Blueberry Extends Life Span Beyond Calorie Restriction

Lethal Impact of CoQ10 Censorship

Cardio-Protective Effect of Olive Oil

Reverse Fatty Liver Disease

Snow Algae Revives Aging Skin

PLUS— Rick ROSNER
World Genius Reveals His Longevity Strategy
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- 4 times more vitamin D
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- Twice as much zinc

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

For the complete list of ingredients, trademarks, cautions, references, dosage and use, please visit www.LifeExtension.com.

*Savings calculated per bottle off of single-bottle retail price.
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Formula Compared to Centrum® Silver® Adults 50+ at time of printing.

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.
ON THE COVER

BOOST LONGEVITY
BEYOND CALORIE RESTRICTION
Blueberries delay the aging process by facilitating DNA repair and favorably modulating genes associated with aging. The ability to repair DNA is an essential longevity mechanism. When added to a calorie-restricted diet, blueberry polyphenols significantly increased life span beyond that of calorie restriction alone.

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Curcumin has turned into a nutrition superstar because of the enormous health-promoting effects it provides for almost every organ system.\(^2\)\(^3\)

However, most curcumin extracts are neither well absorbed nor well retained in the body.

Life Extension’s curcumin supplements utilize a patented preparation of curcumin that can reach up to 7 times higher concentration in the blood than standard curcumin!\(^4\)

As the graphs on this page illustrate, the 400 mg of curcumin in either of our formulas supply the body with the equivalent of 2,500 mg of most commercial curcumin products.

In recent studies comparing the effects of standard curcumin against Life Extension’s turmeric extracts, researchers observed:\(^5\)\(^6\)

- Nearly twice the support for immune health and approximately 2 times the support for inflammatory issues.
- Almost double the free radical-fighting support. A separate study indicated that curcumin extract provided powerful support for heart health.

### TWO CURCUMIN FORMULAS TO CHOOSE FROM

Those who want a curcumin stand-alone can order a bottle of 60 vegetarian capsules of Super Bio-Curcumin\(^7\) (Item # 00407) for $38. If a member buys four bottles, the price is reduced to $26.25 per bottle. Each bottle lasts a typical user two months.

Those seeking additional support against cell changes that promote prolonged functional inflammatory issues may choose Advanced Bio-Curcumin\(^8\) With Ginger & Turmerones.

While both of these formulas provide the superior absorption curcumin, Advanced Bio-Curcumin\(^8\) With Ginger & Turmerones also contains:

- Turmerones to increase the amount of curcumin inside cells.\(^9\)
- Ginger, which provides complementary health benefits.
- Phospholipids that further enhance absorption.\(^9\)

A bottle of 30 softgels of Advanced Bio-Curcumin\(^8\) With Ginger & Turmerones (Item # 01808) retails for $30. If a member buys four bottles, the price is reduced to $20.25 per bottle. The suggested dose for either of these highly absorbable curcumin supplements is one capsule daily.

### References

8. Bioavailability study of BCM-95\(^\text{®}\) in rats. Orca International Inc.

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

Bio-Curcumin\(^9\) and BCM-95\(^9\) are registered trademarks of Dolcas-Biotech, LLC. U.S. Patent Nos. 7,883,728, 7,736,679 and 7,879,373.

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

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

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

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

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

It is with great sorrow that Life Extension® notes the passing of an esteemed member of our Scientific Advisory Board—Dr. Stanley W. Jacob.

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

It is with great sorrow that Life Extension® notes the passing of Dr. Richard Kratz, an accomplished scientist and doctor. Richard Kratz, MD, DSci, was clinical professor of ophthalmology at the University of California, Irvine, and the University of Southern California, Los Angeles. Dr. Kratz pioneered the cataract-removal technique called phacoemulsification and developed intraocular lenses to replace the crystalline lens. He was recently involved in projects relating to glaucoma, cataract extraction, and facilitating sight for the totally blind.

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

Dipnarine Maharaj MD, MB, ChB, FRCP (Glasgow), FRCP (Edinburgh), FRCPath, FACP Dr. Dipnarine Maharaj is the Medical Director of the South Florida Bone Marrow Stem Cell Transplant Institute and is regarded as one of the world’s foremost experts on adult stem cells. He received his medical degree in 1978 from the University of Glasgow Medical School, Scotland. He completed his internship and residency in Internal Medicine and Hematology at the University’s Royal Infirmary.

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

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

Jonathan V. Wright, MD, is medical director of the Tahoma Clinic in Tukwila, 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.
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References:

To order MacuGuard® Ocular Support with Astaxanthin, call 1-800-544-4440 or visit www.LifeExtension.com

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CoQ10 Wars

Congestive heart failure contributes to about 310,000 deaths each year in the United States.¹ Over 5.8 million Americans suffer from this condition where the heart is unable to pump enough blood to meet the body’s needs.²

A study published late last year evaluated heart failure patients that supplemented with higher dose CoQ10 in addition to standard therapy. The results showed a 44% reduction in cardiovascular mortality in the CoQ10 group compared to the placebo arm receiving only standard therapy.³

When this study looked at deaths from any cause, those receiving CoQ10 had a 42% reduction in all-cause mortality.

Based on this study's findings, if all congestive heart failure patients properly supplemented with CoQ10, more than 120,000 American lives might be spared each year.

What’s interesting about this study is that it showed that in order for CoQ10 to produce these robust lifesaving benefits, it had to be taken over an extensive period of time. Unlike cardiac drugs such as beta-blockers that produce an immediate effect,⁴ CoQ10 must build up inside one’s cells in order to induce clinical improvements.

Health freedom activists may recall the jihad launched by the FDA in the 1980s-1990s that resulted in product seizures and criminal charges brought against those selling CoQ10.⁵,⁶ As you’re about to learn, the loss of life caused by the FDA’s censorship is beyond astronomical.

This article will describe how to properly use CoQ10 to achieve rapid benefits, and why it has taken so long for others to figure this out.
A lot of people think coenzyme Q10 was discovered in Japan because that is where it was first approved as a drug to treat heart failure.\textsuperscript{7-9} The Japanese are one of the world’s largest CoQ10 producers.\textsuperscript{8,10}

The reality is CoQ10 was first isolated from beef hearts at the University of Wisconsin in 1957.\textsuperscript{9} This research was continued in collaboration with Professor Karl Folkers, who conducted research at Merck & Co., Inc. and later at Stanford Research Institute and the University of Texas at Austin.\textsuperscript{11-14}

Numerous positive findings on CoQ10 were published in the 1960s-1970s.\textsuperscript{15-20} It was not until 1983 when Americans first learned about CoQ10 in an article published by the Life Extension\textsuperscript{®} Foundation.\textsuperscript{21}

The FDA’s response was that CoQ10 could not be legally sold because it was a prescription drug that required the agency’s approval. The FDA went as far as to say that CoQ10 posed an imminent health hazard. Our CoQ10 was twice seized and twice returned after we mounted two successful legal actions to thwart the FDA’s attempt to ban consumer access to CoQ10.

The perverse regulatory structure that the FDA operates under created two problems. It allowed an American invention (CoQ10) to be monetarily capitalized on by the Japanese at the expense of American consumers. Far worse, the bureaucratic impediments erected against CoQ10 caused millions of American deaths, which we’ll document at the end of this article.

**Why CoQ10 Confused Cardiologists**

Physicians in the US are used to drugs that provide an immediate effect. For instance, if a statin drug (such as Lipitor\textsuperscript{®}) is prescribed, there is almost always a sharp drop in a patient’s LDL cholesterol level. Antihypertensive drugs usually provide a quick blood pressure-lowering effect. Anticoagulant drugs (like warfarin) quickly thin a patient’s blood.

These kinds of fast-acting drugs are what doctors and the FDA are accustomed to evaluating.

When CoQ10 came along, it seldom met mainstream medicine’s expectation of a pronounced and immediate effect, especially in patients with congestive heart failure. So the knee-jerk reaction by the mainstream was that CoQ10 has no meaningful clinical benefit.

The latest study confirmed that it takes a considerable period of time for CoQ10 levels to build up to a point where significant clinical benefits occur, such as a 42% reduction in all-cause mortality. This study corroborates what was published decades ago in this magazine.

We at Life Extension\textsuperscript{®} long ago discovered that low-dose CoQ10 administered to people with chronic disease did not provide needed benefit. It was clear that higher doses of more absorbable forms of CoQ10 were required.
Peter Langsjoen, MD, is considered one of the world’s foremost experts in the use of CoQ10 to treat cardiac disease. He conducts his research and clinical practice in Tyler, Texas, and is a long-standing member of our Scientific Advisory Board.

What makes Peter Langsjoen unique among cardiologists is that he measures his patients’ CoQ10 blood levels to ensure they are absorbing enough of the CoQ10 he prescribes to induce a clinical response.

As reported seven years ago in this publication, Dr. Langsjoen observed that patients with advanced heart failure often fail to achieve adequate blood (plasma) CoQ10 levels, even when using high doses of conventional CoQ10.

Dr. Langsjoen found that in response to the administration of 900 mg of conventional ubiquinone CoQ10, advanced heart failure patients only increased their total CoQ10 blood levels to about half of what they should be. In patients with congestive heart failure, much higher CoQ10 blood levels are needed to induce symptomatic and clinical improvements.

In healthy people, the ingestion of 900 mg of conventional (ubiquinone) CoQ10 is expected to raise total blood levels rather substantially. Dr. Langsjoen postulated on the reason ubiquinone fails to significantly increase CoQ10 blood levels in critically ill patients. He has seen his advanced patients suffer impaired absorption caused from intestinal edema, which precludes optimal absorption of ubiquinone CoQ10.

Frustrated with the inability of even high doses of ubiquinone CoQ10 to meaningfully elevate

FDA Denied CoQ10 To Dr. Langsjoen’s Patients

In 1992, the FDA and Texas Department of Health raided Austin Whole Foods and other retail outlets to seize their CoQ10.

This severely affected the ability of Dr. Langsjoen’s heart disease patients to access coenzyme Q10.

The basis for these raids was the FDA’s contention that coenzyme Q10 was an unsafe food additive. Patients whose lives were being saved knew different.

The citizens revolted and protested the FDA seizures in every possible way. They alerted the news media, wrote hot letters to the FDA, congressmen, and senators, and phoned up the Texas Department of Health to protest. Sixty agitated patients and family members assembled at a local church to plan a strategy for keeping CoQ10 on the market.

An in-depth article about this raid and the impact it was having on Dr. Langsjoen’s patients was the subject of a detailed article, titled “Heartless Behavior,” in the popular Texas Monthly magazine (June 1992 issue) which is still available online (http://www.texasmonthly.com/content/heartless-behavior).

After a monumental struggle, the Texas Department of Health backed down and patients were once again able to obtain CoQ10 (in Texas). For heart failure patients whose lives hung in the balance, the ordeal was beyond stressful.

Those with cardiac issues that would like to become a patient of Dr. Langsjoen can contact his clinical practice at the following address and phone:

Peter Langsjoen, MD
1107 Doctors Drive
Tyler, Texas 75701
Phone: 903-595-3778
Ubiquinol has dramatically improved absorption in patients with severe heart failure and that the improvement in plasma CoQ10 levels is strongly correlated with both clinical improvement and improvement in measurement of left ventricular function.”

An Update From Dr. Langsjoen

At a meeting of Life Extension’s Scientific Advisory Board on April 25, 2012, Dr. Langsjoen confirmed his previous findings and advised healthy older people who were not supplementing with CoQ10 to take between 300-400 mg per day for the first month to fully saturate their cells, and then back down to a daily maintenance dose of 100-300 mg per day. Dr. Langsjoen stated at this meeting that younger people with healthy digestive tracks could probably benefit equally with ubiquinone or ubiquinol, but as one ages they should consider ubiquinol as it absorbs far better into the bloodstream.
For patients with congestive heart failure, Dr. Langsjoen recommends continuous high doses of **ubiquinol** to maintain the **ejection fraction** at values that correspond with overall improvement in cardiac function. In these heart failure patients 200 mg of **ubiquinol** twice per day is a good dose, reliably achieving therapeutic plasma levels of CoQ10 higher than 3.5 μg/mL.

**New Study Corroborates Dr. Langsjoen’s Research**

The study I discussed at the beginning of this article was published in the September 25, 2014, online edition of the *Journal of the American College of Cardiology: Heart Failure*. It described the effects of 300 mg per day of **ubiquinone** given to a large group of chronic heart failure patients.

After **16 weeks** of administration of this **dose** and **form** of CoQ10, there were **no** significant changes in measures of **ejection fraction** compared to placebo.³

What the researchers discovered, however, is that when these chronic **heart failure** patients took **300 mg** per day of ubiquinone for **two years**, there was (compared to placebo) a remarkable:

- **44% reduction** in cardiovascular mortality.
- **42% reduction** in all-cause mortality.
- **45% reduction** in the number of hospital stays (some people consider hospitals worse than jail).
- **29% improvement** in the proportion of patients seeing a beneficial change in their NYHA classification (a composite measure of heart failure severity).

These findings are earth shattering! They reveal that more than **120,000** American lives could be saved each year with the use of a widely available dietary supplement. The authors of this study concluded:

> “Long-term CoQ10 treatment of patients with chronic heart failure is safe, improves symptoms, and reduces major adverse cardiovascular events.”

These findings help corroborate Dr. Langsjoen’s pioneering research where he used higher doses of a **superior-absorbing ubiquinol CoQ10** to achieve quicker improvements in cardiac ejection fraction. Dr. Langsjoen sees improved heart function in as early as three months and almost always by six months of treatment with **ubiquinol** at **200 mg** twice per day.

There are over **five million** Americans afflicted with congestive heart failure today. Many can’t wait **two years** for a conventional CoQ10 supplement to improve their condition and slash their risk of dying. They need to initiate **400-600 mg** of **ubiquinol** daily to increase their heart’s **ejection fraction** as soon as possible.

There is now solid evidence from a large, randomized multicenter published trial showing remarkable benefits when **300 mg** a day of **CoQ10** is **added** to standard treatment over a two-year period. What makes this finding interesting is that many heart failure patients in the past tried a relatively small CoQ10 dose and if an improvement in **ejection fraction** did not happen quickly, they and their doctor would have felt CoQ10 to be ineffective. This helps explain why conventional cardiology has been slow to catch on to CoQ10’s lifesaving benefits.

As a **Life Extension**® member, you know how to **accelerate** these beneficial effects by taking the appropriate **dose** and **form** of CoQ10 to rapidly saturate cells throughout your body. To a patient suffering from chronic heart failure, this information is priceless!
**Battles To Defend Against CoQ10 Prohibition**

After we introduced CoQ10 in 1983, public demand for this nutrient soared. The FDA’s response was to seek to ban it altogether because they deemed it to be a prescription drug that required government “approval” to be sold. Companies selling CoQ10 were raided and individuals (including us) were placed under intense criminal investigation at enormous cost to taxpayers. In 1987, FDA agents accompanied by armed US Marshalls (with guns drawn) kicked down our doors and proceeded to seize every bottle of CoQ10, every one of our newsletters, and any other nutrient (magnesium, fish oil, etc.) they deemed to be an “unapproved drug.” We later filed suit against the FDA and won back all of the seized materials, though the supplements were spoiled and had to be discarded.

In 1990, the FDA conducted an armed raid against Highland Laboratories in Oregon and seized their CoQ10 and accompanying literature. The owner of this company was criminally indicted and rather than face the expense and uncertainty of a trial, pled guilty and was placed on six months house arrest.

Frustrated that we continued to offer CoQ10, the FDA went to a state pharmacy board and declared that nutrients like CoQ10 posed an imminent threat to the public’s health and therefore had to be embargoed from sale to the public. At the FDA’s behest, pharmacy board inspectors placed embargoes on our CoQ10 and that of another

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**National Cancer Institute And CoQ10**

Most people associate CoQ10 as having beneficial effects for the heart, brain, and kidneys. Overlooked is data showing that CoQ10 has protective effects against several forms of cancer.

According to the National Cancer Institute’s position paper:

“Interest in coenzyme Q10 as a therapeutic agent in cancer began in 1961, when a deficiency was noted in the blood of both Swedish and American cancer patients, especially in the blood of patients with breast cancer. A subsequent study showed a statistically significant relationship between the level of plasma coenzyme Q10 deficiency and breast cancer prognosis. Low blood levels of this compound have been reported in patients with malignancies other than breast cancer, including myeloma, lymphoma, and cancers of the lung, prostate, pancreas, colon, kidney, and head and neck.”

The National Cancer Institute goes on further to state:

“Some of the accumulated data show that coenzyme Q10 stimulates animal immune systems, leading to higher antibody levels, greater numbers and/or activities of macrophages and T cells (T lymphocytes), and increased resistance to infection. Coenzyme Q10 has also been reported to increase IgG (immunoglobulin G) antibody levels and to increase the CD4 to CD8 T-cell ratio in humans. CD4 and CD8 are proteins found on the surface of T cells, with CD4 identifying helper T cells and cytotoxic T cells, respectively; decreased CD4 to CD8 T-cell ratios have been reported for cancer patients.”

With a plethora of studies showing CoQ10’s heart benefits, the data about its potential anticancer properties gets lost in the popular media.
supplier of CoQ10 in the same state. We prepared a 300-page lawsuit against the pharmacy board attesting to the safety and efficacy of CoQ10.

As a courtesy, we presented the lawsuit to the pharmacy board’s attorneys and gave them the option of lifting the embargo before we filed the lawsuit. After reading the 300-page lawsuit that substantiated the safety and efficacy of CoQ10, the pharmacy board lifted the embargo against us (and the other company) and promised to never take the FDA’s word at blind faith again. The state pharmacy board was clearly perturbed that the FDA deceived them about the safety of CoQ10.

We were later arrested at the behest of the FDA and fought a multiyear battle in which the US Attorney’s Office eventually dismissed the charges that the FDA brought that sought to incarcerate us for life.

To this day, the FDA tries to censor claims that CoQ10 can benefit heart failure patients, despite overwhelming documentation that this nutrient markedly reduces death rates when properly used.

How Many Americans Have Needlessly Perished?

Based on findings published in the Journal of the American College of Cardiology late last year, CoQ10 can reduce overall death rates in patients with congestive heart failure by 42%.

The number of lives that could be saved if every congestive heart failure patient properly supplemented with CoQ10 is potentially over 120,000 each year.

If you multiply the number of lives lost by the 30 years the FDA has been censoring information about CoQ10, the total comes to over 3.6 million dead Americans, which is more than all the American deaths suffered by all the wars this nation has ever fought.

The chart on this page documents the striking carnage caused by FDA censorship of CoQ10 compared to all military conflicts the United States fought starting with the Revolutionary War.

Based on these staggering statistics, it’s hard to argue why the FDA retains authoritarian power over the American citizenry. With universal access to websites, those Americans who wanted to trust
the FDA could easily log on to the FDA’s website (www.fda.gov) to read the agency’s position on a given nutrient, drug, or hormone. They could then compare what the FDA says with another government website (www.pubmed.gov) that provides easy access to published scientific papers.

For example, if one enters into PubMed the terms “CoQ10 and congestive heart failure,” 11 new studies appeared in 2014 alone that further substantiate its efficacy. Yet the FDA continues to ignore this published scientific research by censoring health claims for coenzyme Q10.

A lot of Americans have tragically been killed in this country’s many wars. Fear of terrorism has caused our government to spend trillions of dollars. Too bad our leaders don’t realize that amending the Food, Drug and Cosmetic Act to strip the FDA of its dictatorial power would save many more American lives and reduce healthcare cost outlays.

The numbers speak for themselves. If you ask which war caused the most American deaths, a person versed in history will name the Civil War. The harsh reality is that the CoQ10 Wars have resulted in far more American deaths.

This catastrophic loss of life will continue until science is allowed to replace authoritarian edict in determining medical treatment protocols.

For longer life,

William Falloon
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The majority of men find that their prostate gland undergoes significant changes as they age.1 ProstaPollen™ supports healthy urination patterns and prostate function.

**Triple Strength ProstaPollen™** contains concentrated pollen extracts specifically selected for effective prostate support.2-4

Clinical studies have demonstrated that the flower pollen extracts in **Triple Strength ProstaPollen™** provide healthy support for aging prostate glands.2-4

Two fractions in **Triple Strength ProstaPollen™**—G60™ (water-soluble) and NAX™ (lipid-soluble)—support prostate health by helping to maintain smooth muscle tone in the prostate, bladder, and urethra.5

Life Extension® has long offered pollen extracts in the comprehensive **Ultra Natural Prostate** formula for maintaining healthy prostate function. For the first time, this new **Triple Strength ProstaPollen™** European extract is available to Americans, providing a more potent dose in a convenient once-daily softgel!

For men using Life Extension®’s **Ultra Natural Prostate** formula, additional prostate support benefits can be found by adding just one **Triple Strength ProstaPollen™** softgel daily.*

A bottle of 30 softgels of **Triple Strength ProstaPollen™** retails for $28. If a member buys four bottles, the price is reduced to $18.75 per bottle.

The suggested dosage of one softgel of **Triple Strength ProstaPollen™** provides:

<table>
<thead>
<tr>
<th>Component</th>
<th>Dosage</th>
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<tbody>
<tr>
<td>Graminex® Flower Pollen Extract™*</td>
<td>378 mg</td>
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<tr>
<td><strong>(from rye)</strong></td>
<td></td>
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<tr>
<td>triple strength concentrated blend</td>
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providing:

<table>
<thead>
<tr>
<th>Component</th>
<th>Dosage</th>
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<tbody>
<tr>
<td>Graminex® G60™ (water-soluble fraction)</td>
<td>360 mg</td>
</tr>
<tr>
<td>Graminex® NAX™ (lipid-soluble fraction)</td>
<td>18 mg</td>
</tr>
</tbody>
</table>

** Graminex® is a registered trademark of Graminex LLC.

To order Life Extension® **Triple Strength ProstaPollen™**, call 1-800-544-4440 or visit www.LifeExtension.com

*Ultra Natural Prostate contains 252 mg of original Graminex extract providing 60 mg of G60™ water-soluble fraction and 3 mg of NAX™ lipid-soluble fraction in two softgels. Men completely satisfied with the effects of the Ultra Natural Prostate formula may not need this new Triple Strength ProstaPollen.

References
Most Effective Form Of CoQ10

The unique benefits of the ubiquinol form of CoQ10 have been further validated by studies published in 2014.1-12 CoQ10 supports mitochondrial energy production. A new study published in 2014 confirms previous research showing that ubiquinol activates mitochondrial functions to slow aging in the laboratory mouse model.12 Life Extension® improves this a step further by adding shilajit to its ubiquinol formulas. The result is a doubling of CoQ10 levels in mitochondria.13

When CoQ10 and shilajit are combined, there is a 56% increase in energy production in the brain and 144% energy increase in muscle.14

Restoring youthful energy levels is why so many maturing people turn to coenzyme Q10. The most absorbable form of CoQ10 is ubiquinol.

The name of this advanced ubiquinol/shilajit formula is Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™.

Life Extension combines these two energizing ingredients into an exclusive ubiquinol-shilajit formula available in the following potencies…all at discounted prices:

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 $34.50 per bottle. If a member buys 10 bottles, the price is $31.50 per bottle. (Item # 01425)

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 $39 per bottle. If a member buys 10 bottles, the price is $36 per bottle. (Item # 01426)

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 $39 per bottle. If a member buys 10 bottles, the price is $36 per bottle. (Item # 01431)

Non-GMO

References
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 reduced to $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 to two capsules daily.

CAUTION: If you are taking glucose lowering medication, consult your healthcare provider before taking this product.

Non-GMO.

References

To order Super R-Lipoic Acid, 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.
Cancer Treatment Benefits Of Metformin

Numerous studies link the antidiabetes drug metformin with reduced risk of cancer and potentially better treatment outcomes in cancer patients. Metformin functions as an activator of AMPK in cells throughout the body, and this mechanism is associated with reduced cancer risk. Two recent studies further corroborate the potential benefit of metformin in those stricken with cancer.

Research reported in American Journal of Respiratory and Critical Care Medicine reveals that the diabetes drug metformin significantly improves survival of lung cancer patients.*

For the study, researchers used data from the Surveillance, Epidemiology, and End Results (SEER) registry to identify 750 diabetic patients diagnosed with stage IV non-small cell lung cancer.

Median survival in the metformin group was five months, compared to three months in patients not treated with metformin. Analyses showed that metformin use was associated with a significant improvement in survival. Lung cancer patients typically have poor treatment outcomes and a median survival improvement of even two months is sometimes the basis for approving expensive new cancer drugs.

A second study in Annals of Surgery found that metformin use decreased the recurrence, all-cause mortality, and cancer-specific mortality rates among gastric cancer patients with diabetes who underwent gastrectomy.**

In this trial, researchers compared survival rates of a total of 1,974 gastric cancer patients—132 diabetic patients treated with metformin, 194 diabetic patients who were not treated with metformin, and 1,648 nondiabetic patients—who underwent curative gastrectomy. During a 6.2-year follow-up period, researchers noted that diabetic patients treated with metformin had a significantly better prognosis than those who were not, and each cumulative six months of metformin use was significantly associated with a decreased risk of recurrence, cancer-specific mortality, and all-cause mortality.

* Am J Respir Crit Care Med. 2014 Dec 18. [Epub ahead of print.]
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Mediterranean Diet Associated With Longer Telomeres

According to an article published in the British Medical Journal and widely reported by CNN in early December, those who regularly eat a Mediterranean diet rich in polyphenols and anti-inflammatory compounds have longer telomeres and may live longer than those who don’t.*

Researchers utilized data from 4,676 middle-aged participants in the ongoing Nurses’ Health Study, which began enrolling subjects in 1976. Dietary questionnaires completed in 1980 were scored for adherence to a Mediterranean diet, which is characterized by a high intake of vegetables, fruits, nuts, legumes, grains, and olive oil. Blood samples collected from 1989 to 1990 were analyzed for white blood cell telomere length.

Telomeres, which cap the ends of chromosomes, get shorter every time a cell divides, so their length is thought to be a measure of a cell’s aging. Stress and inflammation may also shorten people’s telomeres, the researchers said in the study.

“Our findings showed that healthy eating, overall, was associated with longer telomeres,” reported lead author Marta Crous-Bou, a postdoctoral fellow in the Channing Division of Network Medicine. “However, the strongest association was observed among women who adhered to the Mediterranean diet.”

Telomeres have been the subject of a significant amount of recent research. Longer telomeres have been associated with a reduced risk of chronic diseases and increased life span.

* BMJ. 2014;349:g6674.
Three Nutrients Lower Alzheimer’s Disease Risk

The Journal of Alzheimer’s Disease reported positive results for a combination of three nutrients in the prevention of Alzheimer’s disease in older individuals.*

The trial included 918 participants in the Tone Project, which enrolled men and women aged 65 years and older. Subjects were offered the choice of receiving nutritional supplementation, taking part in a two-year exercise program, or participating in both. Beginning in 2002, 171 men and women who elected to receive supplements were given capsules containing 290 mg EPA and 203 mg DHA from fish oil, 240 mg Ginkgo biloba extract, and 84 mg lycopene for three years. Neuropsychological testing was administered at the beginning of the study and at the first and second follow-up visits during 2004-2005 and 2008-2009.

Over follow-up, 76 subjects were diagnosed with Alzheimer’s disease. Adherence to the supplement regimen was associated with a 31% lower adjusted risk of the disease in comparison to no supplementation.

Editor’s Note: Those engaging in the exercise regimen were associated with a 21% lower risk of Alzheimer’s disease compared with those who did not take part in the program. The benefit, however, was no longer observed after adjustment for a number of factors.

DNA Damage May Be A Marker Of Insufficient Zinc Status

A trial reported in Nutrition Research found a protective effect for zinc supplementation against DNA strand breaks.* This type of genetic damage is caused primarily by reactive oxygen species and can lead to further damage and consequent disorders if not repaired.

The study included 40 Ethiopian women believed to be of low zinc status due to decreased meat intake and high dietary phytate levels, which reduce zinc absorption. Plasma zinc levels were measured in blood samples collected at the beginning of the study. The women were given 20 mg zinc or a placebo daily for 17 days. Comet assay of intracellular DNA strand breaks was conducted in cells collected at the beginning and end of the trial.

By the end of the study, comet tail measurement of DNA strand breaks decreased from an average of 39.7 to 30.0 in the supplemented group. DNA repair is an essential element of longevity and a number of nutrients that health conscious people supplement with today have been shown to help facilitate DNA repair.

Editor’s Note: “Zinc deficiency in both in vitro and in vivo models is associated with increased oxidative stress and increased DNA damage,” note Maya L. Joray of the University of Colorado Health Sciences Center and colleagues in their introduction to the article. “As a result of this relationship between cellular zinc levels and DNA damage, the comet assay, a method that measures DNA strand breaks in cells, may represent a sensitive functional tool to assess response to zinc supplementation.”

Cancer Deaths Down In United States

The annual American Cancer Society statistics report published in CA: A Cancer Journal for Clinicians reveals a 22% decline in cancer mortality over the past two decades, which signifies a reduction in cancer deaths of over 1.5 million that would have otherwise occurred at previous rates.*

The data, obtained from the National Cancer Institute, the Centers for Disease Control and Prevention, and the National Center for Health Statistics, show a decrease that is mainly attributable to lower mortality due to breast, colon, lung, and prostate cancers. The rate of dying from breast cancer dropped 35% from previous rates, and colorectal and prostate cancer deaths have been reduced by 47%. Between 1990 and 2011, deaths from lung cancer decreased 36% in men, and for women, the rate declined by 11% from 2002 to 2011.

Editor’s Note: The report’s authors attribute the improvements to a reduction in the percentage of smokers in the US, and advances in prevention, detection, and treatment of cancer.

* J Alz Dis. 2014 Dec 16.


Whey Protein Helps Preserve Muscle During Weight Loss

An article in the *Journal of Nutrition* reports the outcome of a trial of overweight and obese individuals that found a protective role for whey protein supplementation against some of the loss of muscle that occurs with dieting.*

Researchers randomized 40 subjects to receive a 14-day, low-calorie diet supplemented with whey protein, soy protein, or the addition of carbohydrate providing a number of calories equal to that of the protein supplements. Myofibrillar protein synthesis (a measure of muscle maintenance) was assessed while fasting and following a meal, before and after the two-week diets.

Prior to the start of the diet, myofibrillar protein synthesis was found to be stimulated more following whey consumption in comparison with soy or carbohydrate ingestion. While all groups experienced a similar decline in myofibrillar protein synthesis while fasting, the decrease was less among those who received whey protein following a meal.

**Editor's Note:** Among those who received carbohydrates, the decrease in postprandial myofibrillar synthesis averaged 31%, in comparison with only 9% and in the group that received whey protein and soy. The soy protein group had a 28% decrease in postprandial myofibrillar synthesis, clearly showing the benefit of whey protein over soy or carbohydrates in preserving muscle mass.


Resveratrol Can Protect Against Alcohol's Cancer-Causing Effect

Excess alcohol consumption can lead to an increased risk factor for certain kinds of cancers, said Robert Sclafani, PhD, and associates in *Advances in Experimental Medicine and Biology*, but resveratrol in red wine may potentially protect against the cancer-inducing effect of alcohol.*

"Alcohol bombards your genes," explained Dr. Sclafani. "Your body has ways to repair this damage, but with enough alcohol, eventually some damage isn’t fixed. That's why excessive alcohol use is a factor in head and neck cancer. Now, resveratrol challenges these cells—the ones with unrepaired DNA damage are killed, so they can't go on to cause cancer. Alcohol damages cells and resveratrol kills damaged cells.

"When you look at epidemiological studies of head and neck cancer, alcohol is a factor, but by alcohol source, the lowest cancer incidence is in people who drank red wine," he observed. "In red wine, there's something that's blocking the cancer-causing effect of alcohol.

"Resveratrol takes out the cells with the most damage—the cells that have the highest probability of being able to cause cancer."

**Editor's Note:** Dr. Sclafani has plans to test the protective effect of resveratrol against head and neck cancer and other malignancies.


Low Vitamin D Levels Linked To Greater Premature Mortality Risk

A study reported in the *British Medical Journal* has uncovered an association between genetically low vitamin D levels and an increased risk of mortality over follow-up among Danish men and women.*

The investigation included 95,766 participants in three studies. Over the study's median follow-up time of up to 19.1 years, 10,349 deaths occurred. After evaluating the association between 25-hydroxyvitamin D levels and mortality over the follow-up period, the researchers analyzed the relationship between genotypes that decrease plasma vitamin D and the risk of mortality.

“We can see that genes associated with low vitamin D levels involve an increased mortality rate of 30% and, more specifically, a 40% higher risk of cancer-related deaths,” reported lead author Shoaib Afzal. “An important factor in our study is that we have established a causal relationship.”

Study Reveals Low Bioavailability For Oral Ursolic Acid In Humans

The Life Extension® Foundation recently supported a clinical research initiative on how the human body responds and absorbs ursolic acid, a compound found throughout the plant kingdom that has been observed to have anticancer and anti-inflammatory effects.* This initial study is important since there is very little published literature available that provides data on the use of ursolic acid in humans.

Subjects were administered a single ascending oral dose of ursolic acid (100 mg, 500 mg, and 1,000 mg). Assessments were performed pre-dose and at various time points for each dose. No serious adverse events were observed however; statistical analysis of the data revealed that the bioavailability of ursolic acid in the body was low and variable. Probable explanations for these results include:

1. The oral dosage form is poorly water soluble with decreased absorption and rapid elimination,
2. Low bioavailability may be due to metabolism by the gut wall and liver with poor absorption by the intestine,
3. Metabolism of ursolic acid by the human gut microbiome may also lead to variability in the peak plasma levels in subjects.

Editor’s Note: In other preclinical research, absorption was observed to be rapid with elimination also considered to be rapid. The results from these preclinical studies differed from the results from this clinical study, as the peak levels did not occur in the human subjects as expected. The findings from this clinical study were presented as a poster presentation at the recent Experimental Biology Scientific Conference in April 2014.

Pycnogenol® Reduces Cold Symptoms And Duration

An article published in Panminerva Medica reveals a benefit for Pycnogenol®, a standardized extract of French maritime pine bark, in relieving the length and symptoms of the common cold.*

The study included 70 adults who had not contracted a respiratory illness or received the influenza vaccine over the three previous months. An additional 76 untreated men and women served as controls. At the first sign of a cold, the treatment group was instructed to consume 50 mg Pycnogenol® twice per day in addition to their preferred best management, while the control group was asked to rely upon best management alone.

Participants who supplemented with Pycnogenol® experienced symptoms for an average of three days, compared with four days among the controls. They also had a reduction in the number of days lost to work, less need for additional treatments, reduced complications and duration beyond four days, and shorter duration of all symptoms.

Editor’s Note: “The significant effect of Pycnogenol® to treat nasal congestion and runny nose can be attributed to the extract’s natural anti-inflammatory and antiedema qualities and for its ability to improve blood circulation,” stated lead researcher Gianni Belcaro of Chieti-Pescara University in Italy. “These findings are supported by decades of research on Pycnogenol®’s ability to naturally boost the immune system.”

Vitamin E Could Boost Pneumonia Protection

The Journal of Immunology reports findings that suggests a role for vitamin E supplementation in protecting against pneumonia.*

“Earlier studies have shown that vitamin E can help regulate the aging body’s immune system, but our present research is the first study to demonstrate that dietary vitamin E regulates neutrophil entry into the lungs in mice, and so dramatically reduces inflammation, and helps fight off infection by this common type of bacteria,” announced lead author Elsa N. Bou Ghanem, PhD.

Young and old mice were given a diet supplemented with or without extra alpha-tocopherol for four weeks prior to being infected with pneumonia. Two days following infection, older control animals had a thousand times greater bacterial burden, 2.2-fold higher levels of neutrophil recruitment to the lung and a 2.25-fold increased rate of lethal septicemia in comparison with younger mice. These effects were largely prevented in the vitamin E-supplemented older mice, which had levels of neutrophils in their lungs that were comparable to younger controls.

Editor’s Note: “Our work provides a better understanding of how nutrition can play a role in modulating how the immune system responds to infection,” co-senior author John M. Leong, MD, PhD, concluded. In cases of bacterial pneumonia, an excess number of neutrophils often attack the lungs and can contribute to a lethal inflammatory response.


ARE YOU TAKING THE OPTIMAL FORMS OF VITAMIN E?

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

Prestigious scientific journals have highlighted gamma tocopherol as one of the most critically important forms of tocopherols, which includes d-alpha tocopherol (natural vitamin E) for those seeking optimal health benefits.

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

SESAME LIGNANS: THE NATURAL VITAMIN E BOOSTER

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

In a human study that combined gamma tocopherol with sesame lignans, gamma tocopherol/sesame was 25% more effective than gamma tocopherol/tocotrienols in suppressing tissue measurements for free-radical and inflammatory damage.

Life Extension® fortified the popular Gamma E Tocopherol supplement with standardized sesame lignans extract long ago. Consumers thus obtain superior benefits at a much lower cost.

WORLD’S MOST COMPREHENSIVE VITAMIN E FORMULA!

The Gamma E Tocopherol with Sesame Lignans formula provides potent doses of critically important gamma tocopherol along with sesame lignans to augment its antioxidant effects. Suggested dose is one softgel once or twice daily.

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

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

* 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.
VITAMIN D3 SOFTGELS

New research on the vital benefits of vitamin D emerges on a daily basis. Studies confirm that optimal levels of vitamin D are in the range of 50-80 ng/mL of 25-hydroxyvitamin D. Life Extension® has created a large selection of highly absorbable vitamin D supplements in softgels to help you to achieve your individual vitamin D goals. Keep in mind that you may already be getting 1,000-3,000 IU of vitamin D in your current multi-nutrient formulas.

**Vitamin D3 • 1,000 IU**
250 softgels • Retail: $12.50
Four-bottle Member Price: $8.44 ea.
For most people, a 1,000 IU potency is insufficient to attain optimal vitamin D blood levels. However, this potency may be suitable for smaller individuals who obtain 2,000-3,000 IU in their multi-nutrient formulas (and children). Item # 01751
Non-GMO.

**Vitamin D3 • 5,000 IU With Sea-Iodine™**
60 capsules (non-softgel) • Retail: $14
Four-bottle Member Price: $9.38 ea.
Most people, especially those seeking to reduce their salt intake, do not ingest enough iodine. Combining 5,000 IU of vitamin D3 with 1,000 mcg of iodine into one capsule makes taking these two nutrients economical and convenient. Due to the source of kelp, this product may contain fish and shellfish. Item # 01758

**Vitamin D3 Liquid • 2,000 IU (Natural Mint Flavor)**
1 ounce • Retail: $28
Four-bottle Member Price: $18.75 ea.
Great for travel and for those individuals who have difficulty absorbing enough vitamin D3 from softgels, this liquid vitamin D is ideal. Item # 01732
Also available without mint. (Item # 00864)

**Vitamin D3 • 5,000 IU**
5,000 IU • Retail: $20
Four-bottle Member Price: $14
Most people, especially those seeking to reduce their salt intake, do not ingest enough iodine. Combining 5,000 IU of vitamin D3 with 1,000 mcg of iodine into one capsule makes taking these two nutrients economical and convenient. Due to the source of kelp, this product may contain fish and shellfish. Item # 01758

**Vitamin D3 • 7,000 IU**
7,000 IU • Retail: $30
Four-bottle Member Price: $20
Some people (such as those weighing more than 180 pounds) may require even more vitamin D. When combined with 1,000-3,000 IU taken in a multi-nutrient formula, this 7,000 IU softgel should enable these individuals to attain blood levels above 50 ng/mL. Item # 01718

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

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

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

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
Research shows zinc deficiency is common in aging populations—and may contribute to the decline of immune function.¹ Zinc is vital to the functioning of more than 200 hormones and enzymes in the body.²

Zinc supports and maintains …

- A healthy anti-inflammatory response³
- Protein and DNA synthesis⁴
- Insulin production⁵
- Thyroid and bone production⁶⁷
- Healthy function of the thymus gland⁸

Between 35-45% of people over age 60 don’t get the daily recommended requirement.⁹ A longstanding problem is that zinc absorption can be limited by certain plants and grains, which contain a compound called phytate.¹⁰

Life Extension® has developed a formulation combining the superior bioavailability of zinc methionateme along with zinc citrate to provide a potent 50 mg dose of these absorbable forms of zinc in a single capsule.

OptiZinc® is a registered trademark of InterHealth Nutritional, Inc.

Caution: Supplemental zinc can inhibit the absorption of copper. If more than 50 mg of supplemental zinc is taken daily on a chronic basis, 2 mg of supplemental copper should also be taken to prevent copper deficiency. Chronic ingestion of more than 100 mg of zinc daily may be immunosuppressive for some aspects of T-cell and NK cell function.

To order Zinc Caps, 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.
Blueberries boost longevity

Beyond Calorie Restriction

Cellular DNA endures relentless injury through internal and external factors. A fundamental problem with aging is faulty DNA repair. As we lose our ability to repair DNA, illness and death ensues. If we could perfect internal DNA repair processes, we would become incredibly resistant to degenerative disease.

Blueberry extracts have demonstrated robust DNA repair properties.

The memory-boosting and brain-protecting benefits of blueberries have long been a promising area of research. Newer studies are showing that blueberries delay the aging process through a variety of mechanisms, including repairing DNA damage and favorably modulating genes associated with aging.

The ability to repair DNA is an essential longevity mechanism. A fascinating laboratory study found that the compounds in blueberries could increase mean life span by 28%. In humans, that is equal to over 22 years!

Particularly impressive is a study indicating that when added to a calorie-restricted diet, the compounds found in blueberries significantly increased life span beyond that of calorie restriction alone.

All of this adds up to a powerhouse fruit that could help us live longer and healthier.
C. elegans worms are extremely sensitive to temperature variations, and blueberry treatment increased the animals’ survival during acute heat stress. Treated worms also were much better able than nontreated animals to resist induced aging stresses. Indeed, blueberry treatments can prolong the life of the classic laboratory organism, the insect *Drosophila melanogaster*, better known as the fruit fly. Flies fed on blueberry extracts lived on average 10% longer than did control animals. This increase was accompanied by an increase of multiple beneficial genes, including protective enzymes and reduction of age-shortening genes. These healthy effects were apparent when flies were treated with an herbicide called paraquat, which normally imposes fatal age-accelerating changes in the flies’ metabolisms.

Life Span Extension Beyond Calorie Restriction

Of course, roundworms and insects are far removed from human beings, and studies that show benefits in such animals must be reproduced in higher organisms in order to be applicable to humans. That has recently been done in laboratory mice.

In one study, the polyphenols from blueberries, pomegranate, and green tea extracts were combined into a nutrient cocktail added to mouse chow and the effects on the animals’ life span and biochemistry were examined. Middle-aged mice were placed on one of three dietary patterns:

- Control mice were allowed to eat as much as they wanted;
- An “intermittent feeding” group was fed only every other day to simulate the life-extending properties of calorie restriction;
- A third group received the polyphenol mixture in addition to calorie restriction.

As expected, both the calorie-restricted and the calorie-restricted-plus-polyphenol groups significantly outlived the control animals. What was remarkable, however, was that the calorie-restricted group that also was fed the nutrient polyphenols significantly outlived those on calorie restriction alone. This demonstrated the additive effect of the polyphenol mixture onto the known life-extending effect of calorie restriction. The brains of the polyphenol-supplemented animals showed reduction in the expressions of deleterious life-shortening genes.

What makes this study so noteworthy is that the longevity benefits of calorie restriction are so robust that it is difficult to improve on them. Yet adding extracts...
from blueberry, pomegranate, and green tea enabled life span extension in a mammal greater than calorie restriction alone.

Of course, in this study it is difficult to discern which of the extracts (blueberry, pomegranate, or green tea) may have been responsible for the observed life-extending effects. All three are rich in the anthocyanins that individually extend the life spans of “lower” laboratory animals. They also have specific effects that counteract age-related diseases that contribute to shortening life spans.20

**Mechanisms Of Blueberries’ Life-Extending Properties**

How do blueberries manage to prolong life and improve function so dramatically? We’re nowhere near a definitive answer, given the complexity of the berries’ biochemistry, but some key points are beginning to emerge, centered on the body’s own ability to repair itself.

Blueberries and their polyphenol components appear to be exceptionally good at promoting repair of DNA strands and at optimizing immunity at the cellular level.7,21,22 Both of these functions are essential for preventing senescent and environmental impacts that lead to cancer,21,24 cardiovascular disease,25,26 and loss of metabolic control,27,28 that underlies obesity and diabetes.

DNA, the molecular blueprint that contains instructions for all life functions, is a delicate molecule that, despite many protective mechanisms, readily suffers damage from oxidation, radiation, toxic chemicals,29,30 and other sources of stress. All living cells have evolved mechanisms to identify and repair broken DNA strands, which if left unrepaired, promote cancer and early cell death.31 Numerous studies now reveal that blueberry extracts both prevent DNA damage and promote its rapid and accurate repair.7,32-40

**Human Study Corroborates DNA Protection**

In an impressive human study, healthy volunteers ingested either 300 grams of ground blueberries or a control jelly with no blueberry components.41 Blood samples were taken before, and one, two, and 24 hours after the subjects took the study supplement. At the end of one hour, the amount of oxidation-induced DNA damage in blueberry-supplemented volunteers fell by 18% compared with control subjects. What makes this study particularly impressive is that this single, albeit large, serving of blueberries was able to suppress this amount of DNA damage so quickly.

**Blueberries Boost Longevity**

- Blueberries and blueberry extracts have been proven to augment memory and cognitive abilities, but new research shows their effectiveness at decelerating the aging process in many organs.
- Studies in at least three animal species, including mammals, demonstrate compelling increases in longevity following blueberry supplementation.
- Cardiovascular diseases arise from many different factors; blueberry supplementation directly counteracts many of the most dangerous factors, including lipid disturbances, blood vessel stiffness, and vulnerability to infarction, thereby reducing the size and impact of tissue damage related to atherosclerosis.
- Metabolic syndrome, a collection of the consequences of modern lifestyles, threatens millions of lives each year through insulin resistance, high blood sugar, lipid anomalies, and hypertension. Blueberry constituents directly oppose each of metabolic syndrome’s components.
- Laboratory studies show that blueberry supplementation prevents or mitigates virtually each step in cancer development, from DNA damage to invasion of distant organs through metastasis.
- If you are seeking supplements to augment your body’s own natural defenses, to raise your disease resistance, and prolong your health span, give strong consideration to starting a blueberry extract supplement.
Cardiovascular Health

Successful longevity requires more than just DNA repair and slowing immunosenescence. Increasing cardiac health and reducing the risk of cancer and diabetes are also part of the equation. Blueberry compounds play an active role in reducing these risks as well.

Increasing one’s intake of berry polyphenols is a proven means of protecting the heart, blood vessels, and brain against cardiovascular diseases such as heart attack and stroke, which remain among the top causes of death in American adults.50,51

Blueberries contain one of the highest concentrations of such polyphenols among common fruits, and these compounds have been shown to inhibit the dangerous oxidation of low density lipoproteins (LDL), the so-called “bad” cholesterol.50 Lipid oxidation constitutes one of the first steps in developing “plaques” that grow and become cholesterol-filled, inflammatory lesions that ultimately block blood vessels.52,53

In rats, a year-long diet regimen containing 2% blueberry supplement following experimentally induced heart attacks (myocardial infarction, or MI, produced by tying off one of the heart’s main arteries) was able to completely arrest expansion of the damaged area of heart tissue.54 Expansion of the MI area55 is a leading cause of the heart failure56,57 that so often follows a heart attack and produces much of the death and disability we associate with heart attacks. In this study, the death rate over the one year of the study was 22% lower in the supplemented animals compared with the control group. Blueberry-supplemented animals’ hearts showed less of the deleterious remodeling of the heart chambers that is also a hallmark of heart attack damage in humans.58,59

Another seminal study in rats showed that a three-month blueberry-supplemented diet produced a 24%
in average systolic (top) and diastolic blood pressures, compared to smaller reductions of 1.5 and 1.2% in control patients. Supplemented patients also showed a reduction in oxidized LDL cholesterol seen in the earlier animal studies.

Metabolic syndrome poses a major health threat for all of us, consisting as it does of the deadly combination of obesity with disturbances in metabolism of both fats and sugars. Blueberries and their extracts offer world-class protection in this area, as we'll now see.

Reversing Markers Of Type II Diabetes

The epidemic of obesity has spawned a similar global rise in type II diabetes, with the resulting deadly condition often referred to as “diabesity.” Coupled with the consequences of a high-fat diet and little exercise, these preventable conditions produce metabolic syndrome, (abdominal obesity, glucose intolerance or “prediabetes,” elevated blood pressure, and abnormalities in lipid profile).

Metabolic syndrome is now known to increase the risks for cardiovascular disease, diabetes, cancer, and neurodegenerative disorders. Inflammation is an inevitable characteristic of metabolic syndrome, which further increases the deadliness of its impact.

Blueberries, with their high content of polyphenols, offer a potent and natural antidote to metabolic syndrome.
At the cellular level, blueberry extracts (including those of root, stem, leaf, and fruit) appear to improve glucose transport into cells, a critical mechanism for lowering blood sugar.\textsuperscript{73} Blueberry fruit extracts also enhance formation of new, insulin-producing pancreatic beta cells, which would otherwise die off as a consequence of high glucose levels.\textsuperscript{73}

Specifically, the researchers measured the critical ability of cells in the pancreas to produce insulin in response to high glucose levels in the bloodstream. Scientists have discovered that high blood glucose levels damage insulin-producing cells in the pancreas over time, but if these same cells are treated with blueberry stem, leaf, and fruit extracts, the number of viable cells increases.\textsuperscript{73} This is a very desirable feature especially for people with early type II diabetes, in whom some sensitivity to native insulin production still remains.

Furthermore, the researchers tracked the source of the improved insulin response to a remarkable increase in replication of the remaining, growth-arrested beta cells by nearly 3-fold. In addition, they found that blueberry extracts from stem, leaf, and fruit could prevent the glucose-induced toxicity and subsequent death of neuronal cells by up to 33\%. This finding has tremendous implications for prevention of neurodegenerative diseases such as Alzheimer’s, which has been called “type III diabetes” to acknowledge the important role played by glucose toxicity.\textsuperscript{74}
Along with pterostilbene, the anthocyanins in blueberries exert a spectrum of effects all of which reduce the risk that a cell will become cancerous, and that an incipient cancer will grow, invade tissue, and metastasize to other body sites.82 Documented effects of blueberry bioactive molecules include:

- Prevention of DNA damage,7,32,35,83
- Arrest or alteration of the cell proliferation cycle to reduce the growth rate of cancerous cells,7,82,84
- Induction of the normal “programmed cell death” routine that is abnormal from malignant cells, allowing them to proliferate infinitely,7,83-88
- Prevention of tissue invasion and inhibition of metastasis by down-regulating “protein-melting” enzymes used by cancer cells to invade.82,87-91

Summary

Plants that live in challenging environments produce a wide array of stress-reducing nutrients to help them cope with extremes of temperature, humidity, nutrient availability, predators, and other threats. When humans consume those molecules, we get the benefit of that genetic stress resistance, which helps our bodies fight off major threats to our own well-being.

Blueberries, which grow in harsh, sandy soils, often in dry conditions and at high altitudes, contain the highest known concentrations of many such bioactive molecules. Research shows that, in addition to their ability to protect brain tissue and function from the ravages of aging, blueberries contribute to better health in most body systems.

Blueberries and their extracts now show promise in preventing and mitigating human cardiovascular disease, metabolic syndrome (which includes obesity, lipid disturbances, and hypertension), and cancer. Daily supplementation with standardized blueberry extracts may help ward off life-shortening degenerative diseases currently treated with prescription drugs.

The most exciting finding, however, is that blueberry-pomegranate-green tea extracts may enable you to live significantly longer—even if you are already practicing calorie restriction. ●

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

References


AMPK is an enzyme that serves as the body’s “master regulating switch.” It inhibits multiple degenerative factors by revitalizing aging cells. Found in every cell, AMPK promotes longevity factors that have been shown to extend life span in numerous organisms. Increasing AMPK signaling “turns off” many damaging effects of aging, thus enabling cells to return to their youthful vitality. Life Extension scientists have compiled years of research to create AMPK Activator, a specialized dual-extract formulation that supports AMPK activation for health optimization. This natural formula supports AMPK enzymatic activities required to safely support a more youthful cellular environment.

**Importance Of AMPK**

Greater AMPK (adenosine monophosphate-activated protein kinase) activation has been shown to help target damaging factors of aging. Studies show increased AMPK activity supports reduced fat storage, new mitochondria production, and the promotion of healthy blood glucose and lipids already within normal range.

**Gynostemma Pentaphyllum**

An extract of the plant Gynostemma pentaphyllum was traditionally used in Asian medicine to promote longevity and scientists now know why — G. pentaphyllum promotes AMPK activation! In one of many studies showing a wide variety of benefits, researchers documented a 1-inch reduction in abdominal circumference in overweight individuals who took 450 mg daily of G. pentaphyllum extract for 12 weeks.

**Trans-Tiliroside**

Trans-tiliroside, extracted from plants such as rose hips, also boosts AMPK activation, but triggers different downstream metabolic benefits than G. pentaphyllum. Among its many benefits, a low equivalent dose of 56 mg daily trans-tiliroside has been shown by researchers in preclinical studies to promote healthy blood glucose levels and body weight already within normal range.

**References**


AMPK Activator
A NEW PARADIGM IN CONTROLLING AGING

The suggested daily dosage of AMPK Activator is to take two capsules with the first meal of the day and one capsule with the second meal. Three capsules provide:

| ActivAMP™ Gynostemma pentaphyllum extract | 450 mg |
| Rose hip extract | 1,119 mg |
| Standardized to trans-tiliroside | 56 mg |

Anti-Aging Discovery That Cannot Be Overlooked

Scientists uncovered the cell-energizing effect of AMPK in the 1970s. Since then, an exponential volume of data (over 7,500 published studies) documents the critical role that activated AMPK plays in maintaining life-sustaining cellular functions.

Those seeking to meaningfully extend their healthy life span should ensure they optimally activate their cellular AMPK. The reason this is so important is that in response to aging, excess calorie consumption, and/or low levels of physical activity, AMPK activity markedly declines.

A targeted way of reversing cellular depletion of this critical enzyme is to take the new AMPK Activator formula that comprises a dual-extract, plant-based formulation.

A bottle of 90 vegetarian capsules of the new AMPK Activator retails for $48. If a member buys four bottles, the price is reduced to $33 per bottle.

To order AMPK Activator at low Super Sale prices, 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.
Studies show that blueberries delay the aging process through a variety of mechanisms, including repairing DNA damage and favorably modulating genes associated with aging.\textsuperscript{1,2}

Chockfull of anthocyanins, the blueberry provides health-boosting benefits shown to:

- Enhance heart health\textsuperscript{3}
- Maintain brain function\textsuperscript{4,5}
- Sustain healthy blood sugar levels already within normal range\textsuperscript{6}
- Support smooth firm skin\textsuperscript{7}
- Maintain a healthy weight\textsuperscript{8} and stable cholesterol levels already within normal range\textsuperscript{9}

\textbf{Blueberry extract} is even more potent than the whole berry or juice, providing greater metabolic support throughout the entire body and without the excess sugar of raw fruit.\textsuperscript{10} Life Extension\textsuperscript{\textregistered}'s \textbf{Blueberry Extract Capsules} consists of only concentrated extracts from wild blueberries, which possess up to 10 times the nutritional capacity of cultivated berries.

\textit{AuroraBlue}® is a registered trademark of Denali BioTechnologies, Inc.

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\textbf{Retail Price} & \textbf{Member Price} \\
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1 bottle & $22.50 & $16.88 \\
4 bottles & $20 each & $15 each \\
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\textbf{References}

To order \textbf{Blueberry Extract Capsules}, call 1-800-544-4440 or visit \url{www.LifeExtension.com}

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OLIVE OIL OFFERS CARDIOVASCULAR PROTECTION
Olive oil has been pinpointed as a major source of the cardiovascular benefits long associated with a Mediterranean diet. A recent study of a healthy Mediterranean population showed that olive oil consumption accounted for as much as a 44% reduction in cardiovascular deaths compared to those who didn’t use olive oil.

But did you know that if you’re not consuming the right type or amount of olive oil, you might not be getting much benefit at all? This is because different types of olive oil have varying amounts of polyphenols. Although olive oil’s health benefits have historically been attributed to its high monounsaturated fatty acid content, new evidence suggests it’s the polyphenols in olive oil, which have anti-inflammatory properties, that may contribute most to the oil’s cardiovascular benefits.
live oil polyphenols have been shown to have direct actions in improving blood lipids and *endothelial function*, effects that support artery health and normal blood pressure. In turn, these benefits have been linked to reduced risk of heart attack, stroke, and sudden cardiac death.

Now that we understand the specific components in olive oil that contribute to cardiovascular health, it gives new clarity to the best type of olive oil to consume and how often we should consume it to get the most benefit.

**Beneficial Components Of Olive Oil**

For years it was believed that olive oil's cardiovascular benefits were derived from its high monounsaturated fatty acid content. This would have made sense, since olive oil is one of the oils highest in monounsaturated fatty acid, primarily *oleic acid*, which has been shown to increase high-density lipoprotein (HDL or "good") cholesterol and decrease low-density lipoprotein (LDL or "bad") cholesterol.5

A decade ago, the FDA even credited olive oil's high monounsaturated fatty acid content as the underlying reason for the benefits associated with a study showing that consuming 2 tablespoons of olive oil daily reduces the risk of coronary heart disease. But there's a catch. If oleic acid were the main driver of olive oil's expansive cardiovascular benefits, we'd see the same benefits with other oils high in oleic acid, such as canola oil. This is not the case, however.5

More recently, a rapidly growing body of research suggests it is the minor components of olive oil—specifically polyphenols, which comprise just 1-2% of the content of virgin olive oil—that may contribute most to the oil's beneficial effects.4 To break that down even further, *hydroxytyrosol* is one of the polyphenols that occurs in the highest amount in olive oil and has been shown to have important cardiovascular benefits.6,7

A number of studies identify how olive oil polyphenols have direct actions in reducing cardiovascular disease risk.

**Improves Lipid Profiles**

One of the main ways that olive oil may reduce cardiovascular risk is by lowering total and LDL cholesterol. About a decade ago, in a study published in *Medical Science Monitor*, older adults who were given 2 tablespoons of extra-virgin olive oil daily for six weeks had an average 31.5 mg/dL reduction in their total cholesterol and a 30 mg/dL reduction in LDL cholesterol.9 They also experienced a significant decline in their total-to-HDL and LDL-to-HDL ratios.11

Since then, scientists have found strong clinical evidence that it's the polyphenol content in olive oil that plays a significant role in olive oil's ability to support healthy blood lipids.9 This was demonstrated by the *Eurolive Study*, a study specifically designed to assess olive oil's health benefits. For the study, healthy men took 25 mL (about 1½ tablespoons) of high-, moderate-, or low-polyphenol olive oil daily. After three weeks, consumption of high-polyphenol olive oil (virgin) reduced levels of oxidized LDL cholesterol by an average of 3.21 U/L, whereas low-polyphenol (refined) olive oil didn't reduce oxidized LDL at all.12

Reducing oxidized LDL cholesterol levels is important because oxidized LDL is a very strong predictor of cardiovascular events, such as heart attack, even in apparently healthy individuals.13 When LDL is oxidized, it can easily enter the walls of the arteries, causing damage to the thin, interior lining of arteries called the *endothelium* and promoting inflammation, which are the early steps in *atherosclerosis*.13

The same *Eurolive Study* demonstrated that the polyphenols in olive oil increase beneficial HDL cholesterol. Those taking the high-polyphenol olive oil saw an average 1.74 mg/dL increase in HDL cholesterol, while those consuming olive oil with a medium polyphenol content saw a 1.22 mg/dL increase, and those consuming olive oil with a low-polyphenol content saw only a 0.98 mg/dL increase in HDL cholesterol.10 To put this in perspective, a 1 mg/dL increase in HDL has been associated with a 2-3% decrease in coronary heart disease risk.9

The greater the polyphenol content, the greater its ability to increase HDL cholesterol levels.12
**Is Your HDL Cholesterol Functioning Properly?**

While most people are familiar with the importance of raising HDL cholesterol levels, fewer are aware of the importance of boosting HDL $function$. In reality, HDL's ability to reduce the risk of heart disease depends not only how much HDL is available, but also on how well it functions. Olive oil helps increase HDL and improves its function.

HDL's job is to remove bad cholesterol from white blood cells called **macrophages** so that it can be eliminated from the body through bile, thus lowering overall cholesterol. How well HDL carries out this function is called **HDL efflux capacity**.

A 2012 human clinical trial found that olive oil polyphenols enhance the expression of genes that trigger this process. Two years later, Spanish researchers published the first direct evidence that consuming polyphenol-rich olive oil enhances HDL function. In a crossover study, when European male volunteers consumed 25 mL of polyphenol-rich olive oil daily for three weeks, they experienced a 3.05% increase in **cholesterol efflux capacity**. In contrast, consuming a low-polyphenol olive oil was associated with a 2.34% decrease in cholesterol efflux capacity.

The beneficial results seen in those consuming the polyphenol-rich olive oil diet may have been promoted by the increased number of polyphenols bound to HDL, protecting it from **oxidation**. Because oxidized HDL cholesterol is more rigid, it has a lower cholesterol efflux capacity.

This same study showed that another way olive oil polyphenols help improve the function of HDL is by enhancing the **size of HDL particles**. This is beneficial because large HDL particles (called HDL$_2$) are better able to remove cholesterol from arterial plaque compared to small HDL particles (called HDL$_3$). The study showed that men who consumed polyphenol-rich olive oil had significantly higher HDL$_2$ levels and significantly lower HDL$_3$ levels.

**Endothelial Function**

Another way olive oil exerts its beneficial cardiovascular effects is by improving **endothelial function** of arteries. Endothelial **dysfunction**, an early step on the path to coronary artery disease—and ultimately, heart attack and stroke—occurs when arteries are unable to perform in ways that help maintain healthy blood flow and normal blood pressure.

**Endothelial dysfunction** has not only been found in patients with coronary artery disease, but also in those with type II diabetes, hypertension, obesity, high cholesterol, and metabolic syndrome (a cluster of conditions that increase the risk of cardiovascular disease and diabetes).

In a 2013 double-blind clinical trial, US and Italian researchers found that consuming 30 mL (2 tablespoons) of polyphenol-rich olive oil daily for four months significantly improved endothelial function in adults with atherosclerosis.

### What You Need To Know

**Olive Oil Provides Significant Cardiovascular Protection**

- **Although long recognized as a beneficial component of the Mediterranean diet,** new evidence shows olive oil is a major driver, by itself, in reducing cardiovascular disease risk factors, including poor lipid profiles, hypertension, and endothelial dysfunction.

- **The natural polyphenols in olive oil, such as hydroxytyrosol, perform specific actions that provide extensive cardiovascular protection beyond the monounsaturated fat the oil contains.** Since most polyphenols are lost in the refining process, choose a high-polyphenol olive oil (virgin or extra virgin) rather than a refined one.

- **In studies, benefits of olive oil intake are significantly greater at the upper end of intake, which is typically 2 tablespoons per day.** That amount is doable if you make a concerted effort to replace cooking oils, dressings, and spreads with ones based on olive oil.
Excitingly, olive oil improves endothelial function in as little as two hours after consumption.\textsuperscript{20} However, plant polyphenols don’t stick around in the blood very long, so the study authors proposed that ingredients in olive oil likely alter the expression of long-term endothelial modulators, such as \textit{nitric oxide synthase}.\textsuperscript{20} Endothelial nitric oxide synthase is an enzyme that generates \textit{nitric oxide} (NO).\textsuperscript{21} Nitric oxide is a protective molecule that signals arteries to expand so blood can flow through more easily, thus lowering blood pressure.\textsuperscript{22}

Even more encouraging is evidence that polyphenols in olive oil can interact with a hereditary gene variant of endothelial nitric oxide synthase (the \textit{NOS3 Glu298Asp} polymorphism, which is a risk factor for hypertension and coronary artery disease), to improve endothelial function after meals.\textsuperscript{19} So, even if genetics are not in your favor, olive oil may help.

### Blood Pressure

\textit{Hypertension} (high blood pressure) is a major risk factor for coronary heart disease, congestive heart failure, and stroke.\textsuperscript{24} The most exciting news about olive oil’s effect on blood pressure isn’t simply that it helps reduce hypertension (which it does)—it’s that it does it so well that it could help eliminate the need for blood pressure drugs in some people.

In 2000, the first long-term study examined the effects of consuming a diet high in extra virgin olive oil might have on blood pressure and found that it could significantly decrease hypertension medication requirements.\textsuperscript{24} In this crossover study, adults taking antihypertensive medication who were given olive oil for six months had a 48\% decrease in antihypertension medication requirements compared to only a 4\% decrease in antihypertension medication dosage requirements when consuming a diet high in polyunsaturated fat from sunflower oil, which does not have the same rich polyphenol content as olive oil.\textsuperscript{24} As an added bonus, eight people following the olive oil-rich diet were eventually able to control their hypertension without any medication at all, while no one following the sunflower oil-rich diet was able to discontinue blood pressure medication.

Recent research has helped uncover at least part of the reason for olive oil’s effects on blood pressure—and it points right back to its polyphenol content.\textsuperscript{25} In a one-year study of participants in the \textit{PREDIMED} (Prevention with the Mediterranean Diet) trial, which included adults 55 to 80 at high risk of heart disease, the researchers found that increased \textit{extra virgin olive oil} intake, as part of a Mediterranean diet, decreased blood pressure through high \textit{polyphenol} consumption.\textsuperscript{25}
Because olive oil is a natural product, its polyphenol content is dependent upon a number of factors such as the age of the olives used, growing conditions, processing conditions, soil, temperature etc. Since extra virgin olive oil is the first pressing and uses the finest olives, it is assumed that this type of oil contains the highest polyphenol content. Health conscious individuals should thus use extra virgin olive oil whenever possible as part of their diet.

High potencies of olive oil polyphenols have long been contained in dietary supplements used by most Life Extension members.

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

OLIVE OIL OFFERS CARDIOVASCULAR PROTECTION

Summary

The benefits of olive oil not only come from its rich profile of monounsaturated fatty acids, but most likely even more so from the natural compounds, including polyphenols, that olive oil maximally possesses when unrefined.

Studies have shown that polyphenols in olive oil, including hydroxytyrosol, can help reduce oxidation of LDL cholesterol, thus helping to protect against atherosclerosis. Olive oil polyphenols have also been found to increase HDL cholesterol levels and improve its ability to remove cholesterol from arteries for transport to the liver and eventual elimination through the bile.

Adding another layer of cardiovascular support, polyphenol-rich olive oil has been found to improve the function of the endothelium of arteries, increasing release of nitric oxide, which signals blood vessels to relax and helps lower blood pressure. Research also suggests regular intake of high-polyphenol olive oil may help reduce requirements for blood pressure medication.

Because olive oil is a natural product, its polyphenol content is dependent upon a number of factors such as the age of the olives used, growing conditions, processing conditions, soil, temperature etc. Since extra virgin olive oil is the first pressing and uses the finest olives, it is assumed that this type of oil contains the highest polyphenol content.

Health conscious individuals should thus use extra virgin olive oil whenever possible as part of their diet. High potencies of olive oil polyphenols have long been contained in dietary supplements used by most Life Extension members.

Heart-Healthy Components Of The Olive Leaf And Oil

Although extra virgin olive oil’s cardiovascular contributions to the Mediterranean diet were long attributed primarily to its rich monounsaturated fat content, we now know other components of the olive plant promote cardiovascular health even more. The following olive compounds are some of the most important for your heart:

- **Oleuropein**, which helps lower blood pressure, fight free radicals, and has anti-inflammatory effects. It is most abundant in olive leaves and is available as an extract in supplement form.

- **Phytosterols**, present in extra virgin olive oil and known for their ability to decrease LDL cholesterol levels in the blood by interfering with cholesterol absorption in the small intestine.

- **Polyphenols**, especially hydroxytyrosol and tyrosol, but also verbascoside, which are most abundant in extra virgin olive oil and help fight free radicals, lower blood pressure, and slow atherosclerosis.
OLIVE OIL OFFERS CARDIOVASCULAR PROTECTION

References


Profound loss of connections between nerve cells in the brain is one of the major hallmarks associated with neurodegeneration and memory impairment. Previous research has shown that magnesium is a critical factor in controlling synaptic density.

To combat this, an innovative form of magnesium called Neuro-Mag™ has been developed. The magnesium-L-threonate contained in Neuro-Mag™ has been shown to specifically target multiple areas of the aging brain. In fact, pre-clinical models show that the magnesium-L-threonate contained in Neuro-Mag™ boosted levels of magnesium in spinal fluid by 15% versus no increase from conventional magnesium.

New Cognitive Benefits Revealed!

Although research into the role of magnesium in the brain dates back 70 years, scientists continue to uncover its comprehensive benefits for cognitive function. Studies using magnesium-L-threonate show this unique form of magnesium maintains the quantity of synaptic connections between brain cells and inhibits the dysregulation of signaling pathways.

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

This same brain-health supporting magnesium is also available in a natural lemon flavor called Neuro-Mag™ Magnesium-L-Threonate with Calcium and Vitamin D3 Powder. In addition to its fresh lemon flavor, the one-scoop per day serving supplies the same amount of magnesium as the capsules plus 500 mg of highly soluble calcium and 1,000 IU of vitamin D3.

A bottle containing 90 vegetarian capsules of Neuro-Mag™ Magnesium-L-Threonate or a jar containing 30 scoops of Neuro-Mag™ Magnesium-L-Threonate with Calcium and Vitamin D3 Powder retails for $40. If a member buys 4 units, the price is reduced to $27 per unit.

References
How Does Your Fish Oil Compare?

There are hundreds of fish oil brands on the commercial marketplace. Only one brand incorporates lifesaving findings to provide optimal omega-3 and olive oil benefits in one formula.

Studies published in 2014 confirm what Life Extension® espoused a decade ago when it introduced purified fish oil fortified with olive polyphenols.

Research clearly shows that a combination of fish and olive oil provides better effects than fish oil alone. Yet most people today take only low-potency fish oil.

Sesame Improves Fish Oil's Benefits

When sesame lignans are supplemented with fish oil, the omega-3 benefits are augmented. Sesame lignans help guard against lipid peroxidation, thereby extending the stability of DHA in the body. Sesame also directs fatty acids toward pathways that can help with inflammatory reactions.

Super Omega-3 contains purified fish oil and olive fruit polyphenols plus standardized sesame lignans.

5-Star Rated Purity, Potency, And Stability

To ensure the purest, most stable, and easy-to-tolerate fish oil, Super Omega-3 is molecularly distilled. It enjoys the highest 5-star rating for purity, quality, and concentration from the renowned International Fish Oil Standards (IFOS) program.

Obtain Super Omega-3 At Below Wholesale Prices

A bottle containing 120 softgels of Super Omega-3 retails for $32. The regular member price for a single bottle is $24.

If a member buys four bottles of Super Omega-3, the cost per bottle drops to $21.

When a member buys 10 bottles, the cost per bottle is reduced to $17.05.

Non-GMO.

Note: While the health benefits of omega-3s from fish oil are universally recognized, the critical importance of olive oil in maintaining healthy vascular function remains largely overlooked. Super Omega-3 provide the equivalent polyphenol content of 4 to 6 tablespoons of extra virgin olive oil.

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

- EPA (eicosapentaenoic acid) 1,400 mg
- DHA (docosahexaenoic acid) 1,000 mg
- Typical DPA (docosapentaenoic acid) 156 mg
- Olive Extract (fruit and leaf) 600 mg
- providing (39 mg polyphenols, 10.4 mg hydroxytyrosol/tyrosol, 8.8 mg verbascoside/oleuropein)
- Sesame Seed Lignan Extract 20 mg

References


To order Super Omega-3, 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.
Advanced Olive Leaf Vascular Support with Celery Seed Extract is a unique, dual-action formulation containing two bioactive compounds that support optimal cardiovascular health.

1. Olive Leaf extract contains oleuropein, a natural compound that supports healthy blood pressure already within the normal range. Researchers using 1,000 mg per day of olive leaf extract in a controlled clinical trial documented an average 11 mm Hg decline in systolic readings and a 4.8 mm Hg drop in diastolic readings within eight weeks.

2. Celery seed extract contains 3-n-butylphthalide (3nB), which supports a healthy inflammatory response that is critical to maintaining a healthy circulatory system. Celery seed also helps minimize the flow of calcium into the muscle cells lining blood vessels, promoting healthy blood pressure already within the normal range.

In a controlled clinical trial, researchers using an equivalent amount of active compounds as found in this celery seed extract documented an average 8.2 mm Hg decline in systolic readings and 8.5 mm Hg drop in diastolic readings—in just six weeks!

While olive leaf and celery seed extracts show impressive support individually, Advanced Olive Leaf Vascular Support with Celery Seed Extract combines two bioactive compounds to provide dual-action vascular support.

The suggested daily dose of two vegetarian capsules of Advanced Olive Leaf Vascular Support with Celery Seed Extract provides:

<table>
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<th>Component</th>
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<tr>
<td>Benolea® Olive extract (leaf)</td>
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<tr>
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<td>(160 mg)</td>
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<tr>
<td>Celery3nB™ Celery seed extract</td>
<td>300 mg</td>
</tr>
<tr>
<td>(standardized to 42.5% phthalides)</td>
<td>(butylphthalide and sedanenolide (127.5 mg))</td>
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A bottle of 60 vegetarian capsules of Advanced Olive Leaf Vascular Support with Celery Seed Extract retails for $36. If a member buys four bottles, the price is reduced to $24 per bottle.

References
1. Phytother Res. 2008 Sep;22(9):1239-42.

Benolea® is a registered trademark of Frutarom Netherlands B.V.
Celery3nB™ is a trademark of Anderson Global Group, LLC.

To order Advanced Olive Leaf Vascular Support with Celery Seed Extract, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
MILK THISTLE EXTRACT PROVIDES LIVER PROTECTION
Most people think liver disease is caused by excess alcohol or hepatitis viruses.

The reality is that the leading cause of liver disease today is excess weight.\(^1\)\(^-\)\(^4\)

This form of liver degeneration associated with obesity and high blood sugar is called nonalcoholic fatty liver disease (NAFLD).\(^1\)\(^,\)\(^5\)

With epidemic levels of obese and diabetic Americans, doctors are encountering never before seen record numbers of liver disease.

One startling statistic is that 48% of obese teen boys are estimated to have NAFLD.\(^6\) Nonalcoholic fatty liver disease is now the most common cause of chronic liver disease in children and adolescents in the United States due to obesity, insulin resistance, and metabolic syndrome.\(^7\) That means that these young lives might be shortened and compromised due to liver disease that will haunt them for the rest of their lives.

With no approved pharmacological treatments, lifestyle and dietary therapies remain the only hope for stemming the tide of NAFLD in children, adolescents, and adults.\(^7\)\(^,\)\(^8\)

Fortunately, compounds like silymarin found in the milk thistle plant have undergone extensive research for their ability to support liver health. A growing list of studies shows the ability of silymarin to protect against damage inflicted by nonalcoholic fatty liver disease (NAFLD).

Silymarin has even been found to have the potential to reverse the dangerous progression of NAFLD that leads directly to liver fibrosis that destroys most of the liver’s natural functions.
Milk Thistle Extract Prevents And Reverses Liver Disease

Nonalcoholic fatty liver disease (NAFLD) is caused by the excess accumulation of fat in the liver. It currently affects a staggering one in three Americans and can lead to liver fibrosis, cirrhosis, and liver failure, while sharply raising the risk of liver cancer.1,9-11

Due to the increasing prevalence and severity of fatty liver disease, its treatment should be an urgent priority in modern American healthcare. Yet surprisingly little attention is being given to the prevention of liver disease. Unfortunately, there are no good treatments for liver disease once it has become established. Physicians rarely focus on liver health except in advanced cases.

Liver disease is a major cause of disability and death worldwide, yet it often remains underdiagnosed and underinvestigated.12 Similar to other degenerative diseases, much of the damage and destruction that contributes to liver disease is related to inflammatory and oxidative changes in the liver.13-15

That is precisely what makes silymarin such a potent agent for liver protection. Silymarin has a broad spectrum of anti-inflammatory,16,17 anticancer, and specific liver-protective effects that have been shown to guard against the broad spectrum of threats to the liver and other tissues.18-22

Laboratory studies have uncovered numerous ways in which silymarin and its active constituent silibinin help protect the liver, including boosting the liver cells' own natural protective processes, while simultaneously decreasing a number of inflammatory mediators (these include iNOS, tumor necrosis factor alpha,23,24 interleukins-6 25 and 1 beta,26,27 cyclooxygenase-2 [COX-2], and nuclear factor kappa-beta [NF-kappaB]).28,29

These beneficial properties are believed to be responsible for silymarin's ability to prevent, and in some cases reverse, liver disease—all of which represent inflammation-induced accelerated aging.30,31

The Real Leading Cause Of Liver Damage

Liver disease was historically considered to be the result of excessive alcohol consumption. However, the single leading cause of liver disease is the direct result of excess weight.3,4,12,32 Nonalcoholic fatty liver disease (NAFLD) is closely associated with obesity and high blood sugar.1

NAFLD is defined by the presence of excessive fat stores in liver cells, which normally contain very little fat. Between 30 to 50% of adults in developed countries suffer from NAFLD—and most don’t know it.1,9,11

This is worrisome, since up to one-third of NAFLD patients will progress to a more severe condition known as nonalcoholic steatohepatitis, or NASH.1,9,10 NASH is inflammation of the liver caused by excess fat. This type of liver injury leads directly to liver fibrosis, or scarring, which destroys most of the liver's natural functions.1,33 We also know that inflammation in general promotes cancer, which helps explain why NASH is now considered a major risk factor for hepatocellular carcinoma, the most common form of primary liver cancer.1,15,34

Fortunately, silymarin's anti-inflammatory action makes it especially powerful against NAFLD, as evidenced from a broad range of laboratory and clinical studies.

Animal Studies

In a study published in International Journal of Molecular Medicine, silymarin treatment of obese, diabetic rats was shown to help prevent liver fibrosis by decreasing activation of stellate cells. These cells produce fibrosis (scarring of the liver) thereby indicating the beginning of liver failure.15,36 These antifibrotic effects are attributed to the ability of silymarin to disrupt inflammatory cytokines—particularly TNF-alpha, which is known to drive the progression of NAFLD to the more deadly NASH.36-38

Another study found that when rats fed a high-fat diet to develop NAFLD were supplemented with silibinin, they experienced a significant reduction in the features associated with NAFLD, including microscopic changes to the liver, insulin resistance, and dysfunction of glucose metabolism.19
In the same study, researchers incubated liver cells with fat to encourage them to fill with lipids (simulating NAFLD). Researchers found that the addition of silibinin to the culture reduced lipid accumulation, restored cells’ viability, and lowered production of the protein resistin, a marker of insulin resistance, which is significantly associated with NAFLD and metabolic syndrome.

Other animal studies have shown a reduction in mean liver weight (a measure of fat accumulation) in mice whose NAFLD had progressed to dangerous NASH, demonstrating that milk thistle extracts can in fact reverse this deadly progression.39

**Human Studies**

Human studies of silymarin in NAFLD are equally encouraging. The first such study, published just three years ago, examined vitamin E along with a complex called silybin phytosome complex, which consists of silybin plus phosphatidylcholine, a substance that enhances bioavailability. After just 12 months, the patients experienced significant improvements in markers of liver cell damage, glucose tolerance, and the microscopic structure of the liver; no such changes were seen in placebo recipients.8

Surprisingly, the body mass index (BMI) of the patients in the study, which had previously been elevated, normalized in 15% of treated subjects, but only in 2% of placebo patients. In addition, when patients with hepatitis C infection were treated with the supplement, they showed improvement in markers of fibrosis, while no such change was seen in hepatitis C patients who received the placebo, a demonstration of the multiple targets on which silymarin and silybin can act.

In a similar study, when 72 patients with NAFLD took a supplement containing silymarin, blood markers of liver damage fell significantly by about 45% in just three months.40 During that time period, researchers also noted significant improvement in the ultrasound appearance of the liver before and after treatment.

But one of the most exciting studies came in late 2014, when researchers published the first demonstration in humans of silymarin’s potential to reverse NASH, the dangerous progression of NAFLD.41

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**Milk Thistle Extract Provides Liver Protection**

- Threats to liver function include weight gain, poor blood sugar control, metabolic syndrome, toxins in food and the environment, and several dangerous viruses.
- One of the leading causes of liver disease today is nonalcoholic fatty liver disease (NAFLD), which while producing no symptoms, can progress to liver fibrosis, cirrhosis, and premature death.
- No drug is available to cure or even adequately treat liver disease once it develops.
- Silymarin, a flavonoid-rich extract of milk thistle plant seeds, has specific liver-protective properties.
- Studies show that silymarin fights oxidative damage and inflammation, with real impact on prevention of NAFLD and other liver diseases.
- Silymarin also directly blocks hepatitis C virus infection and may prevent virus replication.
- Early results show potential cancer-chemopreventive effects of silymarin in lab studies.
- Daily supplementation with silymarin from milk thistle might be a great way to maintain liver health and resistance to accelerated aging from metabolic syndrome, diabetes, and obesity.
Given the lack of drug options for NAFLD, scientists have also attempted to evaluate drugs used in diabetes as a means of controlling the progress of the disorder. In one such study, silymarin proved superior to two such drugs (metformin and pioglitazone) in reducing blood markers of liver damage.34

Obesity And Diabetes

In addition to having a direct impact on liver disease, silymarin has also been found to help battle conditions that can contribute to liver disease, including obesity and diabetes.

Underlying the epidemic of NAFLD in America is the epidemic of obesity, which is so closely related to development of type II diabetes that the two are commonly referred to as a single problem: diabesity.43 Both diabetes and obesity contribute to metabolic syndrome, which accelerates aging by contributing to premature cardiovascular, neurodegenerative, and malignant diseases.44-47

Fortunately, silymarin is showing tremendous promise in protecting the liver against the age-accelerating impact of diabesity and metabolic syndrome. Studies of obese and/or diabetic animals show that silymarin and silibinin lower cellular and circulating levels of oxidative stress and inflammatory markers. These actions result in greater responsiveness to insulin, better glucose control, diminished fat production, better endothelial function (a risk factor for cardiovascular disease), and improved cognition, when compared with untreated animals.22,50-54

For the study, patients with existing NASH supplemented with 210 mg of silymarin daily and underwent blood tests before and after treatment. After eight weeks, supplemented patients had a 58% reduction in the liver enzyme ALT, while placebo recipients experienced a 38% reduction, a significant difference; similar decreases were found in other liver enzyme markers.

(Note: Placebo patients often exhibit some benefit when participating in clinical studies because they initiate changes on their own, such as losing weight, due to the education they receive from the paperwork they sign and the physician interactions that occur. In other words, patients are told their poor lifestyle choices have created a life-threatening condition and many instinctively take steps to correct their problem.)
But in one of the most remarkable animal studies to date, researchers found that silymarin can induce a true reversal of diabetic neuropathy, which is painful nerve damage caused by chronic blood sugar elevations. This is an especially exciting development since diabetic neuropathy has so far proved resistant to conventional drug treatment.

Diabetes also damages kidney tissue and leads to impaired kidney function, a condition called diabetic nephropathy, which is a leading cause of kidney failure. In rat studies, silymarin treatment has been found to markedly restore kidney tissue damaged by diabetes and significantly improve impaired kidney function, largely by restoring diminished levels of natural enzyme systems.21,54

Studies in Human Diabetics Reinforce Lab Findings

Studies published between 1997 and 2007 found that diabetic subjects taking 600 mg a day of silymarin experienced numerous benefits, including significant decreases in fasting blood sugar, mean daily blood sugar, sugar in the urine, and long-term measures of glucose exposure (such as hemoglobin A1c), as well as in total insulin requirements in insulin-using patients.56-58 They also experienced improved liver function, as shown by decreases in triglycerides, total and LDL (“bad”) cholesterol, and enzyme markers of liver damage.57

Studies have also found that silymarin can help enhance the benefits of standard diabetic drugs. For example, in patients whose diabetes was poorly controlled on the prescription drug glibenclamide, the addition of 200 mg a day of silymarin for 120 days produced improvements over the drug alone, while also significantly reducing body mass index (BMI).55 And another study found that when silymarin was added to standard drugs for diabetic nephropathy (kidney disease), patients experienced improved urinary markers of kidney function, inflammation, and oxidative damage beyond that produced by the drug itself.59

Enhancing Silymarin With Phospholipids

Silymarin holds tremendous potential for treating and preventing chronic liver diseases. Unfortunately, the extract alone is poorly soluble in fat, which slows its transport across lipid-rich cell membranes and may diminish its availability to the body (bioavailability) following oral dosing.77

This problem can be readily overcome by allowing the silybin components to form complexes with phospholipids, which are detergent-like molecules that facilitate the mixing of water- and fat-soluble compounds.8,77-79

Studies in both animals and humans show that a complex of silybin plus the phospholipid phosphatidylcholine produces greater oral bioavailability than pure silybin and silymarin.78,79 The impact of this phytosome complex was demonstrated quantitatively in dogs, which showed increases in the maximum concentration of silybin by 2.7-fold and in the total 24-hour accumulation of silybin by 3-fold, and shortened the time to achieve maximum concentration to 60% of that of silybin.80
While no clinical data on silymarin as a cancer-preventive agent are yet available, the accumulation of basic laboratory findings is compelling and provides hope for the near future. For instance:

- Laboratory studies show that silymarin blocks proliferation in colon, lung, cervical, prostate, and ovarian cancer cell lines in culture.  
- Silymarin has been found to have a synergistic effect with known cancer chemotherapy drugs.  
- Silymarin blocks the master inflammation-generating complex NF-kappaB, decreasing further signaling that is regulated by this inflammatory molecule.  
- Silymarin restores cancer cells’ ability to die by apoptosis, which allows the body’s own scavenging and surveillance systems to clean up and prevent further tumor growth.  
- Silymarin can inhibit the invasiveness of certain types of cancer cells, a major step in limiting the severity of a malignancy.

Excitingly, when silibinin was orally administered in mice bearing human lung cancer grafts, it sharply decreased the overall volumes of the resulting tumors, even in tumors known to be resistant to standard chemotherapy. Researchers found that silibinin prevented the transition from well-differentiated epithelial cells...
to more motile, and potentially invasive, mesenchymal cells.67,68 This epithelial-to-mesenchymal transition is a requirement for many tumor types to develop and grow, so blocking it is a major advance.66

Human studies of silymarin and cancer are in their infancy, but dose-finding studies have revealed safety and tolerability of the supplement while other studies show promise with encapsulating silymarin into tiny nanoparticles to markedly enhance its bioavailability to levels required for cancer treatment.61,64

Summary

The epidemic of obesity and the metabolic syndrome are responsible for a growing threat to health and longevity: liver disease.

More than 30% of Americans have dangerous accumulations of fat in their liver, a condition called nonalcoholic fatty liver disease (NAFLD). This condition is especially dangerous because it is often without symptoms—meaning most people are unaware they have this condition. This “silent” disease leads to potentially fatal liver conditions, including nonalcoholic steatohepatitis (NASH) and ultimately fibrosis, cirrhosis, and liver failure.

No medications are approved for prevention, or even treatment, of most liver disorders. That means that lifestyle and dietary changes provide the best hope for avoiding these debilitating and deadly conditions. While weight loss and exercise are important, you can further tip the odds in your favor by supplementing with silymarin, the standardized extract of the milk thistle seed.

Studies show that silymarin and its active constituent silibinin provide potent protection against liver damage from NAFLD, in at least one case, genuinely reversing some of the more ominous findings. Silymarin has also been found to reduce liver damage from diabetes and obesity.

Finally, there is growing evidence that silymarin and its constituents have powerful anticancer capabilities that work on multiple cellular targets.

Silymarin is currently the best-studied and most effective means of protecting against chronic liver disease.

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

References


Advanced Defense Against Cellular Aging

NAD+ Cell Regenerator

If you are experiencing fatigue and lack of motivation, it may be due to the age-related decline in NAD+ levels and subsequent impairment of healthy cellular metabolism. NAD+ (nicotinamide adenine dinucleotide) promotes systemic youthful functions and is found in every cell in the body. In addition, NAD+ plays an essential role in regulating genes that control aging.

How To Boost NAD+ Levels Within Your Cells

Newly patented nicotinamide riboside increases cellular levels of NAD+ in the body.

For the first time, aging humans have an effective and affordable method to boost the critical NAD+ enzyme for refreshed vitality.

Nicotinamide riboside represents an innovative advance to combat aging that functions via unique mechanisms not found in typical dietary supplements. It has emerged as a front-line weapon in Life Extension’s ongoing war against premature aging.

The name of this new nicotinamide riboside formulation is NAD+ Cell Regenerator.

Multiple Benefits Of Increasing NAD+ Cellular Levels

Nicotinamide riboside has been documented to help replenish cellular NAD+ and in the process:

• Promote sirtuin (SIRT1 and SIRT3) gene activation,
• Enhance growth and efficiency of mitochondria—supporting energy levels and physical performance,
• Favorably modulate metabolism,
• Contribute to neuronal health—supporting cognitive function during aging,
• Promote insulin activity—supporting healthy blood sugar in those within the normal range.

Life Extension® NAD+ Cell Regenerator™ contains the patented ingredient NIAGEN®, the first commercially available form of nicotinamide riboside.

The suggested daily dose of one NAD+ Cell Regenerator™ vegetarian capsule provides:

NIAGEN® Nicotinamide Riboside 100 mg

Advanced NAD+ Technology At A Low Price

A bottle of 30 vegetarian capsules of NAD+ Cell Regenerator™ retails for $34. If a Life Extension member buys four bottles, the price is reduced to $19.50 per bottle. The suggested dose is just one small capsule daily.

NIAGEN® is a registered trademark of ChromaDex, Inc. Patents see: www.ChromaDexPatents.com.

Non-GMO.

To order NAD+ Cell Regenerator™, 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.
European Milk Thistle
Provides The Ultimate Protection For Your LIVER

Milk thistle extract—rich in silymarin—is one of nature’s most powerful weapons to support liver health. Numerous scientific studies have demonstrated silymarin’s ability to provide potent protection for your liver.¹²

Life Extension’s European Milk Thistle Advanced Phospholipid Delivery contains standardized, top-grade potencies of silymarin, silybin, isosilybin A, and isosilybin B, providing a full spectrum of liver-supportive compounds.

This unique formula includes phosphatidylcholine, a nutrient that promotes better absorption of all the health-providing benefits of milk thistle extract.³

European Milk Thistle Advanced Phospholipid Delivery, with 480 mg of silymarin, is a unique complex that is absorbed 5 times better than silymarin alone, and its concentration in the liver is 10 times better.

References:

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

European Milk Thistle Advanced Phospholipid Delivery
Item #01822 • 60 Softgels

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To order European Milk Thistle Advanced Phospholipid Delivery
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.
Snow Algae
And Novel Peptides
Revive Aging Skin

Snow algae thrive in frigid high mountain areas and have the unique ability to survive brutal changes in temperature.

When applied to living cells, snow algae activates a longevity gene and the enzyme AMPK, which in turn enhances DNA repair.\(^1,2\)

The ability to repair DNA is crucial for health and longevity. Most Life Extension® members take affirmative steps to internally boost AMPK cellular activity and turn on their longevity genes.

Researchers are now finding that topical application of snow algae produces a restorative effect to skin.

In addition, a group of novel peptides along with hyaluronic acid addresses a broad array of deleterious structural changes that occur in aging skin. The result is improved moisture, minimized wrinkles, and restoration of a more youthful outward appearance.
SNOW ALGAE AND NOVEL PEPTIDES REVIVE AGING SKIN

When activated, AMPK acts to clear cellular debris that generate low-grade chronic inflammation and improves cellular stress resistance to slow down skin aging. Snow algae has been shown to prevent the age-related decline in AMPK activity that accelerates the aging process. In an in vitro study conducted by scientists, snow algae stimulated AMPK activity by 105% compared to a control in human skin cells. And in another in vitro experiment, snow algae increased collagen production and inhibited destructing collagen enzymes by up to 47% in human fibroblast cells. Together, these studies demonstrate the anti-aging effects of snow algae and its unique ability to improve the healthy longevity of skin cells.

Cumulative sun exposure, pollutants, cold, and wind all weaken the skin’s barrier function, robbing it of vital moisture. Since snow algae can resist and adapt to these harmful environmental influences, researchers investigated whether its topical application would provide a similar benefit to human skin. In a controlled clinical study, 21 human volunteers ranging in age from 30 to 57 applied snow algae extract to one half of their face and a placebo to the other half three times a day for only 21 days. During the second week of the study, subjects spent time in the harsh climate of the Alpine mountains. The subjects’ skin was evaluated for transepidermal water loss prior to treatment, on day 14, and on day 21. The results showed that transepidermal water loss was 12% lower on the side of the face in which snow algae was used, confirming an improvement in the skin’s barrier function. In addition, age spots were less visible in 67% of treated subjects—after only 21 days!

In a recent clinical trial, snow algae extract was applied twice a day to the inner side of the forearm of 20 women aged 40 to 60 years old, while their other forearm was treated with a placebo. Skin hydration was measured using a device called a Corneometer, which determines the level of skin hydration. The snow algae-treated side showed a 10% increase in skin hydration over the placebo side in just 14 days. This moisturizing effect was observed in 100% of participants, thus demonstrating snow algae’s effectiveness as a hydrating compound.

Novel Peptides Enhance Collagen Renewal

The smooth and plump appearance of youthful skin can be attributed to its large amounts of collagen, a key protein that holds skin together. As a major component of a fibrous framework known as the extracellular matrix, collagen provides structural support to the surrounding cells in the dermis.
What You Need To Know

With age and increased UV exposure, collagen production declines and its breakdown increases. This results in the appearance of wrinkles, fine lines, and sagging skin.

A novel combination of peptides has been found to stimulate the synthesis of different types of collagen in the dermis and dermal-epidermal junction (DEJ), a surface area that connects the dermis to the epidermis above it. This collagen-boosting effect enhances the ability of the dermis to retain water and properly hydrate the skin, leading to visible improvements in both smoothness and firmness.

This was apparent in a placebo-controlled trial in which a topical mixture containing the peptide palmtoyl dipeptide-5 was shown to increase skin smoothness by 12.2% and skin firmness by 10.8% after just two months compared to a control.

Another innovative peptide that combats skin aging is palmtoyl tripeptide-5. This peptide has been shown to boost dermal collagen production through activation of latent tissue growth factor beta in turn exerting anti-wrinkle effects.

In a 12-week study, a serum containing palmtoyl tripeptide-5 reduced fine wrinkles by 13% and deep or coarse wrinkles by 30% compared to baseline. This study also revealed significant improvements in several skin parameters including firmness, radiance, tone, and tactile roughness.

Other research shows immediate results from using topical palmtoyl tripeptide-5, with one study reporting a 20% decrease in fine lines and 28% reduction in deep wrinkles around the eyes within minutes of initial application.

Together, these studies indicate that palmtoyl tripeptide-5 improves the structural integrity of the dermis immediately and long term to fight the tell-tale signs of aging.

Hydrate With Hyaluronic Acid

Hyaluronic acid is a naturally occurring polysaccharide that maintains skin hydration by acting as a powerful sponge and absorbing up to 1,000 times its own volume in water. Its outstanding water-holding capacity adds both volume and thickness to the dermis. The latest research also suggests that hyaluronic acid helps hydrate the stratum corneum layer of the epidermis and, via the CD44 receptor, supports the skin’s barrier function.
The aging process and damaging free radicals depletes the skin of **hyaluronic acid**. Replenishing this vital nutrient restores moisture that leaves aging skin softer, smoother, and younger looking.

**Summary**

It may surprise you to learn that drinking plenty of water each day is only half the battle for keeping aging skin hydrated, smooth, and young looking.

Scientists have identified compounds, including **snow algae extract**, **palmitoyl dipeptide-5**, **palmitoyl tripeptide-5**, and **hyaluronic acid**, that help correct structural changes in aging skin to improve moisture, minimize wrinkles, and restore a youthful appearance.

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

Gary Goldfaden, MD, is a clinical dermatologist and lifetime member of the American Academy of Dermatology. He is the founder of Academy Dermatology in Hollywood, FL, and Cosmesis Skin Care. Dr. Goldfaden is a member of the Life Extension Foundation’s Medical Advisory Board. All Cosmesis products are available online.

**References**

Pellet Therapy – the only Hormone Replacement Therapy that guarantees 100% patient compliance.

Are you tired of counting pills, applying creams once or twice a day, giving yourself painful shots once or twice a week or forgetting your medicine when you travel? Tired of feeling as if you are on a hormonal rollercoaster?

Do your hormone prescriptions always seem to run out early or last way too long? Would you be interested in offering a hormone replacement therapy that changes patients’ lives and is hassle free?

The BioTE® pellet therapy will eliminate all these concerns and in combination with nutraceuticals the body will return to optimal levels.

Our accurate proprietary dosing site takes into consideration more than just testosterone and estrogen levels and is utilized for dosing approximately 10,000 patients a month to optimize their hormone levels.

Monthly LIVE physician trainings, webinars, patient seminars – join our mission to transform modern medicine!

To find a practitioner in your area go to www.biotemedical.com
Want to become a BioTE® certified practitioner? www.joinbiote.com
Ceramides are essential for preserving healthy-looking skin.\(^1\)\(^2\) They play an important role in maintaining the skin’s moisture balance and protecting the skin’s surface.\(^3\)

Unfortunately, your body’s production of ceramides declines with age.\(^4\) Many anti-aging face creams include ceramides. The problem is that topical application cannot penetrate deeply enough into the skin to have a long-term impact on your skin’s appearance.

Researchers have discovered that the ceramides naturally produced by young skin are identical to those present in wheat— and that these wheat-derived oils can be taken orally.

Life Extension\(^\circledast\) has brought together these skin-nourishing oils in a concentrated oral formula called Skin Restoring Phytoceramides with Lipowheat\(^\circledast\).

Skin Restoring Phytoceramides with Lipowheat\(^\circledast\) can reach the deepest layers of skin all over the body—not just where creams are applied—where it can offset the visible impact of the body’s gradual decline in ceramides. The hydrating action of Lipowheat\(^\circledast\) ceramides has proved effective in clinical trials.

One bottle containing 30 350 mg vegetarian liquid capsules of Skin Restoring Phytoceramides with Lipowheat\(^\circledast\) retails for $25. If a member buys four bottles, the price is reduced to $17.25.
Aging skin loses structural collagen and water-binding hyaluronic acid,1,2 while environmental factors weaken the skin’s protective outer barrier.3

The results of these changes are wrinkles, age spots, fine lines, and a dull, dry appearance.4-6

The new Collagen Boosting Peptide Serum helps inhibit these unsightly processes—supporting the skin’s collagen structural support and maintaining its youthful hydration, which in turn firms, lifts, and contours dermal appearance.

**REGENERATIVE EFFECTS OF SNOW ALGAE**

The key to Collagen Boosting Peptide Serum’s restorative power is its high concentration of snow algae, which comprises of resilient organisms that have been lab-cultivated and formulated into a serum format (instead of a cream) for maximum absorption. Snow algae help activate cellular AMPK and a key longevity gene.

In skin cells, the result is increased collagen production. Researchers recently observed that snow algae boosted skin hydration in 100% of studied individuals—afted just 14 days of application.7

**SUPPORTING PEPTIDES AND HYALURONIC ACID**

Supporting these regenerative effects are peptides that stimulate the synthesis of collagen at the point where the dermis meets the epidermis above it. A clinical trial found that these peptides increased skin smoothness by 12.2%, and firmness by 10.8%, after two months of application.8

One peptide, palmitoyl tripeptide-5, further supports collagen production by activating “latent tissue growth factor beta.” A study showed that it reduced the appearance of deep wrinkles by 28%—within minutes of application9

Collagen Boosting Peptide Serum also contains hyaluronic acid to directly replenish falling hyaluronic acid levels—shown to restore the skin’s ability to hold moisture and retain its softness and youthfulness.10

Due to its high-absorption serum format, applying just 2-3 drops of Collagen Boosting Peptide Serum, morning and night, to targeted areas of the face produces noticeable rejuvenation effects within weeks of first use.

A 1-ounce bottle of Cosmesis Collagen Boosting Peptide Serum retails for $59. If a member buys two bottles, the price is reduced to $39 per bottle.

References

To order Cosmesis Collagen Boosting Peptide Serum, call 1-800-544-4440 or visit www.LifeExtension.com
CoQ10 COMBATS Congestive Heart Failure

**Congestive heart failure** is one of the most devastating forms of cardiovascular disease.¹

More than 5.8 million people in the US are affected by congestive heart failure. If you’re diagnosed with **congestive heart failure** today, you have a **50/50** chance of being dead within **five years**.¹

Those aren’t good odds. But researchers have determined that with the help of **CoQ10**, you can beat these odds.

Mainstream medicine treats congestive heart failure with a barrage of medications including beta blockers, ACE inhibitors, diuretics, digoxin, nitrates, aldosterone antagonists, anticoagulants, and glucose-lowering drugs. These drug combinations have added considerable years of life to patients with congestive heart failure.²⁻⁷

Overlooked by most cardiologists, however, are published clinical studies showing that CoQ10 can dramatically improve treatment outcomes when properly used in conjunction with conventional treatments.

A recent international, multicenter study of patients with moderate-to-severe **heart failure** demonstrated, by the most conservative analysis, a **50%** reduction in major cardiovascular events (strokes, heart attacks, etc.) and a **44%** reduction in cardiovascular deaths, in response to CoQ10 supplementation.⁴

This dramatic outcome validates earlier studies demonstrating the utility of CoQ10 in managing heart disease. It also points to the potential role CoQ10 plays in the **prevention**, rather than treatment, of heart failure and other cardiovascular diseases.
Heart attack survivors who took 120 mg a day of CoQ10 for one year reduced the rate of total cardiac events and nonfatal heart attacks by 45 and 46%, respectively, compared to controls, while beneficial HDL cholesterol rose significantly.8

When compared to patients on statins, those taking 60 mg a day of CoQ10 favorably modified numerous atherosclerosis risk factors, including lipid profiles, platelet clumping, and oxidative stress.18

In adults at intermediate risk for atherosclerosis who took a combination of CoQ10 (120 mg a day) and aged garlic extract (1,200 mg a day) for one year, atherosclerosis progression was 4-fold lower compared with control subjects, while markers of atherosclerosis-promoting inflammation were significantly reduced.19

CoQ10 helps prevent low-density lipoprotein (LDL) cholesterol from oxidizing and triggering arterial plaque formation.20

CoQ10 Improves Endothelial Function

Dysfunction of the ultrathin cell layer lining arteries, the endothelium, is a major early risk factor for the development of atherosclerosis and cardiovascular disease.21,22 This endothelial dysfunction is especially prevalent in those with diabetes and/or lipid abnormalities.23 Numerous studies have demonstrated that CoQ10 directly addresses multiple causes of endothelial dysfunction:

• In patients with diabetes, 12 weeks of supplementation with 200 mg a day of CoQ10 significantly increased endothelial function in a major artery.23

• In a group of men with known endothelial dysfunction, CoQ10 supplementation improved endothelial function significantly compared with baseline.21

• In patients with mild-to-moderate heart failure, 300 mg a day of CoQ10 improved endothelial function 38%, an effect comparable with that of exercise training.24

• Blood vessel relaxation, a measure of endothelial function and blood flow, improved significantly in patients with known coronary artery disease at risk for heart attack who need optimal cardiac blood flow.25

What Is Congestive Heart Failure?

Congestive heart failure is the inability of the heart to pump sufficient blood to meet the needs of all organs in the body, and is frequently the result of other, preventable factors such as high blood pressure, diabetes, and coronary heart disease (which causes heart attacks).1

Congestive heart failure results from a progressive weakening of the heart muscle, which is usually a result of insufficient production of ATP (adenosine triphosphate), the energy that fuels your heart.34-38 In a healthy heart with ample energy in the form of ATP, the heart muscle is well-developed and thick, and it effortlessly pumps blood out of the left ventricle into the aorta and out into the body.1

But with inadequate ATP, which occurs from impaired energy transport, the robust heart muscle weakens and becomes flabby, resulting in relatively ineffective pumping action, so that blood pools in the heart.1 We refer to this slowed and inefficient movement of blood in the heart as “congestive” heart failure. The major symptoms of congestive heart failure arise from this backup of blood in the weakened left ventricle.

CoQ10 Helps Prevent Heart Failure

CoQ10 has been shown to prevent underlying pathological disorders that produce heart failure. This includes reducing atherosclerosis risk factors, improving endothelial function, and protecting against heart damage.8,9 Here is a summary of the encouraging data supporting the role of CoQ10 in heart disease prevention:

CoQ10 Protects Against Arterial Occlusion

Atherosclerosis (“hardening of the arteries”) underlies virtually all heart attacks, strokes, and other blood vessel diseases.10-12 There are numerous risk factors that are associated with the onset of atherosclerosis, including LDL oxidation, chronic inflammation, elevated blood glucose, elevated lipid levels, and disordered growth factor signaling.13-17 Published studies show that CoQ10 combats many of those risks. For example:

• In patients with diabetes, 12 weeks of supplementation with 200 mg a day of CoQ10 significantly increased endothelial function in a major artery.23

• In a group of men with known endothelial dysfunction, CoQ10 supplementation improved endothelial function significantly compared with baseline.21

• In patients with mild-to-moderate heart failure, 300 mg a day of CoQ10 improved endothelial function 38%, an effect comparable with that of exercise training.24

• Blood vessel relaxation, a measure of endothelial function and blood flow, improved significantly in patients with known coronary artery disease at risk for heart attack who need optimal cardiac blood flow.25
CoQ10 Protects Against Heart Damage

Coronary artery disease typically refers to the consequences of atherosclerosis of the coronary arteries, which are the arteries that supply blood and nutrients to the heart muscle itself. Early disease may appear as painful and ominous angina (chest pain), while more advanced disease produces ischemia (lack of blood flow), and eventually infarction (death of heart muscle) in a classical heart attack. Numerous studies have shown that in the event of a heart attack, ample levels of CoQ10 may mitigate the amount of damage:

• During open-heart surgery, when the heart is briefly stopped and ischemia is a major risk, CoQ10 protected heart muscle pumping and cardiac output.

• In functioning hearts from old rats, pretreatment with CoQ10 improved recovery of heart function following stress.

• In human atrial heart muscle tissue, CoQ10 treatment abolished the decreased ability to recover from ischemia seen in older hearts, producing a recovery pattern similar to that in younger hearts; this effect was shown to be related to improved mitochondrial energy efficiency in the treated tissue.

• In humans undergoing elective heart surgery, patients treated with CoQ10 had lower levels of markers of heart damage, improved pumping action, and shorter hospital stays, compared with untreated controls.

CoQ10 And Cellular Energy

Some forms of cardiovascular disease involve energy mismanagement at the cellular level, weakening heart and blood vessel cells and leaving them incapable of proper function. This is especially true of congestive heart failure.

Despite its name, congestive heart failure is not a situation in which the heart stops beating. Rather, it results from a progressive weakening of the heart muscle, which is characterized by insufficient ATP (adenosine triphosphate) production.

CoQ10 supplementation has repeatedly been shown to improve heart muscle function in patients with heart failure, supporting the scientific observation that heart failure is caused by a deficit in cellular energy. Studies show that supplementation with CoQ10 augments heart and vascular function, improves clinical status, and prevents further damage from cardiovascular disease.

• CoQ10 is essential for transferring energy from food into ATP molecules, the universal cellular energy currency.

• Studies show that supplementation with CoQ10 augments heart and vascular function, improves clinical status, and prevents further damage from cardiovascular disease.

• CoQ10 may represent the single most vital supplement that everyone should take to sustain and support cardiovascular energy management.

What You Need To Know

CoQ10 Treats And Prevents Heart Disease

• Cardiovascular disease remains the leading killer of American adults.

• In particular, congestive heart failure, which can arise from hypertension, atherosclerosis, endothelial dysfunction, and heart attacks, prematurely sickens otherwise healthy people.

• Some forms of cardiovascular disease involve some degree of energy mismanagement at the cellular level, leaving heart and blood vessel cells weakened and incapable of proper function.

• CoQ10 is essential for transferring energy from food into ATP molecules, the universal cellular energy currency.
But are you taking the right amount—and the right type—of CoQ10 to extend your life span? Chances are, the answer is no.

Even fairly low doses of CoQ10 have been shown to reduce the symptoms associated with congestive heart failure. For example, in a three-month open study, an average daily dose of 100 mg a day of CoQ10 improved symptoms in a large majority of patients, including swelling, blueness (cyanosis), difficulty breathing, heart palpitations, sweating, insomnia, vertigo, and nighttime urination. In fact, 54% of patients experienced improvement in at least three such symptoms.44

But those low doses can be deceiving because even though they improve symptoms, ultimately few meaningful benefits in terms of survival or improved functioning were shown at CoQ10 doses of 100 mg a day. This is especially true for people who already have advanced congestive heart failure (Class IV) because fluid build-up in the walls of their intestines reduces the amount of a given dose that can be absorbed into the bloodstream.45

A study published in The Clinical Investigator shows us the difference that even modest increases in dosing makes: It demonstrated that an increased dose of CoQ10 produced more than just symptom reduction—it kept patients out of the hospital.

For this study, when patients with moderate-to-severe (class III and IV) heart failure took 2 mg/kg a day (about 190 mg a day in an average-sized man, and about 150 mg a day for an average woman) of CoQ10 for one year, it significantly reduced hospitalization rates by 38%.38 In the same study, symptoms caused by fluid backing up into the lungs (pulmonary edema, “cardiac asthma”) were reduced by 61 and 51%, respectively.

But even with those increased doses and beneficial results, we’re still falling short of CoQ10’s full life-extending potential. Changing long-term outcomes (like reducing mortality) clearly requires higher doses for longer periods.

CoQ10 And Longevity

To achieve benefits measured by longer life spans, you need to increase the dose and amount of CoQ10 absorbed into the bloodstream.

Surprisingly few studies have bothered to measure blood levels of CoQ10 in patients, a basic step in gauging the effectiveness of a dosing program. What we do know is that leaders in the field have demonstrated that blood levels of more than 3.5 micrograms/mL are required to reliably produce improvements in cardiac function.24,46,47 Doses of standard CoQ10 (also called ubiquinone) of at least 240 mg a day may produce such elevations in blood levels, while lower doses rarely do so.47,48

New York Heart Association (NYHA) Functional Classification81

<table>
<thead>
<tr>
<th>Class</th>
<th>Patient Symptoms</th>
</tr>
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<tbody>
<tr>
<td>Class I (Mild)</td>
<td>No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnea (shortness of breath).</td>
</tr>
<tr>
<td>Class II (Mild)</td>
<td>Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnea.</td>
</tr>
<tr>
<td>Class III (Moderate)</td>
<td>Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitation, or dyspnea.</td>
</tr>
<tr>
<td>Class IV (Severe)</td>
<td>Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.</td>
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The New York Heart Association (NYHA) Functional Classification system has become the standard for measuring symptoms that affect functioning related to heart failure.81
In the same study, by the two-year mark, however, supplemented patients were half as likely to experience a major adverse cardiovascular event, compared with placebo recipients. In addition, significantly more placebo patients died a cardiovascular death compared with supplemented subjects (16 versus 9%), while deaths from all causes were 18% in placebo patients, and just 10% in supplemented ones. The rate of heart failure-related hospital stays was also significantly lower in patients taking CoQ10 than in controls.

These studies indicate that making energy safely and abundantly available to heart muscle through CoQ10 supplementation at reasonable doses for a prolonged period is a powerful way to reduce the impact of congestive heart failure.

It is important to note here that in all studies, patients remained on their regular medications. This is important to emphasize as people with existing heart failure should use CoQ10 as a long-term heart-strengthener and not as a replacement for prescription medications.

Potential Of CoQ10 In Noncardiac Disorders

Heart muscle and blood vessel cells are of course not the only tissues that require ample CoQ10 for efficient energy utilization. In reality, every cell in your body runs better when ample CoQ10 is available. This is especially true for the eyes, kidneys, and brain, which is why CoQ10 has shown such tremendous benefits for each of these organs.

A better way to achieve optimal blood levels of CoQ10 is to use a superior form of CoQ10 called ubiquinol. In one particularly impressive study, patients with severe heart failure (average of class IV) had mean CoQ10 levels of just 1.6 micrograms/mL even though they were taking 450 mg a day of standard CoQ10. Once they changed to an average of 580 mg a day of ubiquinol, their blood CoQ10 levels shot up to 6.5 micrograms/mL and their mean ejection fraction improved 77.3% from baseline. In addition, their NYHA class improved from a mean of class IV to a mean of class II, demonstrating substantial improvement in their ability to carry out tasks of daily living.

Dramatic proof of the effectiveness of higher doses of standard CoQ10 for longer periods comes from the most recent large clinical trial, conducted by an international group of cardiologists. In this study, patients with moderate-to-severe heart failure took either a placebo or 300 mg a day of CoQ10 (in the lesser absorbable form called ubiquinone) for two years. Patient data was examined at 16 weeks (short term) and at the end of the study (long term). No meaningful changes were seen in any patients at the short-term data point (16 weeks) using the ubiquinone form of CoQ10.

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Whenever tissues are deficient in CoQ10, their energy-providing mitochondria throughout the body suffer. That’s because CoQ10 is an essential component in the transfer of electrons, nature’s tiniest unit of energy, from chemical bonds in food molecules to chemical bonds in the ATP molecules all tissues use as an immediate energy supply. CoQ10 deficiency has been found in a number of age-related disorders, prominently including heart failure.

Supplementing with CoQ10 has been found to be a highly effective means of increasing tissue CoQ10 activity, with improvements in function of heart muscle, brain cells, and other energy-intensive tissues. Increasingly, research is proving that not all forms of CoQ10 are the same; some are better absorbed than others. Better absorption means more benefit for you.

There’s evidence indicating that CoQ10 in the form of ubiquinol may be a better-absorbed, more readily available form of the coenzyme, compared with the more common ubiquinone. Ubiquinol is also the form of CoQ10 found naturally in the body, where it protects mitochondria and cell membranes. Research supports the idea that ubiquinol has a faster and more powerful effect—that it is more bioavailable.

Animal studies have found higher tissue levels of CoQ10 when ubiquinol is the supplement used, and in one study ubiquinol was the only form that could increase CoQ10 in brain mitochondria. When CoQ10 was combined with the adaptogen shilajit, there was a 56% increase in energy production in the brain. The compounds in shilajit have been shown to stabilize CoQ10 in its ubiquinol form and help facilitate more efficient delivery of CoQ10 to the mitochondria. And a human study showed that both a single oral dose of 150 or 300 mg of ubiquinol and long-term administration of ubiquinol were rapidly absorbed, and no safety concerns or laboratory abnormalities were seen.

Laboratory studies show that ubiquinol is highly effective in reducing the disastrous effects of shock induced by blood loss, a leading killer following major trauma. The effect was attributed to ubiquinol’s powerful ability to clean up products of oxidation and thereby decrease inflammatory changes. Similarly, ubiquinol is the preferred supplement for use in certain forms of congestive heart failure. And ubiquinol is showing great promise in a host of other conditions and health concerns for which oxidant damage is a major predisposing factor, such as male infertility due to weakened sperm, blood markers of cardiovascular disease, and autism in children. There is also animal evidence supporting ubiquinol supplementation to prevent trauma-associated kidney damage.

The beneficial effects of ubiquinol are so universal throughout the body that the compound is being explored for its effects on overall longevity. When age-accelerated mice (a model of human old age) were supplemented with high-dose ubiquinol (equivalent to about 1,680 mg in humans), their performance on a treadmill was improved by more than 15%, and they had a significant increase in their natural free radical defense systems, further adding to their protection against aging. Revolutionary data published in mid-2014 showed that ubiquinol has a direct antiaging effect by supporting actions of the SIRT family of proteins that slow senescence through multiple biochemical activities.

All of us face the age-accelerating effects of poor mitochondrial function, oxidant damage, and inflammation that arise from deficient CoQ10 levels. For those who seek the extra added benefits of greater bioavailability and enhanced expression of anti-aging genes, reduced CoQ10 in the form of ubiquinol may be the answer.
Promising studies have demonstrated that CoQ10 protects cells in the eye—specifically the energy-intensive retina and the oxygen-exposed cornea. These effects may prevent common causes of blindness in old age, such as macular degeneration, glaucoma, and cataracts.

The kidney, like the eye, heart, and blood vessels, is an organ with tremendous blood flow, high oxygen exposure, and a crucial need for maximum energy efficiency. Studies in humans and animals reveal powerful protective effects of CoQ10 on kidney tissue structure and function, potentially adding years to the lives of people who might otherwise succumb to kidney failure.

The human brain is the body’s largest consumer of oxygen and utilizer of energy. The major neurodegenerative diseases, including Alzheimer’s, Parkinson’s, ALS, and Huntington’s, and many of their associated cognitive deficits, are beginning to show small signs of yielding to CoQ10 supplementation, at least in their earliest stages.

If you suffer from existing heart disease, add a daily supplement of CoQ10, preferably the ubiquinol form, to your medication regimen after discussion with your doctor. If you are not yet a victim of overt cardiovascular disease, you are even better positioned to take advantage of CoQ10’s preventive effects.

It is impossible to overstate the importance of CoQ10 supplementation in maintaining healthy bioenergetics in the heart, brain, kidney, eye, and other energy-intensive tissues. There is every reason to believe that regular CoQ10 supplementation will add to both your life span and your health span.

Summary

Cardiovascular disease has many faces, but a central mechanism is loss of energy efficiency at the level of heart muscle and the coronary arteries that feed it.

CoQ10 is essential for transferring energy from food into ATP molecules, the universal cellular energy currency.

Studies show that CoQ10 levels are diminished in heart disease, particularly congestive heart failure. Supplementing with CoQ10 improves heart and vessel function in lab experiments, animal studies, and clinical trials.

If you suffer from existing heart disease, add a daily supplement of CoQ10, preferably the ubiquinol form, to your medication regimen after discussion with your doctor. If you are not yet a victim of overt cardiovascular disease, you are even better positioned to take advantage of CoQ10’s preventive effects.

It is impossible to overstate the importance of CoQ10 supplementation in maintaining healthy bioenergetics in the heart, brain, kidney, eye, and other energy-intensive tissues. There is every reason to believe that regular CoQ10 supplementation will add to both your life span and your health span.

The High Cost Of Heart Disease

$818 billion… That’s the estimated annual cost, in the United States alone, for total direct medical costs of cardiovascular disease by 2030.

That represents a tripling, from about $273 billion, over a 20-year period, and a failure of the American health system to accomplish a major goal, which is the reduction of heart attacks and strokes by a million patients by 2017.

During that time, real indirect costs from lost productivity will increase by 61%, from $172 billion to $276 billion. That’s more than a trillion dollars a year in total.

With those kinds of figures, we can’t afford to NOT get heart disease under control.

Studies show that supplementation with CoQ10 augments heart and vascular function, improves clinical status, and prevents further damage from cardiovascular disease.

CoQ10 may represent the single most vital supplement that everyone should take to sustain and support the cardiovascular energy management essential for a healthy heart.
Use Of Ubiquinol In Clinical Studies

Ubiquinol has now been shown to be important and effective in management of a number of chronic, age-related, oxidation-driven diseases, due to its potent effects in smoothing mitochondrial energy transfer and reducing the collateral damage to cells and tissues. For example:

- In diabetic retinopathy, a higher ratio of ubiquinol to ubiquinone was shown to be protective.105

- In diastolic heart failure, or heart failure with relatively normal pumping ability in the heart, ubiquinol is in growing use to improve patient outcomes and improve the function of the heart’s left ventricle during its relaxation phase, when it recovers from energy-intensive contractions.106

- In men with impaired fertility due to weak or defective sperm, ubiquinol exerted favorable changes on sperm structure and motility, changes that favor fertility.100

- In cardiovascular diseases, an early marker of dangerous oxidative damage to heart cells is a rise in levels of a normally intracellular enzyme called GGT; ubiquinol was shown in a human study to reduce GGT activity, probably through complex effects on gene expression.80

- In autism, a childhood disorder thought to have roots in oxidative damage to brain tissue, ubiquinol supplementation improved communication with parents, verbal communication, game playing with other children, sleep, and food rejection, all common findings in autistic children.101

References

CoQ10 COMBATS CONGESTIVE HEART FAILURE


92. Failla ML, Chichthumroonchokchai C, Aoki F. Increased bioavailability of ubiquinol compared to that of ubiquinone is due to more efficient micellarization during digestion and greater GSH-dependent uptake and basolateral secretion by Caco-2 cells. J Agric Food Chem. 2014 Jul 23;62(29):7174-82.


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

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

The retail price for 120 capsules of Bone Restore is $24. If a member buys four bottles, the price is reduced to $16.50 per bottle. (Item# 01727)

The same Bone Restore formula without vitamin K2 (MK-7) is available as well. The retail price for 120 capsules is $22. If a member buys four bottles, the price is reduced to $14.25 per bottle. (Item# 01726)

Just four capsules of Bone Restore provide:

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<tr>
<th>Nutrient</th>
<th>Amount</th>
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<tr>
<td>Highly Absorbable Calcium</td>
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<td>(as DimaCal®, dicalcium malate, TRAACS® calcium bisglycinate chelate, calcium fructoborate)</td>
<td></td>
</tr>
<tr>
<td>Vitamin D3</td>
<td>1,000 IU</td>
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<tr>
<td>Vitamin K2 (as menaquione-7)</td>
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<tr>
<td>Magnesium (as magnesium oxide)</td>
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<td>Boron (calcium fructoborate as patented Fruitex B® OsteoBoron®)</td>
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<tr>
<td>Zinc (as zinc amino acid chelate)</td>
<td>2 mg</td>
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<tr>
<td>Manganese (as amino acid chelate)</td>
<td>1 mg</td>
</tr>
<tr>
<td>Silicon [from horsetail extract (herb)]</td>
<td>5 mg</td>
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Note: Those who take Super Booster or Super K usually do not need additional vitamin K2. They should order Bone Restore without vitamin K2. Those taking the anticoagulant drug Coumadin® (warfarin) should use BONE RESTORE without vitamin K2.

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To order Bone Restore, call 1-800-544-4440 or visit www.LifeExtension.com
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- Less Energy
- Cloudy Thinking
- Weight Gain
- Cardiovascular Issues

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Each daily dose of Super MiraForte with Standardized Lignans contains the following testosterone supporting ingredients:

- 1,500 mg Chrysin
- 15 mg Bioperine®
- 850 mg Muira puama
- 282 mg Nettle root
- 15 mg Chelated elemental zinc
- 320 mg Maca
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- Norway Spruce lignan extract

To order Super MiraForte with Standardized Lignans call 1-800-544-4440 or visit www.LifeExtension.com


Caution: If you are taking any medication, use only under physician supervision. Men with existing prostate cancer may not be able to use this product. Elevations in free testosterone can unmask an occult (hidden) prostate cancer. Anyone with this concern should have a baseline PSA prior to using this product and a follow-up PSA test 60 days later. If a significant elevation of PSA is found, discontinue this product and advise physician. Do not take more than 15 mg per day of Bioperine®.

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The optimal dose of PQQ is 20 mg each day. Members taking Mitochondrial Energy Optimizer, Mitochondrial Basics, or PQQ 10 mg caps obtain this optimal PQQ dose when taking the new Super Ubiquinol CoQ10 with BioPQQ®.
The Beginning Of The End Of The War On Medicine

For nearly 100 years, there has been a serious war going on between the proponents of allopathic (conventional) medicine and those who support natural or functional medicine. Functional medicine in the form of herbal, Ayurvedic, and Chinese medicine was dominant around the world for hundreds of years. Then, in the late 19th and early 20th centuries, the germ theory of disease began to take over, along with technological advances such as x-rays, the electron microscope, and the use of antibiotics.
A new breed of medical school emerged to teach future doctors how to utilize these new diagnostic tools, medicines, and operating procedures to defeat the external invaders of the body. Doctors became thoroughly convinced that most diseases were caused by germs, bacteria, viruses, or rogue cells that needed to be cut out, killed, or controlled by these new medical breakthroughs.11

Natural medicine was dismissed as being outdated and unscientific. Medical schools stopped teaching this form of medicine and medical licenses were given only to those who graduated from the new medical schools that had been established across the country. Naturopathic doctors were branded as quacks, as were chiropractors, nutritionists, acupuncturists, and all of the other so-called natural medical practitioners.

But in the late 1940s and early 1950s, proponents of natural medicine started to push back. Under the unofficial leadership of Linus Pauling, a small group of scientists and doctors began treating brain-related illnesses, such as depression and schizophrenia,12 with diet and nutritional supplements. They were pleased with the results of this new approach and Pauling eventually coined the treatment protocols as “orthomolecular psychiatry.”13-15

While Pauling and other pioneers, like Abram Hoffer,16 were making strides on brain-related disorders, the rest of the human body was also getting some attention. The hippy movement of the 1960s created a mini-groundswell of interest in nonconventional treatments. Nutrition and herbal remedies became the rage for these counterculture types. Others soon became believers as conventional medicine proved to be less successful than many had hoped for. Visits to naturopaths, chiropractors, and acupuncturists began to increase while reports of dangerous side effects from prescription medications continued to surface.

Early leaders in this holistic movement, such as Andrew Weil, Bernie Siegel, and Dean Ornish, emerged in the 1980s after publishing groundbreaking books. Another early leader was Joseph Pizzorno, who co-founded Bastyr University in 1978 to educate naturopathic doctors. It is now recognized as one of the premier schools in the world for natural medicine.

In the late 1970s and early 1980s there was also a movement to show that the brain and the body actually worked together for the benefit of the whole person. This flew directly in the face of over 400 years of traditional medical thinking, which started when French philosopher Rene Descartes declared that the human brain was totally separate and not relevant to the health of the human body.17 Many doctors have since disproved this theory and clearly established the connection between mind and body.18

Another Step Forward

The nonconventional medical model has been called many things over the past 50 years, including:

- Natural
- Holistic
- Alternative
- Complementary
- Integrative
- Functional

Integrative and complementary became the key names in the early 1990s as efforts were beginning to bring the two medicines together in order to better meet the needs of a confused and frustrated public.

This effort at integration took a major step forward during the 1992 presidential campaign. Apparently, Ross Perot, a third-party candidate for president of the United States, asked Hans Nieper, a German physician, for some ideas on how to reform the American Health Care System. Dr. Nieper had gained considerable notoriety for his treatment of cancer and MS with totally natural substances. His reform proposal eventually made it into the hands of Bill Clinton who, after being elected, asked his close colleague Bill Richardson to put together legislation that would help to accelerate research into, and utilization of, these natural medicine protocols.
With the help of Senator Orrin Hatch of Utah, the legislation passed under the title “The Dietary Supplement Health and Education Act of 1994 (DSHEA).” This bill not only protected the right of people to use dietary supplements, it eventually led to funding for research on the efficacy of various nutritional supplements and natural treatments.

In the past 20 years, since those significant changes in policies were made at the national level, there have been many other changes in the medical paradigm. Evidence has been mounting that the conventional medical model was simply not working.

**Dangerous Signs Of Failure**

While natural and holistic medicine are getting a big positive push forward, equally negative developments are occurring regarding conventional medicine:

- The percentage of our GDP allocated to healthcare expenditures is gradually increasing; it was 5.2% in 1960 and is estimated to reach nearly 20% by 2021.

- The US spends nearly twice as much as other industrialized countries on healthcare (per capita) and yet ranks near the bottom in practically every measure of population health.

- About 95% of every healthcare dollar is spent on treatment and less than 5% on prevention, despite the fact that over 70% of many deadly diseases, such as type II diabetes, coronary artery disease, stroke, and colon cancer are preventable by lifestyle choices.

- An article in the *New England Journal of Medicine* reported that over $100 billion was spent on balloon angioplasty and coronary artery bypass grafting (CABG) in 2007, yet only 3% of bypass patients experienced prolonged life span.

- Prescription drugs cause 700,000 emergency room visits each year and over 41,000 deaths.

- Recent evidence estimates that there are over 400,000 avoidable hospital deaths each year.

- In the book *Death By Medicine* by Gary Null, et al., the total number of avoidable deaths by conventional medicine was placed at over 783,936 per year.

- Dr. David Eddy did a study on the scientific evidence behind conventional medical treatments. An article in *Business Week Magazine* in 2006 quoted Dr. Eddy's study and declared that only 20 to 25% of what was being done to treat patients has been proven effective.

- The *Journal of Clinical Evidence* reports that only 11% of typical conventional medical treatments may be categorized as beneficial, by randomized controlled trials.

There are a few positive things to report on the conventional medicine front. In terms of acute care, there have been tremendous strides made in the technology related to operations. Surgery has become less invasive with higher rates of success for many operations. However, there is still a problem related to the number of unnecessary operations being performed and prime examples include knee surgery, back surgery, angioplasty, and heart surgery. If unnecessary operations were eliminated, acute care could become the shining star for conventional medicine.
While conventional medicine was acquiring a very dismal track record on the treatment of chronic disease, the exact opposite pattern was emerging for holistic/functional medicine. Some examples include the following:

- A large study published in the British medical journal *Lancet Oncology* found that diet (plant-based), yoga, meditation, and lifestyle changes increased the length of telomeres. Shorter telomere length has been associated with conditions such as hypertension, obesity, diabetes, heart disease, and prostate cancer.35

- The *Institute of Medicine* reported in the *Wall Street Journal* that a holistic approach to health care—which uses the best of conventional medicine along with alternative therapies like meditation, yoga, acupuncture, and herbal medicines—has been scientifically documented to be medically effective and cost effective.36

- The book *Nutritional Medicine* has over 15,000 scientific references proving that healthy foods and nutritional supplements can prevent, and often reverse, nearly every chronic disease.37

These tactics have weakened in the Internet era as more people are able to access information that is not controlled by the mainstream media and their big pharma advertisers.

### The Beginning Of The End

Conventional medicine’s house of cards is about to begin its big fall from grace with the recent announcement that the prestigious Cleveland Clinic is going “functional.” President and CEO of the Cleveland Clinic Dr. Delos “Toby” Cosgrove recently announced a number of significant actions including:38

- The establishment of the first functional medicine grand rounds titled “Functional Perspective on Food and Nutrition: The Ultimate Upstream Medicine,”

- Research to test functional medicine models head-to-head against conventional medicine for a number of chronic diseases, such as diabetes, asthma, and autoimmune diseases,

- The creation of a Wellness Institute and the appointment of the nation’s first Chief Wellness Officer,

- Creation of a Chinese Herbal Therapy Clinic, one of the first of its kind in the country,

- The movement of the clinic’s $6.2 billion network of hospitals, family health centers, and outpatient clinics in a decidedly holistic direction.

This is the most significant push in the holistic direction by any mainstream health care network in the United States and much of the credit must go to Dr. Mark Hyman, who met with Dr. Cosgrove several times over the past two years. Dr. Hyman is the Chairman of the Board of The Institute of Functional Medicine and one of the true leaders in the functional medicine movement.

For two years, Dr. Cosgrove tried to bring Dr. Hyman to Cleveland. Dr. Hyman resisted the CEO’s overtures and actually told him, “Toby, you don’t want me there. Because if I go there I’m going to tell you that most of what you are doing is wrong; that in fact, you are harming people, that I would want to implement programs that are going to empty out half your hospitals and clear out most of your procedure rooms, and reduce hospital stays and doctor visits dramatically. Are you okay with that?” Dr. Cosgrove did not waiver in his commitment to the new direction and has moved ahead with Dr. Hyman’s full support and assistance.38
This dire pronouncement about conventional medicine is a very similar to a statement Dr. Hyman made at a US Senate hearing on health care a few years ago when he said:

“You will not solve the current healthcare crisis if you simply continue to do the wrong things better.”

The writing is on the wall, and conventional medicine should stop resisting change and start to embrace it. This is a battle that those who believe only in conventional medicine cannot win, and the more they resist, the more credibility and respect they will lose. This is truly the beginning of the end of the war in medicine.

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

Charles K. Bens, PhD, is an author, speaker, and consultant specializing in the prevention and reversal of chronic disease. He is the founder and president of Healthy @ Work, Inc., a wellness education and consulting company focused on improving the health of employees. Dr. Bens has written over 200 articles and nine books including Healthy @ Work: Your Pocket Guide to Good Health and The Healthy Smoker: How To Quit Smoking By Becoming Healthier First.

References
As we age, our once-vigorous immune system begins to decline. The result is immune senescence, which has been linked to problematic outcomes in aging.¹

A vital immune system is composed of a healthy balance of naïve T-cells that attack new invaders and memory T-cells that attack previously known invaders. However, after a naïve T-cell attacks a new threat, it becomes a memory T-cell, which will only go after a threat that it remembers.²³

The result is that the delicate immune balance tips and we have a surplus of memory T-cells and a deficit of naïve T-cells. With this imbalance, our body is less able to defend itself against new invasions. This produces a less-vigilant immune system—or immune senescence.⁴

Life Extension® researchers have developed an innovative, dual-mechanism formula designed to combat immune senescence.⁵

Immune Senescence Protection Formula™ is composed of two botanical compounds that support both adaptive (e.g. naïve T-cells) and innate (e.g. macrophages and neutrophils) immune response cells. Together, these nutrients work in a complementary fashion to rejuvenate both major arms of the aging immune system through unique mechanisms.

Cistanche Rejuvenates Aging Immune System

Scientists have discovered that the echinacoside compound found in Cistanche plant extract stimulates the development of naïve T-cells and leads to a lower amount of memory T-cells, thereby creating a more balanced immune response. Cistanche also increases Natural Killer (NK) cell activity—resulting in a 15% life span increase in animal research!⁶

A 12-week human study of a dietary supplement containing standardized Cistanche, resulted in impressive gains in immune factors after supplementation. Subjects had significant improvements, including an 11.7% increase in natural killer (NK) cell activity and a 20.2% improvement in the ratio of CD4 to CD8 cells. An increased CD4/CD8 ratio is indicative of healthy, youthful immune function.⁶

Reishi Mushroom Combats Immune Senescence

The numerous bioactive components of the Reishi mushroom exert powerful effects that may reverse many of the factors of immune senescence.⁷

Reishi extracts boost the function of innate immune cells, the immune system’s first line of defense.⁷⁹

It has long been known that Reishi’s unique polysaccharides, triterpenes, and other constituents enhance the body’s hematopoietic stem cells, macrophages, and other crucial immune factors.¹⁰¹¹ Animal research shows Reishi supports multiple aspects of immune function and longevity.¹⁴

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-Potent, Dual-Extract Formulation

Now, both Cistanche and Reishi are available in one powerful, dual-extract formulation, specifically created for year-round support of the aging immune system!

**Immune Senescence Protection Formula™ with standardized Cistanche and Reishi** is our maximum dual-extract defense against immune senescence.

The suggested serving of two vegetarian capsules daily of **Immune Senescence Protection Formula™** provides:

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A bottle of 60 vegetarian capsules of **Life Extension® Immune Senescence Protection Formula™** retails for $40. If a member buys four bottles, the price is reduced to $27 per bottle.

**Standardized Cistanche**

For those seeking the effects of Cistanche only, **Life Extension®** has created a standalone **Standardized Cistanche** that contains the same echinacosides as in the **Immune Senescence Protection Formula™**. For a very low price, a member can obtain the recommended 210 mg daily Cistanche dosage in a single, high-potency capsule providing a potent 46.2 mg dose of echinacosides.

**Standardized Cistanche** provides powerful support against immune senescence.

The suggested dosage of one vegetarian capsule of **Standardized Cistanche** provides:

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A bottle of 30 vegetarian capsules of **Life Extension® Standardized Cistanche** retails for $20. If a member buys four bottles, the price is reduced to $12 per bottle.

**To order Life Extension® Immune Senescence Protection Formula™, or Standardized Cistanche call 1-800-544-4440 or visit www.LifeExtension.com**
Get All The Protective Benefits Of Cruciferous Vegetables In One Easy-To-Take Supplement

Scientists continue to find healthy benefits—including DNA protection—in cruciferous plants.

But it's not always easy to get in five servings of cruciferous vegetables a day—and even if you do, cooking can destroy many of the protective compounds found in broccoli, Brussels sprouts, cauliflower, and cabbage.

Life Extension®'s Triple Action Cruciferous Vegetable Extract combines vital plant extracts into a comprehensive formula to provide optimal DNA protection. Each capsule also contains:

- **Indole-3-carbinol (I3C)** and di-indolyl-methane (DIM) to encourage liver detoxification and modulate estrogen metabolism
- Bioactive cruciferous compounds like glucosinolates have favorable effects on healthy cell division
- **Apigenin**, a powerful plant flavonoid, that boosts cell protection

Those who want the additional benefits of trans-resveratrol can order Triple Action Cruciferous Vegetable Extract with Resveratrol. Each vegetarian capsule contains 20 mg of trans-resveratrol in addition to the vegetable extract.

**References:**

**Triple Action Cruciferous Vegetable Extract**
Item #01468 • 60 vegetarian capsules

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**Triple Action Cruciferous Vegetable Extract with Resveratrol**
Item #01469 • 60 vegetarian capsules

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

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
Life Extension® member Debbie Sherrick is nothing short of a dynamo. After more than 20 years as a personal trainer, she is now a certified holistic health counselor and herbalist who coaches clients about diet, lifestyle, weight loss, and codependency. In an exclusive interview with Life Extension® magazine, Sherrick talks about her background, what brought her to holistic health, and how she works with patients and promotes her own good health and longevity.

Origins

Sherrick’s relationship with good health goes way back. “We grew all our own vegetables and Mom would freeze and can everything for the winter. We always had fresh grass-fed beef and fresh chickens and eggs from a neighbor. We rarely went to the store for anything,” says Sherrick, who was raised in a large extended family in rural Indiana.

She says another key influence was her grandmother, who lived to be 100 and taught Sherrick the value of herbal healing. “Grandma Molly was an herbalist, but we thought she was like a voodoo practitioner,” Sherrick explains. “She would make concoctions and people would come to her from all over with their ailments.” Sherrick realized early on that herbs were like medicine, only more effective. She remembers her grandmother preparing a liquid from horseradish root and giving it to her for childhood asthma. “It was like fire,” she recalls, “but it would bring up the phlegm. We rarely went to the doctor.”
After moving to Florida with her parents, Sherrick began to forget these early life lessons and started to eat poorly. As a young bride with two children, she remembers eating lots of fast food and sugar, skipping breakfast, and even fainting one day in her kitchen. A friend referred her to a nutritionist who diagnosed the young woman with hypoglycemia and started her on a healthy eating plan of lean protein and shakes, herbs, and supplements.

“That’s when I said to myself, ‘Wow. I know this. What was I thinking? I know I need [good] nutrition. I know I need herbs and more raw and fresh foods. I’ve neglected taking care of myself.’”

Sherrick sees this moment as the start of her journey to becoming healthy and learning how to help others do the same.

When her second marriage ended many years later, Sherrick realized she needed to start taking care of herself and decided to become a personal trainer working out of her in-home gym. After much studying and reading, she began to develop the mind-body-spirit approach she currently uses to treat a whole person. With degrees in exercise science and nutrition, a certificate in iridology, and an herbalist license, Sherrick began using a multidisciplinary program to help others get healthy.

**A Total Approach**

“I decided I wanted to work with the whole body,” Sherrick explains. Her strong belief that physical ailments affect the mind and vice versa led her to learn all she could about both.

Sherrick grew up in an alcoholic home, and that led her to understand how unexplored emotional issues can impact physical well-being. After years of trying to help people with nutrition and exercise alone, she realized this was not 100% effective because many clients had childhood issues and addiction problems that were not being addressed. When she incorporated these into her work, she felt she was finally doing what she needed to do—and treat the whole person.

“My program involves food and supplements, plus helping people work with their doctor to get off prescription drugs, learn to handle stress, have healthy relationships, and deal with childhood and other emotional issues.

“You never arrive,” Sherrick states, “you get healthier and healthier and you have many tools to use, but it’s a lifetime’s work.”

**How Sherrick Works**

Sherrick aims to discover each patient’s individual needs and then strives to meet them. There is an initial 90-minute consultation where she reviews a client’s diet, genetics, nervous system, exercise, lifestyle, and current health, especially the digestive system, which she thinks is extremely important.

“A lot of people come because they think I’m going to give them something for their symptoms,” she explains. “They don’t think I’m going to look at their roots, their biology, and remove the cause
rather than treat the symptoms, which is generally their experience in visiting doctors.”

Sherrick also looks at the bloodwork her clients provide and may use a biofeedback program to assess body energy. “I want to teach people to take responsibility for their health,” she stresses. “Americans are trained not to take responsibility for their health. They believe [in] doctors and food companies and Western medicine. We don’t have health care. We have sick care.”

But Sherrick is now seeing positive changes happening in the health field. “In the last seven years, I have had more referrals from doctors,” she says. “There is more awareness and more belief [regarding whole-body healing], especially among young doctors.” She ascribes this to a recognition that holistic health approaches are more in demand, especially from Baby Boomers, and doctors are now exploring more preventive and alternative care.

Her Personal Regimen

Sherrick’s own healthcare regimen is a work in progress. She begins her day with a glass of purified water containing chlorophyll to put oxygen in her lungs, followed by probiotics to boost her immune system. Next comes 30 to 40 minutes of what she calls “quiet time,” the practice of visualization, breathing, and prayer.

This is followed by a breakfast shake of organic whey protein, fiber, coconut oil, organic berries, and Greek yogurt or almond butter, followed by supplements. Some supplements are taken regularly and others only when needed.

“If I’m feeling more stress, I’ll take more adaptogens and maybe more of the B vitamins,” Sherrick notes. “If I’m feeling a little rundown, I’ll take something extra for my immune system.”

If she feels she may be getting sick, Sherrick might add echinacea, garlic, ginger, elderberry, zinc, rose hips, olive leaf, capsicum, or colostrum. She also takes an herbal trace mineral product that includes dandelion, alfalfa, kelp, wheat grass and hops; food enzymes for the digestive system; krill oil for joints; turmeric for its anti-inflammatory properties; algae with spirulina, chlorella, and blue-green algae; and a calming formula with hops, valerian, and passionflower.

She then does 30 to 40 minutes of exercise, either at home or in a gym.

Living Longer

Sherrick’s number-one piece of advice for living longer is: “Keep moving and do not become sedentary.” Sherrick adds that nutrition is a major factor in a long and healthy life, and recalls a client who began working with her when he was in his 80s and died at age 101.

“I learned so much from him because he knew true health and knew about longevity,” she recalls. “He grazed, eating every two or three hours, mainly organic vegetables and fruits and lean grass-fed meat. He also had never been in a hospital, had a strong spiritual side, and never held a grudge.”

Sherrick also advocates an exercise program that gets you “a little winded and makes you breathe deeply,” plus finding emotional peace of mind.

Life Extension® Benefits

Sherrick loves being a member of Life Extension®, and praises their integrity as well as their free access to health advisors, which she calls “a tremendous service.” Life Extension® magazine articles are often helpful in her work, she adds, including “The Dangers of Using Antibiotics to Prevent Urinary Tract Infections,” which was published in the June 2014 issue. Sherrick quoted information from the article in her online newsletter since many of her clients suffer from this problem and have no idea how to treat it effectively.

“I love to educate people,” Sherrick concludes, “Knowledge is power.”

You can reach Debbie Sherrick on her website at www.insideoutwellnesscoach.com. She helps clients both in person and through Zoom, a video system where she works face-to-face and screen-shares documents and other health information.

If you have any questions on the scientific content of this article, please call a Life Extension® Health Advisor at 1-866-864-3027.
Introducing the first softgel formulated to support healthy peripheral nerves in multiple ways, simultaneously.

Now, Nervia®’s patented action also supports joint function in your hands and feet.

Nervia was formulated by healthcare professionals who have recognized there are numerous pathways supporting healthy peripheral nerves. Nervia is different because it blocks multiple types of oxidative stress and pro-inflammatory cytokines in many pathways. The formula was found to manage reactive oxygen species and block lipid peroxidation caused by reactive nitrogen species. The convenient vegetarian softgel contains high-grade botanicals, extracts, and nutrients that support the body’s natural inflammatory response system.

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

Retail Price $49.95  Member Price $37.46  Item # 01121

myNervia.com

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Richard “Rick” Rosner is credited with having the world’s second-highest IQ. That ranking very likely under-represents his cognitive abilities.

This Life Extension® member has received the highest scores ever recorded on most of the IQ tests he has taken—and on the IQ test reputed to be the world’s most difficult, the Titan Test. Rosner attained the only perfect score ever recorded.

In this exclusive interview, Rick discusses his unique longevity program and his plans for a very long life.

LE: Rick, you’ve had an eclectic assortment of careers—bouncer, editor of the high-IQ-journal for the Mega society, nude model, quiz show contestant, TV show creator and producer, and comedy writer. Can you tell us about your current projects?

RR: [Recently], I became unemployed after 12 years writing for Jimmy Kimmel Live! But fortunately, I had a book proposal nearly ready to submit. The book, Dumbass Genius, is a memoir about all the ridiculous, non-genius stuff I’ve done. I also have a theory of the universe I’ve been working on for over 33 years that I laid out in a series of online interviews. And my web series starts shooting [soon].

LE: Aside from your television-writing career, you’re well known as the world’s second-smartest person. How did you claim this title?

RR: [Actually], I’m listed as having the world’s second-highest IQ at the World Genius Directory (http://psiq.org/), which isn’t the same as being the world’s second-smartest person. I’ve taken more than 30 of the world’s most difficult IQ tests and earned the highest-ever score on about 20 of them... I really should have points subtracted from my IQ for wasting so much time on IQ tests.

LE: Your high-end IQ scores rose significantly over time, which seems unusual. How do you explain this?

RR: When I was a kid, my IQ scores never went much above 150, partly because tests themselves didn’t measure much above 150. Later, people created tests to measure ultra-high IQs, and I started scoring in the 170s, then 180s, and occasionally the 190s. Some studies suggest that certain aspects of intelligence decline about 1% a year after peaking in your late 20s. Scientists and mathematicians are said to often make their greatest contributions in their 20s and 30s. There are various possible reasons for this, but if it’s partly due to decline in brain function, I want to fight that with supplements.

LE: Do you think supplements have been making you smarter over the years?
RR: My intent has always been to keep the brain function I already have as long as possible. If I can avoid much of [the brain-function decline], then I’ll have increased my intelligence relative to people my age. Until my mid-40s, I could get by with exercise and diet, but it’s good that I discovered supplements because exercise and diet wouldn’t be sufficient indefinitely. I feel as good in my mid-50s as I did in my mid-40s, and there must be a bunch of people who can’t say that. What’s the point of experience if your brain’s too gummed-up to access it? PET scans of people with illnesses related to unhealthy eating and lack of exercise show dimmed-out brain function. Get them to clean up their act, and their brains light up again.

LE: How did you develop your supplement program? Based on what information?

RR: In the 80s, I started taking the standard vitamins—C and E—and sometimes whatever was on the half-price rack at vitamin stores, plus predigested protein to support weight training. In 2005, I read Ray Kurzweil and Terry Grossman’s book, Fantastic Voyage: Live Long Enough to Live Forever, listing many of the 150 or so supplements Kurzweil takes, and I began building a serious supplement regimen. Since then, I’ve added more supplements based on Internet research and Life Extension® magazine articles. I’m currently taking about 40 different supplements. I want to maintain my ability to learn and think—I think healthy habits and supplements are my best shot at doing that.

LE: Do you think your program could help prevent dementia and Alzheimer’s?

RR: I think it improves my chances. Nothing’s certain... tomorrow I could be T-boned by a texting teen in an SUV. Alzheimer’s doesn’t run in my family and the only risk groups I belong to are being in my 50s and having taken a few head punches while working in bars. We may understand how to treat Alzheimer’s in 15 years. I’m hoping that my regimen at least holds it off long enough for effective treatments to be developed.

LE: Please tell us about the prescription and nonprescription supplements you take to promote brain health.

RR: Supplements and habits that promote general health also promote brain health. The two cheapest, easiest daily rituals for general health are flossing and taking a half- or quarter-tablet of a baby aspirin each day for blood thinning and to fight inflammation. The only brain drug with an indisputable, immediate effect is coffee. Compounds I take for long-term brain maintenance include phosphatidylserine, Cognitex® from Life Extension®, DMAE, aminoguanidine, centrophenoxine, piracetam or aniracetam, and occasionally, vinpocetine.

LE: You take either piracetam or aniracetam. What has been your experience with these “smart drugs” (nootropics)?

RR: I took piracetam every workday for a few years. Then something happened with the FDA, and piracetam became more expensive, and you couldn’t buy it on Amazon or eBay. So I switched to aniracetam. But I haven’t been taking it much because I’m not writing jokes for TV right now, where you have to think fast. Now that my jokes are in tweet form, I’m taking only six or seven brain supplements instead of eight or nine.

LE: Have you noticed that Cognitex® helps mental function?

RR: What I’ve noticed is no obvious cognitive decline. I’m getting to the age where people start becoming forgetful, but I experience no more forgetfulness than in the past. I think as clearly as ever. I don’t know how, specifically, to account for this—I’d guess it’s a combination of supplements, exercise, food discipline, and luck.

LE: Of all your supplements, methylene blue, which is a dye, has to be the most obscure. What are its benefits and how does it work?

RR: Methylene blue is my weirdest supplement. About five years ago, Phase II trials showed methylene blue had reduced progression of Alzheimer’s and Parkinson’s by 90%. They’re currently in Phase III trials. It has been used for over a century as a surgical dye, a malaria treatment, and an antifungal agent for fish. In brains that are breaking down, dead brain cells spit out sticky protein called amyloid, which chokes more cells, which spit out more amyloid. One way they think methylene blue works—if it does—is by acting on amyloid as a kind of detergent, making the strands less stuck-together and more [easily cleared] by natural brain processes. Because it’s so unproven and I’m not in any dementia risk groups—except for some punches to the face as a bouncer—I don’t take methylene blue every day. One fun thing is it turns your urine bright emerald green!

LE: You also take metformin, although you don’t have diabetes. Can you explain its importance?
**RR**: Metformin is one of my favorite drugs/supplements. It helps your body use insulin more efficiently and reduces blood sugar spikes. Your body is kind of a slow cooker, and high blood sugar “cooks” you quicker. Along with resveratrol, metformin’s one of the few drugs that seem to act as a calorie-restriction mimetic. When you practice calorie restriction, your body switches into slower-aging mode. But calorie restriction isn’t much fun, so if you can trick your body into thinking it’s calorie-restricted, great! Resveratrol seems to do this. Unfortunately, when you take resveratrol orally, your liver knocks out most of it. This doesn’t happen with metformin. Studies show metformin may also reduce cancer risk.

**LE**: Explain why you take the prescription drug Avodart® (dutasteride).

**RR**: Avodart® knocks out DHT, a form of testosterone that makes your prostate blow up and your hair fall out. It seems to keep my hair attached to my head and my prostate in decent shape, despite my sit-down job, which can be hard on your prostate. Your body makes two forms of DHT and Avodart® knocks down both of them—Propecia® and Proscar® only block one form of DHT, so I prefer Avodart®. It seems to leave the rest of your testosterone alone—my level is in the mid-700s, which is good for a guy in his 50s.

**LE**: And the prescription drug metoprolol?

**RR**: Metoprolol is my beta-blocker. I’m one of those people whose blood pressure is tied to emotions. Because it’s an adrenalin blocker, it keeps me from getting overly worked-up. Without it, my blood pressure might be in the 130s over 90s, especially in Los Angeles traffic. With metoprolol, it’s in the 100s over 60s—which is associated with longevity and not having the feeling your head’s gonna pop.

**LE**: Have you made supplement recommendations to others you know?

**RR**: I tell a lot of people to try fiber gummies and carb blockers, which help move food through your body without full absorption. Most people struggle not to take in more food than their bodies need. Fiber gummies and carb blockers can replace a bit of food discipline. Besides that, my enthusiasm for supplements is mostly inflicted on my wife and dog.

**LE**: In recent years, you started drinking coffee every day—for what benefits?

**RR**: Coffee’s the only brain drug that shows me on a daily basis that it works. I started drinking coffee about two-and-a-half years ago. [Now I can] work straight through the day with little fatigue. Coffee doesn’t make me smarter, but it makes me chattier—helpful for yelling out jokes [as a comedy writer]—and more focused.

**LE**: Do you think your rather extreme exercise routine slows body and brain aging?

**RR**: The amount of exercise I do isn’t particularly crazy—80 to 100 sets daily on weight machines. What’s crazy is that I have a [daily] circuit of five gyms, using my favorite machines at each. I’ve missed only 55 days at the gym in 30 years, the most recent missed day being January 20, 1991. Studies indicate working out has longevity benefits. I’d guess I’m at least a decade younger physiologically than chronologically. And working out helps me with stress and focus. Working on a daily TV show, I had to support my health to help my concentration. I got more sleep, quit moonlighting, and dropped my body fat—which had crept to 12%—back down to 6%.

I became increasingly productive and supplements helped me hold up under a hefty workload.

**LE**: Can you describe the thinking that led you to your comprehensive supplement routine?

**RR**: My main motivation has been to live as long as possible, to see all the cool science fiction stuff in the future. It stinks to be among the last few generations of people who are biologically obligated to age and die. There are people alive now who will still be alive 150 years from now, and if they’re alive in 2165, they have an excellent shot at living as long as they want. To live a very long time, you don’t need to live until everyone can live forever. You only need to live long enough that for every year you live, medical science can extend your life by yet another year. (I think that’s a Ray Kurzweil idea.)
**Rick Rosner’s Complete List Of Prescription And Nonprescription Supplements**

The following list details Rosner’s comprehensive supplements regimen—and includes his comments on the value of each.

**Alpha lipoic acid and acetyl L-carnitine**—For mitochondrial support.

**Aminoguanidine**—Reduces advanced glycation end products (AGEs). Basically, AGEs make you sugary and crunchy, like roast turkey skin. You don’t want that.

**AMPK Activator from Life Extension®**—Helps keep blood sugar at optimum levels.

**Aspirin**—A half- or quarter-tablet of a baby aspirin daily for blood thinning and to fight inflammation.

**Astragalus**—May protect against shortening of telomeres.

**Avodart®**—Avodart® knocks out DHT, a form of testosterone that makes your prostate blow up and your hair fall out. [Warning: Women who may become pregnant and children should never take or even handle Avodart® capsules—which can be absorbed through the skin—because they can cause very serious birth defects; those taking Avodart® should avoid donating blood for at least six months after arresting treatment.]

**Benfotiamine**—A vitamin [B1] that reduces advanced glycation end products (AGEs).

**Calcium**—Strengthens bones, protects heart muscles.

**Centrophenoxine**—General nootropic [smart drug] related to DMAE.

**Coffee**—Coffee’s the only brain drug that shows me on a daily basis that it works.

**Cognitex® from Life Extension®**—I’m getting to the age where people start becoming forgetful, but I experience no more forgetfulness than in the past.

**Curcumin**—Anti-inflammatory. It may reduce incidence of cancer.

**DMAE (dimethylethanolamine)**—For healthy nerve membranes.

**Fiber gummies and fat blockers**—They help move food through your body without full absorption.

**Glisodin®**—May slow the graying of hair.

**Glucosamine and chondroitin**—I give it to our 16-year-old dog too.

**Horse chestnut**—Tones up your veins. I was born with terrible varicose veins.

**L-carnosine**—Reduces advanced glycation end products (AGEs).

**Lycopene**—May help protect heart and prostate.

**Mangosteen/pomegranate/noni complex**—[Full-spectrum fruit formula.]

**Metformin**—Metformin’s one of the few drugs that act as a calorie-restriction mimic.

**Methylene blue**—Phase II trials showed methylene blue (MB) had reduced progression of Alzheimer’s and Parkinson’s by 90%.

**Metoprolol**—Metoprolol is my beta-blocker.

**Mitochondrial Energy Optimizer from Life Extension®**—Helps maintain mitochondrial function.

**Comprehensive Multivitamin from Life Extension®**.

**N-acetyl cysteine (NAC)**—For liver protection.

**Omega-3 fish oil capsules**—An essential brain food.

**Phosphatidylserine**—Preserves cognitive function, particularly memory.

**Piracetam or aniracetam**—[For] when you have to think fast. I wanted to give myself every mental resource.

**Quercetin and bromelain**—Anti-inflammatory.

**SAMe (S-Adenosyl methionine)**—For liver protection.

**TMG (trimethylglycine)**—For liver protection, reduces homocysteine.

**CoQ10** (a formulation that features not only coenzyme Q10, but also vitamin E in its various forms of tocotrienols and tocopherols).

**Vinpocetine**—Occasionally, as a neuroprotectant and to increase cerebral blood flow.

**Vitamin C**—Helps fight oxidative stress.

**Vitamin D3**—Cancer inhibitor, may help prevent heart disease and supports the immune system.

**Vitamin E with selenium and Gamma E**—Selenium may reduce incidence of prostate cancer.

**Vitamin K**—Helps maintain proper blood clotting.

**5-LOX Inhibitor from Life Extension®**—Anti-inflammatory.
LE: Do you believe it’s possible to substantially extend healthy human life span?

RR: Using existing medical knowledge, I believe you can give yourself a fair chance of making it to 100. I think someone who’s obsessive about controlling all aging factors, even more than I do, might slow aging by 30% or more. Doing that across 60 years from age 20 to age 80, you might hit 80 with the physiological profile of an average 60-year-old person, with a one-in-four chance of making it to 100. And that’s just using current knowledge and tech. We’re on the verge of a biotech revolution. Some people wear fitness wristbands to monitor their physical activity—within 10 years, healthy people will wear monitors that read blood levels and offer advice. Within 20 years, wearable monitors will medicate healthy people on a real-time basis. Gene therapy should roll back some of the more absolute aging limits. By century-end, we should see a few Baby Boomers or Gen Xers who’ve made it into their 130s.

LE: How did you develop your antiaging program, and what were your key findings?

RR: Like everyone, I use the Internet and try to separate reasonable information from fantasy. Life Extension® magazine is helpful. You always back up claims with a zillion studies. My findings? Don’t always rely on your doctor—do your own research. Most doctors don’t specialize in supplementation, and the normal ranges of blood-test values aren’t always optimal. Look at many sources. On the Internet, it’s hard to know if sources are accurate. Tell your doctor what you’re doing. Floss and take aspirin. Watch your blood pressure—closer to 100/60 is probably better than 120/80. There are good blood pressure meds if you can’t get your BP down [naturally]. Watch your blood glucose—80 or below is optimal.

Make your diet, exercise, and supplementation routine as easy as possible. If it’s a pain, you’ll likely quit. Stay up to date in your research. New findings come along all the time. Factor in cost-effectiveness factors...what I spend on supplements has to be thousands of dollars a year. You should be pooping frequently and easily. Fiber helps. I think fiber gummies are the easiest way to get it. Try carb blockers—if taken before meals, they prevent your body from absorbing about 25% of carbs it normally would. Avoid fat blockers by peeling most cheese off your pizza—it’ll still taste like pizza. Without being a nuisance, get your family involved. My wife, who loves to cook, learned to make healthy, tasty meals. I combine about 20 different supplements into capsules for our dog—she seems more alert since I increased the brain drugs in her dog pills. If you enjoy going out for meals with your significant other, try splitting an entrée.

LE: You’re now 54. With your extensive program—how many more birthdays do you hope to have?

RR: My exemplar is Jack LaLanne, who made it to 96. But he didn’t eat sugar for the last 80 years of his life—I’m not that disciplined. That’d give me 42 more years, during which time I hope medical science will come up with ways to add some bonus years to that.

LE: We hope so too. Thanks.

RR: Thank you.

Readers interested in Rosner’s memoirs should watch for the release of his new book, *Dumbass Genius*, in 2016. Meanwhile, you can follow him on Twitter @dumbassgenius.

If you have any questions on the scientific content of this article, please call a Life Extension® Health Advisor at 1-866-864-3027.
As we get older, our eyes become vulnerable to a variety of insults that can cause irritation and dry eye. With just a few drops of the proper eye lubricant, eye irritation stemming from dryness may be alleviated.

Brite Eyes provides a powerful dose of two well-established lubricants in every drop, soothing eye discomfort without irritation.

Hydroxymethyl-cellulose and glycerin are FDA-approved for ophthalmic use and are uniquely preserved with potent antioxidants and anti-glycating agents.

The Brite Eyes formula is buffered in a way to make it soothing to the eye. The suggested use of Brite Eyes III is to apply 1 to 2 drops in each eye every day.

Each box of Brite Eyes III contains two individual vials that provide 5 mL each. The reason for putting Brite Eyes into individual vials is to reduce the risk of bacterial contamination. Having small vials also makes it convenient for consumers to keep Brite Eyes readily accessible at home, the office, in one's purse or pocket, and other places where access to a soothing eye drop is needed.

The retail price for a box containing two 5 mL vials of Brite Eyes III is $34. If a member buys four boxes, the price is reduced to $24 per box.

To order Brite Eyes III, call 1-800-544-4440 or visit www.LifeExtension.com
Can a simple protein hold the key to improving your memory?

Researchers have discovered a protein that actually supports healthy brain function.*

For many years, researchers have known that the human brain loses cells throughout our lives, part of the natural process of aging. In fact, we lose about 85,000 brain cells per day, that is one per second, over 31 million brain cells every year! This impacts every aspect of your life...how you think and how you feel.

Recently, scientists made a significant breakthrough in brain health with the discovery that apoequorin can support healthy brain function, help you have a sharper mind and think clearer.*

**Supports Healthy Brain Function***

Apoequorin is in the same family of proteins as those found in humans, but it was originally discovered in one of nature's simplest organisms — the jellyfish.

**Supports a Sharper Mind***

Now produced in a scientific process, researchers formulated this vital protein into a product called Prevagen®. Prevagen is clinically shown to help with mild memory problems associated with aging.*

**Improves Memory***

This type of protein is vital and found naturally in the human brain and nervous system. As we age we can't make enough of them to keep up with the brain's demands. Prevagen supplements these proteins during the natural process of aging to keep your brain healthy. Prevagen comes in an easy to swallow capsule. It has no known side effects and will not interact with your current medication.

**Supports Clearer Thinking***

Just how well does Prevagen work? In a computer assessed, double-blinded, placebo controlled study, Prevagen improved memory for most subjects within 90 days.*

**Try Prevagen® for yourself and feel the difference.**

**Item #01576**
Prevagen 10 mg
Retail $60
Member Price $45

**Item #01577**
Prevagen 5 mg
Retail $70
Member Price $60

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

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

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

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

**Most Popular Panels**

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<thead>
<tr>
<th>Panel Name</th>
<th>Price</th>
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<tbody>
<tr>
<td>COMPREHENSIVE PANELS</td>
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<tr>
<td>MALE LIFE EXTENSION PANEL (LC122582)</td>
<td>$289</td>
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<tr>
<td>Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: C-Reactive Protein, DHEA-S, Homocysteine, TSH for thyroid function Free Testosterone Estradiol Total Testosterone Vitamin D 25-hydroxy PSA (prostate-specific antigen) Hemoglobin A1c</td>
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<td>WEIGHT LOSS LOSS PANEL-COMPREHENSIVE (LC100028)</td>
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<td>WEIGHT LOSS LOSS PANEL-BASIC (LC100027)</td>
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<td>MALE HORMONE ADD-ON PANEL (LCADD08)</td>
<td>$155</td>
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<td>Pregnenolone and Dihydrotestosterone (DHT) To provide an even more in-depth analysis of a man's hormone status, Life Extension has created this panel as an addition to the Male Life Extension Panel. This panel provides valuable information about a testosterone metabolite that can affect the prostate, and the mother hormone that acts as a precursor to all other hormones.</td>
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<td>FEMALE HORMONE ADD-ON PANEL (LCADD09)</td>
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<td>Pregnenolone and Total Estrogens To provide an even more in-depth analysis of a woman's hormone status, Life Extension has created this panel as an addition to the Female Life Extension Panel. This panel provides valuable information about total estrogen status, and the mother hormone that acts as a precursor to all other hormones.</td>
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<td>TSH, T4, Free T3, Free T4.</td>
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<td>FEMALE COMPREHENSIVE HORMONE PANEL* (LC100011)</td>
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<td>CBC/Chemistry Profile (see description above right), DHEA-S, Estradiol, Total Estrogens, Progesterone, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.</td>
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<td>MALE COMPREHENSIVE HORMONE PANEL* (LC100010)</td>
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<td>CBC/Chemistry Profile (see description above right), DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.</td>
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<td>THE CBC/CHEMISTRY PROFILE (LC381822)</td>
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<td>Note: This CBC/Chemistry Profile is included in many Life Extension panels. Please check panel descriptions.</td>
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<td>CARDIOVASCULAR RISK PROFILE</td>
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<td>HDL Cholesterol</td>
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<td>Estimated CHD Risk</td>
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<td>Triglycerides</td>
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<td>LIVER FUNCTION PANEL</td>
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<td>AST (SGOT) Total Bilirubin</td>
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<td>ALT (SGPT) Alkaline Phosphatase</td>
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<td>LDH</td>
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<td>BUN BUN/Creatinine Ratio</td>
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<td>Creatinine</td>
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<td>BLOOD PROTEIN LEVELS</td>
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<td>Red Blood Cell Count</td>
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<td>White Blood Cell Count</td>
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<td>Basophils</td>
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<td>Hematocrit</td>
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<td>Lymphs (Absolute)</td>
<td>MCV</td>
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<td>Monocytes (Absolute)</td>
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<td>MCHC</td>
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<tr>
<td>Baso (Absolute)</td>
<td>Polynucleated Cells</td>
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<td>Iron</td>
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<td>COMPREHENSIVE THYROID PANEL (LC100018)</td>
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<td>TSH, T4, Free T4, Free T3, Reverse T3, TPO, ATA</td>
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<tr>
<td>FOOD SAFE ALLERGY TEST** (LC100018)</td>
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<td>This test measures delayed (IgG) food allergies for 95 common foods.</td>
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<td>ADRENAL FUNCTION PANEL (LC100021)</td>
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<td>DHEA-S, AM/PM Cortisol, Glucose, Insulin, Lipid Panel, RBC magnesium</td>
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<td>HEALTHY AGING PANEL-COMBREHENSIVE* (LC100026)</td>
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<td>CBC/Chemistry profile (see description above), C-reactive protein (high sensitivity), Vitamin B12, Folate, Homocysteine, Vitamin D 25-hydroxy, Hemoglobin A1c, TSH, Free T3, Free T4, Ferritin, Urinalysis, Fibrinogen, and Insulin.</td>
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<tr>
<td>VAP™ TEST* (LC804500)</td>
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<tr>
<td>The VAP™ cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipoprotein profile. Direct measurements, not estimations, are provided for total cholesterol, LDL, HDL, VLDL, and cholesterol subclasses.</td>
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<tr>
<td>VAP™ PLUS* (LC100009)</td>
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<tr>
<td>VAP, C-Reactive Protein (high sensitivity), Homocysteine, Fibrinogen, PLAC® Test (Lp-PLA2), Vitamin D 25-hydroxy.</td>
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</table>

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

** This test is packaged as a kit, requiring a finger stick performed at home.
Other Popular Tests and Panels

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<th>Test Description</th>
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<td>NUTRIENT PANEL (LC100024)</td>
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<td>ENERGY PROFILE (LC100005)</td>
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<td>ANEMIA PANEL (LC100006)</td>
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<td>INFLAMMATION PANEL (LC100007)</td>
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<td>THYROID ANTIBODY PROFILE (LC100004)</td>
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<td>CARDIAC PLUS (LC100008)</td>
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<tr>
<td>Lp-PLA2 (PLAC® TEST)</td>
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<td>GLYCOMARK (LC500115)</td>
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<tr>
<td>CANCER RISK TESTING</td>
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<tr>
<td>NATURAL KILLER CELL SURFACE ANTIGEN (LC505016)</td>
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<td>PSA (PROSTATE SPECIFIC ANTIGEN)</td>
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<td>GALECTIN-3 (LC004110)</td>
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<td>MALE BASIC HORMONE PANEL (LC100012)</td>
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<td>FEMALE BASIC HORMONE PANEL (LC100013)</td>
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<td>DIHYDROTESTOSTERONE (DHT)* (LC500142)</td>
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<td>ESTRADIOL (LC004515)</td>
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<td>INSULIN FASTING (LC004333)</td>
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<td>PREGNENOLONE* (LC140707)</td>
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<td>PROGESTERONE (LC004317)</td>
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<td>FEMALE BASIC HORMONE PANEL (LC100013)</td>
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<td>DIHYDROTESTOSTERONE (DHT)* (LC500142)</td>
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<td>ESTRADIOL (LC004515)</td>
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<td>INSULIN FASTING (LC004333)</td>
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<td>PREGNENOLONE* (LC140707)</td>
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<td>PROGESTERONE (LC004317)</td>
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<td>FERRITIN (LC004598)</td>
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<td>VITAMIN B12/FOLATE (LC008810)</td>
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**Blood tests available only in the continental United States. Not available in Maryland.**

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- Glycine Capsules
- L-Arginine Capsules
- Arginine/L-Ornithine Capsules
- L-Carnitine Capsules
- L-Glutathione, L-Cysteine & C
- L-Glutamine Capsules
- L-Glutamine Powder
- L-Tyrosine Tablets
- Mega L-Glutathione Capsules
- N-Acetyl-L-Cysteine Capsules
- Optimized Carnitine with GlycoCarn®
- Pharma QABA®
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- ArthroMax® with Theaflavins and AprèsFlex®
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- Bone-Up™
- Bone Restore
- Bone Restore w/Vitamin K2
- Bone Strength Formula w/CoAct™
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- Fast Acting Joint Formula
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- Acetyl-L-Carnitine-Arginine
- Brain Shield® Gastrodin
- Cognitex® with Brain Shield®
- Cognitex® with Pregnenolone & Brain Shield®
- Cognitex® Basics
- Cognizin®
- Cognizin® CDP Choline Capsules
- DMAE Bitartrate
- Ginkgo Biloba Certified Extract™
- Huperzine A
- Lecithin Granules
- Methylcobalamin Lozenges
- Migra-Mag with Brain Shield®
- Neuro-Mag™
- Optimized Ashwagandha Extract
- Phosphatidylserine Capsules
- Pre vagan®
- Rhodiola Extract
- Super Ginkgo Extract
- Vincopetine

DIGESTIVE
- Bifido GL Balance
- Carnosoothe w/PicroProtect
- Digest RC™
- Esophageal Guardian
- Enhanced Super Digestive Enzymes
- Extraordinary Enzymes
- FlorAssist® Probiotic
- Gutsy Chewy Digestive Tablets
- Pancreatin
- Regimin
- Therlac Probiotics

DURK AND SANDY PRODUCTS
- Blast™
- Inner Power™

EYE CARE
- Bilberry Extract
- Brite Eyes III
- Eye Pressure Support with Mirtogenol®
- MacuGuard® Ocular Support
- MacuGuard® Ocular Support with Astaxanthin
- Solarshield Sunglasses
- Super Booster w/MacuGuard® Ocular Support

FOOD
- AppleWise Polyphenol
- Fiber Food
- TruFiber®
- WellBetx PGX® plus Mulberry

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

HEALTHY FOODS
- Acidophilus Bifidus
- Acidophilusophilus Bifidus
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HEART HEALTH
- AppleWise Polyphenol
- Advanced Lipid Control
- Advance Olive Leaf Vascular Support
- w/Celery Seed Extract
- Aspirin (Enteric Coated)
- Cardio Peak® w/Standardized Hawthorn and Arjuna Cho-Lea™
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- Natural BP Management
- Peak ATP® with GlycoCarn®
- Policosanol
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- Pycnogenol® French Maritime Pine Bark Extract
- Red Yeast Rice
- Super Absorbable CoQ10™ with d-Limonene
- Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
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- TMG Powder
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- Blueberry Extract
- Blueberry Extract w/Pomegranate
- Butterbur Extract w/Standardized Rosmarinic Acid
- Calcium D-Glucarate
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- Full-Spectrum Pomegranate™
- Grapeseed Extract with Resveratrol & Pterostilbene
- Huperzine A
- Kyolic® Garlic Formula 102 + 105
- Kyolic® Reserve
- Mega Green Tea Extract
- Mega Green Tea Extract (Decaffeinated)
- Mega Lycopene Extract
- Optimized Ashwagandha Extract
- Optimized Garlic
- Pomegranate Extract
- Pycnogenol
- Optimized Quercetin
- Resveratrol with Synergistic Grape-Berry Actives

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- Venotone
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- DHEA
- DHEA Complete
- Liquid Melatonin
- Melatonin
- Melatonin Timed Release
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- Immune Protect with PARACTIN®
- Immune Senescence Formula™
- Lactoferrin
- NK Cell Activator™
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- RiboGen® French Oak Wood Extract
- Standardized Cistanches
- Vitamin C w/Dihydroquercetin
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- Arthro-Immune Joint Support
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- Bromelain (Specially-coated)
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- MSM
- Nervia®
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- Copper
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- Magnesium
- Magnesium Citrate
- Only Trace Minerals
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- Selenium
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- Strontium
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- Zinc Lozenges

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- L-Theanine
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- SAMe
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- Life Extension Mix™ w/o Copper Tablets
- Life Extension Mix™ w/Extra Niacin
- Life Extension Mix™ w/Extra Niacin w/o Copper
- Life Extension Mix™ w/Stevia Powder
- Life Extension Mix™ w/Stevia w/o Copper Powder
- Life Extension Mix One-Per-Day
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- PalmettoGuard® Saw Palmetto/Nettle Root Formula w/Beta-Sitosterol
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- ProstaPollen™

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- Complete B Complex
- Effervescent Vitamin C
- Fast C®
- Folate & Vitamin B12
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- Gamma E Tocopherol/Tocotrienols
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- Mega Lycopene Extract
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- Optimized Folate
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- Super Ascorbate C Powder
- Super K w/Advanced K2 Complex
- Tocotrienols w/Sesame Lignans
- Vitamin B3 (Niacin) Capsules
- Vitamin B6
- Vitamin B12 Lozenges
- Vitamin C
- Vitamin D3
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- Vitamins D and K w/Sea-Iodine™
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- Garcinia HCA
- HCA Active
- IntegraLean® African Mango Irvingia
- Optimized Irvingia w/Phase 3™ Calorie Control Complex
- Optimized Saffron with Satiereal®
- Natural Glucose Absorption Control
- Super Citrimax®
- Super CLA Blend w/Guarana and Sesame Lignans
- Super CLA Blend w/Sesame Lignans
- Waist-Line Control™
- Weight Management Formula
- WellBetX PGX® plus Mulberry
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<td>ACETYL-L-CARNITINE ARGINATE - 100 veg. caps</td>
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<td>ADVANCED ORAL HYGIENE - 60 mini lozenges</td>
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<td>ALPHA-LIPIDIC ACID W/BIOTIN (SUPER) - 250 mg, 60 caps</td>
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<td>AMPK ACTIVATOR - 90 veg. caps</td>
<td>48.00</td>
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<td>ANTI-ALCOHOL ANTIOXIDANTS w/HEPATOPRO - 100 caps</td>
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<td>01509</td>
<td>ANTI-ADIPOCYTE FORMULA w/MERATRIM® &amp; INTEGRA LEAN® (ADVANCED) - 60 veg. caps</td>
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<td>APPLEWISE POLYPHENOL EXTRACT - 600 mg, 30 veg. caps</td>
<td>21.00</td>
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<td>01039</td>
<td>ARGININE/ORNITHINE - 500/250, 100 caps</td>
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<td>00038</td>
<td>ARGININE/ORNITHINE POWDER - 150 grams</td>
<td>22.95</td>
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<td>(L)-ARGININE CAPS - 700 mg, 200 veg. caps</td>
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<td>0617</td>
<td>ARTHEROMAX® w/TEAFLAVINS &amp; APRESFLEX® - 120 veg. caps</td>
<td>44.00</td>
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<td>0618</td>
<td>ARTHEROMAX® ADVANCED w/UC-II® &amp; APRESFLEX® - 60 caps</td>
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<td>01404</td>
<td>ARTHRIO-MUNE JOINT SUPPORT - 60 veg. caps</td>
<td>32.00</td>
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<td>00919</td>
<td>ARTICHOKE LEAF EXTRACT - 500 mg, 180 veg. caps</td>
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<td>01533</td>
<td>ASCORBYL PALMITATE - 500 mg, 100 veg-caps</td>
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<td>00888</td>
<td>ASHWAHANGDAH EXTRACT (OPTIMIZED) - 60 veg. caps</td>
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<td>01805</td>
<td>ASIAN ENERGY BOOST - 90 veg. caps</td>
<td>24.00</td>
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<td>01066</td>
<td>ASPRIN - 81 mg, 300 enteric coated tablets</td>
<td>6.00</td>
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<td>01720</td>
<td>ASTAXANTHIN WITH PHOSPHOLIPIDS - 4 mg, 30 softgels</td>
<td>16.00</td>
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<td>BENEFOTIAMINE W/ THIAMINE - 100 mg, 120 veg. caps</td>
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<td>BENEFOTIAMINE (Mega) - 250 mg, 120 veg. caps</td>
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<td>BERRY COMPLETE w/ACAI (ENHANCED) - 60 veg. caps</td>
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<td>00665</td>
<td>BETA-CAROTENE - 25,000 IU, 100 softgels</td>
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<td>BIFIDO GI BALANCE - 60 veg. caps</td>
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<td>01073</td>
<td>BILBERRY EXTRACT - 100 mg, 100 veg. caps</td>
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<td>BIODATIVE MILK PEPTIDES - 30 caps</td>
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<td>32.00</td>
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<td>26.95</td>
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<td>50.00</td>
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<td>BONE FORMULA (OIL, STRUM’S INTENSIVE) - 300 caps</td>
<td>56.00</td>
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<td>01726</td>
<td>BONE RESTORE - 120 caps</td>
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<td>01727</td>
<td>BONE RESTORE w/VITAMIN K2 - 120 caps</td>
<td>24.00</td>
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<td>BONE STRENGTH FORMULA w/KOACT® - 120 caps</td>
<td>45.00</td>
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<td>BONE-UP® - 240 caps</td>
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<td>BOOSTER - 60 softgels</td>
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<td>01980</td>
<td>BOOSTER w/MACUGUARD® OCULAR SUPPORT (SUPER) - 60 softgels</td>
<td>52.00</td>
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<tr>
<td>01651</td>
<td>BORON - 3 mg, 100 veg. caps</td>
<td>5.95</td>
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<td>00202</td>
<td>BOSWELLA - 100 caps</td>
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<td>01802</td>
<td>BRAIN SHIELD® GASTRODIN - 60 veg. caps</td>
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<td>01253</td>
<td>BRANCHED CHAIN AMINO ACIDS - 90 veg. caps</td>
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<td>01690</td>
<td>BREAST HEALTH FORMULA - 60 caps</td>
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<td>00893</td>
<td>BRITE EYES III - 2 vials, 5 ml each</td>
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<td>00894</td>
<td>BRITE EYES III - 2 vials, 5 ml each</td>
<td>32.00</td>
<td>24.00</td>
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</table>

**SUB-TOTAL OF COLUMN 2**

To order call: 1.954.766.8433 or 1.800.544.4440
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
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<tr>
<td>01203</td>
<td>BRONMELAIN (SPECIAL COATING) - 500 mg, 60 enteric coated tablets</td>
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<td>00884</td>
<td>BUTTERBUR EXT. w/STANDARDIZED ROSMARINIC ACID - 60 softgels</td>
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<tr>
<td>01653</td>
<td>CALCIUM CITRATE w/VITAMIN D - 300 caps</td>
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<tr>
<td>01651</td>
<td>CALCIUM D-GLUCARATE - 200 mg, 60 veg. caps</td>
<td>18.00</td>
<td>13.50</td>
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<tr>
<td>01623</td>
<td>CALREDUCE SELECTIVE FAT BINDER - 120 mini chewable tablets</td>
<td>45.00</td>
<td>33.75</td>
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<tr>
<td>01700</td>
<td>CARDIO PEARL™ w/STANDARDIZED HAWTHORN &amp; ARALUNA - 120 veg. caps</td>
<td>36.00</td>
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<tr>
<td>00916</td>
<td>CARNITINE w/GLYCOCARN® (OPTIMIZED) - 60 veg. caps</td>
<td>36.00</td>
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<td>01532</td>
<td>L-CARNITINE - 500 mg, 30 veg. caps</td>
<td>15.00</td>
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<td>01258</td>
<td>CARNOSOOTH w/PICROPROTECT™ - 60 veg. caps</td>
<td>29.95</td>
<td>22.46</td>
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<td>01687</td>
<td>CARNOSINE (SUPER) - 500 mg, 90 veg. caps</td>
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<td>00030</td>
<td>CAT MIX - 100 grams powder</td>
<td>60.00</td>
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<tr>
<td>01891</td>
<td>CHILDREN'S FORMULA LIFE EXTENSION MIX™ - 100 chewable tablets</td>
<td>20.00</td>
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<td>00550</td>
<td>CHOLESTRA - 500 mg, 200 tablets</td>
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<td>01571</td>
<td>CHLORPHYLLIN - 100 mg, 100 veg. caps</td>
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<td>01359</td>
<td>CH躲-LESS™ - 90 capsules</td>
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<td>01477</td>
<td>CHROMIUM ULTRA - 100 veg. caps</td>
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<td>01504</td>
<td>CHROMIUM WITH CHROMINEX® 3+ (OPTIMIZED) - 500 mcg, 60 veg. caps</td>
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<td>01503</td>
<td>CINSULIN® W/INSEA2® AND CROMINEX® 3+ - 90 veg. caps</td>
<td>38.00</td>
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<td>01906</td>
<td>CISTANACHE (STANDARDIZED) - 30 veg. caps</td>
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<td>01819</td>
<td>CITRIMAX® (SUPER) - 180 veg. caps</td>
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<td>00618</td>
<td>CLA BLEND W/SESAME LIGNANS (SUPER) - 1,000 mg, 120 softgels</td>
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<td>CLA BLEND W/GUARANA &amp; SESAME (SUPER) - 1,000 mg, 120 softgels</td>
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<td>01896</td>
<td>COGNITEX® w/BRAND SHIELD® - 90 softgels</td>
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<td>COGNITEX® w/PRYPREGENOLONE &amp; BRAND SHIELD® - 90 softgels</td>
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<td>01421</td>
<td>COGNITEX® BASICS - 60 softgels</td>
<td>38.00</td>
<td>28.50</td>
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**SUB-TOTAL OF COLUMN 3**

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<th>No.</th>
<th>Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
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<td>01659</td>
<td>COGNIZIN® CDP CHOLINE CAPS - 250 mg, 60 veg. caps</td>
<td>$36.00</td>
<td>$27.00</td>
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<tr>
<td>01735</td>
<td>COMPLETE B-COMPLEX - 60 veg. caps</td>
<td>10.00</td>
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<td>01999</td>
<td>COMPREHENSIVE NUTRIENT PACKS ADVANCED - 30 packs</td>
<td>90.00</td>
<td>67.50</td>
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<tr>
<td>00119</td>
<td>COPPER CAPSULES - 2 mg, 100 caps</td>
<td>9.91</td>
<td>7.43</td>
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<tr>
<td>00949</td>
<td>COQ10 w/LIMONEN (SUPER-ABSORBABLE) - 50 mg, 60 softgels</td>
<td>25.00</td>
<td>18.75</td>
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<tr>
<td>00950</td>
<td>COQ10 w/LIMONEN (SUPER-ABSORBABLE) - 100 mg, 100 softgels</td>
<td>66.00</td>
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<tr>
<td>01226</td>
<td>COQ10 (SUPER-UBIQUNOL) - 100 mg, 60 softgels</td>
<td>56.00</td>
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<td>01733</td>
<td>COQ10 w/DIPOQO® (SUPER-UBIQUNOL) - 100 mg, 30 softgels</td>
<td>54.00</td>
<td>40.50</td>
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<td>01426</td>
<td>COQ10 w/THI MITOCOMONITAL SUPPORT™ (SUPER-UBIQUNOL) - 100 mg, 60 softgels</td>
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<td>COQ10 w/THI MITOCOMONITAL SUPPORT™ (SUPER-UBIQUNOL) - 150 mg, 100 softgels</td>
<td>58.00</td>
<td>43.50</td>
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<td>01427</td>
<td>COQ10 w/THI MITOCOMONITAL SUPPORT™ (SUPER-UBIQUNOL) - 200 mg, 100 softgels</td>
<td>20.00</td>
<td>15.00</td>
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<tr>
<td>01431</td>
<td>COQ10 w/THI MITOCOMONITAL SUPPORT™ (SUPER-UBIQUNOL) - 200 mg, 100 softgels</td>
<td>62.00</td>
<td>46.50</td>
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<tr>
<td>80154</td>
<td>COSMESIS ADVANCED LIGHTENING CREAM - 1 oz jar</td>
<td>65.00</td>
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<td>80155</td>
<td>COSMESIS ADVANCED PEPTIDE HAND THERAPY - 4 oz bottle</td>
<td>46.00</td>
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<td>80152</td>
<td>COSMESIS ADVANCED TRIPLE PEPTIDE SERUM - 1 oz bottle</td>
<td>65.00</td>
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<tr>
<td>80140</td>
<td>COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS - 3 oz</td>
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<td>80139</td>
<td>COSMESIS AMBER SELF MICRODERMABRASION - 2 oz</td>
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<td>36.75</td>
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<tr>
<td>80118</td>
<td>COSMESIS ANTI-AGING MASK - 2 oz</td>
<td>72.00</td>
<td>54.00</td>
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<tr>
<td>80151</td>
<td>COSMESIS ANTI-AGING REJUVENATING FACE CREAM - 2 oz jar</td>
<td>65.00</td>
<td>48.75</td>
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<tr>
<td>80153</td>
<td>COSMESIS ANTI-AGING REJUVENATING SCALP SERUM - 2 oz bottle</td>
<td>60.00</td>
<td>45.00</td>
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<tr>
<td>80134</td>
<td>COSMESIS ANTI-GLYCATION SERUM - 1 oz w/BLUEBERRY &amp; POMEGRANATE EXTRACTS</td>
<td>33.00</td>
<td>24.75</td>
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<tr>
<td>80133</td>
<td>COSMESIS ANTI-OXIDANT FACIAL MIST - 2 oz</td>
<td>32.00</td>
<td>24.00</td>
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<tr>
<td>80127</td>
<td>COSMESIS ANTI-OXIDANT REJUVENATING FOOT CREAM - 2 oz</td>
<td>45.00</td>
<td>33.75</td>
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<tr>
<td>80128</td>
<td>COSMESIS ANTI-OXIDANT REJUVENATING FOOT SCRUB - 2 oz</td>
<td>59.00</td>
<td>44.25</td>
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</table>

**SUB-TOTAL OF COLUMN 4**
## Buyers Club Order Form

### C CONTINUED

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<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
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<td>80117</td>
<td>COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2 oz</td>
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<td>80121</td>
<td>COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2 oz</td>
<td>$58.00</td>
<td>$43.50</td>
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<tr>
<td>80105</td>
<td>COSMESIS ANTI-REDNESS &amp; ADULT BLEMISH LOTION - 1 oz</td>
<td>$74.50</td>
<td>$55.88</td>
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<td>80147</td>
<td>COSMESIS BIFLAVONOID CREAM - 1 oz jar</td>
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<td>80144</td>
<td>COSMESIS BROCCOLI SPLINT CREAM - 1 oz</td>
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<td>$34.50</td>
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<td>80156</td>
<td>COSMESIS COLLAGEN BOOSTING PEPTIDE SERUM - 1 oz</td>
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<td>$44.25</td>
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<td>80120</td>
<td>COSMESIS CORRECTIVE CLEARING MASK - 2 oz</td>
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<td>$48.38</td>
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<td>80141</td>
<td>COSMESIS DNA REPAIR CREAM - 1 oz jar</td>
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<td>80108</td>
<td>COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 oz</td>
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<td>80123</td>
<td>COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 oz</td>
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<td>80107</td>
<td>COSMESIS FINE LINE-LESS - 1 oz</td>
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<td>80131</td>
<td>COSMESIS HAIR SUPPRESS FORMULA - 4 oz</td>
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<td>80137</td>
<td>COSMESIS HEALING FORMULA ALL-IN-ONE CREAM - 1 oz</td>
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<td>80115</td>
<td>COSMESIS HEALING MASK - 2 oz</td>
<td>$64.50</td>
<td>$48.38</td>
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<td>COSMESIS HEALING VITAMIN K CREAM - 1 oz</td>
<td>$79.50</td>
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<td>80109</td>
<td>COSMESIS HYALURONIC FACIAL MOISTURIZER - 1 oz</td>
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<td>COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 1 oz</td>
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<td>80138</td>
<td>COSMESIS HYDRATING ANTIOXIDANT FACE MIST - 4 oz</td>
<td>$39.50</td>
<td>$29.66</td>
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<td>80103</td>
<td>COSMESIS LIFTING &amp; TIGHTENING COMPLEX - 1 oz</td>
<td>$74.50</td>
<td>$55.88</td>
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<td>80146</td>
<td>COSMESIS LYPOCENE CREAM - 1 oz jar</td>
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<td>COSMESIS MELATONIN CREAM - 1 oz</td>
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<td>80114</td>
<td>COSMESIS MILD FACIAL CLEANSER - 8 oz</td>
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<td>80122</td>
<td>COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2 oz</td>
<td>$64.00</td>
<td>$48.00</td>
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<tr>
<td>80111</td>
<td>COSMESIS PIGMENT CORRECTING CREAM - 1/2 oz</td>
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<td>80106</td>
<td>COSMESIS REJUVENATING SERUM - 1 oz</td>
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<td>80150</td>
<td>COSMESIS RENEWING EYE CREAM - 1/2 oz</td>
<td>$65.00</td>
<td>$48.75</td>
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### SUB-TOTAL OF COLUMN 5

To order call: 1.954.766.8433 or 1.800.544.4440
**Buyers Club Order Form**

<table>
<thead>
<tr>
<th>No.</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
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<td><strong>DHEA COMPLETE</strong> - 60 veg caps</td>
<td>$48.00</td>
<td>$36.00</td>
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<tr>
<td>Buy 4 bottles, price each</td>
<td>43.20</td>
<td>32.40</td>
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<tr>
<td></td>
<td><strong>DHEA</strong> - 25 mg, 100 caps</td>
<td>18.00</td>
<td>13.50</td>
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<tr>
<td>Buy 4 bottles, price each</td>
<td>15.00</td>
<td>11.25</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>DHEA</strong> - 15 mg, 100 caps</td>
<td>14.00</td>
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<tr>
<td>Buy 4 bottles, price each</td>
<td>12.00</td>
<td>9.00</td>
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<tr>
<td></td>
<td><strong>DHEA</strong> - 50 mg, 60 caps</td>
<td>19.00</td>
<td>14.25</td>
<td></td>
</tr>
<tr>
<td>Buy 4 bottles, price each</td>
<td>17.00</td>
<td>12.75</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td><strong>DHEA</strong> - 100 mg, 60 veg caps</td>
<td>24.00</td>
<td>18.00</td>
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<tr>
<td>Buy 4 bottles, price each</td>
<td>22.00</td>
<td>16.50</td>
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<tr>
<td>Buy 4 bottles, price each</td>
<td>17.00</td>
<td>12.75</td>
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**SUB-TOTAL OF COLUMN 7**

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**SUB-TOTAL OF COLUMN 8**

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

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

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**SUB-TOTAL OF COLUMN 9**

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**SUB-TOTAL OF COLUMN 10**

To order call: 1.954.766.8433 or 1.800.544.4440
To order online visit: www.LifeExtension.com

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**SUB-TOTAL OF COLUMN 11**

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

**SUB-TOTAL OF COLUMN 12**

APRIL 2015
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**SUB-TOTAL OF COLUMN 13**
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**SUB-TOTAL OF COLUMN 16**
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<td>28.00</td>
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ORDER TOTALS

Sub-Total A (Sub-total of Columns 1 through 18) $75.00
Postage And Handling (Any size order, contiguous U.S.) $5.50
C.O.D.s (Add $7 for C.O.D. orders)
Shipping
GRAND TOTAL (Must be in U.S. dollars)

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2%-4% of your skeleton is “rebuilt” every year as calcium and minerals leave the bone and must be replaced.

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A Complete Multi-Nutrient Bone Health System!

Bone-Up® provides your body with much needed calcium as well as essential nutrients for building strong bones.* It utilizes the finest source of calcium available: New Zealand bovine bone hydroxyapatite from chemical-free, range grazed calves less than two years old.

Bone-Up® is an effective addition to any bone health regimen.* It features added vitamins and minerals that synergistically support healthy bone density and overall bone health*:

- **Stimucal™ Ossein Microcrystalline Hydroxyapatite (MCHA):** Promotes calcium balance.*
- **Vitamin D3:** Converts to calcitriol to enhance calcium absorption.
- **MK-7:** The more bioavailable form of Vitamin K2, which is needed for building bone matrix and proper calcium distribution.*
- **Boron:** A trace mineral important in calcium retention.*
- **Manganese, Copper and Zinc:** Essential trace minerals involved in the formation of bone.*

Jarrow Formulas® Bone-Up®, 240 capsules Item # 00313; $28.95
If a member buys four bottles, the price will be reduced to $20.41 per bottle.
To order, call (800)544-4440 or visit www.LifeExtension.com

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

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COOL DOWN AGING

Recently, scientists have identified one of the main culprits responsible for premature aging: rogue protein galectin-3. When galectin-3 is elevated due to aberrant cell growth, tissue injury, aging, or other factors, it stimulates an imbalanced inflammation response and triggers a cascade of consequences for cellular and cardiovascular function, joint and skin health, and more.1-3

But there is an answer. Derived from the pith of citrus fruits and modified to meet patented molecular specifications, PectaSol-C® Modified Citrus Pectin is the most researched natural galectin-3 inhibitor.4 The molecular features of PectaSol-C® allow it to enter the circulation with optimal bioactivity, so that it can bind to excess galectin-3 and block its pro-aging effects.4 PectaSol-C® is also shown to support immune function, as well as safe elimination of toxins and heavy metals such as lead, mercury, and arsenic.5-6

Cool down aging with PectaSol-C®, the only clinically proven Modified Citrus Pectin delivering versatile anti-aging benefits.7-8

Clinically researched PectaSol-C® delivers comprehensive anti-aging benefits:
- Supports Cellular and Cardiovascular Health*
- Safely Removes Heavy Metals and Toxins*
- Promotes Immune Health*
- Supports Healthy Galectin-3 Levels*

Available in Powder and Capsules

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References

To order PectaSol-C® Modified Citrus Pectin, 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.
Comprehensive Vitamin K Formula

To Support Arterial Health And Bone Support

There are three forms of vitamin K that are key factors to promoting arterial health and bone support. Life Extension® Super K with Advanced K2 Complex provides this dynamic trio of vitamin K1, vitamin K2 (MK-4), and vitamin K2 (MK-7) in one softgel.

Vitamin K1 is the form of vitamin K found in green vegetables, but only a fraction is absorbed into the bloodstream. Supplementation ensures ample K1 blood levels. Vitamin K2 can be found in meats, dairy, and egg yolks. If you are avoiding these foods for health reasons, it is essential to ingest a K2 supplement. MK-4 is the most rapidly absorbed form of K2, while MK-7 boasts a very long half-life in the body. This makes both forms the perfect complement to any vitamin K regimen.

Just one daily softgel of Super K formula provides:

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<td>Vitamin K1</td>
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</table>

The retail price for a bottle containing 90 softgels is $30. If a member buys four bottles, the price is reduced to $20.25 per bottle. Each bottle lasts for three months.

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

References


Warning to Coumadin® (warfarin) Drug Users: Patients prescribed vitamin K-antagonist anticoagulant 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 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 your vitamin K supplement. Life Extension® provides several forms of low-dose vitamin K for physician consideration.

To order Super K with Advanced K2 Complex or Super Booster, call 1-800-544-4440 or visit 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.
7  CoQ10 WARS
A published study shows a 44% reduction in cardiovascular mortality in heart failure patients who properly used CoQ10. Life Extension reveals how the FDA’s suppression of CoQ10 resulted in more American deaths than all wars the United States has fought in combined.

38 OLIVE OIL’S CARDIOVASCULAR PROTECTION EFFECTS
Researchers have identified specific compounds in extra virgin olive oil responsible for expression of genes that improve HDL function, inhibit atherosclerosis, and improve endothelial function.

60 SNOW ALGAE REVIVES AGING SKIN
Snow algae extract strengthens the aging skin barrier to restore natural skin hydration, while novel peptides boost collagen production to induce visible skin firmness.

26 BOOST LONGEVITY BEYOND CALORIE RESTRICTION
Blueberries delay the aging process by facilitating DNA repair, an essential longevity mechanism. When added to a calorie-restricted diet, blueberry polyphenols significantly increased life span.

48 HIDDEN LIVER DISEASE EPIDEMIC
Obesity, not alcohol, is the main cause of liver disease that affects one in three Americans. Find out how to protect against nonalcoholic fatty liver disease.

68 CoQ10 PREVENTS CONGESTIVE HEART FAILURE
Patients with congestive heart failure have low levels of CoQ10, which increases their chance of death by 50%. The proper form and dose of CoQ10 can reverse these underlying pathologies.