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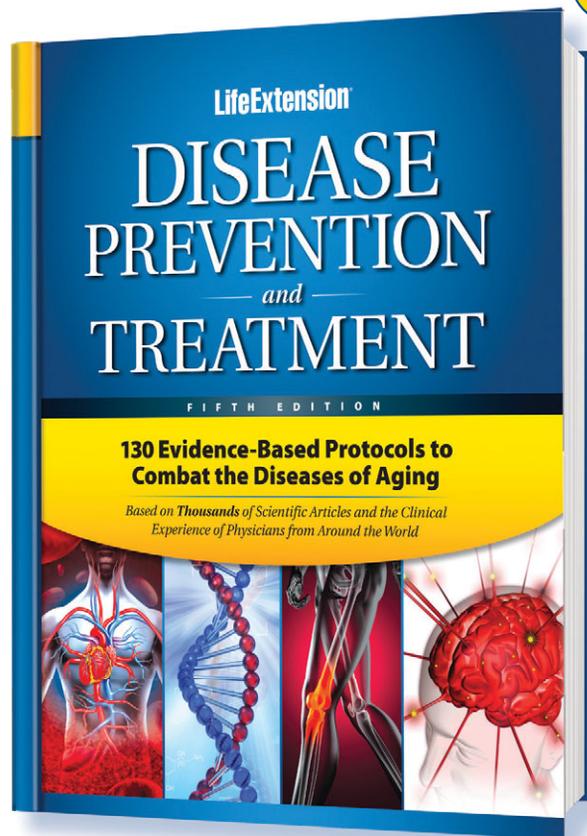
The 2014 edition of *Disease Prevention and Treatment* provides over 1,400 pages of concise data about therapies that are documented in scientific literature, but not routinely incorporated into clinical medical practice. Gaining access to this knowledge enables one with a medical disorder to take advantage of these advanced modalities immediately, rather than waiting years for conventional medicine to catch on.

It is a well-known fact that people suffer and die even though effective treatments may already exist for their diseases. Don't let this happen. *Disease Prevention and Treatment* helps break down barriers of **ignorance** that censor life-saving knowledge.

If you know someone who is concerned about staying healthy, or in need of better treatment for cancer, heart disease, hepatitis, etc., the 2014 edition of *Disease Prevention and Treatment* is a must for their library.

*Disease Prevention and Treatment* is fully indexed so that a person can easily learn more about their medical problems. Each chapter provides specific recommendations for the novel use of diet, nutrients, hormones, and drugs to address 130 different health concerns.

*Life Extension* has spent **millions of dollars** over the past 10 years updating *Disease Prevention and Treatment*. This one-of-a-kind **beautiful hardbound book** serves as a handy household reference that may be used for years to come.



*Disease Prevention and Treatment* is the only book that makes specific recommendations about combining mainstream therapies with natural approaches and novel medications to provide the best chance of preventing or gaining control over serious medical disorders. This is not a nutrition book. Rather, *Disease Prevention and Treatment* provides guidelines about how to safely use FDA-approved drugs, along with innovative therapies, in order to implement logical treatment regimens to address the multiple pathological processes involved in degenerative disease.

The protocols discussed in this book are documented by thousands of published studies from internationally recognized scientific journals. Despite this bountiful evidence, the **medical establishment** largely ignores many of the therapies recommended in this book.

The leading cause of death and disability today is **ignorance** about scientific approaches to prevent and treat degenerative disease. The novel information contained in *Disease Prevention and Treatment* could literally save the life of someone you care for.

The cover price of the 2014 edition of *Disease Prevention and Treatment* is **\$69.95**. Until January 31, 2014, members can obtain this book for only **\$24.95**.

To order the 2014 edition of *Disease Prevention and Treatment* for only \$24.95, call **1-800-544-4440** or log on to [www.LifeExtension.com](http://www.LifeExtension.com)

## REPORTS

### 22 NOVEL JOINT PROTECTION

A groundbreaking study adds to prior evidence showing that **type II collagen** reduces pain and inflammation scores when tested in those with rheumatoid and osteoarthritis.

### 32 LETHAL RISK POSED BY NEWS MEDIA

A great hoax has been perpetrated against the public's health. The media used a flawed analysis to proclaim that fish oil causes prostate cancer, even though the study authors admit they had no idea how the study subjects obtained what turned out to be miniscule blood levels of **omega-3s**.

### 50 HEALTH IMPLICATIONS OF SEXUAL DYSFUNCTION

**Sexual dysfunction** is a result of underlying health issues, ranging from vascular occlusion and neurological damage to obesity and diabetes. Clinical results show how natural compounds reverse the **root causes** of these issues while helping prevent age-related diseases.

### 62 DR. RUTH: ADVICE FOR ALL AGES

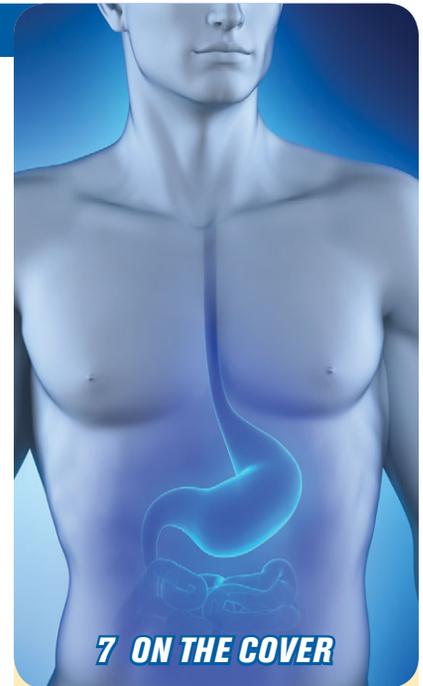
Dr. Ruth Westheimer, the renowned expert who virtually invented the modern sex therapy industry, still leads an active life at age 85. She has advice on everything from Alzheimer's to teaching to writing—and of course, her favorite topic: sex.

### 70 YOU MAY BE SUFFERING FROM FRUCTOSE POISONING

Excess **fructose** consumption is a key factor in the development of metabolic syndrome. America's increased consumption of high-fructose corn syrup has been mirrored by an alarming rise in obesity and cardiovascular disease. Learn how this dangerous sweetener, so ubiquitous in the Western diet, can create health problems *throughout* your body.

### 82 CONFERENCE REPORT: THE 2013 DIABETES SYMPOSIUM

At this year's **Keystone Diabetes and Adipose Tissue Biology Symposium**, an international group of physicians reported on links between insulin resistance and a number of factors including dietary fat, inflammation, genes, aging, drinking, and **type II diabetes**.



7 ON THE COVER

### RELIEF FROM IRRITABLE BOWEL AND CONSTIPATION

About one fifth of Americans suffer **irritable bowel syndrome** that causes chronic **constipation**. Doctors have ignored an effective solution. Drinking the proper nutrients on an empty stomach will provide rapid relief of constipation... usually within an hour.

## DEPARTMENTS

### 15 IN THE NEWS

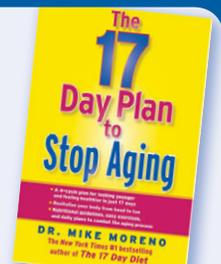
Greater fruit and vegetable intake lowers mortality risk; night shifts linked to breast cancer; green tea improves blood sugar control; vitamin D deficiency may accelerate bone aging; choline improves memory in animals; higher urinary level of polyphenols cuts risk of dying by **30%**; North American diets found deficient in omega-3; vitamin D may help prevent uterine fibroids; higher blood levels of antioxidants associated with lower age-related cataract risk.

### 91 AUTHOR INTERVIEW

The five major factors of **aging**, including inflammation, can be inhibited through novel interventions, explains best-selling author Dr. Mike Moreno. His book, *The 17 Day Plan to Stop Aging*, lays out an intensive program to take personal control of how your body systems age.

### 95 PROFILE

Dr. L. Ray Matthews, a cutting-edge trauma surgeon and assistant professor of surgery at Morehouse School of Medicine, explains how **vitamin D** cuts hospital stays, hospital costs, and mortality rates—and how without adequate levels, it is impossible to achieve **optimum health**.





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# EYE PROTECTION FORMULA

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

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

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

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

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

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

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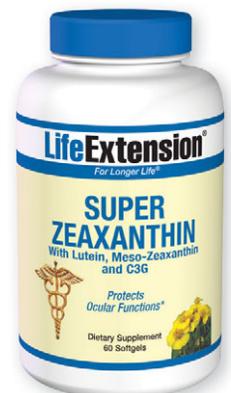
The **Super Zeaxanthin** formula provides ingredients that have been shown to promote healthy eyesight. Just one softgel of **Super Zeaxanthin with Lutein, Meso-Zeaxanthin and C3G** provides:

<b>OptiLut®, Lutein Plus® and MZ®</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>
[Paprika ( <i>capsicum annum</i> ) extract (fruit), <b>OptiLut®, Lutein Plus® and MZ®</b> Marigold Extract (flower)]	
<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 and C3G** is \$22. If a member buys four bottles, the price is reduced to **\$14.85** per bottle.

### References

1. Available at: <http://www.aafp.org/afp/20000401/2159.html>. Accessed August 10, 2010.
2. *Alt Med Rev.* 2000;5(6):553-62.



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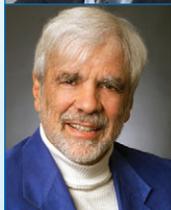
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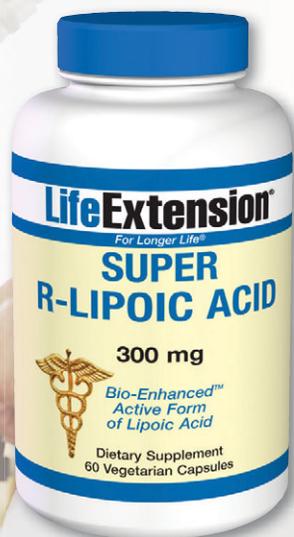
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**References**

1. Carlson DA, Young KL, Fischer SJ, Ulrich H. In: Packer L, Patel M. eds. *Lipoic Acid: Energy Production, Antioxidant Activity and Health Effects*. London: Taylor & Francis Publishers; 2008:235-70.
2. Carlson DA, Smith AR, Fischer SJ, Young KL, Packer L. *Altern Med Rev*. 2007 Dec;12(4):343-51.

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BY WILLIAM FALOON



This will be a short article.

It deals with a problem suffered by about **20%** of Americans.<sup>1-3</sup> It is seen in young adults as well as the elderly and results in enormous lost productivity.<sup>1</sup>

**Life Extension**<sup>®</sup> long ago published a solution to this debilitating condition, but mainstream physicians have not caught on. Some of our members have also overlooked what we previously wrote on this topic, so I'm going to make this simple and to the point.

**Irritable bowel syndrome** is a chronic disorder of the large intestine that causes belly pain, cramping, bloating, diarrhea or constipation.<sup>1,2</sup> The "syndrome" is poorly named because it includes patients who almost never have diarrhea, but instead are unable to fully evacuate their bowels.

Backed up feces creates chronic discomfort, bloating, and pain. These individuals view diarrhea as a good event because it enables them to evacuate feces that otherwise would remain **impacted** in their colon and rectal areas.

A primary cause of this type of irritable bowel syndrome is **insufficient** or **ineffective peristalsis**.<sup>3</sup> This means there is either not enough colon *contractile* activity or the contractile activity is disorganized and does not occur in the necessary rhythmic pattern needed to completely evacuate one's bowels. The term **peristalsis** refers to a series of organized muscle contractions that moves food through the digestive tract.<sup>4</sup>

**Insufficient peristalsis** is one of the main culprits behind much of today's **constipation** epidemic. The encouraging news is that if one drinks the proper nutrients on an empty stomach (usually first thing in the morning), a **surge of peristalsis** will occur within an hour that cleans out most or all fecal matter. I will describe how easily one can implement this strategy. >

In **1983**, vitamin consumers were clamoring for higher potency vitamins, but did not want to swallow a lot of pills. A book about living longer became a best-seller, and its authors advocated taking nutrients in **powder form** to obtain more potency at a lower cost.

**Life Extension** was at the forefront in offering consumers a wide variety of powdered nutrients, some that are still popular today.

The most common customer complaint was that the vitamin **powders** were causing diarrhea. We worked closely with these individuals to lower the dose and advised that they take the nutrient powders only after they had consumed a meal. Some were able to slowly increase the dose of nutrient powders until their bodies developed a tolerance so that diarrhea would not be a problem. Others had to switch to capsules or tablets that released more slowly in the stomach, and thus did not generate an acute wave of peristalsis caused by the powdered nutrients.

### *Serendipitous Discovery*

Not everyone who experienced diarrhea complained. A number of members called us to state they had suffered chronic constipation most of their life, and taking these nutrient powders on an empty stomach completely cleared them out. They stated they had never felt better.

So for nearly two decades, we were recommending various nutritional “colon cleanses” to be done several times a week, always on an empty stomach to ensure more complete bowel evacuation. This approach was vindicated when

published studies found that the failure rate for **fiber** was quite high in chronically constipated people.<sup>5-8</sup>

The medical profession and the public are rightly fearful of exposing their digestive tract to harsh synthetic laxatives on a routine basis. On the other hand, ingesting nutrients that provide systemic beneficial effects enables people to ingest low-cost vitamins, minerals, and amino acids with the intended effect of promoting **peristalsis** and thorough fecal evacuation.

### *How to Implement this Regular Colon Cleanse*

There are questionable ingredients contained in synthetic and natural products that claim a “colon cleaning” effect. You don’t have to experiment with these.

By taking nutritional powder mixes containing **vitamin C** with **magnesium** and/or **potassium** on an **empty stomach**, you’re likely to see immediate results within an hour or two. **Vitamin B5** powder

works this way too, but the taste is not tolerable.

Some people find a flavored powder mix of **arginine**, **vitamin B5**, and a lower amount of **vitamin C** produces the same results as high-potency vitamin C with magnesium mix.

It is important to drink lots of water after taking these powdered nutrient mixes as they will draw water from surrounding tissues into the colon to facilitate passage of feces. By increasing the volume of water in the intestine, stools are softened, intestinal muscle contraction is stimulated, and bowel evacuation is prompted.

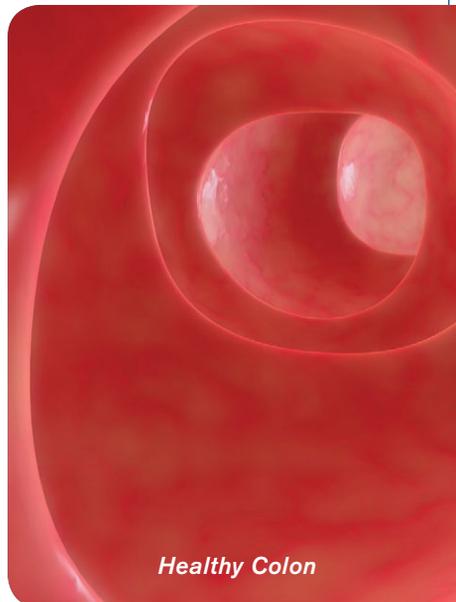
Until an individual dose is ascertained by trial and error, these nutrient powders will create temporary diarrhea for many users. Those with chronic constipation can learn how to dose their powdered nutrients to achieve optimal individual relief.

### **Promoting Rapid Intestinal Contractions**

The speed of intestinal muscle contractions is a major factor in irritable bowel syndrome (IBS).

Research shows that in people with **diarrhea-predominant IBS**, colon contractions are too fast, whereas in those who suffer **constipation-predominant IBS**, colon contractions are too sluggish.<sup>3</sup>

A variety of nutrient powders (such as magnesium and vitamin C), when mixed with liquid and taken on an empty stomach, can promote rapid intestinal muscle contraction. The result can be **immediate relief** from constipation-predominant IBS.<sup>9</sup> (Those with **diarrhea-predominant IBS** should avoid these powders.)



*Healthy Colon*



### Understanding Constipation and Laxatives

Constipation develops when intestinal *peristalsis* is slow or not occurring at all.<sup>3</sup> Feces are either temporarily or permanently trapped in the colon-rectum, in rare cases requiring surgery.

Constipation affects more women than men.<sup>10</sup> The term *irritable bowel syndrome* describes a wide variety of intestinal ailments. This article only addresses **constipation-predominate** irritable bowel syndrome.

Constipation sufferers find it painful and difficult to have a bowel movement. Sometimes this is because the stool has hardened, but the underlying problem in many cases is *insufficient peristalsis* that can lead to long-lasting fecal impaction. Gastroenterologists are only beginning to understand this. Instead of recommending low-cost nutrients like **vitamin C** and **magnesium powder**, they are prescribing drugs like *polyethylene glycol*.<sup>11</sup>

**Polyethylene glycol (PEG)** is used in both industrial manufacturing and medicine.<sup>12</sup> You can find it on the shelves of most pharmacies without the need for a prescription. The question for those with unrelenting constipation is would you rather ingest an ingredient (PEG) used in detergents and organic solvents, or **nutrients** you may already be taking in tablet or capsule form for their health benefits? The medical establishment prefers you take **polyethylene glycol (PEG)**.<sup>11</sup>

### Why Fiber Does Not Always Help

Doctors thought they had stumbled onto a great innovation when they started recommending **fiber** to constipated patients. Those who suffered *insufficient peristalsis*, however, do not always benefit from fiber. One reason that fiber fails is that it creates more fecal bulk than those with *insufficient peristalsis* are able to easily evacuate.

### Obtaining Immediate Constipation Relief

**Irritable bowel syndrome** of the *constipation* type has several causes, but the underlying *insufficient peristalsis* is what this article is addressing.<sup>3</sup>

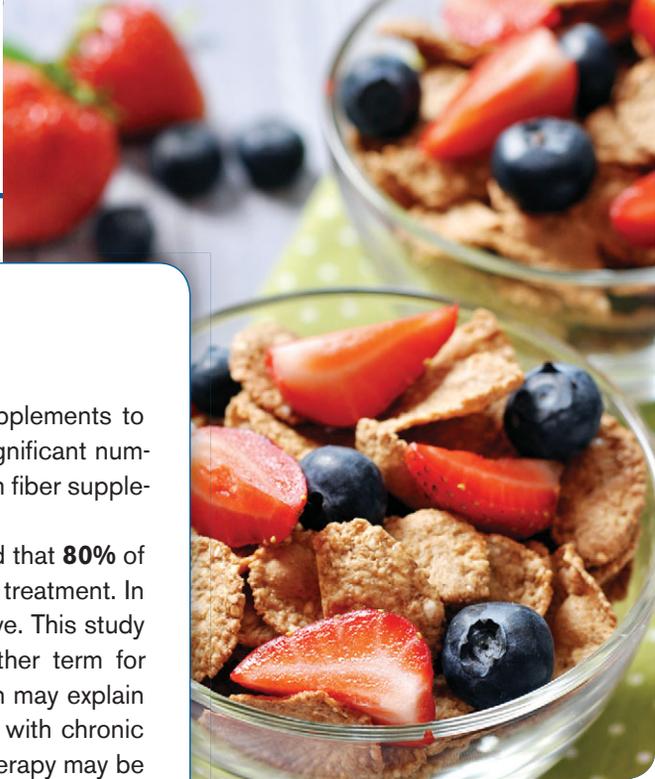
Instead of reverting to chemical laxatives, the proper nutrients taken at the right time can support soft fecal consistency and induce colonic peristaltic action without serious adverse effects.<sup>13-16</sup>

There are convenient powdered formulas available that contain magnesium and potassium mixed with ascorbic acid that induce an evacuation of bowel contents within 30-90 minutes. Depending on the person, a few teaspoons (or, in some cases, 1-2 tablespoons) of a **buffered vitamin C powder** can produce a powerful but safe laxative effect.

Another approach is to use several teaspoons (or 1-2 tablespoons) of **vitamin C** and **magnesium** crystals that will evacuate the bowel within 30-90 minutes if taken on an empty stomach with several glasses of water. One of these powdered formulas provides **4,500 mg** of vitamin C and **250 mg** of magnesium in each teaspoon. The dose needs to be individually adjusted so it will not cause day-long diarrhea.

The suggested number of times these nutritional colon cleanses be used is about three times a week. Excess use may create tolerance and require higher dosing, which may not be bad for those who benefit from the nutrients.

Nutritional laxatives such as ascorbic acid mixed with magnesium are becoming more popular with enlightened individuals who have constipation that is resistant to fiber. Yet a search on Google reveals that **polyethylene**



## Why Fiber is Not the Solution for Most People

Physicians and lay people often recommend fiber supplements to relieve constipation. Yet published studies show that a significant number of chronically constipated people do not find relief from fiber supplements.

An example of fiber not working was a trial that showed that **80%** of patients with slow transit did not respond to dietary fiber treatment. In **85%** of patients without these disorders, fiber was effective. This study showed that slow gastrointestinal transit (which is another term for **insufficient peristalsis**) and/or a disorder of defecation may explain a poor outcome of dietary fiber therapy in some patients with chronic constipation. This study showed why nutritional laxative therapy may be an important option.<sup>7</sup>

Another example of fiber not working was a trial with 73 consecutive constipated children whose mean fiber intake was the same as in healthy controls, although energy and fluid intakes were lower. The conclusion was that the amount of dietary fiber played no role in chronic constipation.<sup>21</sup>

Still another study evaluated whether laxatives and fiber therapies improve symptoms and bowel movement frequency in adults with chronic constipation. Fiber and laxatives decreased abdominal pain and improved stool consistency compared with a placebo. The conclusions were that both fiber and laxatives modestly improved bowel movement frequency in adults with chronic constipation. The results of this study showed that there was inadequate evidence to establish whether fiber was superior to laxatives, or if one laxative class was superior to another.<sup>22</sup> Clearly, fiber is not the solution to chronic constipation for many people.

their bowels. Severe chronic constipation may be accompanied by fecal impaction resulting in unexpected episodes of diarrhea, ulceration of the colon, and intestinal obstruction.<sup>20</sup>

The good news is that there are natural solutions that can provide immediate relief.

## Effervescent Vitamin C-Magnesium Crystals

Up until now, those who chose to use healthy colon cleanses had to drink powdered mixes that were not particularly palatable.

After decades of trial and error a low-cost **effervescent** formula consisting of vitamin C and magnesium has been developed. This effervescent formula provides **4,500 mg** of vitamin C and **250 mg** of magnesium in each teaspoon with lower acidity, so it's gentler on the stomach.

Mixing one or more teaspoons in eight ounces of water and drinking it on an empty stomach, followed by additional glasses of tea, juice, or water, can provide immediate rapid relief from sluggish bowel function that causes so much discomfort.

**glycol (PEG)** is the most highly recommended by the medical mainstream.

## Epidemic of Constipation

Chronic constipation is the number one gastrointestinal complaint in the United States, particularly among the elderly.<sup>17</sup> Constipation accounts for more than 2.5 million physician visits a year and is among the most frequent reasons for patient self-medication.<sup>17,18</sup>

The *American Family Physician* journal reported that constipation affects as many as **26%** of elderly men and **34%** of elderly women.<sup>19</sup> Constipation is one of those health problems that has been related to diminished perception of quality of life.

Most individuals with uncontrolled constipation develop a variety of symptoms, ranging from large bowel pain, rectal discomfort, abdominal fullness, nausea, anorexia, and a general feeling of malaise. These people feel like they never completely evacuate

In the process of achieving rapid fecal evacuation, beneficial nutrients will be ingested that are often lacking in typical Western diets.

According to one study, **68%** of American adults consumed less than the recommended daily allowance of **magnesium**.<sup>23</sup> Women with the lowest magnesium intake have a **37% greater** risk of **sudden cardiac death**.<sup>24</sup>

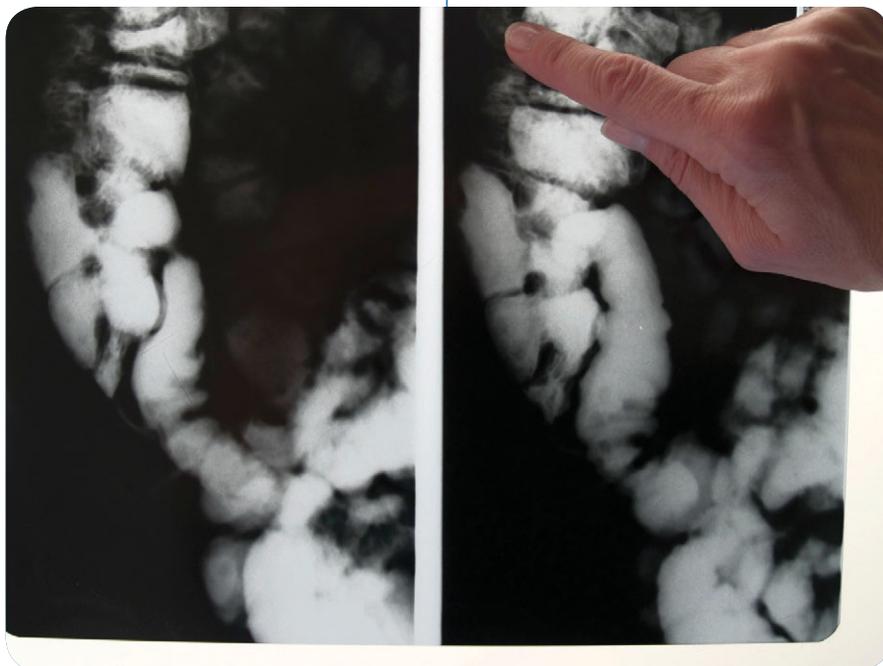
Critics of the judicious use of **nutritional laxatives** fail to realize the ancillary benefits that aging humans can attain with higher intakes of **vitamin C-magnesium** that promote desired *peristalsis* and fecal consistency.

By turning this page, you can learn about a new low-cost *effervescent* **vitamin C-magnesium crystal** formula.

For longer life,



William Faloon



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# Magnesium and Brain Health

Profound loss of connections between nerve cells in the brain is one of the major hallmarks associated with **neurodegeneration** and memory impairment. Previous research has shown that **magnesium** is a critical factor in controlling **synaptic density**.<sup>1</sup>

To combat this, an innovative form of magnesium called **Neuro-Mag™** has been developed. The *magnesium-L-threonate* contained in **Neuro-Mag™** has been shown to specifically target multiple areas of the aging brain. In fact, pre-clinical models show that the *magnesium-L-threonate* contained in **Neuro-Mag™** boosted levels of magnesium in spinal fluid by **15%** versus no increase from conventional magnesium.<sup>2</sup>

## New Cognitive Benefits Revealed!

Although research into the role of magnesium in the brain dates back 70 years, scientists continue to uncover its comprehensive benefits for cognitive function.<sup>1,3</sup> Studies using *magnesium-L-threonate* show this unique form of magnesium maintains the quantity of synaptic connections between brain cells and inhibits the dysregulation of signaling pathways.<sup>1</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 supplying a modest **144 mg** of elemental magnesium, its superior absorption into the bloodstream and nervous system make it a preferred choice for maturing individuals to supplement with.

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

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

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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)

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Item # 01602



Item # 01603



NEW

# EFFERVESCENT VITAMIN C- MAGNESIUM CRYSTALS

Effervescent Vitamin C-Magnesium Crystals contains no harsh, synthetic chemicals.<sup>12,13</sup>

Effervescent Vitamin C-Magnesium Crystals is safe for up to three times per week, since it contains only nutrients that can provide other benefits.

Effervescent Vitamin C-Magnesium Crystals is not a fiber—so it never creates more fecal bulk than you can easily evacuate.<sup>14,15</sup>

Occasional constipation is one of the most frequent gastrointestinal complaints in the United States, particularly among women and the elderly.<sup>1</sup> To address this issue, Life Extension® offers a dose-adjustable nutritional solution—**Effervescent Vitamin C-Magnesium Crystals**—to provide immediate **relief from occasional constipation**.

## THE PROBLEM

A series of rhythmic muscle contractions move food through the digestive tract.<sup>2</sup> But highly processed foods and a lack of quality nutrition can occasionally result in normal but temporarily ineffective movement of waste through the colon.

## NUTRITIONAL SUPPORT

**Vitamin C** is an antioxidant that scavenges free radicals in the body and protects tissues from oxidative stress.<sup>3-5</sup> Vitamin C is a vital cofactor to the formation of collagen, the connective tissue that supports arterial walls, skin, bones, and teeth.<sup>4,5</sup>

**Magnesium** is a cofactor in hundreds of enzymatic processes within cells, helps maintain healthy blood pressure levels already within normal range, improves the metabolic profile, beneficially impacts insulin resistance and inflammation. Research shows many Americans do *not* obtain adequate magnesium in their diets.<sup>6-11</sup>

*Effervescent Vitamin C-Magnesium Crystals has been developed to help provide relief from occasional constipation.*

**Effervescent Vitamin C-Magnesium Crystals** can be used in varying doses depending on individual need. The suggested starting dose should be one (1) level teaspoon of **Effervescent Vitamin C-Magnesium Crystals**, taken on an **empty stomach**, mixed in 8 ounces of water. Follow immediately with drinking 8 additional ounces of water.

Each level teaspoon (approx 6 grams) provides:

- **4,500 milligrams** of vitamin C (as ascorbic acid)
- **4 milligrams** of vitamin B6 (as pyridoxine hydrochloride) and
- **250 milligrams** of magnesium (as magnesium carbonate)

Some people will need to take one teaspoon of **Effervescent Vitamin C-Magnesium Crystals** on an empty stomach up to three times a week, which may require mixing it in several glasses of water. Always follow by drinking 8 ounces of water.

A bottle of 180 grams of Life Extension® **Effervescent Vitamin C-Magnesium Crystals** retails for \$20. If a member buys four bottles, the price is reduced to only **\$13.50 per bottle**.



Item #01736

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To order Life Extension® Effervescent Vitamin C-Magnesium Crystals,  
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.

**NEW!**

**Fast-acting  
and Quickly Absorbed...  
for a  
Restful Night's Sleep**

# LIQUID MELATONIN

The consequences of **sleep deprivation** go far beyond fatigue and diminished performance. Sleep deprivation can impact the immune system, the nervous system, memory and cognitive impairment, mood, and more.<sup>1</sup>

Ultimately, lack of sleep leads to an overall poor quality of life.

If you're one of the more than **20 million** Americans who suffer from occasional sleep problems,<sup>2</sup> you don't have to settle for frustrating nights of tossing and turning.

A new, fast-acting **LIQUID melatonin** may enable you to...

## **TAKE BACK CONTROL OF YOUR SLEEP!**

Melatonin is well known for its ability to regulate your body's internal clock. However, as you grow older, the secretion of melatonin declines significantly as the pineal gland becomes calcified.<sup>3,4</sup>

Fortunately, melatonin has been studied and shown to be effective for managing disturbances in circadian rhythms.<sup>5,6</sup>

A meta-analysis of 17 studies concluded that melatonin supplementation **decreases the time it takes to fall asleep** while **increasing sleep efficiency** and **total sleep duration**.<sup>7</sup>

In fact, melatonin has been shown to increase the speed of falling asleep—and the quality of sleep—in **about 60% of people who use it**.<sup>8,9</sup>

## **NEW MELATONIN LIQUID DROPS!**

Not all people benefit from melatonin when it's in the form of a capsule or tablet. However, some report that by applying melatonin *liquid* drops under their tongue at bedtime for immediate absorption, they are able to sleep better. While any kind of liquid melatonin has been reported to work, Life Extension has developed melatonin liquid drops that are completely free of **sugars**.

This new soothing **Fast-Acting Liquid Melatonin** has a great tasting natural citrus vanilla flavor and is quickly absorbed for a restful night's sleep.

An increase in age doesn't have to mean an increase in sleep problems. Consider making **Liquid Melatonin** a part of your **healthy sleep program**.

The retail price for 1 bottle of **Fast Acting Liquid Melatonin** is \$12. If a member buys 4 bottles, the price is reduced to **\$8.25** a bottle. Seven drops provide about **1 mg** of melatonin and there are approximately **1,180** drops in each bottle. Most people place one to two full eyedroppers under their tongues at night which provides **3 to 6 mg** of melatonin.



ITEM# 01734

## **WHY WE NEED SLEEP**

Decades of clinical research document that a good night's rest supports nearly all systems of the body, including:

- Skin health and youthful appearance<sup>10,11</sup>
- Healthy collagen formation<sup>12</sup>
- Insulin levels already within normal range<sup>13,14</sup>
- Healthy body weight<sup>15,16</sup>
- Glucose levels already within normal range<sup>17,18</sup>
- Blood pressure already within normal range<sup>13,19</sup>
- Healthy cell division<sup>20</sup>
- Cardiovascular health<sup>21,22</sup>
- A good mood<sup>23</sup>

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OR VISIT WWW.LIFEEXTENSION.COM**



## IN THE NEWS

### Long-Term Night Shift Work Associated with Increased Breast Cancer Risk

The results of a Canadian study published in *Occupational and Environmental Medicine* reveal a significant association between long-term night shift work and a higher risk of breast cancer.\* Although earlier research had uncovered a similar link among nurses, the current study demonstrates the association among members of the general population.

The researchers compared 1,134 women with breast cancer to 1,179 age-matched women who did not have the disease. Questionnaires completed by the participants provided information concerning years spent working night shifts.

Approximately one-third of women in both groups reported a history of night shift work. While no association was found for women who worked night shifts from zero to 29 years, those who worked night shifts for at least **30** years had more than twice the risk of breast cancer than subjects who reported no night shift work.

**Editor's Note:** While a reduction in melatonin resulting from nighttime light exposure among night shift workers is one mechanism proposed for their greater risk of breast cancer risk, the authors remark that other mechanisms, including sleep disturbances, clock gene dysregulation and lifestyle differences, could also play a role. It has also been suggested that a decrease in vitamin D production due to reduced sunlight exposure experienced by night shift workers could contribute to increased disease risk.

—D. Dye

\* *Occup Environ Med.* 2013 Jul 1.

### Greater Fruit and Vegetable Intake Associated with Increased Survival

An article published recently in the *American Journal of Clinical Nutrition* reveals an association between increased vegetable and fruit intake and a lower risk of dying during 13 years of follow-up.\*

The analysis included 38,221 participants in the Cohort of Swedish Men who were recruited between 1997 and 1998, and 33,485 women recruited from 1987 to 1990 to participate in the Swedish Mammography Cohort.

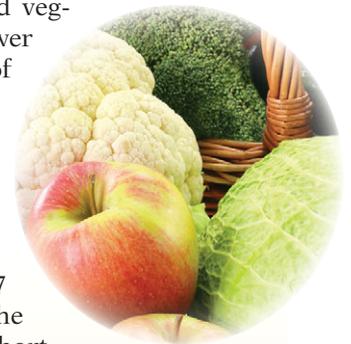
Questionnaires completed upon enrollment provided data concerning diet over the previous year, alcohol intake, and other lifestyle factors.

From the beginning of 1998 through 2010, 6,803 men and 4,637 women died. In comparison with subjects who consumed the recommended five servings of fruit and vegetables per day, those who did not consume fruit or vegetables had a **53%** greater risk of dying over follow-up.

**Editor's Note:** When fruit and vegetable intake were analyzed separately, those who consumed no fruit lived on average 19 months less than subjects who consumed one fruit per day, and those who reported eating three or more servings of vegetables per day survived an average of 32 months longer than those who didn't consume them.

—D. Dye

\* *Am J Clin Nutr.* 2013 Jun 26.





## How DHA Controls Inflammation

The *FASEB Journal* published the discovery of researchers at Boston's Brigham & Women's Hospital and Harvard Medical School of a mechanism for docosahexaenoic acid (DHA, an omega-3 fatty acid that occurs in fish oil and algae) in reducing inflammation.\*

Charles N. Serhan, PhD, and his colleagues found that human immune cells known as macrophages convert DHA to an intermediate compound labeled 13S, 14S-epoxy-maresin. "Maresins are produced by macrophages from docosahexaenoic acid (DHA) and exert potent pro-resolving and tissue homeostatic actions," Dr. Serhan and his coauthors write. "Maresin 1 is the first identified maresin."

As the result of synthesizing the intermediate molecule, they found that it promoted the conversion of macrophages from the M1 phenotype to the M2 phenotype that does not stimulate inflammation. "We hope that the results from this study will enable investigators to test the relevance of the maresin pathway in human disease," Dr. Serhan stated.

**Editor's Note:** "We've known for a long time that DHA tames inflammation; now, we learn exactly how DHA works: via new substances called maresins," commented Gerald Weissmann, MD, who is *The FASEB Journal's* Editor-in-Chief. "We encounter inflammation almost daily, but our body has ways of turning it off. This is an important step toward understanding exactly how this happens. You're likely to be hearing a lot more about maresins if, or when, new therapies arise from this discovery."

—D. Dye

\* *FASEB J.* July 2013; 27(7):2573-83.

## Green Tea Associated with Improved Glucose Control

The results of a meta-analysis described in an article published in the *American Journal of Clinical Nutrition* reaffirm the benefit of drinking green tea in maintaining glucose control among individuals at risk of metabolic syndrome.\*

Researchers in China selected 17 trials that included a total of 1,133 participants for their analysis. Trials were limited to those in which subjects consumed green tea or an extract of green tea for at least two weeks and had fasting glucose or insulin measured before and after treatment, in addition to other criteria. Green tea catechin content ranged from **208** to **1,207 mg** per day. Of the trials selected, nine involved participants who were overweight or obese, four included diabetics, two involved subjects with borderline diabetes, and two were limited to healthy participants.

Green tea intake was shown to be significantly associated with reductions in fasting glucose, insulin, and hemoglobin A1c, a marker of long-term glucose control.

**Editor's Note:** Subgroup analyses determined that fasting glucose was reduced in participants at risk of metabolic syndrome but not in healthy subjects, and that green tea consumption was beneficial only when providing a level of catechins of at least **457 mg** per day. Additional analysis of data extracted from high-quality trials indicated that green tea consumption significantly reduced fasting insulin.

—D. Dye

\* *Am J Clin Nutr.* 2013 Jun 26.

## Deficient Vitamin D Levels Result in Early Aging of Bone

In an article published in *Science Translational Medicine*, researchers from University Medical Center in Hamburg, Germany, and Lawrence Berkeley National Laboratory report a link between deficient levels of vitamin D and premature aging of the bone.\*

Björn Busse and his associates compared bone obtained from 15 normal individuals and 15 men and women with deficient serum 25-hydroxyvitamin D3 levels of less than **20 ng/mL** and bone surface osteoidosis indicating the transition to osteomalacia. The researchers found that the increase in osteoid-covered surfaces in bone derived from deficient subjects impaired the remodeling of mineralized bone tissue underneath due to isolation from osteoclasts. These areas of bone continued to age and mineralize, exhibiting the structure of older bone tissue, which is more brittle than young bone. Further testing revealed that being deficient in vitamin D increased the initiation of cracks by **31%** and their growth by **22%**.

**Editor's Note:** "The assumption has been that the main problem with vitamin D deficiency is reduced mineralization for the creation of new bone mass, but we've shown that low levels of vitamin D also induce premature aging of existing bone," stated report coauthor Robert Ritchie of Lawrence Berkeley Laboratory's Materials Sciences Division.

—D. Dye

\* *Science Transl Med.* 2013 Jul 10.



### Choline Improves Memory and Attention in Rodents

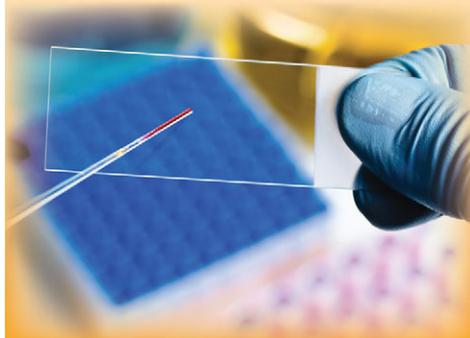
In a collaboration between scientists from Spain, Venezuela, and England, a benefit for the B vitamin choline on attention and memory has been demonstrated in research involving rats.

Hayarelis Moreno-Gudiño and colleagues gave pregnant rats a standard diet, a diet enriched with choline, or a choline-deficient diet. Ten of the animals' offspring were selected from each group upon reaching adulthood and tested for memory. While all of the animals were able to remember an object 24 hours after it was shown to them, those born to mothers who received extra choline during pregnancy were better able to recognize the object after 48 hours than animals born to mothers given a standard diet. Rats born to mothers provided with diets deficient in choline were unable to remember the object after two days, indicating a deleterious effect for prenatal choline deficiency on long-term memory.\*

**Editor's Note:** In another experiment, rats were given a diet supplemented with choline or an unsupplemented standard diet for 12 weeks prior to undergoing tests of attention.\* Rats that received the choline-enriched diet maintained better attention than the control group when presented a familiar stimulus and demonstrated an improvement in learning.

—D. Dye

\* *Behav Brain Res.* 2013 Apr 15; 243:278-85.



### More Evidence for Protective Role of Vitamin D Against Development of Uterine Fibroids

Close on the heels of a US study published in May of this year that found an association between reduced vitamin D levels and a greater risk of uterine fibroids, a study of Italian women published in the *Journal of Clinical Endocrinology & Metabolism* has uncovered a similar finding.\*

The current study age-matched each member of a group of 128 women who had at least one fibroid with two control subjects who did not have the condition. Among women with fibroids, serum 25-hydroxyvitamin D3 levels averaged **18 ng/mL**, in comparison with **20.8 ng/mL** in the control group. Vitamin D deficiency, defined as serum levels lower than **10 ng/mL**, occurred in **15%** of women with fibroids and in **7%** of the controls, resulting in a **2.4 times** greater risk of fibroids experienced by deficient women.

**Editor's Note:** Uterine fibroids, or leiomyomas, are benign tumors that develop in or around the uterus which occur in a significant number of women. Although the majority of cases do not require treatment, the condition can result in pain, bleeding, urinary frequency, and other complications that can necessitate removal of the fibroids or, in some cases, the entire uterus.

—D. Dye

\* *J Clin Endocrinol Metab.* 2013 Jul 3.



### Increased Urinary Polyphenols Linked with Longer Life

An article published in the *Journal of Nutrition* reports the finding of an association between higher urinary concentrations of polyphenols measured in older men and women and a reduced risk of dying over a 12-year period.\* Polyphenols are compounds that occur in plants that have been found to have antioxidant, anti-inflammatory, anti-obesity, and other effects.

The study included 807 men and women enrolled in the Invecchiare in Chianti study of older adults. Dietary questionnaires administered upon enrollment provided information on polyphenol intake and total urinary polyphenols were measured in urine samples. Over 12 years of follow-up, 66 participants died of cardiovascular disease, 112 died of cancer, and 72 deaths were due to other causes. Among participants whose total urinary polyphenols were among the top one-third of participants, the adjusted risk of dying over follow-up was **30%** lower than those whose levels were among the lowest third.

**Editor's Note:** While no significant association with mortality was found for dietary intake of polyphenols, the authors remark that validated biomarkers such as urinary polyphenols have an advantage over self-reported intake due to their independence from the biases and errors associated with self-reporting, and they note that food composition tables used to estimate intake were incomplete, resulting in underestimation.

—D. Dye

\* *J Nutr.* 2013 Jun 26.

## Higher Blood Antioxidant Levels Associated with Lower Cataract Risk

The results of a meta-analysis published in the *American Journal of Clinical Nutrition* add evidence to a protective role for antioxidants against age-related cataracts.\*

Researchers at Guangzhou Medical University and Jinan University in Guangzhou, China, selected 13 studies that included a total of 18,999 participants for their analysis. The studies evaluated the risk of cataracts in association with blood levels of vitamin A, vitamin C, vitamin E, alpha-carotene, beta-carotene, lutein, zeaxanthin, lycopene, and beta-cryptoxanthin.

When comparing lowest to highest blood antioxidant levels, having a high intake of vitamin E was associated with a **25%** lower risk, alpha-carotene with a **28%** lower risk, lutein with a **25%** reduction, and zeaxanthin with a **30%** decrease in the risk of cataract. Among Asian populations, having a high vitamin A and vitamin C levels were associated with a **31** and **33%** risk reduction.

**Editor's Note:** In their discussion, authors Yu-Hong Cui and associates remark that the results of studies evaluating the association between cataracts and dietary antioxidant intake have been inconsistent, possibly due to the imprecise nature of self-reporting, and they note that blood levels of antioxidants may be a better marker of antioxidant status than dietary intake.

—D. Dye

\* *Am J Clin Nutr.* 2013 Jul 10.



## North Americans Deficient in Omega-3

A presentation at the 2013 Institute of Food Technologists Annual Meeting & Expo revealed a profound lack of omega-3 polyunsaturated fatty acids in the North American diet, despite what is known of their benefits.\* Physicians and their patients are being made increasingly aware of the role of omega-3 fatty acids in the prevention or reduction of inflammatory disorders and cardiovascular disease, among other conditions.

Bruce J. Holub, PhD, of the University of Guelph, along with Alex Richardson, PhD, of the University of Oxford attribute the widespread omega-3 deficiency to diets that provide little in the way of fish or seafood, which are the best food sources of the omega-3 fatty acids EPA and DHA. The average North American diet provides **200 mg** EPA and/or DHA per day, which falls short of the AHA's recommendation of **500 mg** per day for healthy adults and **900 mg** per day for those with cardiovascular disease.

**Editor's Note:** For children, Dr. Richardson suggests **500 mg** omega-3 fatty acids per day.

—D. Dye

\* Richardson A, Holub BJ. 2013 Institute of Food Technologists Annual Meeting & Expo, Chicago. 2013 Jul 13-16.



## Reduced Vitamin D Levels Associated with Infection in ICU Patients

A study published in the journal *Neural Regeneration Research* revealed a greater risk of deficient serum levels of vitamin D in patients who had undergone treatment at a neurosurgical intensive care unit (ICU).\*

Je Hoon Jeong, MD, PhD, and colleagues evaluated serum 25-hydroxyvitamin D and 1,25-dihydroxyvitamin D in 55 men and women who were hospitalized at a neurosurgical ICU. The results of blood testing for white blood cell count and neutrophil percentage indicated suspected infection in 15 patients, which was confirmed by sputum, urine, or blood bacterial culture in 10 patients.

In comparison with subjects who did not have signs of infection, serum 25-hydroxyvitamin D levels were significantly lower in both those with suspected and confirmed infection at all time points up to 28 days following admission.

**Editor's Note:** The authors note that research has demonstrated a role for vitamin D in regulating normal innate and adaptive immunity, and that the active form of the vitamin has been shown to stimulate the innate immune system by elevating the production of interleukin-1 and increasing the proliferation of monocytes (a type of white blood cell).

—D. Dye

\* *Neural Regen Res.* 2013 June;8(16):1528-34.

# GREEN TEA EXTRACT

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

The good news for consumers is that they can obtain **high-potency** standardized green tea extract capsules at a fraction of the original price.

The Life Extension Foundation Buyers Club offers **98% green tea extracts** in either a **lightly caffeinated** or **decaffeinated** form. These **98%** extracts are standardized to provide high potencies of critical **EGCG**, the most important **polyphenol** found in green tea.

These highly concentrated **Mega Green Tea Extract Caps** contain **725 mg** of either **lightly caffeinated** or **decaffeinated 98% standardized** green tea extracts. The retail price for **100 vegetarian capsules** of **Mega Green Tea Extract** is **\$30**.

If a member buys four bottles of **725 mg Mega Green Tea Extract** capsules, the price is reduced to **\$21 per bottle**. Most people take just one capsule daily.



Item # 00953

Item # 00954

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

# Rich Rewards®

## Breakfast Blend Ground Coffee

### TWO NEW DELICIOUS NATURAL FLAVORS!

#### One Smart Cup of Coffee®

In a recently published study, researchers found that those living on the Greek island of Ikaria had a healthier and longer life span due to their daily intake of strong coffee.<sup>1</sup>

The researchers also report that the healthy endothelial function supported by coffee compounds may play a major role in this longevity effect.<sup>1</sup>

#### Polyphenol-Retained Coffee

Not all coffee delivers the same powerful health benefits and longevity dividend.<sup>2-6</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.

Among the most beneficial of these polyphenols is **chlorogenic acid**, a potent inhibitor of the **glucose-6-phosphatase** enzyme that stimulates **gluconeogenesis**. (Excess **gluconeogenesis** results in too much glucose produced in the liver that can cause elevations of blood glucose.)

Life Extension®'s Rich Rewards® Breakfast Blend is made using a patented, **100% natural** process called **HealthyRoast™**.<sup>7</sup>

This process delivers a more complete nutritional profile of the coffee bean, yielding **chlorogenic acid** levels *far greater* than other premium brands—up to **87% more** chlorogenic acid than conventional coffees!

Handpicked deep in the rainforests of Central America, **Rich Rewards®** consists exclusively of **100% USDA certified organic arabica** coffee beans, gently roasted in small batches and ground for easy brewing.

#### Natural Flavored Options!

To make your morning cup of coffee even more enjoyable, Life Extension® now offers our **Rich Rewards® Breakfast Blend Ground Coffee** in *two* delicious flavors:

- **Natural Vanilla Flavor** and
- **Natural Mocha Flavor**

And like our regular, unflavored **Rich Rewards®** coffee, these flavored ground coffees are roasted using the same **HealthyRoast™** process—which preserves special, naturally occurring compounds in coffee that **soothe your stomach**. This unique process also guarantees a higher content of healthy **polyphenols**.

Now those who prefer a flavored coffee—as well as those who find that ordinary coffee brands upset their stomach—can enjoy the potent **longevity** support that daily coffee consumption delivers!

#### One Smart Cup of Coffee®

Life Extension® **Rich Rewards® Breakfast Blend Ground Coffee** provides it all:

- Savory taste—regular coffee taste or 2 natural flavored options!
- Far higher percentage of **chlorogenic acid** than conventional coffees!
- Certified **100% organic!**
- Special, naturally occurring compounds that **soothe your stomach!**

A 12 oz bag of Life Extension® **Rich Rewards® Breakfast Blend** retails for \$15. Members pay **\$11.25** per bag.



Item #01729



Item #01730

**Note:** Rich Rewards Breakfast Blend Antioxidant Coffee regular caffeinated (Item# 1609) and decaffeinated (Item# 1610) are still available.

#### References

1. *Vasc Med. Epub:* 2013 Mar 18.
2. *J Natl Cancer Inst.* 2011 Jun 8;103(11):876-84.
3. *J Alzheimers Dis.* 2011;25(2):323-35.

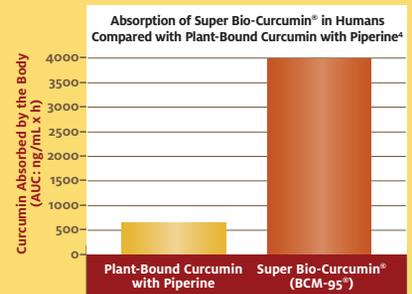
4. *N Engl J Med.* 2012 May 17;366(20):1891-904.
5. *Free Radic Res.* 2013 Mar 22.
6. *Maturitas.* 2013 Mar 2. pii: S0378-5122(13)00047-9.
7. US Patent 6,723,368.

To order either of the natural flavored Rich Rewards® Breakfast Blend Ground Coffee options or the regular unflavored Rich Rewards® Breakfast Blend Ground Coffee, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)

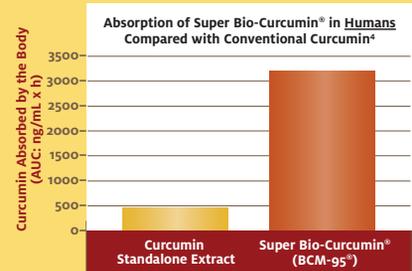
# ARE YOU GETTING Curcumin's BENEFITS?



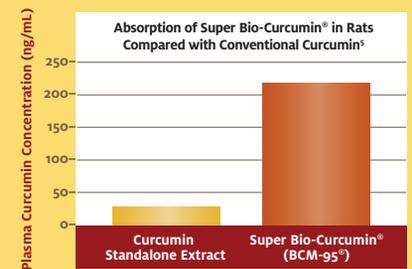
## How Much Curcumin Are You Absorbing?



**Chart 1.** 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 2.** 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 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 grown with organic practices, cultivated to maturity, then specially transported and processed to preserve and deliver the root's most **complete** nutritional profile.

In recent studies comparing the effects of standard curcumin against turmeric extracts comparable to **Super Bio-Curcumin®**, researchers observed:<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 up to **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 mg** of commercial curcumin supplements.

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



Item # 00407

### References

1. *Int J Pharmacol.* 2009;5(6):333-45.
2. *J Food Nutr Res.* 2009;48(3):148-52.
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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.  
U.S. Patent Nos. 7,883,728, 7,736,679 and 7,879,373.

To order Super Bio-Curcumin®  
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or visit [www.LifeExtension.com](http://www.LifeExtension.com)

BY STEVEN ROSENBAUM

# Novel Mechanism Protects Against **Arthritis**

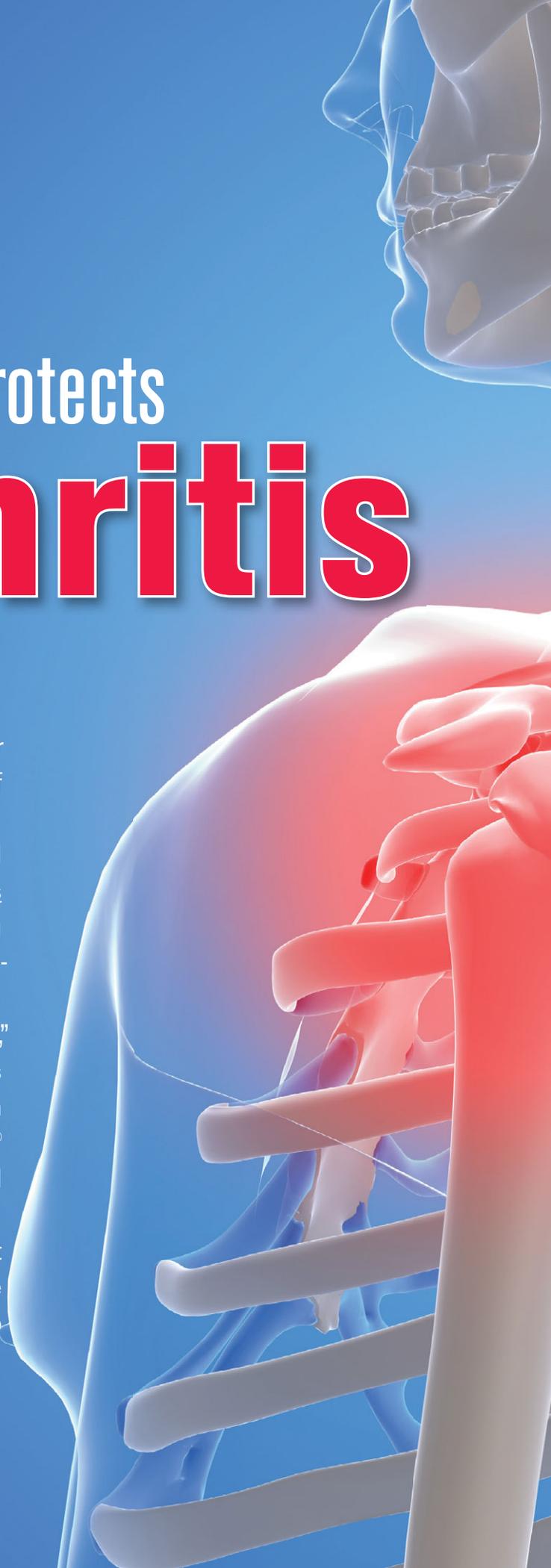
A staggering **53 million** Americans suffer from arthritis, making it the leading cause of disability in this country.<sup>1-3</sup>

A nutritional compound has demonstrated the ability to address one of the root causes of joint pain—reducing pain and improving flexibility—with none of the side effects of typical drug treatments.<sup>4-9</sup>

Called “**un-denatured type II collagen**,” or “**UC-II®**,” this protein compound acts against the autoimmune reactions that can lead to joint pain and degeneration.<sup>5,6</sup> UC-II® has been shown effective in previous animal and human studies of arthritis.<sup>4,7-9</sup>

A groundbreaking new study shows that **UC-II®** can reduce joint pain and improve joint flexibility even in healthy people who experience painful joints after exercise.<sup>4</sup>

PROTECTS AGAINST ARTHRITIS





### **An Underlying Cause of Osteoarthritis**

While the term “arthritis” can be used to describe several different conditions, the two most common forms are **osteoarthritis** and **rheumatoid arthritis**.<sup>10</sup>

**Rheumatoid arthritis** is an autoimmune disease in which the body reacts to components in joint tissue (mainly collagen) to produce inflammation, pain, and disability.<sup>10</sup>

**Osteoarthritis** was traditionally thought to be the result of wear and tear on the joints.<sup>10</sup> Recent discoveries, however, have determined that osteoarthritis is accompanied by the same pro-inflammatory immune factors involved in rheumatoid arthritis.<sup>10</sup>

In both conditions, an autoimmune response is caused when the body launches an attack against **collagen**, the substance that makes up the bulk of the cartilage that lines your joints.<sup>10,11</sup> Collagen is a protein critical to reducing friction and keeping joints youthful. The problem occurs when microscopic bits of **collagen** find their way into the bloodstream, at which point immune cells mistakenly identify them as invasive, foreign molecules.<sup>11,12</sup>

In response to this perceived “threat,” **inflammatory cytokines** are released that draw in more “killer” **T-cells**.<sup>13</sup> Those cells bombard exposed cartilage with toxic chemicals in order to destroy it, creating **oxidative stress** and **further inflammation** in the process.

Over time, these continuous attacks **erode** and **disintegrate** the cartilage that lubricates and functions as a shock-absorber in joints.

The resulting **pain** can become chronic and debilitating, and can include sensations of friction or grinding involved in joint movement. While less acute at rest, this pain is exacerbated by walking, standing, or any form of weight-bearing.<sup>9,14</sup> Osteoarthritis sufferers often experience joint stiffness or immobility after periods of inactivity.<sup>9</sup>

Fortunately, scientists have discovered a substance called **un-denatured type II collagen**, or **UC-II®**, that **retrains killer T-cells** so that they recognize collagen as a harmless substance—preventing the joint damage seen in osteoarthritis.<sup>5,10</sup>

## Reducing Joint Pain and Swelling

UC-II® was discovered when a team of scientists at the University of Nebraska found that **chicken soup** prevented the mobilization of immune system cells to sites of inflammation.<sup>15</sup> Upon further analysis, they discovered that it was not vegetables, but a component of the **chicken broth** itself that exerted this anti-inflammatory activity.<sup>15</sup>

The researchers showed that chicken-derived **type II collagen** functions to **regulate** the immune system so that it stops attacking proteins normally found in healthy joint cartilage.<sup>10</sup>

The results have been remarkable.

In a pilot study of people with severe joint pain, a dose of **10 mg/day** of this **type II collagen** (UC-II®) for 42 days was shown to significantly **reduce** joint pain and swelling, along with morning stiffness, stiffness following periods of rest, pain that worsens with use of the affected joint, and loss of range of motion and function.<sup>10</sup>

Follow-up studies show UC-II® reduces joint pain and stiffness that can follow as a result of exercise.<sup>4</sup> Even normal exercise puts stress on joints, which causes the release of **collagen fragments** into the bloodstream.<sup>16-19</sup> Since these fragments are partly to blame for post-exercise pain and stiffness,<sup>16-19</sup> supplementing with UC-II® can prevent post-exercise pain.



## Laboratory Studies

Extensive animal studies have been carried out on the effects of UC-II® in various kinds of arthritis—especially in horses and dogs, two species in which arthritis is common. After 90 days on a **10 mg** dose of UC-II®, obese arthritic dogs showed significant decreases in overall pain, in pain during manipulation of a limb, and in lameness after exertion.<sup>7</sup>

Longer-term studies have shown that after taking UC-II® for 120 days, animals experienced a **62%** reduction in overall pain, a **91%** reduction in pain caused by limb manipulation, and a **78%** reduction in exercise-associated lameness.<sup>8</sup> No ill effects or adverse events were seen in any of these studies.

Evaluation of UC-II® in arthritic dogs has been carried out using a high-tech, piezo-electric **ground force plate** that measures how much weight the animal is putting on each limb and how hard the animal is able to push against the ground as it walks. These studies showed that UC-II®-supplemented dogs had significant improvements in both measurements, demonstrating a reduction in arthritis-related pain.<sup>20</sup>

Horses given UC-II® treatments experienced similar benefits. In one study, horses given placebo treatments showed no change in symptoms attributed to arthritis, while the horses given UC-II® treatments experienced an **88%** reduction in overall pain and a **78%** reduction in pain caused by limb manipulation.<sup>21</sup> Again, the treatments were well tolerated and free of side effects.

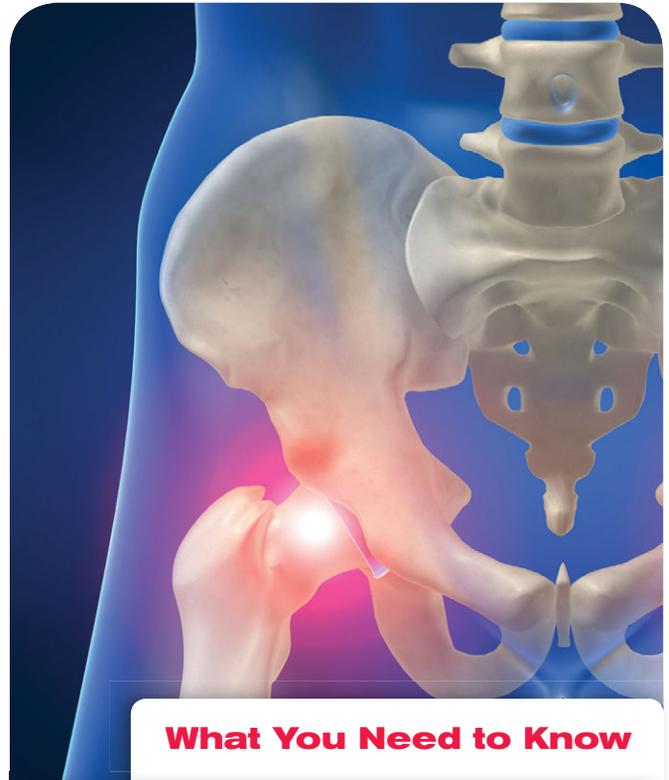
## Relief for Osteoarthritis Pain

Human clinical trials of UC-II® demonstrate similar effectiveness in adults suffering from osteoarthritis.<sup>9</sup>

In one study, patients with knee osteoarthritis received UC-II® or standard treatment for 90 days.<sup>9</sup> The supplemented group experienced a **33%** reduction in their osteoarthritis compared to standard therapy recipients. UC-II® reduced the patients' self-determined pain scale scores by **40%**, compared with just **15.4%** in those receiving standard care. And UC-II® improved joint function by **20%**, compared with **6%** for usual care.

## Improving Exercise-Induced Joint Pain

Of course, arthritis is just one of many causes of joint pain, which is why researchers in California recently conducted a study of oral UC-II® in *healthy* adults who did not have arthritis. These subjects had no knee pain at rest, but reported significant knee pain after exercise.<sup>4</sup> The patients underwent a similar exertion test at each of 7 visits over a 120-day period.



## What You Need to Know

### Anti-Arthritis Vaccine

- Millions of Americans suffer from arthritis, yet medications make no real change in the course of the disease.
- Scientists have now discovered that both osteoarthritis and rheumatoid arthritis are caused when the body launches an autoimmune attack against exposed fragments of collagen.
- Un-denatured type II collagen, or “UC-II®,” is a protein supplement that acts against the autoimmune reactions that can lead to joint pain and degeneration.
- Animal and human studies convincingly demonstrate that induction of oral tolerance with UC-II® reduces pain and improves joint function in osteoarthritis and, more recently, in people without arthritis but who suffer joint pain and stiffness following exercise.
- UC-II® is safe and well tolerated; it should form part of every serious joint health program.

### Impact of Arthritis on US Population

- **53.8 million** adults were affected by arthritis in 2011<sup>2</sup>
- **67 million** adults are expected to be affected by 2030<sup>1</sup>
- **22%** of US adults suffer from arthritis<sup>3</sup>
- **33.8%** of obese women have arthritis<sup>3</sup>
- **25.2%** of obese men have arthritis<sup>3</sup>
- **30%** of adults suffer from some type of joint pain<sup>36</sup>



Compared to their performance at the beginning of the study, by days 90 and 120, the subjects that had supplemented with **40 mg UC-II®** could exercise for significantly longer before experiencing joint pain; no such changes were seen in the placebo group.<sup>4</sup> Supplemented subjects recovered from their joint discomfort significantly faster than the placebo recipients at days 60, 90, and 120.

The same new study evaluated **joint flexibility** and determined that the average knee extension was significantly greater in the UC-II® group than in the placebo group at day 120.<sup>4</sup> Importantly, UC-II® recipients had significant increases in their knee extension compared to their own baseline level, with no such changes seen among placebo recipients.

In this study published in 2013, the researchers concluded that UC-II® was **“more effective than placebo in supporting joint comfort, flexibility, and mobility.”**<sup>4</sup>

The broad-spectrum safety of UC-II® has been evaluated by a number of toxicological assays.<sup>22</sup> It causes no mutations in bacterial genomes, a standard screen for carcinogenicity, and is not associated with oral toxicity.

### How it Works

UC-II® works through something called **oral tolerance**, which is the *desensitization* of immune response to specific agents via an orally administered intervention.<sup>10,13</sup> In this way, UC-II® reverses T-cell attacks on exposed cartilage.<sup>10</sup>

This makes sense, considering that when researchers want to produce an animal model of human arthritis, they inject small quantities of collagen.<sup>23</sup> The

immune system responds by ramping up production of cells that react to collagen. Those cells then attack normal, healthy joint tissue, producing symptoms and signs of arthritis.<sup>23,24</sup>

Remarkably, however, if the animals are first given a small **oral** dose of collagen, the incidence of experimentally induced arthritis plummets.<sup>5,6</sup> And the severity of joint disease is reduced in the animals that do develop arthritis.<sup>25,26</sup>

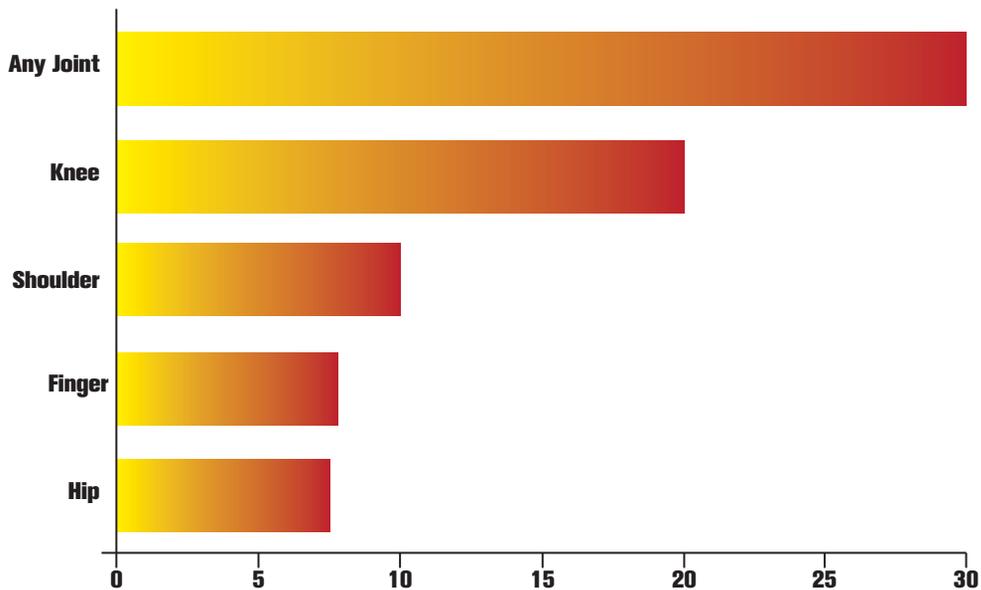
This phenomenon, called **“oral tolerance,”** relies on what’s known as **gut-associated lymphoid tissue**.<sup>10,27-30</sup> Clumps of this tissue are found in the human intestinal tract; they are instrumental in “presenting” the oral collagen fragments to the immune system, which then suppresses its response to the protein.<sup>29,31,32</sup>

Oral tolerance has other benefits as well, including fighting food allergies through careful exposure to the offending foods.<sup>28</sup> A similar methodology is under investigation for boosting the immune response to certain cancers, especially those of the intestinal tract (mushroom extracts are used there).<sup>33</sup>

Pre-treatment with UC-II®, in other words, may be inducing immune tolerance even in healthy adults, protecting them from deleterious exposure to their own cartilage.

We don’t react to our own cartilage normally because, in intact joints, there’s a barrier between blood and cartilage so that immune system cells in the blood don’t “see” cartilage proteins.<sup>34,35</sup> In the aging joint, this protective barrier between blood and cartilage diminishes.<sup>34</sup>

UC-II® offers a different approach to modifying joint inflammation rather than simply masking the symptoms.

**FIGURE: Nearly One-Third of Americans Suffer from Joint Pain<sup>96</sup>**

A national survey revealed that nearly one-third of US adults report suffering from joint pain of some kind within the last 30 days. The knee was by far the most common single site for pain or stiffness, though many people reported pain at more than one joint.

### Summary

Arthritis leads the list of conditions that cause disability among American adults.

Standard medical treatment consists mainly of treating the symptoms, with few tolerable drugs that modify the course of the disease.

A low-cost nutritional supplement has the ability to address the root cause of joint pain—reducing joint pain and improving flexibility. Called “un-denatured type II collagen,” or “UC-II®,” this natural protein supplement acts against the autoimmune reactions that can lead to joint pain and degeneration.

UC-II® has demonstrated efficacy in animal and human studies of arthritis—and can even reduce joint pain and improve joint flexibility in healthy people who experience painful joints after exercise.<sup>4</sup>

The implications cannot be overstated; the ability to move comfortably and engage in regular physical activity is critical to maintaining health in the face of our national epidemic of obesity, diabetes, and cardiovascular diseases. ●

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

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## Important Note

Not all collagen is equal in its ability to fight joint pain. There are two types of collagen: **denatured** collagen (collagen that's been disrupted by heat or chemical treatment) and **undenatured** collagen.

An experimental model of autoimmune arthritis showed that "denatured" collagen had no effect on the incidence or severity of the disease.<sup>5</sup>

But the specially-processed **undenatured type II collagen (UC-II®)** is more effective because it's uniquely designed to preserve the 3-dimensional structure of type II collagen. Immune cells in the intestine rely on 3-D shapes to recognize and respond to the signals that turn them on or off. UC-II® provides the correct 3-D structures to intestinal immune cells, triggering the signaling required for the development of immune tolerance.<sup>10</sup>

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# ARE YOU TAKING THE OPTIMAL FORMS OF VITAMIN E?

According to the *Proceedings of the National Academy of Sciences*, alpha tocopherol (vitamin E) displaces critically important gamma tocopherol in the cells.<sup>1</sup> While **alpha tocopherol** inhibits free-radical production, **gamma tocopherol** is required to trap and neutralize existing free radicals.<sup>2</sup>

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

Most commercial vitamin E supplements contain little, if any, **gamma tocopherol**. They instead rely on **alpha tocopherol** as the primary ingredient. However, it is gamma tocopherol (not the alpha form) that quenches **peroxynitrite**, the free radical that plays a major role in the development of **age-related decline**.<sup>2,3</sup>

## SESAME LIGNANS: THE NATURAL VITAMIN E BOOSTER

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

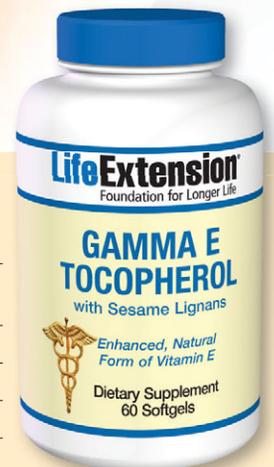
In a human study that combined **gamma tocopherol** with **sesame lignans**, gamma tocopherol/ sesame was **25% more effective** than gamma tocopherol/ tocotrienols in suppressing tissue measurements for free-radical and inflammatory damage.<sup>4,5</sup> Since tocotrienols are considered nature's most potent antioxidants, the fact that low-cost gamma tocopherol with sesame is more effective is a remarkable finding.

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

## WORLD'S MOST COMPREHENSIVE VITAMIN E FORMULA!

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

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



### Each softgel of Gamma E Tocopherol with Sesame Lignans provides:

<b>Gamma tocopherol</b>	<b>197.45-269.25 mg</b>
<b>Delta tocopherol</b>	<b>71.8-107.7 mg</b>
<b>Alpha tocopherol</b>	<b>30.52-43.08 mg</b>
<b>Beta tocopherol</b>	<b>&lt;17.95 mg</b>
<b>Sesame seed</b>	<b>20 mg</b>
<i>(Sesamum indicum)</i> lignan extract	

Item # 00759

### Contains soybeans.

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

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

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

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**To order Gamma E Tocopherol  
with Sesame Lignans, call 1-800-544-4440  
or visit [www.LifeExtension.com](http://www.LifeExtension.com)**

Next-Generation Formula . . .

# ARTHROMAX™ ADVANCED WITH UC-II® AND APRÈSFLEX®



Item # 01618

## 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 scientific data on natural support for joint health. The 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, blocking 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.

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

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

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

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

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

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AprèsFlex® is a registered 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. U.S. patents 7,846,487; 7,083,820 and EPO patent EP 1435906B1; Canadian patent CA 2459981C; and Japanese patent JP 4800574B2.

**To order ArthroMax™ Advanced with UC-II® and AprèsFlex®  
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.

# BIO-COLLAGEN WITH PATENTED UC-II®

## CONCENTRATED SUPPORT FOR JOINT COMFORT!

Tender, sensitive joints can limit everyday activities. As you age and continue to put stress on your joints, you can compromise joint cartilage—which exposes **small collagen fibers**.

Your body's immune system mistakenly identifies these collagen fibers as "**foreign cells**." This triggers an inflammatory response against the **collagen-containing** cartilage in *your own* joints. Inflammation and joint discomfort can soon follow.

Data shows that a patented collagen provides targeted support for the immune issues related to joint discomfort.<sup>1</sup>

To meet this urgent need, **Life Extension®** offers **Bio-Collagen** with **Patented UC-II®**—a novel form of **undenatured** type II collagen from chicken cartilage.

Taken orally, **UC-II®** travels to the intestinal tract, where it "introduces" the immune system to the **same** type of collagen molecules found in **joint cartilage**.

### ADVANCED MOLECULAR STRUCTURE

Not just *any* form of collagen will do. Normally, when chicken collagen is **processed**, its molecular shape is changed. It loses bioactivity and becomes **denatured**—which researchers found has *no beneficial effect*<sup>2</sup> on the immune system.

Fortunately, a **unique processing technique preserves the correct molecular shape** of the collagen<sup>3,4</sup>—*and preserves its bioactivity*<sup>5</sup>—producing a form known as **undenatured collagen**.

The result of this innovative process is an *undenatured chicken collagen* called **Bio-Collagen** with **Patented UC-II®**.

### SCIENTIFICALLY VALIDATED

Scientific studies have found that **UC-II® reduced sensitive joint discomfort** and **eased joint function**.<sup>1,6-10</sup> One double-blind, placebo-controlled study on patients found that **UC-II® provided relief by 33%** and **decreased joint discomfort scores by a remarkable 40%—in just 90 days!**<sup>1</sup>

### CONVENIENT ONE-PER-DAY DOSE

The suggested daily serving of one capsule of **Bio-Collagen** with **Patented UC-II®** supplies **40 mg** of this proprietary blend.

The retail price of a bottle of 60 capsules of **Bio-Collagen** with **Patented UC-II®** is \$36. If a member buys four bottles, the price is reduced to **\$24 per bottle** or just **\$12 a month**.

**To order Life Extension® Bio-Collagen  
with Patented UC-II®, call 1-800-544-4440  
or visit [www.LifeExtension.com](http://www.LifeExtension.com)**

UC-II® is a registered trademark of Inter Health N.I. U.S. Patents 7,846,487; 7,083,820 and EPO patent EP 1435906B1; Canadian patent CA 2459981C; and Japanese patent JP 4800574B2.



Item # 01631

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UC-II® is a registered trademark of InterHealth Nutraceuticals, Inc. US Patent Nos. 5,645,851, 5,637,321, 5,529,786, 5,750,144, 7,083,829, 7,846,487, EP1435906 81 and worldwide patents pending.

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.

# LETHAL RISKS Posed By News Media

PREAMBLE BY WILLIAM FALOON

A great hoax has been perpetrated against the public's health.

A flawed analysis purported that **omega-3s** somehow cause **prostate cancer**. The media turned this faulty report into headline news stories.<sup>1</sup>

One fact that should have immediately discredited this report was that none of the study subjects were apparently taking **fish oil supplements**, nor were they eating meaningful amounts of **cold-water fish**.

Not only did the study authors admit they had no idea how the study subjects obtained their **omega-3s**, but the percentages of plasma omega-3s was so low that men in this study were ingesting **insufficient** amounts of omega-3s in their diet.<sup>1</sup>

How does **Life Extension** know this? We have been testing **omega-3 levels** in our members for several years. In a test that measures long-term intake of omega-3s, members who take **fish oil capsules** score an average of **8.42%**.

The authors of this flawed analysis did a short-term measurement of omega-3 plasma levels just one time and then followed the men for up to 9 years. Average plasma readings of **4.48%** meant no prostate cancer, but if the level went up a mere fraction—to **4.66%**—prostate cancer incidence supposedly soared.<sup>1</sup>

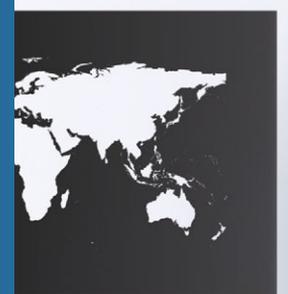
The difference in omega-3 content (**0.18%**) was so **trivial** that it could not explain the effect on prostate cancer risk. The variance was so tiny that if a man ate salmon the night before, he could have fallen into the **higher** omega-3 group even if he never ate fish again over the entire multi-year course of the study.

Remarkably, the media proclaimed that **4.66%** was a **high** level of omega-3 whereas **4.48%** was a **low** amount. Both these levels are **insufficient** to achieve meaningful disease protection. As you'll read in the meticulous rebuttal starting on the next page, there were other factors that explained why certain men in this study may have had greater prostate cancer incidence.

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MEDIA MANIPULATION

# WORLD NEWS



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The media was quick to quote conventional doctors who cautioned against fish oil supplements or even eating omega-3-rich foods based on this flawed analysis. Overlooked was the low plasma levels of omega-3s showing these men were not consuming anywhere near the amounts of omega-3s they would have obtained from cold-water fish or supplements. Also discarded by critics was that a one-time plasma measurement of short-term omega-3 status had nothing to do with what these men ingested over the subsequent 6-9 years.

This may be the first report that seeks to discredit a food/supplement (omega-3s) where the human study subjects were not taking fish oil capsules or ingesting significant amounts of cold-water fish.

The tragedy is that millions of men worldwide may stop eating fish and revert to diets high in **saturated fats** that have been shown to be involved in the development of **atherosclerosis**, a leading cause of disability and death in modern societies. >



BY WILLIAM FALOON, LUKE HUBER, ND, MBA, KIRA SCHMID, ND,  
BLAKE GOSSARD, SCOTT FOGLE, ND

This article represents *Life Extension's* initial rebuttal to a spurious attack on *omega-3s* that was blown out of proportion by the media.

Several scientific studies have found a reduction in **prostate cancer** associated with increased *omega-3* intake.<sup>2-12</sup> A recent report purportedly showed the opposite.<sup>1</sup>

This report was based on a single **blood test** of plasma *fatty acids* in a group of 834 men who were followed up to **six years** to assess prostate cancer risk (low- and high-grade disease). A smaller group of 75 men was followed up to **nine years** to assess only high-grade prostate cancer risk.

The results showed that *slightly* higher *omega-3* plasma percentages from this single blood test were associated with a greater risk of low-grade (**44%**) and high-grade (**71%**) prostate cancers over the **multi-year** follow-up.

This report was turned into news stories with headlines blaring "*Omega-3 fatty acids may raise prostate cancer risk.*"

Omitted from the media frenzy was the fact that this study was not about **fish oil supplement** users. The authors admitted they did not know how the study participants achieved what turned out to be very *low omega-3* plasma percentages in all groups.

In fact, *omega-3* plasma levels were only about **40%** of what would be expected in health-conscious people taking the proper dose of **fish oil**.<sup>1,13</sup> The insufficient levels of plasma *omega-3s* in all the study subjects were overlooked by the media. Had these very low plasma levels of *omega-3s* been recognized, it would have been apparent that this report had no meaning for those who boost their *omega-3* consumption through diet and supplements.

Also absent from the reporting was that more men with *slightly* higher *omega-3* plasma levels had *confounding risk factors* for greater risk of contracting prostate cancer at baseline, such as having higher **PSA** scores and a positive **family history**. Although the authors attempted to statistically control for some of these risk factors in their analysis, the concern remains that the baseline data was *confounded* and therefore the statistical analysis *invalid*, and that the reported results are compromised by higher rates of **preexisting disease** along with a **genetic predisposition**, *not* because of the minuscule variance in the amount of their plasma *omega-3*.

Prostate cancer sharply increases by **120** to **180%** in men who have a first-degree relative who had contracted prostate cancer. Nearly double the men who contracted prostate cancer in this study had a positive family history, and although the researchers attempted to statistically control for this confounding factor, this fact was conveniently overlooked by the mainstream media as *omega-3s* were instead labeled the culprit.

Associating a one-time **plasma omega-3** reading with long term prostate cancer risk is ludicrous. That's because **plasma omega-3** changes rapidly with short-term dietary changes. It does not reflect long-term incorporation of omega-3 into cells and tissues. In this report, differences in baseline *omega-3* blood measures were so *trivial* that if a man had just one **salmon meal** the night before, he could have wound up in the "higher" *omega-3* group even if he never ingested another *omega-3* again.<sup>14</sup>

Numerous **flaws** in this report render its findings useless for those who supplement with purified **fish oils** and follow healthy dietary patterns.

**Prostate cancer** is a slow-developing malignancy that can take decades to manifest as clinically relevant disease. Commonly recognized risk factors for contracting prostate cancer are diet, body mass, race, family history, hormone status, and age.<sup>15,16</sup>

An under-recognized risk factor associated with developing **prostate cancer** is **coronary artery disease**.<sup>17</sup> We at *Life Extension* long ago observed that men with clogged coronary arteries often developed prostate cancer (and vice versa). A renowned prostate oncologist named **Stephen Strum, MD**, made a similar observation and established a common factor behind coronary heart disease and prostate cancer, i.e., **bone loss**.

**Coronary artery disease** is clearly linked with **osteoporosis**,<sup>18</sup> as lack of **vitamin K** prevents **calcium** from binding to **bone** and instead allows it to infiltrate and harden the **arteries**. The ensuing **bone loss** results in the excessive release of **bone-derived growth factors** that fuel **prostate cancer** propagation and metastasis.

Long after Dr. Strum published his elaborate correlation, a **2012** study of 6,729 men showed **coronary artery disease** to be associated with a **35%** increased risk of **prostate cancer**.<sup>17</sup>

The reason we bring up the connection of **heart disease** and **prostate cancer** is that the authors of the controversial study apparently failed to assess overall baseline health status of the study subjects. We initially suspected that men in the higher group of **plasma omega-3** (which turned out to be **low** by our standards) were more likely to have coronary heart



disease. That's because men with heart disease are told by their cardiologists to eat less red meat and more cold-water fish. So it would not be surprising if the plasma percentage of **omega-3** was higher in men with prostate cancer as they may have been trying to eat healthier to avoid bypass surgery or a sudden heart attack.

When we asked the authors of the report if they assessed the baseline cardiovascular status of the subjects, their reply was, "**No, I don't believe this to be the case.**"

### Family History Predisposition

If your father or brother develops prostate cancer, your odds of getting it are about **120** to **180%** greater than if you don't have this family history.<sup>19</sup>

In the report attacking omega-3s, men who contracted prostate cancer had almost double the proportion of first-degree relatives with a history of prostate cancer compared with controls. Although the study authors apparently attempted to control for this baseline risk factor through the use of statistical modeling of selected variables (multivariate analysis), this confounding factor calls into question much of this report's negative findings, but was not even mentioned in the media's rush to create headline grabbers.

Men with a family history of prostate cancer often have witnessed the long-term death spiral that prostate cancer patients suffer through. As a result, they attempt to adapt healthier lifestyles to avoid becoming a victim of their hereditary genes.

Since eating well-done red meat has long been associated with increased prostate cancer risk, men with unfavorable family histories are more likely to include at least some cold-water fish in their diets, and therefore have higher **omega-3** percentage plasma levels. This does not mean the marginally higher **omega-3** levels observed in this flawed analysis caused their prostate cancer.

This is partially corroborated with the data from the study participants who did not develop prostate cancer, but had higher plasma percentage levels of pro-inflammatory **omega-6** fats. This indicated these individuals had little concern about what they ate since they had about half the family history rate of prostate cancer.

Fortunately there may be ways to alter family history genetic predispositions for prostate cancer by eating lots of **cruciferous vegetables**, maintaining youthful **hormone balance**, ensuring optimal **vitamin D** status, and taking compounds that favorably alter gene expression like **metformin** and **curcumin**.<sup>20-28</sup>



### Baseline PSA Higher in Those Who Contracted Prostate Cancer

Prostate specific antigen (PSA) is a blood marker of prostate disease.

Standard laboratory reference ranges often allow PSA to reach **4.0 ng/mL** before flagging a potential problem. A more progressive view of the PSA is that any number over **2.4 ng/mL** should be viewed with suspicion, with a digital rectal exam performed and a follow-up PSA blood test done in three months.

**Life Extension** has published comprehensive articles about how to properly interpret PSA results, but to state it succinctly: Aging men with PSA readings greater than **2.4 ng/mL** are at higher risk for developing clinically relevant prostate cancer and should initiate aggressive steps to reverse the underlying process.

In the report that associated higher omega-3 blood levels with increased prostate cancer incidence, **41.1%** of the men who went on to develop prostate cancer had baseline PSA readings greater than **3.0 ng/mL**. In the group that did not develop prostate cancer, only **7.3%** has a PSA baseline reading greater than **3.0 ng/mL**.

Although the study researchers attempted to statistically control for other confounding factors in their analysis like family history, age, and education level, this PSA finding implies that many of the men who developed prostate cancer already had it (*pre-existing disease*) when the baseline **plasma omega-3** level was measured. This finding of **5.6 times** more men who developed prostate cancer with a baseline PSA level greater than **3.0 ng/mL** compared to the “no cancer” group is impossible to rationally discount. To reiterate, below is the data on the baseline PSA readings from the report the media used to discredit omega-3s:

- **7.3%** of the “No Cancer” group had PSA of **≥3.0 ng/mL**.
- **41.1%** of the “Total Cancer” group had PSA of **≥3.0 ng/mL**.

This critical piece of data was *ignored* in the tabloid-like media articles that erroneously blamed the increase in prostate cancer on omega-3s.

### Study Subjects Do Not Appear to Have Taken Fish Oil Supplements

*Life Extension* scientists repeatedly reached out to the authors of the negative report, but did not receive a response as to whether any attempt was made to ascertain the source of the **omega-3** in the study subjects’ blood. We wanted to know if these men regularly ate cold-water fish or took at least some fish oil supplements.

Despite our requests, no clarification was made available by study authors as to the level of dietary supplementation with fish oil, and if so, the source of fish oil used in the study.

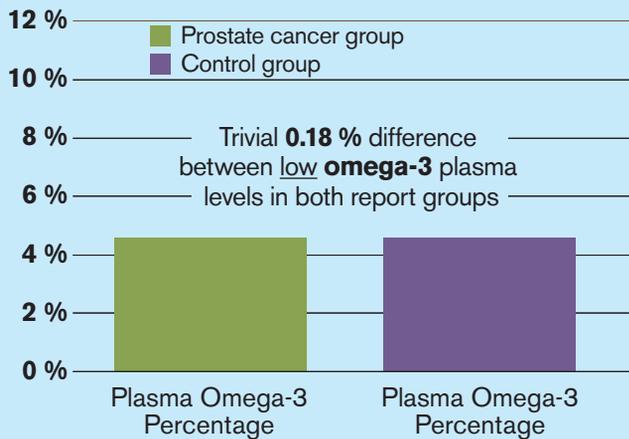
Based upon the very low plasma percentage levels of **omega-3 fatty acids** detected in the study, the implication is that dietary supplementation with fish oil likely did not occur. Instead, based upon the low levels of omega-3 plasma phospholipids detected, the source appears to have been primarily (potentially exclusively) diet only. As we will show soon, it appears that none of the men in this study consumed much in the way of **cold-water fish** either.

### Omega-3 Levels Were Low in All Study Subjects

You will be **shocked** to learn how low the average plasma percentages of **omega-3** were in all these study subjects, whether they were in the high or low rate of prostate cancer group.

Plasma phospholipid testing for fatty acids was used in this study. However, this type of fatty acid testing can vary widely depending upon short-term dietary intake. In contrast, long-term uptake by cells and tissues of the body is far less dependent upon short-term

### Comparison of omega-3 values: Prostate cancer vs. control



**Figure 1:** If you can't see a difference in the two bars showing plasma percentage of omega-3s between men who contracted prostate cancer and those who did not, that's because there is virtually no difference. The 0.18% variation could have resulted from men eating just a few ounces of fish the night before their one-time baseline blood draw. These low percentages of plasma omega-3s indicate these men were not taking fish oil supplements, nor were they eating much in the way of omega-3-rich foods in their diet.

changes in diet. For this reason, erythrocyte (red blood cell) fatty acid indices are far better at evaluating cellular uptake over time as a result of fish ingestion and fish oil supplementation.

For example, data indicates that supplementing with about 2 grams of omega-3 fatty acids from fish oil leads to an increase in erythrocyte (red blood cell) omega-3 fatty acid percentage from about 4% at baseline to about 8% at eight weeks.<sup>13</sup>

In a case analysis conducted by **Life Extension** staff, a healthy diet that included fish but not fish oil supplementation resulted in an omega-3 red blood cell (RBC) equivalence level of 6.06%.

However, a standard diet supplemented with 3.6 grams of EPA/DHA from purified fish oil resulted in an omega-3 RBC equivalence level of 10.59%. Thus, compared to what can be achieved with a healthy diet alone, adding a high quality fish oil supplement can nearly double a person's omega-3 RBC equivalence score, which is consistent with the published literature.

Therefore, if participants in the report alleging an association with fish and prostate cancer had been taking meaningful doses of fish oil supplements, their levels should have been substantially higher than what the study authors reported. Instead, for men in the prostate cancer group of this study, the percentage of plasma long-chain omega-3 fatty acids was only 4.66% ... a lower level than historic baselines taking no supplemental omega-3s.<sup>13</sup>

The numbers below should clarify this glaring flaw that renders conclusions from this report claiming fish or fish oil increases prostate cancer meaningless:

- Omega-3 RBC equivalence percentage when taking 3.6 grams/day EPA/DHA ..... **10.59%**
- Omega-3 RBC equivalence percentage of a moderate fish eater ..... **6.06%**
- Average long-chain omega-3 plasma percentage in study group with higher prostate cancer rates ..... **4.66%**
- Average long-chain omega-3 plasma percentage in study control group (no prostate cancer) ..... **4.48%**

There may be no need to provide any more rebuttal than the numbers posted above. They make it clear that the average subject in their groups were consuming very little cold-water fish and certainly no meaningful fish oil supplement. Their entire study population was so negligible in omega-3 that no relevant correlation can be drawn for health conscious people today choosing omega-3-rich foods (like cold-water fish) and high-potency fish oil supplements.

Yet based on this study of men who consumed relatively no omega-3s, frenzied news reporters were advising the public to stop eating cold-water fish and avoid omega-3 supplements.

### Virtually No Difference in Omega-3 in Men Who Developed Prostate Cancer

When reading the frantic news reports, you would have thought the **omega-3** difference in men with up to 71% increased risk of **prostate cancer** must have been **huge**.



At *Life Extension*, our very first reaction was that the researchers were comparing cardiac patients who gobbled down huge amounts of **fish oil supplements** to normal individuals who consume relatively little omega-3s. Our initial assumption was that since heart disease patients have higher prostate cancer rates, then that would explain why higher **omega-3** could be mistakenly associated with increased prostate cancer risk, since heart disease patients are known to consistently take high-potencies of omega-3s through diet and supplements. How wrong our early conjecture was!

It turns out that the differences in omega-3 plasma phospholipid levels between groups were slight. In fact they were so close that we at *Life Extension* would classify them all as being too narrow to extrapolate meaningful data.

Our goal is to get the red blood cell (RBC) omega-3 index values in *Life Extension* members to **8-11%** as this level was shown to offer the greatest protection against sudden myocardial infarction, yet the average quartile for plasma long-chain omega-3 fatty acids in the prostate cancer cases in the report associating fish oil with prostate cancer was only **4.66%**.

Now look how narrow the difference is between men with higher prostate cancer rates. In the group whose average baseline blood draw showed **4.48%** plasma long-chain omega-3 fatty acids, there was no increased prostate cancer risk. But if the **omega-3** percentage average went up to **4.66%** (about 1/5 of one percent), prostate cancer rates skyrocketed, according to the report's authors.

We're talking here of a difference of **0.18%** in the percentage of plasma omega-3 fatty acids that supposedly caused a **43 to 71%** increase in prostate cancer incidence. Dedicated fish oil supplement users, on the other hand, have over **100%** higher omega-3 levels than seen in this study of men who apparently consumed little cold-water fish and no omega-3 supplements.

To put this into real-world perspective, the trivial difference (**0.18%**) in plasma **omega-3** between men with no prostate cancer and those with prostate cancer could occur if a man ate just a **few ounces of a cold-water fish like salmon** the night before.

Remember, plasma phospholipid testing for fatty acids was used in this study. However, this type of fatty acid testing can vary widely depending upon short-term dietary intake. In contrast, long-term uptake by cells and tissues of the body is far less dependent upon short-term changes in diet. For this reason, the omega-3 RBC equivalence score is far better at evaluating cellular uptake over time as a result of fish ingestion and fish oil supplementation.



There was only one baseline blood draw. The men were followed for up to six years (low-grade and high-grade cancer), with a smaller group followed up to nine years to see who would get high-grade prostate cancer. Those who developed prostate cancer were then compared against their baseline blood draw done years earlier.

This kind of methodology is open to misinterpretation and errors even if there were large variances in omega-3 fatty acid percentages, but the **0.18%** difference is so **tiny** that it has no relevance to aging humans who choose to include omega-3-rich foods in their diet and supplement with fish oil.

This may be the first study that seeks to discredit a food/supplement (i.e., omega-3s) where the human subjects were not even taking a fish oil supplement nor ingesting significant amounts of an omega-3 food.

A **0.18%** difference in plasma omega-3 fatty acids between men who contracted prostate cancer and those who did not is infinitesimally small. To extrapolate a conclusion from this very small difference is false, misleading, and meaningless ... but it did generate a lot of news headlines.

**Life Extension** is concerned that some men will decrease consumption of omega-3s. The result will be sharp elevations of blood triglyceride levels along with increased thrombotic, inflammatory, and atherogenic risks. An epidemic of coronary artery blockage and ischemic stroke will soon follow.

## Results Are Completely Inconsistent with the Known Biology, Pathophysiology, and Biochemistry of Prostate Cancer

A fundamental aspect of quality research is consistency and repeatability.

Stated another way, for a medical finding to be considered valid, the results should not contradict well-established facts involving known biology, physiology, biochemistry, etc. Furthermore, the finding should be repeatable by other scientists.

The report attacking omega-3s is inconsistent with a variety of aspects of the well-established scientific and medical literature.

For example, upon close inspection of the data (and not simply a top-line, parroted response by the mainstream media eager to generate headlines), non-smokers had more aggressive prostate cancer, and non-drinkers (alcohol) had higher risk of prostate cancer, and prostate cancer case subjects were less likely to report a history of diabetes than controls.

Based upon these results, the implication is that men who wish to avoid prostate cancer should consume excess calories and develop diabetes, drink alcohol heavily, and abuse tobacco.

This is completely inconsistent with well-established science and utter nonsense.

In fact, numerous scientific studies show fish oil omega-3 fatty acids offer significant protective benefit for prostate health.

## Fish Oil Omega-3 Fatty Acids Offer the First Line of Defense Against Prostate Cancer

In contrast to this attack on omega-3s, the scientific literature identifies diets high in omega-6 fats, *trans*-fatty acids, and saturated fats as associated with greater prostate cancer risk, whereas increased intake of long-chain omega-3 fats from fish has been shown to reduce risk. Based on consistent findings across a wide range of human populations, scientific research has identified why eating the wrong kinds of fatty acids provokes a stimulatory effect on prostate cancer.<sup>29,30</sup>

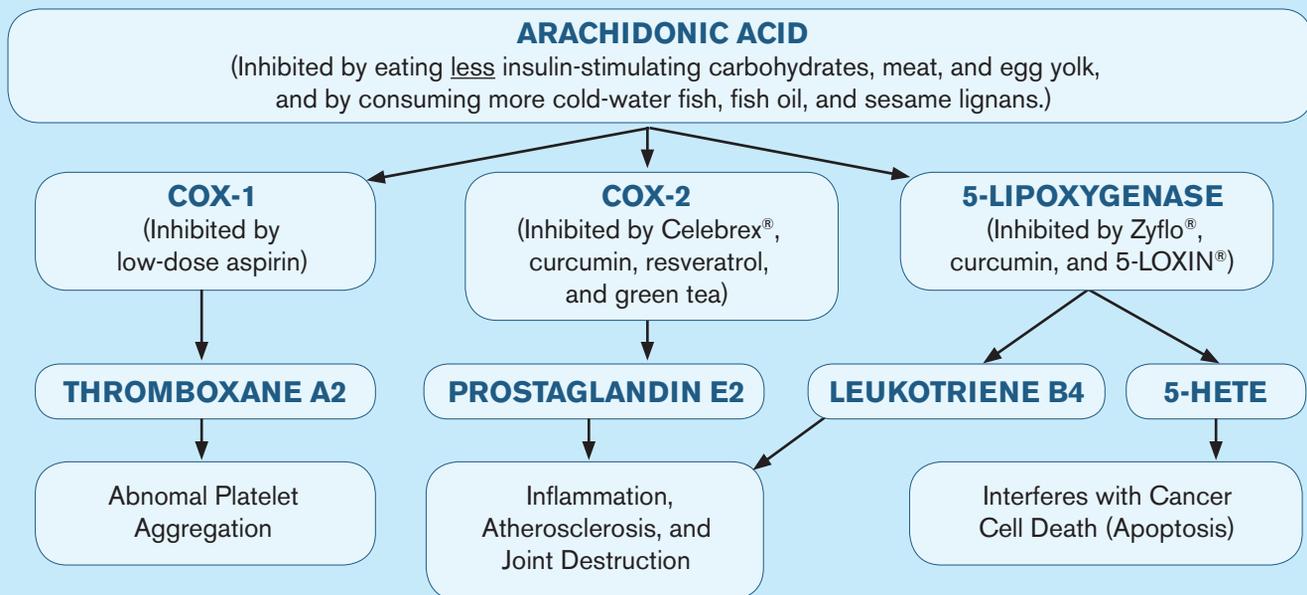
To ascertain what occurs after dietary fatty acids are consumed, the biochemical pathways shown on the chart below provides the answers. For example, let us assume that for dinner, you eat a steak (a source of saturated fat, as well as arachidonic acid) and a salad, along with a typical dressing rich in an omega-6 fat such as soybean or safflower oil.

Omega-6 fat readily converts to arachidonic acid in the body. As shown on the chart below, the body attempts to compensate for excess arachidonic acid through the 5-lipoxygenase (5-LOX) pathway. Multiple studies strongly show that 5-LOX enzymatic by-products like leukotriene B4 and 5-HETE directly stimulate prostate cancer cell proliferation through several well-defined mechanisms.<sup>31-36</sup>

For example, arachidonic acid is metabolized by 5-LOX to 5-hydroxyicosatetraenoic acid (5-HETE), a potent survival factor that prostate cancer cells use

### ARACHIDONIC ACID'S DESTRUCTIVE CASCADE

To better understand the pathways by which arachidonic acid can cause arthritic, carcinogenic, and cardiovascular conditions, the flow chart below shows how arachidonic acid cascades down into damaging compounds in the body.



to escape destruction.<sup>37,38</sup> Consuming a diet of foods rich in arachidonic acid, or precursors to arachidonic acid like the omega-6 fat linoleic acid, directly provokes the production of dangerous 5-LOX metabolic by-products, which can promote the progression of prostate cancer. In addition to 5-HETE, 5-LOX also metabolizes arachidonic acid into leukotriene B4, a potent pro-inflammatory agent that causes destructive reactions throughout the body and inflicts severe damage to the arterial wall.<sup>39-41</sup>

If arachidonic acid levels are reduced, a corresponding suppression of the 5-LOX products 5-HETE and leukotriene B4 will occur. A wealth of scientific research clearly demonstrates that supplementation with long-chain fatty acids like EPA and DHA from fish oil can help reduce the production of arachidonic acid-derived eicosanoids in the body.<sup>42</sup>

In contrast with the misinterpreted results presented in this report of men who were not consuming significant amounts of omega-3s, many other clinical studies indicate substantial benefit with omega-3 fatty acid intake in prostate cancer.

### **Additional Studies Indicate Substantial Benefit with Increased Intake of Omega-3 Fatty Acids**

The report attacking omega-3s conflicts with prior studies demonstrating that increased intake of omega-3 fats has been shown to reduce prostate cancer risk and diets high in omega-6 fats are associated with greater risk. This flawed analysis suggests a relationship between increased omega-6 fatty acid levels and decreased risk of prostate cancer, which is, again,

utterly inconsistent with the known pro-inflammatory effects of omega-6 fatty acids. The following studies, overlooked by the headline hungry media, show a reduction in prostate cancer in response to higher omega-3 status:

- A 2010 meta-analysis found a **63%** reduction in prostate cancer death rates in those with higher fish consumption.<sup>2</sup>
- A 2004 study of 47,866 men found a trend toward decreased risk of prostate cancer with increasing levels of EPA and DHA.<sup>3</sup>
- A 2007 Harvard study of 14,916 men found lower incidence of prostate cancer in men who had higher levels of long chain omega-3 fatty acids.<sup>4</sup>
- A 2013 Harvard study of 293,464 men found increased omega-3 fatty acid intake was associated with significantly lower rate of fatal prostate cancer.<sup>5</sup>
- A 2012 Harvard study of 525 men found a **40%** lower prostate cancer death rate among men with the highest intake of marine fatty acids.<sup>6</sup>
- A 2011 Duke University study found an increased omega-6:omega-3 ratio (i.e., more omega-6 and less omega-3) was associated with a significantly elevated risk of high grade prostate cancer.<sup>7</sup>
- A 1999 New Zealand study found significantly lower rates of prostate cancer with higher blood levels of EPA and DHA.<sup>8</sup>



- A 1999 Korean study found increased blood levels of omega-3 fatty acids associated with lower rates of prostate cancer and benign prostatic hyperplasia.<sup>9</sup>
- A 2003 prospective study reported “that men with high consumption of fish had a lower risk of prostate cancer, especially for metastatic cancer.”<sup>11</sup>
- A 2010 study that evaluated nutrient intake and prostate cancer risk concluded “High intake of omega-6 fatty acids, through their effects on inflammation and oxidative stress, may increase prostate cancer risk.”<sup>43</sup>
- The University of Chicago conducted a study published in 2004 that showed PSA levels rose in tandem with the omega-6 to omega-3 ratio in Jamaican men whose PSA was **>10 ng/mL**. The researchers noted, “Increased levels of Omega-6 PUFAs and the ratio of Omega-6/Omega-3 PUFAs in Jamaican men are associated with an increased mean PSA level and risk of prostate cancer.”<sup>44</sup>
- In addition to the clinical trial literature indicating consistent benefits with omega-3 fatty acid intake, traditional Japanese and Mediterranean diets rich in omega-3 fatty acids show a strong, consistent risk reduction in prostate cancer vs. Western diets rich in omega-6 and saturated fat.

### Traditional Diets in Japan and The Mediterranean Region High in Fish are Protective Against Prostate Cancer

The results set forth by authors of the negative report on fish oil that omega-3 intake may be linked to prostate cancer are inconsistent, and in abject contrast, to longstanding evidence that diets high in marine lipids, such as the traditional Japanese diet and the Mediterranean diet, are protective against prostate cancer.

For example, the traditional Japanese diet, rich in omega-3 fatty acids from fish, confers protection against prostate cancer, as does the relatively high intake of fermented soy products and relatively low levels of saturated fat.<sup>45</sup> The characteristics of the traditional Japanese diet high in soybean products, high in fish, and low in red meat are highly relevant in prostate cancer biology. In all likelihood, the traditional Japanese diet reduces the risk of prostate cancer through a combination of characteristics that generate a synergistic, anti-cancer effect (on prostate cancer.)



Likewise, the protective properties of the Mediterranean diet in relation to heart disease and prostate cancer risk are well-established. Several aspects of this dietary pattern are protective, including regular consumption of small fish (smaller fish are less likely to contain contaminants than larger predatory fish such as tuna), high olive oil intake (there is synergy between olive polyphenols and fish oil), high daily ingestion of fresh vegetables, whole fruits (not pasteurized fruit juice rich in concentrated fructose), high-fiber cereals and legumes, and low intake of saturated animal fats and red meat.<sup>46</sup>

### Benefit Clearly Outweighs Risk for Fish Oil Supplementation Among Men

Overwhelming evidence currently available strongly favors fish oil supplementation for most aging humans.

Fish oil and greater marine omega-3 intake have repeatedly and consistently been shown to reduce cardiovascular risk across multiple types of studies. For example:

- A randomized, placebo-controlled trial found **1,800 mg** of combined EPA plus DHA was associated with a **10%** lower rate of cardiac events, **12%** lower rate of non-fatal infarctions, and an almost **11%** lower rate of cardiac deaths.<sup>47</sup>
- In a large intervention study, **18,000** patients were randomized to receive either a statin medication alone or a statin plus **1,800 mg** of EPA-fish oil daily. After five years, those with a history of coronary artery disease had a **19%** lower rate of major coronary events in the statin-plus EPA-fish oil group compared to the statin-only group.<sup>48</sup>



- A randomized, double-blind, placebo-controlled trial with chronic hemodialysis patients found that **1,700 mg** of omega-3 fatty acids daily was associated with a **70%** reduction in the relative risk of myocardial infarction.<sup>49</sup>
- A randomized, controlled trial using **3,300 mg** of EPA and DHA (and then a decreased dosage) found a trend toward lower cardiovascular event occurrence with fish oil supplementation. **Seven** cardiovascular events occurred in the placebo group (not given fish oil) while only **two** cardiovascular events occurred in the fish oil-supplemented group during the study.<sup>50</sup>
- A meta-analysis with an average fish oil dose of **3,700 mg** found lowered systolic blood pressure by an average **2.1 mmHg** and diastolic by **1.6 mmHg**.<sup>51</sup>
- In a randomized trial with peripheral arterial disease patients, **2,000 mg** of omega-3 fatty acids daily resulted in a **49%** improvement in flow-mediated dilation, a marker of endothelial cell health.<sup>52</sup>
- The GISSI-Prevenzione study (a large, randomized, controlled trial) found that **1,000 mg/day** of EPA and DHA in **11,323** patients with a history of recent myocardial infarction reduced the **risk of total mortality** by **20%** and **sudden death** by **45%**.<sup>53,54</sup>
- The DART study — a randomized, controlled trial that examined the effects of advising 2,033 subjects to increase dietary fatty fish — revealed a **29%** reduction in **all-cause mortality** compared with those not advised.<sup>55</sup>
- A 2009 meta-analysis of randomized, controlled trials found that dietary supplementation with omega-3 fatty acids reduced the incidence of sudden cardiac death in subjects with prior myocardial infarction.<sup>56</sup>
- Another 2009 meta-analysis of randomized, controlled trials found that dietary supplementation with omega-3 fatty acids reduced the risk of cardiovascular death, sudden cardiac death, all-cause mortality, and non-fatal cardiovascular events in patients with a history of certain cardiovascular events or risk factors.<sup>57</sup>
- A 2008 meta-analysis found a significant reduction in death from cardiac causes with fish oil supplementation.<sup>58</sup>
- A 2002 meta-analysis of randomized, controlled trials concluded that omega-3 fatty acids reduced overall mortality, mortality due to myocardial infarction, and sudden death in patients with coronary heart disease.<sup>59</sup>

## Will this Flawed Report Prompt an Epidemic of Prostate Cancer?

Regrettably, the public is poorly served by relying on a sound-bite frenzied news media for health data, which often involves parading a provocative medical headline without a deep, thorough evaluation of the study's validity.

This "science by ambush" denies an opportunity for meaningful rebuttal, since the media never wants to admit last week's headline news story was bogus.

The average percentage difference (**0.18%**) of plasma long-chain omega-3 fatty acids from a **single** baseline test renders the study questioning the safety of **omega-3s** meaningless. The authors don't even know if their study subjects were eating fish or taking fish oil supplements. We at **Life Extension** have criticized certain studies that solely rely on food questionnaires, but this attack on omega-3s didn't even attempt to ascertain if study subjects were ingesting the nutrient (omega-3s) in question. Yet its authors presumptuously warn of potential risks in consuming supplemental omega-3s!

The lack of rigor, as well as multiple layers of methodological problems and errors, notwithstanding the complete lack of consistency with the known, well-established biology and biochemistry of prostate cancer, should prompt outrage in the scientific and medical community.

The danger of this deeply flawed, compromised analysis is that aging men obtaining health information through the mainstream media will cease omega-3 fatty acid ingestion.



The consequences may be profound if men shun omega-3s as a result of this flawed study and follow its implied recommendations to consume more **omega-6** fats, which enhance inflammation and create a better environment for prostate cancer, as well as cardiovascular disease to flourish.

Although the researchers attempted to statistically model (through multivariate analysis) and control for some (but not all) critical, confounding risk factors like family history, the **higher** baseline PSA readings (implying more preexisting cancers) and **positive** family history (1<sup>st</sup> degree male relative with prostate cancer) in men who went on to develop prostate cancer raise concerns for the integrity of the analysis results. Along with these confounding factors, the marginal difference in baseline plasma **omega-3** levels of men who later developed prostate cancer cannot rationally implicate omega-3s as having a causal or causative effect. The plasma omega-3 levels of the entire study group showed consumption of omega-3 from food was inadequate and intake of meaningful fish oil supplementation non-existent.

Educated consumers should continue daily consumption of omega-3 fish oil. ●

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

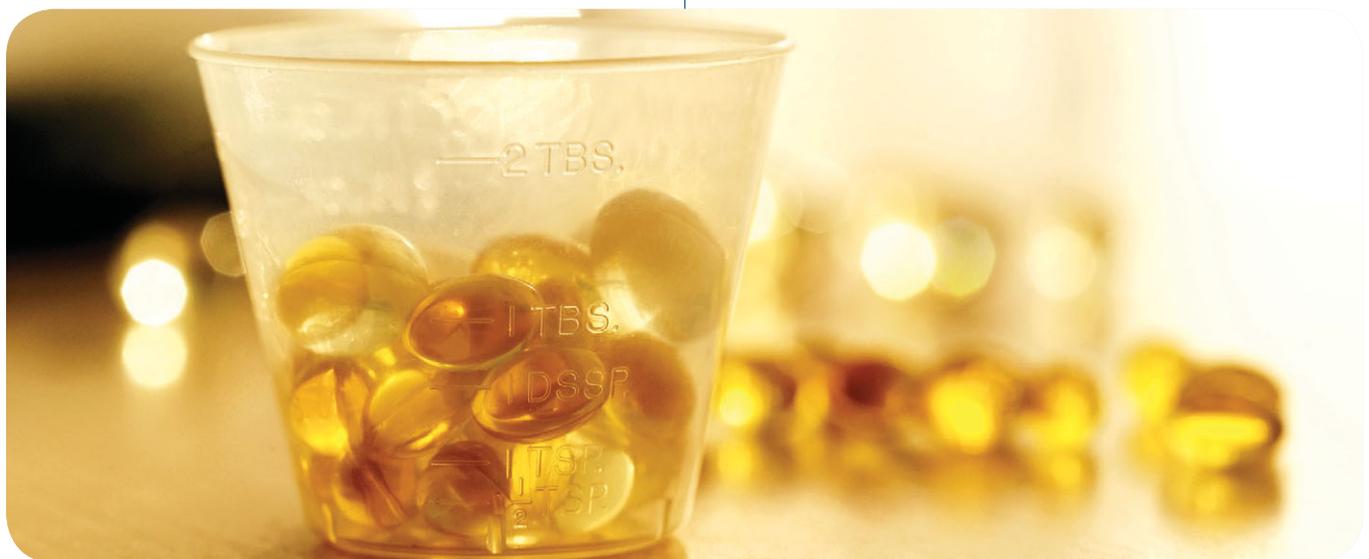
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# Unleash the Power of the Milk Thistle Seed

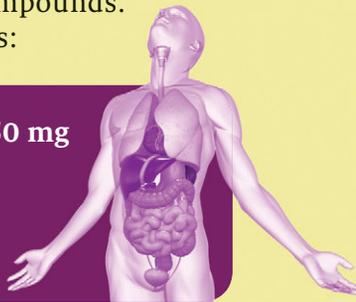


**Milk thistle** extract has long been thought of as one of nature's most potent weapons to support *human health*, but until recently, the technology hasn't been available to fully harness this plant's potential. Among the compounds waiting to be unlocked are a slew of *nourishing antioxidants* and 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)]



Item # 01522

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

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

#### Reference

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To order **Certified European Milk Thistle**  
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.

# VASCULAR BENEFITS OF A Mediterranean Diet

## VALIDATED IN HUGE NEW STUDY

A large, rigorous study published in the *New England Journal of Medicine* confirmed the health benefits of those who switch to a **Mediterranean diet** rich in **omega-3 fish oil** as well as protective nutrients called polyphenols found in **olive oil**, fruits, vegetables, nuts like walnuts, and wine.<sup>1</sup> The study ended early because the benefits were so overwhelming, with startling benefits for vascular health, that it was considered unethical to continue to deprive the control group.<sup>1</sup>

In addition to the health-promoting benefits of vegetables and fruits with their abundance of polyphenol nutrients, the Mediterranean Diet group took at least **4 tablespoons** of polyphenol-rich extra-virgin **olive oil** a day.<sup>1</sup>

### LIFE EXTENSION® MEMBERS LONG AGO BENEFITED

Starting in **2005**, Life Extension members began taking a supplement (**Super Omega-3**) that provided potent concentrations of **fish oil** and **olive polyphenols** like hydroxytyrosol and oleuropein. This supplement also provided standardized **sesame lignans** to support the beneficial effect of omega-3 fatty acids in the body.<sup>2</sup>

Olive oil contains polyphenol nutrients that have demonstrated wide-ranging health benefits.<sup>3-5</sup> The recommended twice daily dose of **Super Omega-3** supplies a similar polyphenol content to that found in **4 to 6 tablespoons of olive oil**.

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

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

### SUPER OMEGA-3 WITH SESAME LIGNANS AND OLIVE FRUIT EXTRACT

To ensure the purest, most stable, and easy-to-tolerate fish oil, **Super Omega-3 EPA-DHA** is *molecularly distilled*. It enjoys the highest **5-star rating** for **purity, quality, and concentration** from the renowned **International Fish Oil Standards** program.<sup>6</sup> The **sesame lignans** not only direct the omega-3s toward more effective pathways in the body, but guard the delicate fish oil from oxidation.<sup>2,7</sup>

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

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

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



Item #01482

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)

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.

# WE ARE RECRUITING FOR STUDY PARTICIPANTS!

## LIFE EXTENSION CLINICAL RESEARCH, INC.

### ALZHEIMER'S DISEASE STUDY

The Life Extension Foundation® is sponsoring a study to measure the effects of weekly injections of a study medication plus nutritional supplements that may help suppress an inflammatory factor implicated in the neuronal degeneration of Alzheimer's disease.

If you or someone you know:

- Lives in the Fort Lauderdale, Miami, or Palm Beach area of Florida.
- Has mild to moderate Alzheimer's disease.
- Please contact us for further information and to see if you qualify.

#### Qualified participants receive:

- Blood tests, evaluations, blood pressure checks, study medication, and supplements at no cost to you.
- Compensation up to \$500 upon completion of the study.

### OVERWEIGHT AND MILDLY ELEVATED BLOOD SUGAR STUDY

Life Extension Clinical Research, Inc. is conducting a trial to measure the effects of nutritional supplementation on blood sugar and blood vessel health.

If you or someone you know:

- Lives in the Fort Lauderdale, Miami, or Palm Beach area of Florida.
- Is overweight, 25-65 years of age, and has mildly elevated blood sugar with no previous diagnosis of diabetes.
- Please contact us for further information and to see if you qualify.

#### Qualified participants receive:

- Blood tests and blood vessel health evaluations at no cost to you during the trial
- Compensation of \$200, a Life Extension \$100 gift card and up to \$50 for travel expenses upon successful completion of the trial.

### REGISTER OR CONTACT US FOR MORE INFORMATION

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# ULTIMATE PROSTATE PROTECTION



Item# 01695

**Ultra Natural Prostate** combines cutting-edge ingredients that have been scientifically substantiated to protect the prostate gland and maintain its healthy function.\*

**AprèsFlex®** is an extract of *Boswellia serrata* that has **two times the bioavailability** of the leading boswellia extract. AprèsFlex® inhibits the 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 is included in the formula to help maintain healthy DNA gene function in prostate cells.

In order to boost its anti-estrogen capabilities, **Ultra Natural Prostate** 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 with AprèsFlex® and Standardized Lignans** is \$38. If a member buys four bottles, the price is reduced to **\$26.25** per bottle. If a member buys 12 bottles, the price is reduced to **\$24** per bottle.

AprèsFlex® is a registered trademark of Laila Nutraceuticals exclusively licensed to PL Thomas—Laila Nutra LLC. International patents pending. 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.

The daily dose of two softgels of **Ultra Natural Prostate with AprèsFlex® and Standardized Lignans Formula** provides:

<b>USPlus® Saw Palmetto</b> (C0, DeepExtract™) (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®</b> ( <i>Boswellia serrata</i> ) <b>extract</b>	<b>70 mg</b>
<b>Pumpkin seed oil</b> ( <i>Cucurbita pepo</i> ) <b>extract</b> (standardized to 85% total fatty acids)	<b>200 mg</b>
<b>Stinging and Dwarf nettle root extracts</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> HMRLignan™ Norway Spruce and Flax Lignan extracts	<b>20.15 mg</b>
<b>Boron</b>	<b>3 mg</b>

Contains soybeans.

To order **Ultra Natural Prostate with AprèsFlex® and Standardized Lignans**, 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 *TRUTH* About Male and Female Sexual Dysfunction

No one ever counted themselves lucky to have erectile dysfunction—but maybe they should. *Because having erectile dysfunction might just save your life.*

Erectile dysfunction (ED) is one of the earliest symptoms of coronary artery disease—showing up as a warning sign *up to three years* before a heart attack or stroke.<sup>1</sup>

According to the **Centers for Disease Control and Prevention**, coronary artery disease kills more than 385,000 people every year.<sup>2</sup> And one shocking study reported that **men with erectile dysfunction have 8-times the risk of heart failure** over about a 2.5 year follow-up period than men without this problem!<sup>3</sup>

In addition to heart failure, sexual dysfunction can also indicate other serious, **underlying disease factors**—including neurological damage, diabetes, multiple sclerosis, and more.<sup>4-13</sup>

Conventional drug options generally **treat the symptoms** of sexual dysfunction—without improving the underlying causes that can lead to serious disease.<sup>14,15</sup>

The good news is that there are proven and safe *natural* therapies that **reverse the root causes** of sexual dysfunction for both men and women—reducing your risk of heart disease and increasing your life span in the process.





### **Sexual Dysfunction Is Not a Disease**

If you judge by drug advertisements, you'd never guess that *male sexual dysfunction* is frequently the **result** of underlying health issues. These include vascular problems, prostatic disease, neurological damage, diabetes, metabolic syndrome, obesity, multiple sclerosis, and even medication side effects.<sup>3,6,8-13</sup>

Similarly—although studies of sexual dysfunction in women have lagged behind those in men<sup>16</sup>—*female sexual dysfunction* has also been found to be a common **result** of diabetes, urinary incontinence, cancer, medical or surgical treatments, and other biological factors.<sup>5,7,13,17</sup> >



One sexual symptom commonly associated with aging—**decreased libido**—is now clearly tied with **poor** physical health in males and females—and not necessarily with age itself.<sup>16,18,19</sup>

Many people don't seek treatment for sexual dysfunction.<sup>20</sup> And those who *do* seek treatment are often prescribed drug treatments for specific sexual **symptoms**—without any investigation into potential **underlying cofactors**.

The main reason for this is that, increasingly, sexual complaints are labeled as drug-treatable “**diseases**” in themselves—discouraging mainstream doctors from pursuing any deeper investigation into the patient's health.<sup>15</sup>

## Why Mainstream Solutions Don't Work

**Coronary artery disease** strikes epidemic numbers of aging humans. **Erectile dysfunction** can be one of the earliest symptoms of heart disease.<sup>1</sup> **Reduced libido** and **loss of fertility** are also potential predictors of vascular disease.<sup>21</sup>

Unaware of these links, many aging men turn to drug prescriptions—such as Viagra®, Cialis®, or Levitra®—to treat sexual symptoms. These drugs work by relaxing the smooth muscles that line the arteries, thus increasing blood flow into arteries that supply the penis.

But these drugs work for only about **half** of erectile dysfunction patients, their effect is only **temporary** (although they can cost as much as \$15 a pill),<sup>11</sup> and their **side effects** can range from indigestion,<sup>22</sup> flushing,<sup>23</sup> visual disturbances,<sup>24-26</sup> hearing loss,<sup>27,28</sup> and headache<sup>29,30</sup> to more serious health problems, such as neurologic disorders<sup>31</sup> and heart attack.<sup>32</sup>

Above all, these medications do *not* treat the underlying cause of erectile dysfunction, heart disease, and peripheral artery disease: **chronic endothelial dysfunction**.

But you don't have to rely on costly, dangerous, and often ineffective prescription drugs that only treat the symptom (erectile dysfunction) of a much larger health threat (coronary artery disease). Innovative scientists have determined **three natural** ingredients enhance endothelial function, and as a result simultaneously improve sexual capability and protect against **heart attack and stroke**.

Published research reveals how the interaction of these **three natural ingredients** tackles male sexual dysfunction from multiple angles.

## How to Reverse Male Sexual Dysfunction

Healthy endothelial cells release **nitric oxide synthase**, an enzyme that catalyzes production of the chemical compound **nitric oxide** from the amino acid **L-arginine**. Nitric oxide triggers relaxation of the smooth muscle in the arteries of the penis, providing the adequate blood flow necessary to support an erection. However, dysfunctional endothelial cells, disabled by plaque buildup, can no longer produce enough nitric oxide synthase.<sup>33</sup>

Fortunately, scientists have had remarkable success treating male sexual dysfunction with a nutrient blend that targets the underlying mechanisms of **erectile dysfunction**. This formulation includes:

- **Pycnogenol®**, a French maritime pine bark extract
- **L-arginine aspartate**, an amino acid chelate, and
- **Icariin**, a flavonoid compound used in Chinese herbal medicine.

**Pycnogenol®** and **L-arginine aspartate** work together to stimulate **nitric oxide synthase**, yielding sufficient bioactive nitric oxide to produce and maintain an erection.<sup>34</sup>

**Icariin** further supports the ability to maintain an erection by blocking **phosphodiesterase-5 (PDE5)**—the enzyme responsible for causing erections to

subside.<sup>35</sup> This enzyme-blocking effect mimics the primary mechanism of Viagra®—although Viagra® delivers no other benefit.

Human trials have clearly demonstrated that this nutrient blend produces a *broad array* of clinically proven health effects including:

- Normal **erectile function**<sup>34,36,37</sup>
- Enhanced **sperm quality** and **quantity**<sup>38-40</sup>
- Increased **male fertility**<sup>39</sup>
- Higher **sexual interest**<sup>41</sup> and greater **intercourse frequency**<sup>34</sup>
- Enhanced **sexual performance**<sup>41</sup>
- Lowered **blood cholesterol levels**<sup>34</sup> and
- Reduced **blood pressure**.<sup>34,36</sup>

This combination may provide *additional* health benefits, because stimulation of nitric oxide is also known to:

- Act as a neurotransmitter that is involved in **long-term memory**<sup>42-44</sup>
- Modulate the release of **neurotransmitters**<sup>45</sup>
- Promote a healthy **immune** system<sup>46</sup> and
- Play a critical role in **blood clotting** through its modulation of vascular tone, coagulation, and fibrinolysis.<sup>47</sup>

### Proven Results in Clinical Trials on Men

Multiple human studies have shown that supplementing with the components of this natural combination restores male sexual function,<sup>34,37-41</sup> reverses low male fertility,<sup>38,40</sup> and can even double the frequency of sex.<sup>34</sup>

In one study, patients aged 25 to 45 who were suffering from **erectile dysfunction** were treated for three months with *arginyl aspartate* (which provided the equivalent of **1.7 grams per day** of *L-arginine*). After one month, only **5%** of patients experienced normal erections. But during the second month, **80 milligrams daily** of *Pycnogenol*® was added to the arginine regimen, at the end of which a significant **80%** of patients were experiencing normal erections. During the third month, the *Pycnogenol*® dose was increased to **120 milligrams daily**, at the end of which a compelling **92.5% of all participants achieved normal erectile function**.<sup>137</sup>

Another clinical trial examined the effect of treatment with these two compounds on 50 middle-aged

## The Truth About Sexual Dysfunction

- Commonly afflicting both men and women, **sexual dysfunction** frequently signifies underlying disease factors such as cardiovascular, neurological, metabolic, and other disease pathways.
- Men with erectile dysfunction have an 8-fold greater risk of heart failure.
- For men, drug options do *not* treat the underlying physiological causes of sexual dysfunction. And for women, there simply are *no* available drug options (except for hormone replacement).
- Researchers have identified several *new* natural compounds that regulate the multiple underlying pathways, reversing the root causes of sexual dysfunction for both men and women—which can also help prevent chronic, age-related diseases for which sexual problems can be a warning.
- *Pycnogenol*®, *L-arginine aspartate*, and *icariin* have been demonstrated to safely and naturally treat male sexual dysfunction.
- Similarly, *Cordyceps sinensis*, *maca* (*Lepidium meyenii*), and *EstroG-100*™ have been shown to provide safe treatments for female sexual dysfunction, and for menopausal symptoms.



men with low testosterone levels who were suffering from erectile dysfunction and **poor fertility** (due to impaired sperm motility and morphology). The patients took **3 grams** of L-arginine aspartate, **120 milligrams** of Pycnogenol®, and **120 milligrams** of *testosterone undecanoate* daily. By the 11-month mark, **76%** of the men had achieved normal sexual function—and after 12 months, sperm quality and quantity had improved to such a point that an astounding **40%** (20 out of 50 patients) had **achieved fertilization**.<sup>39</sup>

Other clinical studies further confirmed the ability of *Pycnogenol*® and *L-arginine aspartate* to restore **erectile function**,<sup>34</sup> reverse **low male fertility** values by improving sperm quality<sup>38,40</sup> and semen volume,<sup>38</sup> and double **intercourse frequency**.<sup>34</sup>

*Icariin* (or *Yin Yang Huo*)—a flavonoid compound extracted from plants in the *Epimedium* family—is the third ingredient of this trifecta based on its ability to **block the action of PDE5**, the enzyme that causes erections to subside.<sup>35,48-50</sup>

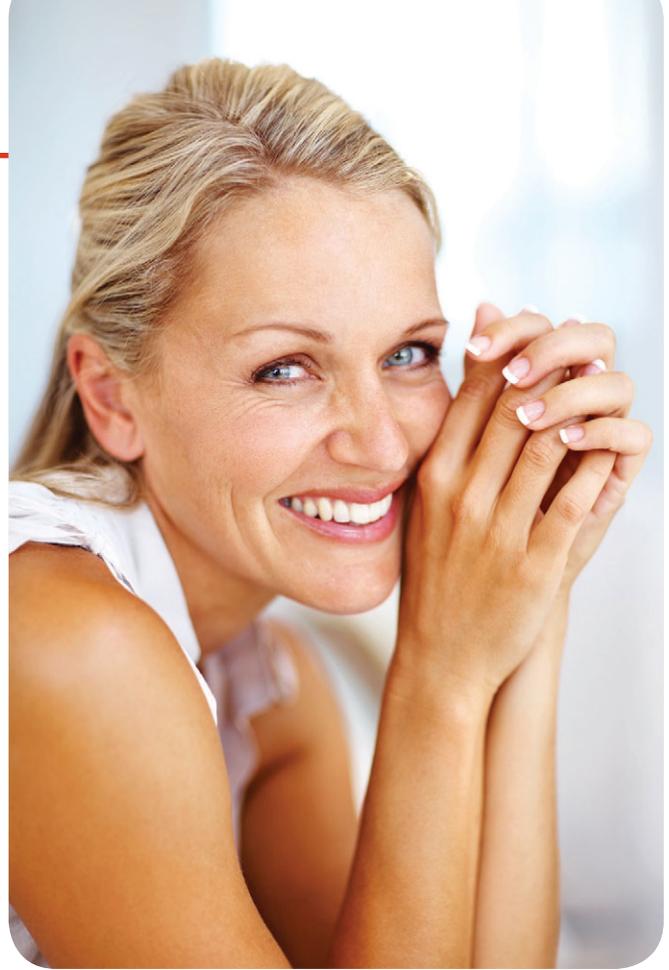
In human endothelial cell culture studies, as well as in animal models, *icariin* has been shown to enhance the production of nitric oxide.<sup>51-53</sup> Additionally, scientists have noted that *icariin* behaves similarly to testosterone—a significant feature, since testosterone is crucial for healthy sexual function.<sup>54</sup> Animal research has shown that administration of *Epimedium* extracts improves erectile function in aged rats.<sup>55</sup> Together, these multiple mechanisms of action suggest that *icariin* can help maintain healthy **erectile function**.

### Potent Formula Reverses Female Sexual Dysfunction

We don't hear much about *female* sexual dysfunction—mainly because there are limited guidelines pertaining to the diagnosis and treatment of the condition.<sup>56</sup> In reality, loss of libido and other forms of sexual dysfunction plague more women than men—and sadly, **40%** of affected women do **not** seek help from a physician.<sup>57</sup> It wouldn't help much if they did, because mainstream doctors have limited protocol options (other than possibly hormone replacement) for this common condition.<sup>56</sup>

Female sexual dysfunction involves the disruption of **multiple** physiological mechanisms—and modern medicine has **no** consistently safe and effective treatment that targets these various, underlying pathways.

It's important to note the difference between *disinterest* and *dysfunction*. Preferring at times not to engage in sexual activity does not indicate a woman has female sexual dysfunction. Disinterest, or even occasional dysfunction, can be a normal response to



a variety of life situations. However, many women are frustrated and depressed by complaints that include **decreased libido** (low desire or arousal), **anorgasmia** (inability to achieve orgasm), **dyspareunia** (painful intercourse), and **urogenital atrophy** (vaginal itching, soreness, dryness, and pain).<sup>58</sup>

Fortunately, recent scientific discoveries have found a solution—and it doesn't involve taking a single prescription drug. Female sexual dysfunction can be traced to **six underlying pathways** that—*if simultaneously regulated*—result in a **reversal** of the full range of symptoms!

Research scientists narrowed down an extensive search of natural plants to **three** complementary **botanical-based compounds**:

- *Cordyceps sinensis* extract
- *Lepidium meyenii* (maca) extract
- **EstroG-100™** three-extract blend

The combined effects of *Cordyceps sinensis* and *maca* modulate **all six** diverse, underlying biochemical mechanisms—restoring a woman's normal sexual desire and function.

Also, the blend of three unique extracts known as **EstroG-100™** modulates the hormonal activity behind menopausal symptoms—which are frequently the trigger for female sexual dysfunction.

## Proven Results in Clinical Trials on Women

### *Cordyceps sinensis*

Scientists have found that the active substances in the medicinal mushroom *Cordyceps sinensis* were able to improve female sexual dysfunction in just 40 days!

In a double-blind, placebo-controlled study, scientists tested the Cs-4 strain of *Cordyceps* on elderly female patients suffering from sexual dysfunction. The test group took *Cordyceps* Cs-4 in dosages that translate to **375 milligrams** of commercially prepared product (because it is formulated as an 8:1 extract). Up to **86%** of the women in the Cs-4 group significantly improved both hyposexuality signs and symptoms—in **only 40 days!**<sup>59</sup>

The pharmacologically active substances in extract of *Cordyceps sinensis*—derived from the Cs-4 strain of this medicinal mushroom—were found to act along **5 of 6 distinct pathways** of female sexual dysfunction to:

- Balance levels of estrogen and testosterone by modulating the **hypothalamus-pituitary axis** (HPA)<sup>59</sup>
- Promote the downstream flow of sex hormones by optimizing **adrenal function**<sup>59,60</sup>
- Increase energy levels and sexual interest by supporting **mitochondrial function**<sup>59,61</sup>
- Promote normal vaginal lubrication and sexual function by boosting antioxidant action and inhibiting the destruction of **nitric oxide**,<sup>60,62</sup> and
- Moderate inflammation by controlling levels of **pro-inflammatory cytokines**, thus blocking their dampening effect on sexual desire and activity.<sup>63,64</sup>

### *Maca*

Studies show that an extract of *Lepidium peruvianum*, a high-altitude root plant popularly known as *maca*, can improve female sexual dysfunction in as little as six weeks!<sup>65</sup>

In a double-blind, placebo-controlled study, postmenopausal women were given either placebo or **powdered maca** that translates to **583 to 875 milligrams a day** of product (because it is formulated as a 4-6:1 extract).<sup>65</sup> Measured on a standard **sexual dysfunction scale**, the participants who took maca scored more than **34%** lower (meaning *better*) than placebo subjects. They also tested **30%** lower (meaning *better*) on a subscale of anxiety and depression symptoms—a substantial improvement **in just six weeks!**<sup>65</sup>

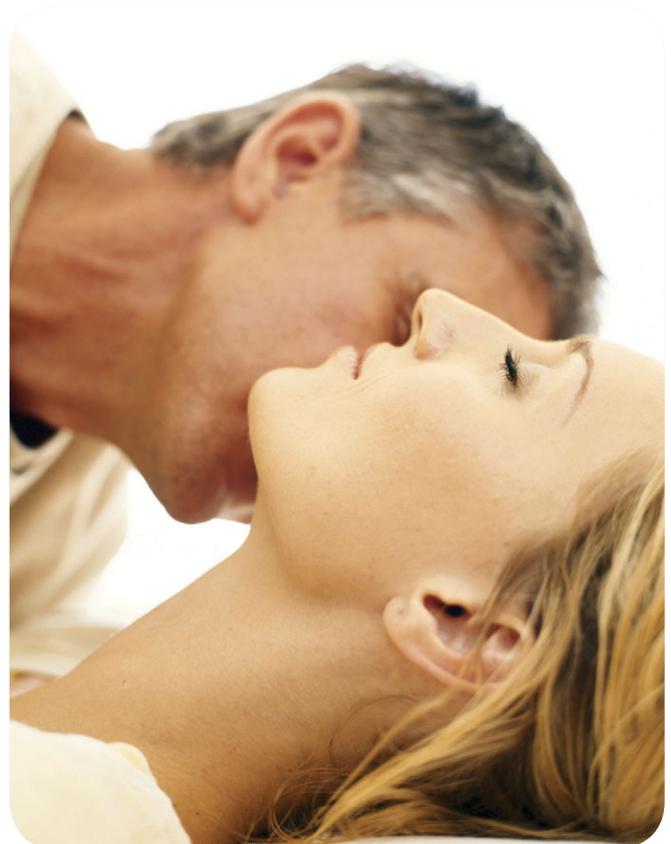
Maca works by providing the optimum balance of nutrients utilized by the body's **neuroendocrine** system.<sup>66</sup> Evidence shows that this allows maca to regulate **3 of 6 different pathways** of female sexual dysfunction—two of those also regulated by *Cordyceps* plus one other. Maca can:

- Modulate the **hypothalamus-pituitary axis** (HPA)<sup>65,67</sup>
- Regulate **adrenal** function,<sup>65,68</sup> **and**
- Optimize levels of **brain neurotransmitters**—*in turn reducing the risk of decreased libido, depression, and sexual dysfunction.*<sup>65,69</sup>

### *EstroG-100™*

The third compound contains three plant extracts: *Phlomis umbrosa*, *Cynanchum wilfordii*, and *Angelica gigas Nakai* (Korean Angelica).

When blended in correct proportions within a single formulation known as *EstroG-100™*, these extracts naturally and **selectively** regulate estrogenic activity (*enhancing* activity in some tissue while *inhibiting* it in other tissue). This in turn prevents many of the symptoms of **menopause**—*including female sexual dysfunction.*<sup>70</sup>



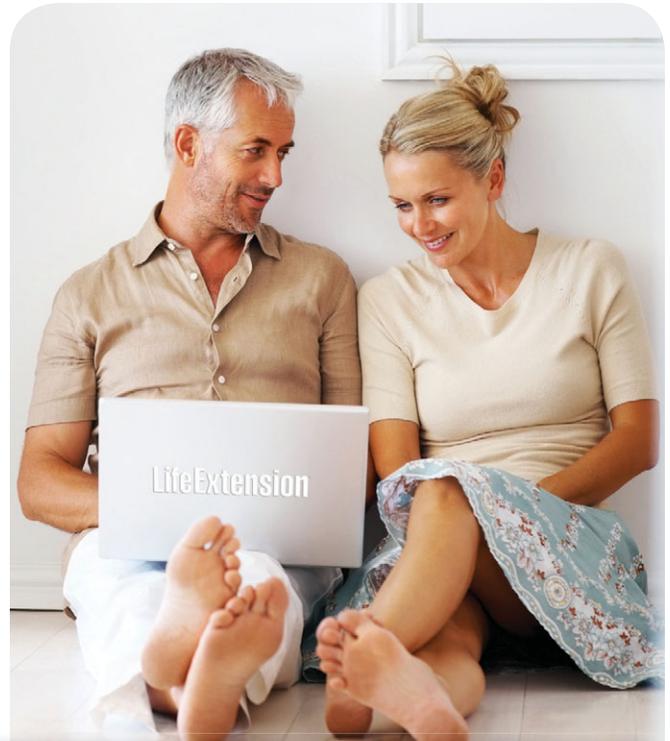
Scientists conducted a double-blind, placebo-controlled study of 64 women with moderate or severe menopausal symptoms. The test group was given **257 milligrams** of the *EstroG-100™* blend **twice daily**.

As a result, the average Kupperman Menopausal Index score (a measure of menopausal symptoms) decreased by **62%** in the *EstroG-100™* group, but only by **19%** in the placebo group. And the average vaginal dryness score decreased by **59%** in the treatment group versus just **27%** among placebo subjects.<sup>70</sup>

These substantial menopausal and sexual improvements resulted after only **12 weeks**—without weight gain or other negative effects!<sup>70</sup>

### Summary

**Male and female sexual dysfunction** is often an indicator of underlying disease factors—including cardiovascular, neurological, metabolic, and other disease pathways. Drug options for men generally provide only short-term relief from sexual dysfunction symptoms—but do *not* address the underlying physi-



### Treat the Sexual Side Effects of Antidepressants

Adverse sexual effects—which can include loss of sexual drive, failure to reach orgasm, and erectile dysfunction—are among the most common negative effects of taking antidepressants.<sup>71,72</sup> Men are more often affected by these sexual side effects, but women report more serious sexual symptoms.<sup>72</sup>

To offset antidepressant-related sexual dysfunction, doctors often prescribe *additional* medications.<sup>73-75</sup> But these added drugs bring their own adverse reactions<sup>76</sup>—and some even reverse the mood benefit of the antidepressants!<sup>77</sup>

Fortunately, a natural extract has been shown to treat sexual dysfunction—in both men and women—when it is a side effect of taking antidepressant drugs.

**Scientists tested an extract of saffron on men who were experiencing sexual dysfunction as a result of their prescription antidepressant.**<sup>76</sup>

In a double-blind trial, researchers enlisted 36 married men whose symptoms of major depressive disorder had been successfully stabilized on **Prozac®** (*fluoxetine*)—but who had complaints of sexual impairment. They were randomly assigned to add to their usual dosages of Prozac®, **2 daily** doses of either **15 milligrams** of saffron or a placebo. Sexual function was assessed using a standard index.<sup>76</sup>

After just 4 weeks, the men in the Prozac®-plus-saffron group had experienced significantly greater improvement in erectile function and intercourse satisfaction than in the Prozac®-plus-placebo group. The team determined that saffron is a “tolerable and efficacious treatment” for male sexual dysfunction induced by Prozac®.<sup>76</sup>

**Next, scientists set out to determine if saffron could similarly offset the unwanted sexual effects experienced by women taking a prescription antidepressant.**<sup>78</sup>

A team enlisted 38 women, all of whom had major depression that had been stabilized on Prozac®—but who suffered from various types of sexual dysfunction induced by this antidepressant. In the double-blind study, half of the women were randomly assigned a supplement of **30 milligrams daily** of saffron extract while the rest took a placebo. All participants continued to take their usual dosage of Prozac®, and assessments were made using the Female Sexual Function Index (FSFI).<sup>78</sup>

After 4 weeks—despite still taking the same antidepressant that had induced the unwanted sexual symptoms in the first place—women in the saffron group experienced significant improvement in total sexual function, arousal, lubrication, and pain.<sup>78</sup>

ological cause that can lead to serious disease. And women simply have *no* available drug options (other than hormone replacement).

Fortunately, scientists have identified several natural compounds—for both men and women—that **reverse** the root causes of sexual dysfunction. Proper use of these nutrients can help **prevent** age-related disorders for which sexual dysfunction is often an early warning sign.

In double-blind, placebo-controlled studies, **Pycnogenol®**, **L-arginine aspartate**, and **icariin** have been shown to safely and naturally treat male sexual dysfunction.

Similarly, **Cordyceps sinensis**, **maca (Lepidium meyenii)**, and **EstroG-100™** (a three-extract blend) have been scientifically validated in placebo-controlled trials to safely treat female sexual dysfunction and to alleviate the menopausal symptoms that can trigger it. ●

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 **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 # 01680

- **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)	200 mcg	Gamma Tocopherol	197.45-296.25 mg
Vitamin K2 (as menaquinone-4)	1000 mcg	Lycopene	10 mg
Vitamin K1 (as phytonadione)	1000 mcg	Lutein	2 mg
Ginkgo extract	120 mg	Vitamin B12	300 mcg
Sesame lignans	20 mg	Vitamin C	95 mg
Chlorophyllin	100 mg		

A bottle of 60 **Super Booster** softgels retails for \$42. If a member buys four bottles, the price is reduced to **\$28.50** per bottle.

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

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

Contains soybeans.

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

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

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

# A SUPERIOR WHEY PROTEIN

from Grass-Fed, Free Range Cows not treated with Growth Hormone (rBST).

As people age, they become more susceptible to muscle deterioration and a declining immune system.<sup>1,2</sup> Fortunately, **whey protein** can have a positive impact on muscle construction and immunity due to its *branched-chain amino acid profile* (BCAAs) and naturally occurring *lactoferrin* and *immunoglobins*.<sup>3-5\*</sup>

Unlike many commercial brands on the market, **New Zealand Whey Protein Concentrate** is uniquely derived from **grass-fed, free range cows** living healthy lives in New Zealand and not treated with Growth Hormone (rBST).

Life Extension's New Zealand Whey Protein Concentrate offers the following:

- **Non-GMO Whey Protein Concentrate!**
- **Naturally high levels of essential branched-chain amino acids!**
- **High-quality muscle building protein!**
- **Easily mixes into water or milk!**
- **Great Taste!** – Available in both **natural chocolate** and **natural vanilla** flavors.

The retail price for an 18.34 ounce container of **New Zealand Vanilla Flavored Whey Protein Concentrate** (Item # 01770) or for a 23.28 ounce container of **New Zealand Chocolate Flavored Whey Protein Concentrate** (Item # 01771) is \$30. If a member purchases four bottles, the price is reduced to **\$19.95** per bottle. Contains milk.

**To order New Zealand Whey Protein Concentrate, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)**

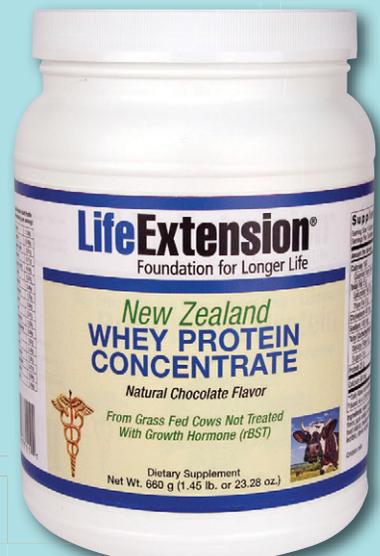
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Item # 01770



Item # 01771

\*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, nutrient 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 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**—from a natural botanical 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 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>Icariin</b> [Natural Sex® <i>Epimedium sagittatum</i> Extract (aerial parts)]	<b>60 mg</b>

A 60-tablet bottle of **Life Extension® Prelox® Natural Sex for Men**® retails for \$52. If a member buys four bottles, the price is reduced to just **\$36 per bottle**.

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Item # 01373

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



# Dr. Ruth

## Advice for Every Age

Too often the word 'icon' is used to describe people who hardly deserve the distinction, but in the case of Dr. Ruth Westheimer, a woman who practically created the modern day mainstream sex therapy industry, it is the only word that truly fits. Dr. Ruth's rise to prominence began in 1980, when a New York radio station brought her in as a guest on one of its shows to try and spice things up with some talk of the then-taboo subject of sex.



© MARIANNE RAFTER

It is easy now to think of all the good-natured caricatures that have been done honoring Dr. Ruth's unique personality, but let's not forget that she has studied at the University of Paris, The New School, the Teachers College at Columbia University, and she did her post-doctoral work in human sexuality at New York-Presbyterian Hospital. She also speaks four languages, has taught seminars at both Princeton and Yale, and she has been the foremost expert in her field for over three decades. This is all to say that she has the educational chops to back up the endearing personality. But back to 1980... >

DR. RUTH

After only two appearances as a guest, the station director suggested they give Dr. Ruth her own forum, which she promptly got in the form of a fifteen minute program that aired at midnight on Sunday nights.

It would be easy to presume that a quarter-hour show that aired during the graveyard shift on Sunday night would be quickly forgotten, however, as we now know, that wasn't the case. The show was called *Sexually Speaking* and taped at NBC's legendary 30 Rock Studio. In a very short time, the fifteen minute program became a hit and was expanded to an hour. Soon, David Letterman called, asking her to be a guest on his show, and within a few years, Dr. Ruth became a household name as America's sex therapist. She has since been in national commercials, written several best-selling books, and to this day, at age 85, she still appears on national media outlets to talk about sex, or her newest area of expertise, being a caregiver for Alzheimer's patients.

### Staying On Top

One of the ways that Dr. Ruth keeps her energy up is that she says she always walks when she talks. In the middle of her eighth decade, she has no plans of slowing down.

"My exercise has always been walking. When I talk, I walk, and I talk a lot," she says. "As I talk to people on the phone and do interviews, I walk around. I also live in New York City and I'm out almost every night, which means I am walking places all the time. Also, when I teach, I walk and talk. I am fortunate that I am very healthy at my age and that I am still doing what I enjoy on a daily basis. This spring I'm teaching a graduate course at Columbia University."

The vintage enthusiasm in Dr. Ruth's voice comes through as she describes the course, which will be about family in film, theater, television, and the internet.

"The course is already fully registered," she says. "And I just finished teaching six years at Yale and Princeton."

At a time when many octogenarians are taking it easy in retirement, Dr. Ruth subscribes to the theory that keeping up a full, fulfilling schedule doing the things you've always loved is the best way to stay mentally sharp and physically young.

"I do a lot of fundraising and that keeps me out," she says. "And after all these years, I still get pleasure when I open the *New York Post* and find my name in it."

And of course, what would a profile of Dr. Ruth be if we didn't dive into her favorite topic: sex.

### Words From the Expert

"One of the best pieces of news I've had over my career is that across the country, women have heard the message that they have to take responsibility for their own sexual satisfaction," she says. "Even the best lover can't bring her the sexual satisfaction if she doesn't tell him what her needs are."

Dr. Ruth realizes that as women age, they go through certain changes that may affect their libido or their confidence, which may lead them to thinking that sex is no longer an option. In her straight-to-the-point way, she is out to dispel that myth. In fact, she wrote an entire book on the topic titled, *Dr. Ruth's Sex After 50*.

"There is no evidence that going through menopause means that a woman loses her sex drive," she says. "Going through menopause will bring many changes to her life, in general, some of which may have a negative effect on her sex life, especially if she is not forewarned and adequately prepared to deal with them. But menopause is not a death sentence to a woman's sex life by any means."

Another area where Dr. Ruth likes to buck conventional wisdom has to do with ageism, or the idea that after a certain age, people should just accept that sex will no longer be a part of their lives.



“There are common perceptions about older people held by the general public, even among senior citizens themselves that are just not true,” she says. “One of these is that older people aren’t sexy. This is rubbish. Humans can continue to have and enjoy sex into their nineties. Your sex life is not supposed to come to an end just because you’ve hit a certain age.”

Dr. Ruth says that, to put it delicately, some post-menopausal women don’t enjoy sex as much as they did when they were younger because of some discomfort brought on by the shrinking of tissues in certain areas of the body. The cure: More sex.

“The more women engage in sex, the less severe the symptoms of menopause related to good sexual functioning will be,” she says.

### On to the Men

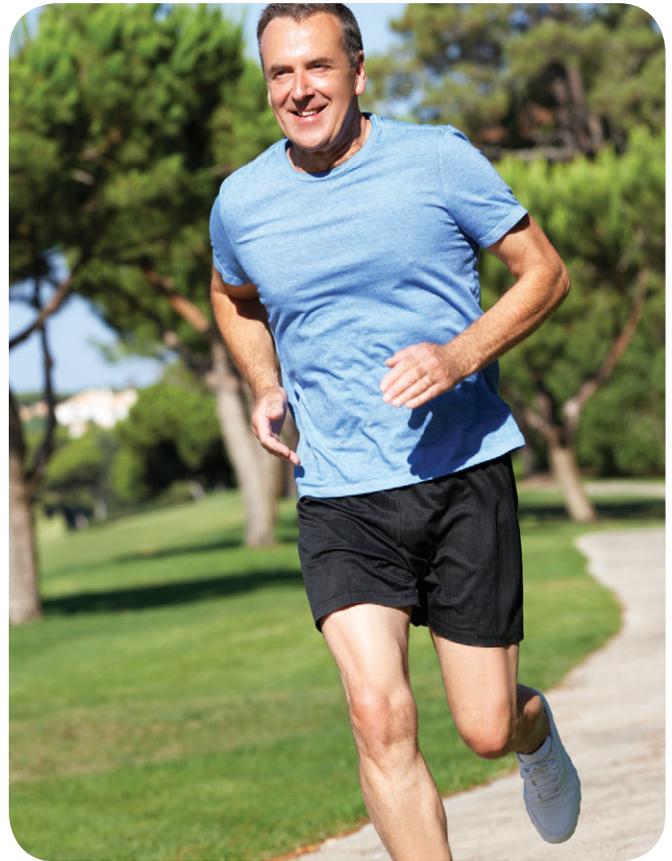
The biggest fear men have when it comes to sexual function as they age can be boiled down to two letters, E.D., as in Erectile Dysfunction. While there are plenty of pills and prescription drugs that are available to help men who suffer from this problem, Dr. Ruth cautions that men should make sure they eliminate other reasons for the loss of the ability to perform before they start taking a drug.

“The number of men who suffer from physically based erectile dysfunction is relatively small,” she says. “Even in older men. And not every one of these needs or is able to take a pill. There are many men who have a problem that is not physical at all, rather it’s psychological. I think the pills can be wonderful if a man is the right candidate for them, but they may not be necessary.”

Psychological issues older men may be dealing with when it comes to sexual performance range from damaged egos, to having an unhealthy body image, to sheer embarrassment that they are unable to perform as they once did and that they no longer have the energy that they once had.

It is of paramount importance that the men experiencing these issues discuss them with the women in their lives. Having open communication is the first step to solving some of these problems. Sometimes simply discussing these topics will lead to solutions. For instance, if a man doesn’t like how he looks, he can start exercising and eat better with the encouragement of his wife. If he’s embarrassed about not being as virile as he once was, his wife can reassure him that she’s had changes too, and that they are okay.

Other times, there may be a physical issue behind lack of sexual function, including heart disease, high blood pressure, or low testosterone.



“In men whose testosterone becomes greatly reduced, many of the same symptoms women have may occur,” Dr. Ruth says. “This includes hot flashes, increased irritability, bone loss, inability to concentrate, and depression, and, on top of those, a diminished sex drive. Some people refer to this as ‘andropause’, as the male sex hormones are referred to as androgens. But whatever you call it, when it happens, it is often best to deal with it both medically and psychologically.”

### A New Cause

While Dr. Ruth continues to remain on the front lines of the sex therapy industry, she has recently released a book titled, *Dr. Ruth’s Guide for the Alzheimer’s Caregiver*. In it, she discusses a myriad of ways that people can handle a loved one’s Alzheimer’s diagnosis without getting overwhelmed.

“The reason I wrote this book is because I have so many friends that have dealt with this dreaded disease,” she says. “I felt that it behooved me to do something to help the caretakers. In this aspect, they have to do something for themselves before they run out of steam. People should not say ‘no’ to their own desires. They should say yes, and take the time to still do things they enjoy.”



She cites many examples, including a physician friend who wanted to retire to take care of his wife, but who she advised to maintain his practice while also being a caregiver. The book has chapters that deal with nearly every aspect of being a caregiver, including chapters titled “How to Help Yourself,” “You Get to Have a Life, Too,” “Dealing with Professional Caregivers,” “When You’re Taking Care of a Spouse,” “Helping Children and Grandchildren Cope,” and more.

As always, the aspects of maintaining a healthy sex life are covered as well.

“In some cases, Alzheimer’s patients lose all inhibitions, and either demand sex or demand not to have it,” she says. “A caregiver has to know that is all part of the disease. I actually tell people, if need be, and if they are willing, they should try to have another partner very discretely. Nobody should know. In nursing homes, I would like to make sure that there’s a dating room, with a sign like in a hotel that says do not disturb. There’s a need for caressing and being held at every age.”

From sex to Alzheimer’s, from teaching to writing, America’s sex therapist has advice for everyone. ●

For more information on Dr. Ruth,  
please visit: [www.drruth.com](http://www.drruth.com).

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

Born in Germany in 1928, Dr. Ruth Westheimer was sent to a children’s home in Switzerland at the age of 10 which became an orphanage for most of the German Jewish students who’d been sent there to escape the Holocaust. She immigrated to the US in 1956 where she obtained her Master’s Degree in Sociology from the Graduate Faculty of the New School of Social Research. In 1970, she received a Doctorate of Education (Ed.D.) in the Interdisciplinary Study of the Family from Columbia University Teacher’s College. She is a fellow of the New York Academy of Medicine and in addition to having her own private practice, she frequently lectures at universities across the country and has twice been named “College Lecturer of the Year.” Dr. Westheimer has two children, four grandchildren, and resides in New York City.



Dr. Ruth with Debra Jo Rupp

Restore Cellular Energy with...

# NEXT-GENERATION CoQ10

**Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™**

Since Life Extension® introduced CoQ10 in 1983, our scientists have continued to develop increased potency and absorbability.

**Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™** contains PrimaVie® shilajit that **doubles** levels of CoQ10 in the mitochondria.<sup>1</sup>

Combining CoQ10 and shilajit produced a **56%** increase in energy production in the **brain**, and in muscle there was a **144%** increase in energy production.<sup>2</sup>

The primary reason people take CoQ10 supplements is to help **restore** youthful energy levels.

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

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

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



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

**Item # 01426**



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

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

**Item # 01431**

**To order Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™ call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)**

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# Top Off Your TESTOSTERONE *Naturally*

Low Testosterone Levels May Lead to:

**Reduced Sex Drive • Less Energy  
Cloudy Thinking • Weight Gain  
Cardiovascular Issues**

Maintaining healthy testosterone levels is one of the most important steps you can take to regain your health and improve your performance. With research showing that by the time a man is 60 years old, he may produce 60% less testosterone than he did in his 20s, the time is now to add Life Extension®'s Super MiraForte with Standardized Lignans to your supplement regimen.



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

1500 mg	Chrysin
15 mg	Bioperine®
850 mg	Muira puama
282 mg	Nettle root
15 mg	Chelated elemental zinc
320 mg	Maca
33.4 mg	HMRLignan™
	Norway Spruce lignan extract



Item # 01698

The retail price for a bottle of 120 capsules of **Super MiraForte with Standardized Lignans** is **\$62**. If a member buys four bottles, the price is reduced to **\$42** per bottle.

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**Super Health. Super Libido.**  
*Super MiraForte.*

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

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# Advanced Natural Sex For Women®

**Advanced Natural Sex for Women® 50+** provides a unique phyto blend that targets and supports the mechanisms that promote healthy sexual function and libido\*:

**Cordyceps:** This mushroom extract modulates the levels of sex hormones and promotes their downstream flow; boosts mitochondrial energy and sex interest by increasing adenosine triphosphate (ATP) production; supports vaginal lubrication and sexual function by promoting nitric oxide; and inhibits pro-inflammatory cytokines that can dampen sexual desire. In placebo-controlled studies, scientists documented that Cordyceps improved sexual function and desire in **86%** of women—in **40 days!**<sup>1</sup>

**Lepidium meyenii (Maca):** Cultivated for over 2,000 years, this plant root extract has now been shown to modulate levels and flow of sex hormones; support adrenal function; and promote libido and sexual pleasure by helping to optimize brain neurotransmitters and monoamine oxidase (MAO) levels. Women who took *Maca* scored over **35%** better than placebo subjects on a standard sexual function and libido scale after just **6 weeks!**<sup>2</sup>

## Menopausal Relief and Enhanced Sexual Health

Menopausal transition is considered the most difficult time for a woman to remain sexually active. In addition to the hot flashes and fatigue, vaginal dryness and loss of libido often interfere with sexual function.

**Advanced Natural Sex for Women® 50+** also contains three herbal root extracts used for over 400 years in Korea to help inhibit symptoms of menopause:

1. *Phlomis umbrosa*
2. *Cynanchum wilfordii*
3. *Angelica gigas*

Scientists found that when these three natural botanicals are uniquely blended and then hot water extracted, they balance estrogenic activity in just those target tissues specifically related to menopausal symptoms.<sup>3</sup> In a double-blind, placebo-controlled study, this special formulation (*EstroG-100™*) helped inhibit menopausal symptoms by **62%** in just **12 weeks!**<sup>3</sup>

The suggested three capsules a day of **Advanced Natural Sex for Women® 50+ (sexual health and menopausal formula)** provide the following extracts:

### Proprietary Blend: 1,590 mg

MacaPure® Maca (*Lepidium meyenii*) extract

EstroG-100™ (proprietary blend of *Angelica gigas*, *Phlomis umbrosa*, *Cynanchum wilfordii* extracts)

Cordyceps (*Paecilomyces hepiali*) extract

A bottle of 90 vegetarian capsules of **Advanced Natural Sex for Women® 50+** retails for \$59. If a member buys four bottles, the price is reduced to **\$34** per bottle.

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# Are You Suffering from **Fructose** **Poisoning**?

The processed food industry wants you to believe that fructose is a natural, healthy sugar derived from natural plant sources.<sup>1</sup> The science shows something vastly different. In reality, fructose is a harmful toxin that is a key factor in the development of metabolic syndrome in America today.<sup>2</sup>

Excessive fructose consumption is responsible for a:

- **39%** increase in abdominal obesity in men.<sup>3</sup>
- **9%** increase in insulin resistance.<sup>3</sup>
- **11%** increased risk of hypertension in men.<sup>3</sup>

It also increases your risk of abnormal lipid profiles and inflammation.<sup>4,5</sup> In fact, the highest consumers of sugar-sweetened beverages have a **20%** increased risk of cardiovascular disease!<sup>6</sup>

The sweetener industry spends **tens of millions** of dollars each year in attempts to hoodwink the American public regarding the bitter truth about fructose.<sup>7</sup> All their efforts are paying off: Between 1970 and 1990, Americans' consumption of high fructose corn syrup rose by more than **1,000%**, an increase that paralleled the rapid rise of the obesity epidemic.<sup>8</sup>



### **Fructose Poisoning**

Are you a victim of fructose poisoning? If you have high blood pressure, high cholesterol, belly fat, or insulin resistance, the answer is likely *yes*.

Fructose might taste sweet to your taste buds, but there's nothing sweet about what it does to your body. Mounting evidence shows that fructose is responsible for multiple factors involved in metabolic syndrome.<sup>2,3</sup>

The reason for these disastrous health problems is that high intake of fructose acts more like a **toxin** than a nutrient.<sup>9</sup> Like a toxin, it is metabolized almost exclusively in the liver, where it is converted into dangerous byproducts (such as excess lipids and uric acid).<sup>10-16</sup> And, like a toxin, fructose has direct harmful effects (glycation) on tissues throughout the body, while performing no necessary nutritional function.<sup>17,18</sup>

Recent research has shown that you can induce metabolic syndrome in rats by feeding them fructose *in amounts relevant to human consumption*.<sup>19</sup> That's incredibly important, since on average fructose now makes up **10 to 15%** of the calories Americans consume.<sup>20,21</sup> Some adolescents get nearly **30%** of their calories from fructose!<sup>22</sup>

Study after study has demonstrated that **excessive** fructose consumption directly causes all five components of metabolic syndrome: abdominal fat, high blood pressure, abnormal lipid profiles, insulin resistance, and inflammation.<sup>2-5</sup>

### Central Obesity

When scientists need to produce a quick model of central obesity, they've found a convenient solution: Feeding rats fructose for several weeks produces an animal with features of metabolic syndrome, including increased abdominal fat, high triglycerides, and elevated fasting blood glucose.<sup>23,24</sup>

Studies of primates and smaller laboratory animals now show that fructose intake can be directly linked to the development of central obesity.<sup>25</sup> In addition, a recent study found that fructose-fed animals had increased levels of the enzyme that activates the stress hormone cortisol, which is a well-known cause of central obesity.<sup>26</sup>

Population-based studies show that women with the highest fructose intake have a **20%** increased risk of abdominal obesity, while men have a **39%** increased risk of abdominal obesity.<sup>3</sup> A direct observational study of 559 adolescents demonstrated a strong and significant correlation between total fructose intake and abdominal obesity.<sup>22</sup>

From these data it's clear that the more fructose you consume, the more abdominal fat you are likely to gain.

### Elevated Blood Sugar

Men and women who consume high levels of fructose have a **9%** increased risk of insulin resistance, a key component of metabolic syndrome.<sup>3</sup> As is the case with central obesity, scientists have found that feeding rats a fructose solution can rapidly produce a reliable model of insulin resistance.<sup>27,28</sup>

The reasons why fructose elevates blood sugar are becoming increasingly better understood. Animal studies demonstrate that fructose consumption has direct harmful effects not only in the liver, but also in the brain. Fructose triggers signaling changes in the hypothalamus, the "appetite thermostat" that regulates food intake and directs other body tissues in how to handle sugar.<sup>10,29</sup>



One of those changes causes muscle cells to take up glucose less efficiently, contributing to elevated blood glucose levels even in the presence of sufficient insulin.<sup>30</sup> Another causes the liver to ramp up its own production of new glucose, adding to the already high burden of blood sugar.<sup>31</sup>

Insulin resistance produced by fructose consumption not only produces high blood sugar, it also results in chronically elevated levels of insulin.<sup>32</sup> An appropriate amount of insulin is necessary, but continuous exposure to raised insulin levels is now recognized as a major contributor to cardiovascular disease and cancer.<sup>33,34</sup>

### Abnormal Lipid Profiles

As we've seen, the effects of fructose in the liver produce marked increases in the production of fats, especially dangerous triglycerides. Elevated triglycerides and lowered HDL cholesterol levels together make up another component of metabolic syndrome.

A high fructose intake produces very high after-meal triglyceride levels in both animal and human studies.<sup>35-38</sup> In humans, this has been shown to be directly related to fructose-induced impairments in the way triglycerides are cleared from the blood.<sup>35,38</sup> Animal studies confirm this effect and also demonstrate that fructose induces many genes that increase new fat production and raise triglyceride levels.<sup>4,39</sup>

One human study demonstrated that just seven days of elevated fructose consumption increased fat deposition in liver and muscle, while increasing VLDL-triglycerides.<sup>40</sup> Similar studies comparing the effects of excessive calories from either glucose or fructose showed that fructose (but not glucose) produced high 23-hour triglyceride exposure and new fat formation in the liver.<sup>12,41</sup> Another study showed that ingesting fructose caused a **2.5 mg/dL** drop in beneficial HDL.<sup>15</sup>

All that excess fructose-induced fat *production* leads to increased fat *deposition* in the liver.<sup>42</sup> Excessive liver collections of fat, beginning as **non-alcoholic fatty liver disease** (NAFLD), are considered the liver manifestation of metabolic syndrome; up to **30%** of adults now suffer from this condition.<sup>42,43</sup> Fructose is now widely recognized as a major contributor to NAFLD.<sup>42</sup> NAFLD progresses to produce non-alcoholic steatohepatitis, a precursor to liver cirrhosis and eventual liver failure.<sup>42</sup>



### What You Need to Know

#### Deadly Effects of Fructose

- We are being systematically poisoned by fructose, a low-cost sweetener that is pervasive in our food supply.
- Studies in both lab animals and in humans show that fructose produces all five components of metabolic syndrome.
- Fructose can't suppress your appetite the way glucose does, so you keep eating after you are full, contributing to abdominal obesity.
- Fructose triggers changes in the liver leading to insulin resistance and elevated blood sugar.
- Fructose diverts normal liver enzymes to produce abnormally large amounts of new fat molecules, contributing to unbalanced lipid profiles and fatty liver disease.
- Fructose raises production of the metabolic toxin uric acid, which is a major contributor to hypertension.
- Fructose acts through the "JNK" pathway to stimulate body-wide inflammation.
- To avoid developing metabolic syndrome, limit your consumption of fructose to less than 25 grams per day.

## Fructose: The Sweetest Toxin

Dr. Robert Lustig, a world-renowned expert on metabolism at the University of California at San Francisco, applied the term “toxin” to fructose.<sup>9</sup> Based on the information below, it’s easy to see why.

**Fructose doesn’t suppress hunger.** When you eat a *glucose*-rich meal, your body releases a burst of insulin to drive the glucose into cells; the rise in insulin raises levels of leptin, a hormone that signals “I’m full” to the brain. At the same time, such a meal causes levels of ghrelin, the “hunger hormone,” to fall. The combined effect of rising leptin and falling ghrelin normally serves to tell your body to stop eating when you’ve had enough. The problem is that fructose doesn’t trigger a rise in insulin and leptin or suppress ghrelin.<sup>56</sup> In fact, it does just the opposite: It causes ghrelin levels to rise.<sup>10</sup> As a result, your brain perceives that you are still hungry, so you keep eating well after you have consumed the calories you actually need.<sup>10</sup>

**Fructose increases fat formation by the liver.** The liver is the only organ in the body capable of managing fructose.<sup>10,11</sup> But whereas the liver stores excess glucose in the form of harmless (and useful) glycogen, it converts fructose into fats (lipids) very rapidly.<sup>12-14</sup> That newly made fat is then formed into dangerous small LDL particles, which travel through the body to be taken up by fat cells and damage blood vessels.<sup>12</sup> A substantial portion of that new fat remains in the liver, contributing to the fatty liver that’s part of metabolic syndrome.

**Fructose increases glycation.** Fructose is 7 to 8 times more potent at producing dangerous advanced glycation end products (AGEs) than glucose.<sup>17,18</sup> AGEs are major triggers of inflammation, and are implicated in the development of diabetes, heart disease, and neurodegenerative diseases.

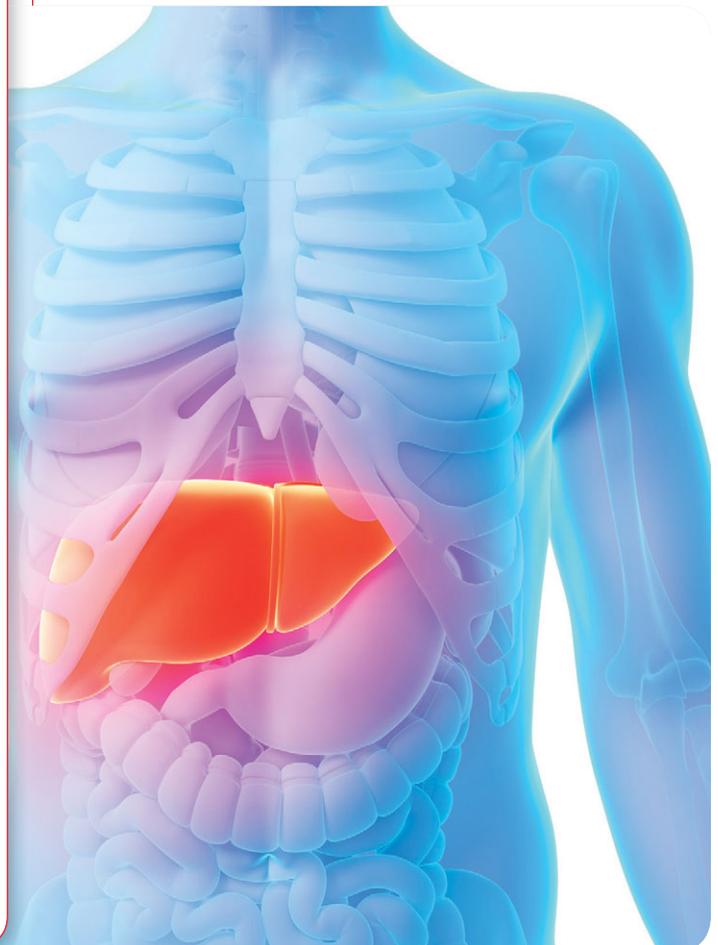
**Fructose promotes uric acid production.** Uric acid is a natural byproduct of metabolism that the liver normally converts into urea for excretion in the kidney. But fructose disrupts that process, boosting uric acid levels into the abnormal range.<sup>14-16</sup> Uric acid is a powerful tissue toxin and has recently been shown to promote high blood pressure.<sup>15</sup>

## High Blood Pressure

When lab rats are given drinking water with 10% fructose, they develop hypertension, yet another manifestation of metabolic syndrome.<sup>44</sup> High fructose consumption in humans has a similar effect, raising the risk of hypertension by 9% in women and 11% in men.<sup>3</sup>

Just two weeks of excessive fructose consumption in healthy adult men raised their systolic (top number) blood pressure by an average of 7 points, and their diastolic (bottom number) by 5 points.<sup>15</sup> And just one serving of soft drinks raised blood pressure by 1.6 and 0.8 points systolic and diastolic, respectively.<sup>45</sup>

Laboratory studies now show that there are a number of ways in which fructose consumption raises blood pressure. Fructose triggers very high rates of uric acid production in the liver, which in turn causes blood pressure to rise.<sup>16,46,47</sup> High uric acid is a common finding in people with metabolic syndrome.<sup>48</sup> Treating fructose-induced hypertension with the gout drug *allopurinol* returns both uric acid levels and blood pressure to normal.<sup>15</sup>



### Is Fructose Really Different from “Natural Sugar?”

“But isn’t fructose a natural sugar?”

If that’s what you’re thinking, you’re right—it is. And that’s exactly what the food industry wants you to think as well.

The corn sweetener industry wants to debate any connection between fructose and the epidemic of obesity and metabolic syndrome. They’ll tell you that fructose is a natural product, and that the animal studies showing fructose to be dangerous used “hyper doses” of fructose, at **40, 50,** or even **60%** of total calorie intake, a ridiculous amount.<sup>57</sup> Yet research clearly links fructose to increased risk for conditions associated with metabolic syndrome, abnormal blood lipids, heart disease, and other serious health concerns.<sup>3,15,36</sup>

Let’s clear up this confusion once and for all.

What exactly is fructose? **Fructose** is a naturally occurring sugar found primarily in fruits and vegetables.<sup>58</sup> **Glucose** is a naturally occurring sugar found

in carbohydrates.<sup>58</sup> **Sucrose** (table sugar) is made up of **50%** fructose and **50%** glucose.<sup>58</sup>

Please don’t avoid fruit and vegetables because they contain fructose. The slower absorption from whole fruit/vegetables should enable your liver to safely clear it. A limited study showed that people consuming very high fruit diets did not suffer adverse effects on body weight, blood pressure, and insulin and lipid levels after 12-24 weeks.<sup>59</sup>

Since the 1960s, the food industry has been loading up a growing proportion of the American food supply with a substance that’s vastly cheaper than sucrose: **high fructose corn syrup**.<sup>60,61</sup> High fructose corn syrup can have up to **5%** more fructose than table sugar (which we already consume in too high of quantities), it’s up to around **1.3 times** sweeter than table sugar (increasing our need for sugar-sweetened foods), and it’s nearly impossible to avoid.<sup>58,62</sup>



Fructose also triggers excessive sodium retention, which is a major contributor to hypertension.<sup>45,49</sup> Conversely, a low-fructose diet lowers blood pressure in chronic kidney disease patients.<sup>50</sup>

Central obesity, insulin resistance, lipid disturbances, and high blood pressure are the four “classic” components of metabolic syndrome.<sup>51</sup> Increasingly, however, raised markers of **chronic inflammation** are recognized as playing an essential role in the condition as well.<sup>51,52</sup> Let’s look briefly at how fructose promotes inflammation.

### Inflammation: The Role of “JNK” Food

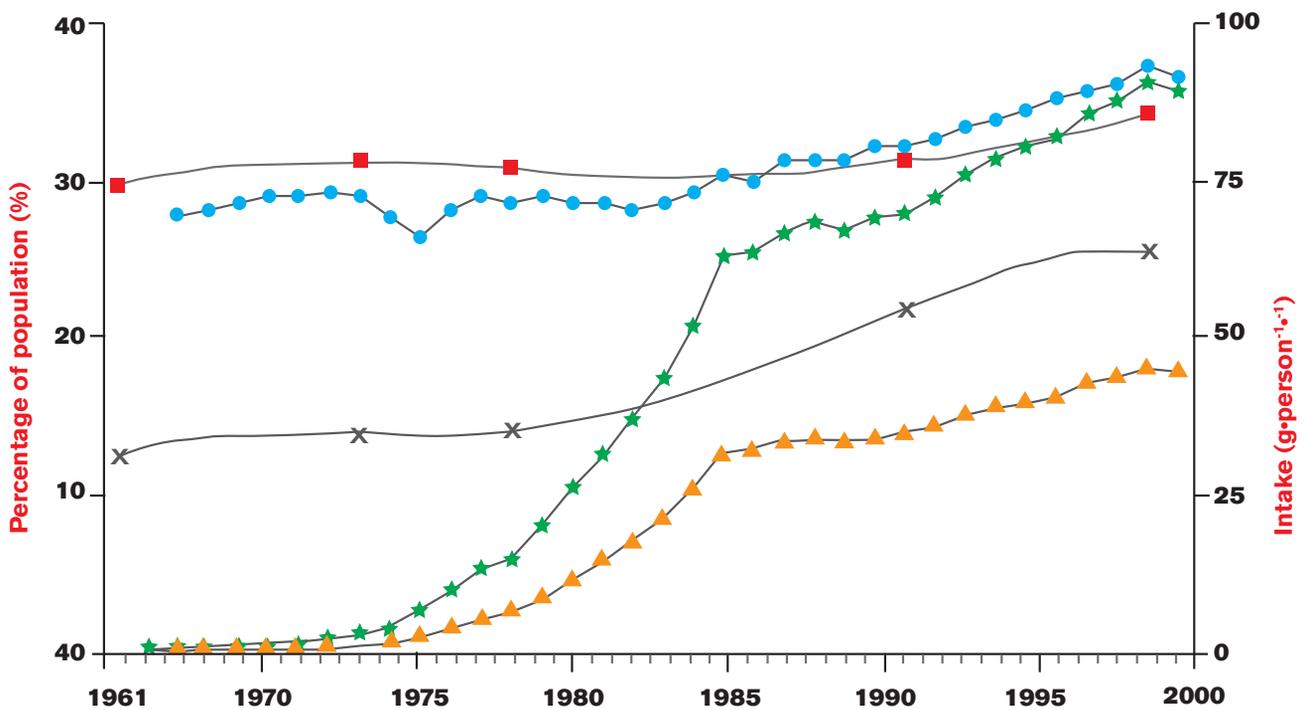
The human liver contains a natural stress-response system that goes into high gear as a result of various kinds of stress, especially stress from toxins. Officially called “c-Jun terminal kinase,” this system is known to scientists simply as “JNK.” Fructose (and foods that contain high amounts of fructose) activate the JNK pathway, which contributes to insulin resistance and ultimately to inflammation.<sup>11,53,54</sup>

## Rise in Obesity Rate Tracks Rise in Fructose Consumption

The prevalence of obese and overweight individuals has increased dramatically in the decades since 1980.<sup>63</sup> Between 1988 and 2000, the number of obese Americans (those having a BMI of 30 or more) grew from almost **23** to **30.5%**.<sup>64</sup> In the same time period, the proportion of overweight Americans (those having a BMI of more than 25 to 29.9) rose from **55.9** to **64.5%**, while extreme obesity (defined as a BMI of 40 or more) rose from **2.9** to **4.7%**.<sup>64</sup> By 2010, the picture was even worse: For the first time in history, the average American was overweight (with a BMI of 28.7), and nearly **36%** were obese.<sup>65</sup>

This alarming increase in body size parallels an increase in something else: **fructose consumption**.

Between 1970 and 1990, Americans' consumption of high fructose corn syrup rose by more than **1,000%** (that's not a typo), vastly exceeding any other dietary changes in that period.<sup>8</sup> By 2008, Americans were getting a full **10%** of their calories from fructose.<sup>20</sup> During that entire period, Americans were gaining weight at unprecedented rates, and the prevalence of metabolic syndrome was steadily rising. By 1990, the year the obesity epidemic really took off, the skyrocketing rate of total fructose consumption matches the rapid rise in the percent of obese Americans.



Estimated intakes of total fructose (circle), free fructose (triangle), and high-fructose corn syrup (star) in relation to trends in the prevalence of overweight (square) and obesity (x) in the United States, 1961 to 2000.<sup>8</sup>

- Overweight    X Obesity    ▲ Free fructose
- Fructose    ★ High-fructose corn syrup



### Nutrients That Protect Against Fructose-Induced Metabolic Syndrome

Supplement	Effects on Fructose-Induced Metabolic Syndrome in Laboratory Animals
Amla (Indian gooseberry)	Prevents insulin resistance and abnormal lipid profile <sup>37</sup>
Anthocyanins (from dark fruits)	Protects fat cells from insulin resistance <sup>36</sup>
Astaxanthin	Prevents insulin resistance <sup>56</sup>
Coffee extracts	Attenuates glucose intolerance, hypertension, and cardiovascular remodeling <sup>66</sup>
Ginger	Lowers triglycerides, ameliorates fatty liver, <sup>27</sup> improves insulin resistance <sup>32</sup>
Green Tea	Ameliorates insulin resistance <sup>67</sup>
Quercetin	Reduces abdominal obesity and inflammation <sup>68</sup>
Resveratrol	Corrects imbalanced lipid profiles, normalizes blood pressure <sup>69</sup>
Spirulina	Corrects blood sugar, lipid profile, liver function <sup>70</sup>
<i>Urtica dioica</i> (stinging nettle)	Ameliorates insulin resistance, decreases serum glucose <sup>71</sup>
Carnosine, Benfotiamine, and Pyridoxal-5-phosphate (vitamin B6)	Protects against glycation <sup>72,73</sup>

Even low- to moderate-sugar sweetened beverage consumption promotes inflammatory changes in otherwise healthy young men.<sup>5</sup>

Such changes have been shown to produce a **20%** increase in cardiovascular disease risk for the highest consumers of sugar-sweetened beverages.<sup>6</sup> Even children aged 3 to 11 years show increases in their cardiac risk factors in direct proportion to their consumption of such beverages.<sup>55</sup>

As noted earlier, fructose-induced inflammation has been shown to contribute to non-alcoholic fatty liver disease, which has been referred to as “diabetes of the liver.”<sup>21</sup>

### Summary

Despite the best public relations efforts of the corn sweetener industry, there’s no longer any doubt that Americans are slowly being poisoned by fructose, which has become ubiquitous in our food supply.

Study after study has shown that when we consume fructose in large quantities, our bodies treat it as a toxin. Fructose goes directly to the liver, where it disrupts a host of normal metabolic processes, producing each and every component of metabolic syndrome: central obesity, insulin resistance, abnormal lipid profiles, elevated blood pressure, and inflammation.

Unfortunately, it's difficult to avoid fructose and high fructose corn syrup. Since the 1970s, high fructose corn syrup has been added to just about every prepackaged product you can think of.

If you haven't already eliminated fructose from your diet, now is the time to do so. Read product labels. Don't be fooled by industry propaganda. Recognize that **both** high fructose corn syrup **and** table sugar provide vastly more fructose than your body can safely handle. And consider protecting yourself from this mass poisoning by taking nutrients that reduce the risk of fructose-induced metabolic syndrome. ●

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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To measure the antioxidant strength of various foods, scientists use what is known as the ORAC index. While berries score higher than most fruits and vegetables, **açai** boasts one of the *highest* ORAC values known to modern science.

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Blackberry	Cranberry
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Tart cherry	Blue corn
Raspberry	

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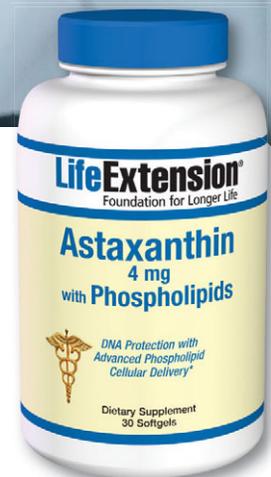
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# 2013 Keystone Diabetes SYMPOSIUM

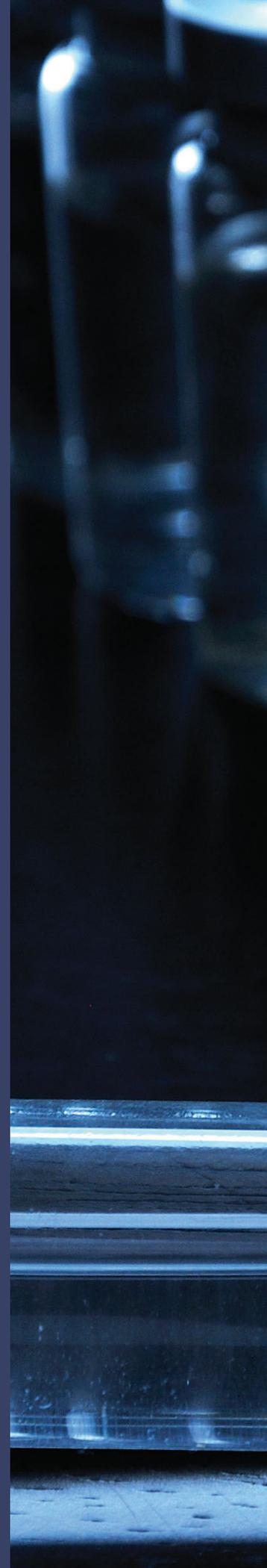
## Increasing Prevalence of Obesity and Diabetes

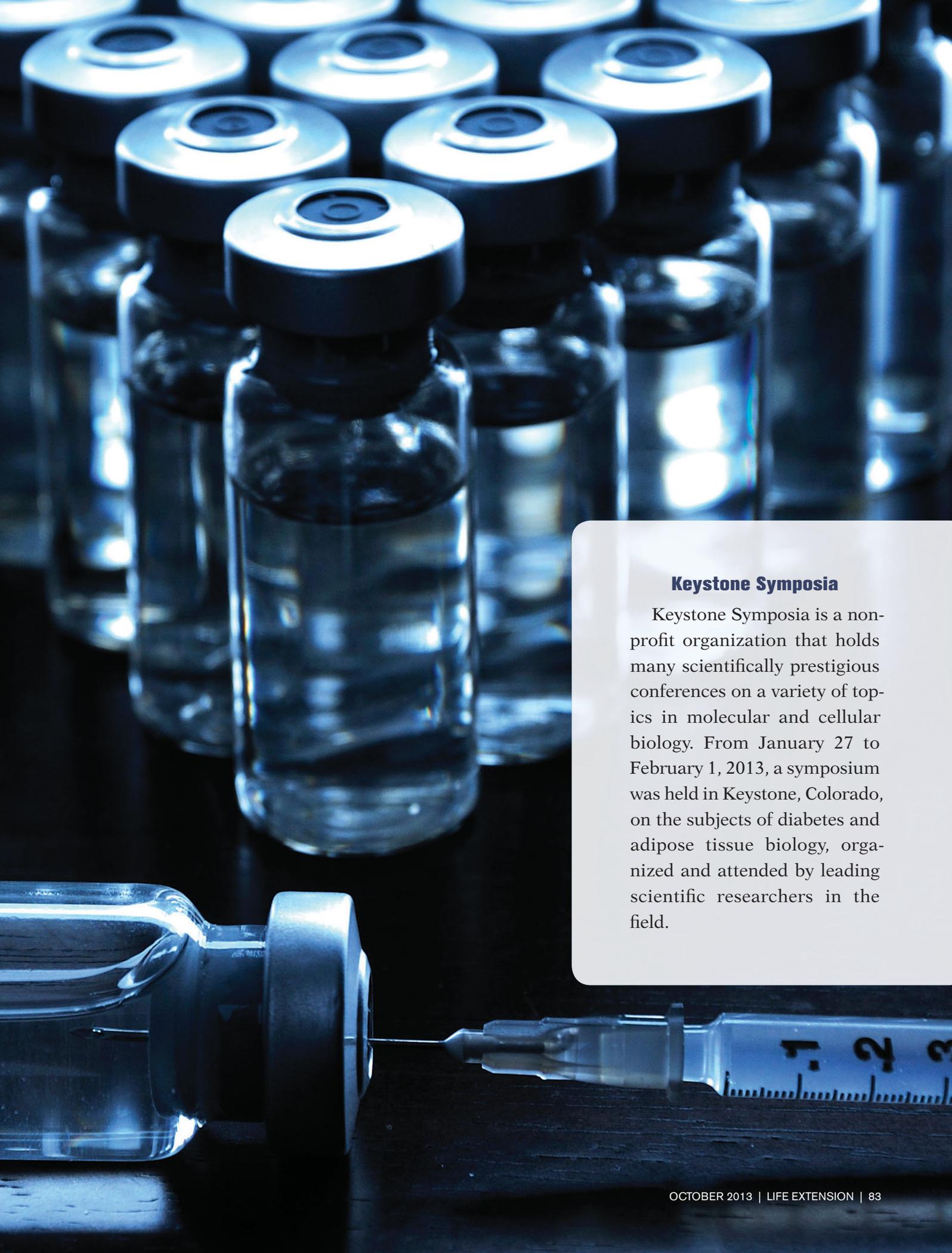
From 1960 to 1980 about **15%** of American adults were obese (BMI 30 or greater), but by the year 2002 that figure had doubled to over **30%**.<sup>1</sup> The prevalence of American children and adolescents classified as overweight roughly **tripled** between 1980 and 2000.<sup>1</sup> But the problem is not restricted to the United States, as obesity and overweight diagnoses are increasing worldwide. Prevalence of childhood obesity in Brazil and India were recently estimated to be **22%**, and for Mexico nearly **42%**.<sup>2</sup> Along with the increase in global obesity there has been a rise in type II diabetes<sup>3</sup> (formerly called adult-onset diabetes before it affected so many children).

## How Type II Diabetes Develops

Diabetes is generally defined as a condition of elevated glucose. Insulin, which is secreted from islet cells in the pancreas, helps glucose enter many body tissues. In type I diabetes, a person typically has little or no insulin production. More than **90%** of all diabetics have type II rather than type I diabetes, however.<sup>4</sup> Obesity often leads to insulin resistance, wherein it becomes more difficult for insulin to cause glucose uptake by cells. As a result of increasing insulin resistance, the pancreas increases insulin production and release in an attempt to get enough glucose into cells. Eventually pancreatic insulin production ceases, and type II diabetes progresses to an advanced stage.<sup>5,6</sup>

Although insulin resistance is the best predictor for the development of type II diabetes, experts have different opinions concerning the mechanisms causing insulin resistance.





### **Keystone Symposia**

Keystone Symposia is a non-profit organization that holds many scientifically prestigious conferences on a variety of topics in molecular and cellular biology. From January 27 to February 1, 2013, a symposium was held in Keystone, Colorado, on the subjects of diabetes and adipose tissue biology, organized and attended by leading scientific researchers in the field.

## Insulin Resistance from Fat

Possibly no one has studied insulin resistance harder and longer than Gerald Shulman, MD, PhD (Professor of Medicine, Yale University, New Haven, Connecticut). Shulman's favorite hypothesis is that excessive fat from the diet (or fat generated by high levels of fructose consumption) accumulates in cells, interfering with the cell-signaling involved in the pathway between a cell's insulin receptor and uptake of glucose by the cell.<sup>7-9</sup> In particular, the protein that transports glucose into a cell (GLUT4 protein) is prevented by fat from reaching the cell surface.<sup>10</sup> When I asked Dr. Shulman about the effect of fat saturation (saturated fat) and chain-length of fatty acids on insulin resistance, he told me that these properties of fat do not matter (excluding fish oil, which he said has special signaling capabilities).



Kitt Petersen, MD (Professor of Medicine, Yale University, New Haven, Connecticut) has long been Dr. Shulman's understudy and has co-authored many papers with him. Dr. Petersen has been focused on the role of exercise and mitochondria in insulin resistance. She has shown that exercise and weight loss increase insulin sensitivity.<sup>11,12</sup> She has found evidence that age-associated decline of mitochondrial function is associated with defective fat metabolism, leading to fat accumulation and insulin resistance.<sup>13,14</sup> Like Shulman, she believes that inflammation is a consequence rather than a cause of insulin resistance.<sup>15</sup> When I asked her about the molecular mechanism behind insulin resistance in smokers, she told me that there are probably many mechanisms of insulin resistance and there is much to be learned about the subject.<sup>16,17</sup>



## Insulin Resistance from Inflammation

Alan Saltiel, PhD (Director, Life Sciences Institute, University of Michigan, Ann Arbor, Michigan) favors the view that inflammation is the link between obesity and insulin resistance. He has shown that mice that are genetically modified to not release the pro-inflammatory molecule NF- $\kappa$ B when fed a high-fat diet are protected from insulin resistance.<sup>18</sup> He later showed that normal mice are similarly protected from



insulin resistance due to a high-fat diet when given a chemical inhibitor that blocks NF- $\kappa$ B activation.<sup>19</sup>

Tal Pecht (PhD student, Ben-Gurion University, Beer-Sheva, Israel) believes that inflammation from body fat (especially visceral fat) leads to insulin resistance. She cited studies indicating that necrotic cell death of fat cells attracts macrophages which may lead to insulin resistance.<sup>20-22</sup> With her supervisor, Pecht demonstrated that macrophages in visceral fat form foam cells such as those found in atherosclerotic plaques, which results in inflammation and possibly insulin resistance.<sup>23</sup>



Nutrients that health conscious people take today like curcumin, cinnamon, silymarin, and genistein (an isoflavone found in soybeans) suppress the pro-inflammatory molecule NF- $\kappa$ B.<sup>24-28</sup>

## Distribution of Body Fat

Susan Fried, PhD (Professor, Boston University School of Medicine, Boston, Massachusetts) has studied the relationship between body fat distribution and diabetes or cardiovascular disease. With increasing obesity, men become "apples" (round, more abdominal fat), whereas women become "pears" (more fat in the hips and thighs). Only abdominal fat is associated with increased cardiovascular disease and diabetes.<sup>29,30</sup> After menopause, however, women accumulate more abdominal fat.<sup>31</sup>

### The Effect of When You Eat

Paolo Sassone-Corsi, PhD (Director, Center for Epigenetics and Metabolism, University of California, Irvine) presented evidence that disruption of biological clocks associated with the sleep-wake cycle and feeding can lead to cardiovascular disease and insulin resistance.<sup>32,33</sup> Similar effects are seen for mice as for human shift-workers. Mice subjected to light at night have more body mass and less glucose tolerance than mice under normal light/dark conditions, despite equivalent food intake and activity.<sup>34</sup> He said that when you eat can be as important as what you eat.



### Genetic Causes of Obesity and Type II Diabetes

Ronald Kahn, MD (Professor of Medicine, Harvard Medical School, Boston, Massachusetts) has been studying genetic factors that influence obesity and type II diabetes in humans and mice. High metabolic rate and high levels of energy-generating brown fat are genetic influences that protect against obesity.<sup>35,36</sup> Kahn has demonstrated in mice that genetic background also governs the degree to which obesity will lead to inflammation or insulin resistance.<sup>37</sup> Dr. Kahn is currently following leads that the type of bacteria in the intestine influences the development of insulin resistance and type II diabetes.<sup>38</sup>



### FGF21 and Longevity

David Mangelsdorf, PhD (Professor and Chairman of the Department of Pharmacology, University of Texas Southwestern Medical Center, Dallas, Texas) has been studying Fibroblast Growth Factor 21 (FGF21), a growth factor secreted in the liver during fasting that has been shown to increase liver insulin sensitivity in rats made obese by a high-fat diet.<sup>39</sup> Dr. Mangelsdorf has created mice that secrete more-than-normal amounts of FGF21 and live **30-40%** longer without any calorie restriction.<sup>40</sup> Like Snell and Ames dwarf mice (which also live longer than normal mice) the FGF21 transgenic mice are small, are more growth-hormone resistant, and are more insulin sensitive than normal mice.<sup>40,41</sup>



### Inflammation from Aging Rather Than from Fat

James Kirkland, MD, PhD (Professor of Medicine, Mayo Clinic, Rochester, Minnesota) has observed that although insulin resistance, type II diabetes, and inflammation continually increase with age, obesity begins to decline in late middle age. Although the inflammation associated with obesity mainly comes from macrophages, the inflammation associated with aging mainly comes from fat cells.<sup>42</sup> Obesity is associated with fat deposition in tissues other than fat cells, which is believed to cause insulin resistance



and fat toxicity.<sup>43</sup> Saturated fats have been shown to kill heart cells.<sup>44</sup> Fat toxicity impedes the function of and can even kill the insulin-producing cells of the pancreas.<sup>45,46</sup> Dr. Kirkland has shown that aging increases susceptibility to fat toxicity.<sup>47</sup> Certain saturated fats have been shown to kill cells by increasing synthesis of the waxy fats or by other means.<sup>48-50</sup> Certain waxy fats can cause insulin resistance.<sup>51</sup>

Dr. Kirkland believes that much of the chronic inflammation associated with aging and type II diabetes is due to inflammatory proteins (cytokines) secreted from senescent (old or damaged) fat cells, noting that fat is the largest organ in the body for an increasing percentage of the population.<sup>52,53</sup> Dr. Kirkland initiated a study which showed that partial rejuvenation results from eliminating senescent cells in a mouse with accelerated aging.<sup>54</sup> He is currently seeking to replicate that study in normal mice.

### Binge Drinking and Type II Diabetes

Christoph Buettner, MD, PhD (Director, Laboratory for Metabolism and Diabetes, Mount Sinai School of Medicine, New York City, New York) was inspired by human epidemiological evidence that binge drinking leads to chronic insulin resistance or diabetes<sup>55-57</sup> to investigate the molecular mechanisms in rats. He found that ethanol dosing in rats that simulates human binge drinking is toxic to the hypothalamus, and thereby induces insulin resistance.<sup>58</sup> Short-term insulin resistance lasts for days after all the ethanol has been metabolized.<sup>58</sup> Dr. Buettner is concerned that binge drinking continues to increase among college students.<sup>59</sup> Adolescents are particularly vulnerable to brain damage from binge drinking.<sup>60</sup>



### Summary

I had made it a priority to attempt to gain from this conference an understanding of the mechanism by which insulin resistance is induced. I was surprised that opinions on this subject could be so different, but I believe that some of the reason for the divergence of views is that there is more than one mechanism involved. In particular, I think that in some cases inflammation can induce insulin resistance, whereas in other cases fat directly impedes cell signaling between the insulin receptor and the glucose transporter. ●

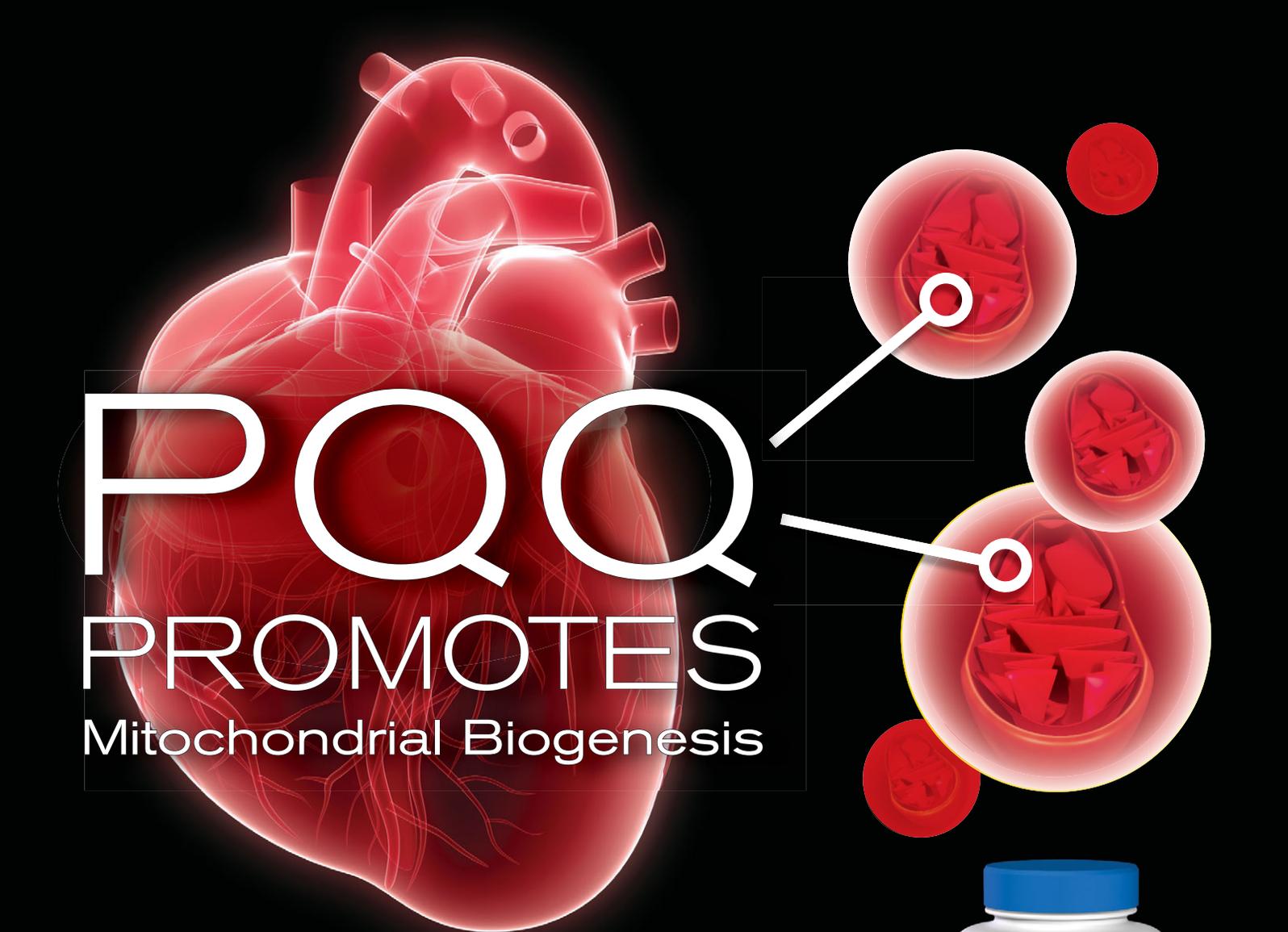
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# PQQ

## PROMOTES

### Mitochondrial Biogenesis

### Critical Importance of Mitochondria

In 1983, **Life Extension**<sup>®</sup> 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>

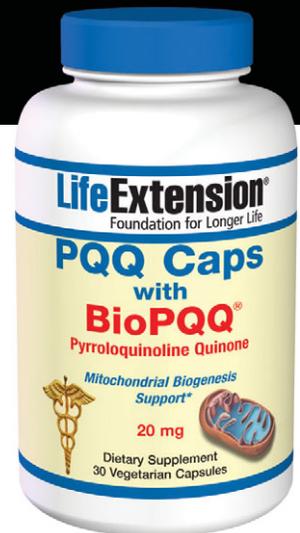
In an unprecedented breakthrough, a compound called **PQQ** (*pyrroloquinoline quinone*) has been shown to support **mitochondrial biogenesis**—the spontaneous generation of **new mitochondria** in aging cells.<sup>7</sup>

**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 life span. 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 #01647

## 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 unique fermentation process. The result is the highest quality PQQ available on the market today called **BioPQQ**®.

A bottle containing **30 20 mg** vegetarian capsules of **PQQ Caps with BioPQQ**® retails for \$40. If a member buys four bottles, the price is reduced to **\$27** per bottle.

The recommended daily dose for **PQQ** is **20 mg**. Those taking **Mitochondrial Energy Optimizer** or **Mitochondria Basics** only require an additional **10 mg** of PQQ since these formulas already provide **10 mg** of PQQ. The retail price for **30 10 mg PQQ** caps is \$24. If a member buys four bottles, the price is reduced to only **\$16.50** per bottle. (Item #01500)

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

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

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# LIMIT THE RELEASE OF GLUCOSE FROM STARCHY FOODS

Hundreds of studies document the importance of protecting against blood **glucose** surges.<sup>1</sup>

What the public doesn't realize is that a huge source of **blood sugar** emanates from dietary **starch**.<sup>2,3</sup> This includes bread, pasta, potatoes, and rice. But even so-called healthy carbohydrates such as whole-grain bread and brown rice can induce undesirable glucose spikes.<sup>4</sup>

In a breakthrough development, scientists have shown that an enzyme called **transglucosidase** converts **starches** into prebiotic **fiber**—*within your own digestive tract!*<sup>5,6</sup> Taking this enzyme with starchy meals helps avoid the flood of **glucose** into the bloodstream that results from eating carbohydrates.

## COMPELLING HUMAN RESEARCH DATA

Published studies show that **transglucosidase** limits the amount of **SUGAR** released from **STARCH**, especially in the critical **after-meal** period. It does this by converting dietary starch into a beneficial indigestible prebiotic **fiber**.<sup>5,6</sup>

**Transglucosidase** has been demonstrated in humans to reduce the level of **rapidly digested** starch in a carbohydrate food item by **31%**.<sup>7</sup> This helps maintain healthy blood glucose, cholesterol, and insulin levels for those whose levels are already in the normal range.<sup>8-11</sup>

## SHIELD AGAINST AFTER-MEAL GLUCOSE SURGES

Each vegetarian capsule of the new **GlycemicPro™ Transglucosidase** contains a full **450,000 TG** (transglucosidase activity units) of **trans-glucosidase**.

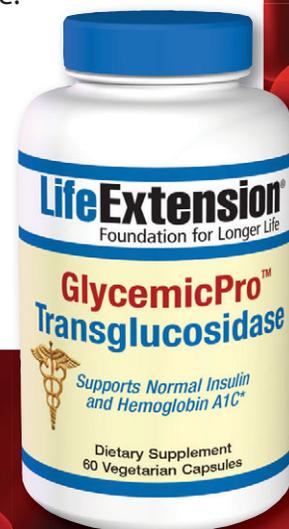
Just one capsule taken with starch-containing meals helps limit the release of sugar from starch. Those who consume a low-starch diet may need to take only one **GlycemicPro™ Transglucosidase** capsule daily with their starch-containing meal.

A bottle of 60 vegetarian capsules of **GlycemicPro™ Transglucosidase** retails for \$54. If a member buys four bottles, the price is reduced to **\$37.50** per bottle.

### References

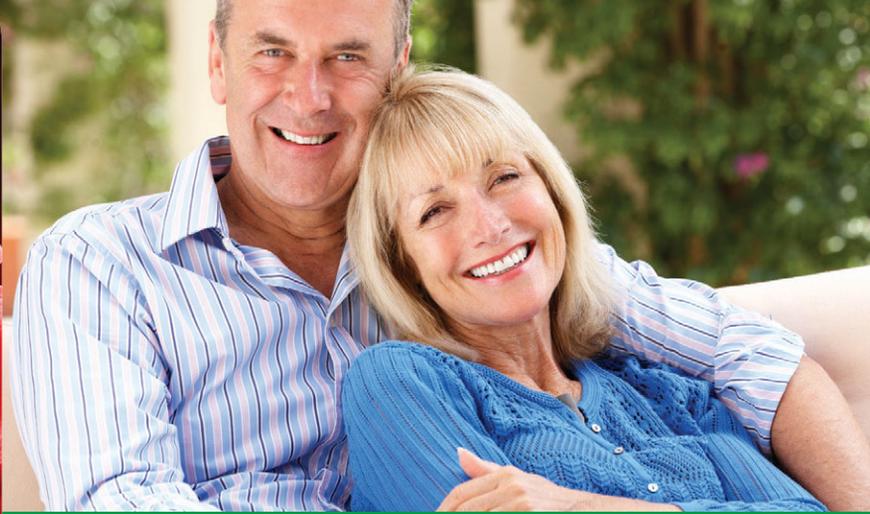
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Contains soybeans. Contains tree nuts (coconut).  
CAUTION: If you are taking blood glucose lowering medication, consult your healthcare provider before taking this product.



ITEM # 01731

**GlycemicPro™ Transglucosidase,**  
call **1-800-544-4440**  
or visit **www.LifeExtension.com**



## AUTHOR INTERVIEW

# The 17 Day Plan to Stop Aging



In 2011, Dr. Mike Moreno's weight loss book, *The 17 Day Diet*, was a bestselling phenomenon. It spent eleven weeks at #1 on the *New York Times* bestseller list and has more than 900,000 copies in print today. For his next book, Dr. Moreno chose to tackle a subject that Life Extension® members know a great deal about: anti-aging.

In this exclusive interview, Dr. Moreno talks to Life Extension about the five factors of aging, some novel ideas he presents in his book, and his unique approach to the patient/doctor relationship.

**LE:** The first chapter of your book deals with what you term "the five factors of aging." Can you briefly explain what they are?

**MM:** Absolutely. Inflammation is the first factor. The other factors of aging include methylation, oxidation, glycation, and immune impairment. Generally, most people classically think of inflammation as having to do with arthritis, but they fail to realize that inflammation itself underlies the major diseases of aging.



**LE:** Inflammation is thought to be connected to everything from Alzheimer's to heart disease. And you mention in your book a few things that can cause inflammation.

**MM:** A number of lifestyle factors contribute to inflammation and thereby to aging. Some of the most obvious (but least controlled in our population) are smoking, lack of exercise, excess weight, and too much stress. All of these are potential killers. It's a message you hear from everyone, but for some reason, people refuse to make preventive changes in their life.

**LE:** All of those issues seem to be brought on by poor lifestyle choices.

**MM:** Exactly. Prevention is the key to longevity. It is much better to treat a person who is well than a person who is sick. On that note, oxidative stress is another of the factors of aging. Oxidative stress is what takes place when you have unstable molecules orbiting around in the body. Rust on iron is oxidation. From a molecular

standpoint, it's a result of these unstable molecules that wreak havoc on every organ in the body. However, a lot of oxidative stress can be prevented by a diet rich in antioxidants.

**LE:** Aside from its role in oxidation, the diet plays a big role in glycation, another factor of aging, doesn't it?

**MM:** Yes. Glycation is a result of the interaction between the types of proteins and carbs that we eat. Glycation occurs when sugars react with the body's lipids or proteins, resulting in the formation of non-functioning advanced glycation end products. Although glycation is a normal consequence of the aging process, it is far from desirable. Glycated white blood cells are unable to fight infection as well, meaning you'll get sick more often. Portion control is also a factor in avoiding harmful glycation. Too much of a good thing can also be a bad thing. When you talk about something normally thought of as healthy, like fruit, you have to remember that in terms of a diabetic, it can be harmful. There is so much people can do through their diet to modify the risk of glycation.

**LE:** Speaking of getting sick, you list immune impairment as one of your factors of aging as well, next to methylation. Can you explain these two concepts?

**MM:** Innate immunity is our first line of defense in the war against infection. As we get older, it seems that our innate immune cells don't communicate as well as they once did. This impairment applies to everything in our body. With an impaired immune system, we open the door for more degenerative diseases and tend to age faster. Methylation primarily

has to do with DNA. It's DNA driven. It's a template for every cell in our body. When it's occurring correctly, methylation keeps your DNA in good working condition, therefore proper methylation can actually slow down aging when it's balanced.

**LE:** What role does diet, vitamins, nutrition, and supplements have in fending off aging?

**MM:** When I think about natural immunity, I think about vitamins B6 and B12. I recommend a multivitamin. Vitamins A, D, E, and C are extremely valuable. Occasionally, one vitamin will be highly touted and then the skeptics will come out and declare that something might not be as helpful as we might have thought. That bothers me. If something helps, in any way, it is worth taking because these things really are critical. As for what foods are best, vegetables in any amount are always going to be fine. Across the board, lean proteins, fish, chicken, and poultry are all valuable. Whole grains are good, but too much can still serve as a source of increase in your blood sugar, which isn't good.

**LE:** This is a good time to talk about the dangers of glucose, which you mention throughout your book.

**MM:** The main thing that people have to remember is that they should be cautious of their sugar intake. And it's not just about cakes and pies. Fruit is not always your friend. I take lots of criticism from dieticians about limiting fruit. When you look at the diabetic issues that plague us all as we age, and you see children with type II diabetes, you know we have a problem with sugar in general. The problem is that no matter how it gets there, once sugar is in the

blood, it goes everywhere because the blood goes everywhere. If sugar is delivered via the blood to every organ, then the oxygen is crowded out and that damages the process of oxygen delivery to vital organs. This affects your kidneys, your heart, strokes, neuropathy, your eyes, almost everything. Excess sugar in the blood is something people really need to look out for.

**LE:** Most people would like the energy of youth as well. In what way is the thyroid overlooked in this function and how can we keep it healthy?

**MM:** There are many issues that can develop with the thyroid, but the most common is hypothyroid, which is an underactive thyroid. It is estimated that 27 million American adults have an underactive thyroid, and the best way to know is to have your thyroid checked with a blood test. If you do that, then you need to watch for symptoms, which are sometimes subtle, including lethargy and sudden weight gain. If you suffer from this condition, get plenty of calcium and vitamin D and make sure you consume enough iodine.

**LE:** We've gone into some specifics thus far, but what is the overarching theme of the anti-aging strategies in your book?

**MM:** The book's focus is to slow down the aging process. I try to distinguish the process of aging from the process of getting older. How we get older and how our organ systems get older is what we can help control. To make those systems healthier is not as difficult as people think it is. Once you make those systems healthier, your whole body becomes healthier and you live longer.

**LE:** America is no longer one of the healthiest countries in the world and we are plagued by epidemics of heart disease, cancer, diabetes, and obesity. How can the doctor/patient relationship help change that?

**MM:** It's sad but true that people are unhealthier now than they've ever been in this country. We have made so many advances in science and technology and we're still unhealthy. I think part of the problem is that the vast majority of patients need to take personal responsibility for their health. As physicians, we need to make sure we treat each patient differently based on their needs. Medicine should not be a "one size fits all" business. You can't just tell someone they need to start walking 30 minutes a day. That might not work for them.

**LE:** How do you personalize a patient's visit in your own practice?

**MM:** One of the first things I have a patient do is walk me through their typical day. Tell me about everything you do from the moment you get up until you go to bed. Then walk me through the week, or even two weeks. I often have patients keep a journal of a few weeks to record their eating and activity habits. Once I see that journal, we can identify the problems and work through it and come up with a program that works specifically for them.

**LE:** What are some general strategies that you have for patient improvement?

**MM:** The simplest thing I advise is for patients to get their blood work done regularly. I literally beg my patients to come in and get their blood work. It's amazing

how much prevention people pass up because of fears that can be resolved or treated with the right blood test. Like I said earlier, prevention is the key to longevity.

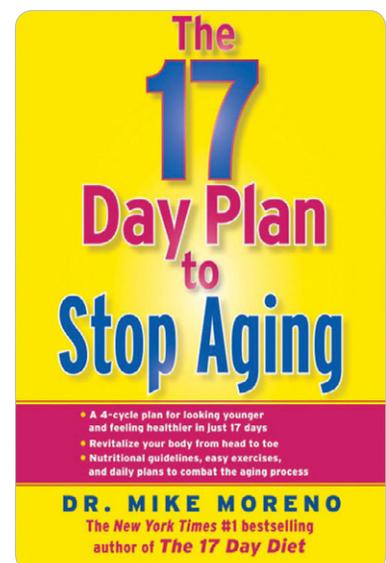
**LE:** Thank you for your time, Dr. Moreno.

**MM:** Thank you.

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

Dr. Michael Moreno, better known as "Dr. Mike," is a graduate of the University of California at Irvine and Hahnemann Medical School (now Drexel University). Following his residency at Kaiser Permanente in Fontana, California, Dr. Mike moved to San Diego, where he now practices family medicine and sits on the board of the San Diego Chapter of the American Academy of Family Physicians.

To obtain a copy of *The 17 Day Plan to Stop Aging* by Dr. Mike Moreno, please visit [www.amazon.com](http://www.amazon.com).



# Are You Obtaining Enough TAURINE?

Taurine is so vital that scientists have described it as "**one of the most essential substances in the body.**"<sup>1</sup> Food sources provide relatively little taurine,<sup>2,3</sup> and as we age, synthesis of taurine in our bodies (from cysteine) markedly declines.<sup>3-5</sup>

Fortunately, taurine is one of the **lowest-cost** nutrients, making it affordable to supplement with optimal doses.



Item# 00199

## SYSTEM-WIDE HEALTH BENEFITS

Taurine is one of the most abundant amino acids.<sup>1,6</sup> Extensive studies have demonstrated the ability of **taurine** to support:

- Insulin sensitivity and glucose utilization,<sup>7,8</sup>
- Proper utilization of minerals such as calcium,<sup>1</sup>
- Eye health,<sup>1,9,10</sup>
- Regulation of the central nervous system,<sup>6</sup>
- Cell membrane stability<sup>6</sup> and balanced water content (*osmoregulation*),<sup>11,12</sup>
- Immune system modulation,<sup>11,13</sup>
- Bile salt formation,<sup>11</sup>
- Neuron integrity<sup>6,11</sup> and cognitive function,<sup>14</sup>
- Liver function,<sup>15</sup> and
- Cardiovascular health.<sup>12,16,17</sup>

To promote **system-wide** health, the body requires adequate levels of this **essential** nutrient.<sup>1,11,18</sup>

## ULTRA-LOW COST

A bottle of 50 **1,000 mg** capsules of **Life Extension® Taurine** retails for **\$8.95**. If a member buys four bottles, the price is reduced to **\$6** per bottle.

One capsule taken one to three times daily on an empty stomach, or as recommended by a healthcare practitioner, supports optimal taurine levels. **Taurine** may represent one of the better values on the nutritional supplement marketplace today.

To order Life Extension® Taurine, call 1-800-544-4440  
or visit [www.LifeExtension.com](http://www.LifeExtension.com)

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## WELLNESS PROFILE

BY JON FINKEL

### Dr. L. Ray Matthews Unleashes the Power of Vitamin D

It's not often that you hear about an accomplished, mainstream trauma surgeon getting laughed at by his colleagues after presenting an innovative health idea. It is even less often that a doctor receiving that kind of response would admit to the laughter and even take it with a smile. But in the case of Dr. L. Ray Matthews, an assistant professor of surgery at Morehouse School of Medicine and the Surgical Critical Care Director at Grady Memorial Hospital in Atlanta, Georgia, he would also end up winning over those other surgeons who were skeptical of his cutting-edge thinking.

Now, you might be wondering, what was this radical idea that caused so much skepticism? It was simple: Dr. Matthews believed in the incredible healing power of vitamin D.

"People always ask me about how a surgeon could get involved in vitamin D research," Dr. Matthews says. "My answer is that being a surgeon, I'm very interested in wound infections and getting patients off of ventilators. I'm interested in helping my patients heal faster, and I want to decrease the incidence of pneumonia. Essentially, I want my patients healthy and out of the hospital as quickly as possible."



**Dr. L. Ray Matthews**



All of these desires led Dr. Matthews, who wanted to be a physician since he was four years old, to his renowned work with vitamin D.

Case in point, last summer, Dr. Matthews and a team of Morehouse doctors published a landmark paper in the *American Journal of Surgery* looking at the benefits of vitamin D's use in critically ill patients, such as decreased length of hospital stays, decreased hospital costs, and decreased mortality rates.<sup>1</sup> Dr. Matthews and his team also pioneered a medical therapy combination of vitamin D, omega 3-fatty acids, glutamine, and progesterone to treat patients with concussions and traumatic brain injuries.

Dr. Matthews is now writing a manuscript on vitamin D's use in reducing the incidence of congestive heart failure, which is expensive to treat because of the high readmission rate associated with the condition.

"We can cut the 30-day readmissions rate by at least **50%** using vitamin D," Dr. Matthews says. "Vitamin D is an inexpensive way to increase cardiac contractility because it increases calcium absorption.<sup>2</sup> Calcium makes the heart contract, or beat, better."<sup>3</sup>

Cutting hospital readmission rates, he says, is a top priority of the Centers for Medicaid and Medicare.

## Defining a 'D' Deficiency

Vitamin D is a steroid hormone that directly influences over 200 out of some 20,000 to 25,000 human protein-coding genes and notably binds to a number of genes associated with autoimmune disease and cancer.<sup>4,6</sup>

"You can't achieve optimal health, athletic performance, or cognitive performance without adequate vitamin D levels. Vitamin D is a very powerful chemical in the human body," Dr. Matthews says.

He strongly urges people to get their vitamin D levels checked on a regular basis, and he is careful to note that the government's currently acceptable level of vitamin D in the bloodstream, with a lower limit of **30 ng/mL**, is far too low.<sup>7</sup>

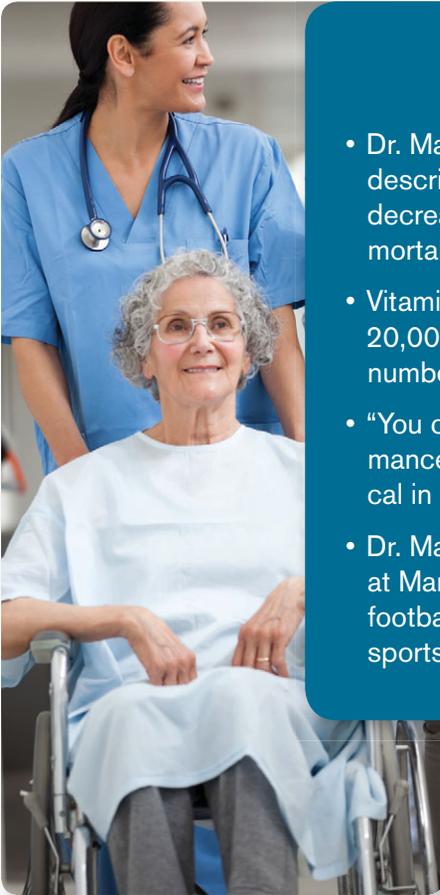
"For me, anything in the **50 to 55 ng/mL** range is where you want to be," he says. "All animals in nature are between **50 and 55 ng/mL** in the wild, but once we bring them into captivity, they

drop. This happens in its own way to humans as well. When you're in an Intensive Care Unit or another room in a hospital, your vitamin D level drops **50%** in the first 24-48 hours. If you come into the hospital at **30 ng/mL**, or below, and you drop below **18 ng/mL**, your risk of death increases by **30%**. It is a serious problem."

Since the government has been lagging on this issue, Dr. Matthews has taken it upon himself to educate officials and explain the science and importance of vitamin D. He also believes that insurance companies are going to soon be all over the importance of the vitamin because it can prevent a lot of the chronic injuries that plague otherwise healthy people.

"I've met with a lot of government officials who didn't know about what vitamin D can do,"





## Vitamin D: The Experiences of a Cutting-Edge Surgeon

- Dr. Matthews and a team of Morehouse doctors published a landmark paper describing the benefits of vitamin D's use in critically ill patients, such as decreased length of hospital stays, decreased hospital costs, and decreased mortality rates.
- Vitamin D is a steroid hormone that directly influences over 200 of some 20,000 to 25,000 human protein-encoding genes and notably binds to a number of genes associated with autoimmune disease and cancer.
- "You can't achieve optimal health, athletic performance, or cognitive performance without adequate vitamin D levels. Vitamin D is a very powerful chemical in the human body," Dr. Matthews says.
- Dr. Matthews presided over a parent-led vitamin D supplementation protocol at Martin Luther King, Jr. High School in Lithonia, Georgia, where the MLK football team has only had one concussion and almost a **100%** reduction in sports injuries over the past two years.

Matthews says. "I've been giving lectures to educate them. You have to have a passion for it. Most people, once they see the evidence, accept what I'm saying. For instance, in our hospital, our mortality rate is down **42%** with critically ill patients for all traumas with our new vitamin D protocol."

Of course, Dr. Matthews wasn't able to simply walk into his hospital and declare a new strategy for using vitamin D on all patients. It took much convincing, and that convincing began with, of all people, the staff nutritionist.

"The best way I could explain what I was talking about was to show the nutritionist our patients' vitamin D levels as they were admitted," he explains. "I would order the test right away and as they'd come back, I'd walk over to

the nutritionist and show her. We had some horribly low levels. The average person coming into the ICU at Grady had a hydroxyvitamin D level of **15 ng/mL**, which is very, very low. But we'd see people with single digit numbers. Four. Six. Once I showed the nutritionists these numbers, my question to them was, 'Why aren't you checking vitamin D levels?'"

### Dissecting Low D Levels

Dr. Matthews points out that up until this most recent generation of children, people didn't use much sunscreen, and they didn't limit their time outdoors. Also, as technology gets better and better, fewer and fewer Americans are working outside. When you're indoors, **98%** of sunlight is blocked out.

"You can only make vitamin D from the last week in March until the first week in October," he explains. "You need the sun

at a ninety degree angle in the Northern Hemisphere to make vitamin D. Even in the winter we can't grow crops or food or vegetables. This means most Americans aren't making any D for close to five months a year. This is why D levels plummet in the winter and so many people get sick due to compromised immune systems. People get the winter blues and become ill."

When you combine massively reduced sun exposure with an overall vitamin-deficient diet, you get the perfect storm of D deficiency that we see today.

"This deficiency is showing up everywhere," Dr. Matthews says. Elite military personnel such as Navy SEALs experience a high rate of stress fractures—up to **23%** during unit training.<sup>8</sup> "They're testing these soldiers, and their vitamin D levels and intakes are low.<sup>9</sup> There is now a push trying to get the military to supplement the Navy SEALs with vitamin D," reports Dr. Matthews.



Another area where low D levels are showing is in the world of sports. The National Football League's New York Giants recently did a vitamin D study in 2010 and found out that **81%** of their players were vitamin D deficient or insufficient, as reported during the American Orthopedic Society for Sports Medicine convention held in San Diego.<sup>10</sup> The players that had lower levels of vitamin D were susceptible to more soft tissue injuries. In addition, the National Hockey League's Chicago Blackhawks have most players on **5,000 IU** of vitamin D a day to help reduce injuries and have seen impressive results.<sup>11</sup>

"When your vitamin D level gets too low, it affects your skeletal system," Dr. Matthews explains.<sup>12</sup> "If your skull is made of bone, you can strengthen it with D levels to help it withstand hits. There is a

direct correlation between the levels of vitamin D dropping in young athletes and the current rise of concussions."

Dr. Matthews presided over a parent-led vitamin D supplementation protocol at Martin Luther King, Jr. High School in Lithonia, Georgia, where his nephew was a student athlete. In 2011, the school began a nutrition program that included a daily dose of vitamin D. During the past two football seasons, the football team finished with a 23-2 record in a competitive 5A conference. Even more important, MLK football team has only had one concussion and almost a **100%** reduction in sports injuries over the past two years. Forty-nine MLK student athletes have received four-year scholarships to play football at the college level over the past two seasons.

"I think so much of this is due to the fact that we have strong muscles, but weak bones," Dr. Matthews says. "Your skull can't take as much force if it isn't at full strength."

### Beyond D

In addition to a vitamin D deficiency making skulls softer, Dr. Matthews has noticed how this deficiency, coupled with a few others, can negatively affect the human brain.

"The human brain is made up of **30%** of the omega-3 fatty acid DHA," he says.<sup>13</sup> "Most people are omega-3 deficient. You don't repair a brick wall with straw, but that's what so many people are doing. Their brains and skull need reinforcements, and we're not giving them the nutrients they need. Instead we're feeding them omega-6s, sugars, chemicals, cakes, pies,

and cookies, all of which are associated with inflammation. That's like throwing gas on the fire. If you're deficient in either omega-3s or vitamin D, you're in trouble. Much of America is deficient in both."

One of the most impressive things about Dr. Matthews is that he isn't just lecturing based on an untested hypothesis. Time and again his protocols involving vitamin D supplementation along with other nutrients have shown remarkable results in his hospital.

A recent case in particular brought him some notoriety, when a 17-year-old girl showed up in his trauma unit after she was in a horrific car accident, including a devastating head injury. According to Dr. Matthews, over half of the patients with her type of head injury do not survive and another **47%** are in permanent comas or severely impaired for the rest of their lives. The remaining **3%** regain consciousness.

When the young woman was admitted to the hospital, she was immediately administered a regimen of vitamin D3, omega-3 fatty acids, glutamine, and progesterone. These nutrients saved her life. The doctors saw slight improvements every day and, only six months after an accident that should have either killed or incapacitated her, the young woman was walking and talking and close to acting as if the accident never happened.

### Summary

"The body needs hundreds of different vitamins, minerals, enzymes, and nutrients to function properly," Dr. Matthews says. "Americans may have nearly 60 deficiencies."<sup>14</sup> I don't have time

to waste on something that's not working, which is why I call vitamin D 'God's miracle vitamin'. It is the backbone drug supplement in treating traumatic brain injury because it works on so many levels.<sup>15</sup> Vitamin D3 directly influences hundreds of human genes.<sup>4</sup> That makes vitamin D a very powerful substance.” ●

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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Dr. Matthews is a full-time faculty member of Morehouse School of Medicine, Department of Surgery. He was appointed Assistant Professor of Clinical Surgery in February 2007. Dr. Matthews serves as a surgical critical care and trauma surgeon. Dr. Matthews received his medical degree in May 1989 from the University of Mississippi. He completed his surgical residency training at Morehouse School of Medicine in 1997; with prior residency training from Conemaugh Valley Memorial Hospital in Johnstown, Pennsylvania, Western Care Reserve System in Youngstown, Ohio, and the District of Columbia General Hospital in Washington, D.C. In June 2004, Dr. Matthews completed a two-year surgical critical care fellowship at the Mayo Clinical College of Medicine in Rochester, Minnesota. He was a Senior Associate Consultant at Mayo Clinic in Rochester, Minnesota from 2004-2006. Matthews is a diplomat of the American Board of Surgery receiving certification in both General Surgery and Surgical Critical Care.



# PROTECT SKIN AGAINST DAMAGE FROM INSIDE OF YOUR BODY

Scientists have discovered that an extract of the fern *Polypodium leucotomos* helps inhibit cellular changes in the skin that can lead to premature aging due to sun exposure.<sup>1</sup>

Taken orally, **Enhanced FernBlock® with Red Orange Complex** provides an **additional** layer of support for the body's ultraviolet-light defenses.

Best of all, *Polypodium leucotomos* offers this protection from the inside out. The result is an oral photoprotective agent that provides uniform, systemic, total-body surface protection (including the eyes, lips, and the scalp), without the problems associated with sunscreen.<sup>2,3</sup>

## Oral Sun Defense

**FernBlock®** has shown remarkable effectiveness in promoting skin defenses against harmful solar radiation.<sup>1,4-7</sup>

**FernBlock®** in this **oral** formulation works by promoting the body's ability to inhibit absorption of ultraviolet rays and to quench the free radicals that this type of radiation can generate.<sup>4,5</sup> In one clinical study, *Polypodium leucotomos* offered significant protection against the sun's rays, even for those taking medication that causes increased sun sensitivity.<sup>8</sup> The study subjects experienced an almost **three-fold** increase in the amount of time they spent in the sun.

## Enhanced FernBlock® Formula

This product has been upgraded to contain **Red Orange Complex**, a standardized extract that is obtained from three **red orange** varieties—*Citrus sinensis* var. Moro, Tarocco, and Sanguinello.

The main active **phenolic** compounds include **anthocyanins**, **flavanones**, and **hydroxycinnamic acids**. It also includes vitamin C,<sup>9</sup> which works together to support the body's natural photoprotection against ultraviolet radiation,<sup>10,11</sup> by helping to balance the body's normal inflammation response,<sup>12</sup> free-radical defense mechanism, and healthy apoptotic (cell death) activity.<sup>13</sup>

In a controlled human trial, 15 days of **oral** supplementation with **Red Orange Complex** was demonstrated to **measurably** support natural skin defenses against ultraviolet radiation.<sup>11</sup>

FernBlock® is a registered trademark of Industrial Farmaceutica Cantabria, S.A.

Note: This product is not a sunscreen.

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## More Comprehensive Sun Protection

**Enhanced FernBlock® with Red Orange Complex** is designed to complement topical sunscreens for sun exposure. Taken orally, **FernBlock®** supplements the effectiveness of topical sunscreens by protecting the **entire skin surface** and has an obvious advantage in that it **cannot be removed by perspiring or bathing**.

If taken daily, just one capsule should provide everyday protection. Each vegetarian capsule of **Enhanced FernBlock® with Red Orange Complex** provides:

<b>FernBlock®</b> <i>Polypodium leucotomos</i> extract (leaf)	240 mg
<b>Red Orange Complex</b> (Sicilian red oranges – <i>Citrus sinensis</i> var. Moro, Sanguinello, and Tarocco) extract (fruit and peel)	100 mg
<b>Vitamin C</b> (as ascorbic acid from Red Orange Complex)	5.5 mg



Item #01728

A bottle of 30 vegetarian capsules of **Enhanced FernBlock® with Red Orange Complex** retails for \$42. If a member buys four bottles, the price is reduced to **\$28.50** per bottle.

To order **Enhanced FernBlock® with Red Orange Complex**, 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.

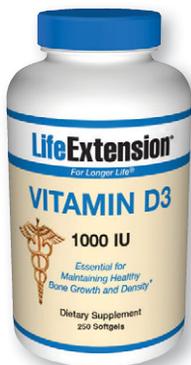
# D<sub>3</sub>

## VITAMIN D<sub>3</sub> SOFTGELS FOR SUPERIOR ABSORPTION

Study after study confirms the vital importance of maintaining optimal levels of **vitamin D**. Research often indicates that a blood level between **50–80 ng/mL** of **25-hydroxyvitamin D** is ideal. Because people have individual requirements, Life Extension® has created a large selection of **vitamin D** supplements to ensure that you achieve your **vitamin D<sub>3</sub>** goals.

Keep in mind that you may already be getting **1,000–3,000 IU** of vitamin D in your multi-nutrient formulas.

Vitamin D is now available in superior absorbing softgels. A recent study demonstrated that the use of one **5,000 IU** vitamin D softgel daily resulted in a near **30% increase** in vitamin D levels in just **60 days**.

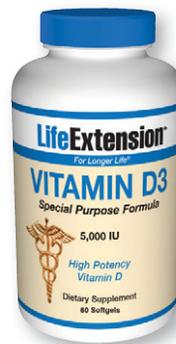


### VITAMIN D<sub>3</sub> 1,000 IU 250 softgels

Retail: \$12.50

**Four-bottle Member Price: \$8.44 ea.**

Commercial companies offered only **400 IU** vitamin D products when Life Extension long ago introduced a **1,000 IU** version. For most people, this **1,000 IU** potency is *insufficient* to attain optimal vitamin D blood levels. For smaller individuals who obtain **2,000–3,000 IU** in their multi-nutrient formulas (and children), this potency of vitamin D may be suitable. **Item # 01751**

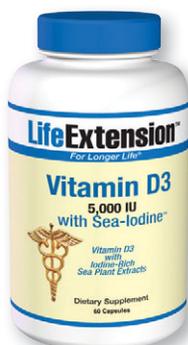


### VITAMIN D<sub>3</sub> 5,000 IU 60 softgels

Retail: \$11

**Four-bottle Member Price: \$7.43 ea.**

For those already obtaining **1,000–3,000 IU** of vitamin D in their multi-nutrient formulas, this **5,000 IU** potency is what many need to *achieve* optimal vitamin D blood levels. **Item # 01713**

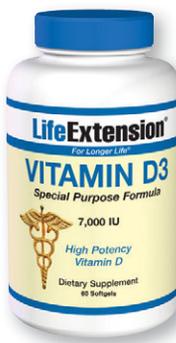


### VITAMIN D<sub>3</sub> 5,000 IU WITH SEA-IODINE™\* 60 capsules (non-softgel)

Retail: \$14

**Four-bottle Member Price: \$9.38 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 D<sub>3</sub>** and **1,000 mcg** of iodine into one capsule makes taking these two nutrients economical and convenient. **Item # 01573**

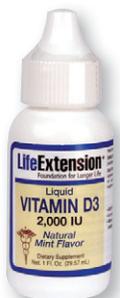


### VITAMIN D<sub>3</sub> 7,000 IU 60 softgels

Retail: \$14

**Four-bottle Member Price: \$9.45 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 D<sub>3</sub>** softgel should enable these individuals to attain **25-hydroxyvitamin D** blood levels above the desired range of **50 ng/mL**. **Item # 01718**



### VITAMIN D<sub>3</sub> LIQUID 2,000 IU

**1 ounce**

Retail: \$28

**Four-bottle Member Price: \$18.75 ea.**

For those rare individuals who have difficulty absorbing enough vitamin D<sub>3</sub> from softgels, this liquid of vitamin D can be used. **Item # 01732**

**To order any of these high-potency vitamin D<sub>3</sub> 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 high blood calcium levels.

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



**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) \$269</b><br/> <b>Chemistry Profile</b> includes glucose, cholesterol, LDL, HDL, triglycerides, liver and-kidney function tests PLUS 20 additional tests. <b>CBC</b> includes immune (white) cell count, red blood cell count and platelet count. Also includes: <b>C-Reactive Protein</b><br/> <b>DHEA-S</b> <b>Homocysteine</b><br/> <b>TSH for thyroid function</b> <b>Free Testosterone</b><br/> <b>Estradiol</b> <b>Total Testosterone</b><br/> <b>Vitamin D 25- hydroxy</b> <b>PSA (prostate-specific antigen)</b><br/> <b>Hemoglobin A1c</b></p> | <p><b>○ THE CBC/CHEMISTRY PROFILE (LC381822) \$35</b><br/> <b>Note:</b> This CBC/Chemistry Profile is included in many Life Extension panels. Please check panel descriptions.<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>○ FEMALE LIFE EXTENSION PANEL (LC322535) \$269</b><br/> <b>Chemistry Profile</b> includes glucose, cholesterol, LDL, HDL, triglycerides, liver and-kidney function tests PLUS 20 additional tests. <b>CBC</b> includes immune (white) cell count, red blood cell count and platelet count. Also includes: <b>C-Reactive Protein</b><br/> <b>DHEA-S</b> <b>Homocysteine</b><br/> <b>TSH for thyroid function</b> <b>Free Testosterone</b><br/> <b>Estradiol</b> <b>Total Testosterone</b><br/> <b>Progesterone</b> <b>Vitamin D 25- hydroxy</b><br/> <b>Hemoglobin A1c</b></p>   | <p><b>○ COMPREHENSIVE THYROID PANEL (LC100018) \$199</b><br/>           TSH, T4, Free T4, Free T3, Reverse T3, TPO, ATA</p>   |
| <p><b>○ MALE WEIGHT LOSS PANEL (LCWLM) \$299</b><br/> <b>Chemistry Profile</b> includes glucose, cholesterol, LDL, HDL, triglycerides, liver and-kidney function tests PLUS 20 additional tests. <b>CBC</b> includes immune (white) cell count, red blood cell count and platelet count. Also includes: <b>C-Reactive Protein</b><br/> <b>DHEA-S</b> <b>Insulin</b><br/> <b>SHBG</b> <b>Free Testosterone</b><br/> <b>Estradiol</b> <b>Total Testosterone</b><br/> <b>Free T3</b> <b>Free T4</b><br/> <b>TSH for thyroid function</b> <b>PSA (prostate-specific antigen)</b></p>  | <p><b>○ FOOD SAFE ALLERGY TEST** (LCM73001) \$198</b><br/>           This test measures delayed (IgG) food allergies for 95 common foods.</p>   |
| <p><b>○ FEMALE WEIGHT LOSS PANEL (LCWLF) \$299</b><br/> <b>Chemistry Profile</b> includes glucose, cholesterol, LDL, HDL, triglycerides, liver and-kidney function tests PLUS 20 additional tests. <b>CBC</b> includes immune (white) cell count, red blood cell count and platelet count. Also includes: <b>C-Reactive Protein</b><br/> <b>DHEA-S</b> <b>Insulin</b><br/> <b>Progesterone</b> <b>Free Testosterone</b><br/> <b>Estradiol</b> <b>Total Testosterone</b><br/> <b>Free T3</b> <b>Free T4</b><br/> <b>TSH for thyroid function</b> <b>SHBG</b></p>   | <p><b>○ ADRENAL FUNCTION PANEL (LC100021) \$136</b><br/>           DHEA-S, AM/PM Cortisol, Glucose, Insulin, Lipid Panel, RBC magnesium</p>   |
| <p><b>○ MALE HORMONE ADD-ON PANEL (LCADDM)* \$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>○ OMEGA SCORE™*** (LCOMEGA) \$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>○ FEMALE HORMONE ADD-ON PANEL (LCADDF)* \$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>○ MITOCHONDRIAL FUNCTION PANEL* (LC100020) \$159</b><br/>           Carnitine (Free with Total), CoQ10, Glucose</p>   |
| <p><b>○ LIFE EXTENSION THYROID PANEL (LC304131) \$75</b><br/>           TSH, T4, Free T3, Free T4.</p>  | <p><b>○ VAP™ TEST* (LC804500) \$90</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.</p>   |
| <p><b>○ FEMALE COMPREHENSIVE HORMONE PANEL* (LC100011) \$299</b><br/>           CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, Total Estrogens, Progesterone, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.</p>   |   |
| <p><b>○ MALE COMPREHENSIVE HORMONE PANEL* (LC100010) \$299</b><br/>           CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.</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.



## Other Popular Tests and Panels Life Extension Member Pricing

- |   |  |
|---|--|
| <input type="radio"/> <b>ENERGY PROFILE (LC100005)</b> <b>\$375</b><br>CBC/Chemistry Profile (see description), Epstein –Barr Virus antibodies (IgG and IgM), Cytomegalovirus Antibodies (IgG and IgM), Ferritin, Total and Free Testosterone, DHEA-S, Free T3, Free T4, Cortisol, C-Reactive Protein (high sensitivity), Vitamin B12, Folate, Insulin. | <input type="radio"/> <b>HORMONES</b><br><b>DHEA-SULFATE (LC004020)</b> <b>\$61</b><br>This test shows if you are taking the proper amount of DHEA. This test normally costs \$100 or more at commercial laboratories.   |
| <input type="radio"/> <b>ANEMIA PANEL* (LC100006)</b> <b>\$86</b><br>CBC/Chemistry Profile (see description), Ferritin, Total Iron Binding Capacity (TIBC), Vitamin B12, Folate, Reticulocyte Count.  | <input type="radio"/> <b>DIABESITY PANEL* (LC100019)</b> <b>\$159</b><br>Glucose, Insulin, HbA1c, VAP™, Cortisol, C-Reactive Protein   |
| <input type="radio"/> <b>INFLAMMATION PANEL (LC100007)</b> <b>\$135</b><br>CBC/Chemistry Profile (see description above), C-Reactive Protein (high sensitivity), Sedimentation Rate, Rheumatoid (RA) Factor, Antinuclear Antibodies (ANA) Screen.   | <input type="radio"/> <b>MALE BASIC HORMONE PANEL (LC100012)</b> <b>\$75</b><br>DHEA-S, Estradiol, Free and Total Testosterone, PSA  |
| <input type="radio"/> <b>THYROID ANTIBODY PROFILE (LC100004)</b> <b>\$99</b><br>Thyroid Antithyroglobulin Antibody (ATA) and Thyroid Peroxidase Antibody (TPO).   | <input type="radio"/> <b>FEMALE BASIC HORMONE PANEL (LC100013)</b> <b>\$75</b><br>DHEA-S, Estradiol, Free and Total Testosterone, Progesterone   |
| <input type="radio"/> <b>CARDIAC PLUS* (LC100008)</b> <b>\$145</b><br>CBC/Chemistry profile (see description), Vitamin D 25-hydroxy, C-Reactive Protein (high sensitivity), Fibrinogen, Homocysteine.   | <input type="radio"/> <b>DIHYDROTESTOSTERONE (DHT)* (LC500142)</b> <b>\$99</b><br>Measures serum concentrations of DHT.  |
| <input type="radio"/> <b>VAP™ PLUS* (LC100009)</b> <b>\$330</b><br>VAP, C-Reactive Protein (high sensitivity), Homocysteine, Fibrinogen, PLAC® Test (Lp-PLA2), Vitamin D 25-hydroxy.  | <input type="radio"/> <b>ESTRADIOL (LC004515)</b> <b>\$33</b><br>For men and women. Determines the proper amount in the body.  |
| <b>CARDIAC RISK</b><br><input type="radio"/> <b>COQ10* (COENZYME Q10) (LC120251)</b> <b>\$99</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.  | <input type="radio"/> <b>INSULIN FASTING (LC004333)</b> <b>\$25</b><br>Can predict those at risk of diabetes, obesity, and heart and other diseases.   |
| <input type="radio"/> <b>Lp-PLA2 (PLAC® TEST) (LC123240)</b> <b>\$125</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.              | <input type="radio"/> <b>PREGNENOLONE* (LC140707)</b> <b>\$116</b><br>Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.   |
| <input type="radio"/> <b>C-REACTIVE PROTEIN (HIGH-SENSITIVITY) (LC120766)</b> <b>\$42</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.  | <input type="radio"/> <b>PROGESTERONE (LC004317)</b> <b>\$55</b><br>Primarily for women. Determines the proper amount in the body.   |
| <input type="radio"/> <b>FIBRINOGEN* (LC001610)</b> <b>\$31</b><br>High levels of this blood-clotting factor increase the risk of heart attack and stroke.  | <input type="radio"/> <b>SEX HORMONE BINDING GLOBULIN (SHBG) (LC082016)</b> <b>\$33</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.   |
| <input type="radio"/> <b>HOMOCYSTEINE (LC706994)</b> <b>\$64</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-clogging metabolic debris that can be lowered with high doses of TMG, vitamin B6, and vitamin B12.                          | <b>BONE HEALTH</b><br><input type="radio"/> <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.  |
| <b>MALE HEALTH</b><br><input type="radio"/> <b>PSA (PROSTATE-SPECIFIC ANTIGEN) (LC010322)</b> <b>\$31</b><br>Can provide an early warning sign for prostate disorders and possible cancer.  | <input type="radio"/> <b>OSTEOCALCIN* (LC010249)</b> <b>\$91</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.  |
| <input type="radio"/> <b>FREE-PSA (INCLUDES TOTAL PSA)* (LC480780)</b> <b>\$61</b><br>Recommended to determine if an elevated PSA is indicative of prostate cancer.   | <input type="radio"/> <b>DPD CROSS LINK URINE TEST (LC511105)</b> <b>\$79</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. |

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### 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

Blood tests available only in  
the continental United States.  
Not available in Maryland.

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.

# PRODUCTS

## AMINO ACIDS

Acetyl-L-Carnitine  
Acetyl-L-Carnitine-Arginate  
Branched Chain Amino Acids  
D, L-Phenylalanine Capsules  
Glycine Capsules  
L-Arginine Capsules  
Arginine/L-Ornithine Capsules  
L-Carnitine Capsules  
L-Carnitine Powder Natural Lemon Flavor  
L-Glutathione, L-Cysteine & C  
L-Glutamine Capsules  
L-Glutamine Powder  
L-Lysine Capsules  
L-Tyrosine Tablets  
Mega L-Glutathione Capsules  
N-Acetyl-L-Cysteine Capsules  
Optimized Carnitine with GlycoCarn®  
PharmaGABA  
Super Carnosine Capsules  
Taurine Capsules

## BONE & JOINT HEALTH

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

## BRAIN HEALTH

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

## DIGESTIVE

Bifido GI Balance  
Carnosoothe w/PicroProtect  
Digest RC™  
Enhanced Super Digestive Enzymes  
Extraordinary Enzymes  
Life Flora™  
Natural EsophaGuard  
Pancreatin  
Regimint  
Theralac Probiotics

## DURK AND SANDY PRODUCTS

Blast™  
Inner Power™

## EYE CARE

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

## FIBER

AppleWise Polyphenol  
Fiber Food  
TruFiber®  
WellBetX PGX® plus Mulberry

## FOOD

Rich Rewards™ Black Bean Vegetable Soup  
Rich Rewards™ Spicy Cruciferous Vegetable Soup  
Rich Rewards™ Cruciferous Vegetable Soup  
Rich Rewards™ Lentil Soup  
Rich Rewards® Coffee  
(Available in mocha, vanilla and decaffeinated)

## HAIR CARE

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

## HEART HEALTH

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

## HERBAL/PHYTO PRODUCTS

Artichoke Leaf Extract  
Astaxanthin w/Phospholipids  
Berry Complete  
Blueberry Extract  
Blueberry Extract w/Pomegranate  
Butterbur Extract w/Standardized  
Rosmarinic Acid  
Calcium D-Glucarate  
Enhanced Berry Complete with Acai  
Full-Spectrum Pomegranate™  
Grapeseed Extract with Resveratrol &  
Pterostilbene  
Huperzine A  
Kyolic® Garlic Formula 102 + 105  
Kyolic® Reserve  
Mega Green Tea Extract  
Mega Green Tea Extract (Decaffeinated)  
(also w/CoffeeGenic® Green Coffee Extract)  
Mega Lycopene Extract  
Optimized Ashwagandha Extract  
Optimized Garlic  
Pomegranate Extract  
Pomegranate Juice Concentrate  
Pycnogenol  
Optimized Quercetin  
Resveratrol with Synergistic Grape-Berry Actives  
Rhodiola Extract  
Silymarin

SODzyme™ with GliSODin®  
Stevia Extract  
Super Bio-Curcumin®  
Super Ginkgo Extract  
Triple Action Cruciferous Vegetable Extract  
Venotone  
Whole Grape Extract

## HORMONES

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

## IMMUNE ENHANCEMENT

AHCC® (Active Hexose Correlated Compound)  
Black Cumin Seed Oil  
Black Cumin Seed Oil w/Bio-Curcumin®  
Buffered Vitamin C Powder  
Echinacea Extract  
i26 Hyperimmune Egg  
Immune Modulator w/Tinofend®  
Immune Protect with PARACTIN®  
Lactoferrin  
Norwegian Shark Liver Oil  
Optimized Fucoidan w/Maritech® 926  
ProBoost™ Thymic Protein A  
Reishi Extract Mushroom Complex  
Vitamin C with Dihydroquercetin  
Zinc Lozenges

## INFLAMMATORY REACTIONS

Arthro-Immune Joint Support  
ArthroMax™ with Theaflavins  
Boswellia  
Bromelain (Specially-coated)  
DHA (Vegetarian Sourced)  
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 Whirl  
Serrafazyme  
SODzyme™ with GliSODin® and Wolfberry  
Super Omega-3 EPA/DHA with Sesame  
Lignans & Olive Fruit Extract  
Tart Cherry w/Standardized CherryPURE®  
Zyflamend® Whole Body

## LIVER HEALTH

Branch Chain Amino Acids  
N-Acetyl Cysteine  
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

Iodoral  
 Iron Protein Plus  
 Magnesium  
 Magnesium Citrate  
 Only Trace Minerals  
 Optimized Chromium w/Crominex® 3+  
 OptiZinc  
 Sea-Iodine™  
 Selenium  
 Se-Methyl L-Selenocysteine  
 Strontium  
 Vanadyl Sulfate  
 Zinc Lozenges

## MISCELLANEOUS

Blood Pressure Monitor Arm Cuff  
 CR Way Edition Advanced Dietary Software

## 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

Adrenal Energy Formula  
 Bioactive Milk Peptides  
 L-Theanine  
 5 HTP  
 Enhanced Natural Sleep® w/ Melatonin  
 Enhanced Natural Sleep® w/o Melatonin  
 Natural Stress Relief  
 SAME  
 St. John's Wort Extract  
 L-Tryptophan  
 Optimized Tryptophan Plus

## MOUTH CARE

Advanced Oral Hygiene  
 Mouthwash w/Pomegranate  
 Toothpaste

## MULTIVITAMIN

Booster  
 Children's Formula Life Extension Mix™  
 Comprehensive Nutrient Packs Basic  
 Comprehensive Nutrient Packs Advanced  
 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

## PET CARE

Cat Mix  
 Dog Mix

## PROSTATE & URINARY HEALTH

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  
 Bio-Collagen w/Patented UC-II®  
 Bioflavonoid Cream  
 Broccoli Sprout  
 Corrective Clearing Mask  
 DNA Repair Cream  
 Dual-Action MicroDermAbrasion  
 Essential Plant Lipids Reparative Serum  
 Face Master® Platinum  
 Face Rejuvenating Antioxidant Cream  
 Enhanced FernBlock® with Red Orange Complex  
 Fine Line-Less  
 Hair Suppress Formula  
 Healing Formula All-in-One Cream  
 Healing Mask  
 Hyaluronic Facial Moisturizer  
 Hydrating Anti-oxidant Face Mist  
 Hydroderm®  
 Lifting & Tightening Complex  
 Lycopene Cream  
 Melatonin Cream  
 Mild Facial Cleanser  
 Neck Rejuvenating Antioxidant Cream  
 Pigment Correcting Cream  
 (Ultra) Rejuvenex®  
 Rejuvenex® Body Lotion  
 Rejuvenex® Factor Firming Serum  
 Rejuvenating Serum  
 Renewing Eye Cream  
 Resveratrol Anti-Oxidant Serum  
 Skin Lightening Serum  
 Skin Restoring Phytoceramides w/Lipowheat®  
 Skin Stem Cell Serum  
 Stem Cell Cream w/Alpine Rose  
 Ultra Rejuvenex®  
 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 E-ssential Cream  
 Vitamin K Healing Cream  
 Youth Serum

## SOY

Natural Estrogen w/Pomegranate  
 Super Absorbable Soy Isoflavones

## SPECIAL PURPOSE FORMULA

Anti-Alcohol Antioxidants w/HepatoProtection Complex  
 Benfotiamine w/Thiamine  
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 Butterbur Extract w/Standardized Rosmarinic Acid  
 Chlorella  
 Chlorophyllin  
 Green Coffee Extract CoffeeGenic® (also w/Glucose control)  
 Coriolus Super Strength  
 CR Mimetic Longevity Formula  
 Cinsulin® w/InSea2® and Crominex® 3+  
 European Leg Solution Diosmin 95  
 Fem Dophilus  
 Femmenessence MacaPause®  
 GlycemicPro™ Transglucosidase

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  
 Ultra Natural Prostate w/AprèsFlex® and Standardized Lignans

## SPORTS PERFORMANCE

Creatine Capsules  
 DMG (N, N-dimethylglycine)  
 L-Glutamine Capsules  
 L-Glutamine Powder  
 Whey Protein Isolate  
 Whey Protein Concentrate

## VITAMINS

Ascorbyl Palmitate Capsules  
 B12  
 Beta-Carotene  
 Biotin Capsules  
 Buffered Vitamin C Powder  
 Complete B Complex  
 Effervescent Vitamin C  
 Fast-C®  
 Folic Acid + B12  
 Gamma E Tocopherol w/Sesame Lignans  
 Gamma E Tocopherol/Tocotrienols  
 Inositol Capsules  
 Mega Lycopene Extract  
 Methylcobalamin  
 MK-7  
 No-Flush Niacin  
 Optimized Folate  
 Super Ascorbate C Capsules  
 Super Ascorbate C Powder  
 Super K w/Advanced K2 Complex  
 Tocotrienols w/Sesame Lignans  
 Vitamin B3 (Niacin) Capsules  
 Vitamin B6  
 Vitamin B12 Lozenges  
 Vitamin C  
 Vitamin D3  
 Vitamin D3 w/Sea-Iodine™  
 Vitamins D and K w/Sea-Iodine™  
 Vitamin E  
 Vitamin K2

## WEIGHT MANAGEMENT

Alli® Refill Pack  
 Advanced Anti-Adipocyte Formula w/AdipoStat & Integra Lean®  
 Calorie Control Weight Management™ Formula w/CoffeeGenic® Green Coffee Extract  
 CoffeeGenic® Weight Management™ with Green Coffee Extract  
 7-KETO DHEA  
 DHEA® Complete  
 Fucoxanthin Slim™  
 Garcinia HCA  
 Integra-Lean® African Mango 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  
 Super CLA Blend w/Guarana and Sesame Lignans  
 Super CLA Blend w/Sesame Lignans  
 WellBetX PGX® plus Mulberry

# Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
<b>A</b>					
01524	<b>ACETYL-L-CARNITINE</b> - 500 mg, 100 veg. caps	\$34.00	\$25.50		
	Buy 4 bottles, price each	30.00	22.50		
01525	<b>ACETYL-L-CARNITINE ARGINATE</b> - 100 veg. caps	59.00	44.25		
	Buy 4 bottles, price each	50.99	38.24		
01628	<b>ADRENAL ENERGY FORMULA</b> - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01630	<b>ADRENAL ENERGY FORMULA</b> - 120 veg. caps	46.00	34.50		
	Buy 4 bottles, price each	42.00	31.50		
01308	<b>ADVANCED LIPID CONTROL</b> - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01521	<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		
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		
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		
01625	<b>APPLEWISE POLYPHENOL EXTRACT</b> - 600 mg, 30 veg. caps	21.00	15.75		
	Buy 4 bottles, price each	19.00	14.25		
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		
01624	<b>(L)-ARGININE CAPS</b> - 700 mg, 200 veg. caps	26.50	19.88		
	Buy 4 bottles, price each	23.25	17.44		
01617	<b>ARTHROMAX™ w/THEAFLAVINS &amp; APRESFLEX®</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; APRESFLEX®</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		
01533	<b>ASCORBYL PALMITATE</b> - 500 mg, 100 veg. 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		
01066	<b>ASPIRIN</b> - 81 mg, 300 enteric coated tablets	6.00	4.50		
	Buy 4 bottles, price each	5.33	4.00		
01720	<b>ASTAXANTHIN WITH PHOSPHOLIPIDS</b> - 4 mg, 30 softgels	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		

**SUB-TOTAL OF COLUMN 1**

No.		Retail Each	Member Each	Qty	Total
<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		
01496	<b>BERRY COMPLETE w/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	11.25	8.44		
	Buy 4 bottles, price each	10.13	7.60		
01622	<b>BIFIDO GI BALANCE</b> - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01073	<b>BILBERRY EXTRACT</b> - 100 mg, 100 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01512	<b>BIOACTIVE MILK PEPTIDES</b> - 30 caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01631	<b>BIO-COLLAGEN w/PATENTED UC-II®</b> - 60 caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
*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		
01709	<b>BLACK CUMIN SEED OIL</b> - 60 softgels	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
01710	<b>BLACK CUMIN SEED OIL w/BIO-CURCUMIN®</b> - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
01008	<b>BLAST™</b> - 600 grams of powder	26.95	20.21		
70000	<b>BLOOD PRESSURE MONITOR</b> - ARM CUFF (medium)	99.95	64.97		
70004	<b>BLOOD PRESSURE MONITOR</b> - WRIST (travel size)	69.95	52.46		
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 caps	56.00	42.00		
	Buy 4 bottles, price each	50.00	37.50		
01726	<b>BONE RESTORE</b> - 120 caps	22.00	16.50		
	Buy 4 bottles, price each	19.00	14.25		
01727	<b>BONE RESTORE w/VITAMIN K2</b> - 120 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01725	<b>BONE STRENGTH FORMULA w/KOACT®</b> - 120 veg. caps	45.00	33.75		
	Buy 4 bottles, price each	40.00	30.00		
00313	<b>BONE-UP®</b> - 240 caps	28.95	21.71		
	Buy 4 bottles, price each	27.21	20.41		
01379	<b>BOOSTER</b> - 60 softgels	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01680	<b>BOOSTER w/ADVANCED K2 COMPLEX (SUPER)</b> - 60 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01661	<b>BORON</b> - 3 mg, 100 veg. 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		

**SUB-TOTAL OF COLUMN 2**

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		
01699	<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		
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>					
01653	<b>CALCIUM CITRATE w/VITAMIN D</b> - 300 caps Buy 4 bottles, price each	\$24.00 21.25	\$18.00 15.94		
01651	<b>CALCIUM D-GLUCARATE</b> - 200 mg, 60 veg. 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		
01700	<b>CARDIO PEAK™ w/STANDARDIZED HAWTHORN &amp; ARJUNA</b> - 120 veg. caps Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
00916	<b>CARNITINE w/GLYCOCARN® (OPTIMIZED)</b> - 60 veg. caps Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
01532	<b>L-CARNITINE</b> - 500 mg, 30 veg. caps Buy 4 bottles, price each	15.00 13.20	11.25 9.90		
01719	<b>L-CARNITINE POWDER NATURAL LEMON FLAVOR</b> - 114 grams Buy 4 jars, price each	28.00 24.00	21.00 18.00		
01258	<b>CARNOSOOTHE w/PICROPROTECT™</b> - 60 veg. caps Buy 4 bottles, price each	29.95 27.00	22.46 20.25		
01687	<b>CARNOSINE (SUPER)</b> - 500 mg, 90 veg. caps Buy 4 bottles, price each	66.00 60.00	49.50 45.00		
01003	<b>CAT MIX</b> - 100 grams powder Buy 4 jars, price each	15.00 12.00	11.25 9.00		
01659	<b>CDP CHOLINE CAPS</b> - 250 mg, 60 veg. caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		
01391	<b>CHILDREN'S FORMULA LIFE EXTENSION MIX™</b> - 100 chewable tablets Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
00550	<b>CHLORELLA</b> - 500 mg, 200 tablets Buy 4 bottles, price each	23.50 21.00	17.63 15.75		
01571	<b>CHLOROPHYLLIN</b> - 100 mg, 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		
01477	<b>CHROMIUM ULTRA</b> - 100 veg. caps Buy 4 bottles, price each	24.00 21.00	18.00 15.75		
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		

**SUB-TOTAL OF COLUMN 3**

No.		Retail Each	Member Each	Qty	Total
01503	<b>CINSULIN® W/INSEA® AND CROMINEX® 3+</b> - 90 veg. caps Buy 4 bottles, price each	\$38.00 34.00	\$28.50 25.50		
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		
01707	<b>COFFEEGENIC® WEIGHT MANAGEMENT™ w/GREEN COFFEE EXTRACT</b> - 90 veg. caps Buy 4 bottles, price each	48.00 42.00	36.00 31.50		
01697	<b>COGNITEX® w/PREGNENOLONE &amp; NEUROPROTECTION COMPLEX</b> - 90 softgels Buy 4 bottles, price each Buy 8 bottles, price each	74.00 66.60 58.89	55.50 49.95 44.17		
01696	<b>COGNITEX® w/o PREGNENOLONE w/NEUROPROTECTION COMPLEX</b> - 90 softgels Buy 4 bottles, price each Buy 8 bottles, price each	72.00 64.00 56.96	54.00 48.00 42.72		
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		
01735	<b>COMPLETE B-COMPLEX</b> - 60 veg. caps Buy 4 bottles, price each	10.00 9.00	7.50 6.75		
01795	<b>COMPREHENSIVE NUTRIENT PACKS BASIC</b> - 30 packs Buy 4 boxes, price each	48.00 44.00	36.00 33.00		
01796	<b>COMPREHENSIVE NUTRIENT PACKS ADVANCED</b> - 30 packs Buy 4 boxes, price each	90.00 82.00	67.50 61.50		
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		
01733	<b>COQ10 w/BIOPQQ® (SUPER UBIQUINOL)</b> - 100 mg, 30 softgels Buy 4 bottles, price each Buy 10 bottles, price each	54.00 50.00 46.00	40.50 37.50 34.50		
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		
01053	<b>CORIOLUS SUPER STRENGTH</b> - 600 mg, 150 veg. caps	99.95	74.96		

**SUB-TOTAL OF COLUMN 4**

# Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
<b>C CONTINUED</b>					
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/BLUEBERRY &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; ADULT BLEMISH LOTION</b> - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80147	<b>COSMESIS BIOFLAVONOID CREAM</b> - 1 oz jar Buy 2 jars, price each	46.00 39.00	34.50 29.25		
80144	<b>COSMESIS BROCCOLI SPROUT CREAM</b> - 1 oz Buy 2 jars, price each	46.00 39.00	34.50 29.25		
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		
80102	<b>COSMESIS HEALING VITAMIN K CREAM</b> - 1 oz Buy 2 bottles, price each	79.50 69.96	59.63 52.47		
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 ANTIOXIDANT 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 tubes, price each	74.50 65.56	55.88 49.17		
80146	<b>COSMESIS LYCOPENE CREAM</b> - 1 oz jar Buy 2 jars, price each	28.00 25.40	21.00 19.05		

**SUB-TOTAL OF COLUMN 5**

No.		Retail Each	Member Each	Qty	Total
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		
80106	<b>COSMESIS REJUVENATING SERUM</b> - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80150	<b>COSMESIS RENEWING EYE CREAM</b> - 1/2 oz Buy 2 jars, price each	65.00 57.00	48.75 42.75		
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		
80143	<b>COSMESIS STEM CELL CREAM W/ALPINE ROSE</b> - 1 oz jar Buy 2 jars, price each	66.00 58.00	49.50 43.50		
80148	<b>COSMESIS TIGHTENING &amp; FIRMING NECK CREAM</b> - 2 oz jar Buy 2 jars, price each	39.00 35.00	29.25 26.25		
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		
80145	<b>COSMESIS VITAMIN E-ESSENTIAL CREAM</b> - 1 oz Buy 2 jars, price each	28.00 26.00	21.00 19.50		
80149	<b>COSMESIS YOUTH SERUM</b> - 1 oz Buy 2 bottles, price each	65.00 57.00	48.75 42.75		
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 UTI ROSE™ (OPTIMIZED)</b> - 60 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01529	<b>CREATINE CAPSULES</b> - 120 veg. caps Buy 4 bottles, price each	10.95 9.25	8.21 6.94		
01746	<b>CREATINE WHEY GLUTAMINE POWDER</b> - 454 grams (vanilla) Buy 4 jars, price each	30.00 27.00	22.50 20.25		
01429	<b>CR MIMETIC LONGEVITY FORMULA</b> - 60 veg. caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
*33840	<b>CRWAY GREAT GLUCOSE CONTROL CD</b>	98.00	82.00		
**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		

**SUB-TOTAL OF COLUMN 6**

To order online visit: [www.LifeExtension.com](http://www.LifeExtension.com)

# Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
<b>D</b>					
00658	<b>7-KETO® DHEA METABOLITE</b> - 25 mg, 100 caps	\$28.00	\$21.00		
	Buy 4 bottles, price each	24.00	18.00		
01479	<b>7-KETO® DHEA METABOLITE</b> - 100 mg, 60 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01640	<b>DHA (VEGETARIAN SOURCED)</b> - 200 mg, 30 veg. softgels	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00607	<b>DHEA</b> - 25 mg, 100 tablets (dissolve in mouth)	14.00	10.50		
	Buy 4 bottles, price each	11.75	8.81		
01478	<b>DHEA COMPLETE</b> - 60 veg. caps	48.00	36.00		
	Buy 4 bottles, price each	43.20	32.40		
00335	<b>DHEA</b> - 25 mg, 100 caps	18.00	13.50		
	Buy 4 bottles, price each	15.00	11.25		
00454	<b>DHEA</b> - 15 mg, 100 caps	14.00	10.50		
	Buy 4 bottles, price each	12.00	9.00		
00882	<b>DHEA</b> - 50 mg, 60 caps	19.00	14.25		
	Buy 4 bottles, price each	17.00	12.75		
01689	<b>DHEA</b> - 100 mg, 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01358	<b>DIGEST RC</b> - 30 tablets	19.95	14.96		
	Buy 4 boxes, price each	17.00	12.75		
01272	<b>DIGESTIVE ENZYMES (ENHANCED SUPER)</b> - 100 veg. caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01671	<b>D,L-PHENYLALANINE CAPSULES</b> - 500 mg, 100 veg. caps	18.75	14.06		
	Buy 4 bottles, price each	16.00	12.00		
01540	<b>DMAE BITARTRATE</b> - 150 mg, 200 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	15.00	11.25		
00059	<b>DMG</b> - 125 mg, 60 tablets	22.80	17.10		
	Buy 4 boxes, price each	21.00	15.75		
01570	<b>DNA PROTECTION FORMULA</b> - 60 veg. caps	34.00	25.50		
	Buy 4 bottles, price each	32.00	24.00		
00544	<b>DOG MIX</b> - 100 grams powder	19.50	14.63		
	Buy 4 jars, price each	16.00	12.00		
00321	<b>DR. PROCTOR'S ADVANCED HAIR FORMULA</b> - 2 oz	39.95	29.96		
	Buy 4 bottles, price each	32.00	24.00		
00320	<b>DR. PROCTOR'S HAIR FORMULA SHAMPOO</b> - 8 oz	24.95	18.71		
	Buy 4 bottles, price each	22.00	16.50		
00899	<b>DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE</b> - 2.4 oz	39.95	29.96		
	Buy 4 jars, price each	38.95	29.21		
<b>E</b>					
01528	<b>ECHINACEA EXTRACT</b> - 250 mg, 60 veg. caps	\$14.35	\$10.76		
	Buy 4 bottles, price each	12.50	9.38		
01498	<b>ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™</b> - 60 softgels	56.00	42.00		
	Buy 4 bottles, price each	52.00	39.00		
00997	<b>ENDOTHELIAL DEFENSE™ w/GLISODIN®</b> - 60 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	48.00	36.00		
00625	<b>EPA/DHA (MEGA)</b> - 120 softgels	19.95	14.96		
	Buy 4 bottles, price each	18.00	13.50		
01042	<b>EUROPEAN LEG SOLUTION DIOSMIN 95</b> - 600 mg, 30 veg. tabs	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01706	<b>EXTRAORDINARY ENZYMES</b> - 60 caps	26.00	19.50		
	Buy 4 bottles, price each	24.00	18.00		
01514	<b>EYE PRESSURE SUPPORT w/MIRTOGENOL®</b> - 30 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		

**SUB-TOTAL OF COLUMN 7**

No.		Retail Each	Member Each	Qty	Total
<b>F</b>					
01054	<b>FACE MASTER® PLATINUM</b>	\$199.00	\$199.00		
00965	<b>FAST-ACTING JOINT FORMULA</b> - 30 caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
01717	<b>FAST-C® w/DIHYDROQUERCETIN</b> - 120 veg. tabs	26.00	19.50		
	Buy 4 bottles, price each	24.00	18.00		
20053	<b>FEM DOPHILUS®</b> - 30 caps	25.95	19.46		
20055	<b>FEM DOPHILUS®</b> - 60 caps	39.95	29.96		
01064	<b>FEMMENESSENCE MACAPAUSE®</b> - 120 veg. caps	34.99	26.24		
01728	<b>FERNBLOCK® w/RED ORANGE COMPLEX (ENHANCED)</b> - 30 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01670	<b>FIBER FOOD CAPS</b> - 200 veg. caps	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
	Buy 10 bottles, price each	13.00	9.75		
00718	<b>FIBRINOGEN RESIST™</b> - 30 veg. caps	49.00	36.75		
	Buy 4 bottles, price each	44.00	33.00		
01439	<b>FOLATE (OPTIMIZED) (L-METHYL FOLATE)</b> 1000 mcg - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01641	<b>FOLIC ACID + B12 CAPSULES</b> - 200 veg. caps	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		
01544	<b>FORSKOLIN</b> - 10 mg, 60 veg. caps	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
01513	<b>FUCOIDAN w/MARITECH® 926 (OPTIMIZED)</b> - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
00993	<b>FUCOXANTHIN-SLIM™</b> - 90 softgels	44.00	33.00		
	Buy 4 bottles, price each	39.00	29.25		
<b>G</b>					
00559	<b>GAMMA E TOCOPHEROL/TOCOTRIENOLS</b> - 60 softgels	\$42.00	\$31.50		
	Buy 4 bottles, price each	37.00	27.75		
00759	<b>GAMMA E TOCOPHEROL w/SESAME LIGNANS</b> - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01394	<b>(OPTIMIZED) GARLIC</b> - 200 veg. caps	24.95	18.71		
	Buy 4 bottles, price each	21.00	15.75		
01301	<b>GH PITUITARY SUPPORT DAY FORMULA</b> - 120 vegetarian tabs	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01302	<b>GH PITUITARY SUPPORT NIGHT FORMULA</b> - 120 veg. caps	25.00	18.75		
	Buy 4 bottles, price each	22.50	16.88		
01228	<b>GINGER FORCE</b> - 60 softgels	29.95	22.46		
01658	<b>GINKGO BILOBA CERTIFIED EXTRACT™</b> - 120 mg, 365 veg. caps	46.00	34.50		
	Buy 2 bottles, price each	43.50	32.63		
01648	<b>GINKGO EXTRACT 28/7 (SUPER)</b> - 120 mg, 100 veg. caps	29.00	21.75		
	Buy 4 bottles, price each	26.50	19.88		
00756	<b>GLA WITH SESAME LIGNANS (MEGA)</b> - 60 softgels	19.50	14.63		
	Buy 4 bottles, price each	18.00	13.50		
00345	<b>(L) GLUTAMINE CAPSULES</b> - 500 mg, 100 caps	14.95	11.21		
	Buy 4 bottles, price each	13.50	10.13		
00141	<b>(L)-GLUTAMINE POWDER</b> - 100 grams	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
00522	<b>GLUCOSAMINE/CHONDROITIN CAPSULES</b> - 100 caps	38.00	28.50		
	Buy 4 bottles, price each	32.00	24.00		
01541	<b>GLUTATHIONE, CYSTEINE &amp; C</b> - 100 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		

**SUB-TOTAL OF COLUMN 8**

# Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
<b>G CONTINUED</b>					
00314	<b>L-GLUTATHIONE (MEGA)</b> - 250 mg, 60 caps Buy 4 bottles, price each	\$39.64 35.68	\$29.73 26.76		
01731	<b>GLYCEMICPRO™ TRANSLUCOSIDASE</b> - 60 veg. caps Buy 4 bottles, price each	54.00 50.00	40.50 37.50		
01669	<b>GLYCINE</b> - 1,000 mg, 100 veg. caps Buy 4 bottles, price each	12.00 10.80	9.00 8.10		
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		
00953	<b>GREEN TEA EXTRACT (MEGA)</b> - lightly caffeinated - 100 veg. caps Buy 4 bottles, price each	30.00 28.00	22.50 21.00		
00954	<b>GREEN TEA EXTRACT (MEGA)</b> - decaffeinated - 100 veg. caps Buy 4 bottles, price each	30.00 28.00	22.50 21.00		
<b>H</b>					
01074	<b>5 HTP</b> - 100 mg, 60 caps	\$27.95	\$20.96		
01738	<b>HCA (GARCINIA)</b> - 90 veg. caps Buy 4 bottles, price each	16.00 14.00	12.00 10.50		
01393	<b>HEPATOPRO</b> - 900 mg, 60 softgels Buy 4 bottles, price each	50.00 46.00	37.50 34.50		
01435	<b>HOMOCYSTEINE RESIST</b> - 100 caps Buy 4 bottles, price each	24.00 21.60	18.00 16.20		
01527	<b>HUPERZINE A</b> - 200 mcg, 60 veg caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
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	\$54.99	\$46.75		
01704	<b>IMMUNE MODULATOR w/TINOFEND®</b> - 60 veg. caps Buy 4 bottles, price each	17.00 15.00	12.75 11.25		
00955	<b>IMMUNE PROTECT w/PARACTIN®</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		
01674	<b>INOSITOL CAPSULES</b> - 1000 mg, 360 veg. caps Buy 4 bottles, price each	62.00 58.00	46.50 43.50		
01292	<b>INTEGRA-LEAN® AFRICAN MANGO 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		
01677	<b>IRON PROTEIN PLUS</b> - 300 mg, 100 veg. caps Buy 4 bottles, price each	28.00 26.00	21.00 19.50		
01492	<b>IRVINGIA w/PHASE 3™</b> - 120 veg. caps <b>CALORIE CONTROL COMPLEX (OPTIMIZED AFRICAN MANGO)</b> Buy 4 bottles, price each	56.00 48.00	42.00 36.00		

**SUB-TOTAL OF COLUMN 9**

No.		Retail Each	Member Each	Qty	Total
<b>J, K</b>					
00056	<b>JARRO-DOPHILUS EPS™</b> - 60 veg. caps	\$22.95	\$17.21		
01387	<b>JARRO-DOPHILUS ORAL PROBIOTIC GUM</b> - Pom-Berry flavor, 8 pieces	4.95	3.71		
01388	<b>JARRO-DOPHILUS ORAL PROBIOTIC LOZENGE</b> - Pom-Berry flavor, 8 pieces	4.95	3.71		
01724	<b>K w/ADVANCED K2 COMPLEX (SUPER)</b> - 90 softgels Buy 4 bottles, price each	30.00 27.00	22.50 20.25		
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 PHOSPH OMEGA</b> - 60 softgels	33.95	25.46		
00316	<b>KYOLIC® GARLIC FORMULA 102</b> - 200 caps Buy 4 bottles, price each	26.45 23.00	19.84 17.25		
00214	<b>KYOLIC® GARLIC FORMULA 105</b> - 200 caps Buy 4 bottles, price each	27.45 25.00	20.59 18.75		
00789	<b>KYOLIC® RESERVE</b> - 600 mg, 120 caps Buy 4 bottles, price each	27.95 25.00	20.96 18.75		
<b>L</b>					
01681	<b>LACTOFERRIN (APOLACTOFERRIN) CAPS</b> - 60 caps Buy 4 bottles, price each	\$48.00 44.00	\$36.00 33.00		
00020	<b>LECITHIN</b> - 16 oz. granules Buy 4 jars, price each	15.00 12.50	11.25 9.38		
01755	<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		
01757	<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		
01754	<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		
01756	<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		
01765	<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		
01767	<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		
01764	<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		
01766	<b>LIFE EXTENSION MIX™ POWDER</b> - 14.81 oz w/o copper Buy 4 bottles, price each Buy 10 bottles, price each	98.00 86.00 72.00	73.50 64.50 54.00		
00263	<b>LIFE FLORA™</b> - 300 mg, 120 caps Buy 4 bottles, price each	20.50 18.75	15.38 14.06		
01608	<b>LIVER EFFICIENCY FORMULA</b> - 30 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01639	<b>5-LOX INHIBITOR w/APRESFLEX®</b> - 100 mg, 60 veg. caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01678	<b>L-LYSINE</b> - 620 mg, 100 veg. caps Buy 4 bottles, price each	9.00 8.00	6.75 6.00		

**SUB-TOTAL OF COLUMN 10**

No.		Retail Each	Member Each	Qty	Total
01470	<b>LURALEAN® CAPS SPECIAL PROPOLMANNAN</b> PARTICLE SIZE - 120 veg. caps Buy 4 bottles, price each	\$28.00 25.00	\$21.00 18.75		
00455	<b>LYCOPENE EXTRACT (MEGA)</b> - 15 mg, 90 softgels Buy 4 bottles, price each	35.00 30.00	26.25 22.50		
<b>M</b>					
01459	<b>MAGNESIUM CAPS</b> - 500 mg, 100 veg. caps Buy 4 bottles, price each	\$12.00 10.00	\$9.00 7.50		
01682	<b>MAGNESIUM CITRATE</b> - 160 mg, 100 veg. caps Buy 4 bottles, price each	9.00 7.50	6.75 5.63		
01668	<b>MELATONIN</b> - 300 mcg, 100 veg. caps Buy 4 bottles, price each	5.75 5.00	4.31 3.75		
01083	<b>MELATONIN</b> - 500 mcg, 200 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00329	<b>MELATONIN</b> - 1 mg, 60 caps Buy 4 bottles, price each	5.00 4.63	3.75 3.47		
00330	<b>MELATONIN</b> - 3 mg, 60 caps Buy 4 bottles, price each	8.00 6.88	6.00 5.16		
01786	<b>MELATONIN TIME RELEASE</b> - 3 mg, 60 veg. tabs Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
00331	<b>MELATONIN</b> - 10 mg, 60 caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
00332	<b>MELATONIN</b> - 3 mg, 60 veg. lozenges Buy 4 bottles, price each	8.00 6.88	6.00 5.16		
01734	<b>MELATONIN (Fast Acting Liquid)</b> - 3 mg (Natural Citrus-Van) Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
01787	<b>MELATONIN TIME RELEASE</b> - 300 mcg, 100 veg. tabs Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
01788	<b>MELATONIN TIME RELEASE</b> - 750 mcg, 60 veg. tablets Buy 4 bottles, price each	8.00 7.00	6.00 5.25		
01536	<b>METHYLCOBALAMIN</b> - 1 mg, 60 lozenges (vanilla) Buy 4 bottles, price each	9.95 8.00	7.46 6.00		
01537	<b>METHYLCOBALAMIN</b> - 5 mg, 60 lozenges (vanilla) Buy 4 bottles, price each Buy 10 bottles, price each	32.00 25.00 23.00	24.00 18.75 17.25		
00709	<b>MIGRA-EEZE™ (BUTTERBUR)</b> - 60 softgels Buy 4 bottles, price each	29.50 26.33	22.13 19.75		
01522	<b>MILK THISTLE (CERTIFIED EUROPEAN)</b> - 750 mg, 60 veg. caps Buy 4 bottles, price each	34.00 30.00	25.50 22.50		
01517	<b>MILK THISTLE (CERTIFIED EUROPEAN)</b> - 120 veg. caps Buy 4 bottles, price each	52.00 48.00	39.00 36.00		
01698	<b>MIRAFORTE w/STANDARDIZED LIGNANS (SUPER)</b> - 120 caps Buy 4 bottles, price each	62.00 56.00	46.50 42.00		
01769	<b>MITOCHONDRIAL BASICS w/BIOPQQ®</b> - 30 caps Buy 4 bottles, price each	52.00 46.00	39.00 34.50		
01768	<b>MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ®</b> - 120 caps Buy 4 bottles, price each	94.00 84.00	70.50 63.00		
00065	<b>MK-7</b> - 90 mcg, 60 softgels Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01279	<b>MOUTHWASH W/POMEGRANATE</b> - 16 oz Buy 4 bottles, price each	18.50 17.00	13.88 12.75		
00451	<b>MSM (METHYLSULFONYLMETHANE)</b> - 1000 mg, 100 caps Buy 4 bottles, price each	14.00 11.95	10.50 8.96		

**SUB-TOTAL OF COLUMN 11**

No.		Retail Each	Member Each	Qty	Total
<b>N</b>					
01534	<b>N-ACETYL-L-CYSTEINE</b> - 600 mg, 60 veg. caps Buy 4 bottles, price each	\$14.00 13.50	\$10.50 10.13		
00066	<b>NATTOKINASE</b> - 60 softgels	25.50	19.13		
00891	<b>NATURAL APPETITE CONTROL</b> - 90 softgels Buy 4 bottles, price each	28.00 25.20	21.00 18.90		
00984	<b>NATURAL BP MANAGEMENT</b> - 60 tablets Buy 4 bottles, price each	42.00 37.80	31.50 28.35		
00913	<b>NATURAL ESOPHAGUARD</b> - 10 softgels Buy 2 boxes, price each	19.95 19.00	14.96 14.25		
01692	<b>NATURAL ESTROGEN w/POMEGRANATE EXTRACT</b> - 60 caplets Buy 4 bottles, price each	38.00 33.00	28.50 24.75		
01221	<b>NATURAL FEMALE SUPPORT</b> - 30 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01471	<b>NATURAL GLUCOSE ABSORPTION CONTROL</b> - 60 veg. caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
00698	<b>NATURAL RELIEF 1222™</b> - 2 oz Buy 4 tubes, price each	28.00 25.00	21.00 18.75		
01626	<b>NATURAL SEX FOR WOMEN® 50+ (ADVANCED)</b> - 90 veg. caps Buy 4 bottles, price each	59.00 45.33	44.25 34.00		
01444	<b>NATURAL SLEEP®</b> - 60 veg. caps Buy 4 bottles, price each	13.00 10.00	9.75 7.50		
01551	<b>NATURAL SLEEP® w/ MELATONIN (ENHANCED)</b> - 30 caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01511	<b>NATURAL SLEEP® w/o MELATONIN (ENHANCED)</b> - 30 caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01445	<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™ L-THREONATE W/CALCIUM &amp; VITAMIN D</b> 225 grams - Lemon flavor Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
00373	<b>NO-FLUSH NIACIN</b> - 800 mg, 100 caps Buy 4 bottles, price each	19.00 17.00	14.25 12.75		
<b>O</b>					
01623	<b>OLIVE LEAF VASCULAR SUPPORT</b> - 500 mg, 60 veg. caps Buy 4 bottles, price each	\$22.00 20.00	\$16.50 15.00		
01483	<b>OMEGA 3 EPA/DHA w/SESAME LIGNANS &amp; OLIVE FRUIT EXTRACT (SUPER)</b> - 60 softgels Buy 4 bottles, price each Buy 10 bottles, price each	18.00 16.00 14.00	13.50 12.00 10.50		
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> Buy 4 bottles, price each Buy 10 bottles, price each	34.00 31.00 28.00	25.50 23.25 21.00		

**SUB-TOTAL OF COLUMN 12**

# Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
<b>CONTINUED</b>					
01485	<b>OMEGA 3 EPA/DHA W/SESAME LIGNANS &amp; OLIVE FRUIT EXTRACT (SUPER)</b> - 60 enteric coated softgels	\$20.00	\$15.00		
	Buy 4 bottles, price each	18.00	13.50		
	Buy 10 bottles, price each	16.00	12.00		
01619	<b>OMEGA 3 EPA/DHA W/SESAME LIGNANS &amp; OLIVE FRUIT EXTRACT (SUPER)</b> (SMALL SOFTGEL) - 240 softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	24.90	18.68		
01632	<b>OMEGA-3 LEMON WHIRL</b> - 16 oz bottle	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01633	<b>OMEGA-3 TROPICAL WHIRL</b> - 16 oz bottle	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01701	<b>ONE-PER-DAY</b> - 60 tablets	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01328	<b>ONLY TRACE MINERALS</b> - 90 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
00915	<b>OPTIZINC®</b> - 30 mg, 90 veg. caps	5.95	4.46		
	Buy 4 bottles, price each	5.00	3.75		
01070	<b>ORGANIC TOTAL BODY CLEANSE™</b> - 14-day supply	34.99	26.24		
<b>P</b>					
00073	<b>PANCREATIN</b> - 500 mg, 50 caps	\$13.22	\$9.92		
	Buy 4 bottles, price each	12.12	9.09		
01323	<b>PEAK ATP® WITH GLYCOCARN®</b> - 60 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	50.00	37.50		
00342	<b>PECTA SOL-C® MODIFIED CITRUS PECTIN</b> - 454 grams powder	99.95	74.96		
	Buy 4 jars, price each	95.70	71.78		
01080	<b>PECTA SOL-C® MODIFIED CITRUS PECTIN</b> - 270 veg. caps	69.95	52.46		
00673	<b>PGX™ PLUS MULBERRY (WELLBETX®)</b> -180 caps	34.95	26.21		
00865	<b>PHARMAGABA®</b> - 60 chewable tablets	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01676	<b>PHOSPHATIDYLSERINE CAPS</b> - 100 mg, 100 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	48.00	36.00		
01390	<b>PHOSPHOMEGA®</b> - 60 softgels	39.95	26.96		
01436	<b>POLICOSANOL</b> - 10 mg, 60 veg. caps	20.00	15.00		
	Buy 6 bottles, price each	15.00	11.25		
01423	<b>POMEGRANATE™ (FULL-SPECTRUM)</b> - 30 softgels	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
00956	<b>POMEGRANATE EXTRACT</b> - 30 veg. caps	19.50	14.63		
	Buy 4 bottles, price each	17.55	13.16		
00957	<b>POMEGRANATE JUICE CONCENTRATE</b> - 16 oz. liquid	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
00577	<b>POTASSIUM IODIDE</b> - 1 box, 14 tablets	6.95	5.21		
	Buy 4 boxes, price each	5.25	3.94		
01500	<b>PQQ CAPS W/BIOBQQ®</b> - 10 mg, 30 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01647	<b>PQQ CAPS W/BIOBQQ®</b> - 20 mg, 30 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
00302	<b>PREGNENOLONE</b> - 50 mg, 100 caps	26.00	19.50		
	Buy 4 bottles, price each	22.00	16.50		
00700	<b>PREGNENOLONE</b> - 100 mg, 100 caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		

**SUB-TOTAL OF COLUMN 13**

OCTOBER 2013

No.		Retail Each	Member Each	Qty	Total
***01373	<b>PRELOX® NATURAL SEX FOR MEN®</b> - 60 tablets	\$52.00	\$39.00		
	Buy 4 bottles, price each	48.00	36.00		
00525	<b>PROBOOST THYMIC PROTEIN A™</b> - 4 mcg, 30 packets	59.95	44.96		
01441	<b>PROGESTACARE FOR WOMEN</b> - 4 oz cream	34.95	26.21		
01695	<b>PROSTATE FORMULA W/APRESFLEX® STAND. LIGNANS (ULTRA NAT)</b> 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		
01742	<b>PROTEIN-ISOLATE (WHEY) VANILLA</b> - 1 lb. powder	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		
01743	<b>PROTEIN-ISOLATE (WHEY) CHOCOLATE</b> - 1 lb. powder	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		
01770	<b>PROTEIN CONCENTRATE</b> (New Zealand Whey) <b>Vanilla</b> - 520 gr	30.00	22.50		
	Buy 4 bottles, price each	26.60	19.95		
01771	<b>PROTEIN CONCENTRATE</b> (New Zealand Whey) <b>Chocolate</b> - 660 gr	30.00	22.50		
	Buy 4 bottles, price each	26.60	19.95		
01508	<b>PTEROPURE™</b> - 50 mg Pterostilbene 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
01587	<b>PURE PLANT PROTEIN</b> - Veg. Vanilla 540 grams powder	38.00	28.50		
	Buy 4 jars, price each	35.00	26.25		
01209	<b>PUMPKIN SEED EXTRACT (WATER-SOLUBLE)</b> - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01210	<b>PUMPKIN SEED EXT w/SOY ISOFLAVONES (WATER-SOLUBLE)</b> - 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01637	<b>PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT</b> -100 mg, 60 veg. caps	64.00	48.00		
	Buy 4 bottles, price each	60.00	45.00		
01217	<b>PYRIDOXAL 5'-PHOSPHATE</b> - 100 mg, 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	19.80	14.85		
<b>Q, R</b>					
01309	<b>QUERCETIN (OPTIMIZED)</b> - 250 mg, 60 veg. caps	\$22.00	\$16.50		
	Buy 4 bottles, price each	20.00	15.00		
01030	<b>RED YEAST RICE</b> (Bluebonnet)- 600 mg, 60 veg. caps	16.95	13.56		
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	19.95	14.96		
	Buy 4 bottles, price each	18.67	14.00		
01708	<b>REISHI EXTRACT MUSHROOM COMPLEX</b> - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01448	<b>REJUVENEX® BODY LOTION</b> - 6 oz	24.00	18.00		
	Buy 4 tubes, price each	19.80	14.85		
	Buy 8 tubes, price each	17.00	12.75		
01621	<b>REJUVENEX® FACTOR FIRING SERUM</b> - 1.7 oz	65.00	48.75		
	Buy 2 bottles, price each	50.66	38.00		
	Buy 6 bottles, price each	38.52	28.89		
01220	<b>REJUVENEX® (ULTRA)</b> - 2 oz	52.00	39.00		
	Buy 2 jars, price each	48.00	36.00		
	Buy 4 jars, price each	44.00	33.00		
	Buy 8 jars, price each	39.93	29.95		
00676	<b>REJUVENIGHT® (ULTRA)</b> - 2 oz	39.95	29.96		
	Buy 4 jars, price each	36.00	27.00		
01413	<b>RESVERATROL W/PTEROSTILBENE</b> - 20 mg, 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		

**SUB-TOTAL OF COLUMN 14**

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

No.		Retail Each	Member Each	Qty	Total
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		
01729	<b>RICH REWARDS® BREAKFAST BLEND GROUND COFFEE</b> - 12 oz. bag Natural Vanilla	15.00	11.25		
01730	<b>RICH REWARDS® BREAKFAST BLEND GROUND COFFEE</b> - 12 oz. bag Natural Mocha	15.00	11.25		
01610	<b>RICH REWARDS® DECAFFEINATED ROAST GROUND COFFEE</b> - 12 oz. bag	14.00	10.50		
01712	<b>RICH REWARDS™ BLACK BEAN VEGETABLE SOUP</b> - 32 oz. bottle Buy 6 bottles, price each	13.00 12.25	9.75 9.19		
01530	<b>RICH REWARDS™ CRUCIFEROUS VEGETABLE SOUP</b> - 32 oz. bottle Buy 6 bottles, price each	11.95 11.25	8.96 8.44		
01531	<b>RICH REWARDS™ (SPICY) CRUCIFEROUS VEGETABLE SOUP</b> - 32 oz. bottle Buy 6 bottles, price each	11.95 11.25	8.96 8.44		
01705	<b>RICH REWARDS™ LENTIL VEGETABLE SOUP</b> - 32 oz. bottle Buy 6 bottles, price each	13.00 12.25	9.75 9.19		
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		
<b>S</b>					
01432	<b>SAFFRON w/SATIREAL (OPTIMIZED)</b> - 60 veg. caps Buy 4 bottles, price each	\$36.00 32.00	\$27.00 24.00		
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		
01543	<b>SEA-IODINE™</b> - 1000 mcg, 60 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		
01679	<b>SE-METHYL L-SELENOCYSTEINE</b> - 200 mcg, 100 veg. 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		
00284	<b>SHARK LIVER OIL (NORWEGIAN)</b> - 1000 mg, 30 softgels Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01684	<b>SILYMARIN</b> - 100 mg, 50 veg. caps Buy 4 bottles, price each	9.25 8.25	6.94 6.19		

**SUB-TOTAL OF COLUMN 15**

No.		Retail Each	Member Each	Qty	Total
01596	<b>SKIN RESTORING PHYTCERAMIDES w/LIPOWHEAT®</b> - 30 veg. liquid caps Buy 4 bottles, price each	\$25.00 23.00	\$18.75 17.25		
00961	<b>SODZYME® w/GLISODIN® AND WOLFBERY</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		
00432	<b>STEVIA EXTRACT</b> - 100 packets, 1 gram each Buy 4 boxes, price each	9.95 9.00	7.46 6.75		
01396	<b>ST. JOHN'S WORT EXTRACT</b> - 300 mg, 60 veg. caps Buy 4 bottles, price each	10.98 10.00	8.24 7.50		
01476	<b>STRONTIUM</b> - 750 mg, 90 veg. caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
00747	<b>SUNGLASSES (OVERXCASST POLARIZED)</b> - gray color, large Buy 2 pairs, price each	27.00 21.00	20.25 15.75		
01649	<b>SUPER ABSORBABLE SOY ISOFLAVONES</b> - 60 veg. caps Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01408	<b>SUPER SAW PALMETTO/NETTLE ROOT W/BETA-SITOSTEROL</b> - 60 softgels Buy 4 bottles, price each Buy 12 bottles, price each	28.00 26.00 24.00	21.00 19.50 18.00		
01407	<b>SUPER SAW PALMETTO W/BETA-SITOSTEROL</b> - 30 softgels Buy 12 bottles, price each	15.00 12.00	11.25 9.00		
01778	<b>SUPER SELENIUM COMPLEX</b> - 200 mcg, 100 veg. caps Buy 4 bottles, price each Buy 12 bottles, price each	14.00 12.00 11.00	10.50 9.00 8.25		
<b>T</b>					
01723	<b>TART CHERRY EXTRACT w/STANDARDIZED CHERRYPURE®</b> - 60 veg. caps Buy 4 bottles, price each	\$22.00 20.00	\$16.50 15.00		
00199	<b>TAURINE</b> - 1000 mg, 50 caps Buy 4 bottles, price each	8.95 8.00	6.71 6.00		
00133	<b>TAURINE POWDER</b> - 300 grams Buy 4 bottles, price each	20.00 16.88	15.00 12.66		
01304	<b>THEAFLAVIN STANDARDIZED EXTRACT</b> - 30 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01683	<b>(L) THEANINE</b> - 100 mg, 60 veg. caps Buy 4 bottles, price each	24.00 20.50	18.00 15.38		
**01038	<b>THERALAC PROBIOTICS</b> - 30 caps	47.95	35.96		
00668	<b>THYROID FORMULA™ (METABOLIC ADVANTAGE)</b> - 100 caps	21.95	16.46		
00349	<b>TMG POWDER</b> - 50 grams Buy 4 bottles, price each	14.00 11.00	10.50 8.25		
01559	<b>TMG</b> - 500 mg, 60 veg. tablets Buy 4 boxes, price each	11.00 10.00	8.25 7.50		
00781	<b>TOCOTRIENOLS WITH SESAME LIGNANS</b> - 60 softgels Buy 4 bottles, price each	38.00 36.00	28.50 27.00		
01400	<b>TOCOTRIENOLS (SUPER-ABSORBABLE)</b> - 60 softgels Buy 4 bottles, price each	30.00 28.00	22.50 21.00		
01278	<b>TOOTHPASTE</b> - 4 oz (Mint) Buy 4 tubes, price each	9.50 8.67	7.13 6.50		
01468	<b>TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT</b> - 60 veg. caps Buy 4 bottles, price each	24.00 22.00	18.00 16.50		
01469	<b>TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT W/RESVERATROL</b> - 60 veg. caps Buy 4 bottles, price each	32.00 29.60	24.00 22.20		

**SUB-TOTAL OF COLUMN 16**

# Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
<b>T CONTINUED</b>					
01386	<b>TRUFIBER®</b> - 180 grams	\$32.95	\$24.71		
01389	<b>TRUFLOA PROBIOTICS &amp; ENZYMES</b> - 32 veg. caps	42.95	32.21		
01722	<b>L-TRYPTOPHAN</b> - 500 mg, 90 veg. caps	33.00	24.75		
	Buy 4 bottles, price each	30.00	22.50		
01721	<b>TRYPTOPHAN PLUS (OPTIMIZED)</b> - 90 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01716	<b>TWO-PER-DAY</b> - 60 tablets	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		
01715	<b>TWO-PER-DAY</b> - 120 tablets	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01714	<b>TWO-PER-DAY</b> - 120 caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
00326	<b>L-TYROSINE</b> - 500 mg, 100 tablets	12.98	9.74		
	Buy 4 bottles, price each	11.81	8.86		
<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		
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		
01526	<b>VITAMIN B3 NIACIN</b> - 1,000 mg, 100 veg. 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		
01535	<b>VITAMIN B6</b> - 250 mg, 100 veg. 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		
01634	<b>VITAMIN C w/ DIHYDROQUERCETIN</b> - 1000 mg, 60 tablets	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
00927	<b>VITAMIN C w/ 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		
01736	<b>(EFFERVESCENT) VITAMIN C-MAGNESIUM CRYSTALS</b> - 180 grams	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01732	<b>VITAMIN D3</b> - 2000 IU, 1 fl oz, Mint flavor	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01753	<b>VITAMIN D3</b> - 1000 IU, 90 softgels	7.00	5.25		
	Buy 4 bottles, price each	6.00	4.50		
01751	<b>VITAMIN D3</b> - 1000 IU, 250 softgels	12.50	9.38		
	Buy 4 bottles, price each	11.25	8.44		
01713	<b>VITAMIN D3</b> - 5000 IU, 60 softgels	11.00	8.25		
	Buy 4 bottles, price each	9.90	7.43		
01718	<b>VITAMIN D3</b> - 7000 IU, 60 softgels	14.00	10.50		
	Buy 4 bottles, price each	12.60	9.45		
01573	<b>VITAMIN D3 w/SEA-IODINE™</b> - 5000 IU, 60 caps	14.00	10.50		
	Buy 4 bottles, price each	12.50	9.38		

No.		Retail Each	Member Each	Qty	Total
01572	<b>VITAMINS D AND K w/SEA-IODINE™</b> - 60 caps	\$24.00	\$18.00		
	Buy 4 bottles, price each	22.00	16.50		
01763	<b>VITAMIN E (NATURAL)</b> - 400 IU, 100 softgels	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	26.00	19.50		
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>					
01686	<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		
01685	<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		
00061	<b>ZINC LOZENGES</b> - 75 lozenges	9.50	7.13		
	Buy 4 bottles, price each	6.75	5.06		
01051	<b>ZYFLAMEND® WHOLE BODY</b> - 120 softgels	60.95	45.71		

\* These products are not 25% off retail price.

\*\* Not eligible for member discount or member renewal product credit.

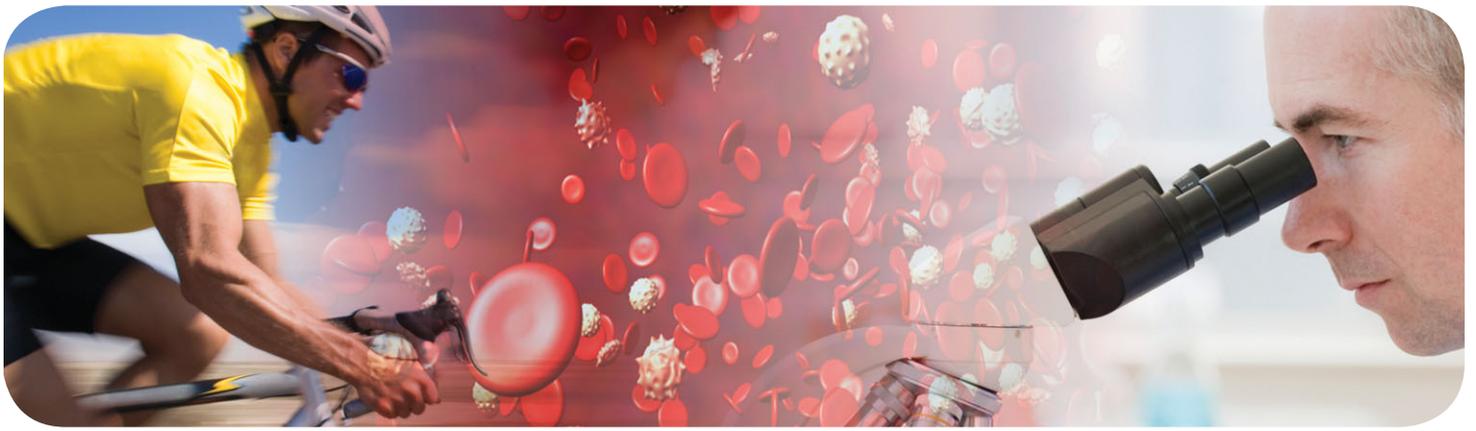
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**SUB-TOTAL OF COLUMN 17**

**SUB-TOTAL OF COLUMN 18**



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SUB-TOTAL COLUMN 8	
SUB-TOTAL COLUMN 9	
SUB-TOTAL COLUMN 10	
SUB-TOTAL COLUMN 11	
SUB-TOTAL COLUMN 12	
SUB-TOTAL COLUMN 13	
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CITY/STATE/ZIP-POSTAL CODE \_\_\_\_\_ COUNTRY \_\_\_\_\_

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# A Partnership in Heart Health

## New Chapter Zyflamend & Life Extension Super Omega-3

### A Holistic Approach to Cardiovascular Health

Maintaining heart health and a strong cardiovascular system are vital to a healthy body. Diet and exercise are the most important factors. Scientists and doctors both agree that a program of preventive health today is preferable to a treatment program tomorrow. But unfortunately, most Americans don't eat enough heart-healthy foods or get enough exercise. We now know that there are several additional factors that can support cardiovascular health, including:

- Supporting the body's healthy inflammation response\*
- Consuming "good fats" such as Omega-3 fatty acids

### What is the Inflammation Response?

Our body's inflammation response is a natural healing process. We often think of the inflammation response as something we can feel—such as in our joints and muscles where there are large numbers of sensitive nerve endings. But we can also have a response we can't feel, where sensitive nerves aren't concentrated—including in the heart and blood vessels. Whether we're aware of it or not, this inflammation response can affect every organ and cell.

### Extensively Researched Herbal Blend

New Chapter's Zyflamend represents a scientific breakthrough in supporting a healthy inflammation response.\* Zyflamend is formulated based on a large body of scientific research showing its ten herbs and spices contain hundreds of plant compounds that support a healthy inflammation response.\* Just as important as a daily multivitamin, Zyflamend is the patented herbal protocol to help your whole body's natural inflammation process stay balanced and healthy every day.\* Zyflamend has been studied at leading research institutions and shown to benefit multiple areas of health, including heart health.\*



**Super Omega-3**  
120 Softgels Item #01482  
Retail Price: \$32.00  
Member Price: \$24.00

**Zyflamend**  
120 Softgels Item #01051  
Retail Price: \$60.95  
Member Price: \$45.71

### Omega-3 is Important for Cardiovascular Health

Life Extension's Super Omega-3 is a premium, scientifically validated fish oil concentrate. Super Omega-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract promotes a healthy heart.\* 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>1</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>2\*\*</sup>

1. *Biochem Biophys Acta*. 2004 Jun 1;1682(1-3):80-91.  
2. *Nutrition*. 2005 Feb;21(2):131-6.

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\* According to 2012 SPINS<sup>®</sup> Market Research

\*\*Supportive but not conclusive evidence shows that consumption of EPA and DHA Omega-3 fatty acids may reduce the risk of coronary heart disease.

To order Zyflamend or Super Omega-3, call  
1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)

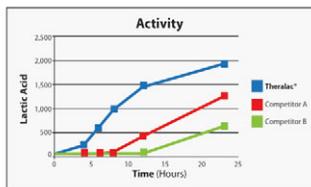
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# Quantity does not necessarily mean quality.



It is not just how many CFU, but how much lactic acid is produced that makes a probiotic effective.

Lactic acid is a powerful inhibitor of undesirable flora in our intestinal tract. It gives yogurt its tartness, but yogurt fails to produce a sufficient amount.



By producing lactic acid in effective amounts, probiotics help insure a positive microbial balance. Both Theralac® and Truflora® probiotics produce commanding amounts of lactic acid.

Many competitive probiotics fail to achieve these effective levels! To see results of standardized tests that simulate intestinal conditions and show the powerful lactic acid production, plus CFU count and purity, visit [theralac.com](http://theralac.com) and [truflora.com](http://truflora.com).

Master Supplements Inc. has posted third party online testing for strength, purity and activity for 10 years. Our probiotics are covered by 6 U.S. Patents.

Call your *Life Extension*® advisor to learn more.

Call Life Extension to place your order today.

**1-800-544-4440**

**Theralac**<sup>®</sup>  
30 capsules  
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Retail: \$47.95

**TruFlora**<sup>®</sup>  
32 capsules  
Item# 01389  
Retail: \$42.95

**TruFiber**<sup>®</sup>  
6.2 OZ  
Item# 01386  
Retail: \$32.95

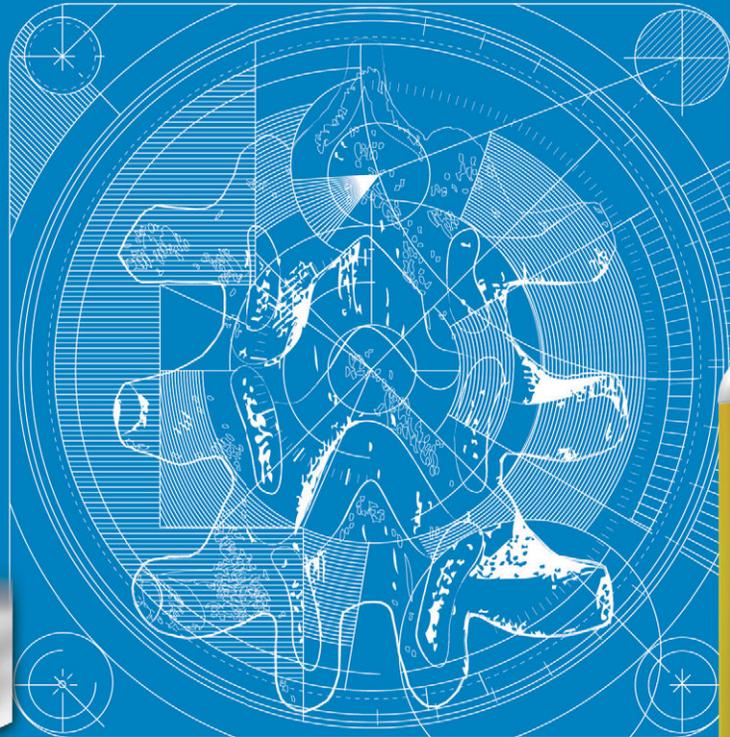
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# Better Bones by Design

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



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

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- **Ossein Microcrystalline Hydroxyapatite (MCHA):** Promotes calcium balance.\*
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- **MK-7:** The more bioavailable form of Vitamin K<sub>2</sub>, which is needed for building bone matrix and proper calcium distribution.\*
- **Boron:** A trace mineral important in calcium retention.\*
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To order, call (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.

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# At **LifeExtension**<sup>®</sup>

## **WE ANSWER OUR PHONES ALL THE TIME**



# 24/7



Commercial companies go to extreme lengths to keep customers from reaching a human on the phone. The result is that dialing a business can become a stressful event.

Consumers nowadays are forced to listen to recordings, choose buttons to reach the right department, listen to recorded ads, and after much frustration, might reach a person that can help them.

At **Life Extension**, we have always answered our phones with trained live operators to efficiently handle your call, or immediately transfer you to a knowledgeable health advisor.

If you dial **1-800-544-4440** you will get a live person 24 hours a day, every day. The only rare exception is if we are temporarily overwhelmed at that particular moment. You'll never need to guess which button to push because at Life Extension we answer with competent humans.

Life Extension has never erected a barrier to keep members from reaching us and never will. It's one of those irrevocable policies embedded in the philosophy of our **33-year-old** organization.

So if you have a health question, need to check on an order, place an order or require any kind of member support service, just call **1-800-544-4440** any time of the day, night, weekend, or holiday. If you hear that a hurricane has wiped out South Florida, don't worry, we have redundant phone capacity in other locations.

Since **1980**, we have made interacting with **Life Extension** a pleasant experience. Longtime members know this and often comment that our customer service is the world's finest. In reality, commercial companies have made it so miserable for their customers to reach them that it's not hard to be better. We at **Life Extension** view live operator service as a common courtesy that should exist everywhere.

**1-800-544-4440**  
**24 hours a day, every day**

**COMPETENT LIVE OPERATORS DEDICATED TO KEEPING YOU ALIVE!**



## WHAT'S INSIDE

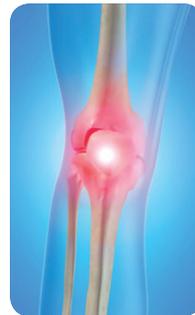
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# LifeExtension® Magazine



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Twenty percent of Americans suffer from **constipation** or **irritable bowel syndrome**. Relief within one hour is possible by consuming the right nutrients on an empty stomach.



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High levels of **fructose** consumption are a major factor in the development of metabolic syndrome, obesity, and other age-related diseases.



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