

MAGNESIUM RESTORES SYNAPTIC DENSITY

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

January 2012

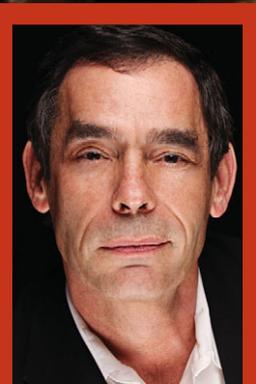
## *What's Missing From Your Coffee?*

**Block Deadly  
Impact Of  
Chronic Stress**

**Halt Sugar  
Induced  
Cell Aging**

**Epidemic of  
Hidden Liver  
Disease**

**MARK L. GORDON, MD**  
USING HORMONES TO HEAL  
TRAUMATIC BRAIN INJURY



# The Ultimate Two-Per-Day Formula



**NOW IN CAPSULES OR TABLETS!**

The following table compares the daily dosage of key nutrients included in both the Life Extension Two-Per-Day Formula and Centrum®'s Daily Tablet:

Sample Ingredient Comparison	LIFE EXTENSION TWO-PER-DAY	Centrum®
Vitamin C	500 mg	60 mg
Vitamin D	2,000 IU	400 IU
Vitamin B1	75 mg	1.5 mg
Vitamin B2	50 mg	1.7 mg
Vitamin B6	75 mg	2 mg
Vitamin B12	300 mcg	6 mcg
Niacin (as niacinamide)	50 mg	20 mg
Pantothenic acid	100 mg	10 mg
Vitamin E	100 IU (natural)	30 IU (synthetic)
Natural Folate	400 mcg	400 mcg
Zinc	30 mg	11 mg
Selenium	200 mcg	55 mcg
Lutein	5 mg	(none)*
Lycopene	2 mg	(none)*
Biotin	300 mcg	30 mcg
Boron	3 mg	75 mcg
Chromium	200 mcg	35 mcg
Molybdenum	100 mcg	45 mcg
Magnesium	100 mg	50 mg
Manganese	2 mg	2.3 mg
Iodine	150 mcg	150 mcg
Potassium	25 mg	80 mg
Vitamin A (preformed)	500 IU	1,015 IU
Vitamin A (as beta-carotene)	4,500 IU	2,485 IU
Choline (as bitartrate)	20 mg	(none)
Inositol	50 mg	(none)
PABA	30 mg	(none)
Calcium	12 mg	200 mg
Alpha Lipoic Acid	125 mg	(none)

Contains soybeans, rice, and corn.

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

To order Life Extension Two-Per-Day Tablets or Two-Per-Day Capsules, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)

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

In response to requests for a science-based multi-nutrient, a special formula was compounded to provide the greatest potencies that can fit into two tablets. When compared to conventional "one-a-day" products, **Life Extension Two-Per-Day** contains up to **50 times more potency!** This Two-Per-Day formula is now available in tablet or capsule form.

The box on this page reveals how much more potent the **Two-Per-Day** formula is compared to the leading commercial multi-vitamin. Few consumers realize that commercial supplements often contain the cheapest form of nutrients that don't provide optimal benefits. For example, the 30 IU of synthetic vitamin E contained in Centrum® may provide relatively little vitamin E to the bloodstream. The 100 IU of natural vitamin E contained in Two-Per-Day provides over **3 times more** vitamin E activity than does Centrum®.



Item #01615  
Tablets



Item #01614  
Capsules

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

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

Life Extension Two-Per-Day Tablets provide much higher potencies of key nutrients and represent a better value than many commercial brands. A bottle of 120 Life Extension Two-Per-Day tablets retails for \$20. If a member buys four bottles during **Super Sale**, the price is reduced to \$12.15 per bottle. (The retail price for 180 tablets of Centrum® is around \$14.) (Item# 01615)

A bottle of 120 Life Extension Two-Per-Day vegetarian capsules retails for \$22. If a member buys four bottles during **Super Sale**, the price is reduced to \$13.50. (Item# 01614)

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

## REPORTS



### 24 BLOCK DEADLY IMPACT OF CHRONIC STRESS

Chronic stress has reached *epidemic* levels, affecting **80%** of Americans. Its profoundly detrimental impact on human health increases risk of death from all causes by **170%**. New confirmatory data show that nutritional interventions can favorably target the physiological factors that cause stress-related problems.



### 58 HALT SUGAR-INDUCED CELL AGING

Blood glucose levels above **85 mg/dL** accelerate a deadly process known as **glycation**—the binding of sugars to the body's life-sustaining proteins. Glycation reactions “cook” living tissue and hasten cell death. A fat-soluble form of vitamin B1 called **benfotiamine** acts via multiple pathways to block the glycation process and protect eyesight, heart health, kidney function, and more.



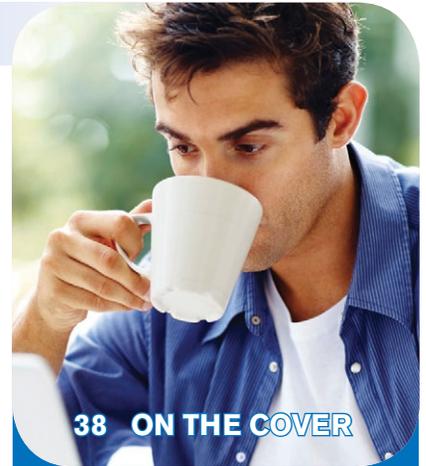
### 70 NEW WAY TO COMBAT OXIDATIVE LIVER DAMAGE

Up to **100%** of overweight and obese individuals suffer the silent affliction of nonalcoholic fatty liver disease, or NAFLD, in which oxidized liver tissue turns **rancid**. A synergistic combination of the **adaptogen** *Schisandra chinensis* and a patented extract of the melon *Cucumis melo* has been shown to offer unique protection against the **mitochondrial oxidant damage** that triggers NAFLD.



### 82 USING HORMONES TO HEAL TRAUMATIC BRAIN INJURY

Nearly 2 million Americans sustain traumatic brain injuries annually. Conventional medical interventions largely *fail* to treat the often devastating cognitive, physical, and mental deficits that result. Pioneering specialist Dr. Mark L. Gordon explains how his work with wounded soldiers returning from Iraq and Afghanistan led to a novel, highly effective approach that may heal traumatic brain injury using individually tailored hormone therapy.



### 38 ON THE COVER

#### WHAT'S MISSING FROM YOUR COFFEE?

People sometimes believe they should limit their coffee intake, yet studies show that consuming enough coffee can help prevent age-related killers such as **heart disease, cancer, diabetes, and Alzheimer's**. Here we describe the *mechanisms of action* behind coffee's extraordinary effects and why most coffee drinkers are not obtaining its multiple benefits.

## DEPARTMENTS



### 7 AS WE SEE IT—MAGNESIUM CAN REVERSE BRAIN DECAY

Maturing individuals' risk of developing Alzheimer's increases exponentially, with prevalence reaching a staggering **25-30%** between ages **80-85**. Explosive findings presented at a **2011 Alzheimer's Conference** in Paris reveal that Alzheimer's-associated changes in brain tissue occur *far earlier* than previously thought. **Life Extension®** members already reduce senility risk with nutrients they take. Now a new highly absorbable form of **magnesium** has been shown to *blunt* brain degeneration by protecting the integrity of brain synapses and increasing **synaptic density**.

### 17 IN THE NEWS

Dual plant extract promotes weight loss; omega-3s prevent arthritis; CoQ10 combats chronic tinnitus; and more.



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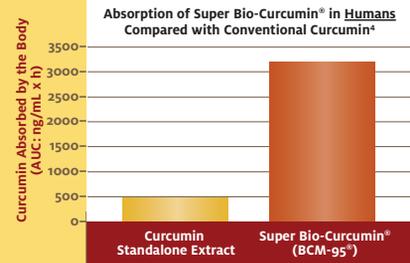
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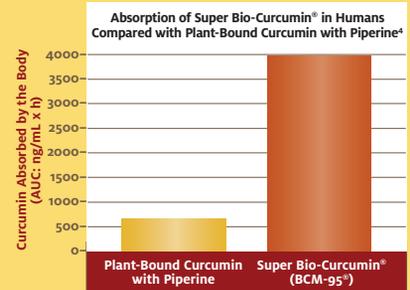
# ARE YOU GETTING Curcumin's BENEFITS?



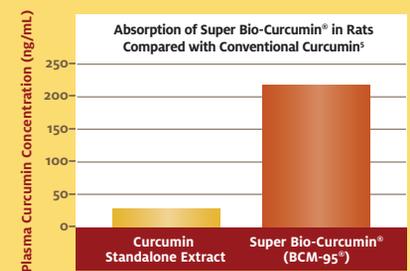
## How Much Curcumin Are You Absorbing?



**Chart 1.** Super Bio-Curcumin® (BCM-95®) showed 6.9 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with conventional curcumin (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over 8 hours).



**Chart 2.** Super Bio-Curcumin® (BCM-95®) showed 6.3 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with plant-bound curcumin with piperine (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over 8 hours).



**Chart 3.** Bioavailability in rats fed with BCM-95® is 7.8 times higher than conventional curcumin.

**Curcumin** is the health-promoting trace compound derived from the Indian spice **turmeric**. But not all turmeric is alike.

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

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

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

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

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

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

A separate study indicated that an antioxidant-rich curcumin extract<sup>3</sup> provided powerful support for heart health.

## Unrivalled Potency and Absorbability with BCM-95®

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

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

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

A bottle containing 60 vegetarian capsules of **Super Bio-Curcumin®** retails for \$38. If a member buys four bottles during **Super Sale**, the price is reduced to only **\$23.63** per bottle.

Contains rice.



Item #00407

### References

1. *Int J Pharmacol.* 2009;5(6):333-45.
2. *J Food Nutr Res.* 2009;48(3):148-52.
3. *Arch Gerontol Geriatr.* 2002;34:37-46.
4. *Indian J Pharm Sci.* 2008 Jul-Aug;70(4):445-9.
5. Bioavailability study of BCM-95® in rats. Orcas International Inc. 2006.

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

**Bio-Curcumin®** and **BCM-95®** are registered trademarks of Dolcas-Biotech, LLC.  
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**John Boik, PhD**, is the author of two books on cancer therapy, *Cancer and Natural Medicine* (1996) and *Natural Compounds in Cancer Therapy* (2001). He obtained his doctorate at the University of Texas Graduate School of Biomedical Sciences with research at the MD Anderson Cancer Center, focusing on screening models to identify promising new anti-cancer drugs. He conducted his postdoctoral training at Stanford University Department of Statistics. He is currently president of New Earth BioMed, a nonprofit cancer research corporation that studies mixtures of natural products.



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



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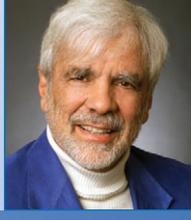
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Item # 01502

## Your Skin's Internal Moisturizer

**Ceramides** are essential for preserving healthy-looking skin.<sup>1,2</sup> That's why they're included in so many anti-aging face creams.

Your body's production of **ceramides declines** with age.<sup>3</sup> That's bad news, since **ceramides** make up **35-40%** of the binding matrix that maintains moisture balance and protects the skin's surface.<sup>4</sup> It's therefore critical that ceramides lost to aging are replaced.

### Restore Ceramides Naturally from Within!

The **ceramides** that young skin naturally produces to retain its supple appearance are identical to those present in **wheat!**

Wheat-derived oils have been used *topically* for centuries as a natural moisturizer. But you can't get enough ceramides from topically applied wheat oil to have a long-term impact on your skin's appearance. And they don't appear in sufficient concentration in your diet.

That's why **Life Extension®** brought together these skin-nourishing oils in a new concentrated **oral formula** called **Skin Restoring Ceramides with Lipowheat™**.

**Lipowheat™** is a proprietary **ceramide blend** that offers **nutritional** support for aging skin to complement the topical products you may already be using.

### The Moisturizing Pill the Japanese Have Enjoyed for a Decade!

**Lipowheat™ ceramides** have been available to Japanese women as a functional food since 2000.<sup>5</sup> The hydrating action of **Lipowheat™ ceramides** have proven effective in clinical trials.

To take one example, after just three months ingesting **200 mg** per day of **Lipowheat™**, a group of people suffering from dry, flaking skin reported dramatic improvement in the look and feel of their skin. These results were verified by electrochemical analysis showing that **95%** of participants exhibited improved skin hydration. Even better, all subjects who at the onset of the study experienced chronic itching reported sharply decreased itching or **complete elimination** of the problem by the end of the study!<sup>5</sup>

Aging Americans can now offset the visible impact of the gradual decline in their ability to produce enough ceramides using **Skin Restoring Ceramides with Lipowheat™**.

One bottle containing 30 **350 mg** liquid capsules of **Skin Restoring Ceramides with Lipowheat™** retails for \$25. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$15.53**.

Contains wheat. Contains rice and trace amounts of gluten. Lipowheat™ is a trademark of LAVIPHARM Group of Companies.

To order new **Skin Restoring Ceramides with Lipowheat™**  
call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)

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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.

# Reversing Brain Decay



BY WILLIAM FALOON

Some facts are so terrifying that people pretend they are not real. A recent survey found **Alzheimer's** is the **second** most feared disease...cancer ranked number **one**.<sup>1</sup>

Yet most cancers are curable, while Alzheimer's insidiously kills **every** one of its victims.

Alzheimer's incidence **increases** exponentially as humans age. If we make it to **80-85** years, Alzheimer's prevalence rises to a startling **25%-30%**.<sup>2,3</sup>

It is unsettling to think that our odds of developing Alzheimer's are so high, but there is reason for optimism. Scientists have identified factors that increase Alzheimer's risk. This enables enlightened individuals to **neutralize** underlying causes of Alzheimer's and spare themselves the frightening statistical probabilities faced by the general population.

**Life Extension**® members do a lot to reduce senility risk, such as suppressing destructive **inflammatory** reactions in the brain (with nutrients like **curcumin**),<sup>4-7</sup> while ingesting **structural** components required by brain cell membranes (such as **DHA** from fish oil).<sup>8-11</sup>

In a remarkable discovery, the loss of **synapses** has been shown to occur early in the process of Alzheimer's and may **trigger** onset of the disease.<sup>12</sup>

Fortunately, a highly **absorbable** form of **magnesium** not only protects the integrity of delicate brain **synapses**, but also increases **synaptic density**, thus helping to **reverse** the structural loss of this critical brain component.<sup>13</sup>



# AS WE SEE IT

## What Is a “Synapse?”

Our brain consists of about 100 billion cells called neurons. In order for neurons to *communicate* in a way that enables you to exist, they must connect to one another.

A *synapse* is the connection that allows information to pass from one neuron to the next. Your synapses control electrical impulses and the release of neurotransmitters between neurons. Brain synapses serve as a *junction* that enables neurons to pass signals in a synchronized/organized pattern.

Synapses, as you might imagine, are essential to neuronal function. Not only are synapses crucial to short-term memory in the young, but their structural integrity is imperative in aging individuals seeking to stave off cognitive impairment and senility.

## What Happens When Our Synapses Degrade?

Alzheimer’s disease is characterized by the pathological accumulation of non-functioning plaque

in neurons and loss of normal neurotransmitter flow between neurons.

Before neurons encounter this severe damage, scientists have found a marked decline in *synaptic density*. This loss of synaptic density causes a decline in *neuronal connectivity* that strongly correlates to the cognitive impairment observed in Alzheimer’s disease.<sup>14-17</sup>

In fact, a consistent finding in the brains of Alzheimer’s victims is a significant loss of *synaptic* contacts. This led one group of researchers to conclude:

*“...synapse loss is an early event in the disease process and suggests that mild cognitive impairment may be a transitional stage between early Alzheimer’s disease and no cognitive impairment, with synaptic loss a structural correlate involved in cognitive decline.”<sup>18</sup>*

Another group of scientists looked at *synaptic decay* and concluded that it “*may represent an*

*early and subtle alteration able to trigger the development of senile plaques and neurodegenerative events.”<sup>19</sup>*

There are about **5 million** Americans suffering from Alzheimer’s today. That number will spike upward to **8.6 million** by the year **2030** and to an astounding **16 million** by **2050**.<sup>20</sup> America does not have the economic or human resources to care for this many Alzheimer’s victims.

A compelling need exists for an *intervention* that prevents the downward cascade of neurodegeneration that will manifest as Alzheimer’s in **25%-30%** of aged individuals.<sup>21</sup>

## Magnesium Protects and Restores Synaptic Density

In a series of unprecedented laboratory experiments, a highly *absorbable* form of magnesium was shown to not only increase magnesium **blood** levels, but it also substantially increases magnesium **brain** concentrations.<sup>13</sup>

In response to this elevation in cerebral magnesium, there were significant increases in *synaptic density* and corresponding improvements in synaptic functioning and neuronal signaling.<sup>13</sup>

These improvements in synaptic structure and function translated into **improvements** in measurements of **cognitive function**.

## Restoration of Short- and Long-term Memory

Using this highly absorbable magnesium (*magnesium-L-threonate*), scientists were able to obtain remarkably high brain magnesium concentrations compared to other forms tested.





Neuron

In one study, just 24 days oral supplementation with *magnesium-L-threonate* produced an increase in cerebrospinal magnesium sufficient to boost short- and long-term memory scores. Other forms of magnesium (such as magnesium chloride, magnesium citrate, magnesium glycinate, and magnesium gluconate) did not significantly elevate brain magnesium compared to the control group.<sup>13,22</sup>

Another test on aging animals (rats) that had suffered memory decline showed that *magnesium-L-threonate* could **reverse** the kind of cognitive dysfunction that occurs in normal aging humans. The animals had *magnesium-L-threonate* added to their drinking water for one month. The findings showed improvements of 18% in short-term memory in animals treated with *magnesium-L-threonate*. In a validated test for long-term memory, these same animals supplemented with *magnesium-L-threonate* exhibited **100%** enhanced performance.<sup>13</sup>

### Enhancement of Spatial Short-term Memory

Spatial memory relates to how an organism functions in a particular space. In this study, groups of animals were reward-trained in a maze. At the end of training, some groups received *magnesium-L-threonate* while the others served as controls.

In the young animal **control** group, there was no change in ability to navigate the maze. In young animals supplemented with *magnesium-L-threonate*, there was better performance (up to 13% improvement). Aged animals supplemented with *magnesium-L-threonate* performed 18% better than the aged control group (not given *magnesium-L-threonate*).<sup>13</sup>

The scientists stated that a significant improvement in choice accuracy was apparent 6 days after initiation of *magnesium-L-threonate* supplementation and this improvement continued for more than 30 days after cessation of *magnesium-L-threonate* in young animals. This finding helps validate the longer-term benefit of the increase in **synaptic density**. Strikingly, spatial performance of aged animals was re-enhanced within 12 days of re-initiation of *magnesium-L-threonate* supplementation.<sup>13</sup>

The scientists concluded that *magnesium-L-threonate* **treatment can enhance the spatial working memory in young and aged rats**.<sup>13</sup>

### Enhanced Long-Term Spatial Performance

Young and old animals underwent maze training with a delay interval. Animals supplemented with *magnesium-L-threonate* learned to find the hidden platform in the maze **faster** than **non**-supplemented animals. In addition, the **degree** of learning ability enhancement in the aged animals was **greater** than in young animals. This makes sense since aged animals suffer from loss of **synaptic density** that *magnesium-L-threonate* has been shown to restore.<sup>13</sup>

To test the long-term spatial memory, a second trial test was performed 24 hours later. The

unsupplemented “control” group forgot how to perform in the maze, whereas young and aged animals supplemented with *magnesium-L-threonate* retained their ability to navigate the maze. This might be equivalent to an older human being able to find their car in a crowded parking lot. In statistical terms, supplementation with *magnesium-L-threonate* resulted in long-term spatial memory improvement of **122%** in younger animals—and **100%** in older animals.<sup>13</sup>

The researchers concluded, “*magnesium-L-threonate* **significantly enhanced hippocampus-dependent spatial learning and memory in both young and aged rats**.”<sup>13</sup>

### Correlation Between Increased Synaptic Density and Memory

To verify that the mechanism behind these improvements in memory and cognitive performance was due to increased density of the synapses, studies were done to precisely measure the various synaptic structural components in the brain.

The rats supplemented with *magnesium-L-threonate* showed across-the-board improvements in **synaptic** protein expression, function, and structure, along with long-term potentiation of **synaptic** strength.<sup>13</sup>

## AS WE SEE IT

### Aging and Synaptic Decline

Several studies indicate that synaptic connections decline in the portion of the brain essential for memory, and the degree of loss of synapses correlates with the impairment of memory functions.<sup>23-25</sup>

To evaluate the impact of *magnesium-L-threonate* on old animals, one group received the supplement while an unsupplemented group served as controls. After only 1 month, autopsy findings showed synaptic density was **67% higher** in the group supplemented with *magnesium-L-threonate*. This study showed that even in old animals, *magnesium-L-threonate* increased the **density** of synaptic components essential for youthful neurotransmitter release.<sup>13</sup>

### Critical Importance of Magnesium

Since 1981, **Life Extension** has recommended high-potency magnesium supplements. The reason is that magnesium is perhaps

the most *deficient* mineral in the American diet.

With all the research linking low magnesium intake with high cardiovascular risks, this mineral would appear to be a simple way to help counter the heart attack and stroke epidemic plaguing aging Americans.

A government study shows a staggering **68%** of Americans do not consume the recommended daily intake of magnesium.<sup>26</sup> Even more frightening are data from this same study showing that **19%** of Americans do not consume even half of the government's recommended daily intake of magnesium.<sup>26</sup> Is it any wonder that disability and death from heart attack and stroke are the nation's leading killers?

In the early 1980s, the Life Extension Foundation® was criticized by mainstream doctors for recommending high doses of magnesium relative to calcium. We even had our magnesium supplements seized by the **FDA** because we presented evidence that it could help prevent heart attack.

While the FDA refuses to recognize the value of magnesium, the *National Institutes of Health* (NIH) published the following on its website:

*“Magnesium is needed for more than 300 biochemical reactions in the body. It helps maintain normal muscle and nerve function, keeps heart rhythm steady, supports a healthy immune system, and keeps bones strong. Magnesium also helps regulate blood sugar levels, promotes normal blood pressure, and is known to be involved in energy metabolism and protein synthesis. There is an increased interest in the role of magnesium in preventing and managing disorders such as hypertension, cardiovascular disease, and diabetes.”<sup>27</sup>*

The nation's leading health agency (NIH) acknowledges magnesium's critical role in keeping us alive, yet the **FDA** has done everything it could to keep this mineral out of Americans' bodies. The death toll from the FDA's censorship of magnesium is beyond comprehension.



## Potential to Stave Off Health Care Cost Crisis

The cost of caring for those stricken with Alzheimer's and other neurological disorders is adversely impacting this nation's health care system. The enormous burden placed on families with senile loved ones destroys their productivity during critical working years.

Magnesium supplements are widely available, but many do not provide optimal *absorption* into the bloodstream and virtually none into the brain to restore critical *synaptic density*.

Widespread supplementation with *magnesium-L-threonate* has the potential to slash the incidences of many neurological disorders afflicting the aging population. Clinical trials are now beginning to assess whether *magnesium-L-threonate* functions as well in aging humans as it does in rodents.

With the wealth of data validating the systemic benefits of magnesium, those who don't want to wait years for the human studies to conclude should consider supplementing with **2,000 mg each day of magnesium-L-threonate**. Based on animal data, noticeable improvements might occur within a relatively short time.

## Battling Government Inertia

Even if human trials corroborate the unprecedented laboratory research you have just read about *magnesium-L-threonate*, there might not be enough money available to have the FDA approve it for conventional human use.

**Life Extension** is on the front lines battling these kinds of bureaucratic roadblocks that keep safe and effective natural therapies out of the reach of most Americans.



## Startling Discoveries Revealed at 2011 Alzheimer's Conference

In a series of explosive findings, researchers confirmed that destructive changes begin ravaging the brain years or decades before patients have enough memory loss symptoms to be diagnosed.

At the most recent **Alzheimer's Association International Conference** in Paris, more than 100 papers were presented showing that Alzheimer's changes occur **earlier** in life than mainstream medicine originally thought.<sup>28</sup> This means that people can initiate interventions today that may afford substantial protection against future Alzheimer's senility.

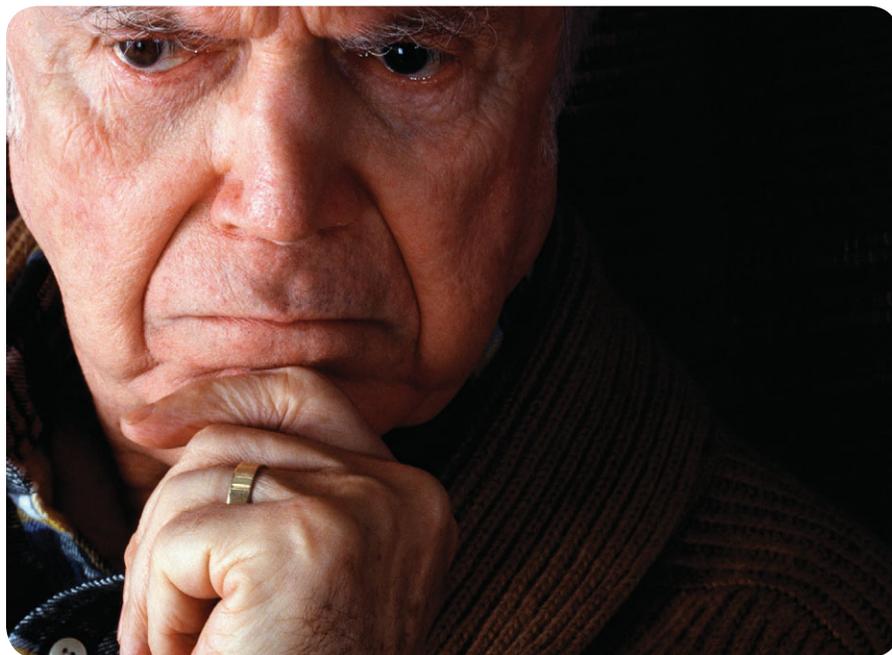
In a separate study released in 2011,<sup>29</sup> a group of transgenic mice were fed a diet fortified with nutrients already consumed by most **Life Extension** members. The supplemented nutrients were curcumin,<sup>30-32</sup> EGCG<sup>33-37</sup> (a principal active polyphenol in green tea) lipoic acid,<sup>38-42</sup> N-acetyl cysteine,<sup>43-46</sup> vitamin C,<sup>47-49</sup> folate,<sup>50-55</sup> and B vitamins.<sup>56-59</sup>

There is evidence to suggest these nutrients (and others) protect human brains from pathological deterioration that eventually manifests as Alzheimer's. In this mouse model of Alzheimer's, feeding these nutrients for 6 months resulted in spatial learning abilities in this animal model of Alzheimer's disease indistinguishable from normal (control) mice.<sup>29</sup>

Remarkably, other test parameters indicated that the nutrient cocktail, similar to what many **Life Extension** members have consumed for many years, restored both acquisition and memory deficits to normal (non-transgenic) levels in transgenic mice doomed to develop Alzheimer's disease cognitive damage.

Even more compelling was a decrease in certain types of **amyloid-beta** from the Alzheimer's disease-prone supplemented animals' brains.<sup>29</sup> A hallmark pathological feature of Alzheimer's is the accumulation of **amyloid-beta** that clogs and destroys tiny structural machinery inside neurons resulting in full-blown senility. Specifically, supplemented transgenic animals experienced decreases in soluble A $\beta$ 40 and A $\beta$ 42, as well as a decrease in insoluble A $\beta$ 40.<sup>29</sup> Soluble amyloid-beta is much more toxic and can cause neuron death in as little as 12 hours.<sup>60,61</sup>

These findings, along with newly released studies about **magnesium-L-threonate**, suggest that proactive steps can be taken today to slow and **reverse** pathological changes that manifest as **Alzheimer's disease** in far too many of us.



The issue of *Life Extension Magazine*® you'll receive in January 2012 provides a technical review of the multiple mechanisms by which **magnesium-L-threonate** has been shown to reverse neurologic decay. We are introducing it now so that members who want to try it are not delayed.

Once a year, we **discount** all of our advanced formulas so that members can stock up at extra low prices. We hope you'll take advantage of these **Super Sale** prices to obtain premium-grade supplements to protect your health today, while helping us battle the oppressive forces of censorship and over-regulation that are suffocating medical innovation.

For longer life,

William Faloon

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# PURE, HEART HEALTHY

# Super Omega-3

## EPA/DHA



Item # 01482

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

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

### Sesame Lignans and Standardized Olive Fruit Extract for Enhanced Benefits

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

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

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

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

A bottle containing 120 softgels of **Super Omega-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract** retails for \$32. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$18.90** per bottle. If **10 bottles** are purchased, the cost is just **\$16.81** per bottle. (Item# 01482)

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

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

\* Eight softgels for Item #01619

### Introducing a **SMALLER SOFTGEL** for easier swallowing!

A bottle containing 240 softgels of Super Omega-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract retails for \$32. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$18.90** per bottle. If **10 bottles** are purchased during **Super Sale**, the cost is just **\$16.81** per bottle. Serving size 8 softgels daily. (Item# 01619)

For those with sensitive stomachs, **Super Omega-3** is also available with **enteric coating** and retails for **\$34**. If a member buys four bottles, the price is reduced to **\$20.93** per bottle. If **10 bottles** are purchased during **Super Sale**, the cost is just **\$18.90** per bottle. (Item# 01484)

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

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

#### References:

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

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

# HALF OF AGING HUMANS IN THE DEVELOPED WORLD ARE MAGNESIUM DEFICIENT!<sup>1</sup>

## **YOU MAY BE ONE OF THEM.**

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

### **A Critical Brain Booster. . .**

Magnesium is needed for more than **300** biochemical reactions in the body.<sup>2</sup>

Long known for its role in cardiovascular<sup>3-5</sup> and bone health,<sup>6</sup> energy metabolism<sup>7</sup> and mood,<sup>8</sup> researchers are now focusing *intensely* on magnesium's benefits for **cognitive function**.<sup>2</sup>

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

### **Scientifically Advanced, Lab Tested**

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

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

In pre-clinical models, **L-threonate** contained in **Neuro-Mag™** boosted magnesium levels in spinal fluid by an impressive **15%** compared to no increase with conventional magnesium.<sup>2</sup>

Even more compelling, animal models revealed improvements of **18%** for short-term memory and **100%** for long-term memory using the **Neuro-Mag™** form of magnesium.<sup>2</sup>

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

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

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

This offers maturing individuals an easy way to obtain these key nutrients in one simple formula.

A bottle containing 90 capsules of **Neuro-Mag™ Magnesium L-Threonate** or **30** scoops of **Neuro-Mag™ Magnesium L-Threonate Powder with Calcium and Vitamin D** retails for \$40. If a member buys four bottles during **Super Sale**, the price is reduced to **\$24.30** per bottle. **Contains corn.**

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

#### **References**

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To order **Neuro-Mag™**  
**Magnesium L-Threonate**  
**Capsules or Powder**  
call 1-800-544-4440 or visit  
[www.LifeExtension.com](http://www.LifeExtension.com)

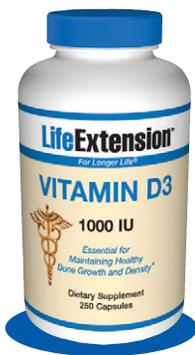


Item #01603



Item #01602

# Which VITAMIN D is Right for You?



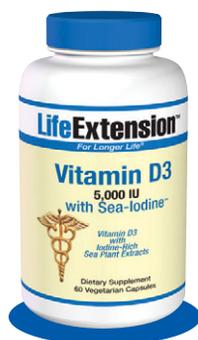
## Vitamin D3 1,000 IU 250 capsules

Retail: \$12.50  
**Four-bottle Member Price during  
Super Sale: \$7.59 ea.**

Commercial companies offered only 400 IU vitamin D products when Life Extension long ago introduced this 1,000 IU version. For most people, this 1,000 IU potency is *insufficient* to attain optimal vitamin D blood levels. For smaller individuals who obtain 2,000-3,000 IU in their multi-nutrient formulas (and children), this potency of vitamin D may be suitable.

**Item # 00251**

Please refer to website for allergen information.



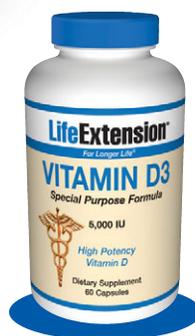
## Vitamin D3 5,000 IU with Sea-Iodine™\* 60 vegetarian capsules

Retail: \$14  
**Four-bottle Member Price during  
Super Sale: \$8.44 ea.**

Most people do not ingest enough vitamin D and iodine, especially those seeking to reduce their salt intake. Combining 5,000 IU of vitamin D3 and 1,000 mcg of iodine into one capsule makes taking these two nutrients economical and convenient.

**Item # 01372**

Please refer to website for allergen information.



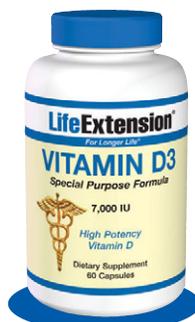
## Vitamin D3 5,000 IU 60 capsules

Retail: \$11  
**Four-bottle Member Price during  
Super Sale: \$6.68 ea.**

For those obtaining 1,000-3,000 IU of vitamin D in their multi-nutrient formulas, this 5,000 IU potency is what most need to *achieve* optimal vitamin D blood levels.

**Item # 00713**

Please refer to website for allergen information.



## Vitamin D3 7,000 IU 60 capsules

Retail: \$14  
**Four-bottle Member Price during  
Super Sale: \$8.51 ea.**

Some individuals (such as those weighing more than 180 pounds) may require higher potencies of vitamin D. When combined with 1,000-3,000 IU obtained from multi-nutrient formulas, this 7,000 IU vitamin D3 capsule should enable these individuals to attain 25-hydroxyvitamin D blood levels above the desired range of 50 ng/mL.

**Item # 01418**

Please refer to website for allergen information.



## Vitamin D3 Liquid Emulsion 2,000 IU 1 ounce

Retail: \$28  
**Four-bottle Member Price during  
Super Sale: \$16.88 ea.**

For those rare individuals who have difficulty absorbing enough vitamin D3 from powdered capsules, this liquid emulsion of vitamin D can be used.

**Item # 00864**

**To order any of these high-potency  
vitamin D3 supplements, call 1-800-544-4440  
or visit [www.LifeExtension.com](http://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 hypercalcemia (high blood calcium levels). People with kidney disease, certain medi-

cal conditions (such as hyperparathyroidism or sarcoidosis), and those who use cardiac glycosides (digoxin) or thiazide diuretics should consult a physician before using supplemental vitamin D.

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



## IN THE NEWS

### Egg Consumption Sharply Increases Prostate Cancer Risk

In a recent study published in the journal *Cancer Prevention Research*, scientists from the University of California, San Francisco, discovered that eggs may increase men's risk of developing the more lethal form of prostate cancer.\*

Using dietary data from 27,607 men who were followed from 1994 to 2008 who had no cancer at the start of the study, the scientists sought to find a correlation between egg consumption and prostate cancer. To analyze the risk, they compared the number of observed cancer events (199) with the total number of person-years (306,715) in the study.

They found that men who ate **2.5 eggs** or more a week had an **81% higher risk** of developing lethal prostate cancer compared to men who ate fewer than **0.5 eggs** a week on average. This is not the first study to associate egg consumption with increased cancer risk.

**Editor's Note:** Eggs are a rich source of arachidonic acid. High dietary intake of arachidonic acid induces formation of 5-LOX and COX-2 enzymes, both that promote tumor formation and progression. Life Extension® has previously written about how arachidonic acid causes prostate cancer. Members take curcumin, fish oil, and highly absorbable boswellia extract to impede conversion of arachidonic acid to leukotriene B4 via 5-LOX. Aspirin and other nutrients like gamma tocopherol impede COX-2.

—J. Finkel

\* *Cancer Prev Res (Phila)*. 2011 Sep 19.

### Dual Plant Extract Promotes Weight Loss

A combination of two plant extracts reduced body weight by an average of 11.5 pounds after 8 weeks in obese adults, according to two clinical trials recently presented at the 29<sup>th</sup> Annual Scientific Obesity Meeting in Orlando, Florida.\*

In randomized, double-blind, placebo-controlled trials, 100 subjects received placebo or 400 mg twice daily of an extract prepared from *Sphaeranthus indicus* flower heads and mango-steen (*Garcinia mangostana*) fruit rind. All participants were placed on a 2,000 cal/day diet and instructed to perform moderate walking exercise 5 times weekly.

After 2 weeks, the plant extract group lost 4.5 pounds—2.7 times more than the placebo group. At 8 weeks, the plant extract group had significantly reduced waist and hip circumference, by 4.7 inches and 2.5 inches, respectively. In addition to loss of weight and inches, the plant extract group experienced improvements in blood glucose and serum lipid profiles. Increased adiponectin levels in the plant extract recipients indicate that the dual plant extract works by enhancing fat metabolism.

**Editor's Note:** Life Extension members have had access to this dual combination of *Sphaeranthus indicus* and *Garcinia mangostana* since June 2011.

—Elizabeth Wagner, ND

\* Poster Number 590-P. Presented at: Obesity 2011. 29<sup>th</sup> Annual Scientific Obesity Meeting, Orlando, Florida. October 1-5, 2011.



## IN THE NEWS



### Green Tea Protects Against Weight Gain in Mice

An article published in *Obesity* reports the finding of a team from Penn State University of a benefit for epigallocatechin-3-gallate (EGCG), a compound that occurs in green tea, in reducing weight gain in a mouse model of obesity.

Joshua D. Lambert and his associates utilized a breed of mice susceptible to the development of diet-induced obesity, type 2 diabetes and atherosclerosis. The mice were allowed to eat as much as they wanted of a high-fat diet, and half were supplemented with EGCG. After six weeks, mice that received EGCG-enhanced diets were found to have gained weight 44% less rapidly than those that did not receive the compound. The group that received EGCG also had a 29.4% increase in fecal lipids, indicating a reduction in fat absorption. In an in vitro experiment, epigallocatechin-3-gallate was shown to inhibit the pancreas' production of lipase, an enzyme that breaks down fat.

**Editor's Note:** One capsule of Life Extension's Mega Green Tea Extract provides more polyphenols than drinking the equivalent of three cups of green tea. Although the human equivalent of the amount of EGCG used in this study would be found in ten cups of green tea per day, Dr. Lambert remarked that, "Human data—and there's not a lot at this point—shows that tea drinkers who only consume one or more cups a day will see effects on body weight compared to nonconsumers."

—D. Dye

\* *Obesity (Silver Spring)*. 2011 Jun 2.

### How Resveratrol Helps Combat Breast Cancer

*FASEB Journal* reports the finding of Italian and US researchers of an ability for resveratrol to inhibit the growth-promoting effects of estrogen in breast cancer cells.\* Resveratrol occurs in red grapes and wine, and it is believed to be one of the compounds responsible for the benefits associated with consuming these foods.

Sebastiano Andò and colleagues evaluated the effects of resveratrol in several estrogen receptor-positive breast cancer cell lines, including cells that are resistant to treatment with the estrogen receptor antagonist drug tamoxifen. They observed a reduction in the proliferation of treated cells compared to cells that were not treated with resveratrol. Further experimentation revealed that resveratrol significantly lowered the cells' estrogen receptor levels in addition to acting via other mechanisms to inhibit their growth.

"Resveratrol is a potential pharmacological tool to be exploited when breast cancer becomes resistant to hormonal therapy," stated Dr. Andò.

**Editor's Note:** While *FASEB Journal* Editor-in-Chief Gerald Weissmann, MD, does not recommend that breast cancer patients drink wine in an attempt to treat their disease, he predicted that, "Scientists haven't finished distilling the secrets of good health that have been hidden in natural products such as red wine."

\**FASEB J.* 2011 Oct;25(10):3695-707.



—D. Dye

### Vitamins B6 and B12 May Protect Against Depression in Older Adults

A recent study published in the *American Journal of Clinical Nutrition* examined a long-hypothesized link between depression and B vitamin deficiency.\* Scientists from the Rush University Medical Center in Chicago, Illinois, examined diet and supplement questionnaires of 3,503 adults age 65 or older. The focus of the examination was on vitamin B6, B12, and folic acid intake.

The scientists controlled for use of depressants, age, race, and other variables. Each additional 10 mg of B6 and 10 mcg of B12 derived from both food and supplement form was associated with a 2% reduction per year in the odds of developing symptoms of depression. Food intake alone was not associated with a lower risk of depressive symptoms.

These results support the scientists' hypothesis that high total intakes of vitamins B6 and B12 are protective of depressive symptoms over time.

—J. Finkel

\* *Am J Clin Nutr.* 2010 Aug;92(2):330-5.





## Melatonin Prolongs Life in Animal Model of Huntington's Disease

An article published in the *Journal of Neuroscience* reveals the discovery of a protective effect for melatonin against disease progression and premature death in a mouse model of Huntington's disease, an inherited disorder that results in involuntary movement and other effects stemming from the loss of neurons in the brain due to a mutant protein.\*

The team injected mice bred to develop Huntington's disease with melatonin or a placebo. Animals that received the hormone experienced a 19% delay in the onset of disease, a reduction in disease progression, and an 18% longer life span compared with the placebo group. When normal animals' brain tissue was studied, type 1 melatonin (MT1) receptors were found on the cells' mitochondria, which produce energy. The researchers observed that the receptors were depleted in animals with Huntington's—a finding that was also detected in brain tissue derived from humans afflicted with the disease.



**Editor's Note:** Melatonin is a hormone involved in sleep and immune function that has been found to be reduced in other neurodegenerative disorders, such as Alzheimer's and Parkinson's diseases.

—D. Dye

\* *J Neurosci.* 2011 Oct 12;31(41):14496-507.

## Cardiovascular Disease Prevention Symposium

As a leading pioneer in preventive cardiology, Michael Ozner, MD, a member of Life Extension's Scientific Advisory Board, has long advocated prevention over intervention and the use of lifestyle, diet, and nutrient management with the judicious use of medication to avoid entering the cardiac disease downward spiral of stents, bypass, and other surgical procedures. Dedicated to helping both physicians and patients achieve heart-healthy longevity, Dr. Ozner's tenth "Cardiovascular Disease Prevention International Symposium" will be held February 23-26, 2012, at the Fontainebleau Hotel in Miami Beach, Florida. Topics of discussion by noted physicians include "The Regression of Atherosclerosis, Vitamin D, and Cardiovascular Disease Risk," "What You Should Know About Insulin Resistance, Adiposopathy and Sick Fat," "The MARINE Trial: The Impact of a Pure-EPA Omega-3 Fatty Acid on Lipids and Inflammation," "The Role of Aspirin in the Prevention of Cardiovascular Disease," among other compelling topics. For further information, please visit: <http://cme.baptisthealth.net/CVDPrevention>.

## Study Finds Significant Potential for Omega-3 Fatty Acids in the Prevention and Treatment of Arthritis

Writing in the journal *Osteoarthritis and Cartilage*, British researchers report the results of an animal experiment which found that omega-3 fatty acids reduced many of the signs of osteoarthritis.\*

John Tarlton of the University of Bristol's School of Veterinary Sciences and his associates compared the effect of a standard high omega-6 diet containing corn oil or a diet enhanced with fish oil that is high in omega-3 fatty acids in a breed of guinea pigs that naturally develop arthritis. An arthritis-resistant breed of guinea pigs was used as controls. The animals received the diets for 20 weeks, after which cartilage, bone, and blood factors were examined for signs of the disease. Among the arthritis-prone guinea pigs given omega-3, the majority of disease indicators were reduced in comparison with animals that received diets that did not contain fish oil.

**Editor's Note:** "Most diets in the developed world are lacking in omega-3, with modern diets having up to 30 times too much omega-6 and too little omega-3," Dr. Tarlton observed. "Taking omega-3 will help redress this imbalance and may positively contribute to a range of other health problems such as heart disease and colitis."

—D. Dye

\* *Osteoarthritis Cartilage.* 2011 Sep;19(9):1150-7.

### CoQ10 May Combat Chronic Tinnitus

A recent study by German scientists sought to determine the short-term effects of coenzyme Q10 on tinnitus expression in patients with chronic tinnitus aurium.\* Chronic tinnitus is often simply described as an unexplained buzzing or ringing inside a person's ear, when there is no cause for the noise from an external source.

The scientists performed a 16-week clinical trial comparing the presence of tinnitus with CoQ10 levels and total antioxidant status in individuals. The participants were then evaluated using a TQ score, which is a questionnaire designed to measure a person's level of experiencing tinnitus.

In a subgroup of 7 patients with low initial CoQ10 concentration in their system and significant increase in the CoQ10 level following the trial, a clear decrease in the TQ score was observed. The scientists concluded that in patients with a low plasma CoQ10 concentration, CoQ10 supply may decrease the tinnitus expression.

—J. Finkel

\* *Otolaryngol Head Neck Surg.* 2007 Jan;136(1):72-7.

### Eliquis™ May Be Superior, Not Just Equivalent to Warfarin

A recent article in *The New England Journal of Medicine* titled "Apixaban versus warfarin in patients with atrial fibrillation," studied the effects of the vitamin K antagonist apixaban (trade name Eliquis™) on preventing stroke in patients with atrial fibrillation.<sup>1</sup> For more than 50 years, warfarin has been the primary medication used to reduce the risk of thromboembolic events in patients with atrial fibrillation, but warfarin has numerous interactions with other drugs and requires the need for regular blood monitoring and dose adjustments.

In an accompanying editorial, Jessica L. Mega, MD, MPH, says that for the above reasons, "...Clinicians and patients have been eager to embrace alternative oral anticoagulants that are equally efficacious but easier to administer."<sup>2</sup> One such alternative involves the direct factor Xa inhibitor apixaban.

In a randomized, double-blind trial, doctors at the Duke Clinical Research Institute compared apixaban (at a dose of 5 mg twice daily) with warfarin in 18,201 patients with atrial fibrillation and at least one additional risk factor for stroke. The primary outcome was ischemic or hemorrhagic stroke or systemic embolism. The trial was designed to test for noninferiority, with key secondary objectives of testing for superiority with respect to the primary outcome and the rates of major bleeding and death from any cause.<sup>1</sup>

The results confirmed that in patients with atrial fibrillation, apixaban was superior to warfarin in preventing stroke or systemic embolism, caused less bleeding, and resulted in lower mortality.<sup>1</sup>

**Editor's Note:** An exciting new age has dawned in the prevention of stroke and systemic embolism in the context of atrial fibrillation. New, oral anticoagulant options vs. warfarin are available that offer an improved safety profile. The ARISTOTLE trial involving 18,201 patients who were randomly given either warfarin or Eliquis™ (apixaban) showed a reduced rate of stroke or systemic embolism by 21%, and mortality was reduced by 11%. By comparison, Pradaxa® (dabigatran) reduced deaths by 12% in RE-LY (major registrational trial), and Xarelto® (rivaroxaban) in the ROCKET AF trial by 8%, but these results were not statistically significant. However, these were all different trials, and additional studies will need to be conducted to identify which of these drugs is best.

—J. Finkel

1. *N Engl J Med* 2011 Sept 15;365(11):981-92 .

2. *N Engl J Med* 2011 Sept 15;365(11):1052-4 .

# Advanced RESVERATROL Formula

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

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

Compelling evidence reveals that certain compounds found in berries, such as **pterostilbene** and **fisetin**, possess potent “longevity gene” activators that work in synergy with **resveratrol**. For example, **fisetin** (found in strawberries) has been shown to **stabilize** resveratrol in the body by shielding it from metabolic breakdown,<sup>1-10</sup> thus extending its beneficial effects.

## High-Potency Resveratrol with Synergistic Activators

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

A bottle containing 60 vegetarian capsules of **Optimized Resveratrol with Synergistic Grape-Berry Actives** retails for \$46. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$27.90** per bottle. The suggested dose of one capsule a day provides:

<b>Trans-Resveratrol</b>	<b>250 mg</b>
<b>Grape-Berry Actives</b>	<b>85 mg</b>
<b>Quercetin</b>	<b>60 mg</b>
<b>Trans-Pterostilbene</b>	<b>0.5 mg</b>
<b>Fisetin</b>	<b>10 mg</b>

Contains yeast.

Item #01430



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# Go Green, Get Healthy,

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

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

For those who don’t have the time to consume each of the above vegetables each and every day, **Triple Action Cruciferous Vegetable Extract with Apigenin** is the perfect solution to making sure your body gets the important extracts it needs from these crucial food sources. For those weighing less than 160 pounds, just one vegetarian capsule a day provides optimal potencies. Those weighing over 160 pounds should consider taking two capsules a day. A 60-vegetarian capsule bottle of **Triple Action Cruciferous Vegetable Extract** retails for \$24. If a member buys four bottles during **Super Sale**, the price is reduced to only **\$14.85 per bottle**.

Those who want to obtain the benefits of **resveratrol** can order **Triple Action Cruciferous Vegetable Extract with Resveratrol**. Each capsule provides **20 mg of trans-resveratrol** in addition to the **vegetable extracts** and retails for \$32 per 60-capsule bottle. When a member buys four bottles during **Super Sale**, the price is reduced to only **\$19.98 per bottle**.



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

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

Contains corn.

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# NEXT-GENERATION FORMULA

# 5-LOX Inhibitor

## with AprèsFlex™

### Ultimate Protection for Systemic Cellular Inflammation

Excess levels of the enzyme **5-lipoxygenase** or **5-LOX** set in motion inflammatory responses that have been linked to common degenerative effects in aging individuals.<sup>1-5</sup>

Normal aging results in higher-than-desired levels of 5-LOX.

The typical American diet adds to the danger. Foods rich in **omega-6 fatty acids** like red meat, poultry, eggs and dairy products, along with high-glycemic carbohydrates, trigger *overproduction* of **arachidonic acid**. In response to high levels of **arachidonic acid**, the body produces the **5-LOX** enzyme.

**5-LOX** breaks down **arachidonic acid** to pro-inflammatory compounds like leukotriene **B4**,<sup>6</sup> a molecule that attacks joints, arterial walls, and other tissues. **5-LOX** itself facilitates undesirable cell division changes.

The good news is that extract of the Indian plant **Boswellia serrata** has been shown to *neutralize* 5-LOX.

### New Higher Absorbable Boswellia

Used for centuries to help with inflammatory issues, boswellia acts as a natural **5-LOX inhibitor**, intervening at the cellular level to block its unwanted effects.

Confirmatory data reveal that a compound contained in boswellia called **AKBA** (3-O-acetyl-11-keto-β-boswellic acid)<sup>7,8</sup> is the key to its beneficial action.

The problem is that boswellia is not readily absorbed into the blood.<sup>9</sup>

For this reason, a patent-pending, *standardized* form of boswellia called **AprèsFlex™** is being introduced that absorbs into the blood **52%** more than previously available boswellia extracts.<sup>9</sup>

Each 100 mg vegetarian capsule of **5-LOX Inhibitor with AprèsFlex™** is standardized to provide 20% of active **AKBA** from boswellia. Most people need only one capsule a day.

A bottle containing **60 100 mg** vegetarian capsules of **5-LOX Inhibitor with AprèsFlex™** retails for \$22. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$13.50** per bottle.



Item #01639

To order the new  
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\*It should be noted that although Life Extension's previous 5-LOXIN® formulation contained at least a 30% concentration of AKBA, the new AprèsFlex™ formula delivers more AKBA into the bloodstream, offering greater efficacy at a 20% concentration. AprèsFlex™ has been added to the new ArthroMax™ and Ultra Natural Prostate Formulas.

AprèsFlex™ is a trademark of Laila Nutraceuticals exclusively licensed to PLThomas-Laila Nutra LLC. International patents pending.



# Nutrients to Combat the Modern Stress Epidemic

BY JEFFREY CASTLE

Be it work, finances, relationships, or health issues, most of us experience stressful events at some point in our lives. But today, researchers are witnessing levels of stress that are virtually *unprecedented*.

A startling **80%** of Americans now report experiencing **intense, chronic stress** over personal finances and the economy.<sup>1</sup> And the problem is global: the World Health Organization estimates that stress-related disorders affect nearly 450 million individuals worldwide.<sup>2</sup>

The effects of this pandemic on the public health are profound.

Researchers have linked the cumulative impact of stress to a host of **age-accelerating** conditions and degenerative diseases.<sup>3</sup>

These range from cardiovascular disease to diabetes to various cancers.<sup>4-7</sup>

The good news is that recent confirmatory data show targeted nutritional interventions exert a beneficial effect on many of the biological risk factors produced by stress.<sup>2,8</sup>

Two natural compounds in particular have been shown to *reduce* stress levels, enhance attention and productivity, and lower many stress-related factors associated with risk of death.

In this article you'll learn the most recent data on the stress-relieving properties of **lemon balm**, a common garden herb, and **L-theanine**, an amino acid found exclusively in tea.

Lemon balm has been shown to exert a calming effect in healthy individuals,<sup>9</sup> while L-theanine has been found to soothe anxiety, without side effects.<sup>10</sup> >>

## Natural Stress and Anxiety Relief

Lemon balm is a common garden herb closely related to mint. It has been prized in traditional cultures for its capacity to induce sleep and mild sedation, as well as for its memory-enhancing properties.<sup>9,11</sup> Modern-day laboratory techniques reveal some of the underlying mechanisms of lemon balm's clinically proven efficacy.

Lemon balm, and its chief components, *rosmarinic acid*, quercetin, gallic acid, quercitrin, and rutin, are potent antioxidants that protect brain cells and other tissues from reactive oxygen species (ROS).<sup>12</sup> Lemon balm tea, for example, is used to protect radiology technicians from the oxidizing effects of chronic occupational exposure to low-level radiation.<sup>13</sup>

Lemon balm and rosmarinic acid also boost levels of the relaxation-inducing neurotransmitter called **GABA** in the brain. They do so by inhibiting the enzyme that normally degrades GABA.<sup>14</sup> The result of these lemon balm-induced elevations of GABA is a reduction in anxiety.<sup>15</sup> Increasing brain GABA activity is the mechanism by which prescription anti-anxiety drugs act as well, though they can lead to chemical dependency and side effects.<sup>16,17</sup>

Lemon balm also modulates the important neurotransmitter acetylcholine, the levels of which are reduced in Alzheimer's disease and other neurodegenerative conditions. Rosmarinic acid inhibits acetylcholinesterase, the enzyme that breaks down acetylcholine and reduces its availability to brain cells.<sup>18</sup> This effect is similar to that produced by prescription drugs meant to treat Alzheimer's disease.

Animal studies reveal powerful anxiety- and stress-reducing effects of lemon balm.<sup>19</sup> Mice demonstrate significantly reduced anxiety in maze experiments following supplementation with lemon balm extract, without any changes in overall activity level or memory.<sup>15</sup>

Mice conditioned to experience chronic fear showed significantly reduced stress responses and more appropriate behavior following dosing with rosmarinic acid, an effect with substantial implications for humans living with chronic anxiety and stress.<sup>20</sup> Lemon balm extracts also reduce pain from a variety of stimuli, further contributing to their soothing, stress-relieving effects.<sup>21</sup>

Human studies of lemon balm are equally compelling, as demonstrated in a series of trials conducted in the Human Cognitive Neuroscience Unit at the University of Northumbria in the United Kingdom. Researchers there found that **600 mg** of lemon balm produced sustained improvements in a test of "accuracy of attention." Three hundred milligrams of lemon balm produced an increase in self-rated *calmness* in a group of healthy adults, while **900 mg** of lemon balm reduced self-rated alertness.<sup>9</sup> That latter finding is a desirable effect in a supplement meant to produce relaxation.

A subsequent study using higher doses demonstrated significant improvements in both *calmness* and *memory* performance at all time points following a single **1,600 mg** dose.<sup>11</sup>

The British researchers next evaluated lemon balm in a more challenging test, namely in a setting in which subjects are deliberately stressed in the laboratory.



Lemon balm

They gave 18 healthy volunteers doses of **300** or **600 mg** of lemon balm, or a placebo, and then subjected them to the Defined Intensity Stressor Simulation, a battery of challenges designed to impose stress.<sup>22</sup> The higher dose counteracted the negative mood effects of the stress test, while significantly increasing self-ratings of calmness and again reducing self-ratings of alertness. Similar results were later shown with a supplement containing both lemon balm and valerian root, another natural sedative.<sup>23</sup>

Interestingly, the lower dose of lemon balm (300 mg) also increases the speed of mathematical processing, with no reduction in accuracy, in human studies.<sup>22</sup> That observation, combined with some findings about the molecular actions of rosmarinic acid, has led scientists to examine lemon balm's effects in Alzheimer's disease and other conditions of cognitive impairment.

The antioxidant protection provided by lemon balm shows promise in reducing oxidant-related **brain cell death**, an important contributor to Alzheimer's and Parkinson's diseases as well as age-related cognitive decline.<sup>24</sup> Lemon balm and its components are also highly effective at reducing accumulations of the harmful amyloid-beta, a protein that is a leading contributor to Alzheimer's disease.<sup>25-27</sup> Lemon balm's ability to inhibit the enzyme *acetylcholinesterase* boosts brain levels of the neurotransmitter acetylcholine, which are low in Alzheimer's.<sup>18,28</sup> These and other mechanisms of lemon balm and its components are credited with **improving cognitive performance** in maze experiments with animals.<sup>29</sup>

Human studies of lemon balm extracts in treatment of Alzheimer's have been encouraging. In one study, supplemented patients with mild to moderate Alzheimer's, aged 65-80 years, demonstrated significantly better outcomes on tests of cognitive function than did placebo recipients.<sup>30</sup> That study also found a reduction in agitation in supplemented patients compared with placebo recipients. In a related study, aromatherapy with lemon balm essential oil reduced agitation in **60%** of patients with severe dementia, compared with just **14%** in a placebo group.<sup>31</sup> Total agitation scores were reduced by an average of **35%**, compared with just **11%** in placebo recipients.

### Calming Overactive Neural Networks, Improving Cognition

**L-theanine** is a non-protein amino acid found exclusively in **green tea**.<sup>32,33</sup> It contributes significantly to the favorable taste of green tea and has numerous health-promoting benefits.<sup>33</sup> It has traditionally been used to enhance relaxation and improve concentration and learning ability.<sup>34,35</sup> Those features have



## Combating the Modern Stress Epidemic

- Eighty percent of Americans experience chronic stress, which is a known causative factor of chronic disease and early death.
- Stress exerts a well-defined impact on all body systems, resulting in elevated plasma cortisol levels and abnormal release of inflammatory cytokines.
- New research designates lemon balm and L-theanine, two natural products, as significant contributors to reduced stress and anxiety.
- The two ingredients work by different but complementary mechanisms to lower the physical manifestations of stress and promote long life span.
- Both lemon balm and L-theanine also demonstrate substantial neuroprotective characteristics through mechanisms related to their calming effects on brain cells.

modern scientists interested in its potential as a natural stress-reliever.<sup>32</sup>

L-theanine is chemically related to the neurotransmitter *glutamate* and binds to glutamate receptors in the brain.<sup>36,37</sup> Unlike glutamate, however, which can cause a state called *excitotoxicity* that can eventually damage nerve cells, L-theanine *protects* brain cells *against* excitotoxicity, calming the nerve networks in the brain.<sup>37-39</sup>

Animal studies verify the behavioral benefits of these biochemical effects. In isolated rat brain slices, L-theanine reduces electrical activity associated with anxiety.<sup>40</sup> L-theanine *reduces evidence of anxiety and depression* in several different animal models of stress.<sup>41,42</sup> In freely moving rats, L-theanine led to decreases in nearly all frequencies of brainwave activity, indicating a state of calmness and relaxation.<sup>43</sup> That is hardly surprising: L-theanine is known to be synergistic with the GABA-enhancing anti-anxiety drug midazolam, a relative of **Valium®**.<sup>42</sup>

Brainwave studies have shed some light on how L-theanine achieves its remarkable anxiety-reducing effects. In one study, healthy subjects took a soft drink containing green tea enriched with L-theanine while their brainwave power was measured.<sup>44</sup> Power was initially reduced in all frequencies and areas during the first hour, indicating relaxation. Later changes indicated both an increase in mental performance and a higher degree of relaxation. In this case, L-theanine seemed to produce desirable increases in attention, accompanied by durable relaxation—that means subjects could concentrate better without being distracted by anxiety.

Another brainwave study demonstrated that L-theanine significantly

increased activity in the frequency band indicating relaxation without inducing drowsiness.<sup>45</sup> And a third concluded that L-theanine plays a general role in sustaining attention during a long-term difficult task.<sup>46</sup> That's important, because it is known that while stress and anxiety can reduce your ability to maintain attention and focus, promoting attention and focus is an effective way of reducing your stress and anxiety.<sup>47</sup>



**TABLE 1: Health Risks Associated with Excess Stress**

Stressor	Health Outcome	Increased Risk
Sleep Disturbances <sup>56</sup>	Early Death from All Causes	<b>170%</b>
Perceived Stress <sup>57</sup>	<ul style="list-style-type: none"> <li>• Early Death from All Causes</li> <li>• Death from Respiratory Disease</li> <li>• Death from Heart Attacks</li> <li>• Death from External Causes</li> <li>• Suicide</li> </ul>	<b>32%</b> <b>79%</b> <b>159%</b> <b>207%</b> <b>491%</b>
Adverse Childhood Experiences <sup>58</sup>	Death by Age 65	<b>140%</b>
Stress at Work <sup>6,59</sup>	<ul style="list-style-type: none"> <li>• Risk of Type 2 Diabetes in Women</li> <li>• Death from Cardiac Causes</li> <li>• Early Death from All Causes</li> </ul>	<b>94%</b> <b>181%</b> <b>65%</b>
Not Enough Reward for Effort at Work <sup>60</sup>	Poor Self-Rated Health	<b>Up to 280%</b>
Divorce <sup>3</sup>	Total and Cardiovascular Death	<b>37% (Men)</b>
Major Negative Life Events <sup>7</sup>	Breast Cancer	<b>533%</b>

**Life stressors and sleep disruptions dramatically increase your risk of bad health outcomes and premature death.**



### Why “L”-theanine?

L-theanine is the amino acid that gives green tea its delightfully subtle taste and also provides many of its health benefits, particularly those involving the nervous system. Why do we refer to it as “L”-theanine, and what is the significance?

Most biologically active compounds can occur in two forms, each the mirror-image of the other. Scientists use the prefixes “D” and “L” to distinguish between the two forms. Only one form (usually the “L” form) is biologically active, however.

When humans manufacture biological molecules, as opposed to extracting them from natural sources, we typically produce a mixture containing both forms in equal measure—a so-called “racemic” mixture. When you consume such a mixture, then, you are only getting 50% of the actual biological activity; the rest is simply wasted.

Not all supplements are alike; look for the designation “L-theanine” to be sure you are taking the most potent and biologically sound form of this valuable stress-relieving substance.

Another way to assess stress and anxiety is by measuring vital signs such as heart rate and salivary content of certain proteins that are increased during stress. Japanese researchers did just that with 12 subjects during a mental arithmetic test given as an acute stressor.<sup>8</sup> Results showed that the supplement reduced heart rate and salivary protein responses to the acute stress task, compared with placebo. In addition, heart rate variability was improved, a sign that the L-theanine was reducing activation of the sympathetic nervous system, or “fight-or-flight” response. Improved heart rate variability is a protective factor against cardiovascular disease, so L-theanine’s anti-stress effects in this case are also indirectly *cardio-protective*.<sup>5</sup>

Several studies have now also shown that L-theanine substantially augments the known attention-focusing effects of *caffeine*. Adding L-theanine to caffeine leads to improved accuracy and speed of information processing, less susceptibility to distraction, improved switching between tasks, and less mental fatigue, while improving reaction time and reducing physical symptoms such as headache and tiredness.<sup>48-51</sup>

Unfortunately, the amounts of L-theanine in a regular cup of caffeinated green tea are not large enough to produce the anti-anxiety effects, meaning supplementation is necessary. Most studies of L-theanine showing benefits use doses of between **100** and **250 mg** per day, while a cup of green tea typically contains **20 mg** or less.<sup>45</sup>

L-theanine’s many neuroprotective effects make it an attractive natural product for preventing and treating disorders such as Alzheimer’s disease.<sup>52</sup> A placebo-controlled clinical study in mid-2011 examined the effects of L-theanine and green tea extract on memory and attention in a group of adults with mild cognitive impairment.<sup>53</sup> Mild cognitive impairment is often seen as a precursor or risk factor for Alzheimer’s disease.<sup>54,55</sup> The supplemented group experienced improvements in memory and selective attention (the ability to attend to one task without being distracted by others). Brain waves indicative of *cognitive alertness* were significantly increased by the supplement as well.

### Summary

Stress and anxiety plague 80% of Americans. Far from being mere annoyances, these psychological conditions have profound physical implications. It is no exaggeration to say that stress can shorten your life.

Prescription sedatives and anti-anxiety drugs have some short-term benefit in reducing symptoms, but their long-term safety and effectiveness has not been established, and they carry risks of significant side effects, tolerance (loss of efficacy) and addiction.

Lemon balm and L-theanine, on the other hand, offer powerful protection against stress and anxiety through distinct and complementary mechanisms. Both have been shown to reduce not only stress but the biological manifestations it produces in the body and brain. And both have additional neuroprotective characteristics as well. If you suffer from stress and anxiety, consider adding a combination supplement containing high-quality lemon balm and L-theanine to your health maintenance regimen. ●

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

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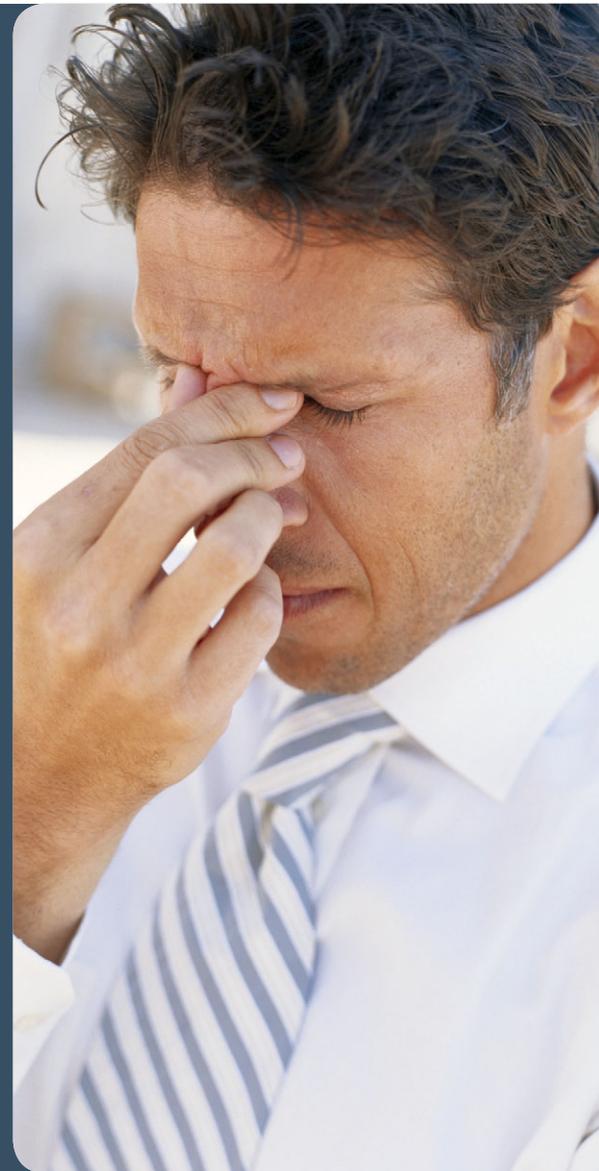
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**TABLE 2: Physical and Psychological Impact of Stress<sup>61</sup>**

Physical Symptoms of Stress	Prevalence	Psychological Effects of Stress	Prevalence
Fatigue	51%	Irritability or Anger	50%
Headache	44%	Feeling Nervous	45%
Upset Stomach	34%	Lack of Energy	45%
Muscle Tension	30%	Feeling a Need to Cry	35%
Change in Appetite	23%		
Teeth Grinding	17%		
Change in Sex Drive	15%		
Feeling Dizzy	13%		

**Stress produces major physical and psychological changes in your mind and body. Problems in themselves, these changes also contribute to increased cortisol levels and increased inflammation that leads to chronic disease and early death.<sup>62,63</sup>**



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# Bone Restore

Now with highly *absorbable* Magnesium Citrate!

**Feeble bones** severely hamper quality of life and put aging humans *at risk for injury* due to possible *breaks or fractures*.

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

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

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

The retail price for 150 capsules of **Bone Restore** is \$22.50. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$13.16** per bottle.



Item # 01611

#### Just five capsules of Bone Restore provide:

<b>Highly Absorbable Calcium</b>	<b>1,200 mg</b>
<small>(as DimaCal® dicalcium malate, TRAACS® calcium glycinate chelate, calcium fructoborate)</small>	
<b>Vitamin D3</b>	<b>1,000 IU</b>
<b>Magnesium</b> (as magnesium citrate)	<b>100 mg</b>
<b>Boron</b>	<b>3 mg</b>
<small>(calcium fructoborate as patented Fruitex B® OsteoBoron®)</small>	
<b>Zinc</b>	<b>2 mg</b>
<b>Manganese</b>	<b>1 mg</b>
<b>Silicon</b>	<b>5 mg</b>

Contains corn and rice.

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

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



To order Bone Restore, call 1-800-544-4440 or visit [www.LifeExtension.com](http://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.

# THE NEXT GENERATION OF PROSTATE PROTECTION:

## ULTRA NATURAL WITH APRÈSFLEX™ AND STANDARDIZED LIGNANS

**Ultra Natural Prostate with AprèsFlex™ and Standardized Lignans softgels** combines cutting-edge *natural* ingredients that have been scientifically substantiated to protect the prostate gland and maintain its healthy function.\*

The latest addition to this incredible formula is **Après-Flex™**, an extract of *Boswellia serrata* that has been shown in studies to have **two times the bioavailability** of the leading boswellia extract. AprèsFlex™ inhibits the dangerous enzyme *5-lipoxygenase*. Boron is included because of studies showing it may help slow elevation of prostate-specific antigen (PSA).

The formula provides **saw palmetto extract** and **Graminex Flower Pollen Extract™** to interfere with DHT activity and help regulate inflammatory reactions in the prostate.\* **Lycopene** is a carotenoid that has been added to the formula to help maintain healthy DNA gene function in prostate cells.

In order to boost its anti-estrogen capabilities, **Ultra Natural Prostate Formula** incorporates **HMRLignan™**, derived from Norway spruce, **flax lignans**, and **nettle root extract**.

Since normal aging can lead to potentially unsafe levels of prostaglandins in the prostate, **Pygeum africanum** extract is included to help suppress prostaglandins and thereby promote prostate comfort.\* **Beta-sitosterol** has been added because it is the most biologically active component of *pygeum* and enhances its protective effects.

The retail price for one bottle of **Ultra Natural Prostate Formula with AprèsFlex™** is \$38. If a member buys four bottles during **Super Sale**, the price is reduced to **\$23.63** per bottle. If a member buys 12 bottles during **Super Sale**, the price is reduced to **\$21.60** per bottle. **Contains soybeans and corn.**

**To order Ultra Natural Prostate Formula with AprèsFlex™, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)**



### The daily dose of two softgels of Ultra Natural Prostate Formula provides:

<b>USPlus® Saw Palmetto (CO<sub>2</sub> DeepExtract™)</b> (std to 85%-95% total fatty acids and sterols)	<b>320 mg</b>
<b>Graminex Flower Pollen Extract™</b>	<b>252 mg</b>
<b>AprèsFlex™ (Boswellia serrata) extract</b>	<b>70 mg</b>
<b>Pumpkin seed oil (Cucurbita pepo) extract</b> (standardized to 85% total fatty acids)	<b>200 mg</b>
<b>Stinging nettle root extract (Urtica dioica)</b>	<b>240 mg</b>
<b>Pygeum extract</b>	<b>100 mg</b>
<b>Lycopene</b>	<b>10 mg</b>
<b>Phytosterol complex</b> (standardized to 26.6% free beta-sitosterol)	<b>678 mg</b>
<b>Proprietary blend of HMRLignan™</b> Norway Spruce and <b>ActiFlax™</b> Flax Lignan extracts	<b>20.15 mg</b>
<b>Boron</b>	<b>3 mg</b>

AprèsFlex™ is a registered trademark of Laila Nutraceuticals exclusively licensed to PL Thomas—Laila Nutra LLC. International patents pending. ActiFlax™ is a trademark of Pharma Science Nutrients, Inc., all rights reserved. HMRLignan™ is a trademark used under sublicense from Linnea S.A. USPlus® and DeepExtract™ are trademarks of Valensa International and are used under license. US Patents 6,319,524 & 6,669,968. Not available for export.

\* 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.

# Experience Tranquility

## Overstressed? Losing sleep?

Left unchecked, the inner turmoil created by these issues can lead to *heart palpitations, muscle weakness, headaches, and even increased blood pressure.* You need to take action to halt these symptoms immediately.

Fortunately, **Life Extension®** has created **Natural Stress Relief**, a calming formula made with **lemon balm** and **L-theanine**, two ingredients **clinically proven** to help promote sleep and relaxation.<sup>1,3</sup>

The **Cyracos® lemon balm extract** used in this product is prepared from a special lemon balm chosen for its high concentrations of *hydroxycinnamic* and *rosmarinic acids*. These potent constituents may be **mood enhancers** that *relieve everyday stress and alleviate sleep problems.*<sup>1</sup>

*L-theanine*, an amino acid derived from green tea, is a natural relaxant that has been used by the Japanese for years. Those who have taken L-theanine compare it to a *massage, meditation session, and aromatherapy rolled into one.*<sup>2</sup>

Based on a tremendous amount of published data, Life Extension® combined these two ingredients with the idea of providing the ultimate calming experience. Try it today.

Each vegetarian capsule of **Natural Stress Relief** provides:

300 mg of **Cyracos® lemon balm extract**  
200 mg of **Suntheanine® L-Theanine**

Note that the amount of L-theanine in this product is double that of most L-theanine stand-alone supplements. The reason for this potency increase is reports of greater benefit when at least **200 mg of L-theanine** are taken.

The retail price of a 30-count bottle of **Natural Stress Relief** is \$28. If a member buys four bottles during **Super Sale**, the price of this potent stress-relieving formula is reduced to just **\$16.20** per bottle.

**BEWARE OF IMITATIONS** The L-theanine used in the new Natural Stress Relief is Suntheanine®, the only pure form of L-theanine available worldwide and the only form protected by 40 internationally recognized patents and scientifically proven in clinical studies to be safe and efficacious. Independent laboratory analysis has verified that certain other products on the market claiming to contain "L-theanine" are only half L-theanine, the other half being a different form of theanine known as "D-theanine" that has not been scientifically evaluated in published studies. Suntheanine® is a registered trademark of Taiyo International, Inc. Use of Suntheanine® is protected by US Trademark Registration No. 2,548,957. Cyracos® is a registered trademark of Naturex, Inc.

#### References:

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3. *Biochem Biophys Res Commun*. 2004 Jul 16;320(1):116-22.

Contains rice.



Item #00987

To order Natural Stress Relief  
with Lemon Balm and L-Theanine,  
call 1-800-544-4440 or visit  
[www.LifeExtension.com](http://www.LifeExtension.com)

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Next-Generation Formula . . .

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

## Now with Dual-Action Support for Aging Joints!

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

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

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

## Better Absorption for Optimum Benefit

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

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

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

\*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.

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

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

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

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



Item# 01618

The retail price of a bottle of 60 capsules of **ArthroMax™ Advanced with UC-II® and AprèsFlex™** is \$36. If a member buys four bottles during **Super Sale**, the price is reduced to **\$21.60** per bottle.

To order the new **ArthroMax™ Advanced with UC-II® and AprèsFlex™** or **ArthroMax™ with Theaflavins and AprèsFlex™**, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)

Contains corn.

AprèsFlex™ is a trademark of Laila Nutraceuticals exclusively licensed to PL Thomas—Laila Nutra LLC. International patents pending. FruiteX B® and OsteoBoron® are registered trademarks of VDF FutureCeuticals, Inc. U.S. Patent No. 5,962,049.

UC-II® is a registered trademark of InterHealth N.I. UC-II® brand undenatured type II collagen. U.S. Patents 5,645,851, 5,637,321, 5,529,786, 5,750,144, 7,083,820, 7,846,487, EPO Patent EP1435906B1, U.S. and world-wide patents pending.

## ArthroMax™ with Theaflavins and AprèsFlex™

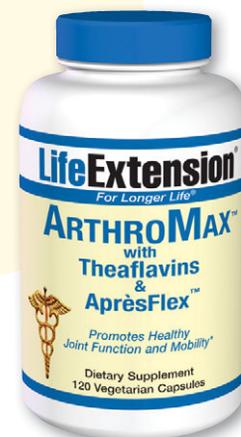
ArthroMax is also available with **Black Tea Theaflavins** (without UC-II®) to protect against immune attack in the joints via a separate mechanism.

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

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

AprèsFlex™ ( <i>Boswellia serrata</i> ) extract	100 mg
Glucosamine sulfate 2KCl (from corn)	2000 mg
Methylsulfonylmethane (MSM)	1000 mg
Black Tea ( <i>Camellia sinensis</i> ) (decaf.) extract	440 mg
Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)	1.5 mg

The retail price of a bottle of 120 vegetarian capsules of **ArthroMax™ with Theaflavins and AprèsFlex™** is \$44. If a member buys four bottles during **Super Sale**, the price is reduced to **\$27** per bottle.



Item# 01617

### References

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2. *J Ethnopharmacol.* 2006 Sep 19;107(2):249-53.

\*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.





# *Discovering* **COFFEE'S UNIQUE** **Health Benefits**

BY MICHAEL DOWNEY

Every morning, many of us sip our coffee with no real thought given to the beans behind the brew. But coffee beans are extraordinarily complex fruits containing over **1,000<sup>1,2</sup>** compounds—only a handful of which have ever been individually investigated by scientists. Not only is coffee packed with antioxidants,<sup>3</sup> but it is the greatest source of antioxidants in the American diet.<sup>3,4</sup>

The average American coffee drinker consumes about **3.1 cups of coffee a day,**<sup>5</sup> but extensive research has found that higher volumes—as much as **4 to 12 cups daily**—can help prevent most major killers, including cardiovascular disease,<sup>6-8</sup> cancer,<sup>9-11</sup> diabetes,<sup>12-14</sup> liver disease,<sup>15-17</sup> and Alzheimer's disease.<sup>18-20</sup>

For instance, in case-controlled human studies, compared to coffee abstainers, those who drank the most coffee cut their risks of breast cancer by **57%** and diabetes by **67%.**<sup>10,21</sup>

In this article, you will learn about recent research into the benefits of coffee consumption, what's missing from most commercial coffee beans, and what people should do who are overly sensitive to coffee beverages. > >

## Diabetes Management

Health authorities expressed alarm over the mushrooming epidemic status of diabetes after a July, 2011, study in *Lancet* shocked even experts with its estimate of **347 million** diabetics worldwide.<sup>22</sup> Then, the *International Diabetes Federation* presented evidence on September 13, 2011, that the real total is closer to **366 million**.<sup>23</sup>

Scientific studies have found that regular coffee consumption (with its **chlorogenic acid** content) lowers the risk of type 2 diabetes by up to **67%**.<sup>21</sup> This appears to result from reduced levels of blood glucose, increased insulin sensitivity, and decreased storage of both fat and carbohydrate.

In one of a number of studies, a 2009 meta-analysis in the *Annals of Internal Medicine* combined data on over 450,000 people and found that **every additional cup per day** of caffeinated or decaffeinated coffee lowered the risk of diabetes by **5 to 10%**.<sup>12</sup>

Many epidemiological studies show that the risk of diabetes drops directly according to the amount of coffee consumed. For instance, scientists found that overall risk is reduced by:

1. **13%** with **one cup a day**,<sup>24</sup>
2. **47%** with **4 cups a day**,<sup>24</sup>
3. **67%** with **12 cups a day**.<sup>21</sup>

Scientists are beginning to learn how chlorogenic acid, a potent constituent of both raw and brewed coffee, can be directly tied to an anti-diabetic effect. Investigation has shown it substantially interferes with **glucose synthesis and release** in the body.<sup>25</sup> It appears to accomplish this by inhibiting the pathway of **glucose-6-phosphatase**, a glucose-regulating

enzyme, which in turn results in a reduction of sugar levels in the blood.<sup>26</sup>

Chlorogenic acid also lessens the *hyperglycemic peak* associated with carbohydrate ingestion.<sup>26</sup> This results in a downturn in insulin activity, and a reduced accumulation of *adipose* (fat-storing) tissue.

Unidentified compounds in coffee, as well as caffeine itself, may be boosting the preventive effect of chlorogenic acid against diabetes. Preliminary studies suggest that these chemicals may lower carbohydrate storage by **35%**<sup>27</sup> and improve insulin sensitivity.<sup>28</sup>

Coffee was previously found to inhibit iron absorption.<sup>29</sup> Later, in 2004, scientists found a direct link between reduced storage of iron in the body and a lower risk of diabetes type 2, independent of other risk factors.<sup>30</sup>

## Cancer Risk Reduction

Early studies are reporting an association between higher coffee consumption and a reduced risk of various cancers.

For instance, at a time when prostate cancer is the second leading cause of cancer death among American men (after lung cancer),<sup>31</sup> a promising study appeared in the June 8, 2011, issue of the *Journal of the National Cancer Institute*. The research team reported that men who drank over **6 cups of coffee a day** had an **18%** lower risk of prostate cancer—and a **40%** lower risk of aggressive or lethal prostate cancer.<sup>9</sup> This effect was noted for decaffeinated as well as caffeinated coffee—indicating that compounds other than caffeine are responsible for this preventive effect. Constituents in coffee seem to improve insulin levels and sensitivity,<sup>32</sup> hypothesized to play a role in prostate cancer progression.<sup>33</sup>



With breast cancer ranked as the second leading cause of cancer death among American women (after lung cancer),<sup>34</sup> potentially good news arrived recently in the form of a study finding that coffee consumption may help prevent a specific form of this disease. The May 14, 2011, issue of *Breast Cancer Research* reported that postmenopausal women who consumed **5 cups of coffee daily** exhibited a **57%** decrease in their risk of developing *ER-negative* (non-hormone-responsive) breast cancer, a form of cancer that is especially difficult to treat.<sup>10</sup> This builds on an earlier study in which **2 or more cups of coffee per day** was shown to delay the onset of breast cancer in women with a certain genetic type.<sup>35</sup> **Chlorogenic acid, caffeic acid, phytoestrogens**, and caffeine—all found in coffee—are suspected of playing a major role.<sup>35</sup>

Colorectal cancer is the second most common cause of cancer-related deaths in the US overall (when the statistics for both sexes are combined).<sup>36</sup> While colonoscopy screening is a useful tool for detecting cancers or pre-cancerous polyps, researchers have long hoped to find ways to prevent these cancers in the first place. The good news is that a large meta-analysis has reviewed the combined data from 24 previous studies and found an overall **30%** lower incidence of colorectal cancer among those categorized as heavy coffee drinkers.<sup>37</sup> This confirms the findings from several earlier studies.<sup>38-41</sup>

There is a **15%** chance that patients who are diagnosed with an oral or pharyngeal cancer will be found to have another cancer somewhere in the same area of the body such as the larynx (voice box), esophagus, or lung.<sup>42</sup> But early research suggests the promise of preventing these types of cancers from occurring. A case control study found that individuals who consumed more than **three cups of coffee daily** had a



## Coffee's Unique Health Benefits

- Coffee is the greatest source of antioxidants in the American diet.<sup>3,4</sup> And the good news is that sound scientific studies have found that the common fears about excess coffee consumption are invalid, and higher intake means bigger benefits.
- An impressive number of studies have shown a strong association between higher consumption of coffee and a significantly reduced risk of most chronic diseases, including diabetes, cardiovascular disease, cancer, Alzheimer's disease, and others.
- With over 1,000 phytochemicals, coffee's unparalleled antioxidant punch no doubt plays a role in its protection against disease. But a multitude of direct biological actions on the body are suspected, such as an improvement in intracellular signaling,<sup>95,96</sup> which may help prevent cancer, diabetes and more.
- Drinking just **one cup of coffee a day**—caffeinated or decaffeinated—can decrease the risk of developing diabetes by **13%**.<sup>24</sup> But at **12 cups a day**, the risk of getting diabetes is slashed by **67%**.<sup>21</sup>
- Far from being a risky habit, coffee has now been shown to provide powerful protection against an epidemic of diabetes and a rising tide of other age-related diseases. It's an all-natural and inexpensive elixir—to go!



## What's Missing from Conventional Coffees?

Not all coffee provides the same powerful protection against chronic disease. Polyphenol availability varies with how long the beans are roasted and the roasting method itself.

**Roasting method:** All roasting destroys some polyphenols, the most important being **chlorogenic acid**. However, in a new patented roasting process, the coffee beans are soaked and drained prior to being roasted.<sup>106</sup> Later, after roasting, the beans are deposited back into the same liquid in which they were originally pre-soaked, in a process designed to return substantial polyphenol content to the beans.

### Chlorogenic Acid Content of Conventional Roasted (Arabica) Coffee Compared to "Polyphenol-Retaining" Roasted Coffee

Conventional Coffee	92 mg/cup	
Polyphenol-Retaining Coffee	172 mg/cup	→ <b>186% more chlorogenic acid</b>
Conventional Decaffeinated Coffee	52 mg/cup	
Polyphenol-Retaining Decaffeinated Coffee	132 mg/cup	→ <b>254% more chlorogenic acid</b>

**Tolerance:** Some individuals find drinking coffee late in the day interferes with sleep; or they have religious or other reasons to avoid caffeine. No problem. Decaffeinated coffee has a similar rich antioxidant potency as the caffeinated variety.

**Life Extension**<sup>®</sup> offers two new coffees—(caffeinated and decaffeinated)—exclusively roasted using this patented **polyphenol-retaining** process. Studies clearly show the health benefits of coffee increase directly with the number of cups consumed per day. These patented "polyphenol-retaining" coffees provide far greater concentrations of the beneficial compounds found in coffee. As many as **4 to 12 cups a day** of conventional coffee greatly reduce the risk of most major diseases, including cardiovascular disease,<sup>6,8</sup> cancer,<sup>9-11</sup> diabetes,<sup>12-14</sup> liver disease,<sup>15-17</sup> and Alzheimer's disease.<sup>18-20</sup> These new "polyphenol-retaining" coffees may provide equal benefits with only half the number of cups consumed.

**40% lower risk** of oral, pharyngeal, and esophageal cancers, compared to those who drank one cup of coffee or less each day.<sup>43</sup> A second study made the same strong connection.<sup>44</sup>

For several decades, liver cancer has been on the rise among Americans.<sup>45</sup> Liver cancer has become a leading cause of cancer deaths worldwide,<sup>45</sup> due to higher rates in some other parts of the world. In recent years, however, studies have been accumulating that suggest a substantially reduced risk of this disease among coffee drinkers. In a 2005 study, for example, just **one cup a day** was associated with a **42% lower risk** of liver cancer.<sup>46</sup> A number of studies have reported similar conclusions.<sup>47-52</sup>

### Cardiovascular Disease

As the leading cause of death, cardiovascular disease (CVD) kills over one third more Americans than cancer.<sup>53</sup>

You may have heard the common misconception that coffee raises blood pressure and increases the risk of CVD. However, scientific studies show that coffee's compounds lower blood pressure over the long term,<sup>54</sup> decrease the risk of cardiovascular disease,<sup>55-57</sup> and may reduce the risk of stroke.<sup>58</sup>

Drinking coffee can raise blood pressure briefly, right after consumption.<sup>59-61</sup> But its compounds have a longer-term benefit: daily coffee consumption decreases blood pressure readings after just **8 weeks**, believed to be a result of the beneficial action of chlorogenic acids on the arteries.<sup>62</sup>

Longer-term, drinking coffee cuts the risk of death from cardiovascular disease. A 15-year study of over 41,000 women found that the risk of death from cardiovascular disease was **24% lower** among those consuming **1 to 3 cups of coffee daily**,<sup>6</sup> which was confirmed by other studies on men and women.<sup>63,64</sup>

Preventing cardiovascular disease at the cellular level, just **one cup of coffee** inhibited *platelet*

aggregation within **one hour**, regardless of its caffeine content.<sup>65</sup>

More good news: studies found that regular coffee consumption improved inflammation and HDL (“good”) cholesterol,<sup>66</sup> and decreased *coronary calcification*.<sup>67</sup>

## Liver Disease

Chronic liver disease and cirrhosis cause 35,000 deaths per year in the United States. Cirrhosis is the ninth leading cause of death in America, responsible for 1.2% of all US deaths.<sup>68</sup> However, scientists have found that the risk of liver cirrhosis, and of dying from this disease, can be greatly reduced by coffee consumption.

Those drinking **4 cups of coffee daily** exhibited a full **84%** lower risk of cirrhosis, according to a study in the *Annals of Epidemiology*.<sup>69</sup> This is consistent with an earlier 8-year study of over 120,000 people that found that **each cup of coffee daily** lowered the risk of dying from cirrhosis by **23%**.<sup>70</sup>

Also, patients with hepatitis B or C have been shown to be less likely to develop nonalcoholic cirrhosis if they are also coffee drinkers.<sup>71</sup>

## Cognitive Decline

Alzheimer’s disease becomes increasingly prevalent with aging, striking more than **40%** of those **over 84**.<sup>72</sup> Promising studies are finding that greater daily consumption of caffeinated coffee cuts the risk of both Alzheimer’s<sup>18,73</sup> and dementia<sup>74</sup> later in life.

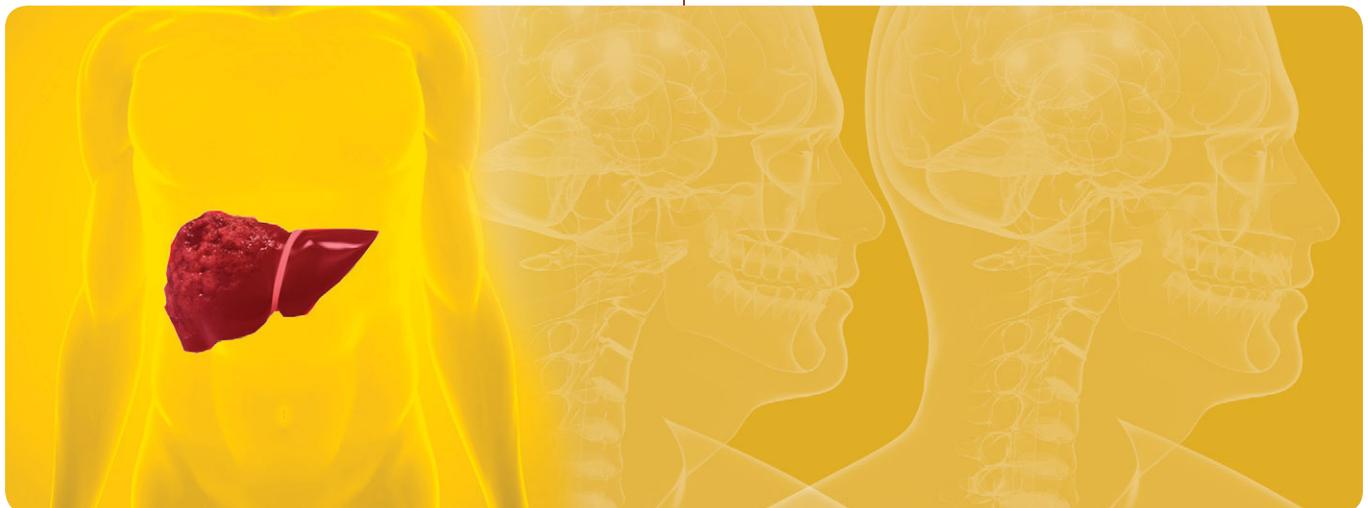
Scientists have discovered that long-term coffee intake exhibits a dose-dependent association with improved cognitive function and memory,<sup>75,76</sup> and it protects *primary neuronal cells*.<sup>77</sup>

In fact, one mouse study has far-reaching implications for humans. Researchers found that moderate caffeine intake—equivalent to human consumption of **5 cups of coffee daily**—began to reverse Alzheimer’s damage in just **5 weeks**.<sup>20</sup>

Although the mechanism by which coffee lowers the risk of cognitive decline is not known, a 2009 study on mice found that caffeine decreases levels, in both the blood and the brain, of *amyloid-beta*, a substance involved in the development of Alzheimer’s.<sup>78</sup> Later, a 2010 review of previous mouse studies found that caffeine—the equivalent of **5 cups of coffee daily** in humans—decreases levels of *beta-* and *gamma-secretase*, proteins used in amyloid-beta production in the first place.<sup>20</sup>

Then, in 2011, scientists concluded that coffee may be the best source of the caffeine shown to protect against cognitive decline. The reason is that another unknown component in coffee appears to synergize with the caffeine to increase blood levels of a factor (*granulocyte colony-stimulating factor*, or *GCSF*) associated with improved cognitive function in Alzheimer’s.<sup>79</sup>

Caffeinated coffee has also been associated with protection against Parkinson’s disease, the second most common neurodegenerative disorder after Alzheimer’s.<sup>80</sup> A study of 29,000 individuals found that **one to four cups** daily decreased the risk of Parkinson’s by **47%** and **5 or more cups** decreased the risk by **60%**.<sup>81</sup> Increasing *granulocyte colony-stimulating factor* using drugs like Neupogen® is demonstrating efficacy in animal models of established Parkinson’s disease.<sup>82-85</sup> Several other studies confirmed an inverse dose-dependent relationship—the greater the number of daily cups of caffeinated coffee, the lower the risk of Parkinson’s disease.<sup>86-88</sup>





## DNA Damage

DNA damage is characterized as a physical abnormality within the genetic makeup of a cell, such as a break in a DNA strand. It usually occurs to greater extent within cells that frequently divide. DNA damage can lead to genetic mutations that cause **cancer**.<sup>89</sup> And when DNA damage occurs within cells that divide less frequently, it can promote **aging**.<sup>89</sup>

It's difficult to avoid the many causes of DNA injury. Oxidizing agents produced by normal metabolic processes promote this type of damage. Also, DNA defects can be triggered by numerous external agents such as ultraviolet light, radiation, chemotherapy, industrial chemicals, and certain environmental chemicals such as **polycyclic hydrocarbons**, found in smoke.

Scientists have discovered a surprisingly simple way to help **decrease** DNA damage. Studies show that higher coffee consumption decreases levels of oxidative DNA damage,<sup>90,91</sup> which in turn **inhibits** both cancer and aging.

A 2011 study confirmed coffee's DNA-related effect on cancer risk. The researchers found that regular coffee drinkers enjoyed a **13%** decreased risk of cancers generally, and those who consumed high levels of coffee enjoyed an **18%** decreased risk. Additionally, they enjoyed **specific** protection against prostate, breast, colorectal, pharyngeal, esophageal, hepatocellular, pancreatic, bladder, and endometrial cancers.<sup>92</sup>

## How Do Coffee Compounds Work?

Despite coffee's powerful antioxidant punch, the mechanism for coffee's protection against a host of diseases may involve a lot more than a fierce battle

between antioxidants and free radicals. Scientists are beginning to discover that coffee's phytochemistry also exerts **direct biological actions** on the body, which may underpin a web of indirect, protective effects against diseases from diabetes to cancer.<sup>93,94</sup>

Early studies suggest that the **polyphenols** in coffee (both caffeinated and decaffeinated) may modify key enzymes that **improve intracellular signaling**,<sup>95,96</sup> the communication system that facilitates cellular actions such as tissue repair, immunity, and *homeostasis*. Poor cell signaling may be a factor in cancer, diabetes, and more. (A subsequent study suggested in 2008 that this cellular signaling effect could also explain coffee's inhibition of blood platelet aggregation and cardiovascular risk.<sup>97</sup>)

Then, in 2009, a study found that by modulating specific *cell signaling* pathways (known as *ERK1/2* and *JNK*), the various polyphenols in coffee—especially **chlorogenic acid**—help prevent the degeneration of those human cells that are rich in lipids.<sup>98</sup> Brain cells are lipid-rich and this may explain coffee's *neuroprotective* effect against cognitive decline and diseases of the brain.

Similarly, one study suggested that polyphenols—for which coffee is the prime dietary source—may affect cellular response and sensitivity by **interacting with nuclear receptors**.<sup>99</sup> Receptors are molecules that pick up intracellular signals, determining whether a cell gets the right instructions to divide, die, or release molecules—thus regulating body functions to fight disease.

A 2006 review of animal and human studies found that coffee compounds **raise levels of detoxifying enzymes** that protect against DNA damage and—likely as a direct result—reduce the susceptibility of *lympho-*

cytes (white blood cells involved in immune response) to damage from *reactive oxygen species* (ROS).<sup>100</sup> This may partly explain how coffee lowers the incidence of DNA damage and related diseases such as cancer.

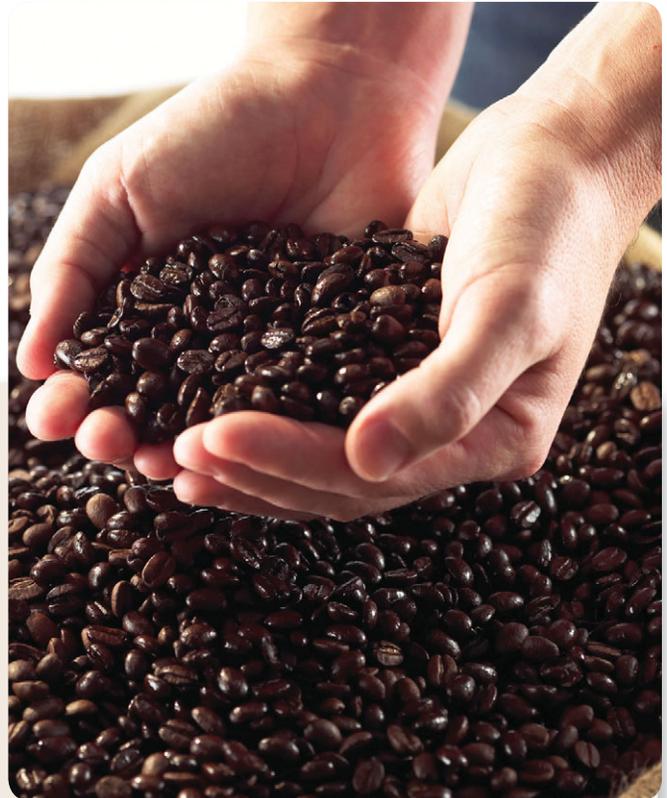
One 2009 study on humans found that **3 cups of coffee daily for 3 weeks** increased the number and metabolic activity of beneficial bacteria called bifidobacteria.<sup>101</sup> These intestinal bacteria may explain one mechanism for coffee's benefits: bacteria can boost immunity, lower blood pressure, and increase mineral absorption.

In 2010, researchers discovered that the *phenolics* in **4-8 cups of coffee daily** have the direct action of dampening inflammatory activity.<sup>66</sup> Chronic low-level inflammation has been associated with diseases ranging from cancer to diabetes, as well as aging.

A 2011 randomized, controlled trial found that consumption of (caffeinated or decaffeinated) coffee produces specific improvements in the function of the liver and of *adipocytes* (fat-storing cells), both associated with a healthy metabolism. This provides further insight into the possible mechanisms behind coffee's

benefits, because disrupted metabolic activity is a biological risk factor for a number of chronic diseases (including type 2 diabetes).<sup>102</sup>

In addition to the numerous other antioxidants in coffee, a 2011 study confirmed that caffeine itself is a potent scavenger of oxygenated free radicals.<sup>103</sup> Caffeine was found in another 2011 study to work synergistically with other coffee antioxidants.<sup>104</sup> However, caffeine may also work along direct cellular pathways unrelated to its antioxidant action.



### A Multitude of Benefits

Those who drink the most coffee have a substantially reduced risk of developing **diabetes, cancer, liver disease, cognitive decline, and DNA damage**. But the health benefits of coffee's complex phytochemistry don't end there:

- Decaffeinated and caffeinated coffee lowered the risk of kidney stones in women by **9** and **10%**, respectively.<sup>107</sup>
- Caffeinated coffee reduced the incidence of gallstones and gall bladder disease in both men and women.<sup>108,109</sup>
- Scientists found that coffee boosted regular weight loss by 8 pounds and promoted body fat metabolism.<sup>91,110,111</sup>
- Sometimes-inconsistent findings have generally linked coffee drinking with reduced all-cause mortality and cardiovascular mortality.<sup>6,112-115</sup>
- For athletes, caffeine reduced muscle pain, increased energy (*ergogenic aid*), and enhanced endurance.<sup>116-119</sup>
- One study found caffeine, taken 2 hours before exercise, prevented exercise-induced asthma.<sup>120</sup>
- Confirming earlier research, a 2011 study on over 50,000 women found that **4 cups of coffee daily** lowered the risk of depression by **20%**, compared to coffee abstainers.<sup>121</sup>
- Antibacterials in coffee were found to inhibit plaque formation and prevent dental decay.<sup>122</sup>
- Whether caffeinated or decaffeinated, coffee consumption prevents constipation.<sup>123,124</sup> and—despite the myth that coffee dehydrates the body—contributes to the body's fluid requirements.<sup>125-127</sup>
- Caffeine is believed to boost by **40%** the effectiveness of pain relievers against headaches. Caffeine also helps the body absorb headache medications more quickly.<sup>128</sup>
- A large, as-yet-unpublished study presented October 24, 2011, found that men and women with the highest coffee consumption have a **13%** and **18%** lower risk, respectively, for basal cell carcinoma (a type of skin cancer).<sup>129</sup>

Scientists determined in 2011 that caffeine protects the integrity of the *blood-brain barrier*—which suggests that caffeine may reduce the risk of some diseases by limiting the transport of blood-borne pathogens, drugs, cells, and other substances into the brain, where they might affect brain *synapses*. The team also found that caffeine defends against the specific blood-brain barrier dysfunction linked to Alzheimer's and Parkinson's disease.<sup>105</sup>

## Summary

Although many people assume they should limit their coffee intake, a wealth of scientific research suggests that its wide-ranging health benefits *increase* with the amount consumed.

Numerous studies show that higher daily coffee consumption results in a lower risk of diabetes, cardiovascular disease, cancer, Alzheimer's, and a host of other chronic diseases, including obesity.

There are a number of phytochemicals, the most predominate being **chlorogenic acid**, that provide coffee's disease-protecting punch. Of interest is the additional ability of coffee polyphenols to exert direct biological actions on cells. For instance, daily coffee intake may modify key enzymes that improve intracellular signaling,<sup>95,96</sup> which can protect against diabetes, cancer, and many other diseases.

The benefit is dose-related. Drinking just **one cup of coffee a day**—caffeinated or decaffeinated—can decrease the risk of developing diabetes by **13%**.<sup>24</sup> But **12 cups a day** slashes the risk of developing diabetes by **67%**.<sup>21</sup>

While traditional medicine fights an impossible battle against a tidal wave of diabetes, cancer, Alzheimer's, and other age-related diseases, extensive research suggests that coffee—far from being a guilty pleasure that should be limited—is an all-natural and inexpensive elixir. With the availability of new “polyphenol-retaining” coffees, moderate coffee drinkers can now obtain the myriad benefits that were once reserved only for so-called “heavy” coffee users.

There remain, however, a significant percentage of people who are sensitive to caffeine's stimulating effects on the central nervous system, or find they encounter heartburn and other digestive problems in response to ingesting even a cup of coffee. The new polyphenol-retaining coffee bean beverages are less likely to induce gastric upset.

For those who don't want to drink any coffee, there are now *standardized chlorogenic acid* supplements available that provide the high potencies of beneficial coffee compounds with only tiny amounts of caffeine. ●

## How Coffee Protects Against a Spectrum of Diseases

Over 1,000 compounds make up coffee's complex phytochemistry. Their documented protection against diabetes, Alzheimer's disease, cancer, and a host of other chronic diseases may be due to an intricate web of chemically induced actions along various biological pathways. Suspected mechanisms include:

1. Combined antioxidant action.
2. Lowered storage of glucose.
3. Improved insulin sensitivity.
4. Mobilization of glycogen in muscles.
5. Stimulated muscular oxidation of fat.
6. Reduced inflammatory enzyme activity.
7. Higher levels of detoxifying enzymes.
8. Improved intracellular signaling.
9. Increased sensitivity of cells' receptors.
10. Changes in genetic expression.
11. Prebiotic stimulation of beneficial bacteria.
12. Protection against the death of neuron cells.
13. Chelation of metals such as iron.
14. Metabolic improvements to adipocyte and liver function.
15. Prevention of blood-brain barrier (BBB) dysfunction.
16. Lower levels of amyloid-beta plaque.
17. Suppression of enzymes that produce amyloid-beta plaque.

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

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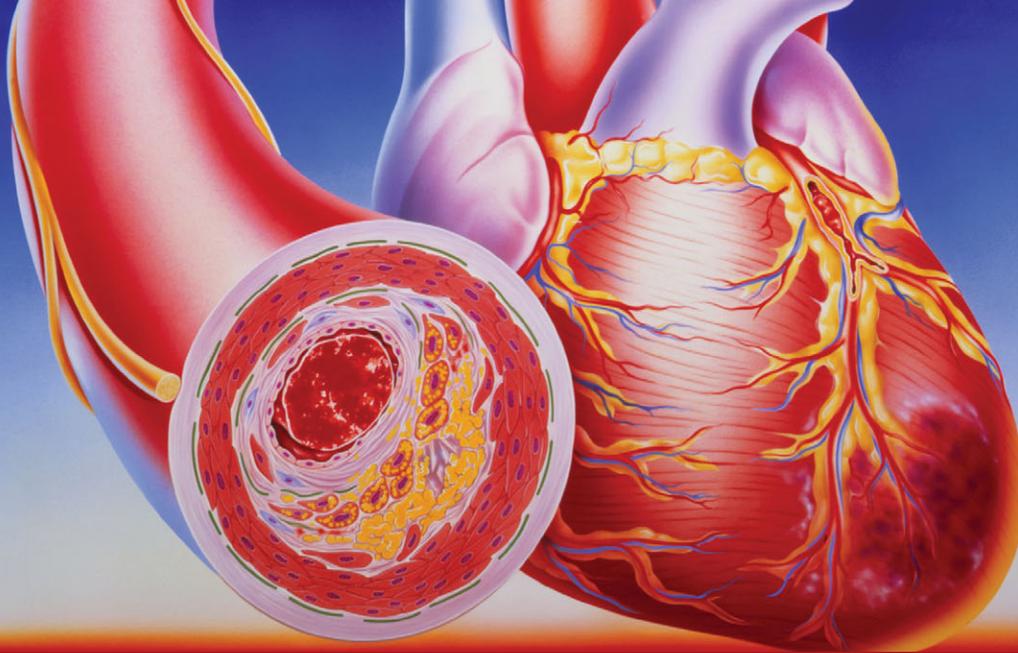
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# ENHANCE Heart Health

The reason for many circulatory problems is the breakdown of endothelial function and structure.

Today, there are nutrients that have been clinically shown to help maintain healthy endothelial function and arterial circulation. **Endothelial Defense™ with GliSODin®** provides potent nutrients to support endothelial health: *standardized pomegranate* and an orally active form of **superoxide dismutase**.

While both of these components have been clinically shown to help with blood flow and age-related changes in endothelial function, Life Extension® has made the best endothelial product even more powerful by adding **Full-Spectrum Pomegranate** which includes active constituents from the **seed** and **flower** in addition to the pomegranate **fruit**.<sup>1-7</sup>

**The daily serving of 2 softgels of Endothelial Defense™ contains:**

<b>Superoxide Dismutase/Gliadin Complex</b> (GliSODin®) [SOD (Superoxide Dismutase) Enzyme Activity = 500 IU]	<b>500 mg</b>
<b>POMELLA® Pomegranate</b> ( <i>Punica granatum</i> ) <b>Extract</b> (fruit) [std. to 30% punicalagins (120 mg)]	<b>400 mg</b>
<b>Pomegranate</b> ( <i>Punica granatum</i> ) <b>5:1 Extract</b> (fruit)	<b>100 mg</b>
<b>PomComplete™ Pomegranate</b> ( <i>Punica granatum</i> ) <b>Blend</b> [flower extract and seed oil (standardized to 22% (30 mg) punicalic acid)]	<b>137.5 mg</b>

POMELLA® Extract is covered under U.S. Patent 7,638,640. POMELLA® Extract is a registered trademark of Verdure Sciences, Inc. IsoCell SA, France is the owner of US Patents Nos. 6,045,809 and 6,426,068B1 and the registered trademark of GliSODin®.

**Contains soybeans and wheat. Contains gluten.**

## Next-Generation Pomegranate Power

The unique blend of **pomegranate flower extract** and **seed oil** in **Endothelial Defense** contains potent polyphenols that provide support for youthful **lipid** and **glucose** metabolism, and help with **inflammatory factors**.<sup>8</sup>

A bottle containing 60 softgels of **Endothelial Defense™ with Full-Spectrum Pomegranate™** retails for \$56. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$35.10** per bottle.



Item # 01498

**To Order Endothelial Defense™ with Full-Spectrum Pomegranate™, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)**

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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.

# SUPPORT ENDOTHELIAL HEALTH FOR MAXIMUM SEXUAL PERFORMANCE

Overlooked in the effort to support **sexual function** in aging men is the health of the **vascular system**. Blood flow through the delicate lining of the arteries (the **endothelium**) is **essential** to sexual arousal, so it should come as no surprise that **endothelial function** is closely associated with male sexual capacity.<sup>1</sup>

**Life Extension**® has discovered supportive clinical research for a scientifically validated, *natural* dietary supplement formula to promote **endothelial function** and **blood flow** to the place men need it most—for maximum performance.

The ingredients found in **Prelox® Natural Sex for Men**® have yielded compelling and highly satisfactory results in **five independent clinical studies**.<sup>2-6</sup>

Our analysis also confirms that unlike some performance enhancement supplements marketed as “natural,” **Prelox® Natural Sex for Men**® is not adulterated with trace amounts of prescription drugs.

## A Powerful Synergy to Support Sexual Health

The patented blend of the following *natural* ingredients positively affects the male physiology in three ways, to provide optimal support:

- 1. PYCNOGENOL**® (standardized French maritime pine bark extract) activates **endothelial nitric oxide synthase** (eNO-S),<sup>7</sup> the enzyme required to make **nitric oxide**. Nitric oxide (NO) *relaxes* the vessels that enable efficient blood flow—the key to healthy male sexual activity and overall vascular health. Pycnogenol® further **amplifies** this relaxing effect by extending the amount of time nitric oxide remains in the bloodstream.
- 2. L-ARGININE** is the biological precursor to nitric oxide synthesis in the endothelium.<sup>7</sup> It interacts **synergistically** with Pycnogenol® to sustain nitric oxide levels sufficient for healthy sexual function.
- 3. ICARIIN**—a natural plant extract used in traditional Chinese medicine—has been shown to **deactivate** the enzyme normally responsible for **winding down** male sexual response, further promoting sustained activity.<sup>8</sup> Prelox® Natural Sex for Men® contains a standardized extract providing a proprietary form of pure, high-quality icariin.

The suggested dose of two Prelox® Natural Sex for Men® tablets each day provides:

<b>Prelox® Proprietary Blend</b> L-Arginine HCl, Aspartic Acid, Pycnogenol® Dried French Maritime Pine ( <i>Pinus pinaster</i> ) Extract (bark)	<b>1440 mg</b>
<b>Natural Sex® Epimedium sagittatum</b> Extract (aerial parts) providing 30 mg icariin	<b>60 mg</b>

A 60-tablet bottle of **Life Extension® Prelox® Natural Sex for Men**® retails for \$50. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$32.40 per bottle. Contains corn.**

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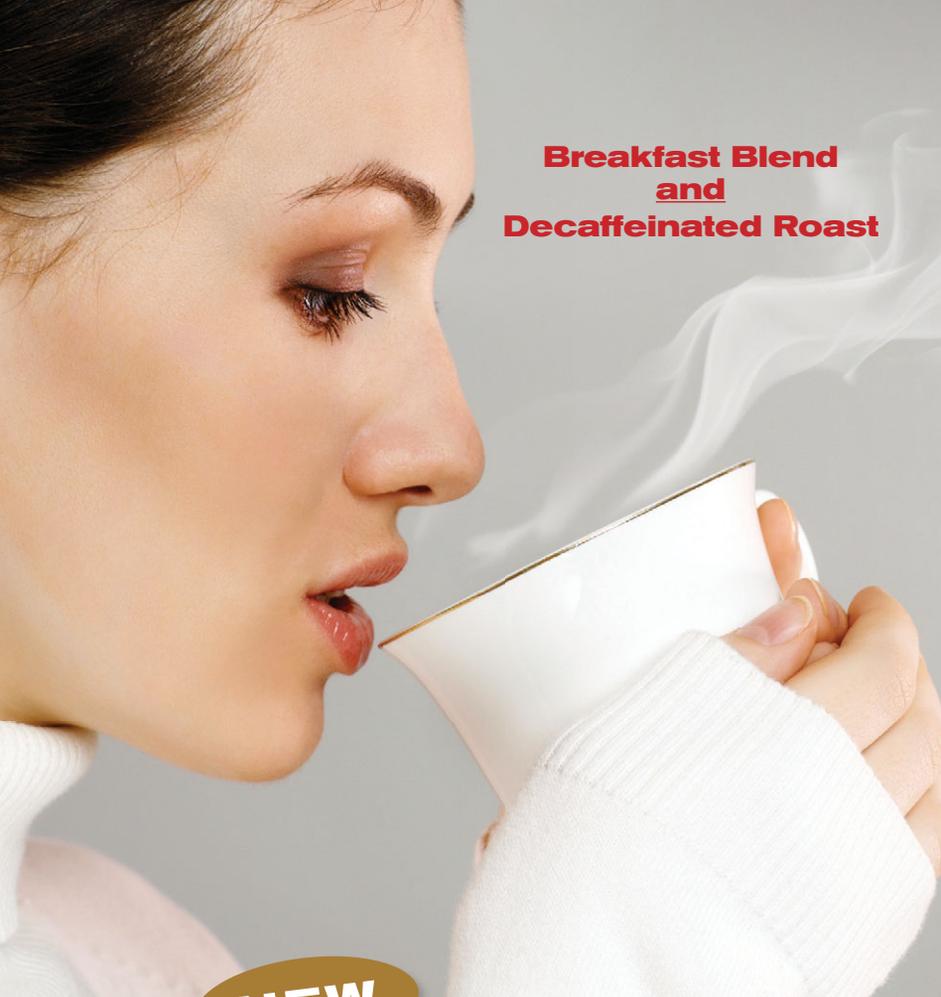
**CAUTION:** If you have significant liver disease, please consult with your healthcare practitioner before using this product.

Prelox® and Pycnogenol® are registered trademarks of Horphag Research Ltd. Prelox® is protected by U.S. patent #6,565,851B2. Pycnogenol® is protected by U.S. patents #5,720,956 and #6,372,266 and other international patents. Cannot be sold outside the USA.

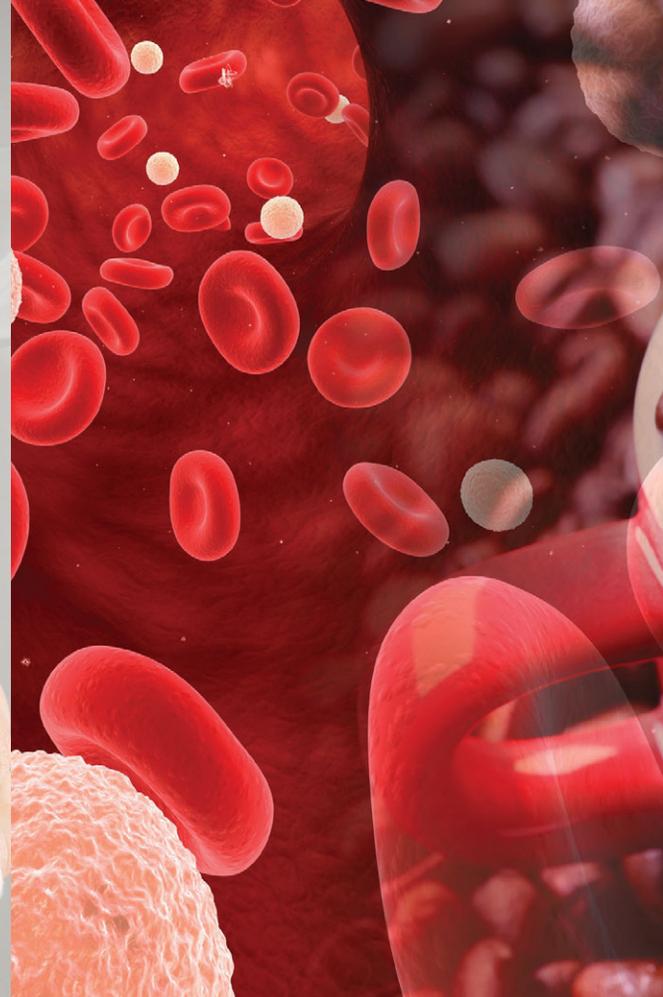
To order Prelox® Natural Sex For Men®, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)



Item# 01373



**Breakfast Blend  
and  
Decaffeinated Roast**



**NEW**

# Rich Rewards Polyphenol-Retained Coffee

### The Healthy Gourmet Choice

Not all coffee provides the same powerful protection.<sup>1-13</sup> When it comes to obtaining coffee's full range of health benefits, *most people aren't getting their money's worth!* The reason? Most of the coffee bean's polyphenol content is **destroyed** during the roasting process required to create a dark, rich blend. Among the most beneficial of these polyphenols is **chlorogenic acid**, a potent antioxidant which promotes optimal health.

### A Patented Organic Roast

Life Extension®'s new **Rich Rewards Breakfast Blend** and **Decaffeinated Roast** are made using a patented, 100% *natural* process called **HealthyRoast™**. It delivers a more complete nutritional profile of the coffee bean, yielding **chlorogenic acid** levels *far greater* than other premium brands. Handpicked deep in the rainforests of Central America, **Rich Rewards** consists exclusively of **100% certified USDA organic arabica** coffee beans, gently roasted in small batches and ground for easy brewing.

### Comparison of Conventional Coffee to Life Extension's Rich Rewards Blend

Chlorogenic Acid		Chlorogenic Acid	
Conventional Coffee (Caffeinated)	92 mg	Rich Rewards Coffee Blend (Caffeinated)	172 mg
Conventional Coffee (Decaffeinated)	52 mg	Rich Rewards Coffee Blend (Decaffeinated)	132 mg

This chart shows Life Extension's **Rich Rewards Coffee Blend** has up to **254% more chlorogenic acid**, which can enable one to obtain the benefits of heavy coffee drinking in half the number of cups.



### Savory Taste Without Stomach Upset

Have you given up coffee because it upsets your stomach? With **Rich Rewards**, you can enjoy coffee again. The **HealthyRoast™** process also preserves special, naturally occurring compounds in coffee that soothe your stomach.

Concerned about caffeine but don't like the weak taste of decaffeinated coffee? With **Rich Rewards Decaffeinated Roast**, you can limit your caffeine intake without compromising on flavor. The caffeine is removed through a completely chemical-free **Water Process**, which relies solely on water and carbon filters. It delivers the full flavor, aroma, and body of the *arabica* bean.

Life Extension®'s new **Rich Rewards** coffees give you a uniquely beneficial brew with superior flavor and up to **254% more chlorogenic acid**.

**To order either of the new  
Rich Rewards Antioxidant Coffees**

**call 1-800-544-4440**

**or visit [www.LifeExtension.com](http://www.LifeExtension.com)**

#### References

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\* US Patent 6,723,368.



Item #1609

A 12 oz bag of **Life Extension® Rich Rewards Breakfast Blend** retails for \$13. During **Super Sale**, members pay only **\$8.78** per bag. Item #1609



Item #1610

A 12 oz bag of **Life Extension® Rich Rewards Decaffeinated Roast** retails for \$14. During **Super Sale**, members pay only **\$9.45** per bag. Item #1610

# All the **K** ... One a Day

There are **three forms** of **vitamin K** that the human body can utilize to promote **arterial health** and **bone support**.<sup>1-8</sup>

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

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

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

The retail price for a bottle containing **90 softgels** (three-month supply) is \$26. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$15.53 per bottle**.

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

<b>Vitamin K1</b>	<b>1000 mcg</b>
<b>Vitamin K2 (MK-4)</b>	<b>1000 mcg</b>
<b>Vitamin K2 (MK-7)</b>	<b>100 mcg</b>

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

Contains tree nuts (coconut).

#### Warning to Coumadin® (warfarin) Drug Users

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

**To order Super K or Super Booster, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)**

#### References:

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Item #01224

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.

# Take Control of After-Meal Glucose Spikes With **CoffeeGenic™** Green Coffee Extract

## Support for 24-Hour-A-Day Healthy Glucose Metabolism

People who take extraordinary steps to limit their **carbohydrate** exposure may *still* be experiencing higher-than-desired blood sugar throughout the day.

The reason? **Blood sugar can surge to dangerously high levels that can last for hours following meals and even the entire day!**

Studies show even in people with normal *fasting* glucose, gaining control of **after-meal** surges may provide additional support for cardiovascular and metabolic health.<sup>1-3</sup>

To address this widespread problem, a natural compound is now available called **CoffeeGenic™ Green Coffee Extract**. This *next-generation* glucose control compound was shown to induce a remarkable **32%** drop in **after-meal** blood sugar!<sup>1</sup>

## Multi-Targeted Defense with Novel Green Coffee Compound

At the core of **CoffeeGenic™ Green Coffee Extract's** power to favorably modulate *after-meal* glucose levels is **chlorogenic acid**, a polyphenol found in the **green coffee bean**.

**Chlorogenic acid** has been shown to *inhibit* excess activity of the **glucose-6-phosphatase** enzyme.<sup>4,5</sup> This enzyme triggers glucose formation from non-carbohydrate substrates and glycogen release from the liver, both of which can create excess glucose in the blood.<sup>6</sup> Neutralizing excess **glucose-6-phosphatase** is essential for most people to achieve **optimal glucose control**.

Another means by which **chlorogenic acid** supports healthy after-meal glucose levels is by targeting the **alpha-glucosidase** enzyme. This intestinal enzyme breaks apart complex sugars and enhances their absorption into the bloodstream.<sup>7</sup>

Chlorogenic acid also increases the signal protein for insulin receptors in liver cells.<sup>8</sup>

## Patented Extraction Process, Standardized for Maximum Potency

Why *green* coffee bean extract?

Coffee grows on trees and the fruit is a berry. The berry contains green seeds, which are the "beans." The outer part of the berry is washed away to get to the seeds. The seed has a higher amount of **phenolic acids** (50%) than the berry (about 35%).

The problem with the roasted coffee you drink is that much of the beneficial phenolic content of the coffee bean is destroyed during the roasting process.

**CoffeeGenic™ Green Coffee Extract** is produced through a patented extraction process to deliver an extraordinarily high proportion of **chlorogenic acid** for maximum potency.

The coffee beans sourced for **CoffeeGenic™ Green Coffee Extract** are organically grown.

For optimal benefit, one vegetarian capsule of **CoffeeGenic™ Green Coffee Extract** should be taken before heavy meals. Each capsule is standardized to **50%** **chlorogenic acid**.

### ● CoffeeGenic™ Green Coffee Extract (200 mg) • Item #01604

(Each serving contains approximately 6 mg caffeine)

A bottle containing **90 200 mg vegetarian capsules** of **CoffeeGenic™ Green Coffee Extract** retails for \$25. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$14.85** per bottle.



Item #01604

### ● CoffeeGenic™ Green Coffee Extract (400 mg) • Item #01620

(Each serving contains approximately 12 mg caffeine)

A bottle containing **90 400 mg vegetarian capsules** of **CoffeeGenic™ Green Coffee Extract** retails for \$38. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$22.95** per bottle.



Item #01620

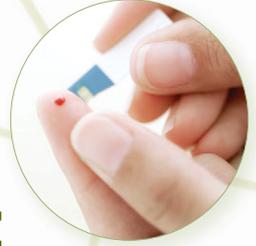
For those wishing to pursue *multi-nutrient* strategies to support optimal after-meal glucose control, see ad for additional Life Extension® formulas featuring **green coffee bean extract**, turn to next page.

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

# Five Strategies for Optimal After-Meal Glucose Control Featuring Green Coffee Bean Extract



**Chlorogenic acid** found in **green coffee bean extract** has been clinically shown to limit **dangerous after-meal glucose surges**.<sup>1-3</sup>

But some aging individuals may need additional support for **healthy glucose control, body weight, and resting metabolic rate**.

**Life Extension®** has enhanced its existing glucose control and weight management formulas to make this possible. These innovative **nutrient blends** give you a comprehensive set of **multi-targeted** approaches to metabolic wellness.

## CoffeeGenic™ Green Coffee Extract with Glucose Control Complex

**CoffeeGenic™ Green Coffee Extract with Glucose Control Complex** contains 200 mg of **CoffeeGenic™ Green Coffee** along with 5 ingredients formulated to help support healthy blood glucose levels already within normal range. Take one capsule 20-30 minutes before each meal to obtain the following nutrients in addition to Green Coffee Bean extract:

- **InSea<sup>2®</sup>**, a proprietary form of seaweed extract that blocks the action of **glucosidase** and **amylase**, enzymes used to break down carbohydrates into glucose, facilitating its transport into the bloodstream. In laboratory animal studies, InSea<sup>2®</sup> reduced after-meal fluctuations in blood sugar by up to **90%** when compared to non-supplemented animals and reduced blood insulin levels by as much as **40%**.<sup>11</sup>
- **Chromium** *optimized* with standardized extract of **Indian gooseberry** and a proprietary form of an adaptogen called **shilajit**. This state-of-the-art **Crominex® 3+** complex also supports healthy cellular glucose utilization.<sup>6-10</sup>
- **Integra-Lean®** African Mango (*Irvingia gabonensis*) extract helps slow the rate of carbohydrate absorption from the intestines, thereby reducing the caloric impact of starchy and sugary foods.<sup>12</sup> It also moderates **glycerol-3-phosphate dehydrogenase** enzyme activity to reduce the amount of ingested starches that are converted to triglycerides and stored as fat.
- **Green tea extract** to boost resting metabolic rate and inhibit genes involved in adipogenesis.
- **Iodine** is a trace element involved in the production of thyroid hormones primarily responsible for regulating metabolism, thereby promoting healthy glucose absorption into cells, where it is used to produce energy.

Each vegetarian capsule of **CoffeeGenic™ Green Coffee Extract with Glucose Control Complex** provides:

<b>CoffeeGenic™ Green Coffee (Coffea arabica) Extract</b> (bean)	<b>200 mg</b>
[std to 50% Chlorogenic acid (100 mg)]	
<b>Iodine</b>	<b>25 mcg</b>
(typical value naturally occurring from <i>Ascophyllum nodosum</i> and <i>Fucus vesiculosus</i> )	
<b>Chromium</b>	<b>150 mcg</b>
[as Crominex® 3+ chromium stabilized with Capros® ( <i>Phyllanthus emblica</i> ) Extract (fruit) and PrimaVie® Shilajit]	
<b>InSea<sup>2®</sup></b> [proprietary composition of demineralized polyphenols from brown seaweeds Kelp ( <i>Ascophyllum nodosum</i> ) and Bladderwrack ( <i>Fucus vesiculosus</i> )]	<b>125 mg</b>
<b>Integra-Lean® African Mango (Irvingia gabonensis)</b> proprietary Extract (seed)	<b>100 mg</b>
<b>Green Tea (Camellia sinensis) Decaffeinated Extract</b> (leaf)	<b>100 mg</b>
[std. to 98% polyphenols by UV (98 mg), 45% EGCG by HPLC (45 mg)]	

### ● CoffeeGenic™ Green Coffee Extract with Glucose Control Complex • Item #01607\*

(Each serving contains approximately 7 mg caffeine)

A bottle containing **90 200 mg vegetarian capsules** of **CoffeeGenic™ Green Coffee Extract with Glucose Control Complex** retails for \$58. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$35.10** per bottle.



Item #01607



**CAUTION:** Because these products may lower blood glucose, consult your healthcare provider before taking these products if you are taking blood glucose-lowering medication.

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

## New Improved Flavor!

### Calorie Control Weight Management Formula with CoffeeGenic™ Green Coffee Extract

The popular **Calorie Control Weight Management Formula** powder capitalizes on the proven benefits of *slowing* absorption of carbohydrate calories after each meal and *targeting* digestive enzymes to support healthy after-meal glucose metabolism.

**LuraLean®** propolmannan slows the rapid emptying of ingested food into the small intestine, reducing the surge of glucose entering the bloodstream. It has also been shown to significantly lower after-meal glucose surges.<sup>13,14</sup>

**White Kidney Bean** extract (*Phaseolus vulgaris*) inhibits *amylase*, the digestive enzyme that breaks down carbohydrates to be absorbed into the bloodstream as glucose.

Along with the benefits of Irvingia African Mango extract, a proprietary green tea phytosome enhances the metabolic effects of green tea through better *absorption* of green tea polyphenols in the blood, including EGCG.<sup>15</sup>

The **new Calorie Control Weight Management Formula** has a great new smooth natural blueberry flavor that is much more satisfying to drink than the previous version.

Each appetizing blueberry flavored stick pack or scoop of the **new Calorie Control Weight Management Formula** powder provides:

CoffeeGenic™ Green Coffee ( <i>Coffea arabica</i> ) Extract (bean) [std to 50% Chlorogenic acid (100 mg)]	200 mg
LuraLean® propolmannan ( <i>Amorphophallus konjac</i> K. Koch, ssp. <i>Amorphophallus japonica</i> ) fiber Extract (root)	2,000 mg
Phase 2® <i>Phaseolus vulgaris</i> white kidney (bean) Extract	445 mg
Integra-Lean® African Mango ( <i>Irvingia gabonensis</i> ) proprietary extract (seed)	150 mg
Tea Slender™ Green Tea Phytosome Green Tea ( <i>Camellia sinensis</i> ) Phytosome Decaffeinated Extract (leaf) bound to phosphatidylcholine (from lecithin)	150 mg

- **Calorie Control Weight Management Formula with CoffeeGenic™ Green Coffee Extract** • Item #01693\* (Each serving contains approximately 6 mg caffeine)

A bottle containing 60 servings of **Calorie Control Weight Management Formula with CoffeeGenic™ Green Coffee Extract** natural blueberry flavor powder retails for \$60. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$36.45** per bottle.

For added convenience of use, this new formula also comes in **60 individual stick packs**. Each box containing 60 servings of **Calorie Control Weight Management Formula with CoffeeGenic™ Green Coffee Extract\*** natural blueberry flavor powder retails for \$64. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$40.50** per bottle. **Item #01694** Contains soybeans. Contains corn.



Item #01693



Item #01694

### Mega Green Tea with CoffeeGenic™ Green Coffee Extract

During the past decade, **green tea** has received attention for its role in promoting healthy body weight. Its principal polyphenolic component, *epigallocatechin-3-gallate* or EGCG, works via multiple mechanisms, supporting healthy glucose absorption and insulin levels already within normal range. It may also promote a healthy resting metabolic rate.<sup>4,5</sup>

**Life Extension's** advanced **green tea extract** contains 98% total polyphenols and 45% EGCG and is now enhanced with **chlorogenic acid** from **CoffeeGenic™ Green Coffee Extract**.

For members concerned about caffeine, a *low caffeine formula* is also available at the same value price.

Each vegetarian capsule of **Mega Green Tea with CoffeeGenic™ Green Coffee Extract** provides:

Green Tea ( <i>Camellia sinensis</i> ) Extract (leaf) [std. to 98% polyphenols by UV (355.25 mg), 45% EGCG by HPLC (163.125 mg)]	362.5 mg
CoffeeGenic™ Green Coffee ( <i>Coffea arabica</i> ) Extract (bean) [std to 50% Chlorogenic acid (37.5 mg)]	75 mg

- **Mega Green Tea with CoffeeGenic™ Green Coffee Extract** • Item #1605 (Each serving contains approximately 15 mg caffeine)

- **Mega Green Tea with CoffeeGenic™ Green Coffee Extract Low Caffeine Formula** • Item #01606 (Each serving contains approximately 4.25 mg caffeine)

A bottle containing **120** vegetarian capsules of either **Mega Green Tea with CoffeeGenic™ Green Coffee Extract** formula retails for \$32. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$18.90** per bottle.

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Item #01605



Item #01606

**To order any of the new Green Coffee Extract formulas, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)**

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

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# ***HALT*** **Sugar-Induced CELL AGING**

BY KARA MICHAELS

Diabetics have long been known to age faster than healthy individuals.

The mechanism behind the accelerated destruction of cells, tissues, and organs observed in diabetics is called **glycation**, the dangerous binding of **sugars** to **proteins**.<sup>1</sup> The resulting sugar-protein complex is known as an **advanced glycation end product** or **AGE**.

In the laboratory, glycation's effect on living tissues was found to be identical to the process by which meat is browned when cooked at high temperatures. Healthy proteins also turn brown in the presence of **excess glucose** and become functionally impaired.

Scientists have confirmed that this destructive process may also occur in healthy individuals when blood glucose levels are sustained above 85 mg/dL, a commonplace occurrence after a heavy meal is consumed.<sup>2-6</sup>

The damage inflicted by glycation is *irreversible*.<sup>7,8</sup>

Fortunately, a relative of vitamin B1 called **benfotiamine** protects cells to prevent glycation and the accelerated aging triggered by elevated sugar levels.<sup>9</sup> Used as a prescription drug in Europe, benfotiamine is available in this country as a low-cost supplement.

Compelling new data confirms benfotiamine's power to lower risk of heart disease, stroke, kidney damage, and vision loss by neutralizing the impact of excess glucose and subsequent glycation. > >

## Cooking Living Tissue

Chefs prize their ability to brown a piece of meat just perfectly to bring out its flavor and seal in its moisture. But that browning process, chemically known as the **Maillard Reaction**, involves exactly the same chemical changes that occur in your tissues when they are exposed to excess sugars.<sup>10,11</sup>

Glucose slowly “cooks” the body, thereby hastening the aging process.<sup>12,13</sup>

The Maillard browning reaction explains many age-related conditions such as cataracts of the eye, atherosclerosis, kidney disease, neurological deterioration, and stiffening of connective tissues in joints.<sup>10,13,14</sup> Scientists have found similar damage from advanced glycation end products in kidney and arterial tissue in both young diabetics and older, non-diabetic subjects.<sup>15</sup>

The generation of **advanced glycation end products (AGEs)** stiffens proteins in your body just as it does in cooked meat, causing them to lose their natural flexibility. It doesn’t take much to imagine the devastating changes this creates throughout your body. AGEs are potent oxidizers and directly damage tissues wherever they are found. AGEs combine with receptors to trigger **massive inflammation**, which we now understand to be a root cause of chronic disease and even of aging itself.<sup>16</sup> And, in a highly destructive cycle, both inflammation and oxidative stress accelerate formation of new advanced glycation end products, which further damages tissues.<sup>9</sup>

It is now well-established that the cumulative effect of glycation, along with the products of several other deleterious biochemical reactions, substantially raises risks of most chronic diseases, even if you don’t have diabetes<sup>9</sup> (See table below.)

## Benfotiamine Blocks Glucose Damage

Your body has several natural mechanisms to cope with the chemical toxins produced by excess glucose. These defense systems all require vitamin B1 (thiamine) as a cofactor.<sup>17</sup> When your system is awash with excess glucose, however, your thiamine supplies become depleted. In fact, elevated blood sugar and diabetes have been referred to as states of “**relative thiamine deficiency**.”<sup>17</sup>

Taking additional thiamine as a supplement doesn’t significantly protect against the glucose-induced tissue damage because thiamine is water-soluble and your body can’t retain thiamine at levels high enough to prevent cumulative damage.<sup>18,19</sup> A thiamine derivative called **benfotiamine**, however, is **fat-soluble** and can significantly increase thiamine levels within tissues and sustain them throughout the day.<sup>17,19,20</sup>

Raising cellular thiamine levels with benfotiamine has been found to block the effects of **glucose damage** to your body’s tissues.<sup>21</sup> Benfotiamine activates a vital enzyme (**transketolase**) which converts toxic metabolites induced by high glucose levels into harmless byproducts.<sup>17,21</sup> Benfotiamine also inhibits activation of **nuclear factor-kappaB (NF-kB)**, an underlying cause of deadly inflammatory reactions in the body.<sup>21,22</sup>

Through its multi-targeted mechanisms, benfotiamine helps mitigate the multiple negative effects of excess glucose on body tissues.<sup>20,21</sup> Let’s now examine the evidence for benfotiamine’s beneficial effects on several of the most common causes of death and chronic illness in America.

## Preventing Glucose-Induced Cardiovascular Damage

Blood vessels are lined by a thin layer of cells called the **endothelium** which constantly regulates blood pressure and flow. Damage to the endothelium, which occurs in response to elevated glucose levels, is an important first step in producing heart attacks, heart failure, and stroke.<sup>23</sup>

### Conditions Associated With Elevated Blood Glucose and Advanced Glycation End Products

Elevated cholesterol and atherosclerosis<sup>49,50</sup>

Symptoms of carotid artery atherosclerosis (major risk for stroke)<sup>51</sup>

Risk of developing high risk cardiac rhythm disturbances following heart attack<sup>52</sup>

Cataracts of the eye<sup>35</sup>

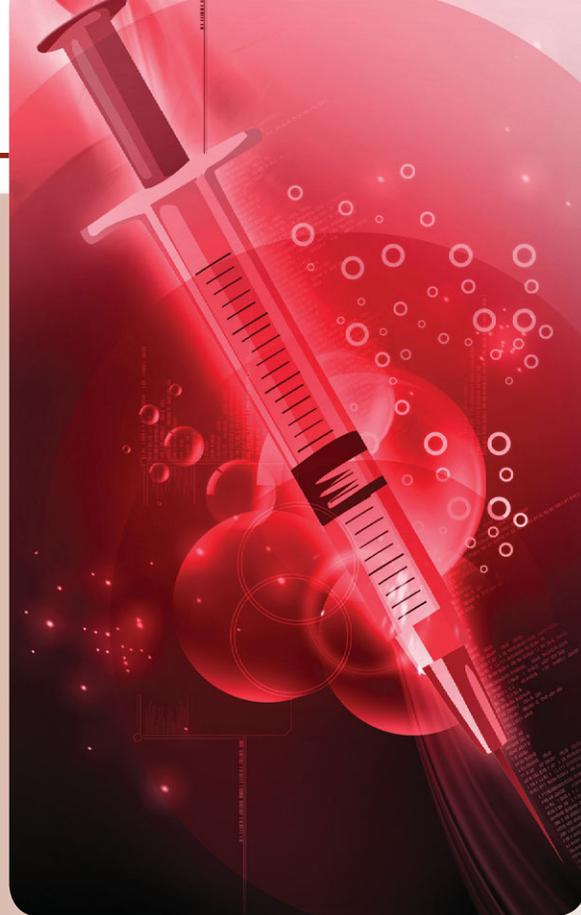
Overall risk of developing cancer<sup>53</sup>

Risk of developing fatal cancer<sup>54</sup>

Increased prostate size in benign prostatic hyperplasia (BPH)<sup>55</sup>

Abnormal elevation in liver enzymes, markers of liver damage<sup>56</sup>

Incidence and severity of obstructive sleep apnea<sup>57</sup>



## Benfotiamine Halts Glucose-Induced Cell Aging

- Blood sugar elevations (above **85 mg/dL**) expose your body to a plethora of undesirable effects. One result is the formation of deadly advanced glycation end products that “cook” your tissues and impair protein structure and function.
- In response to elevated blood sugar, biochemical pathways produce metabolic toxins that trigger many chronic, age-related diseases.
- A close molecular relative of vitamin B1 called **benfotiamine** has the singular power to block major biochemical pathways of glucose-induced cell damage, preventing accumulation of advanced glycation end products and their deleterious effects.
- Strong evidence exists for beneficial effects of benfotiamine in cardiovascular disease, vision impairment, and kidney damage from chronic glucose exposure.

Studies now show that benfotiamine can prevent endothelial dysfunction and substantially improve blood vessel and heart muscle function, even in the face of glucose-induced tissue damage.<sup>24,25</sup>

The process of healthy endothelial cell replication is vital to maintaining healthy arteries. Excess levels of glucose can reduce endothelial cell replication.<sup>26</sup> The addition of benfotiamine to endothelial cells grown in a high-glucose environment corrects the defective replication. Benfotiamine accomplishes this through **normalization** of advanced glycation end product production.<sup>26</sup>

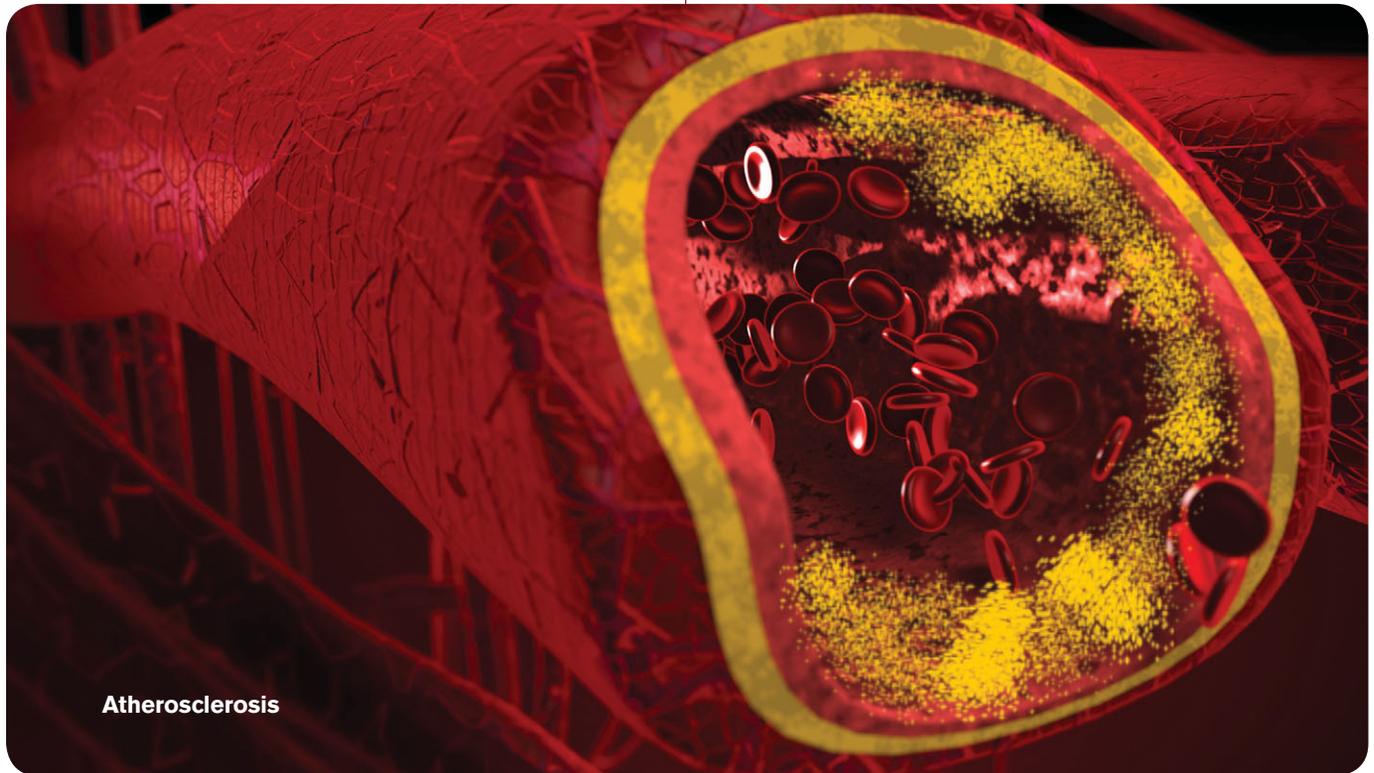
High glucose levels also trigger early death of endothelial cells through the process called **apoptosis**; benfotiamine supplementation **reverses** increased apoptosis in cultures of endothelial cells by several mechanisms.<sup>27-29</sup>

The body produces toxic alcohol-like compounds called **polyols** during periods of high blood sugar. Polyols disrupt endothelial and cardiovascular cell function. Benfotiamine reduces production of polyols, accelerates the rate of glucose breakdown, and reduces free glucose levels within cells.<sup>30</sup> All of these effects further contribute to protection of endothelial cell function.

After a heart attack, or as a result of persistently high blood pressure, heart muscle cells beat more weakly than they should, resulting in heart failure. High glucose levels and advanced glycation end products substantially contribute to this diminished heart muscle function. Studies show that benfotiamine abolishes many of the abnormalities in heart muscle cell contractility, which may “rescue” impaired heart muscle and improve its ability to pump blood effectively.<sup>25</sup> Benfotiamine activates important cell survival signaling pathways in heart muscle cells failing under the effects of elevated glucose.<sup>31</sup>

Not all **advanced glycation end products** (AGEs) are produced internally in the body. Consuming a meal rich in AGEs (such as one abundant in browned meats or caramelized sugars) can increase blood levels of AGEs and impair endothelial function.<sup>32</sup> Supplementation with benfotiamine, 1,050 mg/day for 3 days, completely prevented the changes in endothelial function and blood flow produced by such a meal in a group of human subjects.<sup>32</sup>

In addition to its effective control of AGE-related endothelial dysfunction, benfotiamine exerts powerful **direct antioxidant** effects. In rats with experimentally induced vascular endothelial dysfunction, benfotiamine reduced oxidative stress and enhanced favorable generation of **nitric oxide**, a compound that contributes to blood vessel relaxation.<sup>33,34</sup> The result was an improvement in endothelial integrity and function.



All of these endothelium-protecting effects make benfotiamine an essential nutrient in your fight against the devastating effects of elevated blood glucose on your cardiovascular system.

### Protection Against Age-Related Vision Loss

Diabetes is a major cause of blindness in the world. Even in non-diabetics, elevated blood sugar levels increase the rates of cataract and retinal damage.<sup>35,36</sup> Tissues in the eye are especially vulnerable to glucose-related damage, because of the eye's high blood flow, constant oxidant exposure, and the high-energy environment produced by steady influx of light. The devastation of high-glucose tissue damage is constantly at work in the retina, the light-sensitive layer of nerve cells that converts optical images into vision.<sup>21</sup>

German scientists showed that benfotiamine treatment could prevent experimentally induced diabetic retinal disease by inhibiting the pathways of glucose-related damage.<sup>21</sup> Subsequent studies by other European groups revealed that benfotiamine reduced the enzymes that produce the dangerous *polyol* alcohols that contribute to retinal damage, while also increasing activity of enzymes that divert glucose into harmless byproducts.<sup>30</sup>

An exciting study appeared in 2010 showing that benfotiamine supplementation not only prevented

tissue accumulation of AGEs in retinal tissue, but also increased their excretion in the urine.<sup>37</sup>

Apoptosis, or programmed cell death, is another consequence of elevated glucose concentrations and AGE formation in retinal tissue. Benfotiamine, applied to retinal blood vessel cells in culture, *prevents apoptosis* while reducing the DNA damage that further impairs cellular function.<sup>38</sup>

Another ocular result of high glucose damage is an increase in dangerous protein-dissolving enzymes called *matrix metalloproteinases*, or MMPs. The increase in these enzymes results in substantial damage to retinal tissue. A recent study showed that treatment with benfotiamine reduced harmful metalloproteinase production back to normal levels and increased production of specific proteins that inhibit their activity.<sup>39</sup>

As in all organs, eye tissue suffers inflammatory changes with aging, elevated blood glucose, and occasionally from infections. Inflammation of the eye, or *uveitis*, causes about 10% of blindness in the United States.<sup>40</sup> In eyes afflicted with uveitis, infiltrates of white blood cells, proteins, and inflammatory cytokines occur within various structures of the eye, imposing oxidative stress and inducing further inflammation.<sup>41</sup> Benfotiamine treatment suppresses those changes and reduces expression of inflammatory marker molecules as well.<sup>41</sup>

## Kidney Defense

Like the eye, the kidney is the site of intense metabolic activity and is rich in tiny blood vessels (capillaries) that make it particularly vulnerable to the damaging effects of glucose and advanced glycation end products.<sup>42</sup> This explains why kidney failure is so common in diabetic patients and is also a known complication of “natural” aging.

Recent studies show that benfotiamine exerts important protective effects against the onslaught of glucose-induced kidney damage. Data demonstrate that benfotiamine prevents sugar-related kidney disease by reversing pathological increases in **advanced glycation end products**.<sup>37,43</sup> In one report, benfotiamine activated the important enzyme transketolase, which rapidly cleared toxic glucose-related compounds from the blood before they could damage kidney tissue.<sup>43</sup> Another study showed that benfotiamine could help reduce glucose-induced kidney damage with similar efficacy to the prescription drug **fenofibrate**. The two in combination demonstrated beneficial synergistic effects.<sup>44</sup>

Dialysis is a treatment of last resort for patients whose kidneys have failed and who are awaiting a kidney transplant. Hemodialysis, while lifesaving, imposes massive stresses on the body, including rapid depletion of the very thiamine so necessary for preventing further glucose-related damage. Benfotiamine, which is vastly more bioavailable than thiamine, increases blood thiamine levels more than **4 times higher** than supplementation with thiamine in dialysis patients.<sup>45</sup>

Dialysis also causes substantial damage to DNA throughout the body, raising the risk of cancer.

Benfotiamine, by reducing the amount of circulating advanced glycation end products, themselves threats to DNA integrity, significantly reduced DNA damage in dialysis patients.<sup>22,46,47</sup>

Peritoneal dialysis is somewhat less stressful to the body than hemodialysis, but it is associated with substantial complications related to damage to the delicate tissues lining the abdominal cavity. Glucose and AGEs are among the top culprits in producing such damage.<sup>48</sup> Treatment with benfotiamine decreases markers of inflammation and abnormal new blood vessel formation in the abdominal cavity during peritoneal dialysis through reduction of AGEs and their receptors.<sup>48</sup> This protects the delicate abdominal lining and prolongs its usefulness as a site for dialysis.

## Summary

Diabetics age faster than healthy individuals owing in part to the process known as glycation, the pathologic binding of sugars to functional proteins in cells. Even in people with so-called “normal” glucose blood levels, deadly glycation and blood sugar-induced cell damage can occur.

A relative of vitamin B1 called **benfotiamine** can substantially boost your body’s intracellular levels of thiamine, or vitamin B1, which is an essential co-factor in clearing the dangerous glucose metabolites that cause sugar-related tissue damage. New studies confirm that supplementation with benfotiamine restores healthy thiamine levels and contributes significantly to lowering risk of chronic sugar-related problems such as cardiovascular disease, vision impairment, and kidney damage.



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

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

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

Just one **SUPER BOOSTER** provides:

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

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

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



Item # 01590

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

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

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

## JUST ONE SOFTGEL OF SUPER BOOSTER SUPPLIES:

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

A bottle of 60 **Super Booster** softgels retails for \$42. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$25.65** per bottle.

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

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

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

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# SUPPORTS HEALTHY BLOOD SUGAR METABOLISM

## MEGA BENFOTIAMINE

One of the most deleterious effects of “normal” aging is impaired glucose metabolism. Failure to maintain normal sugar can trigger a cascade of ill health effects throughout the body.

For example, patients with blood sugar not in normal range can suffer after-meal *endothelial dysfunction*, induced by a flood of glucose, fats, and abnormal proteins called advanced glycation end products entering the bloodstream.

**Benfotiamine**, a fat-soluble form of vitamin B1 (thiamine), supports healthy blood sugar metabolism and acts through several mechanisms to block the biochemical pathways by which high blood sugar wreaks havoc throughout the body.<sup>1</sup>

Scientists demonstrated for the first time that **benfotiamine** (1050 mg per day) effectively *reduced* post-prandial endothelial dysfunction and oxidative stress normally seen in patients with high blood sugar who were fed a heat-processed meal with a high content of advanced glycation end products.<sup>2</sup>

**Mega Benfotiamine** can help maintain already-normal blood sugar levels and support the health of the nerves, kidneys, eyes, blood vessels, and heart.\* Each capsule provides **250 mg of benfotiamine** and **10 mg of vitamin B1** (as thiamine HCl).

The suggested daily dose is one to four capsules, taken with or without food. A bottle containing 120 vegetarian capsules of **250 mg Benfotiamine** retails for **\$30**. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$18.23 per bottle**. Contains rice.

#### References

1. *Nat Med*. 2003 Mar;9(3):294-9.
2. *Diabetes Care*. 2006;29:2064-71.



ITEM #00925

**To order Mega Benfotiamine,  
call 1-800-544-4440  
or visit [www.LifeExtension.com](http://www.LifeExtension.com)**

The Mitochondrial Energy Optimizer formula provides 150 mg of benfotiamine, which when combined with other anti-glycation agents like carnosine and pyridoxal-5-phosphate provides substantial protection at different checkpoint opportunities in the glycation process. The Mitochondrial Energy Optimizer can be viewed on the inside back cover of this month's issue.

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# Discount Prices For Premium-Quality Products



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

The **large discounts** available to Foundation members enable them to purchase **premium-quality** supplements at prices substantially below those charged by commercial companies.

Here are some examples of **savings** members enjoy during the annual

## Super Sale:

	Our Low Retail Price	<b>SUPER SALE</b> Member-Volume Discount Price Per Bottle
<b>Super Omega-3 EPA/DHA with Sesame Lignans &amp; Olive Fruit Extract</b> <b>120 softgels, Item # 01482</b> Super-refined EPA/DHA fish oil plus sesame lignans and potent olive fruit extract to provide critical omega-3 fatty acids and essential components of the Mediterranean diet.	\$32	<b>\$16.81</b> (ten-bottle purchase)
<b>Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™</b> <b>100 mg, 60 softgels, Item # 01426</b> The superior ubiquinol form of CoQ10 plus an organic compound (shilajit) shown to double mitochondrial CoQ10 levels.	\$62	<b>\$35.10</b> (ten-bottle purchase)
<b>Life Extension Mix™ • 315 tablets, Item # 01655</b> High-potency multi-nutrient formula now with potent anthocyanins from Maqui berry and proanthocyanidins from tart cherry at no extra cost.	\$98	<b>\$46.91</b> (ten-bottle purchase)
<b>Vitamin D3 with Sea-Iodine™ • 5,000 IU, 60 vegetarian capsules, Item # 01372</b> High-potency vitamin D to assure adequate intake of this essential nutrient plus 1000 mcg of Sea-Iodine™.	\$14	<b>\$8.44</b> (four-bottle purchase)
<b>Ultra Natural Prostate Formula with AprèsFlex™ &amp; Standardized Lignans</b> <b>60 softgels, Item # 01695</b> Improve prostate protection with AprèsFlex™ that helps suppress 5-LOX.	\$38	<b>\$21.60</b> (twelve-bottle purchase)
<b>Calorie Control Weight Management Formula with CoffeeGenic™ Green Coffee Extract *                      Blueberry Powder, 414 grams, 60 servings, Item # 01693</b> Four ingredients to impede glucose-lipid absorption and combat age-associated weight gain, plus green coffee bean extract.	\$60	<b>\$36.45</b> (four-bottle purchase)
<b>Super K with Advanced K2 Complex • 90 softgels, Item # 01224</b> Three forms of vitamin K to help promote arterial health and bone support. One per day formula.	\$26	<b>\$15.53</b> (four-bottle purchase)
<b>PQQ Caps with BioPQQ™ • 10 mg, 30 vegetarian capsules, Item # 01500</b> Promotes mitochondrial biogenesis (generation of new mitochondria) in aging cells.	\$24	<b>\$14.85</b> (four-bottle purchase)
<b>DHEA (Dehydroepiandrosterone) • 25 mg, 100 capsules, Item # 00335</b> A hormone that declines with aging, benefits overall health.	\$15	<b>\$8.44</b> (four-bottle purchase)
<b>Mitochondrial Energy Optimizer with BioPQQ™ • 120 capsules, Item # 01568</b> To maintain healthy cellular function, protein structural integrity, and mitochondrial biogenesis.	\$94	<b>\$56.70</b> (four-bottle purchase)
<b>SAMe • 400 mg, 20 enteric-coated tablets, Item # 00557</b> S-adenosylmethionine in double-strength potency for mood elevation.	\$32	<b>\$16.88</b> (six-box purchase)
<b>Super Zeaxanthin with Lutein, Meso-Zeaxanthin Plus Astaxanthin and C3G</b> <b>60 softgels, Item # 01586</b> Supports night vision and macular density.	\$42	<b>\$25.65</b> (four-bottle purchase)
<b>Optimized Resveratrol with Synergistic Grape-Berry Actives</b> <b>250 mg, 60 vegetarian capsules, Item # 01430</b> High potency trans-resveratrol with quercetin, plus <i>trans</i> -pterostilbene and fisetin to support DNA "longevity genes." One per day resveratrol formula.	\$46	<b>\$27.90</b> (four-bottle purchase)

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.

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

Our Low  
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**SUPER SALE**  
Member-Volume  
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**Bone Restore • 150 capsules, Item # 01611**

High-potency bone protection formula with FruiteX B® OsteoBoron® and Magnesium citrate.

\$22.50

**\$13.16**

(four-bottle purchase)

**Cognitex with NeuroProtection Complex • 90 softgels, Item # 00922**

Optimal support for the brain. Includes glyceryl-phosphoryl-choline, vinpocetine, phosphatidylserine, Sharp-PS® GOLD PS-DHA, uridine 5'-monophosphate, and others. Also contains pregnenolone.

\$74

**\$43.20**

(twelve-bottle purchase)

**Advanced Anti-Adipocyte Formula with AdipoStat & Integra-Lean® African Mango Irvingia\* 60 vegetarian capsules, Item # 01509**

Provides cellular support for healthy body weight.

\$39

**\$24.30**

(four-bottle purchase)

**Acetyl-L-Carnitine Arginate • 100 capsules, Item # 00788**

Patented form of carnitine to support healthy neurite growth for optimal brain health.

\$59

**\$34.42**

(four-bottle purchase)

**Triple Action Cruciferous Vegetable Extract**

**60 vegetarian capsules, Item # 01468**

Comprehensive cruciferous plant extract formulation, with apigenin, for optimal cellular health.

\$24

**\$14.85**

(four-bottle purchase)

**Prelox® Natural Sex for Men® • 60 tablets, Item # 01373**

Supports healthy endothelial function and blood flow for maximum male performance.

\$52

**\$32.40**

(four-bottle purchase)

**Super R-Lipoic Acid • 300 mg, 60 vegetarian capsules, Item # 01208**

Superior efficacy compared to alpha-lipoic acid—supplies 240 mg of stabilized R-lipoic acid.

\$49

**\$30.38**

(four-bottle purchase)

**ArthroMax™ Advanced with UC-II® and AprèsFlex™ • 60 capsules, Item # 01618**

Promotes joint health and may promote comfortable joint structure and function.

\$36

**\$21.60**

(four-bottle purchase)

**CoffeeGenic™ Green Coffee Extract • 200 mg, 90 vegetarian capsules, Item # 01604**

Convenient source of chlorogenic acid to help maintain healthy blood glucose levels.

\$25

**\$14.85**

(four-bottle purchase)

**Krill Healthy Joint Formula • 30 softgels, Item # 01600**

Healthy joint formula provides targeted support for aging joints through a proprietary blend of krill oil, hyaluronic acid, and astaxanthin. One capsule a day formula.

\$32

**\$19.58**

(four-bottle purchase)

**Natural Stress Relief • 30 vegetarian capsules, Item # 00987**

With lemon balm extract to reduce anxiety and sleeplessness, and pure L-theanine to promote relaxation without drowsiness.

\$28

**\$16.20**

(four-bottle purchase)

**Gamma E Tocopherol with Sesame Lignans • 60 softgels, Item # 00759**

Provides the critical gamma tocopherol form of vitamin E plus sesame lignans to enhance the free radical scavenging benefits of alpha and gamma tocopherols.

\$32

**\$19.58**

(four-bottle purchase)

**Super Bio-Curcumin® • 400 mg, 60 vegetarian capsules, Item # 00407**

Super-absorbable formulation promotes healthy lipids, joint function, and healthy DNA. Absorbs six times greater than conventional curcumin.

\$38

**\$23.63**

(four-bottle purchase)

**Super Booster Softgels with Advanced K2 Complex • 60 softgels, Item # 01590**

A convenient one per day capsule that includes optimal potencies of gamma-tocopherol, sesame lignans, lycopene, lutein, ginkgo, chlorophyllin, selenium and both forms of vitamin K2.

\$42

**\$25.65**

(four-bottle purchase)

**Skin Restoring Ceramides with Lipowheat™ • 30 liquid capsules, Item # 01502**

Rehydrates aged skin.

\$25

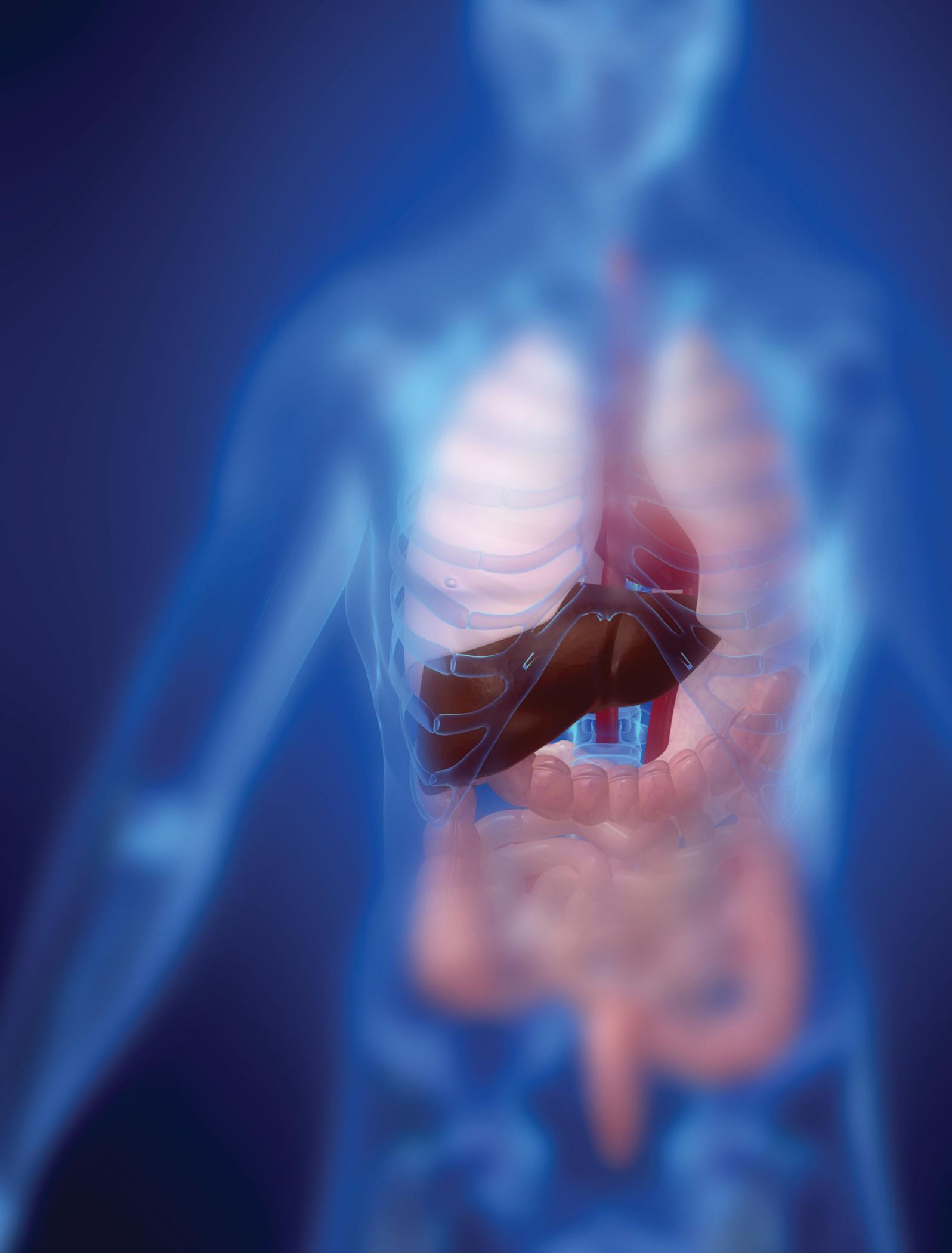
**\$15.53**

(four-bottle purchase)

**Order online at [www.LifeExtension.com/SuperSale](http://www.LifeExtension.com/SuperSale)**

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

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# Novel Method to Effectively Combat *Oxidative* Liver Damage

BY KIRK STOKEL

Little known to the general public is the silent epidemic of **non-alcoholic fatty liver disease** or **NAFLD**, which afflicts up to **40%** of all Americans.<sup>1</sup> NAFLD particularly targets those who carry around excess weight. For the nearly **70%** of Americans who are overweight or obese,<sup>2</sup> that figure rises to a shocking **50-100%**.<sup>3,4</sup>

Ominously, NAFLD sets the stage for a progression of lethal diseases that can include **cancer, atherosclerosis, and diabetes**.<sup>5,6</sup> Risk of death from *all causes* skyrockets more than four-fold in NAFLD sufferers—and more than eight-fold for **early cardiac death**.<sup>7</sup>

Because of both physician and patient ignorance, most victims of NAFLD are entirely unaware they have it.

No drug can halt this widespread disease's potentially lethal progress.<sup>3</sup>

The exciting news is scientists have recently identified a novel intervention to halt two of NAFLD's core pathologic processes—**lipid peroxidation**, wherein excess liver fat turns rancid under continuous assault from free radicals, and rampant oxidative damage from disease-induced **mitochondrial dysfunction**.

In this article, you will discover how a beneficial **adaptogen** called ***Schisandra chinensis*** and a patented proprietary extract of the melon ***Cucumis melo*** work in synergy to restore vital antioxidant functions typically depleted in NAFLD patients. > >



### Rancid Fat and Mitochondrial Decay

**NAFLD** (non-alcoholic fatty liver disease) has been called a disease of modern living.

It is a direct consequence of the typical American sedentary lifestyle and a diet rich in sugar and saturated fats.<sup>8</sup>

Inactivity, overconsumption, and emotional stress result in a spiral that starts with overweight and obesity and culminates in metabolic syndrome, a cluster of deadly fat- and sugar-related physiological and metabolic derangements that range from hypertension to type 2 diabetes.

NAFLD is now widely recognized as the **liver's manifestation of metabolic syndrome**.<sup>8</sup> It begins with accumulation of excessive amounts of liver fat in the form of triglycerides.<sup>9</sup> Fat is highly vulnerable to oxidative damage, and massive oxidative stress is the next step in development of NAFLD, in the process known as **lipid peroxidation**.<sup>8,10</sup>

### Restoring Youthful Liver Defense Mechanisms

When we are young, we're protected against this deadly cascade of events by two complementary mechanisms.

In the first, a liver enzyme called **superoxide dismutase**, or SOD, converts highly reactive free oxygen

radicals into hydrogen peroxide.<sup>11</sup> That delays but doesn't end the threat of lipid peroxidation, because hydrogen peroxide itself generates new free radicals of its own.

To fully quench the free radical threat, a second set of antioxidant enzymes is recruited: **catalase** and **glutathione peroxidase**, which act on hydrogen peroxide and quickly convert it into harmless water molecules.<sup>12,13</sup>

The extraordinary oxidative stress inflicted on the liver in NAFLD, however, puts all of these protective enzyme systems into overdrive. Early in the disease, their activity is ramped up substantially in an effort to compensate—but eventually they become depleted and burn out.<sup>14-17</sup>

As the body loses its natural primary antioxidant mechanisms, it accumulates **lipid peroxidation products**, and liver mitochondria begin to fail. This makes people increasingly vulnerable to non-alcoholic steatohepatitis, cirrhosis, fibrosis, liver cancer, and cardiovascular diseases.<sup>10,18</sup>

Supporting the liver's mitochondrial antioxidant enzyme systems is a vital step in preventing the consequences of NAFLD. As you will now see, the synergistic action of **Schisandra chinensis** and **Cucumis melo** directly *replenish* essential SOD, while at the same time stimulating **glutathione peroxidase**, effectively targeting **lipid peroxidation** and **mitochondrial dysfunction** in the liver.

## Optimizing Liver Mitochondrial Function and Antioxidant Defense

Purified extract from a non-GMO *Cucumis melo* melon has been found to be **rich in superoxide dismutase** (SOD), the first enzyme in your body's mitochondrial oxidant protection system.<sup>19,20</sup> Melon-derived SOD quickly converts primary free oxygen radicals into hydrogen peroxide.

That hydrogen peroxide must be rapidly converted into water to **complete the mitochondrial oxidant detoxification process**. That task is handled by a second liver-protective agent, an extract of the Chinese vine *Schisandra chinensis*.

Schisandra extract complements the melon extract by stimulating the liver mitochondrial antioxidant enzyme, glutathione peroxidase, that converts hydrogen peroxide to water.<sup>21-24</sup>

In the presence of **both** adequate **SOD** and enhanced **glutathione peroxidase activity**, mitochondria can readily convert deadly reactive oxygen species first to hydrogen peroxide and then to harmless water.

Now let's examine the data on just how well each component works to protect your body from the punishing effects of NAFLD.

## Synergistic Liver Disease and Oxidative Stress Defense

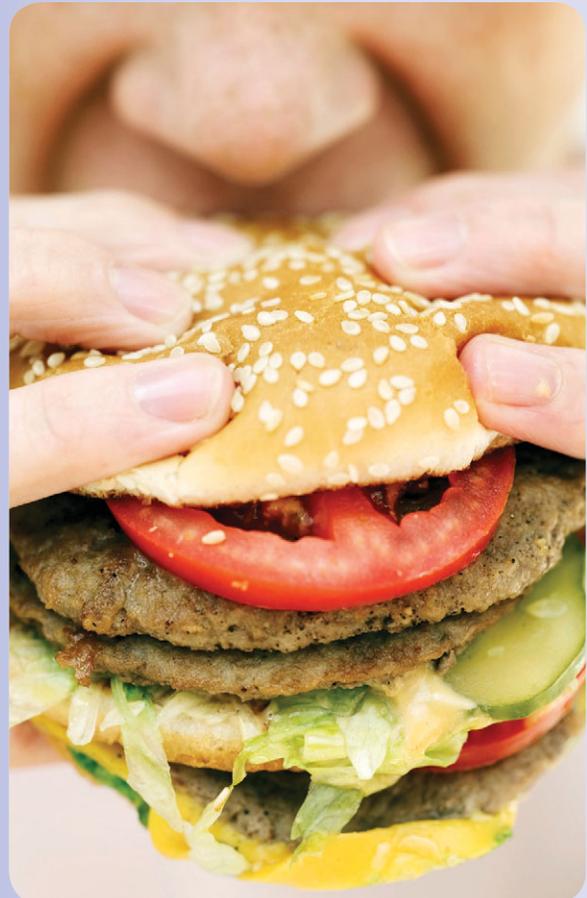
Melon extracts supply important antioxidant SOD enzymes to SOD-depleted liver tissues in NAFLD. Studies reveal that supplementation with specially coated melon extracts directly prevents lipid peroxidation damage to liver and other tissues.<sup>19,25-27</sup>

But melon extracts rich in SOD have much more profound effects that can protect your liver, not only from oxidant stress, but also directly from the effects of overweight and obesity.

Animals fed high-fat diets develop the metabolic syndrome, just as humans do. But when supplemented with melon extract, hamsters with metabolic syndrome experienced a **68%** drop in triglyceride levels, a **12%** drop in liver primary free radicals, a **35%** drop in lipid and protein oxidation, and a massive **99%** drop in levels of the inflammatory fat-derived cytokine leptin.<sup>28</sup> These effects led to a **39%** reduction in insulin levels, a **41%** reduction in insulin resistance, and a **25%** reduction in detrimental belly fat accumulation. Supplemented animals also exhibited a **73%** reduction in liver fat infiltration and were **completely** protected against progression of NAFLD to non-alcoholic steatohepatitis. Non-alcoholic steatohepatitis or NASH is an advanced form of fatty liver disease developed in the

## Novel Method to Combat Widespread Liver Damage

- Non-alcoholic fatty liver disease (NAFLD) is the most common liver disorder in Americans, reaching a prevalence of up to 100% in overweight and obese individuals.
- NAFLD is caused by oxidative damage to excessive fat stores in the process called lipid peroxidation, in which liver tissue turns rancid.
- No drug exists to prevent or reverse NAFLD.
- A synergistic combination of **Schisandra chinensis** and a patented proprietary extract of the melon **Cucumis melo** have been shown to provide unique protection against the mitochondrial oxidant damage that triggers NAFLD.



absence of alcohol abuse that can progress to scarring of the liver, which may lead to cirrhosis.

An intriguing finding just published in mid-2011 is that melon extracts' SOD-boosting effects reduce production of *stress proteins* in animal studies.<sup>29</sup> These proteins are a direct measure of the impact of stress on organs and tissues. Stress and the stress hormone *cortisol* are known to be contributors to development of NAFLD.<sup>30</sup> And severe emotional or occupational stress triggers oxidant damage and inflammation.<sup>31,32</sup> Those facts inspired scientists to determine whether melon extracts might *ameliorate stress and fatigue* in human subjects, making them less vulnerable to NAFLD.

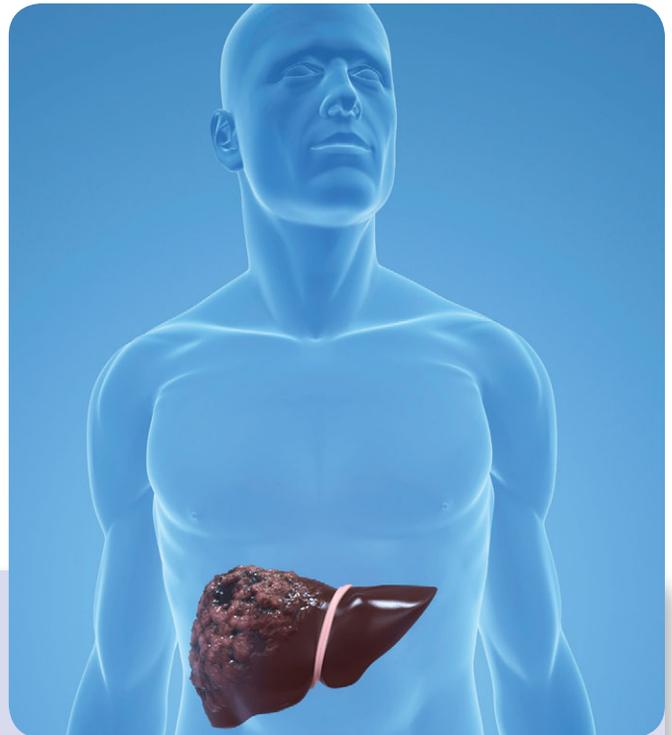
Seventy healthy volunteers, aged 30-55 who experienced daily stress and fatigue, took **10 mg per day** of proprietary melon extract or a placebo for 4 weeks.<sup>33</sup> Supplemented patients experienced significantly reduced stress and fatigue, and improved physical, cognitive, and behavioral performance, compared with placebo recipients. They also enjoyed significant improvements in quality of life and perceived stress, while there were no adverse effects at any point in the study.

*Schisandra chinensis* extract complements SOD activity, stimulating **glutathione peroxidase** enzymatic activity to *optimize* liver protection.

Schisandra extract has been known to protect liver function for more than 4 decades,<sup>34</sup> but it's only recently that we've learned that it does so specifically

by boosting mitochondrial antioxidant function.<sup>35</sup> In that fashion, the extract confers powerful protection against a host of oxidative liver toxins (including mercury).<sup>35-42</sup> Rates of lipid peroxidation, the deadly first consequence of liver fat accumulation in NAFLD, are markedly reduced following supplementation with schisandra extract.<sup>43-45</sup> The result: dramatic reductions in liver cell death and fibrosis.<sup>46</sup>

Schisandra extract is so powerful at mitigating mitochondrial oxidant stress in liver cells that it *delays aging* in the face of experimentally induced oxidant stress.<sup>47</sup> Aging mice demonstrate progressively worsening impairment in mitochondrial



### The Deadly Impact of Excessive Liver Fat

Non-alcoholic fatty liver disease (NAFLD) is the most common liver disorder in Americans and has become a major public health problem.<sup>9,55</sup> Sedentary, overweight people, particularly those with other early indications of the metabolic syndrome, are at risk for the progression of NAFLD to a series of increasingly devastating consequences.<sup>55</sup>

The first of these consequences is called non-alcoholic steatohepatitis, or NASH. Roughly 15-30% of people with NAFLD will go on to have NASH.<sup>3</sup> NASH is associated with a massive outpouring of inflammatory cytokines in the liver, which eventually lead to the toughened, scarred liver seen in cirrhosis.<sup>56</sup>

Cirrhosis, in turn, causes rapid and irreversible loss of liver function at a rate of 3-4% per year.<sup>55</sup> And NASH-related cirrhosis is also a major risk factor for liver cancer.

Excessive liver fat in NAFLD is also directly associated with increased risks of developing diabetes, hypertension, abnormal EKG findings, and the endothelial dysfunction that leads to heart attacks and strokes.<sup>55</sup>

Once NAFLD is fully developed, this deadly progression of events is nearly impossible to reverse—but NAFLD itself is a preventable condition, given proper attention to diet, exercise, and appropriate supplementation.<sup>9</sup> While no prescription drug has any impact on NAFLD, natural products that target mitochondria offer considerable potential for controlling the oxidative stress associated with NAFLD.<sup>8</sup>

If you can prevent NAFLD, you can prevent its consequences. And if you can do that, you can prevent early death.

oxidant status, resulting in decreased mitochondrial energy production and early death.<sup>48</sup> But long-term supplementation with schisandra extract reversed those trends, suppressed mitochondrial ROS production, enhanced mitochondrial energy output, and ultimately improved survival, compared with control animals.<sup>48</sup>

Schisandra extract is especially notable for its effects on liver fat accumulation in diabetics,<sup>49</sup> a group at extremely high risk (virtually 100%) for developing NAFLD.<sup>50</sup> Diabetic rats' livers are severely depleted in glutathione, a natural antioxidant. But schisandra supplementation improved glutathione status in liver cells, thanks to its stimulation of glutathione peroxidase enzymes, and prevented oxidant induced liver damage.<sup>51</sup> A subsequent study showed that even in non-diabetic animals with experimentally induced NAFLD, schisandra extract decreased liver total cholesterol by **50%** and triglycerides by **52%**—effects similar to those produced by the prescription drug fenofibrate.<sup>52</sup>

Human studies are no less encouraging. An open trial in 56 patients with acute or chronic hepatitis, cirrhosis, or fatty liver (steatosis) using **22.5 mg per day** of schisandrins demonstrated decreased serum markers of liver cell injury, even in patients with cirrhosis, normally considered an irreversible condition.<sup>53</sup> A placebo-controlled study of the same extract formulation in patients with chronic hepatitis (a condition that imposes extreme oxidant stress on liver tissue) demonstrated significant decreases in liver damage markers after just one week.<sup>53</sup> Neither study detected any side effects of the extract.



### Melon Extract Formulation Delivers Intact SOD Enzymes

Delivering whole enzymes via the oral route is difficult because they are large protein molecules readily degraded in the stomach. The SOD enzyme in the melon extract is just such a large protein, so the developers had to find a way to prevent that degradation.<sup>25</sup>

Their solution was to encapsulate the SOD enzymes in a protective sheath of organic material that allows the enzyme to pass unscathed through the stomach into the intestine, where it can be maximally absorbed.<sup>25</sup> Studies show that this melon concentrate, given orally, results in significant increases in plasma SOD levels after just 12 days.<sup>29</sup>

The *schisandra* extract requires no special packaging, because its active components are small biological molecules readily absorbed in all segments of the intestine.<sup>59</sup> They act by stimulating **glutathione peroxidase** enzyme activity in mitochondria, not by physically replenishing antioxidant enzymes as the melon extract does with SOD.<sup>21-25</sup>

Schisandra extract's ability to protect liver cells from lipid peroxidation offers protection beyond NAFLD-related damage. Studies show that the extract protects against drug-related liver damage as well; that's of critical importance in many conditions in which drug dosing is limited by liver toxicity. Schisandrin B, a major schisandra component, protects liver tissue against toxicity induced by tacrine (Cognex<sup>®</sup>), a drug that was commonly used to treat Alzheimer's disease—and it independently improves cognitive function.<sup>54</sup>

### Summary

The epidemic of obesity and the metabolic syndrome brings with it a nearly universal risk of serious liver damage in the form of **non-alcoholic fatty liver disease**, or **NAFLD**.

A large proportion of people with NAFLD goes on to suffer liver failure, cardiovascular disease, and is at increased risk for liver cancer. No drug is available to treat or prevent NAFLD, and Americans' sedentary lifestyle and unhealthy eating habits continue to promote the disease.

Because NAFLD is the direct result of oxidant stress acting on excessive accumulations of liver fat, however,

it is amenable to treatment, and even prevention, by powerful nutraceuticals that restore liver antioxidant function to youthful levels.

A pair of fruit extracts (from melons and the Chinese “five flavor berry”) acts as a collaborative **superfood** combination that detoxifies primary free radicals and converts them to harmless water. ●

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

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## Understanding Lipid Peroxidation

If you've ever smelled a stick of butter or a piece of cheese that's gone rancid, that is the result of lipid peroxidation. That's exactly what is going on in your liver as NAFLD progresses—**your liver is literally turning rancid**.

Here's what's happening in **your liver** during lipid peroxidation.

Free radicals, or reactive oxygen species (ROS), are natural byproducts of daily biological processes including cellular respiration and energy production. These processes occur in the tiny organelles called **mitochondria**. That makes mitochondria both the principle producers and primary targets of free radical-induced oxidant stress.

Liver cells are rich in mitochondria because of their enormous metabolic burden. As liver cells age and their mitochondria suffer free radical attack, their membranes become damaged, which leads to formation of additional reactive molecules often termed “secondary” free radicals.<sup>58,59</sup> These secondary free radicals trigger a vicious and deadly cycle of lipid peroxidation, membrane damage, impaired mitochondrial function, and further free radical generation.<sup>58,60</sup>

Liver cells with impaired mitochondrial function can't survive and quickly fall victim to inflammation and cell death.<sup>61</sup> As liver cells die off, they are replaced by the scar tissue of **cirrhosis** and ultimately **liver fibrosis**.<sup>62</sup> A once vibrant and metabolically active organ gradually becomes a massive “dead zone,” incapable of performing the myriad functions of a healthy liver and vulnerable to the DNA damage that leads ultimately to cancer.<sup>61</sup>

This progression from NAFLD to liver failure is a hallmark of modern-day aging.

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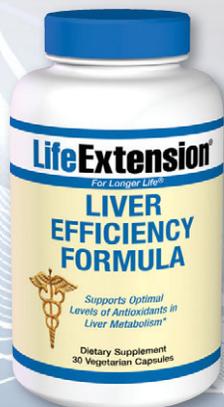
In animal studies, Schisandra has been shown to improve **glutathione** status dramatically in depleted **liver cells**.<sup>9-10</sup>

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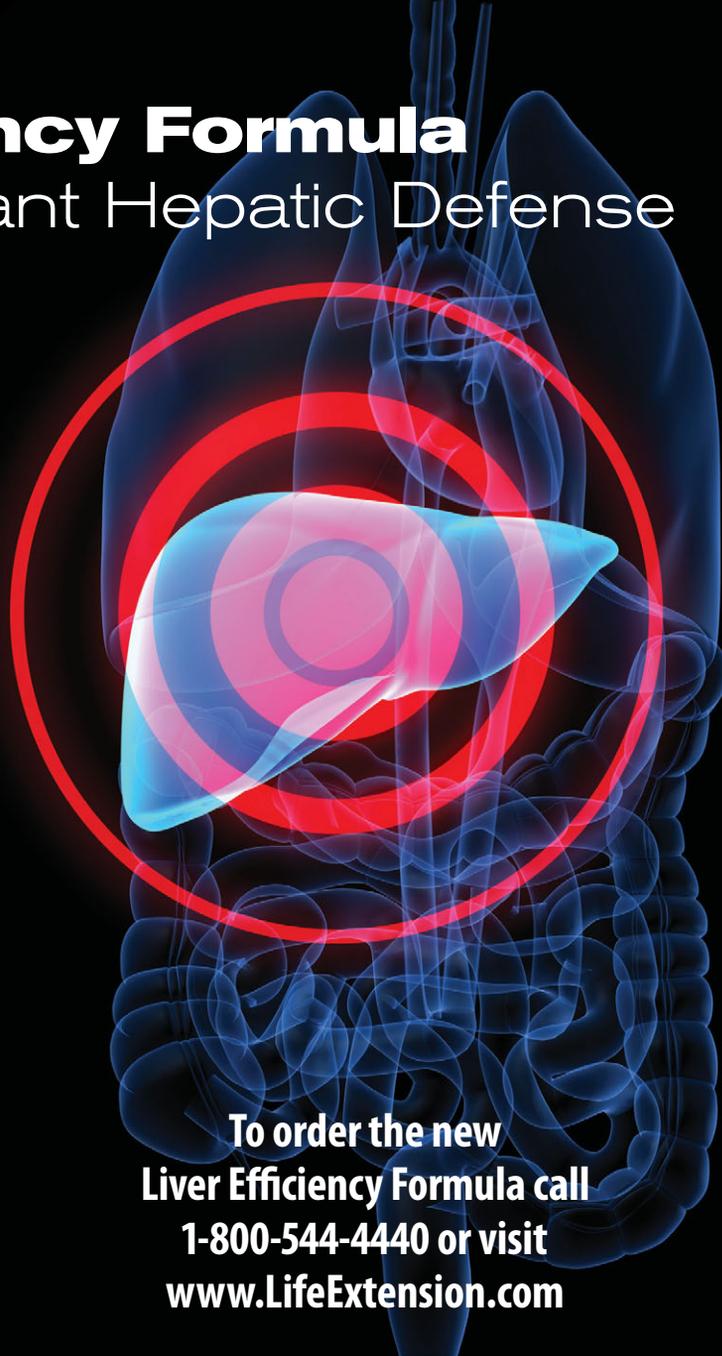
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Scientists have identified multiple mechanisms by which **green tea** extract helps protect against LDL oxidation, neuronal oxidation, and a host of other structural and functional age-related changes. LIFE EXTENSION MIX™ provides more green tea extract than found in commercial formulations.

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

**Olive polyphenols** help protect against LDL oxidation, quench free radicals, and stabilize cell membranes. LIFE EXTENSION MIX™ contains a potent olive extract that provides the best-documented polyphenol called **hydroxytyrosol** in an amount equivalent to drinking one ounce of virgin olive oil a day.

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

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

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

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

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

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

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

**Pterostilbene** is a compound naturally found in blueberries and grapes that has been shown to have beneficial, anti-aging effects on gene expression and to promote healthy cognitive function.

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

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



315 tablets  
Item #01655



490 capsules  
Item #01654



14.81 oz powder  
Item #01656

## 9 tablets, 14 capsules, or three scoops of powder provide:

### Vegetable-Fruit Complex

Green tea extract ( <i>decaf.</i> ) (45% EGCG)	325 mg
Broccoli sprout concentrate (providing sulforaphane, glucosinolates, D-3T, and PEITC)	525 mg
Olive juice extract (providing hydroxytyrosol, oleuropein)	12.5 mg
Grapeseed proanthocyanidin extract (Leucoselect®)	25 mg
Grape ( <i>vitis vinifera</i> ) extract (BioVin®)	25 mg
Ginger extract (5% gingerols)	200 mg
Luteolin (Pureolin™)	8 mg
Lycopene (tomato extract) (Tomat-O-Red®)	3 mg
Lutein (marigold extract) (465 mcg <i>trans-zeaxanthin</i> )	15 mg
Maqui Berry ( <i>Aristotelia chilensis</i> ) anthocyanin extract	100 mg
Milk thistle extract (85% <i>silymarin</i> )	100 mg
Bromelain	15 mg
Calcium D-Glucarate	200 mg
Citrus Bioflavonoids (50% <i>hesperidin</i> )	200 mg
Acerola extract 4:1	300 mg
Bilberry extract (MirtoSelect®)	30 mg
Pomegranate (30% punicalagins) (POMELLA®)	85 mg
Sesame seed lignan extract	10 mg
Berry-fruit blend (HiActives®) (blackberry, blueberry, cranberry, elderberry, persimmon, prune, and cherry)	200 mg
Wild Blueberry ( <i>Vaccinium angustifolium</i> ) anthocyanin extract (fruit)	150 mg
<i>trans</i> -Pterostilbene (from pure Pterospin™ and SMART™ pterostilbene)	0.5 mg
Cyanidin-3-Glucoside (C3G)	1.25 mg
Tart Cherry ( <i>Prunus cerasus</i> ) proanthocyanidin extract	85 mg

### Water-Soluble Vitamins and Enzymatic Activators

Vitamin C	2000 mg
<i>as: ascorbic acid, calcium, magnesium &amp; niacinamide ascorbates, ascorbyl palmitate, acerola extract</i>	
Natural Folate (from lemon extract)	400 mcg
Biotin	3000 mcg
Trimethylglycine (TMG)	100 mg
Vitamin B1 (thiamine HCl)	125 mg
Vitamin B2 (riboflavin)	50 mg
Supplying: Riboflavin 5'-phosphate	2 mg
Vitamin B3 (niacinamide and niacinamide ascorbate)	117 mg
Vitamin B3 (niacin)	73 mg
Vitamin B5 (D-calcium pantothenate)	600 mg
Pantethine	5 mg
Vitamin B6 (pyridoxine HCl)	5 mg
Pyridoxal 5'-phosphate (vitamin B6)	100 mg
Vitamin B12 (cyanocobalamin)	252 mcg
Vitamin B12 (hydroxycobalamin)	252 mcg
Vitamin B12 (ion exchange resin)	96 mcg
PABA ( <i>para</i> -aminobenzoic acid)	200 mg

# The Most Complete Multivitamin Available Today — Now with Tart Cherry and Maqui Berry!

Published scientific studies document that people who eat the **most fruits and vegetables** have much lower incidences of health problems. Few people, however, consistently eat enough plant foods to protect against common age-related decline,<sup>1-3</sup> and commercial multivitamins do not provide all of the vital plant components needed to maintain good health.

Life Extension Mix™ has been upgraded to include a rich source of anthocyanins from **maqui berry** and one rich source of proanthocyanidins, **tart cherry**. These potent plant-derived antioxidants promote cardiovascular wellness, support comfortable muscle and joint function, and support blood sugar levels already within a healthy range. During **Super Sale**, the full daily dose of Life Extension Mix™ can be obtained for as little as **\$1.34** per day.

## Fat-Soluble Vitamins

Vitamin A (10% acetate)	500 IU
Betatene® <i>D. salina</i> (natural beta-carotene)	4,500 IU
Vitamin D3 (cholecalciferol)	2000 IU
Ascorbyl palmitate (fat-soluble vitamin C)	250 mg
Vitamin E (natural D-alpha tocopheryl succinate)	100 IU

## Amino Acid Complex

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

## Mineral Complex

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

## Cholinergic Complex

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

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

LIFE EXTENSION MIX™ contains only the expensive dry powder form of **vitamin E**. This natural form of vitamin E (succinate) has been shown to promote healthy DNA better than other forms.

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

Some scientific evidence suggests that consumption of **selenium** may reduce the risk of certain forms of cancer; however, the FDA has determined that this evidence is limited and not conclusive.

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

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

LIFE EXTENSION MIX™ provides a high amount of **chromium** to help maintain arterial wall structure and already normal glucose levels. We have upgraded our chromium-containing products with Crominex® 3+, a highly stable and biologically active form of chromium blended with Capros® and PrimaVie®.

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

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

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

Contains soybeans, corn, rice, and sesame.

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# Using HORMONES to *Heal* Traumatic BRAIN INJURIES

BY JOSEPH CARRINGTON

It can happen without warning: you slip in the shower and hit your head, a car swerves and hits you, a small stroke occurs and suddenly you can't speak, your mobility is limited, and your world shrinks.

These are real-life examples of the often *intractable* effects of **traumatic brain injury** or **TBI**. And thanks to the groundbreaking work of Dr. Mark L. Gordon and a handful of forward-looking physicians, there's new hope for the 1.7 million Americans afflicted with this condition.

Using **cutting-edge hormone replacement techniques**, Gordon and his colleagues are helping to change the way we think about traumatic brain injuries, their symptoms—and how to treat them *effectively*. In his clinical practice, Dr. Gordon is developing new protocols that may revolutionize the devastating impact of traumatic brain injuries. One of the biggest patient populations in need of urgent care are the soldiers returning from the battlefields of Iraq and Afghanistan. Our story begins with them. > >



## Starting with Soldiers

Traumatic brain injury (TBI) is often referred to as the “signature wound” of both the Iraq and Afghanistan wars. Traumatic brain injury occurs when a sudden trauma to the head disrupts brain function. In both these wars, however, even close proximity to the force of an explosion can be just as devastating. Most of the reported traumatic brain injury among Operation Enduring Freedom and Operation Iraqi Freedom veterans has been traced to improvised explosive devices, or IEDs.

“Traumatic brain injury can be caused by a direct impact, or by acceleration alone,” explains Dr. Mark L. Gordon, interventional endocrinologist and traumatic brain injury treatment specialist at Millennium Health Centers in Los Angeles. “Brain trauma also causes secondary injury, which takes place in the minutes and days following the injury,” he adds. “These processes include alterations in cerebral blood flow and increased pressure within the skull, contributing substantially to damage from the initial injury.”

Gordon says traumatic brain injury can cause a host of physical, cognitive, emotional, and behavioral effects, some of which can be difficult to detect. Symptoms can appear immediately or weeks to years following the injury. “Insidious traumatic brain injury can be difficult to detect,” Gordon says. “Localized damage to the frontal and occipital lobes occurs when the brain collides with the skull. Increasingly, we are discovering that traumatic brain injury is also a causative factor for accelerated hormonal deficiencies.” These deficiencies, says Gordon, can cause a host of psychological, physiological, and physical manifestations, including depression, outbursts of anger, anxiety, mood swings, memory loss, inability to concentrate, learning disabilities, sleep deprivation, increased risk for heart attacks, strokes, high blood pressure, diabetes, loss of libido, menstrual irregularities, premature menopause, obesity, loss of lean body mass, muscular weakness, and a number of other medically documented conditions.

What’s more, Gordon points out that veterans suffering from these forms of psychological damage due to traumatic brain injury are frequently misdiagnosed and have their injury erroneously downgraded to post-traumatic stress disorder (PTSD). Moreover,

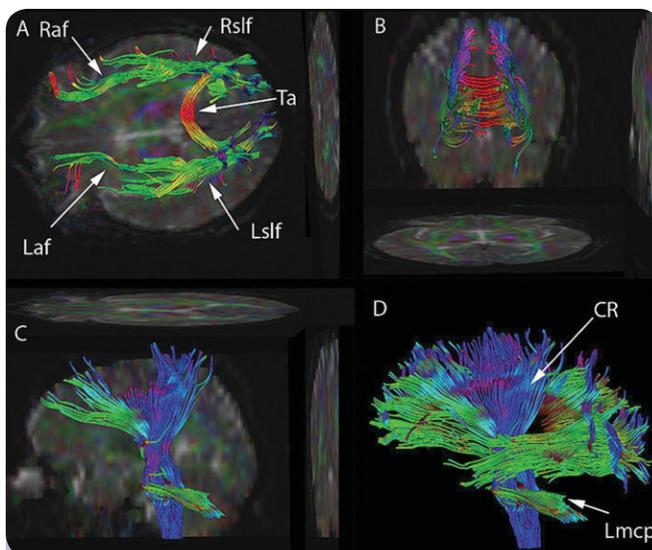
especially in mild traumatic brain injury cases, symptoms at the initial time of injury may go unrecognized or unnoticed, but patients will still develop hormone deficiencies. Unfortunately, the government is slow to accept the link between traumatic brain injury and hormonal deficiencies.

## Dr. Gordon’s Epiphany

By sheer serendipity, many years ago Dr. Gordon provided care for a young man with a history of numerous sports-related head injuries, whose parents were themselves patients at the clinic. The young man’s symptoms long outlasted the immediate effects of his acute injury and included loss of concentration, memory, mental energy, focus, and physical well-being, often accompanied by loss of lean muscle mass and an increase in body fat.

The parents, familiar with the effects of hormonal imbalances, naturally assumed that their son’s problems might reflect an endocrine problem of his own. And indeed, many of his symptoms resembled those of adult patients with so-called *hypopituitarism*, or loss of pituitary gland function. The pituitary gland is located at the base of the brain and is sometimes called the “master” gland of the endocrine system, because it controls the functions of the other hormone-secreting glands.

Gordon, who is nothing if not intellectually curious, hit the books. What he found was startling and life-changing, for himself as a clinician, for his young patient, and now for scores of additional victims of traumatic brain injury.



Changes in tract patterns as indicated by the arrows account for loss of cognition and personality.

## Symptoms of Traumatic Brain Injury Mimic Pituitary Dysfunction

Dr. Gordon found a wealth of published literature suggesting that traumatic brain injury causes pituitary dysfunction, confirming his initial hunch.<sup>1</sup> Although the figures vary between studies, at least 50% (and up to 76%) of traumatic brain injury victims show some loss of pituitary hormone function immediately after the brain injury.<sup>2-4</sup> In general, the more severe the original brain injury, the more profound the hormonal deficits, although hormone deficiency or insufficiency (levels in the low “normal” range) are seen even in patients with mild traumatic brain injury.<sup>5-9</sup>

And while about 58% of patients recover their normal pituitary function within one year of their head injury, a shocking **52% develop new pituitary hormone deficiencies** after one year.<sup>10,11</sup>

Those deficits include reductions in many different pituitary hormones, including those that regulate the thyroid gland, the adrenal glands (that produce cortisol, DHEA, and other vital hormones), the gonads (where estrogen and testosterone are produced), and growth hormone.<sup>3,4,12,13</sup>

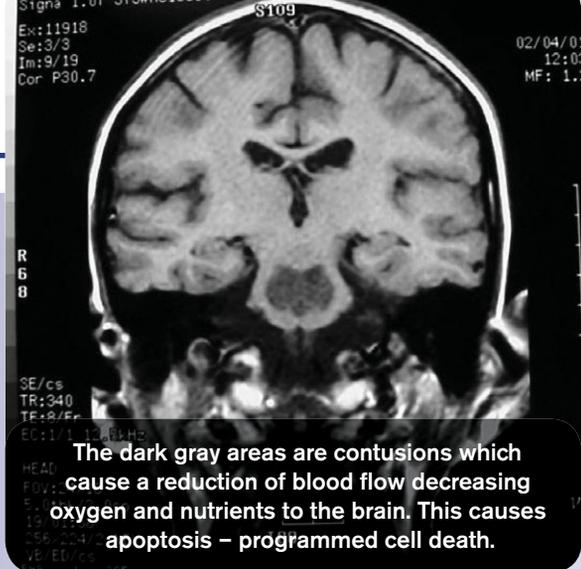
The severity of the hormone deficiencies correlates strongly with the kinds of symptoms Dr. Gordon was seeing in his patient. For example, patients with growth hormone deficiency or insufficiency had significantly worse disability rating scores, greater rates of depression, worse quality of life, lower energy, greater fatigue, and poorer emotional well-being, compared to brain injury patients with normal hormonal levels.<sup>14,15</sup>

**Dr. Gordon’s hunch was borne out:** patients with traumatic brain injury often have **pituitary hormone deficiencies or insufficiencies**, especially in growth hormone. And those defects are closely associated with the persistent neurological, psychological, and emotional deficits that are so tragically common in survivors of traumatic brain injury. And where are you most likely to find a high concentration of survivors of traumatic brain injury? The United States military.

### The Combat Connection

“When you have 360,000-plus GIs coming back from war with traumatic brain injury, it gets expensive,” he says. “Especially when you have to start addressing hormone deficiencies.”

In 2006, the army’s surgeon general established the Traumatic Brain Injury Task Force to establish a clear picture of the processes and research involved with helping traumatic brain injury-affected service members transition to civilian life. The task force was designed to assess how the army addressed aspects of



## Brain Trauma

- Traumatic brain injury afflicts nearly 2 million Americans annually.
- Survivors of traumatic brain injury suffer from a broad spectrum of physical, mental, cognitive, and emotional deficits, ranging in severity from mild to crippling.
- Conventional medical treatment and rehabilitation often fail to achieve substantial recovery once the acute injury period has passed.
- Recent discoveries reveal that traumatic brain injury produces a host of endocrine deficits centered on dysfunction of the pituitary gland.
- Restoring the balance of deficient hormones to their pre-injury levels has been shown to produce substantial improvements in all facets of traumatic brain injury.
- Despite powerful evidence for hormone replacement, conventional physicians remain unwilling to provide this vital therapy.
- Dr. Mark Gordon of Millennium Health Centers is a pioneer in hormone testing and replacement in victims of traumatic brain injury.
- Gordon has now treated scores of brain-injured patients, balancing their deficient hormones and achieving remarkable recovery, even in patients who are years out from their original injury.
- Anyone with a traumatic brain injury, or their family members, can reach out to Dr. Gordon and Millennium Health Centers for an initial evaluation and treatment plan.

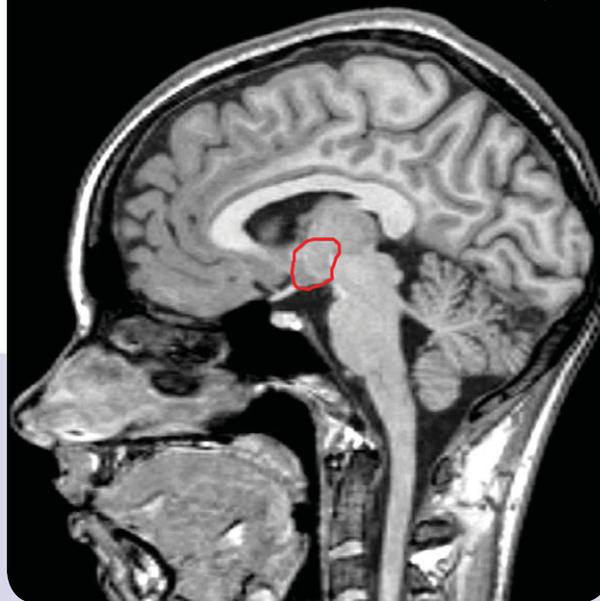
traumatic brain injury care, and made recommendations for improvement. But Gordon believes the bottom line is that a task force can do little if the military doesn't want to pay for treatment.

Gordon explains that conventional medical dosage for testosterone is at 200-300 milligrams per week, which he has shown is far too high! "For example, a typical 25-35 year old male naturally generates 4-10 milligrams per day, or 60 milligrams per week. Using supraphysiological dosages of testosterone (as military doctors are doing) can have significant side-effects if not monitored closely. We can achieve similar benefits at one-quarter the dose without the risk factors."

While Gordon admits that interventional endocrinology may not be for everyone, patients like soldiers will eagerly seek it out when traditional doctors have hit a wall and are unable to fix ongoing issues. Recently, he spoke with a military veteran in North Carolina who described the sheer difficulty of getting anything done through the military. "Part

of the reason," Gordon explains, "is because the military and doctors see testosterone as a 'body-builder drug,' rather than a natural substance produced in our bodies. It makes no sense why they can readily accept insulin use for diabetes, but not testosterone. They are both natural hormones, flowing naturally through our bodies."

The area circled in red is the hypothalamus – the control center for the pituitary gland and production of hormones throughout the body.



### Traumatic Brain Injury and Hormones

Most people typically think of hormones as the products of the endocrine glands located throughout the body. That's an accurate, but incomplete, view of these powerful biological regulatory molecules. Virtually all endocrine glands are under the control of the **pituitary** gland, which is located inside the skull at the base of the brain. Because of its powerful influence on the other endocrine glands, the pituitary is often referred to as the "**master gland**."

But even the pituitary is subject to a "higher" form of control. An ancient brain structure called the **hypothalamus** has a direct connection to the pituitary via a unique network of veins. Regulatory molecules from the hypothalamus "tell" the pituitary how much of its own hormones and hormone releasing factors to produce. And the hypothalamus, as part of the brain itself, receives constant **neurological inputs** from all over the body, creating a host of feedback loops. It is those feedback loops that maintain a steady balance between extreme biochemical states.

That connection between the brain's hypothalamus and the endocrine system's pituitary is called **neuroendocrine** function. And, though it may seem obvious, medical science is only just beginning to recognize that trauma to the brain, even apparently minor trauma, can damage the hypothalamic-pituitary system and have profound effects on hormonal function.

In fact, most people (including the majority of physicians) assume that the neurological deficits that follow a traumatic brain injury result simply from disruption to brain tissue itself. In this simplistic model, a "hit" to the head causes the brain to be "rattled," triggering bleeding, bruising, and other large-scale injuries that can be seen on MRI and CT scans. And it's quite true that we can predict some of the deficits a brain-injured person will sustain by the location and severity of the visible damage on those scans.

But victims of traumatic brain injury frequently have sustained neurological deficits that exceed what would be predicted simply by examining brain scans. Unfortunately, people with so-called minor traumatic brain injury, who comprise the largest group of brain-injured patients, have no visible damage at all on brain scans.

It took someone with genuine insight and a fresh approach to recognize that it is **disrupted hormonal function**, not simply physical "brain damage," that creates the sustained neurological deficits suffered by victims of traumatic brain injury.

## Growth Hormone: A Critical Player

Growth hormone is the most common hormone deficiency or insufficiency in patients with traumatic brain injury at any level of severity.<sup>16-19</sup> Deficiencies in this hormone are especially marked in patients with moderate to severe traumatic brain injury.<sup>20</sup> Brain-injured patients with growth hormone deficiency experience rapid weight gain and have substantially lower levels of other hormones as well.<sup>17,19</sup> Low growth hormone levels are also associated with excessive anxiety and depression and poor physical health and quality of life.<sup>15,21</sup> Finally, brain-injured patients with growth hormone deficiency show greater deficits in attention, executive functioning, memory, and emotion than those with normal growth hormone levels.<sup>22</sup>

Growth hormone is an intriguing hormone, and we are learning more about it each year. In children, it is responsible for regulating linear growth, ultimately determining adult height and body proportions. But growth hormone has many other remarkable functions throughout the body and into adulthood. It is **neuroprotective**, increasing survival of damaged nerve cells and promoting regeneration of nerve tissue.<sup>23-25</sup> Growth hormone also increases the number of receptors for other hormones in tissues throughout the body; this has the effect of increasing the body's sensitivity to those hormones' actions, helping to overcome the effects of their deficiencies.<sup>26-29</sup>

Like all hormones, growth hormone acts by binding to specific cell-surface receptors. Receptors for growth hormone are found throughout the brain, and they are especially densely distributed in brain regions responsible for learning and memory.<sup>30,31</sup> That may explain why **declining growth hormone levels are associated with poorer cognitive function**. Growth hormone levels fall with age and are especially low in Alzheimer's disease.<sup>32-36</sup> As Dr. Gordon points out, it is therefore not surprising that traumatic brain injury patients often show symptoms identical to the cognitive decline and memory loss we see with aging and Alzheimer's disease. In essence, a brain-injured patient with low growth hormone levels undergoes accelerated cognitive aging.

### Hope for Traumatic Brain Injury Patients at Millennium Health Centers

Dr. Gordon was struck by the obvious paradox: although there is copious evidence that patients with traumatic brain injury suffer from hypothalamic-pituitary hormonal imbalances, and ample expert recommendations for rigorous hormone testing, few physicians were bothering to test their brain-injured

patients.<sup>22,30,37</sup> Worse, despite compelling studies showing the benefits of hormone replacement, virtually no physician was offering such therapy in the United States.

Dr. Gordon decided to act.

Over the course of several years, he has developed a panel of comprehensive hormone testing for survivors of traumatic brain injury (Table 1). Gordon's clinic, Millennium Health Centers, provides primary, or direct, testing to determine how well the hypothalamic-pituitary system is functioning, and also secondary testing, which determines how the target endocrine glands themselves are affected (Table 2). In his practice, Dr. Gordon obtains a complete history and performs a detailed physical examination on

**Table 1: Millennium's Traumatic Brain Injury Hormone Panel**

Testing	Male	Female
IGF-1	✓	✓
Free Testosterone	✓	✓
Estrogens	-	✓
Cortisol	✓	✓
TSH	✓	✓
T3/T4	✓	✓
DHEA	✓	✓

**Table 2: Primary and Secondary Endocrine Function Tests**

Primary Testing (Direct Pituitary Function)	Secondary Testing (Function of Target Endocrine Organs)
Growth Hormone	IGF-1 (Insulin-like growth factor-1)
Luteinizing Hormone	Testosterone/Estrogens
Thyroid Stimulating Hormone	T3 and T4 (Thyroid Hormones)
ACTH (Adrenocorticotrophic Hormone)	Cortisol
FSH (Follicle-Stimulating Hormone, acts at ovaries and testes)	

each brain-injured patient and correlates those findings with their lab results. From this information he is able to create a treatment protocol for individualized hormone replacement.

Dr. Gordon uses physiologic dosing, not megadoses, of each hormone. His goal is to restore hormone levels to the middle of the optimum range, but he works each patient up to that level slowly, monitoring their cognitive and physical functions monthly.

“Science now has the ability to map the entire brain, and we now know exactly where growth hormone works on mood, which pathways it uses,” says Dr. Gordon. “The military is simply not prepared to go to the depths that we have in the private sector.”

Patients typically respond within weeks to the Millennium approach. And the responses tend to be dramatic.

Gordon recalls one case in particular, of a woman who had been involved in a “T-bone” car crash—a notoriously deadly situation in which the victim’s vehicle is hit full-force from the side. The patient was left with multiple neurological deficits. She spoke with a stutter and needed to keep one hand on the wall as she walked in order to maintain her balance. She had substantial memory impairment as well.

After a series of blood tests, Dr. Gordon began administering small doses of the hormones that were deficient in this patient’s case. She soon showed

encouraging progress, with diminished speech and balance impairment. Gordon recalls with obvious delight, “One day about six months later, I got a phone call from a woman who said, in a perfectly normal voice, ‘Hi, this is your patient Nancy.’ I told her to stop joking and asked who it was. ‘I’m your patient, Nancy, the one with the bad stutter. I woke up this morning, and this is how I was able to speak. I just wanted to let you know.’”

Nancy’s case, though dramatic, is far from unique.

Since that time, Dr. Gordon has treated scores of other patients with similar outcomes, which is why military veterans coming to him are in good hands: he has obtained a grant from Access Medical Laboratories in Jupiter, Florida, which currently covers the cost of testing veterans with traumatic brain injury. “They’ve arranged for a phlebotomy company to go to the veterans’ homes and draw blood. Lab tests use a spectrum that goes way beyond typical blood tests, providing a bigger database.” Any treatment starts with baseline hormone testing of testosterone, growth hormone, thyroid, and cortisol.

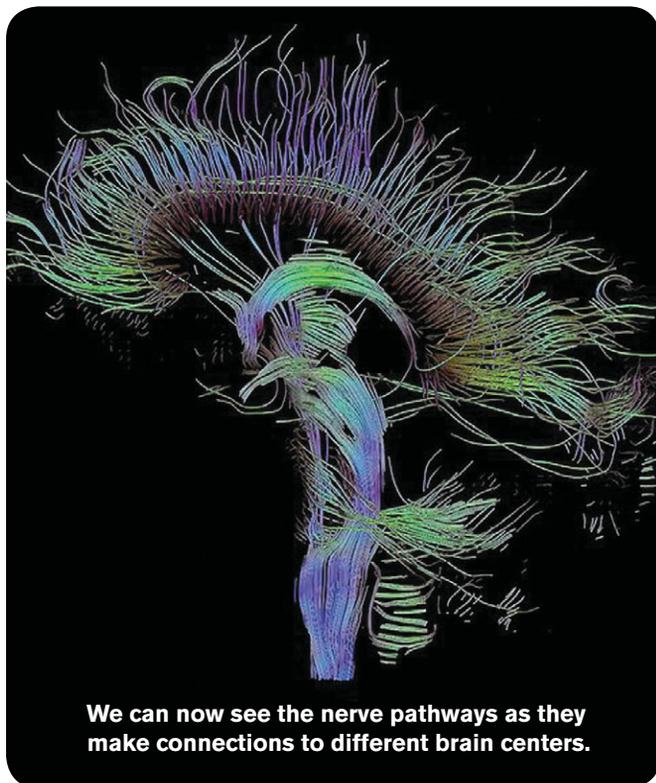
His work is attracting international attention, and he has been invited to lecture on his hormone-balancing approach at prestigious conferences around the world. Dr. Gordon is actively recruiting other physicians to learn from him so that they can apply his techniques in their own practices.

## Summary

Traumatic brain injury leaves millions of survivors with substantial impairments in physical, emotional, cognitive, and behavioral consequences each year. Despite high-tech diagnostic and treatment protocols, mainstream medicine has managed to do little to overcome these long-term pathologies. The recent discovery that traumatic brain injury, by damaging the brain’s hypothalamus, triggers dysfunction of the pituitary gland, led Dr. Mark Gordon on a mission to identify and treat the resulting hormonal deficiencies in his patients with traumatic brain injury. Restoring hormone levels to their optimal, pre-injury and youthful levels results in remarkable recovery of many of the impaired functions.

Patients with traumatic brain injury, or their family members, may visit Millennium’s website at [www.TBImedlegal.com](http://www.TBImedlegal.com), or call 818-990-1166 in order to set up initial lab testing. Information at the website also lets patients know what a typical course of treatment involves.

If you are a veteran of the Gulf War, Iraq, or Afghanistan, The Millennium Health Centers has a limited grant from Access Medical Laboratories of



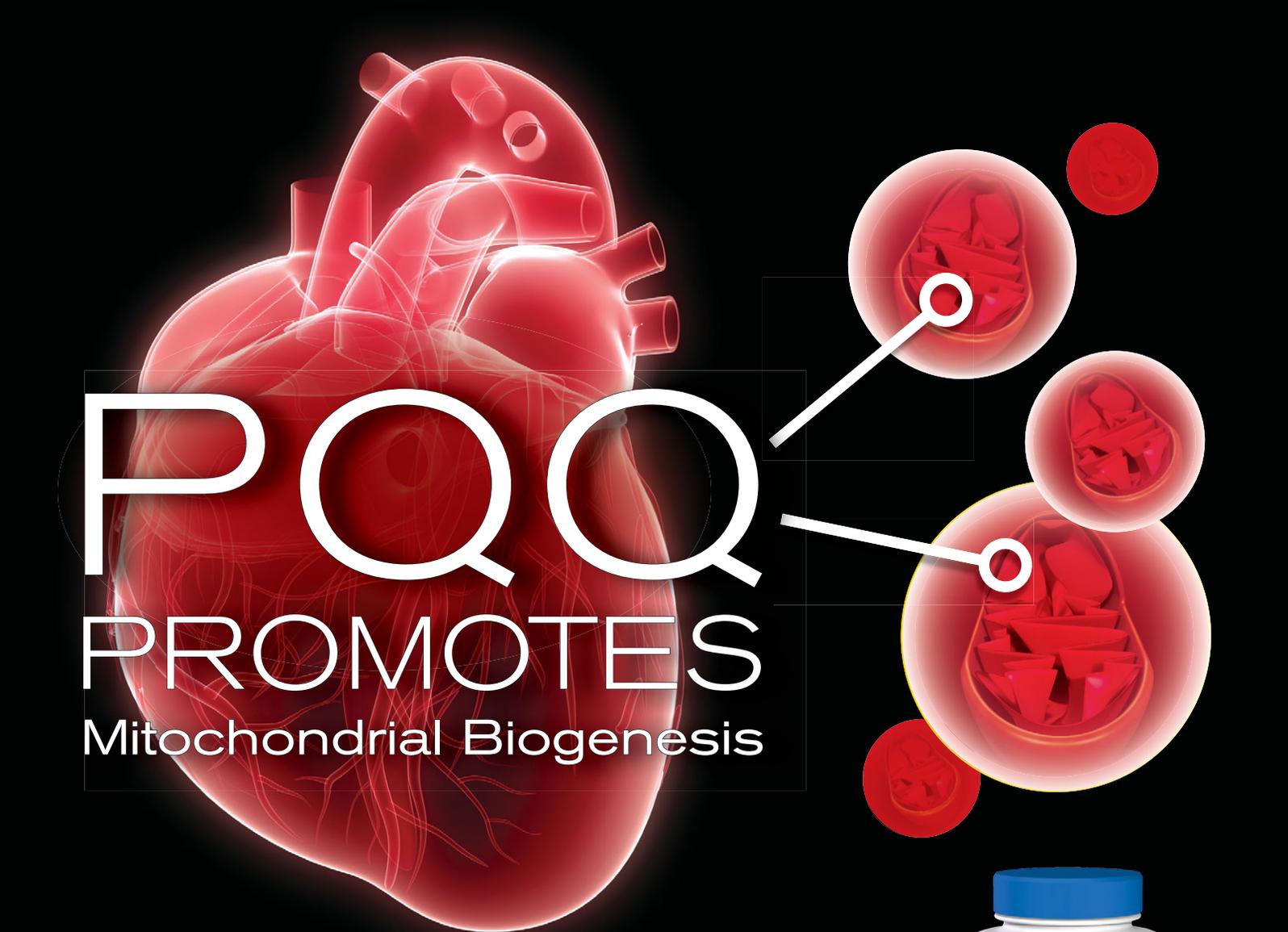
**We can now see the nerve pathways as they make connections to different brain centers.**

Florida that will pay for your TBI Hormone Panel. In California, Dr. Gordon offers the same TBI Hormone Panel to law enforcement officers injured on the job. We care for those who take care of us! ●

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

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# PQQ

## PROMOTES

### Mitochondrial Biogenesis

### Critical Importance of Mitochondria

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

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

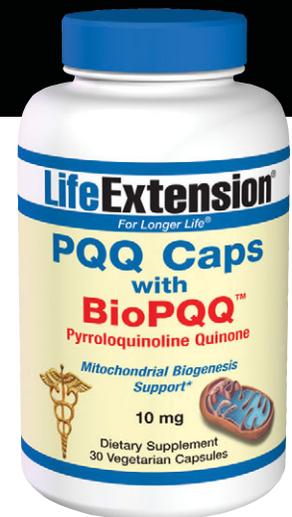
In an unprecedented breakthrough, a compound called **PQQ** (*pyrroloquinoline quinone*) has been shown to support **mitochondrial biogenesis**—the spontaneous generation of **new mitochondria** in aging cells.<sup>7</sup>

**PQQ** is available as a low-cost dietary supplement.

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

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

**PQQ** offers a viable alternative.



Item #01500

## The Ultimate Cell Rejuvenator

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

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

- **Antioxidant power.** Like CoQ10, PQQ is a highly potent antioxidant. Its extraordinary molecular stability enables it to facilitate thousands of biochemical reactions in the mitochondria, without breaking down, for maximum antioxidant and bioenergetic support.<sup>15</sup>
- **Favorably modulates gene expression.** PQQ activates *genes* that promote formation of **new mitochondria**<sup>7</sup>—and beneficially interacts with genes directly involved in mitochondrial health. These same genes also support **healthy body weight**, normal **fat** and **sugar metabolism**, and **youthful cellular proliferation**.<sup>16</sup>
- **Mitochondrial defense.** Mitochondria possess their *own* DNA, distinct from the DNA contained in the nucleus. Unfortunately, compared to nuclear DNA, mitochondrial DNA is relatively unprotected. PQQ's antioxidant potency and favorable gene expression profile act to support mitochondrial defense.

## Vital Protection for the Aging Heart and Brain

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

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

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

## A Breakthrough Weapon in the Battle Against Aging

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

A bottle containing **30 10 mg** vegetarian capsules of **PQQ Caps with BioPQQ™** retails for \$24. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$14.85** per bottle.

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

Contains rice.



To order PQQ Caps with BioPQQ™ standalone or any other PQQ-containing formula call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)

BioPQQ™ is a trademark of MGC (Japan).

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Enhanced Night Vision!

# EYE PROTECTION FORMULA

Falling down is responsible for 70% of accidental deaths in older people.<sup>1</sup> Poor lighting conditions are often the culprit.

Fortunately, **C3G** derived from **black currant** supports eyesight in **dark** conditions by promoting the healthy function of delicate structures within the retina that support **night vision**.<sup>2</sup>

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

### Maintain Macular Density

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

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

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

### Combat “Eye Fatigue”

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

**Super Zeaxanthin** contains a potent dose of **astaxanthin**, a carotenoid found in red algae. Studies show that taking astaxanthin

with other carotenoids protects against free radical–induced DNA damage, repairs UVA-irradiated cells, and inhibits inflammatory cell infiltration.<sup>3-6</sup>

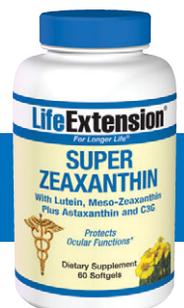
Astaxanthin also helps support vascular health within the eye and improves visual acuity.<sup>5</sup> Its fat-soluble nature offers protection to sensitive cells inside the eye.<sup>7</sup>

### Comprehensive Ocular Protection in One Daily Capsule

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

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

The retail price for a bottle containing 60 softgels of **Super Zeaxanthin with Lutein, Meso-zeaxanthin Plus Astaxanthin and C3G** is \$42. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$25.65** per bottle.



Item # 01586

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

OptiLut<sup>®</sup> is a registered trademark of NutriScience Innovations, LLC. LuteinPlus<sup>®</sup> and MZ<sup>®</sup> are registered trademarks of Nutriproducts Ltd., 7 Marfleet, CB22 5LA, UK, licensed under US Patents 6,218,436 & 6,329,432. AstaREAL<sup>®</sup> is a registered trademark of Fuji Chemical Industry Co., Ltd. Zanthin<sup>®</sup> is a registered trademark of Valensa International, Inc., used under license. U.S. Patent 5,527,533.

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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.

# Most Popular DHEA Dosages



*DHEA is a critically important hormone, but its production declines sharply as we age. Scientists are discovering numerous health benefits when aging people restore their DHEA to youthful ranges. Life Extension offers a wide range of DHEA supplements to satisfy individual needs.*



Item #00335

#### **DHEA 25 mg, 100 Capsules**

The minimum dose of DHEA for most healthy aging people is 25 mg a day, though optimal doses are often higher in men. These 25-mg capsules are a popular way to consume the precise amount of DHEA your body may need. A bottle containing 100 **25-mg** capsules of **DHEA** retails for \$15; if a member orders four bottles during **Super Sale**, the price is reduced to just **\$8.44 per bottle**.  
Contains rice.



Item #00882

#### **DHEA 50 mg, 60 Capsules**

The optimal daily dose of DHEA for most people is 50 mg. These economical 50-mg capsules enable most people to conveniently consume the optimal dose of DHEA in just one capsule. A bottle containing 60 **50-mg** capsules of **DHEA** retails for \$16; if a member orders four bottles during **Super Sale**, the price is reduced to just **\$9.45 per bottle**.  
Contains rice.



Item #00454

#### **DHEA 15 mg, 100 Capsules**

While published studies show the greatest benefit occurs when 50-75 mg of DHEA is consumed each day, some women only need a low dose of DHEA. Just one of these 15-mg capsules a day is all some women need to bring DHEA levels back to youthful levels. A bottle containing 100 **15-mg** capsules of **DHEA** retails for \$12; if a member orders four bottles during **Super Sale**, the price is reduced to just **\$6.75 per bottle**.  
Contains rice.



Item #00607

#### **DHEA 25 mg, 100 Dissolve-in-Mouth Tablets**

A bottle containing 100 **25-mg dissolve-in-mouth** tablets of **DHEA** retails for \$14; if a member orders four bottles during **Super Sale**, the price is reduced to just **\$7.93 per bottle**.

Some people want to take DHEA in sublingual tablet form to avoid first pass through the liver, though published studies show that swallowing DHEA capsules consistently boosts blood DHEA levels.  
Contains corn

**CAUTION:** Do not use DHEA if you are at risk for or have been diagnosed as having any type of hormonal cancer, such as prostate or breast cancer.

To order the **DHEA** supplement that's right for you, call **1-800-544-4440** or visit **www.LifeExtension.com**



**B**lood 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*<sup>®</sup> 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](http://www.lifeextension.com).
2. After your order is placed, you will be mailed either a requisition form to take to your local LabCorp Patient Service Center or a Blood Draw Kit; whichever is applicable (Please note: If a blood draw kit is used, an additional local draw fee may be incurred.)
3. Have your blood drawn.
4. Your blood test results will be sent directly to you by Life Extension.
5. Take the opportunity to discuss the results with one of our knowledgeable health advisors by calling 1-800-226-2370; or review the results with your personal physician.

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

#### For Our Local Members:

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

# Blood Testing The Ultimate Information

## MOST POPULAR PANELS

### Life Extension Member Pricing

- |   |   |
|---|---|
| <p><b>COMPREHENSIVE PANELS</b></p> <p>○ <b>MALE LIFE EXTENSION PANEL (LC322582)</b> <b>\$269</b><br/>           CBC/Chemistry Profile DHEA-S<br/>           Homocysteine TSH for thyroid function<br/>           Free Testosterone Total Testosterone<br/>           Estradiol SHBG<br/>           PSA (prostate-specific antigen)<br/>           C-Reactive Protein (high-sensitivity)</p> <p>○ <b>FEMALE LIFE EXTENSION PANEL (LC322535)</b> <b>\$269</b><br/>           CBC/Chemistry Profile DHEA-S<br/>           Estradiol Homocysteine<br/>           Progesterone TSH for thyroid function<br/>           Free Testosterone Total Testosterone<br/>           C-Reactive Protein SHBG (high sensitivity)</p> <p>○ <b>MALE WEIGHT LOSS PANEL (LCWLM)*</b> <b>\$299</b><br/>           CBC/Chemistry Profile DHEA-S<br/>           Insulin PSA<br/>           Free Testosterone (prostate-specific antigen)<br/>           Estradiol Total Testosterone<br/>           Free T3 TSH<br/>           C-Reactive Protein Free T4<br/>           (high sensitivity) SHBG</p> <p>○ <b>FEMALE WEIGHT LOSS PANEL (LCWLF)*</b> <b>\$299</b><br/>           CBC/Chemistry Profile DHEA-S<br/>           Progesterone Insulin<br/>           Free Testosterone Total Testosterone<br/>           Estradiol TSH<br/>           Free T3 Free T4<br/>           C-Reactive Protein SHBG (high sensitivity)</p> <p>○ <b>MALE HORMONE ADD-ON PANEL (LCADDM)*</b> <b>\$155</b><br/> <b>Pregnenolone and Dihydrotestosterone (DHT)</b><br/>           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.</p> <p>○ <b>FEMALE HORMONE ADD-ON PANEL (LCADD)*</b> <b>\$125</b><br/> <b>Pregnenolone and Total Estrogens</b><br/>           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.</p> <p>○ <b>LIFE EXTENSION THYROID PANEL (LC304131)</b> <b>\$75</b><br/>           TSH, T4, Free T3, Free T4.</p> <p>○ <b>MALE HORMONE RE-TEST PROFILE (LCRTM)*</b> <b>\$275</b><br/>           CBC/Chemistry Profile, DHEA-S, Dihydrotestosterone (DHT), Estradiol, PSA, Pregnenolone, Total and Free Testosterone, and TSH. Continual monitoring of hormone levels is necessary for men seeking to maintain optimal blood level values.</p> <p>○ <b>FEMALE HORMONE RE-TEST PROFILE (LCRTF)*</b> <b>\$250</b><br/>           CBC/Chemistry Profile, DHEA-S, Total Estrogen, Pregnenolone, Total and Free Testosterone, Progesterone, and TSH. Continual monitoring of hormone levels is necessary for women seeking to maintain optimal blood level values.</p> | <p>○ <b>THE CBC/CHEMISTRY PROFILE (LC381822)</b> <b>\$35</b><br/> <b>OVER 40 PARAMETERS TESTED</b><br/> <b>CARDIOVASCULAR RISK PROFILE</b><br/>           Total Cholesterol Cholesterol/HDL Ratio<br/>           HDL Cholesterol Estimated CHD Risk<br/>           LDL Cholesterol Glucose<br/>           Triglycerides Iron<br/> <b>LIVER FUNCTION PANEL</b><br/>           AST (SGOT) Total Bilirubin<br/>           ALT (SGPT) Alkaline Phosphatase<br/>           LDH<br/> <b>KIDNEY FUNCTION PANEL</b><br/>           BUN BUN/Creatinine Ratio<br/>           Creatinine Uric Acid<br/> <b>BLOOD PROTEIN LEVELS</b><br/>           Total Protein Globulin<br/>           Albumin Albumin/Globulin Ratio<br/> <b>BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE</b><br/>           Red Blood Cell Count Monocytes<br/>           White Blood Cell Count Lymphocytes<br/>           Eosinophils Platelet Count<br/>           Basophils Hemoglobin<br/>           Polys (Absolute) Hematocrit<br/>           Lymphs (Absolute) MCV<br/>           Monocytes (Absolute) MCH<br/>           Eos (Absolute) MCHC<br/>           Baso (Absolute) Polynucleated Cells<br/>           RDW<br/> <b>BLOOD MINERAL PANEL</b><br/>           Calcium Sodium<br/>           Potassium Chloride<br/>           Phosphorus Iron</p> <p><b>NOTE: CBC/Chemistry profile is included in the Male and Female Life Extension panels and Weight Loss Panels.</b></p> <p>○ <b>GENERAL HEALTH</b><br/> <b>HEMOGLOBIN A1C (HBA1C) (LC001453)</b> <b>\$31</b><br/>           Hemoglobin A1C evaluates long-term blood sugar control. Serum glucose sometimes reacts with important proteins in the body rendering them nonfunctional. Since this process, known as glycation is one of the leading theories of aging, Life Extension<sup>®</sup> believes everyone should check their A1C level.</p> <p>○ <b>VITAMIN D (25OH) (LC081950)</b> <b>\$47</b><br/>           This test is used to rule out vitamin D deficiency as a cause of bone disease. It can also be used to identify hypercalcemia.</p> <p>○ <b>FOOD SAFE ALLERGY TEST (LCM73001)</b> <b>\$174</b><br/>           This test measures delayed (IgG) food allergies for 95 common foods.</p> <p>○ <b>CYTOKINE PANEL (LCCYT)*</b> <b>\$399</b><br/>           Includes TNF-alpha, IL-6, IL-1 beta and IL-8. Cytokines are proteins that modulate the inflammatory response. This panel is used to identify elevated levels of specific cytokines.</p> <p>○ <b>OMEGA SCORE™™™ (LCOMEGA)</b> <b>\$131.25</b><br/>           Provides valuable information on your risk of developing heart disease, sudden heart attack, and cardiac death. The Omega Score™ also includes your AA:EPA ratio, allowing you to determine and track a major factor in total body inflammation.</p> <p>○ <b>COQ10* (COENZYME Q10) (LC120251)</b> <b>\$145</b><br/>           This test is used to check the blood level of CoQ10 and will enable more precise dosing for anyone seeking to achieve and maintain high levels of this critical antioxidant.</p> |
|---|---|

\* 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.



## MOST POPULAR SINGLE TESTS

Life Extension Member Pricing

- |   |                |  |              |
|---|----------------|--|--------------|
| <input type="radio"/> <b>HORMONES</b><br><b>CORTISOL (LC004051)</b><br>This test is to measure adrenal function.  | <b>\$39</b>    | <input type="radio"/> <b>CARDIAC RISK</b><br><b>Lp-PLA2 (PLAC TEST)* (LC123240)</b><br>This test is used to aid in predicting risk for coronary heart disease, and ischemic stroke associated with atherosclerosis. Lp-PLA2 is a cardiovascular risk factor that provides unique information about the stability of the plaque inside your arteries.   | <b>\$125</b> |
| <input type="radio"/> <b>ADRENOCORTICOTROPIC HORMONE (ACTH)* (LC004440)</b><br>A pituitary function test useful in evaluating adrenocortical dysfunction.   | <b>\$91.50</b> | <input type="radio"/> <b>C-REACTIVE PROTEIN (HIGH-SENSITIVITY) (LC120766)</b><br>Measures inflammation factors in arteries. Recent studies indicate that C-reactive protein may be the most accurate risk factor for predicting heart attack and stroke.   | <b>\$42</b>  |
| <input type="radio"/> <b>DHEA-SULFATE (LC004020)</b><br>This test shows if you are taking the proper amount of DHEA. This test normally costs \$100 or more at commercial laboratories.   | <b>\$61</b>    | <input type="radio"/> <b>APOLIPOPROTEIN ASSESSMENT (APO A1 + APO B + RATIO) (LC216010)</b><br>This ratio correlates with risk of coronary artery disease and is useful in the presence of borderline elevations of cholesterol.  | <b>\$55</b>  |
| <input type="radio"/> <b>DIHYDROTESTOSTERONE (DHT)* (LC500142)</b><br>Measures serum concentrations of DHT.   | <b>\$99</b>    | <input type="radio"/> <b>FIBRINOGEN* (LC001610)</b><br>High levels of this blood-clotting factor increase the risk of heart attack and stroke.   | <b>\$31</b>  |
| <input type="radio"/> <b>ESTRADIOL (LC004515)</b><br>For men and women. Determines the proper amount in the body.   | <b>\$33</b>    | <input type="radio"/> <b>HOMOCYSTEINE (LC706994)</b><br>Can indicate if you are likely to have a heart attack or stroke. Even if you take folic acid, you still may have dangerously high levels of this artery-clotting metabolic debris that can be lowered with high doses of TMG and vitamin B6.   | <b>\$64</b>  |
| <input type="radio"/> <b>INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN 3 (IGFBP3) (LC140152)</b><br>Elevated levels in hypertensive individuals have been associated with a nine-fold increase of carotid arteriosclerosis.                        | <b>\$47</b>    | <input type="radio"/> <b>VAP™ TEST (LC804500)</b><br>The VAP cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid profile. Direct measurements, not estimations, are provided for total cholesterol, LDL, HDL, VLDL, and cholesterol subclasses.  | <b>\$90</b>  |
| <input type="radio"/> <b>INSULIN FASTING* (LC004333)</b><br>Can predict those at risk of diabetes, obesity, and heart and other diseases.   | <b>\$42</b>    | <input type="radio"/> <b>MALE HEALTH</b><br><b>PSA (PROSTATE-SPECIFIC ANTIGEN) (LC010322)</b><br>Can provide an early warning sign for prostate disorders and possible cancer.   | <b>\$31</b>  |
| <input type="radio"/> <b>PREGNENOLONE* (LC140707)</b><br>Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.   | <b>\$116</b>   | <input type="radio"/> <b>FREE-PSA (INCLUDES TOTAL PSA)* (LC480780)</b><br>Recommended to determine if an elevated PSA is indicative of prostate cancer.  | <b>\$61</b>  |
| <input type="radio"/> <b>PROGESTERONE (LC004317)</b><br>Primarily for women. Determines the proper amount in the body.  | <b>\$55</b>    | <input type="radio"/> <b>BONE HEALTH</b><br><b>OSTEOCALCIN* (LC010249)</b><br>Osteocalcin is often used as a biochemical marker, or biomarker, for the bone formation process. It has been routinely observed that higher serum osteocalcin levels are relatively well correlated with bone diseases characterized by increased bone turnover, especially osteoporosis.                      | <b>\$91</b>  |
| <input type="radio"/> <b>SEX HORMONE BINDING GLOBULIN (SHBG) (LC082016)</b><br>This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens.                    | <b>\$33</b>    | <input type="radio"/> <b>DPD CROSS LINK URINE TEST (LC511105)</b><br>The deoxypyridinoline (DPD) urine test can be used to measure bone re-absorption rates in healthy individuals and in those with enhanced risk of developing metabolic bone diseases. Deoxypyridinoline can be used to monitor therapies (which may include bisphosphonate drugs) in people diagnosed with osteoporosis. | <b>\$79</b>  |
| <input type="radio"/> <b>SOMATOMEDIN C (IGF-1) (LC010363)</b><br>Indicates growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality.  | <b>\$75</b>    |  |              |
| <input type="radio"/> <b>TOTAL AND FREE TESTOSTERONE (LC140103)</b><br>Determines whether testosterone replacement should be considered as a therapy for depression, abdominal obesity, low energy, poor mental performance, or loss of libido. | <b>\$99</b>    |  |              |

**Blood tests available only in the continental United States.**

**For non-member prices call 1-800-208-3444**

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

## ORDER LIFE-SAVING BLOOD TESTS FROM VIRTUALLY ANYWHERE IN THE US!

### TERMS AND CONDITIONS

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

Signature of Life Extension Member

X

Life Extension Foundation Members only

### MEMBER NO.

Male

Female

Name

Date of Birth (required)

/ /

Address

City

State

Zip

Phone

Credit Card No.

Expiration Date

/

Mail your order form to:

**LifeExtension**  
NATIONAL DIAGNOSTICS, INC.

3600 West Commercial Boulevard  
Fort Lauderdale, FL 33309

Phone your order to: 1-800-208-3444

Fax your order to: 1-866-728-1050

# Products

## AMINO ACIDS

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

## BONE & JOINT HEALTH

ArthroMax™ with Theaflavins and AprèsFlex™  
ArthroMax™ Advanced with UC-II® and  
AprèsFlex™  
Bone-Up™  
Bone Restore™  
Bone Strength Formula w/KoAct™  
Chondroitin Sulfate  
Chondrox  
Fast Acting Joint Formula  
Glucosamine Chondroitin Capsules

## BRAIN HEALTH

Acetyl-L-Carnitine  
Acetyl-L-Carnitine-Arginate  
CDP Choline Capsules  
Cognitex® with NeuroProtection Complex  
Cognitex® with Pregnenolone &  
NeuroProtection Complex  
Cognitex® Basics  
DMAE  
Ginkgo Biloba Certified Extract™  
Huperzine A  
Lecithin with B5 and BHA  
Lecithin Granules  
Methylcobalamin Lozenges  
Neuro-Mag™ Magnesium L-Threonate  
Optimized Ashwagandha Extract  
Phosphatidylserine Capsules  
Rhodiola Extract  
Super Ginkgo Extract  
Vinpocetine

## DIGESTIVE

Bromelain Powder  
Carnosoothe w/PicroProtect  
Daily Ginger®  
Digest RC™  
Enhanced Super Digestive Enzymes  
Florastor  
Intact Digest  
Life Flora™  
Natural EsophaGuard  
Pancreatin  
Primal Defense™  
Probiotic All-Flora®  
Probiotic Anti-Aging  
Probiotic Cleanse™  
Probiotic Colon™  
Regimint  
Theralac Probiotics

## DURK AND SANDY PRODUCTS

Blast™  
Dual-C  
Inner Power™  
Memory Upgrade™

## EYE CARE

Bilberry Extract  
Blackcurrant Freeze Dried Extract  
Brite Eyes III  
Eye Pressure Support with Mirtogenol®  
Overcast Polarized Sunglasses

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

## FIBER

Apple Pectin Powder  
Fiber Food  
Hi-Lignan® Nutri-Flax®  
WellBetX PGX® Soluble Fiber Blend

## FOOD

Asian Cruciferous Vegetable Soup  
Cruciferous Vegetable Soup  
Rich Rewards Coffee

## HAIR CARE

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

## HEART HEALTH

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

## HERBAL/PHYTO PRODUCTS

Artichoke Leaf Extract  
Astaxanthin  
Berry Complete  
Blueberry Extract  
Blueberry Extract w/Pomegranate  
Butterbur Extract w/Standardized  
Rosmarinic Acid  
Calcium D-Glucarate  
Cilantro Herbal Extract  
Citrus Bioflavonoid  
Enhanced Berry Complete with RZD™ Acai  
Floradix® Iron & Herbs  
Floravital® Iron & Herbs  
Full-Spectrum Pomegranate™  
Grapeseed Extract with Resveratrol &  
Pterostilbene  
Huperzine A with Natural Vitamin E  
Kyolic® Garlic Formula 105  
Kyolic® Reserve  
Mega Green Tea Extract  
Mega Green Tea Extract (Decaffeinated)  
(also w/CoffeeGenic Green Coffee extract)  
Mega Lycopene Extract  
Nutrim  
Optimized Ashwagandha Extract  
Optimized Garlic  
Pomegranate Extract  
Pomegranate Juice Concentrate  
ProGreens®  
Pure-Gar™  
Pycnogenol  
Optimized Quercetin  
Resveratrol with Synergistic Grape-Berry Actives  
Rhodiola Extract  
Rosmarinic Acid Extract  
Silymarin  
SODzyme™ with GliSODin®  
Stevia Extract

Super Bio-Curcumin®  
Super Ginkgo Extract  
Triple Action Cruciferous Vegetable Extract  
Venotone  
Whole Grape Extract

## HORMONES

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

## IMMUNE ENHANCEMENT

Agave Digestive-Immune Support  
AHCC® (Active Hexose Correlated Compound)  
Aloe Vera Force™  
Buffered Vitamin C Powder  
Echinacea  
Enhanced Life Extension Whey Protein  
i26 Hyperimmune Egg  
Immune Protect with PARACTIN®  
Lactoferrin  
Lifeshield® Immunity™  
Maitake SX-Fraction  
Norwegian Shark Liver Oil  
Optimized Fucoidan w/Maritech® 926  
Primal Defense™  
ProBoost™ Thymic Protein A  
Pure Gar™  
Sambu® Guard  
Supercritical Oreganoforce™  
Thymic Immune Factors  
Ultimate Flora Advanced Immunity  
Vitamin C with Dihydroquercetin  
Zinc Lozenges with Vitamin C

## INFLAMMATORY REACTIONS

Arthro-Immune Joint Support  
ArthroMax™ with Theaflavins  
Boswella  
Boswella™ Topical Cream  
Bromelain (Specially-coated)  
DHA 240  
Emulsified Norwegian Cod Liver Oil  
Emulsified Super Twin EPA/DHA  
Fast Acting Joint Formula  
Ginger Force  
Krill Oil  
5-LOX Inhibitor w/AprèsFlex™  
Mega EPA/DHA  
Mega GLA with Sesame Lignans  
MSM  
Natural Relief 1222™ Cream  
Omega-3 Chewables  
Serraflazyme  
SODzyme™ with GliSODin® and Wolfberry  
Super Omega-3 EPA/DHA with Sesame  
Lignans & Olive Fruit Extract  
Tart Cherry  
Udo's Choice Oil  
Zyflamend Easy

## LIVER HEALTH

Branch Chain Amino Acids  
N-Acetyl Cysteine  
Liver Force  
Liver Efficiency Formula  
Certified European Milk Thistle  
Hepatopro  
SAME  
Silymarin

## MINERALS

Biosil  
Bone Restore  
Bone Strength Formula w/KoAct®  
Bone-Up™  
Boron Capsules  
Calcium Citrate with D3  
Chromium Ultra  
Copper  
Dr. Strum's Intensive Bone Formula  
Floradix® Iron & Herbs

Floravital® Iron & Herbs  
Iodoral  
Iron Protein Plus  
Magnesium  
Magnesium Citrate  
Mineral Formula for Men  
Mineral Formula for Women  
Only Trace Minerals  
Optimized Chromium w/Crominex® 3+  
OptiZinc  
Sea-Iodine™  
Selenium  
Se-Methyl L-Selenocysteine  
Strontium  
Vanadyl Sulfate  
Zinc/Vitamin C Lozenges

## MISCELLANEOUS

Blender  
Blood Pressure Monitor Arm Cuff Medium  
Cell Sensor Gauss Meter™  
CR Way Edition Advanced Dietary Software  
Empty Gelatin Capsules  
LifeShield® Breathe™  
The Capsule Filler Machine

## MITOCHONDRIAL SUPPORT

Acetyl-L-Carnitine  
Acetyl-L-Carnitine-Arginate  
Mitochondrial Basics w/BioPQQ™  
Mitochondrial Energy Optimizer w/BioPQQ™  
Optimized Carnitine with GlycoCarn®  
Super Absorbable CoQ10™ with d-Limonene  
Super Alpha Lipoic Acid with Biotin  
Super R-Lipoic Acid  
Super Ubiquinol CoQ10 with Enhanced Mitochondrial™ Support

## MOOD RELIEF

Bioactive Milk Peptides  
Holy Basil  
LifeShield® Cordyceps  
L-Theanine  
5 HTP  
Enhanced Natural Sleep® w/ Melatonin  
Enhanced Natural Sleep® w/o Melatonin  
Natural Stress Relief  
Optimized TryptoPure™ Plus  
Stabilium® 200  
SAME  
St. John's Wort Extract  
Tryptopure™ L-Tryptophan

## MOUTH CARE

Advanced Oral Hygiene  
Mist Oral III™ with CoQ10  
Mouthwash w/Pomegranate  
Toothpaste

## MULTIVITAMIN

Children's Formula Life Extension Mix  
Comprehensive Nutrient Pack  
Life Extension Booster  
Life Extension Mix™ Capsules  
Life Extension Mix™ Powder  
Life Extension Mix™ Tablets  
Life Extension Mix™ w/o Copper Capsules  
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 One-Per-Day  
Life Extension Two-Per-Day  
Super Booster Softgels w/Advanced K2 Complex  
Vital Greens Mix

## PET CARE

Cat Mix  
Dog Mix

## PROSTATE & URINARY HEALTH

BetterWOMAN®  
Optimized Cran-Max® with UTIRose™  
5-LOXIN®  
(Water-Soluble) Pumpkin Seed Extract  
Super Saw Palmetto with Beta-Sitosterol  
Super Saw Palmetto/Nettle Root Formula w/Beta-Sitosterol  
Ultra Natural Prostate Formula

## SKIN CARE

Advanced Under Eye Serum with Stem Cells  
Amber Self MicroDermabrasion  
Anti-Aging Mask  
Anti-Glycation Serum  
Antioxidant Rejuvenating Foot Cream  
Antioxidant Rejuvenating Foot Scrub  
Antioxidant Rejuvenating Hand Cream  
Antioxidant Rejuvenating Hand Scrub  
Anti-Redness & Blemish Lotion  
Cellulite Suppress™ Formula  
Corrective Clearing Mask  
DermaWhey  
DNA Repair Cream  
Dual-Action MicroDerm Abrasion  
Elastin Collagen Body Firming Lotion  
Essential Plant Lipids Reparative Serum  
Face Master® Platinum  
Face Rejuvenating Antioxidant Cream  
Enhanced FernBlock® with Sendara™  
Fine Line-Less  
Hair Suppress Formula  
Healing Formula All-in-One Cream  
Healing Mask  
Hyaluronic Facial Moisturizer  
Hydrating Anti-oxidant Face Mist  
Hydroderm®  
Lavilin Underarm Deodorant  
Lifting & Tightening Complex  
LifeShield® Reishi  
Melatonin Cream  
Mild Facial Cleanser  
NaPCA w/Aloe Vera  
Neck Rejuvenating Antioxidant Cream  
New Face Solution  
Peel Off Cleansing Mask  
Pigment Correcting Cream  
(Ultra) Rejuvenex®  
Rejuvenex® Body Lotion  
RejuvenexX® Factor  
Rejuvenating Serum  
Resveratrol Anti-Oxidant Serum  
Skin Lightening Serum  
Skin Restoring Ceramides w/Lipowheat™  
Skin Stem Cell Serum  
Supercritical Omega 7™  
Sun Protection Spray  
Total Sun Protection Cream  
Ultra Rejuvenex®  
Ultra RejuveNight® w/ Progesterone  
Ultra RejuveNight® w/o Progesterone  
Ultra Lip Plumper  
Ultra Wrinkle Relaxer  
Under Eye Refining Serum  
Under Eye Rescue Cream  
Vitamin C Serum  
Vitamin D Lotion  
Vitamin K Healing Cream

## SOY

Natural Estrogen w/Pomegranate  
Soy Protein Concentrate  
Super Absorbable Soy Isoflavones  
Ultra Soy Extract

## SPECIAL PURPOSE FORMULA

Anti-Alcohol Antioxidants w/HepatoProtection Complex  
Benfotiamine w/Thiamine  
Breast Health Formula  
Butterbur Extract w/Standardized Rosmarinic Acid  
Chlorella  
Chlorophyllin w/Zinc  
Cleanse Smart  
Green Coffee Extract CoffeeGenic™ (also w/Glucose control)  
Coriolus Super Strength  
CR Mimetic Longevity Formula  
Cinsulin® w/InSea2™ and Crominex® 3+  
EDTA  
European Leg Solution Diosmin 95  
Fem Dophilus  
Femmenessence MacaPause®  
Flush & Be Fit  
GlucoFit™  
Ideal Bowel Support 299

Maitake SX-Fraction™  
Migra-eeze™  
Natural Female Support  
Organic Total Body Cleanse  
Pecta-Sol®  
Potassium Iodide  
PQQ Caps with BioPQQ™  
PteroPure™  
Prelox® Natural Sex for Men®  
Pyridoxal 5' - Phosphate  
Rosmarinic Acid Extract  
Ultra Prostate w/AprèsFlex™ Standardized Lignans

## SPORTS PERFORMANCE

Creatine Capsules  
Creatine Powder  
Enhanced Life Extension Protein  
DMG (N, N-dimethylglycine)  
Inosine  
L-Glutamine Capsules  
L-Glutamine Powder

## VITAMINS

Ascorbic Acid Powder  
Ascorbyl Palmitate Capsules  
B1  
B2  
B12  
Beta-Carotene  
Biotin Capsules  
Biotin Powder  
Buffered Vitamin C Powder  
Complete B Complex  
Folic Acid + B12  
Gamma E Tocopherol w/Sesame Lignans  
Gamma E Tocopherol/Tocotrienols  
Inositol Capsules  
Inositol Powder  
Mega Lycopene Extract  
Methylcobalamin  
MK-7  
No-Flush Niacin  
Optimized Folate  
PABA Capsules  
Super Ascorbate C Capsules  
Super Ascorbate C Powder  
Super K w/Advanced K2 Complex  
Supercritical Omega 7™  
Tocotrienols w/Sesame Lignans  
Vitamin A Nutrisorb  
Vitamin B3 (Niacin) Capsules  
Vitamin B6  
Vitamin B12 Tablets  
Vitamin C  
Vitamin D  
Vitamin D3  
Vitamin D3 w/Sea-Iodine™  
Vitamins D and K w/Sea-Iodine™  
Vitamin E  
Vitamin K1

## WEIGHT MANAGEMENT

Alli® Refill Pack  
Advanced Anti-Adipocyte Formula w/AdipoStat & Integra Lean®  
Anti-Adipocyte Formula w/AdipoStat  
Calorie Control Weight Management Formula w/CoffeeGenic™  
7-Keto DHEA  
DHEA Complete  
Fucoxanthin Slim™  
HCA  
Integra-Lean® Irvingia  
LuraLean® Caps Special Propolmannan Particle Size  
Optimized Irvingia w/Phase 3™ Calorie Control Complex  
Optimized Saffron with Satiereal®  
Natural Appetite Control  
Natural Glucose Absorption Control  
Stevia Liquid Extract  
Super CLA Blend w/Guarana and Sesame Lignans  
Super CLA Blend w/Sesame Lignans  
Udo's Choice Wholesome Fast Food Blend  
WellBetX PGX® Soluble Fiber Blend

# Buyers Club Order Form

**SUPER SALE SAVINGS ON ALL PRODUCTS**  
**To order call: 1-954-766-8433 or 1-800-544-4440**

No.		Retail Each	Member Each	Qty	Total
<b>A</b>					
00449	<b>ACETYL-L-CARNITINE</b> - 500 mg, 100 caps	\$56.00	\$42.00		
	Buy 4 bottles, price each	46.66	35.00		
00788	<b>ACETYL-L-CARNITINE ARGINATE</b> - 100 caps	59.00	44.25		
	Buy 4 bottles, price each	50.99	38.24		
01308	<b>ADVANCED LIPID CONTROL</b> - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01300	<b>ADVANCED ORAL HYGIENE</b> - 60 veg. mint lozenges	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00681	<b>AHCC</b> - 500 mg, 30 caps	59.98	44.99		
	Buy 4 bottles, price each	53.33	40.00		
*46925	<b>ALLI® REFILL PACK</b> - 120 caps	69.95	58.00		
01375	<b>ALOE VERA FORCE™</b> - 60 veg. caps	31.95	23.96		
00457	<b>ALPHA-LIPOIC ACID w/BIOTIN (SUPER)</b> - 250 mg, 60 caps	37.00	27.75		
	Buy 4 bottles, price each	32.00	24.00		
01440	<b>ANTI-ALCOHOL ANTIOXIDANTS w/HEPATOPRO</b> - 100 caps	26.00	19.50		
	Buy 4 bottles, price each	23.00	17.25		
#01510	<b>ANTI-ADIPOCYTE FORMULA w/ADIPOSTAT</b> - 60 veg. caps	35.00	26.25		
	Buy 4 bottles, price each	32.00	24.00		
#01509	<b>ANTI-ADIPOCYTE FORMULA w/ADIPOSTAT &amp; INTEGRA LEAN® (ADVANCED)</b> - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
00105	<b>APPLE PECTIN POWDER</b> - 227 grams	14.75	11.06		
	Buy 4 bottles, price each	13.75	10.31		
01012	<b>ARGININE CAPS</b> - 800 mg, 200 caps	26.50	19.88		
	Buy 4 bottles, price each	23.25	17.44		
01039	<b>ARGININE/ORNITHINE</b> - 500/250, 100 caps	16.00	12.00		
	Buy 4 bottles, price each	14.50	10.88		
00038	<b>ARGININE/ORNITHINE POWDER</b> - 150 grams	22.95	17.21		
	Buy 4 bottles, price each	19.00	14.25		
01025	<b>(L)-ARGININE FREE-FORM POWDER</b> - 100 grams	15.98	11.99		
	Buy 4 bottles, price each	14.31	10.73		
^^^01617	<b>ARTHROMAX™ w/THEAFLAVINS &amp; APRÈSFLEX™</b> - 120 veg. caps	44.00	33.00		
	Buy 4 bottles, price each	40.00	30.00		
^^^01618	<b>ARTHROMAX™ ADVANCED w/UC-II® &amp; APRÈSFLEX™</b> - 60 caps	36.00	27.00		
##	Buy 4 bottles, price each	32.00	24.00		
01404	<b>ARTHRO-IMMUNE JOINT SUPPORT</b> - 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
00919	<b>ARTICHOKE LEAF EXTRACT</b> - 500 mg, 180 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.38	19.04		
00080	<b>ASCORBIC ACID POWDER</b> - 454 grams	38.00	28.50		
	Buy 4 bottles, price each	34.93	26.20		
00082	<b>ASCORBYL PALMITATE</b> - 500 mg, 100 caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
00888	<b>ASHWAGANDHA EXTRACT (OPTIMIZED)</b> - 60 veg. caps	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		

**SUB-TOTAL OF COLUMN 1**

No.		Retail Each	Member Each	Qty	Total
01066	<b>ASPIRIN</b> - 81 mg, 300 enteric coated tablets	\$6.00	\$4.50		
	Buy 4 bottles, price each	5.33	4.00		
00708	<b>ASTAXANTHIN</b> - 2 mg, 30 softgels	10.25	7.69		
<b>B</b>					
00920	<b>BENFOTIAMINE w/ THIAMINE</b> - 100 mg, 120 veg. caps	\$19.95	\$14.96		
	Buy 4 bottles, price each	18.60	13.95		
00925	<b>BENFOTIAMINE (MEGA)</b> - 250 mg, 120 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01206	<b>BERRY COMPLETE</b> - 30 veg. caps	21.00	15.75		
	Buy 4 bottles, price each	18.67	14.00		
01406	<b>BERRY COMPLETE w/RZD™ ACAI (ENHANCED)</b> - 60 veg. caps	29.00	21.75		
	Buy 4 bottles, price each	26.00	19.50		
00664	<b>BETA-CAROTENE</b> - 25,000 IU, 100 softgels	10.98	8.24		
	Buy 4 bottles, price each	9.83	7.37		
00653	<b>BETTERWOMAN®</b> -40 caps	40.00	30.00		
	Buy 4 bottles, price each	38.00	28.50		
01073	<b>BILBERRY EXTRACT</b> - 100 mg, 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01512	<b>BIOACTIVE MILK PEPTIDES</b> - 30 caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
*01006	<b>BIOSIL™</b> - 5 mg, 30 veg. caps	18.95	15.16		
*01007	<b>BIOSIL™</b> - 1 fl oz	29.99	23.99		
00102	<b>BIOTIN</b> - 600 mcg, 100 caps	7.50	5.63		
	Buy 4 bottles, price each	6.50	4.88		
00145	<b>BIOTIN POWDER</b> - 30 grams	12.50	9.38		
	Buy 4 bottles, price each	11.00	8.25		
01008	<b>BLAST™</b> - 600 grams of powder	26.95	20.21		
51526	<b>BLENDER</b> - 28 oz bottle	8.99	6.74		
70000	<b>BLOOD PRESSURE MONITOR-ARM CUFF</b> (medium)	99.95	64.97		
70001	<b>BLOOD PRESSURE MONITOR-WRIST</b> (travel size)	69.95	45.47		
01214	<b>BLUEBERRY EXTRACT</b> - 60 veg. caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
01438	<b>BLUEBERRY EXTRACT w/ POMEGRANATE</b> - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01506	<b>BONE FORMULA (DR. STRUM'S INTENSIVE)</b> - 300 veg. caps	56.00	42.00		
	Buy 4 bottles, price each	50.00	37.50		
01611	<b>BONE RESTORE</b> - 150 caps	22.50	16.88		
	Buy 4 bottles, price each	19.50	14.63		
01211	<b>BONE STRENGTH FORMULA w/KOACT®</b> - 120 caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
00313	<b>BONE-UP®</b> - 240 caps	24.95	18.71		
	Buy 4 bottles, price each	22.50	16.88		
01379	<b>BOOSTER</b> - 60 softgels	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01590	<b>BOOSTER w/ADVANCED K2 COMPLEX (SUPER)</b> - 60 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
00621	<b>BORON</b> - 3 mg, 100 caps	5.95	4.46		
	Buy 4 bottles, price each	5.25	3.94		
00202	<b>BOSWELLA</b> - 100 caps	38.00	28.50		
	Buy 4 bottles, price each	30.00	22.50		
00258	<b>BOSWELLA TOPICAL CREAM</b> - 4 oz	15.00	11.25		
	Buy 4 jars, price each	13.00	9.75		

**SUB-TOTAL OF COLUMN 2**

**OFFER ENDS JANUARY 31, 2012**  
**To order online visit [www.LifeExtension.com/SuperSale](http://www.LifeExtension.com/SuperSale)**

# Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01253	<b>BRANCHED CHAIN AMINO ACIDS</b> - 90 veg. caps Buy 4 bottles, price each	\$19.50 17.00	\$14.63 12.75		
00999	<b>BREAST HEALTH FORMULA</b> - 60 veg. caps Buy 4 bottles, price each	34.00 30.00	25.50 22.50		
00893	<b>BRITE EYES III</b> - 2 vials, 5 ml each Buy 4 boxes, price each	34.00 32.00	25.50 24.00		
00136	<b>BROMELAIN POWDER</b> - 100 grams Buy 4 bottles, price each	21.00 18.75	15.75 14.06		
01203	<b>BROMELAIN (SPECIALLY-COATED)</b> - 500 mg, 60 enteric coated tablets Buy 4 bottles, price each	21.00 19.00	15.75 14.25		
00884	<b>BUTTERBUR EXT. w/STANDARDIZED ROSMARINIC ACID</b> - 60 softgels Buy 4 bottles, price each	44.00 39.60	33.00 29.70		
<b>C</b>					
01015	<b>CALCIUM CITRATE w/VITAMIN D</b> - 300 caps Buy 4 bottles, price each	\$24.00 21.25	\$18.00 15.94		
00535	<b>CALCIUM D-GLUCARATE</b> - 200 mg, 60 caps Buy 4 bottles, price each	18.00 15.00	13.50 11.25		
01693	<b>CALORIE CONTROL WEIGHT MANAGEMENT FORMULA w/COFFEEGENIC™ GREEN COFFEE EXTRACT BLUEBERRY FLAVOR</b> - 414 grams powder Buy 4 jars, price each Buy 8 jars, price each	60.00 54.00 50.00	45.00 40.50 37.50		
01694	<b>CALORIE CONTROL WEIGHT MANAGEMENT FORMULA w/COFFEEGENIC™ GREEN COFFEE EXTRACT BLUEBERRY FLAVOR</b> - 60 individual packs Buy 4 boxes, price each Buy 8 boxes, price each	64.00 60.00 56.00	48.00 45.00 42.00		
00118	<b>CAPSULE FILLER MACHINE FOR "00" CAPSULES</b> Buy 4 machines, price each	17.95 17.25	13.46 12.94		
00613	<b>CAPSULE FILLER MACHINE FOR "0" CAPSULES</b> Buy 4 machines, price each	17.95 17.25	13.46 12.94		
00916	<b>CARNITINE w/GLYCOCARN® (OPTIMIZED)</b> - 60 veg. caps Buy 4 bottles, price each	29.00 26.10	21.75 19.58		
01041	<b>L-CARNITINE</b> - 500 mg, 30 caps Buy 4 bottles, price each	15.00 13.20	11.25 9.90		
01258	<b>CARNOSOOTHE w/PICROPROTECT™</b> - 60 veg. caps Buy 4 bottles, price each	29.95 27.00	22.46 20.25		
01287	<b>CARNOSINE (SUPER)</b> - 500 mg, 90 caps Buy 4 bottles, price each	66.00 60.00	49.50 45.00		
01003	<b>CAT MIX</b> - 100 grams powder Buy 4 bottles, price each	15.00 12.00	11.25 9.00		
00390	<b>CDP CHOLINE CAPS</b> - 250 mg, 60 caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		
00998	<b>CELL SENSOR-EMF DETECTION METER</b>	39.95	29.95		
01370	<b>CHILDREN'S FORMULA LIFE EXTENSION MIX™</b> - 100 chewable tablets Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00550	<b>CHLORELLA</b> - 500 mg, 200 tablets Buy 4 bottles, price each	23.50 21.00	17.63 15.75		
01549	<b>CHLOROPHYLLIN w/ZINC</b> - 100 veg. caps Buy 4 bottles, price each	24.00 20.00	18.00 15.00		
*01359	<b>CHO-LESS™</b> - 90 capsules	32.50	24.38		
00541	<b>CHOLINE CHLORIDE</b> - 16 oz liquid Buy 4 bottles, price each	14.95 14.00	11.21 10.50		
00364	<b>CHONDROITIN SULFATE CONCENTRATE</b> - 400 mg, 60 tablets Buy 4 bottles, price each	19.95 18.00	14.96 13.50		
01477	<b>CHROMIUM ULTRA</b> - 100 veg. caps Buy 4 bottles, price each	24.00 21.00	18.00 15.75		

**SUB-TOTAL OF COLUMN 3**

No.		Retail Each	Member Each	Qty	Total
01504	<b>CHROMIUM W/CROMINEX® 3+ (OPTIMIZED)</b> - 500 mcg, 60 veg. caps Buy 4 bottles, price each	\$9.00 8.00	\$6.75 6.00		
00551	<b>CILANTRO HERBAL EXTRACT</b> - 1 oz Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
01503	<b>CINSULIN® W/INSEA2™ AND CROMINEX® 3+</b> - 90 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
00069	<b>CITRUS BIOFLAVONOID</b> - 100 caps Buy 4 bottles, price each	16.79 15.56	12.59 11.67		
00818	<b>CLA BLEND W/SESAME LIGNANS (SUPER)</b> - 1000 mg, 120 softgels Buy 4 bottles, price each Buy 10 bottles, price each	36.00 33.00 26.33	27.00 24.75 19.75		
00819	<b>CLA BLEND w/GUARANA &amp; SESAME (SUPER)</b> -1000 mg, 120 softgels Buy 4 bottles, price each	42.00 38.33	31.50 28.75		
01078	<b>CLEANSE SMART</b> - 60 caps	31.99	23.99		
00050	<b>COD LIVER OIL (EMULSIFIED)</b> - 12 fl oz (355 ml) Buy 4 bottles, price each	14.58 12.27	10.94 9.20		
00293	<b>COD LIVER OIL (EMULSIFIED)</b> - 100 softgels (Emulsified) Buy 4 bottles, price each	10.97 10.34	8.23 7.76		
00922	<b>COGNITEX® w/PREGNENOLONE &amp; NEUROPROTECTION COMPLEX</b> - 90 softgels Buy 4 bottles, price each Buy 12 bottles, price each	74.00 66.60 64.00	55.50 49.95 48.00		
00921	<b>COGNITEX® w/o PREGNENOLONE w/NEUROPROTECTION COMPLEX</b> - 90 softgels Buy 4 bottles, price each Buy 12 bottles, price each	72.00 64.00 62.00	54.00 48.00 46.50		
01421	<b>COGNITEX® BASICS</b> - 60 softgels Buy 4 bottles, price each Buy 12 bottles, price each	38.00 35.00 32.00	28.50 26.25 24.00		
00110	<b>COMPLETE B-COMPLEX</b> - 180 caps Buy 4 bottles, price each	21.50 18.00	16.13 13.50		
01575	<b>COMPREHENSIVE NUTRIENT PACK</b> - 30-day supply Buy 4 bottles, price each	189.00 171.00	141.75 128.25		
00119	<b>COPPER CAPSULES</b> - 2 mg, 100 caps Buy 4 bottles, price each	9.91 8.96	7.43 6.72		
00949	<b>COQ10™ w/ #LIMONENE (SUPER ABSORBABLE)</b> - 50 mg, 60 softgels Buy 4 bottles, price each Buy 10 bottles, price each	25.00 22.00 20.00	18.75 16.50 15.00		
00950	<b>COQ10™ w/ #LIMONENE (SUPER ABSORBABLE)</b> - 100 mg, 100 softgels Buy 4 bottles, price each Buy 10 bottles, price each	66.00 60.00 56.00	49.50 45.00 42.00		
01226	<b>COQ10 (SUPER UBIQUINOL)</b> - 100 mg, 60 softgels Buy 4 bottles, price each Buy 10 bottles, price each	56.00 52.00 48.00	42.00 39.00 36.00		
01426	<b>COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)</b> -100 mg, 60 softgels Buy 4 bottles, price each Buy 10 bottles, price each	62.00 56.00 52.00	46.50 42.00 39.00		
01425	<b>COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)</b> -50 mg, 100 softgels Buy 4 bottles, price each Buy 10 bottles, price each	58.00 53.00 50.00	43.50 39.75 37.50		
01427	<b>COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)</b> -50 mg, 30 softgels Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01431	<b>COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)</b> -200 mg, 30 softgels Buy 4 bottles, price each Buy 10 bottles, price each	62.00 56.00 52.00	46.50 42.00 39.00		

**SUB-TOTAL OF COLUMN 4**

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

JANUARY 2012

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

# Buyers Club Order Form

**SUPER SALE SAVINGS ON ALL PRODUCTS**  
**To order call: 1-954-766-8433 or 1-800-544-4440**

No.		Retail Each	Member Each	Qty	Total
<b>C CONTINUED</b>					
*01053	<b>CORLIUS SUPER STRENGTH</b> - 600 mg, 150 veg. caps	\$99.95	\$74.96		
80140	<b>COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS</b> - 33 oz Buy 2 bottles, price each	49.00 42.00	36.75 31.50		
80139	<b>COSMESIS AMBER SELF MICRODERMABRASION</b> - 2 oz Buy 2 jars, price each	49.00 42.00	36.75 31.50		
80118	<b>COSMESIS ANTI-AGING MASK</b> - 2 oz Buy 2 bottles, price each	72.00 63.36	54.00 47.52		
80134	<b>COSMESIS ANTI-GLYCATION SERUM</b> - 1 oz <b>W/BLEUBERRY &amp; POMEGRANATE EXTRACTS</b> Buy 2 bottles, price each	33.00 31.35	24.75 23.51		
80133	<b>COSMESIS ANTIOXIDANT FACIAL MIST</b> - 2 oz Buy 2 bottles, price each	32.00 30.40	24.00 22.80		
80127	<b>COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM</b> - 2 oz Buy 2 jars, price each	45.00 42.80	33.75 32.10		
80128	<b>COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB</b> - 2 oz Buy 2 jars, price each	59.00 51.92	44.25 38.94		
80117	<b>COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM</b> - 2 oz Buy 2 jars, price each	64.00 57.49	48.00 43.12		
80121	<b>COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB</b> - 2 oz Buy 2 jars, price each	58.00 51.04	43.50 38.28		
80105	<b>COSMESIS ANTI-REDNESS &amp; BLEMISH LOTION</b> - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80120	<b>COSMESIS CORRECTIVE CLEARING MASK</b> - 2 oz Buy 2 jars, price each	64.50 56.76	48.38 42.57		
80141	<b>COSMESIS DNA REPAIR CREAM</b> - 1 oz jar Buy 2 jars, price each	49.00 42.00	36.75 31.50		
80108	<b>COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM</b> - 1 oz Buy 2 bottles, price each	74.95 65.95	56.21 49.46		
80123	<b>COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM</b> - 2 oz Buy 2 jars, price each	69.50 61.16	52.13 45.87		
80107	<b>COSMESIS FINE LINE-LESS</b> - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80131	<b>COSMESIS HAIR SUPPRESS FORMULA</b> - 4 oz Buy 2 bottles, price each	59.00 51.92	44.25 38.94		
80137	<b>COSMESIS HEALING FORMULA ALL-IN-ONE CREAM</b> - 1 oz Buy 2 jars, price each	53.00 45.43	39.75 34.07		
80115	<b>COSMESIS HEALING MASK</b> - 2 oz Buy 2 bottles, price each	64.50 56.76	48.38 42.57		
80109	<b>COSMESIS HYALURONIC FACIAL MOISTURIZER</b> - 1 oz Buy 2 bottles, price each	58.00 51.04	43.50 38.28		
80110	<b>COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER</b> - 1 oz Buy 2 bottles, price each	58.00 51.04	43.50 38.28		
80138	<b>COSMESIS HYDRATING ANTI-OXIDANT FACE MIST</b> - 4 oz Buy 2 bottles, price each	39.95 38.00	29.96 28.50		
80103	<b>COSMESIS LIFTING &amp; TIGHTENING COMPLEX</b> - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80135	<b>COSMESIS MELATONIN CREAM</b> - 1 oz Buy 2 jars, price each	33.00 27.10	24.75 20.33		
80114	<b>COSMESIS MILD FACIAL CLEANSER</b> - 8 oz Buy 2 bottles, price each	59.00 51.92	44.25 38.94		
80122	<b>COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM</b> - 2 oz Buy 2 jars, price each	64.00 56.32	48.00 42.24		
80111	<b>COSMESIS PIGMENT CORRECTING CREAM</b> - 1/2 oz Buy 2 bottles, price each	74.00 65.12	55.50 48.84		

**SUB-TOTAL OF COLUMN 5**

No.		Retail Each	Member Each	Qty	Total
80106	<b>COSMESIS REJUVENATING SERUM</b> - 1 oz Buy 2 bottles, price each	\$74.50 65.56	\$55.88 49.17		
80142	<b>COSMESIS RESVERATROL ANTI-OXIDANT SERUM</b> - 1 oz Buy 2 bottles, price each	46.00 39.00	34.50 29.25		
80112	<b>COSMESIS SKIN LIGHTENING SERUM</b> - 1/2 oz Buy 2 bottles, price each	85.00 74.80	63.75 56.10		
80130	<b>COSMESIS SKIN STEM CELL SERUM</b> - 1 oz Buy 2 bottles, price each	74.00 69.00	55.50 51.75		
80116	<b>COSMESIS ULTRA LIP PLUMPER</b> - 1/3 oz Buy 2 bottles, price each	64.00 56.32	48.00 42.24		
80101	<b>COSMESIS ULTRA WRINKLE RELAXER</b> - 1 oz Buy 2 bottles, price each	89.95 79.76	67.46 59.82		
80113	<b>COSMESIS UNDER EYE REFINING SERUM</b> - 1/2 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80104	<b>COSMESIS UNDER EYE RESCUE CREAM</b> - 1/2 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80129	<b>COSMESIS VITAMIN C SERUM</b> - 1 oz Buy 2 bottles, price each	85.00 74.80	63.75 56.10		
80136	<b>COSMESIS VITAMIN D LOTION</b> - 4 oz Buy 2 bottles, price each	36.00 33.66	27.00 25.25		
80102	<b>COSMESIS VITAMIN K HEALING CREAM</b> - 1 oz Buy 2 bottles, price each	79.50 69.96	59.63 52.47		
00862	<b>CRAN-MAX®</b> - 500 mg, 60 veg. caps Buy 4 bottles, price each	17.50 15.00	13.13 11.25		
01424	<b>CRAN-MAX® with UTIROS® (OPTIMIZED)</b> - 60 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00609	<b>CREATINE CAPSULES</b> - 120 caps Buy 4 bottles, price each	10.95 9.25	8.21 6.94		
00610	<b>CREATINE POWDER</b> - 500 grams Buy 4 bottles, price each	29.00 26.63	21.75 19.97		
01096	<b>CREATINE WHEY GLUTAMINE POWDER</b> - 1000 grams (vanilla) Buy 4 bottles, price each	45.00 42.00	33.75 31.50		
~01519	<b>CRUCIFEROUS VEGETABLE SOUP</b> - 32 oz. pouch Buy 6 pouches, price each	11.95 11.25	8.96 8.44		
~01520	<b>(ASIAN) CRUCIFEROUS VEGETABLE SOUP</b> - 32 oz. pouch Buy 6 pouches, price each	11.95 11.25	8.96 8.44		
01429	<b>CR MIMETIC LONGEVITY FORMULA</b> - 60 veg. caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
***CRWAY	<b>CR WAY OPTIMAL HEALTH PROGRAM SOFTWARE</b>	195.00	195.00		
00407	<b>CURCUMIN® (SUPER BIO)</b> - 400 mg, 60 veg. caps Buy 4 bottles, price each	38.00 35.00	28.50 26.25		
<b>D</b>					
01376	<b>DAILY GINGER®</b> - 90 veg. caps	\$21.95	\$16.46		
01313	<b>DERMAWHEY-</b> 400 mg, 60 caps Buy 4 bottles, price each	65.00 59.00	48.75 44.25		
00995	<b>DHA 240</b> - 240 mg, 60 softgels Buy 4 bottles, price each	19.00 17.00	14.25 12.75		
00658	<b>7-KETO® DHEA METABOLITE</b> - 25 mg, 100 caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01479	<b>7-KETO® DHEA METABOLITE</b> - 100 mg, 60 veg. caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
00607	<b>DHEA</b> - 25 mg, 100 tablets (dissolve in mouth) Buy 4 bottles, price each	14.00 11.75	10.50 8.81		

**SUB-TOTAL OF COLUMN 6**

**OFFER ENDS JANUARY 31, 2012**  
**To order online visit [www.LifeExtension.com/SuperSale](http://www.LifeExtension.com/SuperSale)**

# Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01478	<b>DHEA COMPLETE</b> - 60 veg. caps Buy 4 bottles, price each	\$48.00 43.20	\$36.00 32.40		
00335	<b>DHEA</b> - 25 mg, 100 caps Buy 4 bottles, price each	15.00 12.50	11.25 9.38		
00454	<b>DHEA</b> - 15 mg, 100 caps Buy 4 bottles, price each	12.00 10.00	9.00 7.50		
00882	<b>DHEA</b> - 50 mg, 60 caps Buy 4 bottles, price each	16.00 14.00	12.00 10.50		
00883	<b>DHEA</b> - 100 mg, 60 caps Buy 4 bottles, price each	22.50 19.00	16.88 14.25		
01358	<b>DIGEST RC</b> - 30 tablets Buy 4 boxes, price each	19.95 17.00	14.96 12.75		
01272	<b>DIGESTIVE ENZYMES (ENHANCED SUPER)</b> - 100 veg. caps Buy 4 bottles, price each	18.95 16.00	14.21 12.00		
00034	<b>D,L-PHENYLALANINE CAPSULES</b> - 500 mg, 100 caps Buy 4 bottles, price each	18.75 16.00	14.06 12.00		
00257	<b>DMAE BITARTRATE</b> - 150 mg, 200 caps Buy 4 bottles, price each	14.00 10.50	10.50 7.88		
00059	<b>DMG</b> - 125 mg, 60 tablets Buy 4 boxes, price each	18.50 17.00	13.88 12.75		
01547	<b>DNA PROTECTION FORMULA</b> - 60 veg. caps Buy 4 bottles, price each	30.00 28.00	22.50 21.00		
00544	<b>DOG MIX</b> - 100 grams powder Buy 4 bottles, price each	19.50 16.00	14.63 12.00		
00321	<b>DR. PROCTOR'S ADVANCED HAIR FORMULA</b> - 2 oz Buy 4 bottles, price each	39.95 32.00	29.96 24.00		
00320	<b>DR. PROCTOR'S HAIR FORMULA SHAMPOO</b> - 8 oz Buy 4 bottles, price each	24.95 22.00	18.71 16.50		
00899	<b>DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE</b> - 2.4 oz Buy 4 jars, price each	39.95 38.95	29.96 29.21		
00240	<b>DUAL-C</b> - 90 caps Buy 4 bottles, price each	12.00 10.50	9.00 7.88		
<b>E</b>					
00388	<b>ECHINACEA EXTRACT</b> - 250 mg, 60 caps Buy 4 bottles, price each	\$14.35 12.50	\$10.76 9.38		
01395	<b>EDTA</b> - 500 mg, 60 caps	9.98	7.49		
01321	<b>ELASTIN &amp; COLLAGEN BODY FIRING LOTION</b> - 8 fl. oz.	10.00	7.50		
01498	<b>ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™</b> - 60 softgels Buy 4 bottles, price each	56.00 52.00	42.00 39.00		
00997	<b>ENDOTHELIAL DEFENSE™ w/GLISODIN®</b> - 60 veg. caps Buy 4 bottles, price each	52.00 46.00	39.00 34.50		
00625	<b>EPA/DHA (MEGA)</b> - 120 softgels Buy 4 bottles, price each	19.95 18.00	14.96 13.50		
*01042	<b>EUROPEAN LEG SOLUTION DIOSMIN 95</b> - 600 mg, 30 veg. tabs Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01514	<b>EYE PRESSURE SUPPORT w/MIRTOGENOL®</b> - 30 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
<b>F</b>					
***01054	<b>FACE MASTER® PLATINUM</b>	\$199.00	\$199.00		
00965	<b>FAST-ACTING JOINT FORMULA</b> - 30 caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
20053	<b>FEM DOPHILUS®</b> - 30 caps	25.95	19.46		
20055	<b>FEM DOPHILUS®</b> - 60 caps	39.95	29.96		
01064	<b>FEMMENESENCE MACAPAUSE®</b> - 120 veg. caps	34.99	26.24		
*01311	<b>FERNBLOCK® w/SENDARA™ (ENHANCED)</b> - 30 veg. caps Buy 4 bottles, price each	39.00 35.00	29.25 26.25		

**SUB-TOTAL OF COLUMN 7**

No.		Retail Each	Member Each	Qty	Total
00229	<b>FIBER FOOD CAPS</b> - 200 caps Buy 4 bottles, price each Buy 10 bottles, price each	\$15.00 12.50 11.90	\$11.25 9.38 8.93		
00718	<b>FIBRINOGEN RESIST™</b> - 30 veg. caps Buy 4 bottles, price each	49.00 44.00	36.75 33.00		
00873	<b>FLAXSEED POWDER (HI-LIGNAN® NUTRI-FLAX®)</b> - 16 oz powder	9.95	7.46		
01384	<b>FLORADIX® IRON &amp; HERBS</b> - 17 fl. oz.	43.99	35.19		
01200	<b>FLORASTOR®</b> - 250 mg, 50 caps	55.15	41.36		
01382	<b>FLORAVITAL® IRON &amp; HERBS</b> - 17 fl. oz.	43.99	35.19		
01212	<b>FLUSH + BE FIT</b> - 2- week cleanse for women	29.99	22.49		
01439	<b>FOLATE (OPTIMIZED) (L-METHYL-FOLATE)</b> 1000 mcg - 100 veg. caps Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
00347	<b>FOLIC ACID + B12 CAPSULES</b> - 200 caps Buy 4 bottles, price each	10.50 9.50	7.88 7.13		
00300	<b>FORSKOLIN</b> - 10 mg, 60 caps Buy 4 bottles, price each	15.00 12.50	11.25 9.38		
01513	<b>FUCOIDAN w/MARITECH® 926 (OPTIMIZED)</b> - 60 veg. caps Buy 4 bottles, price each	36.00 33.00	27.00 24.75		
00993	<b>FUCOXANTHIN-SLIM™</b> - 90 softgels Buy 4 bottles, price each	44.00 39.00	33.00 29.25		
<b>G</b>					
00127	<b>GABA POWDER</b> - 100 grams Buy 4 bottles, price each	\$23.75 22.50	\$17.81 16.88		
00559	<b>GAMMA E TOCOPHEROL/TOCOTRIENOLS</b> - 60 softgels Buy 4 bottles, price each	42.00 37.00	31.50 27.75		
00759	<b>GAMMA E TOCOPHEROL W/SESAME LIGNANS</b> - 60 softgels Buy 4 bottles, price each	32.00 29.00	24.00 21.75		
01394	<b>(OPTIMIZED) GARLIC</b> - 200 veg. caps Buy 4 bottles, price each	24.95 21.00	18.71 15.75		
01378	<b>GARLIC FORCE™</b> - 30 softgels	34.95	26.21		
00117	<b>GELATIN CAPSULES</b> - 1000 empty caps size "00" Buy 4 bags, price each	19.00 18.00	14.25 13.50		
01301	<b>GH PITUITARY SUPPORT DAY FORMULA</b> - 120 vegetarian tabs Buy 4 bottles, price each	48.00 44.00	36.00 33.00		
01302	<b>GH PITUITARY SUPPORT NIGHT FORMULA</b> - 120 veg. caps Buy 4 bottles, price each	25.00 22.50	18.75 16.88		
01228	<b>GINGER FORCE</b> - 60 softgels	29.95	22.46		
00778	<b>GINKGO BILOBA CERTIFIED EXTRACT™</b> - 120 mg, 365 caps Buy 2 bottles, price each	46.00 43.50	34.50 32.63		
00504	<b>GINKGO EXTRACT (SUPER)</b> - 120 mg, 100 caps Buy 4 bottles, price each	29.00 26.50	21.75 19.88		
01032	<b>(PANAX RED) GINSENG</b> - 60 veg. caps	29.99	22.49		
00756	<b>GLA WITH SESAME LIGNANS (MEGA)</b> - 60 softgels Buy 4 bottles, price each	19.50 18.00	14.63 13.50		
00345	<b>(L) GLUTAMINE CAPSULES</b> - 500 mg, 100 caps Buy 4 bottles, price each	14.95 13.50	11.21 10.13		
00141	<b>(L)-GLUTAMINE POWDER</b> - 100 grams Buy 4 bottles, price each	19.00 16.88	14.25 12.66		
00522	<b>GLUCOSAMINE/CHONDROITIN CAPSULES</b> - 100 caps Buy 4 bottles, price each	38.00 32.00	28.50 24.00		
00512	<b>GLUCOFIT™</b> - 100 softgels Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
00113	<b>GLUTATHIONE, CYSTEINE &amp; C</b> - 750 mg, 100 caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00314	<b>L-GLUTATHIONE (MEGA)</b> - 250 mg, 60 caps Buy 4 bottles, price each	39.64 35.68	29.73 26.76		

**SUB-TOTAL OF COLUMN 8**

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

JANUARY 2012

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

# Buyers Club Order Form

**SUPER SALE SAVINGS ON ALL PRODUCTS**  
To order call: 1-954-766-8433 or 1-800-544-4440

No.		Retail Each	Member Each	Qty	Total
<b>G CONTINUED</b>					
00795	<b>GLYCINE</b> - 1000 mg, 100 caps Buy 4 bottles, price each	\$12.00 10.80	\$9.00 8.10		
00128	<b>GLYCINE POWDER</b> - 300 grams Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01091	<b>GRAPE EXTRACT w/RESVERATROL (WHOLE)</b> - 60 veg. caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		
01411	<b>GRAPE SEED EXTRACT w/RESVERATROL &amp; PTEROSTILBENE</b> - 100 mg, 60 veg. caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		
01604	<b>GREEN COFFEE EXTRACT COFFEEGENIC™</b> - 200 mg, 90 veg. caps Buy 4 bottles, price each	25.00 22.00	18.75 16.50		
01620	<b>GREEN COFFEE EXTRACT COFFEEGENIC™</b> - 400 mg, 90 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
01607	<b>GREEN COFFEE EXTRACT COFFEEGENIC™</b> - 90 veg. caps <b>w/GLUCOSE CONTROL COMPLEX</b> Buy 4 bottles, price each	58.00 52.00	43.50 39.00		
00953	<b>GREEN TEA EXTRACT (MEGA)</b> - lightly caffeinated - 100 veg. caps Buy 4 bottles, price each	28.00 26.50	21.00 19.88		
00954	<b>GREEN TEA EXTRACT (MEGA)</b> - decaffeinated - 100 veg. caps Buy 4 bottles, price each	28.00 26.50	21.00 19.88		
01606	<b>GREEN TEA w/COFFEEGENIC™ GREEN COFFEE EXTRACT (MEGA)</b> 120 veg. caps, low caffeine Buy 4 bottles, price each	32.00 28.00	24.00 21.00		
01605	<b>GREEN TEA w/COFFEEGENIC™ GREEN COFFEE EXTRACT (MEGA)</b> 120 veg. caps Buy 4 bottles, price each	32.00 28.00	24.00 21.00		
<b>H</b>					
01074	<b>5 HTP</b> - 100 mg, 60 caps	\$27.95	\$20.96		
00010	<b>HAIR CONDITIONER</b> - 16 oz Buy 4 bottles, price each	6.00 4.50	4.50 3.38		
00230	<b>HCA</b> - 90 caps Buy 4 bottles, price each	18.00 15.50	13.50 11.63		
01393	<b>HEPATOPRO</b> - 900 mg, 60 softgels Buy 4 bottles, price each	50.00 46.00	37.50 34.50		
01433	<b>HOLY BASIL</b> - 60 softgel caps	34.95	26.21		
01434	<b>HOLY BASIL</b> - 120 softgel caps	54.95	41.21		
01435	<b>HOMOCYSTEINE RESIST</b> - 100 caps Buy 4 bottles, price each	24.00 21.60	18.00 16.20		
00627	<b>HUPERZINE A w/NATURAL VITAMIN E</b> - 50 mcg, 60 caps Buy 4 bottles, price each	27.95 24.00	20.96 18.00		
00661	<b>HYDRODERM®</b> - 1 oz Buy 2 bottles, price each	79.95 65.33	59.96 49.00		
<b>I</b>					
^ 01060	<b>i26 HYPERIMMUNE EGG</b> - 140 grams powder	\$49.99	\$42.00		
^ 01319	<b>i26 HYPERIMMUNE EGG</b> - 135 capsules	31.99	25.59		
^ 01318	<b>i26 HYPERIMMUNE EGG CHEWABLES</b> - (vanilla) 45 tablets	31.99	25.59		
01065	<b>IDEAL BOWEL SUPPORT 299V</b> - 30 veg. caps	21.95	16.46		
00955	<b>IMMUNE PROTECT w/PRACTIN®</b> - 30 veg. caps Buy 4 bottles, price each	29.50 26.55	22.13 19.91		
01049	<b>INNERPOWER™</b> - 555 grams powder	42.00	31.50		
00155	<b>INOSINE</b> - 500 mg, 60 caps Buy 4 bottles, price each	22.95 21.00	17.21 15.75		
00410	<b>INOSITOL CAPSULES</b> - 1000 mg, 360 caps Buy 4 bottles, price each	48.00 43.75	36.00 32.81		

**SUB-TOTAL OF COLUMN 9**

No.		Retail Each	Member Each	Qty	Total
00108	<b>INOSITOL POWDER</b> - 100 grams Buy 4 bottles, price each	\$18.00 16.88	\$13.50 12.66		
01021	<b>INTACT DIGEST™</b> - 8 fl oz Buy 4 bottles, price each	35.00 33.00	26.25 24.75		
01292	<b>INTEGRA-LEAN® IRVINGIA</b> - 150 mg, 60 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01002	<b>IODORAL®</b> - 180 tabs	50.00	37.50		
00563	<b>IRON PROTEIN PLUS</b> - 300 mg, 100 caps Buy 4 bottles, price each	24.00 22.00	18.00 16.50		
01492	<b>IRVINGIA w/PHASE 3™</b> - 120 veg. caps <b>CALORIE CONTROL COMPLEX (OPTIMIZED)</b> Buy 4 bottles, price each	56.00 48.00	42.00 36.00		
<b>J, K</b>					
00056	<b>JARRO-DOPHILUS EPS™</b> - 60 veg. caps	\$21.95	\$16.46		
01224	<b>K w/ADVANCED K2 COMPLEX (SUPER)</b> - 90 softgels Buy 4 bottles, price each	26.00 23.00	19.50 17.25		
###01600	<b>KRILL HEALTHY JOINT FORMULA</b> - 30 softgels Buy 4 bottles, price each	32.00 29.00	24.00 21.75		
01050	<b>(NKO) KRILL OIL</b> - 60 softgels	33.95	25.46		
00316	<b>KYOLIC® GARLIC FORMULA 102</b> - 200 caps Buy 4 bottles, price each	23.95 20.50	17.96 15.38		
00214	<b>KYOLIC® GARLIC FORMULA 105</b> - 200 caps Buy 4 bottles, price each	22.95 18.25	17.21 13.69		
00789	<b>KYOLIC® RESERVE</b> - 600 mg, 120 caps Buy 4 bottles, price each	24.75 21.45	18.56 16.09		
<b>L</b>					
00513	<b>LACTOFERRIN (APOLACTOFERRIN) CAPS</b> - 60 caps Buy 4 bottles, price each	\$40.00 36.00	\$30.00 27.00		
00017	<b>LAVILIN UNDERARM DEODORANT</b> - 12.5 grams cream Buy 4 jars, price each	15.00 13.75	11.25 10.31		
00020	<b>LECITHIN</b> - 16 oz. granules Buy 4 jars, price each	15.00 12.50	11.25 9.38		
01655	<b>LIFE EXTENSION MIX™</b> - 315 tablets Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 69.50	73.50 64.50 52.13		
01657	<b>LIFE EXTENSION MIX™ w/EXTRA NIACIN</b> - 315 tablets Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 69.50	73.50 64.50 52.13		
01654	<b>LIFE EXTENSION MIX™</b> - 490 caps Buy 4 bottles, price each Buy 10 bottles, price each	110.00 98.00 85.00	82.50 73.50 63.75		
01656	<b>LIFE EXTENSION MIX™ POWDER</b> - 14.81 oz Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 72.00	73.50 64.50 54.00		
01665	<b>LIFE EXTENSION MIX™</b> - 315 tablets w/o copper Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 69.50	73.50 64.50 52.13		
01667	<b>LIFE EXTENSION MIX™ w/EXTRA NIACIN</b> 315 tablets w/o copper Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 69.50	73.50 64.50 52.13		
01664	<b>LIFE EXTENSION MIX™</b> - 490 caps w/o copper Buy 4 bottles, price each Buy 10 bottles, price each	110.00 98.00 85.00	82.50 73.50 63.75		

**SUB-TOTAL OF COLUMN 10**

**OFFER ENDS JANUARY 31, 2012**  
**To order online visit [www.LifeExtension.com/SuperSale](http://www.LifeExtension.com/SuperSale)**

# Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01666	<b>LIFE EXTENSION MIX™ POWDER</b> - 14.81 oz w/o copper	\$98.00	\$73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
00263	<b>LIFE FLORA™</b> - 300 mg, 120 caps	20.50	15.38		
	Buy 4 bottles, price each	18.75	14.06		
01377	<b>LIFESHIELD® BREATHE™</b> - 60 veg. caps	34.95	26.21		
01349	<b>LIFESHIELD® CORDYCEPS</b> - 60 veg. caps	34.95	26.21		
01314	<b>LIFESHIELD® IMMUNITY™</b> - 60 veg. caps	39.95	29.96		
01339	<b>LIFESHIELD® REISHI™</b> - 60 veg. caps	34.95	26.21		
01608	<b>LIVER EFFICIENCY FORMULA</b> - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01227	<b>LIVER FORCE</b> - 30 veg. caps	34.95	26.21		
01639	<b>5-LOX INHIBITOR W/APRESFLEX™</b> - 100 mg, 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01013	<b>L-LYSINE</b> - 620 mg, 100 caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
00129	<b>L-LYSINE POWDER</b> - 300 grams	16.00	12.00		
	Buy 4 bottles, price each	13.75	10.31		
01470	<b>LURALEAN® CAPS SPECIAL PROPOLMANNAN PARTICLE SIZE</b> - 120 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
00455	<b>LYCOPENE EXTRACT (MEGA)</b> - 15 mg, 90 softgels	35.00	26.25		
	Buy 4 bottles, price each	30.00	22.50		

## M

01369	<b>MAGNESIUM CAPS</b> - 500 mg, 100 veg. caps	\$10.00	\$7.50		
	Buy 4 bottles, price each	9.00	6.75		
00502	<b>MAGNESIUM CITRATE</b> - 160 mg, 100 caps	9.00	6.75		
	Buy 4 bottles, price each	7.50	5.63		
00704	<b>MAITAKE™ SX-FRACTION</b> - 90 veg. tablets	49.95	37.46		
00547	<b>MELATONIN</b> - 300 mcg, 100 caps	5.75	4.31		
	Buy 4 bottles, price each	5.00	3.75		
01083	<b>MELATONIN</b> - 500 mcg, 200 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00329	<b>MELATONIN</b> - 1 mg, 60 caps	5.00	3.75		
	Buy 4 bottles, price each	4.63	3.47		
00330	<b>MELATONIN</b> - 3 mg, 60 caps	8.00	6.00		
	Buy 4 bottles, price each	6.88	5.16		
01086	<b>MELATONIN</b> - 3 mg, 60 time-release veg. caps	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
00331	<b>MELATONIN</b> - 10 mg, 60 caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
00332	<b>MELATONIN</b> - 3 mg, 60 lozenges	8.00	6.00		
	Buy 4 bottles, price each	6.88	5.16		
01087	<b>MELATONIN TIME RELEASE</b> - 300 mcg, 100 veg. caps	6.25	4.69		
	Buy 4 bottles, price each	5.63	4.22		
01088	<b>MELATONIN TIME RELEASE</b> - 750 mcg, 60 veg. caps	5.75	4.31		
	Buy 4 bottles, price each	5.00	3.75		
01009	<b>MEMORY UPGRADE™</b> - 600 grams powder	26.95	20.21		

**SUB-TOTAL OF COLUMN 11**

No.		Retail Each	Member Each	Qty	Total
00536	<b>METHYLCOBALAMIN</b> - 1 mg, 60 lozenges (vanilla)	\$9.95	\$7.46		
	Buy 4 bottles, price each	8.00	6.00		
00537	<b>METHYLCOBALAMIN</b> - 5 mg, 60 lozenges (vanilla)	32.00	24.00		
	Buy 4 bottles, price each	25.00	18.75		
	Buy 10 bottles, price each	23.00	17.25		
00709	<b>MIGRA-EEZE™ (BUTTERBUR)</b> - 60 softgels	29.50	22.13		
	Buy 4 bottles, price each	26.33	19.75		
01517	<b>MILK THISTLE (CERTIFIED EUROPEAN)</b> - 120 veg. caps	52.00	39.00		
	Buy 4 bottles, price each	48.00	36.00		
00623	<b>MINERAL FORMULA FOR MEN</b> - 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 12 bottles, price each	10.83	8.13		
00624	<b>MINERAL FORMULA FOR WOMEN</b> - 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 12 bottles, price each	10.83	8.13		
01315	<b>MIRAFORTE w/STANDARDIZED LIGNANS (SUPER)</b> - 120 caps	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
01569	<b>MITOCHONDRIAL BASICS w/BIOPQQ™</b> - 30 caps	52.00	39.00		
	Buy 4 bottles, price each	46.00	34.50		
01568	<b>MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ™</b> - 120 caps	94.00	70.50		
	Buy 4 bottles, price each	84.00	63.00		
00803	<b>MIST ORAL III w/COQ10</b> - 2 fl oz	28.00	21.00		
	Buy 4 bottles, price each	25.33	19.00		
00065	<b>MK-7</b> - 90 mcg, 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01279	<b>MOUTHWASH W/POMEGRANATE</b> - 16 oz	18.50	13.88		
	Buy 4 bottles, price each	17.00	12.75		
00451	<b>MSM (METHYLSULFONYLMETHANE)</b> - 1000 mg, 100 caps	14.00	10.50		
	Buy 4 bottles, price each	11.95	8.96		

## N

00215	<b>N-ACETYL-L-CYSTEINE</b> - 600 mg, 60 caps	\$14.00	\$10.50		
	Buy 4 bottles, price each	13.50	10.13		
00168	<b>NAPCA W/ALOE VERA</b> - 8 fl oz	10.50	7.88		
	Buy 4 bottles, price each	9.61	7.21		
00066	<b>NATTOKINASE</b> - 60 softgels	24.98	18.74		
00891	<b>NATURAL APPETITE CONTROL</b> - 90 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.20	18.90		
00984	<b>NATURAL BP MANAGEMENT</b> - 60 tablets	42.00	31.50		
	Buy 4 bottles, price each	37.80	28.35		
00913	<b>NATURAL ESOPHAGUARD</b> - 10 softgels	19.95	14.96		
	Buy 2 boxes, price each	19.00	14.25		
00712	<b>NATURAL ESTROGEN w/POMEGRANATE EXTRACT</b> - 60 caplets	38.00	28.50		
	Buy 4 bottles, price each	33.00	24.75		
01221	<b>NATURAL FEMALE SUPPORT</b> - 30 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01471	<b>NATURAL GLUCOSE ABSORPTION CONTROL</b> - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
00698	<b>NATURAL RELIEF 1222™</b> - 2 oz	28.00	21.00		
	Buy 4 tubes, price each	25.00	18.75		
01084	<b>NATURAL SLEEP®</b> - 3 mg, 60 veg. caps	12.99	9.74		
	Buy 4 bottles, price each	10.00	7.50		

**SUB-TOTAL OF COLUMN 12**

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

JANUARY 2012

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

# Buyers Club Order Form

**SUPER SALE SAVINGS ON ALL PRODUCTS**  
**To order call: 1-954-766-8433 or 1-800-544-4440**

No.		Retail Each	Member Each	Qty	Total
<b>N CONTINUED</b>					
01507	<b>NATURAL SLEEP® (ENHANCED) W/ MELATONIN</b> - 30 caps Buy 4 bottles, price each	\$22.00 20.00	\$16.50 15.00		
01511	<b>NATURAL SLEEP® (ENHANCED) W/O MELATONIN</b> - 30 caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01085	<b>NATURAL SLEEP MELATONIN®</b> - 5 mg, 60 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00987	<b>NATURAL STRESS RELIEF</b> - 30 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01603	<b>NEURO-MAG™ MAGNESIUM L-THREONATE</b> - 90 veg. caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
01602	<b>NEURO-MAG™ THREONATE W/CALCIUM &amp; VITAMIN D</b> 205 grams - Lemon flavor Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
01076	<b>NEW FACE SOLUTION</b> - 1.7 oz bottle Buy 4 bottles, price each	54.00 49.00	40.50 36.75		
00373	<b>NO-FLUSH NIACIN</b> - 800 mg, 100 caps Buy 4 bottles, price each	19.00 17.00	14.25 12.75		
01035	<b>NUTRIM</b> - 170 grams powder	25.95	19.46		
<b>O</b>					
01518	<b>OMEGA-3 CHEWABLES</b> - 60 softchews, 120 mg EPA/DHA Buy 4 pouches, price each	\$24.00 22.00	\$18.00 16.50		
01483	<b>OMEGA 3 EPA/DHA w/SESAME LIGNANS &amp; OLIVE FRUIT EXTRACT (SUPER)</b> - 60 softgels Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01482	<b>OMEGA 3 EPA/DHA w/SESAME LIGNANS &amp; OLIVE FRUIT EXTRACT (SUPER)</b> - 120 softgels Buy 4 bottles, price each Buy 10 bottles, price each	32.00 28.00 24.90	24.00 21.00 18.68		
01484	<b>OMEGA 3 EPA/DHA W/SESAME LIGNANS &amp; OLIVE FRUIT EXTRACT (SUPER)</b> - 120 enteric coated softgels Buy 4 bottles, price each Buy 10 bottles, price each	34.00 31.00 28.00	25.50 23.25 21.00		
01619	<b>OMEGA 3 EPA/DHA W/SESAME LIGNANS &amp; OLIVE FRUIT EXTRACT (SUPER)</b> - 240 softgels Buy 4 bottles, price each Buy 10 bottles, price each	32.00 28.00 24.90	24.00 21.00 18.68		
01601	<b>ONE-PER-DAY</b> - 60 veg. tablets Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01328	<b>ONLY TRACE MINERALS</b> - 90 caps Buy 4 bottles, price each	15.00 12.50	11.25 9.38		
00915	<b>OPTIZINC®</b> - 30 mg, 90 veg. caps Buy 4 bottles, price each	5.95 5.00	4.46 3.75		
01070	<b>ORGANIC TOTAL BODY CLEANSE™</b> - 14-day supply	34.99	26.24		
<b>P</b>					
00107	<b>PABA CAPS</b> - 500 mg, 100 caps Buy 4 bottles, price each	\$15.42 13.59	\$11.57 10.19		
00073	<b>PANCREATIN</b> - 500 mg, 50 caps Buy 4 bottles, price each	13.22 12.12	9.92 9.09		
01323	<b>PEAK ATP® WITH GLYCO-CARN®</b> - 60 veg. caps Buy 4 bottles, price each	59.00 56.00	44.25 42.00		
00342	<b>PECTA SOL-C® MODIFIED CITRUS PECTIN</b> - 454 grams powder Buy 4 jars, price each	99.95 95.70	74.96 71.78		
01080	<b>PECTA SOL-C® MODIFIED CITRUS PECTIN</b> - 270 veg. caps	69.95	52.46		

**SUB-TOTAL OF COLUMN 13**

No.		Retail Each	Member Each	Qty	Total
00673	<b>PGX™ SOLUBLE FIBER BLEND (WELLBETX®)</b> -180 caps	\$34.95	\$26.21		
00865	<b>PHARMAGABA™</b> - 60 chewable tablets Buy 4 bottles, price each	29.95 27.00	22.46 20.25		
00368	<b>PHOSPHATIDYLSERINE CAPS</b> - 100 mg, 100 caps Buy 4 bottles, price each	54.00 48.00	40.50 36.00		
00561	<b>POLICOSANOL</b> - 10 mg, 60 tablets Buy 6 bottles, price each	24.00 18.00	18.00 13.50		
01423	<b>POMEGRANATE™ (FULL-SPECTRUM)</b> - 30 softgels Buy 4 bottles, price each	24.00 21.00	18.00 15.75		
00956	<b>POMEGRANATE EXTRACT</b> - 30 veg. caps Buy 4 bottles, price each	19.50 17.55	14.63 13.16		
00957	<b>POMEGRANATE JUICE CONCENTRATE</b> - 16 oz. liquid Buy 4 bottles, price each	25.95 24.00	19.46 18.00		
00577	<b>POTASSIUM IODIDE</b> - 1 box, 14 tablets Buy 4 boxes, price each	6.95 5.25	5.21 3.94		
01500	<b>PQQ CAPS W/BIO-PQQ™</b> - 10 mg, 30 veg. caps Buy 4 bottles, price each	24.00 22.00	18.00 16.50		
00302	<b>PREGNENOLONE</b> - 50 mg, 100 caps Buy 4 bottles, price each	24.00 19.00	18.00 14.25		
00700	<b>PREGNENOLONE</b> - 100 mg, 100 caps Buy 4 bottles, price each	26.00 22.50	19.50 16.88		
01373	<b>PRELOX® NATURAL SEX FOR MEN®</b> - 60 tablets Buy 4 bottles, price each	52.00 48.00	39.00 36.00		
00571	<b>PRIMAL DEFENSE™</b> - 90 caplets Buy 4 bottles, price each	49.95 48.50	37.46 36.38		
01019	<b>PRIMAL DEFENSE™</b> - 180 caplets	78.95	59.21		
01329	<b>PROBIOTIC ALL-FLORA®</b> - 60 veg. caps	25.95	19.46		
01326	<b>PROBIOTIC ANTI-AGING™</b> - 90 veg. caps	30.95	23.21		
01324	<b>PROBIOTIC CLEANSE™</b> - 90 veg. caps	29.95	22.46		
01322	<b>PROBIOTIC COLON™</b> - 90 veg. caps	30.95	23.21		
00525	<b>PROBOOST THYMIC PROTEIN A™</b> - 4 mcg, 30 packets Buy 4 boxes, price each	72.00 70.00	54.00 52.50		
00869	<b>PRO FEM CREAM</b> - 2 fl oz (Progesterone Cream) Buy 4 bottles, price each	32.00 29.00	24.00 21.75		
01020	<b>PROGREENS®</b> - 15 stick pack	22.50	16.88		
01072	<b>PRO M INTERNAL DEODORIZER</b> - 500 mg, 100 veg. caps Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
010695	<b>PROSTATE FORMULA W/APRESFLEX™ STAND. LIGNANS (ULTRA NAT)</b> 60 softgels Buy 4 bottles, price each Buy 12 bottles, price each	38.00 35.00 32.00	28.50 26.25 24.00		
01092	<b>PROTEIN - VANILLA</b> - (Enhanced Life Extension) -1000 grams powder Buy 4 bottles, price each	42.00 40.00	31.50 30.00		
01093	<b>PROTEIN - CHOCOLATE</b> - (Enhanced Life Extension) -1000 grams powder Buy 4 bottles, price each	42.00 40.00	31.50 30.00		
01094	<b>PROTEIN - NATURAL</b> - (Enhanced Life Extension) -1000 grams powder Buy 4 bottles, price each	42.00 40.00	31.50 30.00		
01095	<b>PROTEIN - BERRY</b> - (Enhanced Life Extension) -1000 grams powder Buy 4 bottles, price each	42.00 40.00	31.50 30.00		
00290	<b>PROTEIN - VANILLA</b> - (Designer Whey) 2 lbs powder Buy 4 bottles, price each	42.49 38.50	31.87 28.88		
00282	<b>PROTEIN - CHOCOLATE</b> - (Designer Whey) 2 lbs powder Buy 4 bottles, price each	42.49 38.50	31.87 28.88		
00283	<b>PROTEIN - NATURAL</b> - (Designer Whey) 2 lbs powder Buy 4 bottles, price each	42.49 38.50	31.87 28.88		
01508	<b>PTEROPURE™</b> - 50 mg Pterostilbene 60 veg. caps Buy 4 bottles, price each	32.00 30.00	24.00 22.50		

**SUB-TOTAL OF COLUMN 14**

**OFFER ENDS JANUARY 31, 2012**  
**To order online visit [www.LifeExtension.com/SuperSale](http://www.LifeExtension.com/SuperSale)**

# Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01075	<b>PURE PLANT PROTEIN</b> - Natural Vanilla 450 grams powder Buy 4 jars, price each	\$36.00 33.00	\$27.00 24.75		
01209	<b>PUMPKIN SEED EXTRACT (WATER-SOLUBLE)</b> - 60 veg. caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01210	<b>PUMPKIN SEED EXT w/SOY ISOFLAVONES (WATER-SOLUBLE)</b> - 60 veg. caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01031	<b>PYCNOGENOL®</b> - 60 veg. caps	89.95	67.46		
01217	<b>PYRIDOXAL 5'-PHOSPHATE</b> - 100 mg, 60 veg. caps Buy 4 bottles, price each	22.00 19.80	16.50 14.85		
<b>Q, R</b>					
01309	<b>QUERCETIN (OPTIMIZED)</b> - 250 mg, 60 veg. caps Buy 4 bottles, price each	\$18.00 17.00	\$13.50 12.75		
01030	<b>RED YEAST RICE</b> (Bluebonnet)- 600 mg, 60 veg. caps	17.50	13.13		
00979	<b>RED YEAST RICE</b> (Nature's Plus)- 600 mg, 60 veg. caps	23.95	17.96		
00060	<b>RED YEAST RICE EXTENDED RELEASE</b> - 30 veg. tablets	21.50	16.13		
00605	<b>REGIMINT</b> - 60 enteric-coated caps Buy 4 bottles, price each	19.95 18.67	14.96 14.00		
01448	<b>REJUVENEX® BODY LOTION</b> - 6 oz Buy 4 tubes, price each Buy 8 tubes, price each	24.00 19.80 17.00	18.00 14.85 12.75		
00918	<b>REJUVENEX® FACTOR</b> - 1.7 oz airless pump Buy 2 bottles, price each Buy 4 bottles, price each Buy 8 bottles, price each	65.00 60.00 55.00 49.91	48.75 45.00 41.25 37.43		
01220	<b>REJUVENEX® (ULTRA)</b> - 2 oz Buy 2 jars, price each Buy 4 jars, price each Buy 8 jars, price each	52.00 48.00 44.00 39.93	39.00 36.00 33.00 29.95		
00676	<b>REJUVENIGHT (ULTRA)</b> - 2 oz Buy 4 jars, price each	39.95 36.00	29.96 27.00		
00706	<b>REJUVENIGHT w/PROGESTERONE (ULTRA)</b> - 2 oz Buy 4 jars, price each	42.00 38.00	31.50 28.50		
01413	<b>RESVERATROL W/PTEROSTILBENE</b> - 20 mg, 60 veg. caps Buy 4 bottles, price each	24.00 22.00	18.00 16.50		
01410	<b>RESVERATROL W/PTEROSTILBENE</b> - 100 mg, 60 veg. caps Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
01430	<b>RESVERATROL w/SYNERGISTIC GRAPE-BERRY ACTIVES (OPTIMIZED)</b> - 250 mg, 60 veg. caps Buy 4 bottles, price each	46.00 41.33	34.50 31.00		
00889	<b>RHODIOLA EXTRACT</b> - 250 mg, 60 veg. caps Buy 4 bottles, price each	11.75 10.58	8.81 7.94		
00972	<b>(D) RIBOSE POWDER</b> - 150 grams Buy 4 jars, price each	27.50 24.75	20.63 18.56		
01473	<b>(D) RIBOSE TABLETS</b> - 100 veg. tabs Buy 4 bottles, price each	32.00 28.00	24.00 21.00		
01609	<b>RICH REWARDS BREAKFAST GROUND COFFEE</b> - 12 oz. bag	13.00	9.75		
01610	<b>RICH REWARDS DECAFFEINATED ROAST GROUND COFFEE</b> - 12 oz. bag	14.00	10.50		
01208	<b>R-LIPOIC ACID (SUPER)</b> - 300 mg, 60 veg. caps Buy 4 bottles, price each	49.00 45.00	36.75 33.75		
00070	<b>RNA CAPSULES</b> - 500 mg, 100 caps Buy 4 bottles, price each	17.95 16.16	13.46 12.12		
00917	<b>ROSMARINIC ACID EXTRACT</b> - 60 veg. caps Buy 4 bottles, price each	59.00 53.00	44.25 39.75		

**SUB-TOTAL OF COLUMN 15**

No.		Retail Each	Member Each	Qty	Total
<b>S</b>					
01067	<b>SACCHAROMYCES BOULARDII + MOS</b> - 90 veg. caps	\$21.95	\$16.46		
01432	<b>SAFFRON w/SATIREAL (OPTIMIZED)</b> - 60 veg. caps Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
**00573	<b>SAMBU® GUARD</b> - 175 ml	17.79	14.23		
00358	<b>SAME (S-ADENOSYL-METHIONINE)</b> - 200 mg, 20 enteric coated tablets Buy 8 boxes, price each	16.00 14.00	12.00 10.50		
00453	<b>SAME (S-ADENOSYL-METHIONINE)</b> - 200 mg, 50 enteric coated tablets Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
00557	<b>SAME (S-ADENOSYL-METHIONINE)</b> - 400 mg, 20 enteric coated tablets Buy 6 boxes, price each	28.00 24.00	21.00 18.00		
01055	<b>SAME (S-ADENOSYL-METHIONINE)</b> - 400 mg, 50 enteric coated tablets Buy 4 bottles, price each	66.00 60.00	49.50 45.00		
01043	<b>SEA-IODINE™</b> - 1000 mcg, 60 veg. caps Buy 4 bottles, price each	8.00 7.20	6.00 5.40		
00046	<b>SELENIUM</b> - 2 oz dropper bottle Buy 4 bottles, price each	9.95 9.45	7.46 7.09		
00567	<b>SE-METHYL L-SELENOCYSTEINE</b> - 200 mcg, 100 caps Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
00318	<b>SERRAFLAZYME</b> - 100 tablets Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00011	<b>SHAMPOO</b> - 16 fl oz Buy 4 bottles, price each	6.00 4.75	4.50 3.56		
00284	<b>SHARK LIVER OIL (NORWEGIAN)</b> - 1000 mg, 30 softgels Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00184	<b>SILYMARIN</b> - 100 mg, 50 caps Buy 4 bottles, price each	9.25 8.25	6.94 6.19		
01502	<b>SKIN RESTORING CERAMIDES w/LIPOWHEAT™</b> - 30 liquid caps Buy 4 bottles, price each	25.00 23.00	18.75 17.25		
00961	<b>SODZYME® w/GLISODIN® AND WOLFBERRY</b> - 90 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
00657	<b>SOLARSHIELD SUNGLASSES</b> - 1 pair smoke color Buy 2 pairs, price each	12.99 11.50	9.74 8.63		
01097	<b>SOY EXTRACT (ULTRA)</b> - 150 veg. caps Buy 4 bottles, price each	87.00 78.00	65.25 58.50		
00286	<b>SOY PROTEIN CONCENTRATE</b> - 16 oz of powder Buy 4 jars, price each	12.00 10.63	9.00 7.97		
01099	<b>STABILIMUM® 200</b> - 30 caps	30.00	22.50		
00432	<b>STEVIA EXTRACT</b> - 100 packets, 1 gram each Buy 4 boxes, price each	9.95 9.00	7.46 6.75		
00351	<b>ST. JOHN'S WORT EXTRACT</b> - 300 mg, 60 caps Buy 4 bottles, price each	10.98 10.00	8.24 7.50		
00327	<b>ST. JOHN'S WORT EXTRACT (PLANETARY)</b> - 600 mg, 60 tablets Buy 4 bottles, price each	16.75 13.85	12.56 10.39		
01476	<b>STRONTIUM</b> - 750 mg, 90 veg. caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
00971	<b>SUN PROTECTION SPRAY w/BETA GLUCAN</b> - SPF30 - 6 oz Buy 4 bottles, price each	14.95 13.50	11.21 10.13		
00747	<b>SUNGLASSES (OVERXCAST POLARIZED)</b> - gray color, large Buy 2 pairs, price each	27.00 21.00	20.25 15.75		
00748	<b>SUNGLASSES (OVERXCAST POLARIZED)</b> - gray color, medium Buy 2 pairs, price each	27.00 21.00	20.25 15.75		

**SUB-TOTAL OF COLUMN 16**

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

JANUARY 2012

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

# Buyers Club Order Form

**SUPER SALE SAVINGS ON ALL PRODUCTS**  
**To order call: 1-954-766-8433 or 1-800-544-4440**

No.		Retail Each	Member Each	Qty	Total
<b>S CONTINUED</b>					
00758	<b>SUPER ABSORBABLE SOY ISOFLAVONES</b> - 60 caps	\$28.00	\$21.00		
	Buy 4 bottles, price each	25.00	18.75		
01381	<b>SUPERCritical OMEGA 7™</b>	56.95	42.71		
01348	<b>SUPERCritical OREGANOFORCE™</b> - 30 softgels	31.95	23.96		
01408	<b>SUPER SAW PALMETTO/NETTLE ROOT W/BETA-SITOSTEROL</b> 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	26.00	19.50		
	Buy 12 bottles, price each	24.00	18.00		
01407	<b>SUPER SAW PALMETTO W/BETA-SITOSTEROL</b> - 30 softgels	15.00	11.25		
	Buy 12 bottles, price each	12.00	9.00		
00578	<b>SUPER SELENIUM COMPLEX</b> - 200 mcg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	10.00	7.50		
	Buy 12 bottles, price each	9.00	6.75		
00674	<b>SYTRINOL™</b> - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
<b>T</b>					
<b>TAL-SHI™ COSMETICS</b> • For information please call 1-800-544-4440 or visit <a href="http://www.LifeExtension.com">www.LifeExtension.com</a>					
01062	<b>TART CHERRY</b> - 600 mg, 60 caps	\$18.95	\$14.21		
00199	<b>TAURINE</b> - 1000 mg, 50 caps	8.95	6.71		
	Buy 4 bottles, price each	8.00	6.00		
00133	<b>TAURINE POWDER</b> - 300 grams	20.00	15.00		
	Buy 4 bottles, price each	16.88	12.66		
01304	<b>THEAFLAVIN STANDARDIZED EXTRACT</b> - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00555	<b>(L) THEANINE</b> - 100 mg, 60 caps	24.00	18.00		
	Buy 4 bottles, price each	20.50	15.38		
01038	<b>THERALAC PROBIOTICS</b> - 30 caps	44.95	33.71		
00224	<b>THYMIC IMMUNE FACTORS</b> - 100 caps	18.00	13.50		
	Buy 4 bottles, price each	14.00	10.50		
00668	<b>THYROID FORMULA™ (METABOLIC ADVANTAGE)</b> - 100 caps	21.95	16.46		
00349	<b>TMG POWDER</b> - 50 grams	14.00	10.50		
	Buy 4 bottles, price each	11.00	8.25		
00359	<b>TMG</b> - 500 mg, 180 tablets	18.00	13.50		
	Buy 4 bottles, price each	15.50	11.63		
00781	<b>TOCOTRIENOLS WITH SESAME LIGNANS</b> - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	36.00	27.00		
01400	<b>TOCOTRIENOLS (SUPER-ABSORBABLE)</b> - 60 softgels	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
01278	<b>TOOTHPASTE</b> - 4 oz (Mint)	9.50	7.13		
	Buy 4 tubes, price each	8.67	6.50		
01274	<b>TOTAL SUN PROTECTION CREAM W/BETA GLUCAN</b> - 4 oz	28.00	21.00		
	Buy 4 tubes, price each	25.20	18.90		
01468	<b>TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT</b> - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01469	<b>TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT W/RESVERATROL</b> - 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	29.60	22.20		
00866	<b>TRYPTOPURE® L-TRYPTOPHAN</b> - 500 mg, 90 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
01202	<b>TRYPTOPURE® PLUS (OPTIMIZED)</b> - 90 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01616	<b>TWO-PER-DAY</b> - 60 veg. tablets	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		

**SUB-TOTAL OF COLUMN 17**

No.		Retail Each	Member Each	Qty	Total
01615	<b>TWO-PER-DAY</b> - 120 veg. tablets	\$20.00	\$15.00		
	Buy 4 bottles, price each	18.00	13.50		
01614	<b>TWO-PER-DAY</b> - 120 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
00326	<b>L-TYROSINE</b> - 500 mg, 100 tablets	12.50	9.38		
	Buy 4 bottles, price each	11.42	8.57		
<b>U</b>					
* 00310	<b>UDO'S OIL 3-6-9 BLEND</b> - 17 fl oz	\$27.79	\$22.23		
* 00311	<b>UDO'S 3-6-9 OIL BLEND</b> - 180 caps	34.79	27.83		
* 00322	<b>UDO'S CHOICE® WHOLESOME FAST FOOD</b> - 16 oz bottle	27.99	22.39		
01061	<b>ULTIMATE FLORA ADVANCED IMMUNITY PROBIOTICS</b> - 30 caps	29.99	22.49		
<b>V</b>					
00213	<b>VANADYL SULFATE</b> - 7.5 mg, 100 tablets	\$15.00	\$11.25		
	Buy 4 bottles, price each	12.50	9.38		
00252	<b>VELVET DEER ANTLER</b> - 250 mg, 30 caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
00408	<b>VENOTONE</b> - 60 caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01327	<b>VINPOCETINE</b> - 10 mg, 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	14.00	10.50		
01033	<b>VISION OPTIMIZER</b> - 90 caps	29.95	22.46		
01098	<b>VITAL GREENS MIX</b> - 319.5 grams powder	48.00	36.00		
	Buy 4 jars, price each	44.00	33.00		
01219	<b>VITAMIN A NUTRISORB</b> - 0.6 fl oz	27.00	20.25		
00091	<b>VITAMIN B1 CAPS</b> - 500 mg, 100 caps	18.73	14.05		
	Buy 4 bottles, price each	17.00	12.75		
00093	<b>VITAMIN B2 CAPS</b> - 100 mg, 100 caps	14.32	10.74		
	Buy 4 bottles, price each	13.00	9.75		
00096	<b>VITAMIN B3 NIACIN</b> - 1000 mg, 100 caps	12.75	9.56		
	Buy 4 bottles, price each	12.00	9.00		
00372	<b>VITAMIN B3 NIACIN</b> - 500 mg, 100 caps	7.65	5.74		
	Buy 4 bottles, price each	6.65	4.99		
00098	<b>VITAMIN B5</b> - 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
00556	<b>VITAMIN B6</b> - 250 mg, 100 caps	12.50	9.38		
	Buy 4 bottles, price each	11.00	8.25		
00361	<b>VITAMIN B12</b> - 500 mcg, 100 lozenges	8.75	6.56		
	Buy 4 bottles, price each	7.25	5.44		
00927	<b>VITAMIN C WITH DIHYDROQUERCETIN</b> - 1000 mg, 250 tablets	25.50	19.13		
	Buy 4 bottles, price each	23.25	17.44		
00084	<b>VITAMIN C (BUFFERED) POWDER</b> - 454.6 grams	23.95	17.96		
	Buy 4 bottles, price each	22.00	16.50		
00864	<b>VITAMIN D3</b> - 2000 IU, 1 fl oz	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
00251	<b>VITAMIN D3</b> - 1000 IU, 250 caps	12.50	9.38		
	Buy 4 bottles, price each	11.25	8.44		
00713	<b>VITAMIN D3</b> - 5000 IU, 60 caps	11.00	8.25		
	Buy 4 bottles, price each	9.90	7.43		
01418	<b>VITAMIN D3</b> - 7000 IU, 60 caps	14.00	10.50		
	Buy 4 bottles, price each	12.60	9.45		
01372	<b>VITAMIN D3 w/SEA-IODINE™</b> - 5000 IU, 60 veg. caps	14.00	10.50		
	Buy 4 bottles, price each	12.50	9.38		

**SUB-TOTAL OF COLUMN 18**

**OFFER ENDS JANUARY 31, 2012**  
**To order online visit [www.LifeExtension.com/SuperSale](http://www.LifeExtension.com/SuperSale)**

No.		Retail Each	Member Each	Qty	Total
01472	<b>VITAMINS D AND K w/SEA-IODINE™</b> - 60 veg. caps	\$24.00	\$18.00		
	Buy 4 bottles, price each	22.00	16.50		
00063	<b>VITAMIN E (PURE NATURAL)</b> - 400 IU, 100 caps	18.75	14.06		
	Buy 4 bottles, price each	17.25	12.94		
	Buy 10 bottles, price each	15.00	11.25		
01225	<b>VITAMIN K2 (LOW-DOSE)</b> - 45 mcg, 90 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
<b>Z</b>					
01585	<b>ZEAXANTHIN W/LUTEIN &amp; MESO-ZEAXANTHIN AND C3G (SUPER)</b> - 60 softgels	\$22.00	\$16.50		
	Buy 4 bottles, price each	19.80	14.85		
01586	<b>ZEAXANTHIN W/LUTEIN &amp; MESO-ZEAXANTHIN PLUS ASTAXANTHIN AND C3G (SUPER)</b> - 60 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
00061	<b>ZINC LOZENGES</b> - 75 lozenges	9.50	7.13		
	Buy 4 bottles, price each	6.75	5.06		
01051	<b>ZYFLAMEND</b> - 120 softgels	60.95	45.71		
01029	<b>ZYFLAMEND EASYCAPS</b> - 180 softgels	31.95	23.96		

**SUB-TOTAL OF COLUMN 19**

- \* These products are not 25% off retail price.
- \*\*Not for sale to wholesalers or retail stores.
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- ^^Can only be sold in USA and Canada.
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- #Not available for sale to Chain Grocery and Chain Drug Stores.
- ##Not available for sale in Belgium. Not available for sale to Chain Grocery and Chain Drug Stores.
- ###Not available for sale outside the US and Canada. Not available for sale to Chain Grocery and Chain Drug Stores.

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

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

When you join the Life Extension Foundation®, we update you on the latest published medical research by sending you FREE books. Our most impressive publication is the 1,666-page *Disease Prevention and Treatment* protocol book that contains novel therapies to treat 133 common diseases of aging. *Disease Prevention and Treatment* is the only book that combines conventional and alternative therapies in order to implement a treatment regimen for fighting the multiple processes involved in degenerative disease.

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

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

### Four Easy Ways to Join

1. Call toll-free 1-800-544-4440
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## MEMBERSHIP APPLICATION

I want to contribute to your research efforts to extend the healthy human life span. Enclosed is my first year's membership donation of \$75 to join the most elite group of longevity enthusiasts in the world. (Canadians add \$7, all others outside the U.S. add \$35)  
Item code: MEMB1. Call for multiple year membership rates.

Name \_\_\_\_\_

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# Unleash the Power of the Milk Thistle Seed

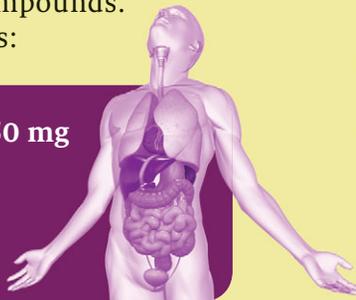


**Milk thistle** extract has long been thought of as one of nature's most potent weapons to support *human health*, but until recently, the technology hasn't been available to fully harness this plant's potential. Among the compounds waiting to be unlocked are a slew of *nourishing antioxidants* and flavonolignans valued for their role in *ensuring healthy liver function*.<sup>1\*</sup>

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

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

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



A 120 vegetarian capsule bottle of **Certified European Milk Thistle** retails for \$52. If a member buys four bottles during **Super Sale**, the cost is reduced to only **\$32.40** per bottle—a **savings of nearly one third!** Each bottle will last a healthy person for at least three months.

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

#### Reference

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2. *Cancer Res.* 2005 May 15;65(10):4448-57.



Item # 01517

**To order  
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or visit  
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# MORE THAN JUST RESVERATROL

Life Extension® introduced **resveratrol** in 2003 to favorably alter **genes** that respond to **calorie restriction**. Since then, *additional* compounds have been discovered that enable cellular **DNA** to exhibit more youthful **gene expression**.

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

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

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

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



Item # 01429

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

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

**Theaflavins** from **black tea** suppress the pro-inflammatory transcription factor NF-kB,<sup>1</sup> and stimulate the longevity factor Forkhead box 1 (FOXO1) in invertebrate and mammalian cells.<sup>2-3</sup> You would have to drink **12** six ounce cups of black tea each day to obtain the amount of theaflavins contained in **CR Mimetic Longevity Formula**.

Two capsules a day of **CR Mimetic Longevity Formula** provide:

<b>Trans-Resveratrol</b>	<b>250 mg</b>	<b>Trans-Pterostilbene</b>	<b>3 mg</b>
<b>Black Tea Theaflavins (decaf.)</b>	<b>300 mg</b>	<b>Fisetin</b>	<b>48 mg</b>
<b>Grape Seed Polyphenols</b>	<b>50 mg</b>	<b>Quercetin</b>	<b>150 mg</b>

A bottle containing 60 vegetarian capsules of **CR Mimetic Longevity Formula** retails for \$39. If a member buys four bottles during **Super Sale**, the price is reduced to just **\$24.30** per bottle. The cost of taking the highly purified plant extracts individually would be significantly higher compared to the optimal doses found in **CR Mimetic Longevity Formula**.

References: 1. *Mol Nutr Food Res.* 2011;55:198-208 • 2. *Cancer Res.* 2000;60:6465-71 • 3. *Aging Cell.* 2008;7(1):69-77.

To order **CR Mimetic Longevity Formula**  
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WITH BENFOTIAMINE

# FIGHT BACK AGAINST AGING!

## Aging is Characterized by Inflammation, Glycation, and Mitochondrial Decay

The loss of cellular vitality is caused by a number of factors, including mitochondrial problems, glycation, and free-radical reactions. Life Extension® members have access to a state-of-the-art nutritional formula called MITOCHONDRIAL ENERGY OPTIMIZER WITH BioPQQ™ that helps protect delicate cellular structures and enables cells to perform life-sustaining metabolic processes.

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

- **CARNOSINE:** As humans age, proteins in their bodies become **irreversibly damaged** by glycation reactions. Glycation is the cross-linking of proteins and sugar to form **non-functioning** structures called advanced glycation end products in the body, which can lead to alterations of normal cell function. Carnosine is not only a powerful **anti-glycating** agent, but it also protects **neurons** against reactive and cytotoxic protein carbonyl species associated with normal aging.<sup>1-5</sup>
- **PQQ:** This breakthrough micronutrient has been shown to trigger **mitochondrial biogenesis**—the growth of **new** mitochondria in aging cells!<sup>6</sup> PQQ also activates genes involved in protecting the delicate structures within the mitochondria.<sup>7-10</sup>
- **LUTEOLIN:** Systemic inflammation is involved in most undesirable consequences of aging. Culprits behind **inflammatory** reactions are pro-inflammatory **cytokines**, such as **interleukin-1** and **tumor necrosis factor-alpha**. Luteolin is a plant extract that has been shown to modulate these dangerous inflammatory cytokines.<sup>11-16</sup>
- **BENFOTIAMINE:** Effectively modulates multiple destructive biochemical pathways that are induced by higher than desirable blood glucose levels. Human mortality studies indicate that **ideal** fasting glucose levels are between **74–85 mg/dL**. Yet many aging people have fasting glucose above **90 mg/dL**, which is less than optimal.<sup>16-19</sup> Benfotiamine protects endothelial cell integrity from the effects of high glucose levels. In addition, benfotiamine exhibits direct antioxidative capacity and prevents induction of DNA damage.<sup>20</sup>
- **PYRIDOXAL 5'-PHOSPHATE:** Aging results in the formation of **advanced glycation end products** throughout the body. **Pyridoxal 5'-phosphate** is the active form of vitamin B6 that has been shown to protect against both lipid and protein glycation reactions.<sup>21-24</sup>

Bio-Enhanced® is a registered trademark of GeroNova Research, Inc. ArginoCarn® is a registered trademark of Sigma-tau HealthScience, Inc. and is protected by U.S. patent nos. 6,365,622, US 6,703,042, and EP1202956. BioPQQ™ is a trademark of MGCC (Japan).



- **R-LIPOIC ACID:** Destructive free-radical activity in the **mitochondria** plays a major role in the loss of cellular vitality. A **microencapsulated Bio-Enhanced® R-lipoic acid** facilitates youthful **mitochondrial energy output** while guarding against **free radicals**. Two forms of lipoic acid are sold on the supplement market, but **R-lipoic acid** is far more potent.<sup>25-28</sup>
- **ACETYL-L-CARNITINE ARGINATE:** The amino acid L-carnitine is required to transport fats into the **mitochondria** to be burned for cellular energy. **Acetyl-L-carnitine arginate** is a patented form of carnitine that also **supports neurites** in the brain.<sup>29</sup>

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

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

### Just four capsules of Mitochondrial Energy Optimizer with BioPQQ™ provide:

Carnosine	1000 mg
ArginoCarn® Acetyl-L-carnitine arginate DiHCl	675 mg
Bio-Enhanced® R-Lipoic acid (microencapsulated)	150 mg
Benfotiamine	150 mg
Pyridoxal 5'-Phosphate	100 mg
BioPQQ™	10 mg
Luteolin	8 mg



Item # 01568

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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.

## WHAT'S INSIDE

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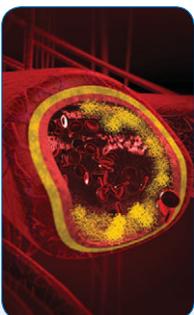
### 38 WHAT'S MISSING FROM YOUR COFFEE?

People mistakenly believe they should limit coffee intake, yet studies show consuming enough coffee prevents **heart disease, cancer, diabetes, Alzheimer's**, and more. Discover the *mechanisms of action* behind these multiple effects and why most coffee drinkers are not achieving optimal benefits.



### 24 BLOCK DEADLY IMPACT OF CHRONIC STRESS

Chronic stress increases risk of death from all causes by **170%**. Nutritional interventions can target the factors behind stress-related disease, while instilling a calming, tranquilizing effect.



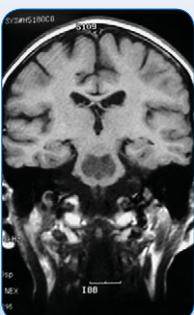
### 58 HALT SUGAR-INDUCED CELL AGING

High blood sugar levels accelerate a deadly process known as **glycation**—the binding of glucose to the body's proteins that hastens cell death. A form of vitamin B1 called **benfotiamine** acts via multiple pathways to block this process.



### 70 NEW WAY TO COMBAT OXIDATIVE LIVER DAMAGE

Up to **100%** of overweight and obese individuals unknowingly suffer nonalcoholic fatty liver disease. A little-known **adaptogen** combined with a patented melon extract prevents the **mitochondrial damage** that triggers this liver disease.



### 82 USING HORMONES TO HEAL TRAUMATIC BRAIN INJURY

Conventional medicine largely *fails* to reverse the devastating impact of traumatic brain injury. **Dr. Mark L. Gordon** explains how working with Iraq and Afghanistan veterans led to a treatment that may heal brain injury using **tailored hormone therapy**.



### 7 MAGNESIUM CAN REVERSE BRAIN DECAY

Alzheimer's risk reaches a staggering **25-30%** between ages **80-85**. New findings show Alzheimer's-associated changes in brain tissue occur *far earlier* than previously thought. A new, highly absorbable form of **magnesium** may prevent brain degeneration by restoring **synaptic density**.