$73.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00263</td>
<td>LIFE FLORA™ - 300 mg, 120 caps</td>
<td>$20.50</td>
<td>$15.38</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 10**
<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01377</td>
<td>$34.95</td>
<td>$26.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01349</td>
<td>$34.95</td>
<td>$26.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01314</td>
<td>39.95</td>
<td>29.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01339</td>
<td>39.95</td>
<td>29.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01227</td>
<td>34.95</td>
<td>26.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00999</td>
<td>19.50</td>
<td>14.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>17.25</td>
<td>12.94</td>
<td></td>
</tr>
<tr>
<td>01013</td>
<td>9.00</td>
<td>6.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>8.00</td>
<td>6.00</td>
<td></td>
</tr>
<tr>
<td>00129</td>
<td>16.00</td>
<td>12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>13.75</td>
<td>10.31</td>
<td></td>
</tr>
<tr>
<td>01470</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>25.00</td>
<td>18.75</td>
<td></td>
</tr>
<tr>
<td>00455</td>
<td>35.00</td>
<td>26.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>30.00</td>
<td>22.50</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>10.00</td>
<td>7.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>9.00</td>
<td>6.75</td>
<td></td>
</tr>
<tr>
<td>00502</td>
<td>9.00</td>
<td>6.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>7.50</td>
<td>5.63</td>
<td></td>
</tr>
<tr>
<td>00704</td>
<td>49.95</td>
<td>37.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>5.75</td>
<td>4.31</td>
<td></td>
</tr>
<tr>
<td>00547</td>
<td>5.75</td>
<td>4.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>5.00</td>
<td>3.75</td>
<td></td>
</tr>
<tr>
<td>01083</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>16.00</td>
<td>12.00</td>
<td></td>
</tr>
<tr>
<td>00329</td>
<td>5.00</td>
<td>3.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>4.63</td>
<td>3.47</td>
<td></td>
</tr>
<tr>
<td>00330</td>
<td>8.00</td>
<td>6.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>6.88</td>
<td>5.16</td>
<td></td>
</tr>
<tr>
<td>01066</td>
<td>10.50</td>
<td>7.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>9.38</td>
<td>7.04</td>
<td></td>
</tr>
<tr>
<td>00331</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
</tr>
<tr>
<td>00332</td>
<td>8.00</td>
<td>6.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>6.88</td>
<td>5.16</td>
<td></td>
</tr>
<tr>
<td>01087</td>
<td>6.25</td>
<td>4.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>5.63</td>
<td>4.22</td>
<td></td>
</tr>
<tr>
<td>01088</td>
<td>5.75</td>
<td>4.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>5.00</td>
<td>3.75</td>
<td></td>
</tr>
<tr>
<td>01009</td>
<td>26.95</td>
<td>20.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01047</td>
<td>49.95</td>
<td>37.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00536</td>
<td>9.95</td>
<td>7.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>8.00</td>
<td>6.00</td>
<td></td>
</tr>
<tr>
<td>00537</td>
<td>32.00</td>
<td>24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>25.00</td>
<td>18.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 10 bottles, price each</td>
<td>23.00</td>
<td>17.25</td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 11**

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00079</td>
<td>$29.90</td>
<td>$22.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>26.33</td>
<td>19.75</td>
<td></td>
</tr>
<tr>
<td>01517</td>
<td>52.00</td>
<td>39.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>48.00</td>
<td>36.00</td>
<td></td>
</tr>
<tr>
<td>00623</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>12.50</td>
<td>9.38</td>
<td></td>
</tr>
<tr>
<td>00624</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>12.50</td>
<td>9.38</td>
<td></td>
</tr>
<tr>
<td>01315</td>
<td>62.00</td>
<td>46.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>56.00</td>
<td>42.00</td>
<td></td>
</tr>
<tr>
<td>01569</td>
<td>52.00</td>
<td>39.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>46.00</td>
<td>34.50</td>
<td></td>
</tr>
<tr>
<td>01568</td>
<td>94.00</td>
<td>70.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>84.00</td>
<td>63.00</td>
<td></td>
</tr>
<tr>
<td>00893</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>25.00</td>
<td>18.75</td>
<td></td>
</tr>
<tr>
<td>00066</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>25.00</td>
<td>18.75</td>
<td></td>
</tr>
<tr>
<td>01279</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>25.00</td>
<td>18.75</td>
<td></td>
</tr>
<tr>
<td>00451</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>11.95</td>
<td>8.96</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>13.50</td>
<td>10.13</td>
<td></td>
</tr>
<tr>
<td>01068</td>
<td>10.50</td>
<td>7.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>9.61</td>
<td>7.21</td>
<td></td>
</tr>
<tr>
<td>00686</td>
<td>24.98</td>
<td>18.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00891</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>25.20</td>
<td>18.90</td>
<td></td>
</tr>
<tr>
<td>00984</td>
<td>42.00</td>
<td>31.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>37.80</td>
<td>28.35</td>
<td></td>
</tr>
<tr>
<td>00913</td>
<td>19.95</td>
<td>14.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 2 boxes, price each</td>
<td>19.00</td>
<td>14.25</td>
<td></td>
</tr>
<tr>
<td>00712</td>
<td>38.00</td>
<td>28.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>33.00</td>
<td>24.75</td>
<td></td>
</tr>
<tr>
<td>01221</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
</tr>
<tr>
<td>01471</td>
<td>39.00</td>
<td>29.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>36.00</td>
<td>27.00</td>
<td></td>
</tr>
<tr>
<td>00698</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 tubes, price each</td>
<td>25.00</td>
<td>18.75</td>
<td></td>
</tr>
<tr>
<td>01084</td>
<td>12.99</td>
<td>9.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>10.00</td>
<td>7.50</td>
<td></td>
</tr>
<tr>
<td>01507</td>
<td>22.00</td>
<td>16.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>20.00</td>
<td>15.00</td>
<td></td>
</tr>
<tr>
<td>01511</td>
<td>20.00</td>
<td>15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 12**

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

**NOVEMBER 2011**
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01085</td>
<td>Natural Sleep Melatonin - 5 mg, 60 veg. caps</td>
<td>$18.00</td>
<td>$13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00987</td>
<td>Natural Stress Relief - 30 veg. caps</td>
<td>16.00</td>
<td>12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01078</td>
<td>New Face Solution - 1.7 oz bottle</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00373</td>
<td>NO-FIsh tniac - 800 mg, 100 caps</td>
<td>49.00</td>
<td>36.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01035</td>
<td>Nutrim - 170 grams powder</td>
<td>25.95</td>
<td>19.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00523</td>
<td>N-Zimes™ - 270 caps</td>
<td>23.90</td>
<td>17.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>22.00</td>
<td>16.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01518</td>
<td>Omega-3 Chewables - 60 softgels, 120 mg EPA/DHA</td>
<td>$24.00</td>
<td>$18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01483</td>
<td>Omega 3 EPA/DHA w/Sesame Lignans &amp; Olive Fruit Extract (Super) - 60 softgels</td>
<td>16.00</td>
<td>12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01482</td>
<td>Omega 3 EPA/DHA w/Sesame Lignans &amp; Olive Fruit Extract (Super) - 120 softgels</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01484</td>
<td>Omega 3 EPA/DHA w/Sesame Lignans &amp; Olive Fruit Extract (Super) - 120 softgels</td>
<td>34.00</td>
<td>25.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01501</td>
<td>One-Per-Day - 60 veg. tablets</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01328</td>
<td>Only Trace Minerals - 90 caps</td>
<td>12.50</td>
<td>9.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00915</td>
<td>OptiZinc™ - 30 mg, 90 veg. caps</td>
<td>5.95</td>
<td>4.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01970</td>
<td>Organic Total Body Cleanse™ - 14-day supply</td>
<td>34.99</td>
<td>26.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00107</td>
<td>PABA Caps - 500 mg, 100 caps</td>
<td>$15.42</td>
<td>$11.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00073</td>
<td>Panchaxin - 500 mg, 50 caps</td>
<td>13.22</td>
<td>9.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01323</td>
<td>Peak ATP™ with Glycocarn™ - 60 veg. caps</td>
<td>12.12</td>
<td>9.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00342</td>
<td>Pecta Sol-C™ Modified Citrus Pectin - 454 grams powder</td>
<td>99.95</td>
<td>74.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01080</td>
<td>Pecta Sol-C™ Modified Citrus Pectin - 270 veg. caps</td>
<td>96.95</td>
<td>72.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00673</td>
<td>Psyllium Soluble Fiber Blend (WellBetx™) - 180 caps</td>
<td>34.95</td>
<td>26.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00865</td>
<td>Pharmagaba™ - 60 chewable tablets</td>
<td>29.95</td>
<td>22.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01320</td>
<td>PhosphoGlucon® - 900 mg, 100 softgels</td>
<td>27.00</td>
<td>20.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00368</td>
<td>PhosphoMatrix® with L-Serine Caps - 100 mg, 100 caps</td>
<td>54.00</td>
<td>40.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00614</td>
<td>Pill Cutter/Grinder</td>
<td>48.00</td>
<td>36.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00561</td>
<td>Policosanol - 10 mg, 60 tablets</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01423</td>
<td>Pomegranate™ (Full-Spectrum)</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 13**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00956</td>
<td>Pomegranate Extract - 30 veg. caps</td>
<td>$19.50</td>
<td>$14.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00957</td>
<td>Pomegranate Juice Concentrate - 16 oz. liquid</td>
<td>17.55</td>
<td>13.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00577</td>
<td>Potassium Iodide - 1 box, 14 tablets</td>
<td>6.95</td>
<td>5.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01500</td>
<td>PQQ Caps w/BIOPQQ™ - 10 mg, 30 veg. caps</td>
<td>5.25</td>
<td>3.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00302</td>
<td>Pregnenolone - 50 mg, 100 caps</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00700</td>
<td>Pregnenolone - 100 mg, 100 caps</td>
<td>19.00</td>
<td>14.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01373</td>
<td>Prelox™ Natural Sex for Men - 60 tablets</td>
<td>52.00</td>
<td>39.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00571</td>
<td>Primal Defense™ - 90 caplets</td>
<td>48.50</td>
<td>36.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01019</td>
<td>Primal Defense™ - 180 caplets</td>
<td>78.92</td>
<td>59.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01329</td>
<td>Probio Ltd-Flora™ - 60 veg. caps</td>
<td>25.92</td>
<td>19.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01336</td>
<td>Probio Anti-Aging™ - 90 veg. caps</td>
<td>30.95</td>
<td>23.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01342</td>
<td>Probio Cleanse™ - 90 veg. caps</td>
<td>29.95</td>
<td>22.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01322</td>
<td>Probio Colon™ - 90 veg. caps</td>
<td>30.95</td>
<td>23.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00525</td>
<td>ProBoost Thymic Protein A™ - 4 mcg, 30 packets</td>
<td>72.00</td>
<td>54.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00869</td>
<td>Pro Fem Cream - 2 fl oz (Progesterone Cream)</td>
<td>32.00</td>
<td>24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01020</td>
<td>Progredens™ - 15 stick pack</td>
<td>25.00</td>
<td>18.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01072</td>
<td>Pro M Internal Detox &amp; Nourisher - 500 mg, 100 veg. caps</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01495</td>
<td>Prostate Formula W/ 5-LOXIN® Stand. Lignans (Ultra Nat) - 270 veg. caps</td>
<td>38.00</td>
<td>28.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01092</td>
<td>Protein - Vanilla - (Enhanced Life Extension) - 1000 grams powder</td>
<td>40.00</td>
<td>30.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01093</td>
<td>Protein - Chocolate - (Enhanced Life Extension) - 1000 grams powder</td>
<td>40.00</td>
<td>30.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01094</td>
<td>Protein - Natural - (Enhanced Life Extension) - 1000 grams powder</td>
<td>40.00</td>
<td>30.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01095</td>
<td>Protein - Berry - (Enhanced Life Extension) - 1000 grams powder</td>
<td>40.00</td>
<td>30.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00290</td>
<td>Protein - Vanilla - (Designer Whey) 2 lbs powder</td>
<td>38.50</td>
<td>28.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00282</td>
<td>Protein - Chocolate - (Designer Whey) 2 lbs powder</td>
<td>38.50</td>
<td>28.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00283</td>
<td>Protein - Natural - (Designer Whey) 2 lbs powder</td>
<td>38.50</td>
<td>28.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01508</td>
<td>Pteropure™ - 50 mg Pterostilbene 60 veg. caps</td>
<td>32.00</td>
<td>24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01075</td>
<td>Pure Plant Protein - Natural Vanilla 450 grams powder</td>
<td>36.00</td>
<td>27.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01209</td>
<td>Pumpkin Seed Extract (Water-Soluble) - 60 veg. caps</td>
<td>20.00</td>
<td>15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01210</td>
<td>Pumpkin Seed Extract w/Soy Isoflavones (Water-Soluble) - 60 veg. caps</td>
<td>22.00</td>
<td>16.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01031</td>
<td>Pychogenol™ - 60 veg. caps</td>
<td>89.95</td>
<td>67.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01217</td>
<td>Pyridoxal 5'-Phosphate - 100 mg, 60 veg. caps</td>
<td>22.00</td>
<td>16.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 14**

Life Extension Members receive 25% off the retail price of all products.
<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01309</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q, R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01030</td>
<td>17.50</td>
<td>12.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00979</td>
<td>23.95</td>
<td>17.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00660</td>
<td>19.50</td>
<td>14.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00605</td>
<td>18.67</td>
<td>14.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01448</td>
<td>19.00</td>
<td>14.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00918</td>
<td>60.00</td>
<td>45.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01220</td>
<td>55.00</td>
<td>41.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00676</td>
<td>39.95</td>
<td>29.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00706</td>
<td>38.00</td>
<td>28.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01413</td>
<td>23.00</td>
<td>17.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01410</td>
<td>22.00</td>
<td>16.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01430</td>
<td>25.00</td>
<td>18.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00889</td>
<td>11.75</td>
<td>8.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00972</td>
<td>24.75</td>
<td>18.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01473</td>
<td>32.00</td>
<td>24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01208</td>
<td>45.00</td>
<td>33.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00070</td>
<td>17.95</td>
<td>13.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00917</td>
<td>50.00</td>
<td>37.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01082</td>
<td>69.95</td>
<td>52.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01087</td>
<td>21.95</td>
<td>16.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01432</td>
<td>19.50</td>
<td>14.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00573</td>
<td>17.49</td>
<td>13.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00358</td>
<td>17.00</td>
<td>12.75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 16**

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

NOVEMBER 2011

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00453</td>
<td>30.00</td>
<td>22.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00557</td>
<td>32.00</td>
<td>24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01055</td>
<td>44.00</td>
<td>33.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01043</td>
<td>6.00</td>
<td>4.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00046</td>
<td>9.45</td>
<td>7.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00567</td>
<td>12.00</td>
<td>9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00318</td>
<td>16.00</td>
<td>12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00961</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00284</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00184</td>
<td>8.25</td>
<td>6.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01502</td>
<td>23.00</td>
<td>17.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00961</td>
<td>16.75</td>
<td>12.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00197</td>
<td>8.25</td>
<td>6.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00286</td>
<td>12.00</td>
<td>9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01099</td>
<td>10.63</td>
<td>7.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00432</td>
<td>10.99</td>
<td>6.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00351</td>
<td>11.50</td>
<td>8.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00327</td>
<td>12.75</td>
<td>8.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01476</td>
<td>20.00</td>
<td>15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00971</td>
<td>14.95</td>
<td>11.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00747</td>
<td>27.00</td>
<td>20.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00748</td>
<td>27.00</td>
<td>20.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00758</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01381</td>
<td>56.95</td>
<td>42.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01348</td>
<td>31.95</td>
<td>23.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01408</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 15**
<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01467</td>
<td>$15.00</td>
<td>$11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 12 bottles, price each</td>
<td>12.00</td>
<td>9.00</td>
<td></td>
</tr>
<tr>
<td>00578</td>
<td>$12.00</td>
<td>$9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>10.00</td>
<td>7.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 12 bottles, price each</td>
<td>9.00</td>
<td>6.75</td>
<td></td>
</tr>
<tr>
<td>00674</td>
<td>$12.00</td>
<td>$9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>12.50</td>
<td>9.38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>9.90</td>
<td>7.43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>11.25</td>
<td>8.44</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>9.38</td>
<td>7.04</td>
<td></td>
</tr>
<tr>
<td>00237</td>
<td>$25.00</td>
<td>$18.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>25.00</td>
<td>18.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>7.50</td>
<td>5.44</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>10.00</td>
<td>7.13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 tubes, price each</td>
<td>9.50</td>
<td>6.67</td>
<td></td>
</tr>
<tr>
<td>01274</td>
<td>$28.00</td>
<td>$21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 tubes, price each</td>
<td>25.20</td>
<td>18.90</td>
<td></td>
</tr>
<tr>
<td>01468</td>
<td>$24.00</td>
<td>$18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
</tr>
<tr>
<td>01469</td>
<td>$32.00</td>
<td>$24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>29.60</td>
<td>22.20</td>
<td></td>
</tr>
<tr>
<td>00866</td>
<td>$38.00</td>
<td>$28.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>34.00</td>
<td>25.50</td>
<td></td>
</tr>
<tr>
<td>01202</td>
<td>$40.00</td>
<td>$30.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>40.00</td>
<td>30.00</td>
<td></td>
</tr>
<tr>
<td>00326</td>
<td>$12.50</td>
<td>$9.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>11.42</td>
<td>8.57</td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 17**

<table>
<thead>
<tr>
<th>U</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00310</td>
<td>$27.49</td>
<td>$21.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>27.49</td>
<td>21.99</td>
<td></td>
</tr>
<tr>
<td>00311</td>
<td>$33.79</td>
<td>$27.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>33.79</td>
<td>27.03</td>
<td></td>
</tr>
<tr>
<td>00322</td>
<td>$27.49</td>
<td>$21.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>27.49</td>
<td>21.99</td>
<td></td>
</tr>
<tr>
<td>01061</td>
<td>$29.99</td>
<td>$22.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>29.99</td>
<td>22.49</td>
<td></td>
</tr>
<tr>
<td>00213</td>
<td>$15.00</td>
<td>$11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
</tr>
<tr>
<td>00252</td>
<td>$36.00</td>
<td>$27.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>36.00</td>
<td>27.00</td>
<td></td>
</tr>
<tr>
<td>00408</td>
<td>$18.95</td>
<td>$14.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>18.95</td>
<td>14.21</td>
<td></td>
</tr>
<tr>
<td>01327</td>
<td>$18.00</td>
<td>$13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
</tr>
<tr>
<td>01033</td>
<td>$29.95</td>
<td>$22.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 jars, price each</td>
<td>44.00</td>
<td>33.00</td>
<td></td>
</tr>
<tr>
<td>01098</td>
<td>$18.73</td>
<td>$14.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>18.73</td>
<td>14.05</td>
<td></td>
</tr>
<tr>
<td>01219</td>
<td>$27.00</td>
<td>$20.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>27.00</td>
<td>20.25</td>
<td></td>
</tr>
<tr>
<td>00091</td>
<td>$18.75</td>
<td>$14.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>18.75</td>
<td>14.05</td>
<td></td>
</tr>
<tr>
<td>00093</td>
<td>$14.32</td>
<td>$10.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>14.32</td>
<td>10.74</td>
<td></td>
</tr>
<tr>
<td>00096</td>
<td>$12.75</td>
<td>$9.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>12.75</td>
<td>9.56</td>
<td></td>
</tr>
<tr>
<td>00372</td>
<td>$7.65</td>
<td>$5.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>7.65</td>
<td>5.74</td>
<td></td>
</tr>
<tr>
<td>00098</td>
<td>$10.50</td>
<td>$7.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>10.50</td>
<td>7.88</td>
<td></td>
</tr>
<tr>
<td>00556</td>
<td>$12.50</td>
<td>$9.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>12.50</td>
<td>9.38</td>
<td></td>
</tr>
<tr>
<td>00361</td>
<td>$8.75</td>
<td>$6.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>8.75</td>
<td>6.56</td>
<td></td>
</tr>
<tr>
<td>00927</td>
<td>$25.50</td>
<td>$19.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>25.50</td>
<td>19.13</td>
<td></td>
</tr>
<tr>
<td>00084</td>
<td>$23.95</td>
<td>$17.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>23.95</td>
<td>17.96</td>
<td></td>
</tr>
<tr>
<td>00864</td>
<td>$28.00</td>
<td>$21.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>28.00</td>
<td>21.00</td>
<td></td>
</tr>
<tr>
<td>00251</td>
<td>$12.50</td>
<td>$9.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>12.50</td>
<td>9.38</td>
<td></td>
</tr>
<tr>
<td>00713</td>
<td>$11.00</td>
<td>$8.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>11.00</td>
<td>8.25</td>
<td></td>
</tr>
<tr>
<td>01418</td>
<td>$14.00</td>
<td>$10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
</tr>
<tr>
<td>01372</td>
<td>$14.00</td>
<td>$10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>14.00</td>
<td>10.50</td>
<td></td>
</tr>
<tr>
<td>01472</td>
<td>$24.00</td>
<td>$18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 4 bottles, price each</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
</tr>
<tr>
<td>00063</td>
<td>$18.75</td>
<td>$14.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 10 bottles, price each</td>
<td>18.75</td>
<td>14.06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 10 bottles, price each</td>
<td>17.25</td>
<td>12.94</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buy 10 bottles, price each</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 18**

---

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS
To order online visit: www.LifeExtension.com

HOW TO JOIN THE LIFE EXTENSION FOUNDATION®

As a member of the Life Extension Foundation®, you have the opportunity to participate in a great scientific endeavor. We are the world’s premier organization dedicated to stopping and reversing aging.

Our 30-year track record shows that we have been five to ten years ahead of conventional and alternative medicine in making new life-saving therapies available to our members.

When you join the Life Extension Foundation®, we update you on the latest published medical research by sending you FREE books. Our most impressive publication is the 1,666-page Disease Prevention and Treatment protocol book that contains novel therapies to treat 133 common diseases of aging.

Disease Prevention and Treatment is the only book that combines conventional and alternative therapies in order to implement a treatment regimen for fighting the multiple processes involved in degenerative disease.

Each month, Life Extension Foundation® members receive a magazine packed with the latest medical findings from around the world. Members also can call a toll-free phone number to talk to our knowledgeable health advisors about their health issues.

If your number one priority is good health and a long life, please join our not-for-profit organization.

Four Easy Ways to Join
1. Call toll-free 1-800-544-4440
2. Go to www.lef.org
3. Fax back to 1-866-728-1050
4. Mail to: Life Extension Foundation® PO Box 407198 Ft. Lauderdale, FL 33340-7198 Local Number: 954-766-8433

MEMBERSHIP APPLICATION

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.

Name

Address

City ST ZIP

Email Phone

☐ Check enclosed *(payable to Life Extension Foundation®)

☐ Charge my cc:

Card # Exp.

* These products are not 25% off retail price.
**Not for sale to wholesalers or retail stores.
***Not eligible for member discount or member renewal product credit.
†Due to license restrictions, this product is not for sale to wholesalers outside of the USA or Canada.
*Can only be sold in the USA.
††Member pricing not valid on this item.
†††Due to license restrictions, this product is not for sale in Canada.
*These products are not 25% off retail price. These products are not for sale to wholesalers or retail stores.
**Can only be sold in USA and Canada.

SUB-TOTAL OF COLUMN 19

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01225</td>
<td>$18.00</td>
<td>$13.50</td>
<td>16</td>
<td>216.00</td>
</tr>
<tr>
<td>01585</td>
<td>$22.00</td>
<td>$16.50</td>
<td>19</td>
<td>351.00</td>
</tr>
<tr>
<td>01586</td>
<td>$42.00</td>
<td>$31.50</td>
<td>38</td>
<td>1182.00</td>
</tr>
<tr>
<td>00061</td>
<td>$9.50</td>
<td>7.13</td>
<td>6.75</td>
<td>47.63</td>
</tr>
<tr>
<td>01051</td>
<td>$60.95</td>
<td>45.71</td>
<td>3.95</td>
<td>236.71</td>
</tr>
<tr>
<td>01029</td>
<td>$31.95</td>
<td>23.96</td>
<td>2.85</td>
<td>71.15</td>
</tr>
</tbody>
</table>

GIVE THE GIFT of HEALTH, with a LIFE EXTENSION GIFT CARD!

To order a Life Extension Gift Card for someone special, call 1-800-544-4440.

GIVE THE LIFE-ENHANCING BENEFITS OF LIFE EXTENSION® WITH A GIFT OF $10, $25, $50 OR $100

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

NOVEMBER 2011
ORDER SUBTOTALS

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

ORDER TOTALS

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

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

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

Shipping

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

BILL TO ADDRESS

NAME
ADDRESS
CITY/STATE/ZIP-POSTAL CODE
COUNTRY
PHONE
FAX
VISA/MASTERCARD/AMEX/DISCOVER #
EXP. DATE
SIGNATURE

SHIP TO ADDRESS

NAME
ADDRESS
CITY/STATE/ZIP-POSTAL CODE
COUNTRY
PHONE
FAX
SIGNATURE

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

ORDER ONLINE AT: www.LifeExtension.com

LIFE EXTENSION FOUNDATION® MEMBERS ONLY

MEMBER NO.

PRINT MEMBERSHIP NO. FOR MEMBER DISCOUNT

NOT A MEMBER? JOIN TODAY!

☐ I want to join the Life Extension Foundation®.
Enclosed is $7.50 for annual membership. (Canadians add $7.00, all others outside the U.S. add $35.00). Send me: Disease Prevention & Treatment Protocol Book

☐ CHECK HERE FOR C.O.D. ORDERS

☐ CHECK HERE FOR UPS BLUE LABEL (2ND DAY)

☐ CHECK HERE FOR UPS RED LABEL (OVERNIGHT)

PRICES SUBJECT TO CHANGE WITHOUT NOTICE. PLEASE NOTIFY THE LIFE EXTENSION FOUNDATION® OF ANY ADDRESS CHANGE.
<table>
<thead>
<tr>
<th>No.</th>
<th>LIFE EXTENSION MEDIA</th>
<th>Retail</th>
<th>Member Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>33837</td>
<td>WHEAT BELLY • by William Davis, MD</td>
<td>$25.99</td>
<td>$19.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33835</td>
<td>PHARMACOREY • by William Faloon</td>
<td>$24.00</td>
<td>$19.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33834</td>
<td>THE FUTURE OF AGING • by Gregory M. Fahy</td>
<td>$29.00</td>
<td>$20.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33833</td>
<td>THE LIFE PLAN • by Jeffry S. Life, MD, PhD</td>
<td>$26.00</td>
<td>$19.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33832</td>
<td>YOUR BONES • by Lara Pizzorno, MA, LMT</td>
<td>$12.00</td>
<td>$9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33830</td>
<td>SEXY FOREVER: HOW TO FIGHT FAT AFTER FORTY • by Suzanne Somers</td>
<td>$25.95</td>
<td>$19.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33829</td>
<td>THE IMMORTALITY EDGE • by Michael Fossel, MD, PhD, Greta Blackburn, David Woynarowicz, MD</td>
<td>$25.95</td>
<td>$18.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33827</td>
<td>FOREVER YOUNG • by Nicholas Perricone, MD</td>
<td>$26.00</td>
<td>$19.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33825</td>
<td>THE EMPOWERED PATIENT • by Elizabeth Cohen</td>
<td>$15.00</td>
<td>$10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33824</td>
<td>VITAMIN D SOLUTION • by Michael F. Holick, PhD, MD</td>
<td>$25.95</td>
<td>$18.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33822</td>
<td>BREAKTHROUGH: EIGHT STEPS TO WELLNESS • by Suzanne Somers (paperback)</td>
<td>$15.00</td>
<td>$10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33821</td>
<td>WEIGHT LOSS GUIDE • by Steven V. Joyal, MD and William Faloon (hardcover) (3rd Edition)</td>
<td>$29.95</td>
<td>$20.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33820</td>
<td>YOUR BLOOD DOESN'T LIE! • by Sergey Dzugan, MD, PhD</td>
<td>$24.95</td>
<td>$17.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33819</td>
<td>BRAIN SURGERY • by Keith Black, MD</td>
<td>$24.99</td>
<td>$18.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33816</td>
<td>FDA: FAILURE, DECEPTION, ABUSE • by Life Extension Foundation</td>
<td>$20.00</td>
<td>$15.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33815</td>
<td>STAY YOUNG &amp; SEXY WITH BIO-IDENTICAL HORMONE REPLACEMENT • by Jonathan Wright, MD</td>
<td>$19.95</td>
<td>$14.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33811</td>
<td>BREAKTHROUGH: EIGHT STEPS TO WELLNESS • by Suzanne Somers</td>
<td>$25.00</td>
<td>$17.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33810</td>
<td>CHEATING DEATH • by Sanjay Gupta, MD</td>
<td>$24.99</td>
<td>$17.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33809</td>
<td>TIMESHIP • by Stephen Valentine</td>
<td>$45.00</td>
<td>$33.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33808</td>
<td>LIFE OVER CANCER • by Keith Block, MD (hardcover)</td>
<td>$25.00</td>
<td>$17.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33807</td>
<td>THE GREAT AMERICAN HEART HOAX • by Michael Oster, MD, FACC, FAHA</td>
<td>$24.95</td>
<td>$17.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33806</td>
<td>THE ULTRAMIND SOLUTION • by Mark Hyman, MD</td>
<td>$27.50</td>
<td>$19.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33805</td>
<td>TESTOSTERONE FOR LIFE • by Abraham Morgenthaler, MD (paperback)</td>
<td>$16.95</td>
<td>$12.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33803</td>
<td>BREAKTHROUGH: EIGHT STEPS TO WELLNESS • by Suzanne Somers</td>
<td>$25.95</td>
<td>$18.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33802</td>
<td>YOUNGER YOU • by Eric Braverman, MD</td>
<td>$24.95</td>
<td>$18.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33799</td>
<td>AGELESS • by Suzanne Somers</td>
<td>$25.00</td>
<td>$17.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33796</td>
<td>ULTRAMETABOLISM: THE SIMPLE PLAN FOR AUTOMATIC WEIGHT LOSS • by Mark Hyman, MD</td>
<td>$25.00</td>
<td>$17.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33792</td>
<td>BRAIN LONGEVITY • by Dharma Singh Khalsa, MD, with Cameron Slauth</td>
<td>$14.95</td>
<td>$11.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33787</td>
<td>DANGEROUS DOSES • by Katherine Eban</td>
<td>$25.00</td>
<td>$18.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33780</td>
<td>DISEASE PREVENTION AND TREATMENT, EXPANDED FOURTH EDITION (hardcover)</td>
<td>$49.95</td>
<td>$37.46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Price per book when 4 books purchased

---

<table>
<thead>
<tr>
<th>No.</th>
<th>LIFE EXTENSION MEDIA</th>
<th>Retail</th>
<th>Member Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>33801</td>
<td>THE EDGE EFFECT • by Eric Braverman, MD (paperback)</td>
<td>$12.95</td>
<td>$9.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33797</td>
<td>ENDING AGING • by Aubrey DeGrey with Michael Rae</td>
<td>$28.94</td>
<td>$17.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33698</td>
<td>FEMALE AND FORGETFUL • by Elisa Lottor, PhD, MD, and Nancy P. Bruning</td>
<td>$18.99</td>
<td>$12.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33696</td>
<td>LIFE EXTENSION REVOLUTION • by Philip Lee Miller, MD (paperback)</td>
<td>$16.00</td>
<td>$12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33691</td>
<td>MAXIMIZE YOUR VITALITY &amp; POTENCY • by Jonathan Wright, MD</td>
<td>$14.95</td>
<td>$11.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33690</td>
<td>YOUNGER YOU • by Eric Braverman, MD (paperback)</td>
<td>$24.95</td>
<td>$17.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33689</td>
<td>AGING • by Suzanne Somers</td>
<td>$25.00</td>
<td>$17.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33687</td>
<td>ULTRAMETABOLISM: THE SIMPLE PLAN FOR AUTOMATIC WEIGHT LOSS • by Mark Hyman, MD</td>
<td>$25.00</td>
<td>$17.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33686</td>
<td>THE METABOLIC PLAN • by Stephen Chemiske, MS</td>
<td>$14.95</td>
<td>$11.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33685</td>
<td>MIAMI MEDITERRANEAN DIET WITH 300 RECIPES • by Michael D. Oster, MD, FACC, FAHA (hardcover)</td>
<td>$24.95</td>
<td>$18.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33679</td>
<td>THE MIGRAINE CURE • by Sergey Dzugan, MD, PhD</td>
<td>$24.00</td>
<td>$15.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33678</td>
<td>MIND FOOD &amp; SMART PILLS • by Ross Rottenberg, PhD</td>
<td>$13.95</td>
<td>$9.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33670</td>
<td>PRESCRIPTION FOR DISASTER DVD • by Gary Null</td>
<td>$18.00</td>
<td>$12.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33669</td>
<td>A PRIMER ON PROSTATE CANCER (2nd edition) • by Stephen B. Strum, MD, and Donna Pogliano</td>
<td>$28.95</td>
<td>$21.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33668</td>
<td>SAFE YOUR SIGHT • by Marc Rose, MD, Michael Rose, MD</td>
<td>$13.99</td>
<td>$8.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33664</td>
<td>STAYING YOUNG: THE OWNER'S MANUAL FOR EXTENDING YOUR WARRANTY • by Mehmet Oz, MD</td>
<td>$26.00</td>
<td>$18.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33663</td>
<td>THE CR WAY • by Paul McCollin and Meredith Avenil</td>
<td>$15.95</td>
<td>$11.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33659</td>
<td>THE SEXY YEARS • by Suzanne Somers (hardcover)</td>
<td>$25.00</td>
<td>$17.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33656</td>
<td>THE SEXY YEARS • by Suzanne Somers (paperback)</td>
<td>$15.00</td>
<td>$10.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33652</td>
<td>THE SIDE EFFECTS BIBLE • by Frederic Vagnini, MD and Barry Fox, PhD</td>
<td>$16.95</td>
<td>$11.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33649</td>
<td>VOCAL EXCERPTS FROM SCIENTIFIC STUDIES • Audio Tape</td>
<td>$6.00</td>
<td>$3.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33648</td>
<td>WE BECOME SILENT • by Kevin Miller</td>
<td>$24.98</td>
<td>$17.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33634</td>
<td>WHAT YOUR DOCTOR MAY NOT TELL YOU ABOUT DIABETES • by Steven V. Joyal, MD</td>
<td>$14.99</td>
<td>$10.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33632</td>
<td>JOHN ARNO'S NO EXCUSES WORKOUT DVD</td>
<td>$13.30</td>
<td>$9.81</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sub-Total (U.S. Dollars)

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

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

**PLEASE MAIL TO:** Life Extension Foundation® Buyers Club, Inc.
P.O. Box 407188 • Ft. Lauderdale, Florida 33340-7188
Or Call Toll Free 1-800-544-4440 • Fax: 866-728-1050 • Local Number: 954-766-8433
Other International Shipping Restrictions May Apply. Please visit www.lef.org/vitamins-supplements/shipping/shipping-information.htm for details.

**LIFE EXTENSION FOUNDATION® MEMBERS ONLY**

**NOT A MEMBER? JOIN TODAY!**

I want to join the Life Extension Foundation®.

Enclosed is $75 for annual membership. (Canadians add $70, all others outside the U.S. add $36.00. Send me: Disease Prevention & Treatment Protocol Book

NAME
E-MAIL
ADDRESS
CITY/STATE/ZIP-POSTAL CODE
COUNTRY
PHONE
FAX
VISA/MASTERCARD/AMEX/DISCOVER #
EXP. DATE
SIGNATURE

COD
UPS RED LABEL
UPS BLUE LABEL
Superior Probiotics from Jarrow Formulas®

The proper balance of microflora in the intestines is crucial for health and well-being. Jarrow Formulas® probiotic dietary supplements are designed to maintain a healthy balance of these microflora to maximize your digestive and immune system.*

Jarrow Formulas® is a probiotic pioneer and has a complete line of probiotic products, including the #1 seller in the U.S.† - Jarro-Dophilus EPS®, and the new Ideal Bowel Support™ 299v™, which reduces bloating, gas and intestinal discomfort.*

† † in both Dollar Sales and Unit Volume in the Natural Channel, according to SPINS, a market research and consulting firm for the Natural Product Industry (SPINScan Natural, 52 Weeks Ending 1/22/11).

www.Jarrow.com
To order 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.
Don’t suffer the harsh side effects of antibiotics.

Take Theralac®

ANTIBIOTICS AND THERALAC WORK HAND IN HAND.

Many people taking antibiotics suffer disruption of their intestinal flora and, consequently, their digestive regularity suffers. Antibiotics reduce the numbers of beneficial probiotic bacteria and may cause undesirable bacteria to flourish.

One particular adverse bacteria, *Clostridium difficile*, or *C. diff.*, is known to be resistant to antibiotics and can cause severe diarrhea. The best way to stop the havoc *C. diff.* wreaks is to overwhelm it with Theralac.

THERALAC IS CLINICALLY PROVEN TO WORK.

Theralac has been proven in a clinical study to maintain normal intestinal flora while people were on antibiotics. In a double-blind, placebo-controlled study subjects took the equivalent of two Theralac capsules daily for two weeks while on the powerful antibiotic Augmentin®. The results were amazing! The Theralac group saw no disruption of intestinal flora while the non-Theralac® group experienced substantial disruption.

Theralac assists with nutrient absorption and helps regulate peristatic action. Theralac helps maintain estrogen, cholesterol and glycemic levels in those already within normal range.

LEADING DOCTORS RECOMMEND THERALAC.

Dr. Russell Blaylock, MD, recommends taking 2-4 Theralac capsules daily while on antibiotics, continuing for two weeks following antibiotic therapy. And key doctors of Lyme disease patients rely on Theralac to help patients suffering from severe antibiotic associated diarrhea.

So to ensure digestive health while taking antibiotics, order Theralac today by calling 800-544-4440 or visit LifeExtension.com. Then take your antibiotics and avoid unintended consequences.

Theralac, 30 capsules
Item# 01038
Retail price: $44.95
Call for LEF Member Pricing

Call 800-544-4440

Theralac.com
Master Supplements Incorporated

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 Aging Process: Is There a Cure?

While there is no “cure” for the natural aging process, aging gracefully doesn’t have to be difficult. Let nature do its part.

For most of us an epiphany happens during our middle-age years, when we realize that to have a positive aging experience there is no choice but to take excellent care of our bodies. During this time, we examine how we have treated our body and the effects it has had on our aging process. Then, we look ahead and try to figure out how we can work with our bodies to maintain our youth.

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

An ideal anti-aging protocol is one that includes Nature’s most effective herbs and nutrients targeted at cardiovascular, liver, intestinal, and inflammation health.

Probiotic All-Flora®
Optimal Digestive & Immune System Function*
The live probiotics in Probiotic All-Flora help support optimal digestive and immune system function.* Organic Apples and organic Jerusalem Artichoke Inulin provide prebiotic nourishment to enhance probiotic benefits.* At the time of manufacture, there are 8 billion probiotic live cells in two capsules of Probiotic All-Flora.

Probiotic All-Flora 60 Vegetarian Capsules
Item# 01329 Retail Price $25.95 Member Price $19.46

Probiotic Anti-Aging™
Live Probiotics Antioxidant Formula*
Probiotic Anti-Aging contains ten strains of live probiotics cultured together on a non-dairy, organic food medium. These contain growth-stimulating prebiotic whole foods with naturally occurring antioxidants including organic Blueberry, organic Green Tea, and organic Ginger.

Probiotic Anti-Aging 90 Vegetarian Capsules
Item# 01326 Retail Price $36.95 Member Price $23.21

To order Probiotic All-Flora® and Probiotic Anti-Aging™, call 1-800-544-4440 or visit www.LifeExtension.com

© 2011 New Chapter, Inc.

*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.
Ultra Natural Prostate Formula combines eleven cutting-edge natural ingredients that have been scientifically substantiated to protect the prostate gland and maintain its healthy function.* One of the newest additions to the formula is European pumpkin seed oil extract, which is rich in delta-7 sterols and fatty acids.

The formula provides saw palmetto extract and Graminex Flower Pollen Extract™ to interfere with DHT activity and help regulate inflammatory reactions in the prostate.* Lycopene is a carotenoid that has been added to the formula to help maintain healthy DNA gene function in prostate cells.

In order to boost its anti-estrogen capabilities, Ultra Natural Prostate Formula incorporates HMRLignan™, derived from Norway spruce, flax lignans, and nettle root extract.

Since normal aging can lead to potentially unsafe levels of prostaglandins in the prostate, Pygeum africanum extract is included to help suppress prostaglandins and thereby promote prostate comfort.* Beta-sitosterol has been added because it is the most biologically active component of pygeum and enhances its protective effects.

Ultra Natural Prostate Formula also contains 5-LOXIN® boswellia extract to protect against the dangerous enzyme 5-lipoxygenase and the mineral boron to help slow elevation of prostate-specific antigen (PSA).

The retail price for one bottle of Ultra Natural Prostate Formula is $38. If a member buys four bottle, the price is reduced to $26.25 per bottle. If a member buys 12 bottles, the price is reduced to $24 per bottle.

Contains soybeans and corn.

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

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
30 KRILL FORMULA COMBATS ARTHRITIS PAIN
Conventional arthritis treatments fail because they do not neutralize damaging molecules that attack aging joints. A novel combination of low-dose krill oil, hyaluronic acid, and astaxanthin targets these molecules, thereby reducing or eliminating arthritis pain.

54 INFLAMMATORY FACTOR BEHIND MOST CANCERS
Virtually all cancers utilize a molecule called nuclear factor-kappaB to regulate tumor cell growth and spread. Nutrients that health-conscious people supplement with today suppress NF-kB activity.

76 TOPICAL RESVERATROL COMBATS SKIN AGING
When applied topically, resveratrol has been shown to help protect against skin aging, with 17 times the antioxidant potency of the expensive anti-wrinkle drug idebenone.

7 AVOID THE CATASTROPHIC EVENT
Just one catastrophic event can launch degenerative processes that terminate in death, even in those who take extraordinary steps to stay healthy. Aortic stenosis is an example of such a catastrophe. The good news is that a vitamin introduced in 1999 may avert this crippling cardiac problem.

66 AGE-DEFYING OLYMPIAN DARA TORRES
Olympic swimming icon Dara Torres has won 12 medals in the past 24 years, including three in 2008 as a 41-year-old mother. She discusses the keys to her career longevity, her quest for another Olympic win in 2012, and the program that helps fuel her success.

PLUS—
OMEGA-3s PREVENT COGNITIVE DECLINE; GARLIC AND GRAPE SEED SUPPLEMENTS LOWER BLOOD CANCER RISK; GREEN TEA PROTECTS AGAINST INFLUENZA; AND MORE.