

LETHAL MEDICAL FALLACIES REVEALED

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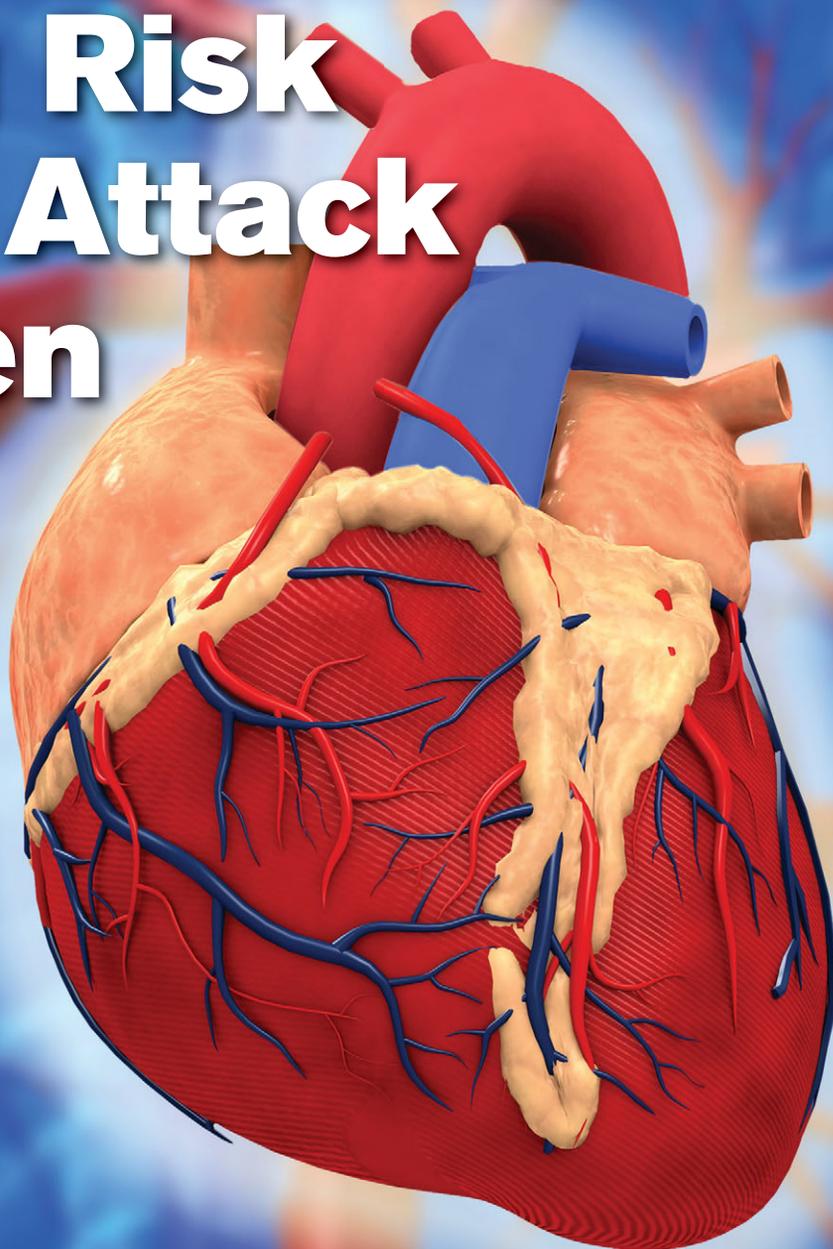
June 2013

Startling Risk of Heart Attack In Women

**Report from
World Stem Cell
Conference**

**Magnesium
Slashes Sudden
Cardiac Death**

**Improve Muscle
Recovery After
Exercise**



PLUS-

Olive Leaf Protects Endothelial Function

Mediterranean Diet Lowers Cardiac Risk

Vitamin D Slows Parkinson's Progression

BONE RESTORE

NOW WITH VITAMIN K2

and highly absorbable
Magnesium Citrate!



Item #01711

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

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

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

The retail price for 150 capsules of **Bone Restore** is \$26.

If a member buys four bottles, the price is reduced to **\$17.25** per bottle. (Item# 01711)

The same **Bone Restore** formula without vitamin K2 (MK-7) is available as well. The retail price for 150 capsules is \$22.50. If a member buys four bottles, the price is reduced to **\$14.63** per bottle. (Item# 01611)

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

Just five capsules of Bone Restore provide:

Highly Absorbable Calcium (as DimaCal® dicalcium malate, TRAACS® calcium glycinate chelate, calcium fructoborate)	1,200 mg
Vitamin D3	1,000 IU
Vitamin K2 (as menaquinone-7)	200 mcg
Magnesium (as magnesium citrate)	100 mg
Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)	3 mg
Zinc (as TRAACS® zinc glycinate chelate)	2 mg
Manganese	1 mg
Silicon	5 mg

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

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

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

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

REPORTS



28 **CARDIO-PROTECTIVE EFFECTS OF OLIVES**

Scientists have isolated a unique molecule in olive oil that provides its cardio-protective benefits. Known as **oleuropein**, this powerful polyphenol helps lower blood pressure, prevents formation of arterial plaques, and combats endothelial dysfunction.



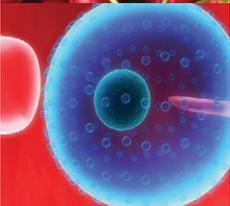
38 **FORGOTTEN BENEFITS OF TAURINE**

High dietary intake of **taurine** is one of the factors responsible for the remarkable longevity of Okinawans. Taurine plays an important role in restoring insulin sensitivity, preventing obesity, and inhibiting arterial thickening. Many Americans, however, are deficient in this low-cost amino acid.



50 **IMPROVE MUSCLE RECOVERY AFTER EXERCISE**

Studies show that the compounds found in tart cherries can deliver anti-inflammatory activity comparable to *ibuprofen* (Advil®) and *naproxen* (Aleve®). In addition to reducing daily aches and pains, tart cherries help muscle recover faster after exercise.



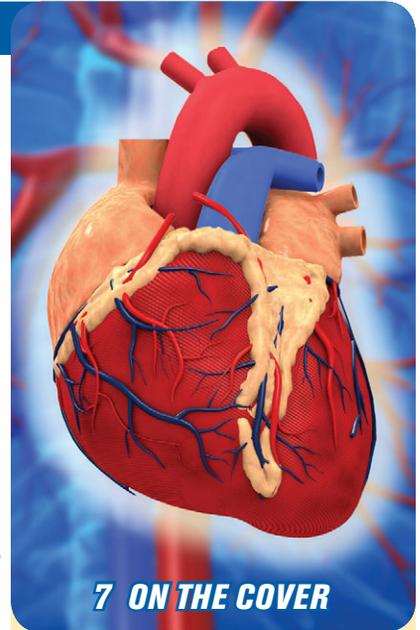
64 **CONFERENCE REPORT: WORLD STEM CELL SUMMIT**

Stem cell therapy is on the verge of transforming medicine from just treating symptoms to restoring youthful cellular health. At the World Stem Cell Summit in West Palm Beach, Florida, scientists report on innovations that include bioengineering of artificial organs and novel stem-cell treatments for heart, spinal cord, and ovarian tissue.



74 **UNIQUE PEPTIDE REJUVENATES SKIN**

Researchers have discovered a *restorative peptide* called **acetyl tetrapeptide-2** that triggers reparative processes and cellular reactions usually seen in younger skin. Early in-vitro studies have shown that **acetyl tetrapeptide-2** increased cellular growth by **51% in just 5 days!** In addition, it increased keratin production by **75%**. The result was noticeable skin regeneration.



7 ON THE COVER

LETHAL MISCONCEPTIONS

Heart disease kills more women than men, yet most females remain unaware of blood markers that assess their risk of **cancer and vascular disease**. Maturing women require proper **blood tests** to identify these reversible risk factors before **heart attack, stroke, or malignancy** strikes.

Find out about other fallacies that result in millions of needless deaths each year.

DEPARTMENTS



21 **IN THE NEWS**

Green tea and coffee protect against stroke; olive leaf polyphenols boost pancreatic beta-cell responsiveness; magnesium inhibits ischemic heart disease; prenatal folic acid lowers autism risk; green tea compound helps prevent non-alcoholic fatty liver disease (NAFLD); and more.

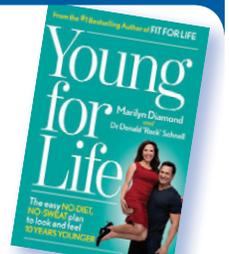


83 **SUPER FOODS**

Oranges provide a rich supply of **hesperidin, naringin**, and **60** other flavonoids, as well as pectin fiber, making them nutrition powerhouses. Research demonstrates that oranges and their compounds powerfully boost eye, heart, kidney, and immune health.

91 **AUTHOR INTERVIEW**

Over **30 million** Americans are nutritionally deficient and aging prematurely. Marilyn Diamond and Dr. Donald Schnell discuss how to combat genetic aging in their new book *Young for Life*.



97 **ASK THE PHARMACIST**

Long-term use of **proton pump inhibitors**, commonly prescribed for acid reflux, has been shown to increase the risk of fractures, infections, and nutritional deficiencies. Learn how you can prevent the dangers of excess stomach acid and avoid these medicines through lifestyle and nutritional changes.





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Super Potent Multi-Nutrient Formula

Compare CENTRUM® to TWO-PER-DAY:

Sample Ingredient Comparison	LIFE EXTENSION® TWO-PER-DAY	Centrum® Silver® Adults 50+
Vitamin C	500 mg	60 mg
Vitamin D	2,000 IU	500 IU
Vitamin B1	75 mg	1.5 mg
Vitamin B2	50 mg	1.7 mg
Vitamin B6	75 mg	3 mg
Vitamin B12 (as methylcobalamin)	300 mcg	25 mcg
Niacin (as niacinamide)	50 mg	20 mg
Pantothenic acid	100 mg	10 mg
Vitamin E	100 IU (natural)	50 IU (synthetic)
Natural Folate	400 mcg	400 mcg (synthetic)
Zinc	30 mg	11 mg
Selenium	200 mcg	55 mcg
Lutein	5,000 mcg	250 mcg
Lycopene	2,000 mcg	300 mcg
Biotin	300 mcg	30 mcg
Boron	3,000 mcg	150 mcg
Chromium	200 mcg	45 mcg
Molybdenum	100 mcg	45 mcg
Magnesium	100 mg	50 mg
Manganese	2 mg	2.3 mg
Iodine	150 mcg	150 mcg
Potassium	25 mg	80 mg
Vitamin A (as beta-carotene)	4,500 IU	1,000 IU
Vitamin A (preformed)	500 IU	1,500 IU
Choline (as bitartrate)	20 mg	(none)
Inositol	50 mg	(none)
PABA	30 mg	(none)
Calcium	12 mg	220 mg
Alpha Lipoic Acid	125 mg	(none)

Commercial "one-a-day" supplements provide very low potencies.

The box to the left reveals how much more potent **Two-Per-Day** is compared to the leading commercial multi-vitamin.

Compared to conventional "one-a-day" products, **Life Extension® Two-Per-Day** contains up to **50 times more** potency! This **Two-Per-Day** formula is available in tablet or capsule form.

Commercial supplements often contain the cheapest form of nutrients that don't provide optimal benefits. For example, the 50 IU of synthetic vitamin E contained in **Centrum® Silver® Adults 50+** may provide relatively little vitamin E to the bloodstream compared to the 100 IU of natural vitamin E in **Two-Per-Day**.

Two-Per-Day provides the three most effective forms of **selenium** which are sodium selenite, L-selenomethionine, and Se-methyl L-selenocysteine.



Item # 01714
Capsules



Item # 01715
Tablets

Compared to Centrum® Silver® Adults 50+, Two-Per-Day Tablets or Capsules provide about:

- 4 times more Vitamin D
- 8 times more Vitamin C
- 2 times more Vitamin E
- 10 times more Biotin
- 20 times more Boron
- 4 times more Selenium
- 25 times more Vitamin B6
- 50 times more Vitamin B1
- 12 times more Vitamin B12
- More than twice as much niacin, zinc, and many other nutrients

A bottle containing 120 tablets of **Two-Per-Day Tablets** retails for \$20. If a member buys four bottles, the price is reduced to **\$13.50** per bottle. (Item #01715) A bottle containing 120 capsules of **Two-Per-Day Capsules** retails for \$22. If a member buys four bottles, the price is reduced to **\$15** per bottle. (Item #01714)

Each bottle of **Two-Per-Day** lasts **60 days**, so members can obtain the benefits of this high-potency formula for as little as **\$6.75 per month**.



Ratings based on results of the 2012 ConsumerLab.com Survey of Supplement Users. More information at www.consumerlab.com.

Contains soybeans. Due to the source of the kelp, this product may contain fish and shellfish.

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

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

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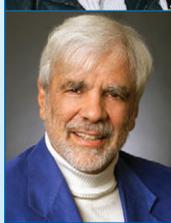
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MAGNESIUM

Reduces Risk of Sudden Death

Up to **69%** of women have no clinically recognized heart disease before **sudden death** occurs.^{1,2} This means a huge percentage of **heart attack** victims **die** before finding out they are at risk.

Primary preventive strategies are urgently needed to reduce the incidence of **sudden cardiac death**.³ The good news is that **blood test** prices are dropping, enabling more people to identify their cardiac risk factors before suffering a fatal **heart attack**.

Sudden cardiac arrest occurs when the electrical system to the heart malfunctions.⁴ The heart beat becomes irregular and dangerously fast, which can result in the lower chambers quivering and not pumping blood to the body. **Magnesium** is unique in that it helps maintain healthy electrical balance required for normal **heart rhythm**.⁵

Many factors contribute to **coronary artery blockage** such as elevated **glucose**, **triglycerides**, **C-reactive protein**, and **LDL**.⁶

All of these major causations of **coronary atherosclerosis** can be measured in the blood.

When it comes to sudden death heart arrhythmias, however, a large study shows a strong protective effect for **magnesium**. This study looked at **88,000** women and followed them for **26 years**. Women with the highest blood levels of **magnesium** had a **77% lower** risk of **sudden cardiac death** compared to women in the lowest range.⁷

In 2005-2006, the estimated magnesium intake for US adults from food sources was **261 mg** in women and **347 mg** in men.⁸ This is below the Recommended Dietary Allowance (RDA), which is **310-320 mg** for adult women and **400-420 mg** for adult men.⁹ Most Americans do not meet the RDA, even with the use of magnesium-containing supplements.^{10,11} This is not surprising considering the low potency of commercial products.

Magnesium is not an expensive nutrient. Americans can obtain **500 mg** of **magnesium** for less than **10 cents** a day!

As **blood test** costs fall, men and women can affordably identify reversible risk factors before **heart attack** or **stroke** strikes.

References

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Dangerous Misconceptions



BY WILLIAM FALOON



I'll never forget a call I received from the coroner's office in **1981** questioning how a **17-year-old** boy could have died of **colon cancer**. The county Medical Examiner stated to me that this was "**impossible**."

I told the Medical Examiner that while I had never heard of anyone this young dying of **colon cancer**, this is what the records reflected. The Medical Examiner insisted on talking to the treating physician. A few hours later, the Medical Examiner called me back apologizing for his error.

Recent studies now show **increasing** rates of colon cancer in young adults—higher than anyone had ever expected.¹⁻⁴ The reason so many of these young people die is their doctors do not consider **colon cancer** as a cause of their symptoms and thus fail to initiate timely diagnosis and treatment.^{1,3}

Move forward to year **2013**, and physicians continue to wallow in a sea of unawareness when it comes to understanding common diseases. The tragic result is failure to implement changes that would prevent adverse outcomes for millions of Americans every year.

One critical mission of **Life Extension**[®] is to break down barriers of medical **ignorance** that cause humans to senselessly suffer and die. >

Heart Attacks Kill More Women than Men

Heart disease is often thought of as a problem that primarily affects **men**. The reality since **1984** is that **more women** die from **heart disease** than men.⁵

According to a prominent Los Angeles heart surgeon, the most common way a **woman** presents with **heart disease** is **dead on arrival** at the hospital.

Women often downplay their symptoms and wait longer before going to the emergency room. Women also present with different symptoms than men, causing doctors to overlook many cases of heart disease.

Women historically receive less aggressive heart disease prevention and treatment. As a result, when women are finally diagnosed, they usually have more advanced heart disease and their prognosis is poorer.

Startling Statistics

Right now, more than **1 in 3 female adults** in the United States has some form of **cardiovascular disease**.⁶

Cardiovascular disease of all forms killed **419,730** women in 2008, while all forms of **cancer** combined caused **270,210** female deaths that year.⁶

While women justifiably fear **breast cancer** (in recent years, it has killed more than **40,000** females a year), **cardiovascular disease** claims the lives of more than **ten times more** women.⁶

Women over age 40 are diligently having **mammograms** in an attempt to detect **breast cancer** at an early curable stage. Most are overlooking important **blood tests** that can be used to slash far



more prevalent cardiovascular risk factors.

Not only do **blood test** results enable women to prevent **heart attack** and **stroke**, they also reveal correctable factors that can **reduce cancer** risk.

Mammograms only detect the presence of lesions that may be malignant. Comprehensive **blood tests**, on the other hand, enable women to protect themselves against virtually **every** disease associated with aging...including **breast cancer** in some instances!

Blood Markers of Impending Heart Attack and Stroke

Almost **half** of all American women have blood cholesterol levels **over 200 mg/dL**,⁷ yet only the minority knows this.

Similar to men, women with elevated **LDL**,⁸⁻¹⁰ **glucose**,¹¹⁻¹⁴ **triglycerides**,¹⁵⁻¹⁸ and **C-reactive protein**,¹⁹⁻²² (and **low HDL**)²³⁻²⁷ have sharply higher vascular disease risks. Some studies show that high **glucose** and **triglyceride** blood levels in women create a greater vascular impact than in men.^{25,28-31}

Heart disease accounts for **more than a third of all female deaths** in the United States,⁷ yet the vast majority do not know what their cardiovascular disease blood markers are. The consequence of this *misconception* is that heart failure and stroke are leading causes of disability and death of American **women**.

Females over age **35-40** should have **comprehensive blood tests** annually to identify proven **heart attack/stroke** risk factors and take corrective actions when any marker is out of optimal range.

DHEA Blood Levels and Coronary Deaths

A number of studies associate low DHEA blood levels with higher rates of endothelial dysfunction and heart attack.³³⁻³⁵

In **2010**, a study showed that women with the lowest DHEA more than doubled their rate of dying from **coronary artery disease** compared to women with higher DHEA blood levels.³⁶

This six-year study showed more than twice as many women with low DHEA died from **all-causes** compared to women with higher DHEA blood readings.

The take-home lesson from this and similar studies is for aging humans to **know** their DHEA **blood levels** and take the

appropriate DHEA dose to achieve youthful levels shown to protect against mortality.

Polycystic Ovary Syndrome...An Underdiagnosed Problem

Some women suffer excess accumulation of body fat caused not by overeating, but from a disorder called **polycystic ovary syndrome** that is characterized by out-of-balance hormones.^{37,38}

The drug that can be highly effective in treating this hormone imbalance is **metformin**. It reduces excess insulin³⁹⁻⁴³ and testosterone levels,^{39,40,44} while helping women shed fat pounds.^{39,45}

In one study, 22 morbidly obese women with polycystic ovary syndrome were treated with metformin. After 24 weeks, they lost an average of **6%** of their body weight (**18 pounds**). In the same study, women who continued on metformin after one year maintained their weight loss while those who stopped regained **50%** of their weight.⁴⁶

Those suffering from **polycystic ovary syndrome** have higher rates of diabetes,⁴⁷⁻⁵² coronary blockage,^{47,52-56} and metabolic syndrome.^{47,54,57-59}

For women suffering from frank polycystic ovary syndrome, or just too much insulin-testosterone, low-cost **blood tests** can identify the underlying problem and enable a physician to properly prescribe **metformin** and other therapies to safely induce **weight loss** and reduce **cardiovascular risks**.

Blood Glucose and Cancer Risk

Those with higher **glucose** and **insulin** suffer greater rates of all **cancers**.^{60,61}

Gestational diabetes is a temporary state of glucose intolerance associated with pregnancy. Its long-term effect in women, however, is a **7-fold increase** in pancreatic cancer.⁶²

A 13.5-year study showed that women in the **highest glucose** quartile were **63% more** likely to develop breast cancer.⁶³ Another study that included 33,293 women measured fasting and post-load **glucose** and found those in the **highest ranges** were **75%** more likely to develop cancer.⁶⁴

Diabetics have higher cancer risks. One analysis of diabetic women showed a **22% increased** breast cancer risk, but even those

Heart Attack Symptoms in Women

The most common heart attack symptom in women is pain, pressure, or discomfort in the chest. But in women, it's not always severe or the most prominent symptom. Over **40%** of women suffering a heart attack may not even experience chest pains (angina).³² Women are more likely than men to have heart attack symptoms unrelated to chest pain, such as the following:²⁸

- Neck, shoulder, upper back, or abdominal discomfort
- Shortness of breath
- Nausea or vomiting
- Sweating
- Lightheadedness or dizziness
- Unusual fatigue

Men are more likely to experience classic signs/symptoms of coronary heart disease like crushing left-sided chest pain that radiates to the left arm or jaw. Women, on the other hand, are more likely to report shortness of breath, weakness or fatigue, dizziness, and palpitations.

This may be because women tend to have blockages not only in their main arteries, but also in the smaller arteries that supply blood to the heart—a condition called small vessel heart disease or microvascular disease.²⁸

Many women tend to show up in emergency rooms after much heart damage has already occurred because their symptoms are not those typically associated with a heart attack.

with **impaired glucose metabolism** develop breast cancer with greater frequency.⁶⁵ The researcher who conducted this study concluded that increased cancer risk occurred even when **glucose** levels were “*below the diagnostic threshold for diabetes.*”

Keeping **glucose** in the **low** ranges protects against **cardiovascular** disease, helps **shed fat pounds**, and reduces **cancer** risk.

Cancer Patients Especially Vulnerable to High Glucose

The impact of elevated blood glucose on cancer patients is devastating.

The body responds to higher glucose levels by secreting more insulin (which promotes tumor growth). A study of 1,695 **non-diabetic** men and women found that, of the participants that developed cancer, there was a **37% increase** in all-cause mortality for those in the highest quartile of **fasting insulin**.⁷⁵

A study of newly diagnosed non-small cell lung cancer patients showed a **69% increased** risk of all-cause mortality when **fasting glucose** was over **126 mg/dL**.⁷⁶

An interesting analysis was done on diabetic and non-diabetic **breast cancer** patients. There was no difference in overall survival between the two groups, but elevated **glucose** in either group was associated with poorer outcomes and an elevated risk of death.⁷⁷ This study supports previous findings that **high blood glucose** is associated with poor response to breast cancer treatment.⁷⁸⁻⁸⁴

In a decade-long study of 3,003 breast cancer survivors, risk of all-cause mortality was **twice** as high in women with a **hemoglobin A1c** reading greater than **7%**

compared to women with less than **6.5%**.⁷⁹ Hemoglobin A1c is a blood test that measures average **glucose** levels over the previous approximately three months.

These findings together support the role of a **healthy diet** and lifestyle in the overall treatment of cancer.

Since people often make too much glucose in their liver (gluconeogenesis), even those who avoid glucose-spiking carbohydrates and starches need to take additional steps to keep their **glucose/insulin** levels low. The drug **metformin**^{85,86} and nutritional supplement **green coffee bean extract**^{87,88} inhibit glucose production in the liver, thus lowering blood glucose to safer ranges.

Cancer patients should insist on regular **blood tests** to check their **fasting glucose, fasting insulin, and after-meal glucose**.

C-Reactive Protein: A New Cancer Blood Marker?

Inflammation is an underlying cause of virtually all degenerative disorders, including vascular disease, cancer, and dementia.⁸⁹⁻⁹⁷ The **C-reactive protein** (CRP) blood test is a general measurement of **inflammation** in the body.

In a general population study, individuals with the highest **CRP** levels had a **1.3-fold increased** risk of **cancer** of any type, and a **2-fold increased** risk of **lung cancer**. Among individuals diagnosed with cancer during the study period, individuals with a high baseline CRP (over **3 mg/L**) had an **80% greater risk of early death** compared to those with low CRP levels (**<1 mg/L**).⁹⁸

This corroborates numerous other studies showing greater cancer risk, incidence, and mortality

Lung Cancer Kills Many Non-Smokers

Lung cancer kills so many cigarette smokers that many people mistakenly believe that **non-smokers** don't develop it. The facts are that lung cancer kills around 24,000 non-smokers each year in the United States, making it among the top 10 most lethal cancers in the US.⁶⁶ Additionally, lung cancer in people who've never smoked is on the rise. In the US, **17.5%** of lung cancers occur in this group, and among women the figure is even higher. In some areas of the world, such as Southeast Asia, as many as **50%** of female lung cancer cases are found in women that have never smoked.⁶⁷

What is particularly regrettable is that many of these non-smokers are victimized by **second-hand smoke**, a carcinogen that I was forcibly exposed to in my early life.

The carnage caused by **second-hand smoke**, which adds up to millions of disabled and dead innocent Americans, is one of the great **medical travesties** of the past 100 years.⁶⁸⁻⁷¹ The dangers of second-hand smoke are still not fully appreciated, as millions of children are exposed each year in the home environment while society prioritizes far less important issues.

Scientific research has shown that a blood marker of cardiovascular risk (**C-reactive protein**) is also elevated in **lung** and **colon cancer** patients.⁷²⁻⁷⁴ What is encouraging about this is that the steps people take to reduce vascular disease (such as **lowering C-reactive protein**) might help **protect** against common malignancies.



ago by offering a broad range of **blood tests** for far less than what commercial labs charge.

Instead of having to make a doctor's appointment, most of our members walk in at their convenience to a blood drawing station in their neighborhood.

Once-A-Year Blood Test Super Sale

The comprehensive **Female** or **Male Blood Test Panels** contain more specialized blood measurements than virtually any standard battery of tests. Commercial labs often charge a king's ransom to perform ALL of these tests.

Yet until June 3, 2013, Life Extension **members** can order the **Female** or **Male Blood Test Panel** for only **\$199**.

This year we were able to add the **hemoglobin A1c** test to the **Male** and **Female Panels** at no extra charge. The next page describes the many tests included in the comprehensive **Male** or **Female Panels**. At the discounted price of **\$199**, these blood tests are the best investment you may ever make in your health and longevity.

If you're reading this and are not already a Life Extension member, please join today. The huge **savings** on the **Female** and/or **Male Panel** more than covers the **\$75** membership fee.

To order your **blood tests** and/or join the Foundation, call **1-800-841-5433** (24 hours).

For longer life,

William Faloon

Don't Be a Victim of Deadly Misconceptions

The incidence of **type II diabetes** and related disorders such as **obesity**, **vascular disease**, and **cancer** is skyrocketing, yet **comprehensive blood testing** can identify underlying factors that if corrected in time, can prevent an epidemic of tragic outcomes.

Most of you reading this have been victimized by **second-hand cigarette smoke**, yet controlling your **C-reactive protein** and **glucose** blood levels may lower your risk of **lung cancer**.

So many female **Life Extension** members have been helped when their **hormone** levels are checked and balanced. Not only do they feel better when all their blood markers are restored to youthful ranges, but their risk of degenerative disease is substantively reduced.

The high cost and inconvenience of today's broken sick-care system prevents most healthy people from having their blood thoroughly analyzed. **Life Extension** broke down these barriers 17 years

in those with elevated **CRP** blood test readings.⁹⁹⁻¹⁰⁸

A study was done with cancer survivors to measure **fatigue** and other common side effects of conventional therapy. Survivors with high CRP had **1.8 times** greater odds of **fatigue** after adjusting for all other factors. This study showed that higher ingestion of **omega-6** fats relative to **omega-3** fats was associated with higher **C-reactive protein** levels.¹⁰⁹

A wealth of data shows that a **high-sensitivity CRP** blood test may become a new marker in identifying those at greater risk for developing **cancer** and dying from it.¹¹⁰⁻¹¹² Ideal CRP levels in **women** are **less than 1.0 mg/L**.¹¹³ If your blood test result shows CRP readings **over 1.5 mg/L**, there are a number of proven ways to lower it to safer ranges.

While CRP testing is done today primarily to identify those at higher risk for **stroke**, **heart attack**, **diabetes**, and **dementia**, it may also turn out to be a useful tool in the prevention and treatment of common **cancers**.

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MALE AND FEMALE BLOOD TEST PANELS

Unlike commercial blood tests that evaluate only a few disease risk factors, Life Extension's **Male and Female Blood Test Panels** measure a wide range of blood markers that predispose people to common age-related disorders. This year we are able to add the **hemoglobin A1c** test to the **Male** and **Female Panels** at no additional cost. **Hemoglobin A1c** is a measurement of long-term **glucose** control. Just look at the **huge** number of parameters included in the **Male and Female Blood Test Panels**:

MALE PANEL

LIPID PROFILE

Total Cholesterol

LDL (low-density lipoprotein)

HDL (high-density lipoprotein)

Triglycerides

CARDIAC MARKERS

C-Reactive Protein (high sensitivity)

Homocysteine

HORMONES

Free and Total Testosterone

DHEA-S

Estradiol (an estrogen)

TSH (thyroid function)

Vitamin D (25-hydroxyvitamin D)

METABOLIC PROFILE

Glucose

Kidney function tests: creatinine, BUN, uric acid, BUN/creatinine ratio

Liver function tests: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase

Blood minerals: calcium, potassium, phosphorus, sodium, chloride, iron

Blood proteins: albumin, globulin, total protein, albumin/globulin ratio

Hemoglobin A1c

NOW
INCLUDES
HEMO-
GLOBIN
A1c

COMPLETE BLOOD COUNT (CBC)

Red Blood Cell count including: hemoglobin, hematocrit, MCV, MCH, MCHC, RDW

White Blood Cell count including: lymphocytes, monocytes, eosinophils, neutrophils, basophils

Platelet count

CANCER MARKER

PSA (Prostate Specific Antigen)

FEMALE PANEL

LIPID PROFILE

Total Cholesterol

LDL (low-density lipoprotein)

HDL (high-density lipoprotein)

Triglycerides

CARDIAC MARKERS

C-Reactive Protein (high sensitivity)

Homocysteine

HORMONES

Progesterone

DHEA-S

Free and Total Testosterone

Estradiol (an estrogen)

TSH (thyroid function)

Vitamin D (25-hydroxyvitamin D)

METABOLIC PROFILE

Glucose

Kidney function tests: creatinine, BUN, uric acid, BUN/creatinine ratio

Liver function tests: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase

Blood minerals: calcium, potassium, phosphorus, sodium, chloride, iron

Blood proteins: albumin, globulin, total protein, albumin/globulin ratio

Hemoglobin A1c

NOW
INCLUDES
HEMO-
GLOBIN
A1c

COMPLETE BLOOD COUNT (CBC)

Red Blood Cell count including: hemoglobin, hematocrit, MCV, MCH, MCHC, RDW

White Blood Cell count including: lymphocytes, monocytes, eosinophils, neutrophils, basophils

Platelet count

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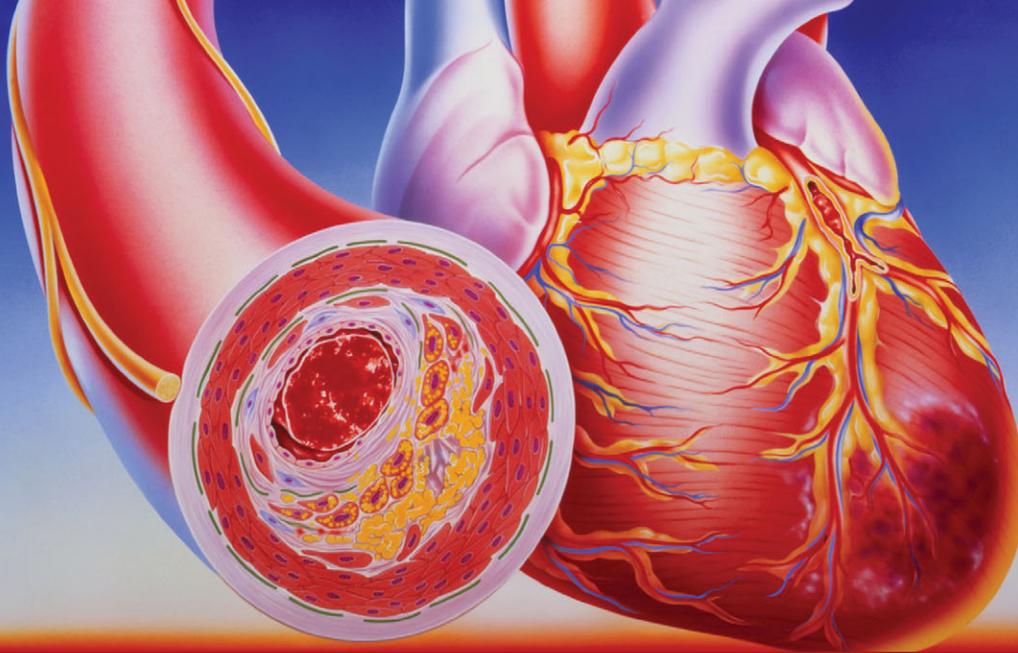
Blood Test Super Sale – April 1 through June 3, 2013.

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

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

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ENHANCE Heart Health

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

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

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

The daily serving of 2 softgels of Endothelial Defense™ with Full-Spectrum Pomegranate™ contains:

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

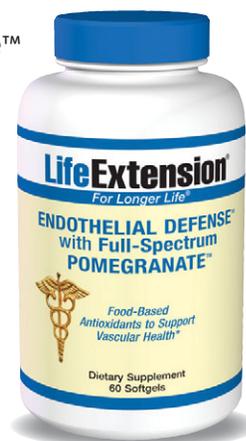
POMELLA® Extract is covered under U.S. Patent 7,638,640. POMELLA® Extract is a registered trademark of Verdure Sciences, Inc. IsoCell SA, France is the owner of US Patents Nos. 6,045,809 and 6,426,068B1 and the registered trademark of GliSODin®.

Contains soybeans and wheat.

Next-Generation Pomegranate Power

The unique blend of **pomegranate flower extract** and **seed oil** in **Endothelial Defense™ with Full-Spectrum Pomegranate™** contains potent polyphenols that provide support for youthful **lipid** and **glucose** metabolism, and help with **inflammatory factors**.⁸

A bottle containing 60 softgels of **Endothelial Defense™ with Full-Spectrum Pomegranate™** retails for \$56. If a member buys four bottles, the price is reduced to just **\$39** per bottle.



Item # 01498

To Order Endothelial Defense™ with Full-Spectrum Pomegranate™, call 1-800-544-4440 or visit 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.

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	Muirapuama
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.

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

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®.

Bioperine® is a registered trademark of Sabinsa Corp. HMRLignan™ is a registered trademark used under sublicense from Linnea S.A.

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



Rich Rewards™

Black Bean Vegetable Soup

52% DAILY
VALUE
FIBER

A New Low-Glycemic Healthy Soup without High-Glycemic Carbs Found in Commercial Soups

Life Extension® members are well aware that vegetable soups sold by processed food companies are loaded with high-glycemic carbohydrates—rice, potatoes, or pasta—and inexpensive ingredients such as corn, sugar, and even omega-6 fats such as cottonseed oil. In other words, they provide virtually no health benefits.

That's why they've come to rely on the vegetable soups from **Life Extension** that contain only healthy ingredients—loads of garden-fresh vegetables, mushrooms, heart-healthy extra-virgin olive oil, and a host of other beneficial plant foods. These soups are made with no saturated fat, cholesterol, trans fat, or dairy.

The newest addition to this family of nutritionally-rich soups is **Rich Rewards™ Black Bean Vegetable Soup**. It delivers the same healthy vegetable ingredients—but with the additional health benefits of **black beans** and **barley** and is an excellent source of fiber.

BLACK BEANS AND BARLEY

Extensive documentation demonstrates that the **black beans**:

- Significantly support **blood sugar** levels that are already within the normal range¹⁻³—even over a prolonged period⁴—and even when combined with higher-glycemic foods.³
- Provide significant support for the **DNA** integrity of bone marrow and peripheral blood cells.⁵
- Are associated with support for **cardiovascular** health.^{1,6-8}
- Improve short-term satiety and **weight loss**, when combined with a reduced calorie diet.⁹⁻¹¹
- Promote healthy **gastrointestinal function**,¹² providing healthy colonic bacteria with the perfect mixture of compounds to promote the production of *butyric acid*, which is used by colon-lining cells to keep the lower digestive tract functioning smoothly.¹³

Barley scientifically shown to:

- Support the colonic fermentation of indigestible or *insoluble* carbohydrates.¹⁴
- Provide a rich source of *soluble* **fiber**,¹⁵ which promotes bowel function and metabolic health.^{16,17}
- Support **blood sugar** and insulin levels that are already in the normal range¹⁸—which it does better than other grains.^{15,18,19}
- Help maintain levels of total **cholesterol**,²⁰ **LDL cholesterol**,^{21,22} and **blood pressure**²³ already in the normal range.
- Support **weight control** through increased satiety and decreased overall caloric ingestion.²⁴⁻²⁶

Suitable for vegans, each serving of **Rich Rewards™ Black Bean Vegetable Soup** offers impressive nutrition: **52%** of your daily fiber value, **28%** of your daily protein value, and a rich supply of vegetables, all in just **180 calories**.

The entire container supplies about **3.5 servings**. And while the FDA says the BPA lining in most soup cans is safe, we at **Life Extension** have always used BPA-free containers.

A 32-ounce container of 3.5 servings of **Rich Rewards™ Black Bean Vegetable Soup** retails for \$13. If a member buys 6 containers, the price is reduced to **\$9.19** per container.

To order **Rich Rewards™ Black Bean Vegetable Soup**, call **1-800-544-4440** or visit **www.LifeExtension.com**



Item# 01712

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Black Bean Vegetable Soup

Nutrition Facts

Serving Size 1 cup (245g)
Servings Per Container about 3.5

Amount Per Serving	
Calories 180	Calories from Fat 30
% Daily Value *	
Total Fat	3g 5%
Saturated Fat	0g 0%
Trans Fat	0g
Cholesterol	0mg 0%
Sodium	25mg 1%
Total Carbohydrate	25g 8%
Dietary Fiber	13g 52%
Sugars	6g
Protein	14g 28%

Vitamin A 40% • Vitamin C 40%
Calcium 8% • Iron 25%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Souper tasty. Souper Satisfying.

One Smart Bowl of Soup™

Contains about 3.5 servings of black beans, barley, mushrooms, and vegetables per bottle

Only 180 calories per serving

Very low sodium and low fat

No added starches or sugars!

Excellent source of fiber and protein

0g trans fat. No saturated fat or cholesterol

SHIELD YOUR PRECIOUS EYESIGHT

AT FANTASTICALLY DISCOUNTED PRICES!



ITEM #00657 SolarShield®



ITEM #00747 OverRxCast

Shielding your eyes from destructive ultraviolet sun rays is one of the most effective means of protecting against ocular disease.

Consumers often spend hundreds of dollars on just one pair of so-called “designer” sunglasses. Life Extension® members can obtain superior protection against damaging solar radiation at a fraction of the price of commercially sold sunglasses.

SolarShield® sunglasses are recognized as the **number-one doctor-recommended sunglass** in the world, with more than 50 million pairs sold to date. Patented **SolarShield®** sunglasses with **durable polycarbonate lenses** and **100% UV protection** fit **comfortably over prescription eyewear**, providing convenient protection from the harmful effects of ultraviolet radiation.

For those who desire the added benefit of lenses that reduce distracting glare, **OverRxCast**

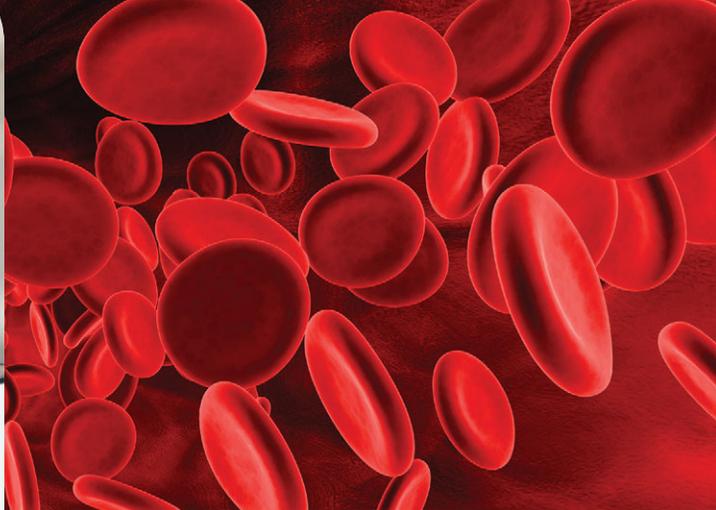
sunglasses come with **polarized** gray lenses that provide natural color definition with **100% UV** protection. Like the **SolarShield®** sunglasses, **OverRxCast polarized** sunglasses are designed to be worn over your prescription eyeglasses.

SolarShield® sunglasses retail for **\$12.99** for one pair, and the member price is **\$9.74**. If a member buys two pairs, the price is reduced to only **\$8.63** a pair. One pair of **OverRxCast** sunglasses retails for **\$27**, and the member price is **\$20.25**. If a member orders two pairs, the price is reduced to just **\$15.75** per pair.

Compare these **low prices** to sunglasses sold in stores and see savings exceeding **90%**!

SolarShield® is a registered trademark Dioptics, Inc.

To order SolarShield® or OverRxCast sunglasses, call 1-800-544-4440 or visit www.LifeExtension.com



IN THE NEWS

Reduced Urinary Magnesium Levels Linked to Elevated Ischemic Heart Disease Risk

An article published online in the *American Journal of Clinical Nutrition* reports the finding of an association between higher urinary magnesium levels and a lower risk of ischemic heart disease.*

The study included 7,664 men and women enrolled in the Prevention of Renal and Vascular End-Stage Disease (PREVEND) study, which is a prospective investigation of albuminuria and renal and cardiovascular disease. Urinary magnesium excretion levels from samples obtained upon enrollment from 1997 to 1998 were utilized as a marker of magnesium intake. The subjects were followed for a median of 10.5 years, during which 462 ischemic heart disease events occurred.

Men and women whose urinary magnesium was among the lowest **20%** of subjects had an increase in the risk of ischemic heart disease that was **60%** higher than the remainder of the participants, and a risk of fatal ischemic heart disease that was **70%** higher.

Editor's Note: Authors Michel M. Joosten and his colleagues remark that reduced magnesium intake can result in cardiac arrhythmias that can cause sudden cardiac death. Additionally, magnesium helps inhibit platelet aggregation and enhances the synthesis of nitric oxide, which helps relax the blood vessels. Furthermore,

increased magnesium intake has been associated with a lower risk of diabetes—a disease that significantly elevates the risk of cardiovascular disease.

—D. Dye

* *Am J Clin Nutr.* 2013 Mar 13.

Mediterranean Diet Lowers Cardiovascular Events in Clinical Trial

The results of a trial described in the *New England Journal of Medicine* indicate a protective effect for a Mediterranean diet against the risk of experiencing heart attack, stroke, or death from cardiovascular causes among older adults at high cardiovascular risk.*

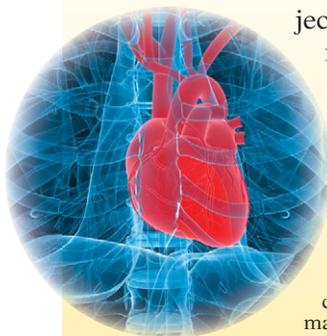
The study included 7,447 men and women age 55-80 with no cardiovascular disease upon enrollment who had either type II diabetes or at least three cardiovascular risk factors including smoking, hypertension, elevated LDL cholesterol levels, low HDL cholesterol levels, overweight or obesity, or a family history of premature coronary heart disease. Participants were randomized to a Mediterranean diet supplemented with extra-virgin olive oil, a Mediterranean diet supplemented with nuts, or a low-fat control diet.

The trial was concluded after a median follow-up of 4.8 years. In comparison with participants who adhered to the control diet, the average adjusted risk of experiencing a cardiovascular event was **29%** lower for those who followed a Mediterranean diet plan. The findings were similar when the two Mediterranean diets were separately evaluated.

Editor's Note: A Mediterranean diet, which is high in fruit, vegetables, fish, legumes, nuts, and olive oil, has been associated with a lower risk of cardiovascular disease and premature death in several studies of its adherents.

—D. Dye

* *NEJM.* 2013 Feb 25.



Prenatal Folic Acid Supplementation Shows Protective Effect Against Autism

The *Journal of the American Medical Association* reported the finding of Norwegian researchers showing that supplementing with folic acid early in pregnancy helps reduce the risk of giving birth to a child with autism.*

The study included 85,176 children born between 2002 and 2008 who were followed through March 2012. Mothers were queried concerning their intake of vitamins and other supplements, particularly between 4 weeks prior to conception and week 8 of pregnancy. Over the follow-up period, 114 children were diagnosed with autistic disorder, 56 with Asperger syndrome, and 100 with pervasive developmental disorder—not otherwise specified, all of which fall under the umbrella of autism spectrum disorders.

Mothers who consumed folic acid supplements during the period from four weeks prior to conception to their eighth week of pregnancy had a **39%** lower risk of giving birth to a child diagnosed with autistic disorder in comparison with mothers who did not use the supplements.

Editor's Note: No association with Asperger syndrome or pervasive developmental disorder was noted, and no association was found for folic acid use during mid-pregnancy. "It appears that the crucial time interval is from four weeks before conception to eight weeks into pregnancy," stated lead researcher Pál Surén, MD.

—D. Dye

* *JAMA*. 2013 Feb 13;309(6):570-7.

Supplementation Improves Vitamin D Levels and Influences Widespread Gene Expression in White Blood Cells

A team of researchers at Boston University Medical Center recently published results of a small clinical trial in the journal *PLoS One* that found that increasing blood levels of vitamin D through supplementation had far-reaching effects on the overall gene expression of white blood cells.*

The team conducted a randomized, double-blind pilot study comparing vitamin D supplementation with either **400** or **2,000 IU** vitamin D3 daily for 2 months during the winter on broad gene expression in the white blood cells of healthy adults. Over half of the study participants had baseline vitamin D levels that were classified as insufficient or deficient.

Supplementation with vitamin D3 resulting in improved serum vitamin D3 concentrations was associated with at least a **1.5 fold** alteration in the expression of 291 genes. In subjects with a baseline vitamin D level of less than **20 ng/mL**, there was a significant difference in the expression of 66 genes versus subjects whose baseline vitamin D3 levels were over **20 ng/mL**. After supplementing with vitamin D3 for 2 months, expression of these same 66 genes was similar for both groups.

Editor's Note: The research team, led by Dr. Michael Holick, concluded that, "Our data suggest that any improvement in vitamin D status will significantly affect expression of genes that have a wide variety of biologic functions of more than 160 pathways linked to cancer, autoimmune disorders, and cardiovascular disease, which have been associated with vitamin D deficiency. This study reveals for the first time molecular fingerprints that help explain the non-skeletal health benefits of vitamin D."

—A. Pryce, ND

* *PLoS One*. 2013;8(3):e58725.

Green Tea Compound May Help Prevent Certain Liver Diseases

In order to investigate the protective mechanisms of an **85%** pure extract of the green tea compound *epigallocatechin gallate* (EGCG) in the development of fibrosis, oxidative stress, and inflammation in a recently developed dietary-induced animal model of non-alcoholic fatty liver disease (NAFLD), a group of scientists from China fed female Sprague-Dawley rats either a normal rat diet or high-fat diet for 8 weeks to develop NAFLD.* For both treatments, rats were treated with or without EGCG (administered by injection, 3 times per week). At the end, blood and liver tissue samples were obtained for histology, molecular, and biochemical analyses.

Epigallocatechin gallate (EGCG) reduced the severity of liver injury in an experimental model of NAFLD associated with lower concentration of pro-fibrogenic, oxidative stress, and pro-inflammatory mediators. Therefore, they concluded that green tea polyphenols and EGCG are useful supplements in the prevention of NAFLD.

—M. Richmond

* *Eur J Nutr*. 2013 Mar 21.





Stroke Risk Lower in Coffee and Tea Drinkers

An article published in the journal *Stroke* reveals a protective effect for green tea and coffee against stroke in middle-aged men and women.*

Yoshiro Kokubo, MD, PhD, and associates analyzed data from 82,369 participants in the Japan Public Health Center-Based Study Cohort I and II. Questionnaires administered at enrollment provided information on green tea and coffee consumption. The subjects were followed for an average of 13 years, during which 3,425 strokes occurred.

In comparison with those whose tea drinking was categorized as seldom at less than once per month, drinking two to three cups of green tea per day was associated with a **14%** lower risk of stroke and drinking at least four cups per day with a **20%** reduction. Among coffee consumers, drinking the beverage three to six times per week was associated with an **11%** lower risk and consuming it once per day was associated with a **20%** decrease compared to seldom drinkers.

Editor's Note: "The regular action of drinking tea and coffee largely benefits cardiovascular health because it partly keeps blood clots from forming," Dr. Kokubo noted. Other possible mechanisms cited by the authors include the ability of compounds found in tea to protect against oxidative stress and inflammation and for those in coffee to improve blood glucose levels.

—D. Dye

* *Stroke*. 2013 Mar 14.

Vitamin D Slows Parkinson's Progression

The results of a trial reported in the *American Journal of Clinical Nutrition* reveal a benefit for vitamin D supplementation in men and women with Parkinson's disease.*

One hundred fourteen Parkinson's disease patients were randomized to receive **1,200 IU** vitamin D3 per day or a placebo for twelve months. Hoehn and Yahr stage, Unified Parkinson's Disease Rating Scale, and other tests were administered to assess disease status before and after treatment. Blood samples collected at enrollment were analyzed for factors that included 25-hydroxyvitamin D and calcium levels, and variations in genes associated with vitamin D binding protein and vitamin D receptor.

By the end of the study, Parkinson's disease stage worsened on average among those who received the placebo, but was essentially unchanged among those who received vitamin D. Unified Parkinson's Disease Rating Scale scores were similarly unchanged among vitamin D-supplemented participants, but worsened in the placebo group.

Editor's Note: A significant benefit for vitamin D3 was observed among subjects with either of two vitamin D receptor *FokI* genotypes, but not among those with a third *FokI* genotype.

—D. Dye

* *Am J Clin Nutr*. 2013 Mar 13.

Insufficient Sleep Can Make Our Genes Less Active

Recent research conducted at the University of Surrey, England, and published by *Proceedings of the National Academy of Sciences* has revealed that insufficient sleep—less than six hours a night—affects the activity of over 700 of our genes.*

Insufficient sleep and circadian rhythm disruption are associated with negative health outcomes, including obesity, cardiovascular disease, and cognitive impairment, but the mechanisms involved remain largely unexplored.

In order to study this process, 26 participants were exposed to 1 week of insufficient sleep (sleep-restriction condition 5.70 hours per 24 hours) and 1 week of sufficient sleep (control condition 8.50 hours of sleep per 24 hours). Immediately following each condition, ten whole-blood RNA samples were collected from each participant, while controlling for the effects of light, activity, and food, during a period of total sleep deprivation.

The data showed that one week of insufficient sleep alters gene expression in human blood cells, reduces the amplitude of circadian rhythms in gene expression, and intensifies the effects of subsequent acute total sleep loss on gene expression.



—M. Richmond

* Available at: <http://www.pnas.org/content/early/2013/02/20/1217154110>. Accessed March 22, 2013.

Green Vegetables Improve Intestinal Health

Researchers from the Walter and Eliza Hall Institute of Medical Research have recently discovered that an immune cell population essential for intestinal health could be controlled by leafy greens in your diet.*

The immune cells, named innate lymphoid cells (ILCs), are found in the lining of the digestive system and protect the body from “bad” bacteria in the intestine. They are also believed to play an important role in controlling food allergies, inflammatory diseases, and obesity, and may even prevent the development of bowel cancers.

Dr. Gabrielle Belz, Ms. Lucie Rankin, Dr. Joanna Groom, and colleagues have discovered the gene *T-bet* is essential for producing a population of these critical immune cells and that the gene responds to signals in the food we eat.

Dr. Belz said that the proteins in green leafy (cruciferous) vegetables are known to interact with a cell surface receptor that switches on *T-bet* and might play a role in producing these critical immune cells. “Proteins in these leafy greens could be part of the same signaling pathway that is used by *T-bet* to produce ILCs,” Dr. Belz said. “We are very interested in looking at how the products of these vegetables are able to talk to *T-bet* to make ILCs, which will give us more insight into how the food we eat influences our immune system and gut bacteria.”

—M. Richmond

* *Nat Immunol.* 2013 Apr;14(4):389-95.

Olive Leaf Polyphenols Improve Insulin Sensitivity in Middle-Aged Overweight Men

Olive plant leaves (*Olea europaea* L.) have been used for centuries in folk medicine to treat diabetes, but there are very limited data examining the effects of olive polyphenols on glucose homeostasis in humans.*

To assess the effects of supplementation with olive leaf polyphenols on insulin action and cardiovascular risk factors in middle-aged overweight men, a research team from Liggins Institute, University of Auckland, Auckland, New Zealand, set up a randomized, double-blinded, placebo-controlled, crossover trial involving 46 participants (aged 46.4±5.5 years and BMI 28.0±2.0 kg/m). The participants were randomized to receive capsules with olive leaf extract (OLE) or placebo for 12 weeks, crossing over to other treatment after a 6-week washout period.

The researchers concluded that in overweight middle-aged men at risk of developing metabolic syndrome, supplementation with olive leaf polyphenols for 12 weeks resulted in a **15%** improvement in insulin sensitivity and **28%** improvement in pancreatic-cell responsiveness versus placebo.



—M. Richmond

* *PLoS One.* 2013;8(3):e57622.

Higher Vitamin D Levels Associated with Reduced Risk of Dying

Findings from Germany’s ESTHER study reveal a lower risk of dying from cardiovascular disease, cancer, respiratory disease or any cause in men and women with higher serum levels of vitamin D.*

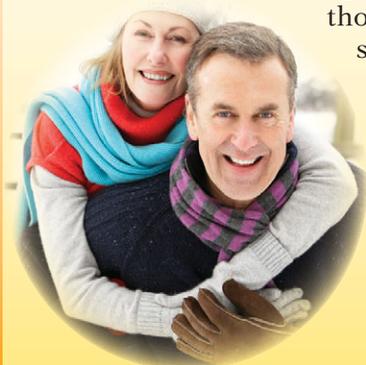
Reporting in the *American Journal of Clinical Nutrition*, Ben Schöttker and his colleagues describe the results of their study of 9,578 subjects between the ages of 50 to 74 upon enrollment in ESTHER. Vitamin D levels were measured upon enrollment and at a five-year follow-up visit. Subjects were followed for a median of 9.5 years, during which 1,083 deaths occurred.

Men and women whose vitamin D levels were classified as insufficient (between **12** and **20 ng/mL**) had a **17%** higher risk of dying from any cause in comparison with those whose levels were categorized as sufficient. Compared to those with sufficient levels, those with deficient levels (less than **12 ng/mL**) had a **71%** increased risk of dying.

Editor’s Note: Life Extension® suggests **50–80 ng/mL** as an optimal range of serum 25-hydroxyvitamin D to protect against disease.

—D. Dye

* *Am J Clin Nutr.* 2013 Apr;97(4):782-93.



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.¹ 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.¹

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.¹

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.²

Olive oil contains polyphenol nutrients that have demonstrated wide-ranging health benefits.³⁻⁵ 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.⁶ The **sesame lignans** not only direct the omega-3s toward more effective pathways in the body, but guard the delicate fish oil from oxidation.^{2,7}

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

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.



Item # 01596

Your Skin's Internal Moisturizer

Ceramides are essential for preserving healthy-looking skin.^{1,2} That's why they're included in so many anti-aging face creams.

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

Restore Ceramides Naturally from Within!

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

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

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

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

The Moisturizing Pill the Japanese Have Enjoyed for a Decade!

Lipowheat™ ceramides have been available to Japanese women as a functional food since 2000.⁵ The hydrating action of **Lipowheat™** ceramides have proven effective in clinical trials.

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

One bottle containing 30 **350 mg** vegetarian liquid capsules of **Skin Restoring Phytoceramides with Lipowheat™** retails for \$25. If a member buys four bottles, the price is reduced to **\$17.25**.

Contains wheat.

Lipowheat™ is a trademark of LAVIPHARM Group of Companies.

To order **Skin Restoring Phytoceramides with Lipowheat™**
call **1-800-544-4440** or visit **www.LifeExtension.com**

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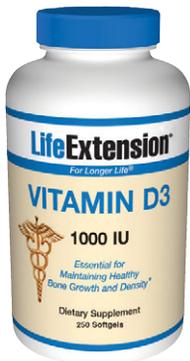
D3

New Vitamin D3 Softgels For Superior Absorption

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

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

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



Vitamin D3 1,000 IU 250 softgels

Retail: \$12.50
**Four-bottle
Member Price: \$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

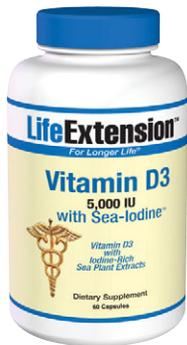


Vitamin D3 5,000 IU 60 softgels

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 D3 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 D3** and **1,000 mcg** of iodine into one capsule makes taking these two nutrients economical and convenient.

Item # 01573



Vitamin D3 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 D3** softgel should enable these individuals to attain **25-hydroxyvitamin D** blood levels above the desired range of **50 ng/mL**.

Item # 01718

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

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

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



Vitamin D3 Liquid Emulsion 2,000 IU 1 ounce

Retail: \$28
**Four-bottle
Member Price: \$18.75 ea.**

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

Item # 00864

BY JULIAN EVERSON

OLIVE LEAF

Unexpected *Benefits of* **OLIVE LEAF** Extract

Scientists have isolated the unique molecule that provides **olive oil** with its multitude of health and life-extending benefits. Known as **oleuropein**, it is the polyphenol that can help lower bad cholesterol and blood pressure, prevent cancer, protect against oxidative damage, and help guard against cognitive decline.^{1,2} Oleuropein provides the distinctive tangy, pungent, almost bitter flavor found in high quality extra virgin olive oils.² It's also responsible for most of olive oil's antioxidant, anti-inflammatory, and disease-fighting characteristics.²⁻⁴ In fact, when oleuropein was given to animals with tumors, the tumors completely regressed and disappeared in 9 to 12 days!⁵

The olive tree (*Olea europaea*) produces oleuropein abundantly in its leaves as well as in the olive fruit itself, and special processing techniques now allow for the extraction of a stable, standardized form of oleuropein. That means that consumers can have access to one of the most beneficial components of olive oil without the necessity of consuming excessive amounts of olive oil.





Olive leaf extracts and their oleuropein constituents are best known for their blood pressure-lowering effects, but the latest studies reveal their health benefits extend well beyond that. Additional anti-inflammatory and antioxidant properties offer promise in fighting atherosclerosis, diabetes, cancer, neurodegenerative diseases, and even arthritis.

Blood Pressure

Animal studies demonstrate that olive leaf extracts lead to significant drops in elevated blood pressure.^{6,7} Remarkably, these effects are evident when supplementation occurs either before or after the animals develop hypertension. This means that the extracts have the ability to both prevent and treat high blood pressure.⁸

The drop in blood pressure is accompanied by reduced pressure in the heart's left ventricle. This results in improved blood flow to the heart's own coronary blood vessels. Additional human studies demonstrate the ability of olive leaf extracts to significantly reduce blood pressure measurements.⁹

Important Precaution

The proven blood pressure-lowering effects of olive leaf extracts are potent enough to warrant caution if you are taking prescription blood pressure drugs.⁶⁰ If you are on blood pressure medication, it's essential that you speak to your prescriber before starting supplementation.

One particularly fascinating study was conducted among identical twins with borderline hypertension (blood pressure in the range of **120-139 mmHg** over **80-89 mmHg**).¹⁰ Studies of identical twins virtually eliminate genetic variations which may impact study results. After 8 weeks, placebo recipients showed no change in blood pressure from baseline, but patients supplemented with **1,000 mg/day** of olive leaf extract dropped their pressures by a mean of **11 mmHg** systolic and **4 mmHg** diastolic.¹⁰ The supplemented patients experienced significant reductions in LDL cholesterol.

A human study measured olive leaf extract against **captopril**, one of the conventional drugs used for treating hypertension.¹¹ In this study, patients with stage-1 hypertension (**140-159 mmHg** over **90-99 mmHg**) took either **500 mg** of olive leaf extract twice daily, or **12.5 mg** of captopril twice daily, which was increased as needed to **25 mg** twice daily. After 8 weeks of treatment, both groups experienced a drop in mean blood pressure from baseline (**11.5** and **13.7 mmHg** systolic; **4.8** and **6.4 mmHg** diastolic, respectively), with no significant difference between the two groups. In other words, the

olive leaf extract performed as well as the prescription drug. A closer look in the laboratory reveals the reason for this equivalence. Although they utilize different mechanisms of action (oleuropein acts as a natural calcium channel blocker and captopril is a well-known ACE-inhibitor), both oleuropein and captopril function inside the vasculature to decrease the tension in the walls of blood vessels and promote widening of the vessels (vasodilation), ultimately lowering blood pressure.¹²⁻¹⁵

Arterial Health

Blood pressure is only one measure of cardiovascular health; arterial health is equally important. The endothelial cells that line arterial walls play a key role in maintaining blood flow and pressure; they also regulate the distribution of smooth muscle cells and sustain an even flow of blood through vessels. Endothelial dysfunction is one of the earliest stages in hardening of the arteries (atherosclerosis), which occurs when plaques build up in the arterial walls. These plaques eventually block blood flow and can trigger a heart attack or stroke.

Olive leaf extracts fight endothelial dysfunction at multiple levels. They increase the production of nitric oxide, a signaling molecule that helps relax blood vessels.^{16,17} They reduce the production and activity of a class of molecules known as *matrix metalloproteinases*, or MMPs.¹⁸⁻²⁰ Excessive MMP activity literally dissolves the gel-like matrix that holds cells together,



making vessel linings increasingly vulnerable to plaque damage. They also help prevent the oxidation of LDL-cholesterol, which is one of the earliest events in developing atherosclerosis.²¹⁻²³ Oxidized LDL triggers inflammation, further damaging arteries, and olive leaf extract has multi-targeted anti-inflammatory effects.^{20,24,25}

Polyphenol compounds found in olive leaves have been shown to help directly prevent the formation of arterial plaques (and thereby reduce the risk of heart attack and stroke) in two ways. First, they reduce the production and activity of a series of “adhesion molecules.”²⁶⁻²⁸ These substances cause white blood cells and platelets to stick to arterial walls, resulting in early plaque formation. Second, they reduce platelet aggregation (clumping) by multiple mechanisms, which reduces the risk that tiny clots will form at sites of plaque to produce a stroke or heart attack.^{29,30}

Diabetes

The diabetic (and pre-diabetic) state of chronic blood sugar elevation imposes substantial oxidative stress throughout the body, triggering inflammation and tissue damage that rapidly accelerates aging. Treatments for diabetes have two main goals: 1) lowering blood glucose to normal levels and 2) limiting the damage done by the inevitable blood sugar spikes that still occur.

Olive leaf extracts are showing real promise in both of these areas. In animal and basic lab studies, olive leaf extracts and oleuropein have been found to lower blood sugar through several mechanisms.³¹⁻³⁴ They slow the digestion of starches into simple sugars, slow absorption of those sugars from the intestine, and increase the uptake of glucose into tissues from the blood.^{31,32} They protect tissues from the oxidant damage caused when glucose binds to proteins in the process called *glycation*.^{33,34} They also increase levels of other natural antioxidant systems in the body, broadening the degree of protection.³³

These mechanisms have directly observable benefits. Studies show that diabetic animals supplemented with olive leaf extracts experience significant reductions in blood sugar and cholesterol.³³⁻³⁵ In a dramatic head-to-head study, diabetic rats were treated with either olive leaf extract or glyburide (Diabeta®), a common glucose-lowering drug.³⁵ By the end of the study, the antidiabetic effects of the extract proved superior to those of the drug.³⁵

One intriguing study showed that when lab rats were fed a high-fat, high-carbohydrate diet, they developed all the signs of metabolic syndrome (excessive abdominal fat, hypertension, abnormal lipid



What You Need to Know

Widespread Benefits of Olive Leaf

- The Mediterranean diet offers a host of benefits that prolong life and improve health.
- Olive oil, a major component of the Mediterranean diet, contains a unique compound called oleuropein that provides its characteristic biting, astringent taste.
- Oleuropein is responsible for most of olive oil's antioxidant, anti-inflammatory, and disease-fighting characteristics.
- Olive leaves contain high amounts of oleuropein, making their extracts a valuable source of this nutrient without the need to consume large amounts of olive oil.
- Olive leaf extracts show tremendous promise in preventing or mitigating conditions as diverse as hypertension, heart disease, diabetes, cancer, stroke, Alzheimer's, and arthritis.



profile, and impaired glucose tolerance).³⁶ But when animals were fed that unhealthy diet along with olive leaf extracts, virtually all of the metabolic abnormalities improved or, in some cases, normalized.³⁶

Human studies reveal that supplementing with **500 mg of olive leaf extract** once daily resulted in significant reductions in **hemoglobin A1c** levels, the standard marker of long-term exposure to elevated blood sugar in diabetic people.³¹ Supplementation also lowered fasting plasma insulin levels, an important point because chronic insulin elevations may contribute to diabetics' higher cancer risks.^{31,37}

Cancer

The Mediterranean diet is renowned for its ability to reduce the risk of cancer.^{38,39} While numerous aspects of the diet contribute to this risk reduction, there's growing evidence that olive oil—and specifically its **oleuropein** content—are key components of the diet's anti-cancer effects.

Studies show that oleuropein's antioxidant effects help it battle cancer formation at its earliest stages. Olive leaf extracts inhibit DNA damage from reactive oxygen species, which is the very first step in development of malignant cells.⁴⁰ Once cells become cancerous, they rely on a host of chemical signaling factors that promote their growth and organization into tumors. Olive leaf compounds are known to inhibit growth factors and disrupt signalling pathways.⁴¹⁻⁴³ Oleuropein also suppresses an enzyme

cancer cells rely on to derive and store energy from dietary carbohydrates.⁴⁴

Oleuropein and olive leaf extracts have numerous other mechanisms of action against cancer:

- They help prevent inflammation, another major promoter of tumor growth.⁴¹
- In breast cancer cells specifically, oleuropein reduces malignant cells' ability to respond to estrogen, the female hormone that many breast cancer cells depend on for their survival.⁴³
- Oleuropein inhibits the production of the “protein-melting” enzymes that cancer cells need in order to invade healthy tissues and metastasize to distant parts of the body.¹⁹

These mechanisms have now been shown in laboratory and animal studies to reduce the rates of occurrence, and subsequent development, of a broad variety of cancers, including those of the brain, head and neck, breast, liver, bladder, prostate, and skin, as well as leukemia.^{42,43,45-49}

In one especially vivid study, mice with a high spontaneous cancer rate were orally supplemented with oleuropein.⁵ The tumors completely regressed and disappeared in **9 to 12 days**.⁵ When the tumors were examined before they vanished, they were found to have a disordered, crumbly consistency, and no cancer cells remained alive within.⁵

Neuroprotection

Olive extracts help protect the brain and central nervous system from the destruction brought on by strokes and age-related degenerative conditions such as Alzheimer's and Parkinson's diseases.⁵⁰ They accomplish this by suppressing inflammation and reducing the damage done by oxidative stress.

In acute brain injuries such as those caused by a stroke or trauma, damaging processes such as oxidative stress occur within minutes of the original event—and, ironically, are worsened by the return of normal blood flow to the area.^{50,51}

Researchers found a number of positive effects in animals that were pre-treated with olive leaf extract and then induced with a stroke. Compared with untreated animals, the treated animals experienced a sharp reduction in markers of oxidation and an increase in normal cellular antioxidant systems.^{52,53} Microscopic examination of brain tissue revealed a similar decline in injury to brain cells and up to a **55% decrease** in the volume of dying brain tissue.⁵⁰ Similar results are shown in experimental spinal cord injury in animals pretreated with oleuropein.⁵³

Olive leaf extracts offer similar protection for neurodegenerative diseases. Oxidative stress occurs more gradually in neurodegenerative diseases. However, the effects add up over a lifetime, producing inflammation and other changes that result in the accumulation of abnormal proteins that interfere with brain function and kill neurons. Olive leaf extracts help prevent these abnormal proteins from assembling into the neurofibrillary tangles seen in the brains of people with Alzheimer's and similar diseases.⁵⁴⁻⁵⁶

Arthritis

Olive leaves and their extracts have long been used in the Mediterranean as folk remedies for arthritis. Now, scientific evidence has proven that olive leaf extracts can in fact interfere with the development of several different kinds of arthritis, including gout, rheumatoid arthritis, and osteoarthritis.

Gout is caused by the accumulation of uric acid crystals in joints, the byproducts of impaired recycling of DNA and RNA in cells. In a mechanism identical to that of *allopurinol* (the gold standard drug therapy for gout), oleuropein prevents the buildup of uric acid by inhibiting *xanthine oxidase*, the enzyme responsible for converting DNA and RNA into uric acid.⁵⁷

Oleuropein has also been found to help prevent and treat symptoms of **rheumatoid arthritis**. When administered at the earliest sign of arthritis in animal models, oleuropein prevented symptoms from developing and also produced marked improvement in the microscopic appearance of joint tissue from affected animals. When administered after arthritis was fully developed, there was significant improvement in inflammatory changes to joints, compared with untreated animals.⁵⁸

Oleuropein had similar benefits on **osteoarthritis**. In animal models of this degenerative joint disease, olive leaf extract improved joint swelling, improved the microscopic appearance of joint tissue, and prevented the production of inflammatory cytokines.⁵⁹



Summary

The Mediterranean diet reduces your risk for virtually every condition associated with aging. Olive oil is a major component of that diet. Olive leaves contain higher amounts of **oleuropein**, a polyphenol with unique health-improving attributes. These extracts have been used in traditional medicine for centuries to improve age-related diseases.

Now, scientific evidence has shown that these extracts have a remarkable impact on blood pressure and heart disease—and they can help protect against other age-related chronic conditions as well. Convincing evidence now shows that oleuropein-rich olive leaf extracts help prevent many of the underlying factors leading to diabetes, cancer, neurodegenerative diseases, stroke, and arthritis.

Extra-virgin olive oil and olive leaf extract should be considered an important component of one's health and longevity program. ●

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



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As we get older, our eyes become vulnerable to a variety of insults that can cause irritation and dry eye. With just a few drops of the proper eye lubricant, **eye irritation** stemming from **dryness** may be alleviated.

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

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

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

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

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



Item # 00893

To order **Brite Eyes III**, call 1-800-544-4440
or visit www.LifeExtension.com

Olive Leaf

VASCULAR SUPPORT



Many of the validated benefits of the **Mediterranean diet** derive from heart-healthy compounds contained in the **olive fruit**, including the polyphenols **tyrosol** and **hydroxytyrosol**.¹⁻⁴

When it comes to olive's power to **support blood pressure already within a healthy range**, research shows the bioactive compound **oleuropein**⁵⁻⁸ is primarily responsible.

The problem is that optimal amounts of oleuropein are not found in the fruit. The highest concentrations of oleuropein are contained in the **olive leaf**⁹⁻¹³—a part of the plant that is neither readily available nor commonly consumed.

Oleuropein *normally* degrades during standard food processing. For this reason, **Life Extension®** provides **Olive Leaf Vascular Support**.

Olive Leaf Vascular Support consists of a patented, standardized oleuropein extract using a unique, **gentle-processing** technique.

Researchers using **1,000 mg per day** of this formulation in a double-blind, controlled clinical trial documented an average **11.5-point** (mmHg) decline in *systolic* readings and **4.8-point** drop in *diastolic* readings in just eight weeks.¹⁴

The suggested daily serving of two **500 mg** vegetarian capsules of **Olive Leaf Vascular Support** supplies optimal concentrations of this proprietary, highly stable **oleuropein**, for maximum benefit.

CAUTION: Consult your healthcare provider before taking this product if you are being prescribed anti-hypertensive medication.

A bottle containing **60** vegetarian capsules of **Olive Leaf Vascular Support** retails for \$22. If a member buys four bottles, the price is reduced to **\$15** per bottle.

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BY IAN MACLEAVY

The Forgotten Longevity Benefits of **Taurine**

The Japanese have a life expectancy that is among the highest in the world. In fact, Okinawa, Japan's famous "Island of Longevity," likely has the world's highest percentage of people over 100 years old.¹

Undoubtedly, there are many factors that play into the life spans of the longest-living populations, but evidence shows that they all have one thing in common: high dietary intake of an amino acid called **taurine**.²

The connection between taurine and a long life is so strong that researchers have dubbed taurine, "**The nutritional factor for the longevity of the Japanese.**"³

Taurine promotes cardiovascular health, insulin sensitivity, electrolyte balance, hearing function, and immune modulation. In animal research, taurine protected against heart failure, **reducing mortality by nearly 80%**.⁴

Its benefits are so broad and extensive that scientists have described taurine as "**a wonder molecule.**"⁵

Taurine is found abundantly in healthy bodies.⁶ However, certain diets, particularly vegetarian or vegan diets, lack adequate amounts of taurine.^{7,8} Disease states—including liver, kidney, or heart failure, diabetes, and cancer—can all cause a deficiency in taurine.⁹⁻¹¹ And **aging** bodies often cannot internally produce an optimal amount of taurine, making supplementation vital.¹²

That's why those interested in longevity should consider this vital and super low-cost nutrient. In this article, you'll learn how boosting **taurine** levels can contribute to better cardiovascular, metabolic, and neurologic health. >





Why We Need Supplemental Taurine

In the enthusiasm to investigate new longevity compounds, sometimes the importance of venerable ones that have been around for decades is forgotten. Such is the case of **taurine**. Foundation members used to get taurine as part of multi-nutrient formula, but this product is not as popular as it once was.

A study released in November 2012 made the bold statement that taurine is one of the most essential substances in the body. The authors wrote:⁸ *“Considering its broad distribution, its many cytoprotective attributes, and its functional significance in cell development, nutrition, and survival, **taurine is undoubtedly one of the most essential substances in the body.**”*

Although it’s possible for your body to produce taurine on its own, you still need to obtain taurine through diet and supplementation in order to achieve optimal amounts of this essential nutrient.^{8,11,13}



Because of taurine's essential role in the body, supplementing with taurine can provide numerous health benefits, including restoring insulin sensitivity, mitigating diabetic complications, reversing cardiovascular disease factors, preventing and treating fatty liver disease, alleviating seizures, reversing tinnitus, and more.

Taurine Prevents Obesity

One of the ways taurine can help improve overall health is by fighting obesity. Obesity impacts every area of the body, especially because of the inflammation-generating **abdominal fat stores**. Human studies show that **3 grams per day** of taurine for 7 weeks reduced body weight significantly in a group of overweight or obese (but not-yet-diabetic) adults.¹⁴ Subjects saw significant declines in their serum triglycerides and "atherogenic index," a ratio of multiple cholesterol components that predicts atherosclerosis risk.

Various animal studies support the **anti-obesity** and **lipid-lowering** capabilities of taurine, both alone and combined with other natural products.^{15,16} These studies highlight taurine's ability to improve glucose tolerance in obese animals, an important benefit given how many overweight people go on to develop diabetes.^{17,18}

Perhaps most alarming, animal research reveals that obesity itself causes a *decline* in plasma taurine levels, which, in a vicious cycle, further promotes obesity.¹⁹ The observed decline in taurine levels was

seen in mouse models of both genetic obesity and diet-induced obesity. Fortunately, in the same study, taurine supplementation interrupted the cycle, helping to prevent obesity and its consequences.¹⁹

Taurine Promotes Glucose Control—and Treats Diabetes

It is a known fact that taurine concentrations are lower among diabetics than they are in healthy individuals.²⁰ Given the above information about low taurine levels promoting obesity, it is clear that the low levels of taurine only serve to promote the interdependence of diabetes and obesity.²⁰ Fortunately, human studies have shown that supplementing with just **1.5 grams** of taurine a day can restore taurine levels to those in healthy control subjects, and additional animal research has shown that taurine supplementation can help prevent the onset *type II diabetes*.^{20,21}

Normal taurine concentrations are essential in controlling diabetes and the impact of its consequences. Animal studies have found that having adequate taurine concentrations helps control diabetes by reducing blood glucose and restoring insulin sensitivity.²² But it doesn't stop there. Taurine helps prevent—and *even reverse*—many of the consequences associated with the disease.

For example, in adult diabetics, supplementation with **1.5 grams** of taurine daily for just 14 days can *reverse* diabetes-induced abnormalities in arterial stiffness and in the ability of the vasculature to respond to changes in blood flow or pressure.²³ This

can be critical to the longevity of diabetics, since these types of abnormalities are to blame for diabetics' increased risk of dying from cardiovascular disease. In addition, studies in diabetic rats show that taurine helps protect heart function and helps prevent heart muscle damage, due in part to the ability of taurine to increase glucose transport from blood into energy-hungry heart muscle cells.^{24,25} In the process of increasing glucose transport into energy-producing cells, blood glucose levels are lowered.

Additional animal and cell culture studies have revealed that taurine supplementation is effective against **diabetic complications** as well. Taurine supports nerve fiber integrity, potentially slowing or reversing painful diabetic **neuropathy**.²⁶⁻²⁹ And in the retina, another target of destructive elevated blood glucose, taurine fights glucose-induced oxidant stress and preserves the health of light-sensing cells in diabetic **retinopathy**.³⁰⁻³² **Kidney damage**, another consequence of diabetes, can be minimized with taurine supplementation in diabetic animals.³³

Taurine Reverses Cardiovascular Disease Factors

Taurine has powerful effects on the heart and blood vessels. People with higher levels of taurine have significantly lower rates of dying from coronary heart disease.^{1,34} Additionally, they have lower body mass index, lower blood pressure, and lower levels of dangerous lipids. Many different mechanisms account for these powerful effects on the heart and blood vessels.

In animal models of hypertension, taurine supplementation lowers blood pressure by reducing the resistance to blood flow in the blood vessel walls and by minimizing nerve impulses in the brain that drive blood pressure up.^{35,36} Oral taurine supplementation has been found to reduce the arterial thickening and stiffness characteristic of atherosclerosis, to restore arteries' responses to beneficial endothelial nitric oxide, and to reduce inflammation (a direct contributor to cardiovascular disease).^{34,35}

A study of patients needing coronary bypass surgery showed that consuming a liquid drink containing **3 grams** of taurine, combined with **3 grams** carnitine, **150 mg** CoQ10, and basic multivitamin nutrients, reduced left-sided ventricular volume during the heart's resting phase (diastole).³⁷ This is important since an increased left-ventricular diastolic volume is the single greatest predictor of death in patients requiring bypass or stent placements. This makes taurine a vital component of such patients' diets.



What You Need to Know

Taurine: Bountiful Benefits

- Taurine is the most abundant amino acid you've never heard of; it is found throughout the body, but especially in tissues containing excitable cells, like nerves and heart muscle.
- Strong epidemiological evidence suggests that certain groups with the longest life spans consume higher amounts of taurine than those of us in the rest of the world.
- Taurine supplementation can prevent diabetes and obesity in animal models, and can mitigate the effects of both conditions in humans.
- Taurine supplementation strengthens heart muscle cells, extends their life spans, and protects them from damage, while reducing many of the factors that produce atherosclerosis and its deadly consequences.
- Taurine protects retinal and inner ear cells from damage, normalizing the flow of calcium ions they require for proper function.
- Evidence is growing for taurine's role in preventing epileptic seizures and liver disease, two conditions that can be attributed to toxic effects on delicate tissue.
- If you are interested in a longer, healthier, and more active life, consider supplementing with taurine.

Enhance Your Exercise Performance

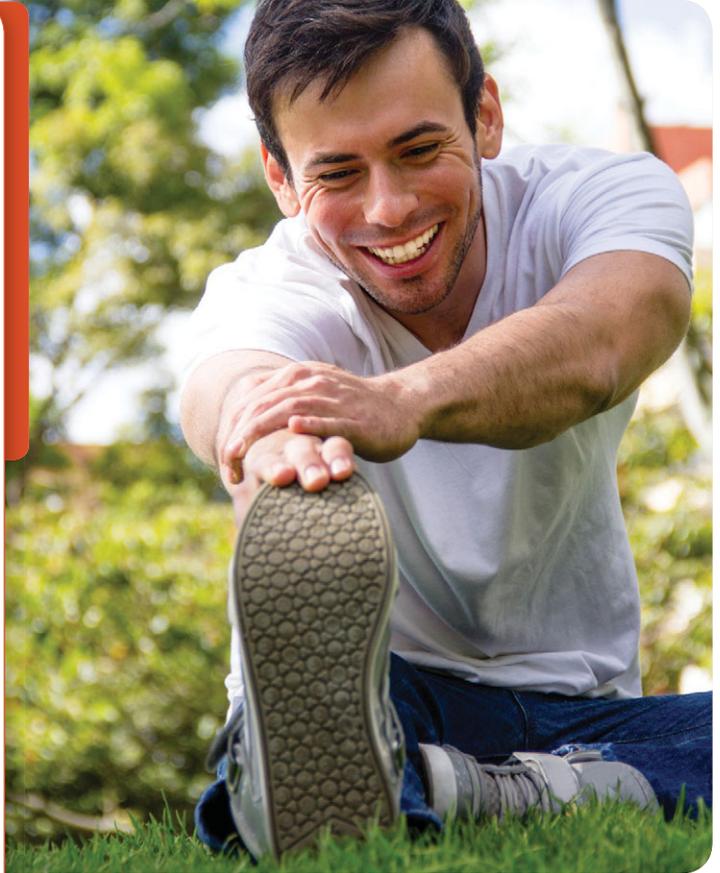
Want a better workout? Try taking taurine supplements! Trained athletes who supplement with taurine experience better exercise performance, and cyclists ride longer distances with less fatigue.^{38,39}

There's good reason for these positive effects: Taurine helps muscles work harder, longer, and safer.

Harder. Taurine increases muscle contractility (the force with which muscle cells pull together) in both skeletal and cardiac muscle.^{40,41} That means more powerful workouts as muscle works harder.

Longer. Taurine helps exercising muscle rid itself of lactic acid.^{42,43} Lactic acid is what causes the feelings of pain and soreness and is what limits how much a muscle can continue to work. By cleaning up lactic acid, taurine helps muscles work longer.^{38,43}

Safer. Working muscles generate oxidant stress and damage DNA, leading to the potential for muscle damage and poorer performance. Taurine protects muscles from such damage, so muscle works more safely.^{38,44}



Taurine Provides Potent Retina Protection

Taurine is especially vital when it comes to eye health. Adequate levels can help prevent age-related vision loss; conversely, a deficiency can lead to troubling vision problems. Age-related vision loss has many different causes, but near the top is the impact of oxidative stress on light-sensing cells in the retina. Such damage leads to age-related macular degeneration and other forms of retinal disease.⁴⁵

While taurine is found in very high concentrations in the retina, it declines significantly with age.⁴⁶⁻⁴⁸ Additionally, the taurine found in the retina fights oxidative stress, especially in diabetes, and helps restore deficient levels of nerve growth factor, required for maintaining retinal health.^{46,30,31}

When taurine levels are deficient, a variety of vision problems can occur including retinal ganglion cell degeneration,⁴⁹ and in children, retinal dysfunction;⁷ taurine supplementation has been shown to ameliorate diabetic retinopathy.³⁰ Evidence is strong that taurine is vital in maintaining optimal retinal function.⁵⁰

Certain drugs deplete the body of taurine, which can induce retinal damage.^{48,49,51} These include frequently used chemotherapy drugs such as cyclophosphamide (Cytoxan[®]) and busulfan (Bulsufex[®]) as well as the anti-epileptic drug vigabatrin (Sabril[®]). Radiation therapy has also been shown to deplete the body of taurine.⁵¹ Fortunately, supplementation can restore taurine levels to normal and protect the retina in such cases.^{32,46,47,52}

Taurine Helps Reverse Tinnitus

Taurine plays a vital role in hearing. In fact, studies have found that in some cases, taurine can **reverse** the biochemical processes behind **hearing loss**.^{53,54} Other studies have demonstrated that taurine can almost **completely eliminate** the ringing in the ears associated with tinnitus.⁵⁵

Much of the damage to hearing occurs not in the mechanical parts of the ear, but rather in the nerve cells that convert sound waves into the electrical energy that is perceived in our brains. Like other nerve cells, these so-called “hair cells” depend on the flow of calcium ions into and out of the cell. Taurine helps restore and control normal calcium ion flow in auditory cells.^{53,56}

Taurine improves the hearing ability in animals exposed to drugs like the antibiotic gentamicin, which is notoriously toxic to hearing.⁵⁴ And in a boon for the **17%** of us troubled by chronic tinnitus (ringing in the ears), taurine may be helpful in quieting the noise.⁵⁷ Animal studies using human equivalent doses of **700 mg to 3.2 grams** per day of taurine over the course of several weeks demonstrate near-complete resolution of tinnitus with taurine supplementation (the animals had been trained in tasks that are sensitive to distraction by tinnitus).⁵⁵ And a human pilot study has shown encouraging results, with **12%** of people responding to taurine supplementation.⁵⁸

Solution for Seizures

While there are many types and many causes of epilepsy (seizures), a disruption in the function of excitable brain tissue underlies all of them. One of taurine's major roles in mammalian biology is the regulation of such excitable tissues, making taurine of natural interest to scientists and clinicians who study epilepsy.⁵⁹

Animal studies reveal that taurine *depletion* makes seizures more likely, while *supplementation* with taurine is capable of preventing seizures induced by a number of drugs and chemical toxins.⁵⁹⁻⁶¹ Taurine appears to work by increasing the levels of glutamic acid decarboxylase (GAD), the enzyme responsible for the production of the neurotransmitter GABA, as well as by binding to so-called GABA receptors in brain cells, calming them and reducing their likelihood of participating in the random, uncoordinated electrical firing that produces an epileptic seizure.^{59,61}

Taurine Prevents and Treats Liver Disease

Increasing evidence suggests that taurine may help treat the most common cause of liver disease in the US, **non-alcoholic fatty liver disease** (or **NAFLD**). Non-alcoholic fatty liver disease occurs when too much fat accumulates in the liver, and it can be caused by insulin resistance and metabolic syndrome. Over time, the end result is the loss of liver function, leading to *liver cirrhosis*.

The human liver is our master detoxifying organ, screening our blood flow many times over each day for substances that can damage our bodies. Taurine is an integral part of the liver's self-protective mechanisms.

Studies show that taurine defends liver cells against free radicals and toxins, helping to reduce the severity of oxidative stress-induced liver injury.⁶² This is vitally important in alcoholic and *non-alcoholic fatty liver diseases*, both of which can progress to cirrhosis and liver failure.^{63,64}

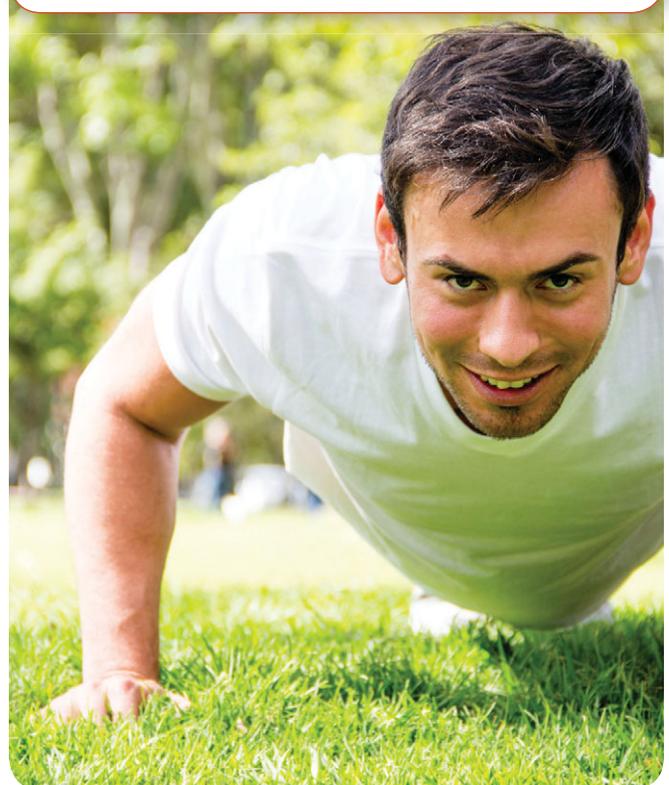
Taurine and Energy Drinks

Energy drinks such as Red Bull, Monster, and others have been getting a lot of press recently, most of it unfavorable. There's concern that the drink's biggest consumers, adolescents and young adults, are at risk for sudden death and seizures following high consumption.

Because taurine is a major ingredient in these drinks, some readers may be concerned that taurine might be contributing to these ill effects.

The good news (for taurine) is that there's no evidence at all for taurine's involvement in any adverse outcome of consuming energy drinks. It has been well-established that the high caffeine content in energy drinks (ranging from **80 milligrams**, the amount in a strong cup of coffee, to **300 milligrams** per serving) is to blame for the health problems associated with the drink. Side effects of energy drinks are the same as those of caffeine intoxication, and include nervousness, jitteriness, seizures, cardiac arrhythmias, and (rarely) death.⁶⁶

It's probably best to avoid energy drinks entirely and instead focus on getting your energy from safe, natural sources. Taurine alone offers many of the advantages attributed to energy drinks, such as improved exercise performance.



Human studies reveal the impact of taurine on liver disease. When 24 patients with chronic hepatitis took **2 grams** of taurine 3 times daily for 3 months, serum markers of liver damage, as well as markers of oxidative stress, decreased significantly, as did their elevated levels of cholesterol and triglycerides.⁶⁵

Summary

Taurine is the most abundant amino acid you've never heard of. Strong evidence suggests that groups with the longest life spans consume higher amounts of taurine than those of us in the rest of the world. High intakes of taurine could be the underlying factor in the world's longest-living populations—and for good reason.

Taurine supplementation can mitigate the damaging effects of fat, glucose, and excess insulin. Taurine strengthens and protects heart muscle cells and the system of blood vessels that supplies blood throughout the body, helping to protect against atherosclerosis, heart attacks, and strokes.

And taurine protects vision and hearing. It can prevent and alleviate seizures, and it has been shown to treat the most common cause of liver disease in the United States.

With epidemiological evidence that it contributes to the longevity of famously long-lived groups, taurine belongs on the short-list of supplements necessary for maintaining optimal health in the face of aging. ●

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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Dietary Sources of Taurine

Taurine occurs naturally in food, especially in seafood and meat.⁷⁶ The amount consumed in most societies, however, is quite low. The mean daily intake from omnivore diets was determined to be around **58 mg** (range of **9** to **372 mg**).⁷⁷ In another study, taurine intake was estimated to be generally less than **200 mg** a day, even in individuals eating a high-meat diet.⁷⁸ According to another study, taurine consumption was estimated to vary between **40** and **400 mg** a day.⁷⁷

Successful clinical studies with taurine have used daily doses of **1,500** to **3,000 mg**.^{14,20,23,37,65} It is challenging to obtain this amount of taurine from traditional dietary sources.

Taurine is made by the body from the metabolism of the amino acid cysteine.^{9,10} Aging can reduce the amount of taurine made from cysteine, thus making taurine supplementation desirable in maturing individuals.^{12,51,79}

Taurine is not abundant in most plant foods.⁷ On average, non-vegetarians typically eat around **43-76 mg** of taurine per day.⁷⁷ Vegans have been shown to have lower blood levels of taurine.⁸⁰

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Taurine: One of the Most Essential Substances in the Body!

- It increases the action of insulin, improving glucose tolerance, and acting as an antioxidant.⁶⁷
- It is vital for the proper function of the minerals potassium, calcium, magnesium, and sodium.⁶⁸
- Taurine regulates heart rhythm, cardiac contraction, blood pressure, and platelet aggregation,^{69,70} and regulates the excitability of neurons.⁶⁹
- It detoxifies liver cells of various toxins.⁷¹⁻⁷⁴
- It helps form bile acids and maintains cell membrane stability.⁹
- It reduces the synthesis of lipids and cholesterol that are associated with atherosclerosis.⁷⁵

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Proprietary Tryptophan Plus Blend Perluxan® Hops Standardized Extract (<i>Humulus lupulus</i>)(cones), and Ursole™ Rosemary Standardized Extract (<i>Rosmarinus officinalis</i>)(leaves)	285 mg
Niacin (as Niacinamide)	66 mg

A bottle of 90 vegetarian capsules of **Optimized Tryptophan Plus** retails for \$32. If a member buys four bottles, the price is reduced to **\$21.75** per bottle.

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Contains rice.



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

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Item# 00199

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Taurine is one of the most abundant amino acids.^{1,6} Extensive studies have demonstrated the ability of **taurine** to support:

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- Eye health,^{1,9,10}
- Regulation of the central nervous system,⁶
- Cell membrane stability⁶ and balanced water content (*osmoregulation*),^{11,12}
- Immune system modulation,^{11,13}
- Bile salt formation,¹¹
- Neuron integrity^{6,11} and cognitive function,¹⁴
- Liver function,¹⁵ and
- Cardiovascular health.^{12,16,17}

To promote **system-wide** health, the body requires adequate levels of this **essential** nutrient.^{1,11,18}

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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
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BY MICHAEL DOWNEY

Anti-Inflammatory Properties of Tart Cherry

On October 17, 2005, the **FDA** sent out warning letters to cherry growers insisting that they cease making substantiated health claims that specific chemicals found in cherries could reduce pain and inflammation.^{1,2}

The FDA wanted cherry growers to stop citing published scientific studies showing that **cherries** are packed with unique *anthocyanins* and other compounds that naturally mediate the inflammatory process.³⁻⁶ These compounds deliver comparable anti-inflammatory activity to *ibuprofen* (Advil®) and *naproxen* (Aleve®)⁷—*but without the significant side effects!*

Standard treatment for muscle pain and inflammation has been with *nonsteroidal anti-inflammatory drugs*. With over **111 million** prescriptions and accounting for around **60%** of over-the-counter pain reliever sales in the USA alone, these are some of the most commonly used types of medications.⁸ But because they can have *deadly* side effects, including gastric bleeding, heart attack, and kidney failure, the search for natural agents that could prove more beneficial and safer has gained increased attention.^{9,10}

The compounds found in cherries modulate numerous pathways to protect against other conditions associated with **inflammation**—including cancer, cardiovascular disease, metabolic syndrome, and Alzheimer's disease.¹¹⁻¹⁴ For example,





tart cherry constituents can switch critical genes off and on;^{15,16} modulate cell-signaling molecules like tumor necrosis factor;¹⁷ and target multiple cardiovascular factors—producing, in one study model, ***an astounding 65% reduction in early mortality!***¹⁸

In this article, you will learn of the multiple benefits found in cherries that the FDA did not want to be publicized. >



Broad-Spectrum Tart Cherry Compounds

One of nature's most potent classes of flavonoids is **anthocyanins**. These powerhouse nutrients are responsible for the deep colors in some berries, fruits, and vegetables. Naturally, like other anthocyanin-rich foods, tart cherries deliver substantial antioxidant and anti-inflammatory activity.³⁻⁶

But tart cherries are superior because they provide high levels of some novel anthocyanins that are absent from a number of other anthocyanin-rich foods, such as blueberries or bilberries!⁷

Also, the unique composition of tart cherries goes far beyond anthocyanins.

In fact, *tart* cherries were shown to contain much higher amounts of total phenolics than even their nutritious cousins, *sweet* cherries.¹⁹ Aside from a greater abundance of anthocyanins, tart cherries also deliver a cast of supporting compounds.

Tart cherries were ranked 14th among the top 50 foods for highest **antioxidant** content per serving—surpassing such well-known antioxidant sources as red wine and dark chocolate.²⁰

This complex profile prompted researchers to investigate what turned out to be numerous biochemical pathways modulated by tart cherry compounds.^{3-7,12,21-26}

The range of activity was breathtaking. Here's a partial sampling: bioactive compounds found in tart cherries beneficially inhibit certain enzymes^{5,7} while boosting others,^{12,21,22} switch-on cancer defenses,^{23,24} down-regulate glucose,²⁵ and enhance primary antioxidants.²⁶ We'll examine this multi-potent network of underlying mechanisms later.

But first, let's learn about their resulting impact on degenerative conditions—starting with muscle inflammation.

Muscle Protection

High-intensity or prolonged physical activity of any kind typically causes **muscle damage**, resulting in oxidative stress, inflammation, and pain.²⁷⁻²⁹

As people age, muscle mass and strength tend to decrease, in a process called *sarcopenia*.³⁰ Although exercise can help overcome this process, post-exercise pain and loss of strength tend to last much longer.

The observed anti-inflammatory benefits of tart cherries prompted researchers to investigate whether they could be used to protect muscles, lower pain, and accelerate muscle repair.

Research demonstrated that orally administered anthocyanins from tart cherries significantly lowered inflammation-induced pain in rats in a dose-dependent manner³ and that tart cherry juice blend lowered indicators of exercise-induced muscle damage in horses.³¹

Then researchers turned to controlled human trials, first testing the impact of tart cherries on the degree of pain following intense exercise.

The effects of tart cherry juice consumption were tested in a double-blind, randomized trial of runners participating in a 24-hour relay race. Runners drank **two 355 milliliter** beverages containing either tart cherry juice or a placebo beverage daily for one week prior to the race and during the race. (Two **355 mL** bottles of tart cherry juice daily provides at least **80 mg** anthocyanins which is the equivalent of 90 to 100 cherries.)³²

Both groups reported pain after the race. But the runners who drank tart cherry juice experienced a substantially **smaller pain increase** after the race.³² This natural protection against acute muscle soreness suggested that tart cherries must be providing some defense against muscle damage.

To confirm this, scientists conducted a controlled trial on indices of muscle recovery. Participants were given either tart cherry juice or a control drink for five days before, on the day of, and for two days after a marathon race.

Runners in the tart cherry group had significantly lower inflammation biomarkers (*Interleukin-6* and *C-reactive protein*) compared to the placebo group. The tart cherry group also recovered isometric strength faster than the control runners, demonstrating an **accelerated recovery** following strenuous exercise.³³

To further assess the potential decrease in muscle injury and strength loss, another research team gave 14 male college students who never exercised **12 ounces** of either a tart cherry juice blend or a placebo **twice daily** for eight consecutive days. Then participants performed a type of repeated arm exercise (*elbow flexion eccentric exercise*) that typically induces muscle damage. Isometric elbow flexion strength, pain, and muscle soreness were measured before, and for four days after, the protocol.

After 24 hours, the control group's arm strength was decreased by **30%**—while the tart cherry group's arm strength was diminished by only **12%**. After **four days**, the control group's arm strength was still down by over **10%** while, remarkably, the tart cherry group's arm strength had **increased** by **6%**!³⁴

The research team concluded that tart cherry significantly reduced the typical pain and loss of strength induced by exercise—and produced marked preservation of muscle function.³⁴

The most recent trial on muscle injury and recovery included ten males, half of whom drank **one ounce** of a tart cherry beverage **twice daily** for ten days, while the other half drank the same amount of a placebo beverage during this period. All subjects completed two sets of an intensive, unilateral leg exercise—first, one set with one leg before the ten-day beverage consumption period, and then another set with the other leg after the beverage period.

Faster recovery of the knee extension (maximum voluntary contraction force) was observed with the tart cherry juice protocol versus control. The researchers concluded that the improved muscle recovery time may have been due to attenuation of oxidative damage.³⁵

The study author suggested that tart cherry components produce a significant myoprotective—or muscle-protecting—benefit.³⁵

What You Need to Know

Guard Against Degenerative Disease and Inflammation with Tart Cherries

- Physical exercise can induce muscle damage that generates inflammation and with it, burning, stiffness, and pain. The effect worsens with age.
- Standard treatment with nonsteroidal anti-inflammatory drugs such as *ibuprofen* (Advil®) involves potentially deadly adverse effects, such as stroke.
- Evidence shows that the weave of complex anthocyanins and phenols in tart cherries provides superior protection against muscle injury—by safely inhibiting the pain and inflammatory effects.
- The potent components in tart cherries have been demonstrated to deliver high-level protection against inflammatory and degenerative diseases, including cardiovascular disease, metabolic syndrome, and neurodegenerative diseases such as Alzheimer's.





Joint Defense

Experts estimate that one out of every two Americans will develop symptomatic **osteoarthritis** at some point in their lifetime.³⁶ Osteoarthritis is a chronic condition characterized by a breakdown of joint cartilage that leads to pain and injury.³⁷

The Arthritis Foundation reports that the risk of developing osteoarthritis is greater among those of increased age, those who are athletic or regularly engage in repetitive-motion work, and those who are obese.³⁸

Osteoarthritis has a strong inflammatory component.³⁹ *Acetaminophen* is the most commonly used osteoarthritis pain medication.⁴⁰ However, this pain-reliever does *not* help lower inflammation,⁴⁰ and its side effects can include kidney or liver damage.⁴¹

In a 2007 pilot study, researchers at Baylor Research Institute gave **tart cherries** in pill form to patients with osteoarthritis of the knee. They documented that, after 8 weeks, more than half the subjects experienced a significant **improvement in pain and function**.⁴²

Then, in 2012, a double-blind, randomized, placebo-controlled trial was presented at the annual meeting of the American College of Sports Medicine, ahead of publication. Scientists measured the impacts of tart cherry on serum inflammatory biomarkers among

inflammatory osteoarthritis patients. (Patients with *inflammatory* or *erosive* osteoarthritis are those who suffer from *sudden* signs of inflammation, such as redness, pain, and swelling.)

The trial included 20 female participants between 40 and 70 years old who experienced at least moderate pain from osteoarthritis. The participants consumed **two 10.5-ounce** bottles of either tart cherry juice or a control beverage for 3 weeks.

Among those patients consuming the tart cherry juice, there was a statistically significant **decrease in inflammation**, indicated by reduced levels of *C-reactive protein* (CRP). The impact was greatest for those women who had shown the highest inflammation levels at the start of the investigation.⁴³

This research demonstrates that tart cherry juice provides osteoarthritis patients with anti-inflammatory activity without the adverse effects and risks of traditional arthritis medications.

Gout is another type of inflammatory arthritis, and it is associated with higher risks of cardiovascular disease and mortality.⁴⁴ High blood concentration of **uric acid** is considered its main pathway.⁴⁵

Typically, drugs such as *allopurinol* and *probenecid* are used to help lower uric acid levels. But the side effects of these drugs can include difficulty breathing, unusual bleeding, vomiting, nausea, or severe skin rash.^{46,47} They may even interfere with other medications.^{48,49}

Fortunately, research has spotlighted a safe alternative. For decades, gout sufferers have consumed tart cherry juice for symptomatic relief, on the basis of anecdotal evidence. Now, rigid science has begun to support this tradition.

A study conducted by scientists at Boston University found that intake of cherry extract reduced the risk of gout attacks in those who suffered recurrent gout attacks by **45%**.⁵⁰ Additionally, the researchers discovered that when cherry intake was combined with allopurinol use, the risk for gout attacks was reduced by **75%** versus no intervention. What's more, these results persisted even across subgroups stratified for sex, obesity status, purine intake, and alcohol use.⁵⁰ Tart cherries appear to be a natural—and safe—way to inhibit the key gout pathway.

Quelling the Chronic Inflammation of Obesity

Chronic **inflammation** significantly boosts the risk of a number of conditions, including cancer and heart disease.⁵¹ But few people realize that **obesity** can be both a cause—and a consequence—of chronic low-level inflammation.^{52,53}

Adipose cells are not simply fat stores—they are chemically active cells.⁵² In obese individuals, belly fat deposits generate a torrent of pro-inflammatory cell-signaling molecules known as *cytokines*.⁵⁴ Left unchecked, these cytokines trigger a cascade of destruction that can lead to a number of degenerative diseases.^{55,56}

Researchers demonstrated that obese or overweight human adults who consumed **8 ounces daily** of tart cherry juice for 4 weeks exhibited significantly **lowered inflammation**. This was evidenced by marked decreases in *erythrocyte sedimentation rate*, *tumor necrosis factor* levels, and *monocyte chemotactic protein*—all key indicators of inflammation.⁴⁴

Tart cherries are clearly a potent tool for inhibiting the chronic, often obesity-related, low-level inflammation that can lead to many disorders—and they could even inhibit obesity itself!

Cardiovascular Disease Prevention

Elevated readings of low-density lipoprotein (LDL) cholesterol are a factor in the onset of atherosclerosis and other **cardiovascular diseases**.⁵⁷

To help decrease low-density lipoprotein to a safer range, the standard medical approach is to prescribe *statins* or *fibrates* to decrease blood lipid levels.⁵⁸ However, some patients encounter **side effects** with these drugs that range from muscle pain (*myalgia*) to very serious complications such as liver dysfunction and *rhabdomyolysis*, a condition in which damaged skeletal muscle is broken down, sometimes resulting in kidney failure.^{59,60}

A series of studies on rats concluded that diets enriched with tart cherries improved multiple cardiovascular risk factors. These included a reduction in cholesterol, body fat, weight, and abdominal fat. Tart cherries also calmed inflammation at sites—such as the belly and heart—*specifically* linked to heart disease risk.⁶¹⁻⁶³

Then, in 2011, scientists reported a **26% decrease in cholesterol** in mice given tart cherry powder, as well as a **65% reduction in early death**. This lower mortality was believed to be due to improved cardiovascular health.⁶²

Turning their attention to *humans*, researchers investigated the impact of tart cherry juice on serum **triglycerides**. They reported in 2011 that consuming **8-ounce-daily** of tart cherry juice lowered triglycerides levels by over **17% on average**!⁴⁴

Together, these studies suggest that tart cherries promote cardiovascular health by safely lowering levels of cholesterol and triglycerides, as well as other risk factors.

Anti-Cancer Mechanisms

Studies have shown that berry anthocyanins—found in tart cherries—can **switch off genes** involved in the multiple pathways of **cancer**.

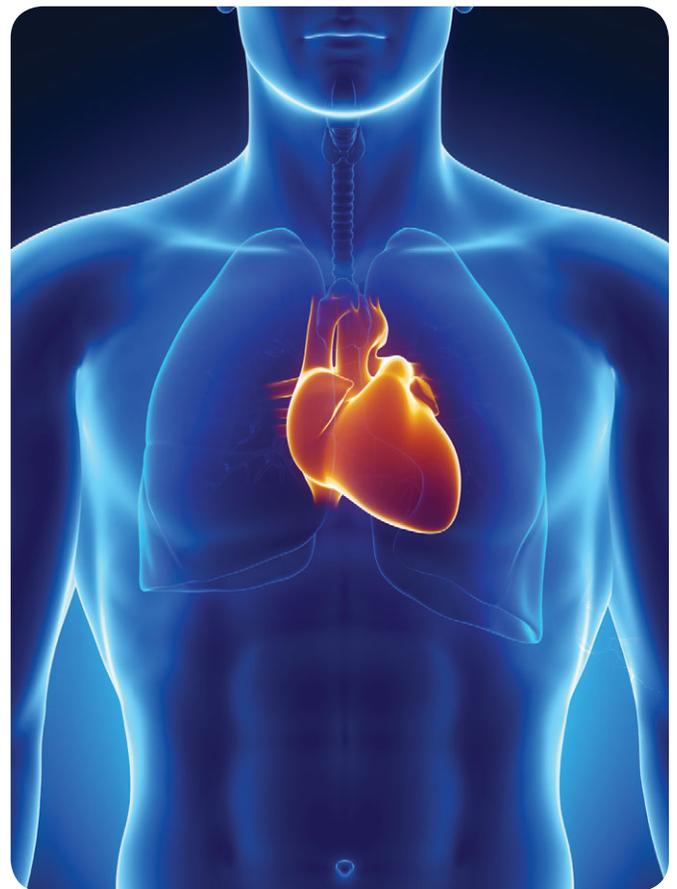
These include genes for *cell proliferation* and inflammation, and for *angiogenesis* (the growth of new blood vessels that feed a tumor).^{14,64,65}

Anthocyanins can also trigger *apoptosis*, the programmed cell death that causes pre-cancerous cells to self-destruct.^{64,66}

These studies establish that anthocyanins work through a **network** of mechanisms to promote a broad spectrum of natural anticancer protection. And because there is a unique **synergy** among the anthocyanins and phenolic acids in tart cherries, scientists have been investigating them for their anticancer benefits.⁷

In mice, a diet of tart cherries inhibited both the incidence and size of *adenomas* (benign tumors) of the *cecum*, an area at the beginning of the large intestine that is a common site for colon cancer. In the same study, the growth of **human** colon cancer cell lines was shown to be reduced by tart cherry anthocyanins.⁶⁷

Finally, in 2011, a review of past studies concluded that cherries exert a variety of anti-carcinogenic effects.¹¹





Sweet or Tart: Which Type of Cherry Packs the *Most Powerful* Phenol Punch?

Not all cherries contain the same type—let alone the same amounts—of potent compounds.

The two cultivated varieties of cherry are the sweet cherry (*Prunus avium L.*), sometimes known as the wild cherry, and the tart cherry (*Prunus cerasus L.*), sometimes known as sour cherry or pie cherry.

All cherries provide substantial quantities of antioxidants and other nutrients. But **tart cherries** deliver a much greater content of various anthocyanins than sweet cherries, as well as higher amounts of other phenolic compounds and other nutrients.¹⁹

But keep in mind that tart cherries are not the cherries you are likely to see at the grocery store, which will almost certainly be sweet cherries. The potent but less common tart cherries are chiefly used for baking and so usually come frozen, canned, dried, or juiced. Tart cherries may occasionally be located at a farmer's market. Fortunately, standardized extracts of tart cherries are available.

Superior Results

An impressive study released in 2013 reported that after 28 days of consumption, **sweet** cherries were found to selectively and significantly reduce a number of biomarkers associated with inflammatory diseases. Among other decreased inflammation indicators, blood levels of *C-reactive protein* were reduced by over **20%** and blood levels of *plasminogen activator inhibitor-1* were reduced by **19.9%**. And newly identified ligand for *advanced glycation end products* was slashed by a full **29%**!⁷⁵

The take-away message? If sweet cherries provide this degree of anti-inflammatory impact, try to imagine the powerful wallop you get from tart cherries—which pack twice the phenol content!¹⁹

And tart cherries don't contain the sugar and calories found in sweet cherries.

What Cherry Suppliers Can't Tell You

A series of studies reporting on the compelling anti-inflammatory activity of **sweet** cherries—and especially **tart** cherries—has many scientists excited.

But not the Food and Drug Administration.

The agency has taken draconian steps to suppress this information. It may seem difficult to believe, but on October 17, 2005, the Food and Drug Administration issued an edict that precludes cherry companies from posting scientific data about cherries on their websites.^{1,2} Letters from the agency went out to 29 companies warning them that if they continue to inform consumers about these scientific studies, **criminal** prosecutions will ensue.^{1,2}

What can't cherry suppliers tell you? Simply this: tart cherries may well be the ultimate super food. Due to their superior phenolic matrix, tart cherry compounds help reduce the risk of osteoarthritis, gout, obesity, cardiovascular disease, metabolic syndrome, diabetes, and neurodegenerative diseases such as Parkinson's and Alzheimer's.

And **Life Extension**® will **continue** to report the latest scientific findings about tart cherries and their potent health benefits!

Optimal Metabolic Support

Metabolic syndrome—which often precedes the development of type II diabetes—is comprised of a spectrum of *phenotypes* (observable physical or biochemical characteristics), often associated with a high-fat diet.

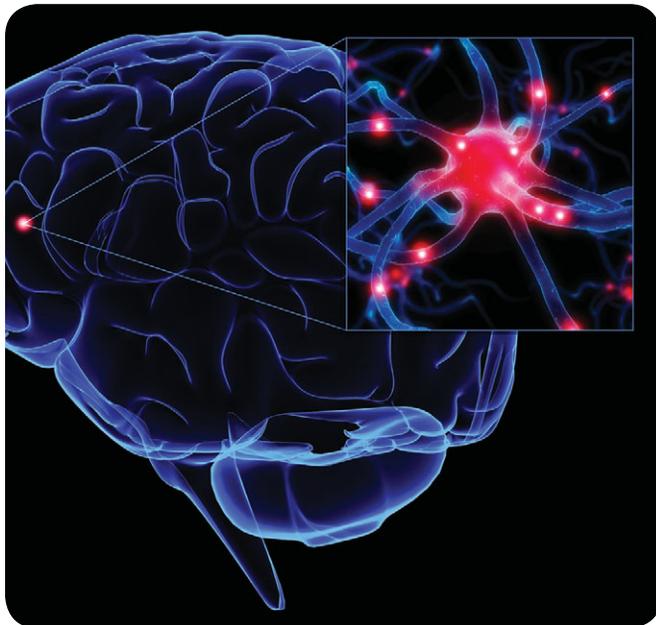
A number of these metabolic syndrome phenotypes became significantly reduced—*after just 90 days*—in obesity-prone rats fed a diet comprised partly of whole tart cherry powder. These included a reduction in **fat mass**, **weight** around the abdomen, **hyperlipidemia** (elevated fats in the blood), and expression of **inflammation** markers, and *tumor necrosis factor*, along with other beneficial metabolic changes.¹⁷

The research team concluded that, “Tart cherries may reduce the degree or trajectory of metabolic syndrome, thereby reducing risk for the development of type II diabetes.”¹⁷

A 2005 investigation extracted phenols from both tart and sweet cherries for further analysis and reported that tart cherries have substantially higher concentrations of total **phenolics** than sweet cherries due to a much greater content of anthocyanins.¹⁹

Neurodegenerative Disease Defense

The combination of aging and oxidative stress can cause some neurons (nerve cells) in certain regions of the brain to die, contributing to **neurodegenerative disorders**⁶⁸ such as Alzheimer’s,⁶⁹ Parkinson’s,⁶⁹ and Huntington’s⁷⁰ diseases, as well as amyotrophic lateral sclerosis (known as ALS or Lou Gehrig’s Disease) and general cognitive decline.⁶⁸



As the population ages, there is growing interest in the neuroprotective benefits of antioxidants,⁷¹ and one scientific report concluded that rich sources of **polyphenolic** compounds, such as tart cherries, can play a role.⁶⁸

Both sweet and tart cherries are known to contain a matrix of bioactive constituents that are characterized as beneficial against multiple degenerative diseases.^{11,19}

But studies have now shown that **tart cherries**, more than sweet cherries, act in a dose-dependent manner to **protect neurons** from cell-damaging oxidative stress.¹⁹

Tart cherries’ richer content of phenolics, including anthocyanins, was shown to be responsible for this neuron defense—which the researchers described as “strong anti-neurodegenerative activity.”¹⁹

Underlying Mechanisms of Action

To understand how tart cherries can target so many disease origins, it’s important to appreciate their many underlying biochemical pathways. Extensive evidence demonstrates that these versatile components naturally:

- Inhibit *cyclooxygenase-1* and *cyclooxygenase-2* (COX-1 and COX-2) enzymes that help make inflammatory *prostaglandins*.⁷
- Suppress *nuclear factor-kappaB* activation (linked to autoimmune reactions) in monocytes (a type of white blood cell)¹⁷ and calm inflammatory factors in the body.^{3-7,43,44}
- Switch off pivotal genes involved in cancer and inflammation^{14-16,64,65} and switch on *apoptosis*, the programmed death of potentially pre-cancerous cells.^{64,66}
- Prevent lipoprotein peroxidation that leads to *endothelial* damage that causes white blood cells to cling to blood vessel walls.⁷²
- Target cholesterol and triglycerides and improve some high-risk metabolic *phenotypes*.⁶¹⁻⁶³
- Aid in controlling blood glucose levels and interfere with glucose synthesis and release.^{19,25,73,74}
- Boost detoxifying enzymes^{12,21,22} and the natural body antioxidants *glutathione peroxidase* and *superoxide dismutase*.^{12,26}
- Lower blood levels of *uric acid*.⁴⁴
- Exert an analgesic activity,^{32,34} inhibit oxidative stress,⁶⁸ *neurodegeneration*,¹⁹ and *tumorigenesis*.⁶⁷

Summary

Prolonged physical exertion, especially with advancing age, causes the inflammation, pain, redness, and swelling that indicate **muscle damage**.

Emerging data demonstrate that the anthocyanins, phenols, flavanols, and other constituents in **tart cherries** provide protection against muscle injury, inhibiting inflammation.

In fact, while nonsteroidal anti-inflammatory drugs such as *ibuprofen* (Advil®) and *naproxen* (Aleve®) involve potentially deadly side effects such as kidney failure, the molecules in tart cherries deliver anti-inflammatory impact safely.

The same potent effects that tart cherry compounds deliver to muscles similarly protect the entire body against an array of inflammation-associated pathologies. Unique compounds in tart cherries have been shown to substantially decrease the risk of osteoarthritis, cardiovascular disease, cancer, metabolic syndrome, and neurodegenerative diseases.

Tart cherry standardized anthocyanin extract has now been added to some multi-nutrient formulas and is also available as a standalone dietary supplement. ●

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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Introducing

BLACK CUMIN SEED OIL



As we age, a *balanced immune* and *inflammatory* response becomes critical to guarding our health.^{1,5}

Research has shown **Black Cumin Seed Oil** to be particularly effective.^{6,8}

UNIQUE MOLECULAR COMPLEX

Scientists have determined that **black cumin seeds** contain a *broad spectrum* of active compounds.⁶ Combined, these compounds provide powerful and wide-ranging *immune* support and promote healthy *inflammatory* response.^{6,7}

DUAL IMMUNE SUPPORT

A number of biological factors contribute to the body's normal inflammatory activity, including cell-signaling chemicals and hormone-like messengers.⁸ In a series of scientific studies, **Black Cumin Seed Oil** has been shown to support the normal effectiveness of these inflammatory factors.^{6,7}

Also, an aging, healthy immune system needs to orchestrate the activity of macrophages and helper T-cells that work together to identify and destroy dangerous microbes and abnormal cells. **Black Cumin Seed Oil** was also shown to support the optimal function of these vitally important defensive activities.⁹⁻¹¹

A BALANCED INFLAMMATION RESPONSE

By acting on *both* immune factors *and* inflammatory factors, **Black Cumin Seed Oil** supports a healthy immune system—which is increasingly important as we age—and facilitates a **healthy inflammatory response!**

The suggested daily dosage of two softgels of Black Cumin Seed Oil provides:

Thymocid™ organic Black Cumin seed oil (*Nigella sativa*) 1,000 mg

A bottle containing 60 softgels of **Black Cumin Seed Oil** retails for \$16. If a member buys four bottles, the price is reduced to **\$10.50** per bottle. (Item# 01709)

Since **curcumin** possesses some of the properties of **black cumin seed oil**, some people might want to take both nutrients in the same capsule.

The suggested daily dose of two softgels of Black Cumin Seed with Bio-Curcumin® provides:

BCM-95® Bio-Curcumin® (*Curcuma longa*) extract 400 mg

Thymocid™ organic Black Cumin Seed Oil (*Nigella sativa*) 1,000 mg

A bottle containing 60 softgels of **Black Cumin Seed Oil with Bio-Curcumin®** retails for \$32. If a member buys four bottles, the price is reduced to **\$22.50** per bottle. (Item# 01710)

To order Black Cumin Seed Oil or Black Cumin Seed Oil with Bio-Curcumin®, call 1-800-544-4440 or visit www.LifeExtension.com.

For Balanced
Immune Support
and Inflammation
Control



Item# 01709



Item# 01710

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

Tart Cherry Extract with Standardized *CherryPURE*[®]

Potent Support for Muscles and Exercise Recovery

With nearly 40 scientific studies published on the wide-ranging benefits of tart cherries, scientists are now discovering important new health applications for this American fruit.

Tart cherries are packed with unique beneficial compounds that have been shown to block COX-1 and COX-2 enzymes,¹ as well as maintain muscle function and promote rapid **muscle recovery** after exercise,²⁻⁵ bringing faster relief from the minor aches, discomfort, and stiffness that can follow everyday muscle exertion.^{2,3}

Clinically Proven

In human studies, researchers have scientifically confirmed the muscle-supporting benefits of tart cherries. For example, a randomized controlled trial found that consuming tart cherry juice twice daily produced a substantial **decrease in muscle symptoms** related to exercise. In the same study, the exercise-induced loss of strength over the four days following a workout was **reduced** from **22%** to only **4%**.⁴

In another randomized controlled trial, marathon runners given tart cherry juice for 5 days before a race, on race day, and for 2 days after a race experienced significantly **faster recovery of isometric strength and muscle function**.³

And in yet another controlled trial, tart cherry juice taken twice daily for 7 days prior to a race produced a significantly **smaller increase in post-race pain**, according to a standard pain assessment scale, compared to the placebo group.²

Anthocyanins

Anthocyanins are powerful flavonoids that provide the dark pigmentation to blueberries, raspberries, and bilberries.^{6,7} In addition to being potent antioxidants, **anthocyanins** have been extensively studied for their numerous health benefits that include heart, cellular, and cognitive health.⁶⁻⁸

What has drawn the attention of scientists is the fact that tart cherries contain a **higher content of anthocyanins** than other fruits.¹

To allow members to take full advantage of these discoveries, **Life Extension**[®] now offers **100%** natural **Tart Cherry Extract**, a supplement that opens the door to the remarkable benefits of continued physical activity—**at any age!**

This formulation provides all the muscle-supporting benefits of tart cherries and mimics the anthocyanin dose used in successful clinical trials by providing a standardized **40 mg** anthocyanins per capsule.^{1,2,4}

The serving size of one vegetarian capsule of Tart Cherry Extract with Standardized *CherryPURE*[®] contains:

Tart cherry (<i>Prunus cerasus</i>) extract (skin) [std to 6.5% anthocyanins (40 milligrams)]	615.5 mg
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A bottle of 60 vegetarian capsules of **Tart Cherry Extract with Standardized *CherryPURE*[®]** retails for \$22. If a member buys four bottles, the price is reduced to **\$15** per bottle.



Item #01723

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To order Tart Cherry Extract with Standardized *CherryPURE*[®], call 1-800-544-4440 or visit www.LifeExtension.com

SUPPORT FOR THE IMMUNE SYSTEM



Reishi mushroom has been traditionally used to boost immune system vitality. Its broad-spectrum benefits have been demonstrated in thousands of studies.¹

An advanced extraction technology has resulted in a new **Reishi extract** that make its active compounds even more bio-available.

REISHI SUPPORTS A HEALTHY IMMUNE SYSTEM

An abundance of evidence demonstrates that **Reishi** constituents enhance the protective activity of the body's **hematopoietic stem cells, T-cells**, and other crucial immune factors.²⁻⁹

Reishi's immune-supporting compounds include an array of unique *polysaccharides, triterpenes*, and other constituents,^{10,11} many of which assist activation of the cell surface receptors that modulate normal immunity.¹²

The **Reishi** mushroom also supports the body's production of endogenous antioxidant enzymes—such as **superoxide dismutase (SOD), catalase**, and **glutathione**—which, in turn, support the body's natural immune defenses against free radical damage!^{13,14}

ADVANCED EXTRACTION TECHNOLOGY

Reishi Extract Mushroom Complex delivers powerful compounds and represents the **next generation** of natural immune support. Reishi extracts standardized to polysaccharides have been available for years, but most do not standardize for triterpenes and include the spores. This full-spectrum extract has multiple components that have shown to support healthy immune function and enhanced longevity in a natural experimental aging model.¹⁵

The suggested 2 capsules a day of

Reishi Extract Mushroom Complex provide:

Reishi mushroom (<i>Ganoderma lucidum</i>) extract (Fruit body)	980 mg
[standardized to 13.5% polysaccharides (132.3mg) and 6% triterpenes (58.8mg)]	
Shell-broken Reishi mushroom (<i>Ganoderma lucidum</i>) spore	150 mg

A bottle containing 60 vegetarian capsules of **Reishi Extract Mushroom Complex** retails for \$30. If a member buys four bottles, the price reduced to **\$20.25**.

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To order Reishi Extract Mushroom Complex, call 1-800-544-4440 or visit www.LifeExtension.com.

NEW

ASTAXANTHIN Formula with *Increased* Bio-availability

Astaxanthin is a fat-soluble carotenoid compound. The challenge to deriving maximum benefits is its normally limited absorption—as low as about **50%**.^{1,2} Assimilation of astaxanthin is impeded by limited uptake and intestinal degradation.

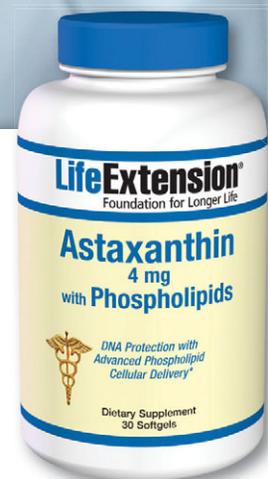
A new **Astaxanthin 4 mg with Phospholipids** combines **4 milligrams** of natural astaxanthin with a *proprietary blend* of **phospholipids**.

By incorporating phospholipids, scientific study shows that carotenoid **absorption** may be enhanced **several-fold**.³

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

ASTAXANTHIN

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



Item #01720

A bottle of 30 softgels of **Astaxanthin 4 mg with Phospholipids** retails for \$16. If a member buys four bottles, the price is reduced to **\$10.50** per bottle. **Contains soybeans.**

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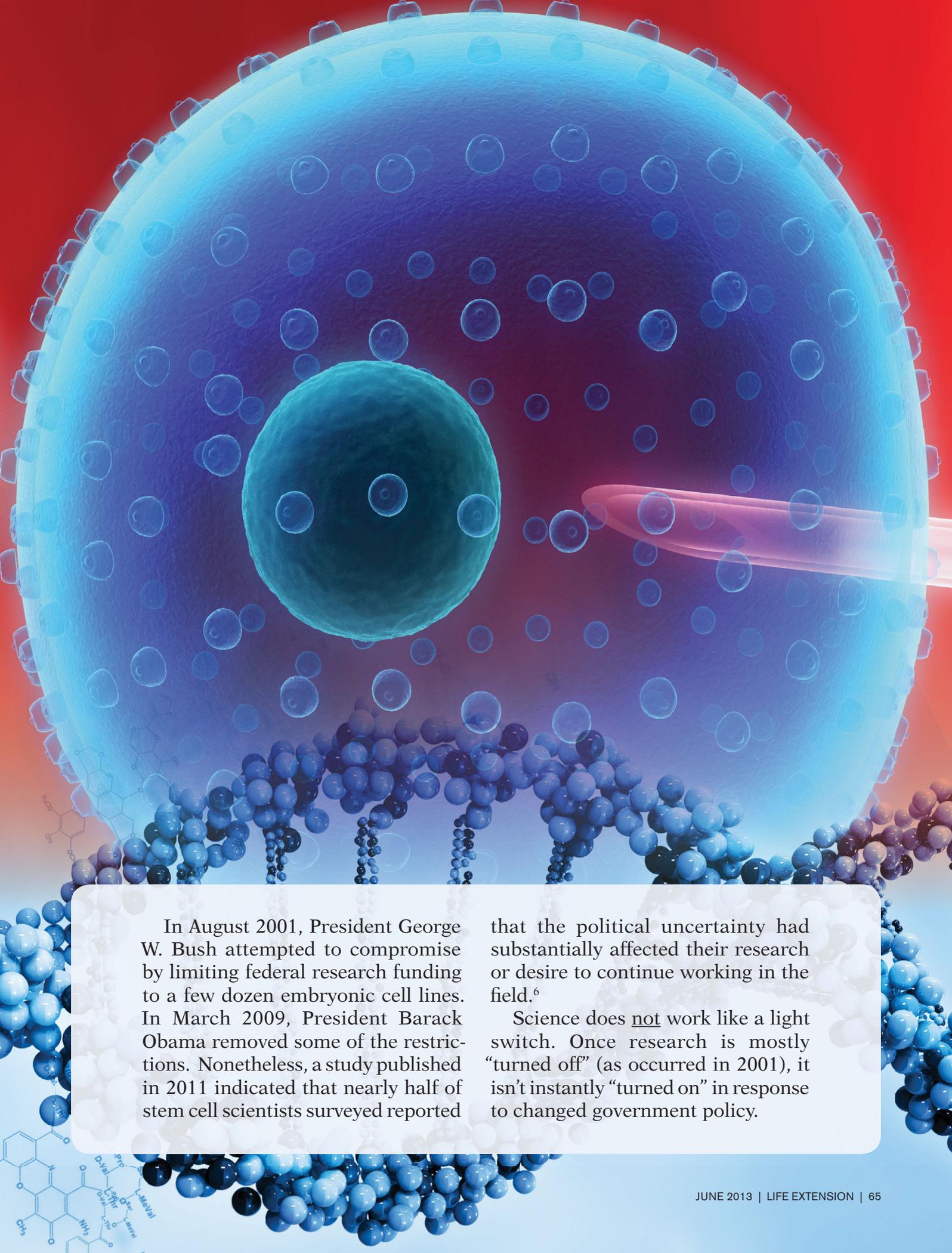
To order **Astaxanthin 4 mg with Phospholipids**,
call 1-800-544-4440 or visit www.LifeExtension.com

World Stem Cell Summit 2012

Stem cell therapy has the potential to transform medicine from mostly just treating symptoms to restoration of healthy, youthful tissue following every injury, disease, and age-associated degeneration. Unfortunately, along with such great hope has come scientific fraud,^{1,2} ethical questions,³ and a host of other controversies. The federal ban placed on stem cell research in 2001 has markedly delayed the introduction of this breakthrough therapy into clinical practice application.

Stem cells vary in their potency to become different tissue types. **Adult stem cells** and **cord blood stem cells** have less capacity to become different tissues than pluripotent or embryonic stem cells.⁴ **Embryonic stem cells** can potentially generate any tissue in the body and carry a reduced risk for being rejected by the immune system.^{4,5} Although embryonic stem cells are derived from an embryo consisting of less than a couple hundred cells, there has been much ethical and religious controversy over whether such an embryo should be considered human.





In August 2001, President George W. Bush attempted to compromise by limiting federal research funding to a few dozen embryonic cell lines. In March 2009, President Barack Obama removed some of the restrictions. Nonetheless, a study published in 2011 indicated that nearly half of stem cell scientists surveyed reported

that the political uncertainty had substantially affected their research or desire to continue working in the field.⁶

Science does not work like a light switch. Once research is mostly “turned off” (as occurred in 2001), it isn’t instantly “turned on” in response to changed government policy.

World Stem Cell Summit

The World Stem Cell Summit 2012, held December 3-5, 2012, in West Palm Beach, Florida, was organized to not simply be a scientific conference, but to be a conference on all issues related to stem cells. Many of those in attendance were patients in wheelchairs who were eager for research and available therapies. When there were parallel sessions (as there often are), I opted to attend the scientific sessions rather than the ones dealing with law, ethics, industry, or patient advocacy. With so much hype about the potentials of stem cell therapy, my prime interest at the World Stem Cell Summit was to learn what medicine has actually accomplished with stem cells. Nonetheless, there were plenary (general) sessions on all topics which I attended along with most of the others attending the conference.

Decades of Stem Cell Therapy

Stem cells have been used in medicine for decades, primarily for the treatment of certain cancers and blood disorders,^{7,8} but those have been adult stem cells rather than the embryonic stem cells that have caused so much controversy. More recently, umbilical cord blood stem cells have been used because the immature immune system in cord blood results in fewer immune incompatibilities,⁹ and because stem cells from cord blood have greater potency than adult stem cells.¹⁰ As noted above, ethical, political, and legal

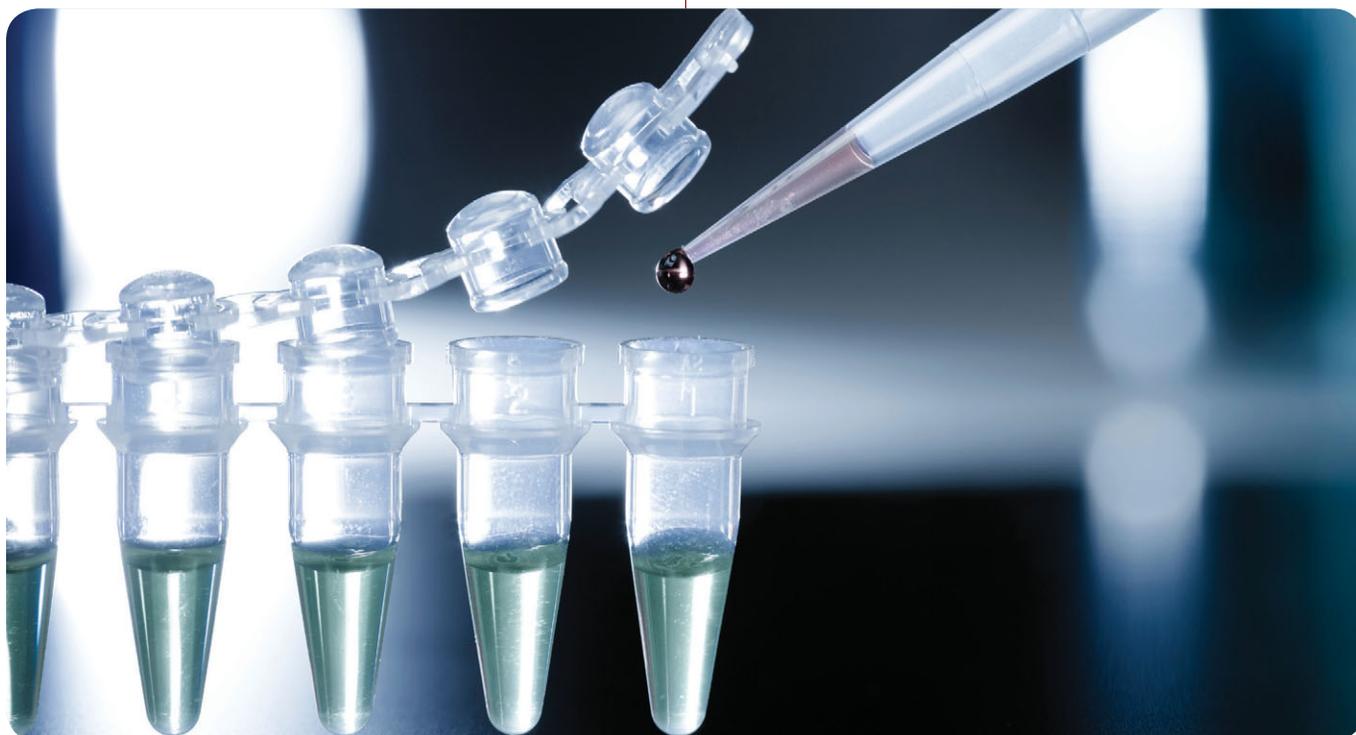
controversies^{3,6} have greatly reduced the development and application of embryonic stem cell therapies. Shinya Yamanaka won a 2012 Nobel Prize for his 2006 discovery that four proteins could stimulate four genes to convert connective tissue cells into pluripotent stem cells.^{11,12} Whether these *induced pluripotent stem cells* are equivalent in potency and safety to *embryonic stem cells* is an unresolved scientific question.¹³

Stem Cell Clinical Trials

Chris Mason, PhD, (Professor of Regenerative Medicine Bioprocessing, University College London, London, England) moderated a panel at which he discussed current clinical trials of stem cell treatments. Thousands of clinical trials are currently in progress for stem cell therapies, but at least half of them are only in Phase I.¹⁴

Artificial Organs from Stem Cells

Paolo Macchiarini, MD, PhD, (Professor of Regenerative Medicine, Karolinska Institute, Stockholm, Sweden) was a keynote speaker who reported on his breakthroughs in transplantation using stem cells. In 2008, he achieved the world's first successful tissue-engineered bronchial transplant.¹⁵ He started with the trachea of a donor which would serve as a biological scaffold for the stem cells, he colonized the trachea



with epithelial and stem cell-derived chondrocytes (cells found in cartilage) cultured from cells taken from the recipient (a 30-year-old woman), and successfully transplanted the bronchus into the recipient. He performed a similar tracheal transplant into a 36-year-old cancer victim in 2011.¹⁶ Dr. Macchiarini spoke of the difficulties of getting the stem cells to integrate into the biological scaffold, not just colonize on the surface of the scaffold.

Joshua Hunsberger, PhD, (Research Fellow, NIH Center for Regenerative Medicine, Bethesda, Maryland) was also a keynote speaker. He talked about what the National Institutes of Health (NIH) has done to advance the field of regenerative medicine. Similar to the work Dr. Macchiarini reported with tracheas, Dr. Hunsberger spoke about clinical trials of bladder replacement using artificial bladder scaffolds seeded with stem cells from patients.^{17,18} He described the use of gene therapy on *induced pluripotent stem cells* from a patient suffering a rare genetic immune cell disease.¹⁹ Inherited defective genes were modified in the pluripotent stem cells from the patient, and after the corrective modification were reintroduced into the patient. (A similar combination of gene therapy and stem cell therapy may have cured an individual of HIV infection.)²⁰ The NIH is also attempting to confer stemness to immune system cells to make those cells more effective at combating cancer.²¹

Stem Cells for Heart Disease

Carl Pepine, MD, (Professor, Division of Cardiovascular Medicine, University of Florida, Gainesville, Florida) noted that for years, heart attack victims have been receiving into their hearts infusions of adult stem cells taken from their bone marrow. Those patients have shown improved heart function, reduced incidence of death, and reduced incidence of subsequent heart attack.²²⁻²⁴ Dr. Pepine has been developing a hydrogel for improved delivery of stem cells to heart tissue.²⁵

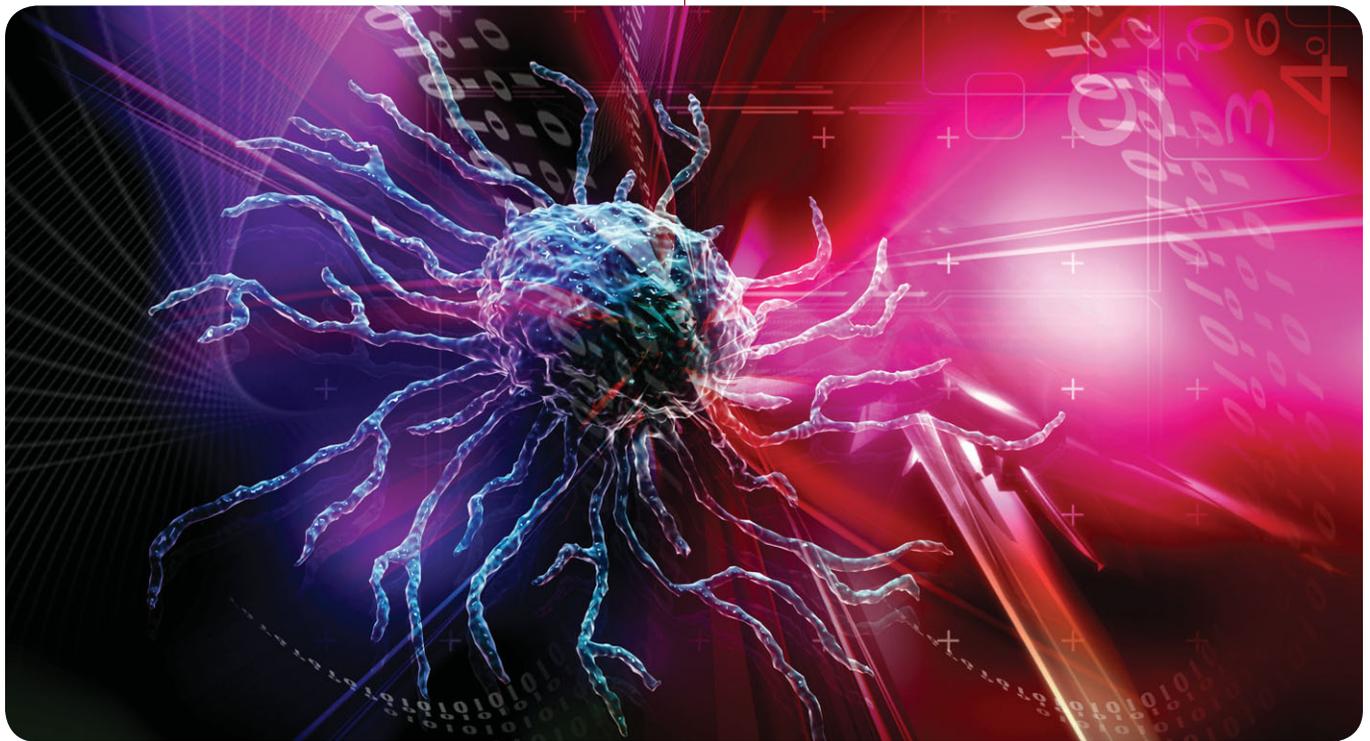
Leslie Miller, MD, (Director, Heart Institute, University of South Florida, Tampa, Florida) questioned the use of bone marrow stem cells for heart treatment, especially for patients over age 60. Stem cells from fat tissue are at least a hundred times more plentiful than stem cells from bone marrow and are easily extracted by liposuction.²⁶ Preclinical trials in Denmark indicate that fat-derived stem cells can promote new blood vessels and differentiate into cardiomyocytes to replace injured heart muscle.²⁷ Dr. Miller said that stem cells from fat tissue would soon be available in Europe, but not in the USA because of the FDA.



What You Need to Know

Breakthrough Clinical Potential of Stem Cell Therapy

- The federal ban placed on stem cell research in 2001 has markedly delayed the introduction of this breakthrough therapy into clinical practice application.
- Stem cells have been used to successfully bioengineer organs for transplant.
- Heart attack victims, receiving infusions of adult stem cells directly into their heart, have shown improved heart function, reduced incidence of death, and reduced incidence of subsequent heart attack.
- Preclinical trials have used stem cells to treat spinal cord injuries and brain cancer.
- Using a mouse model, scientists have discovered that ovarian stem cells can generate new oocytes (eggs) and that regenerating these cells prevented menopause leading to a significant reduction in age-related health problems, but no increase in cancer.



Joseph Wu, MD, PhD, (Associate Professor, Cardiovascular Medicine & Radiology, Stanford University, Palo Alto, California) is also interested in treatment of cardiovascular disease with stem cells. But rather than use adult stem cells from bone marrow or fat, he wants to use *induced pluripotent stem cells* (iPSCs). He has successfully derived iPSCs from dogs and pigs^{28,29} and he has successfully transplanted porcine-derived iPSCs into mouse hearts to achieve improved heart function.²⁹

Stem Cells for Nervous Tissue

Wado Akamatsu, MD, PhD, (Assistant Professor, School of Medicine, Keio University, Tokyo, Japan) reported on the use of iPSCs from humans that were used to treat spinal cord injury in mice.³⁰ Dr. Akamatsu was also able to directly induce the formation of neural stem cells from mouse connective tissue cells without an intermediate step of iPSCs.³¹

Karen Aboody, MD, (Associate Professor of Neurosciences, City of Hope, Duarte, California) is an activist in the effort to accelerate the process of translating research results into clinical therapies (“from bench to bedside”).³² In her presentation she spoke of her efforts to use neural stem cells to treat brain cancer in rodents.³³ Neural stem cells can cross the blood-brain barrier, migrate toward tumors in the brain, and are a non-toxic alternative to chemotherapy and radiation therapy.

Ovarian Stem Cells

Jonathan Tilly, PhD, (Director, Vincent Center for Reproductive Biology, Harvard Stem Cell Institute, Boston, Massachusetts) has been studying mouse ovaries for nearly a decade. It was long believed that female mammals are born with a fixed number of oocytes (egg cells) in their ovaries, but in 2004 Tilly demonstrated that mice have ovarian stem cells that can generate new oocytes.³⁴ He later showed that sustaining ovarian function into advanced age prevented mouse menopause leading to a significant reduction in age-related health problems, but no increase in cancer.³⁵

Most recently Tilly has found strong evidence for oocyte stem cells in women, but legal, ethical, and technical limitations prevented the same comprehensive validation as was done for mice.³⁶ Tilly wants to convince doubters by attempting to fertilize the oocytes in the UK, which he is not permitted to do in the US with federal funding.³⁷ Tilly is hopeful that delayed menopause by oocyte stem cell preservation can produce similar benefits for women as he achieved with mice.

Medical Tourism for Stem Cell Therapy

James Guest, MD, PhD, (Associate Professor of Neurological Surgery, University of Miami, Miami, Florida) did not speak of his research, but instead warned against the dangers of stem cell medical

tourism, both to patients and to the field of stem cell medicine. The field of gene therapy had been paralyzed by the death of a single gene therapy patient.³⁸ Many foreign stem cell clinics are exaggerating therapeutic benefits and down-playing the risks.

Dr. Guest said there is a widespread perception that the US government is blocking access to stem cell therapies for Americans, and this perception is driving desperate patients abroad into the hands of charlatans. He hastened to acknowledge, however, that many medical innovations are occurring outside the US that could not occur within the US.³⁹ He said that the role of physicians should be to influence or warn against dangers, rather than to stop their patients from seeking stem cell therapies abroad.

Stem Cell Therapy and the FDA

My concentration on attending scientific sessions caused me to miss many sessions dealing with patient advocacy and regulatory issues, but in the general sessions I would have expected to see much more about the role of the FDA in blocking rapid translation of stem cell research into therapy. It is believed that the biotech giant Geron halted its massive clinical trial program to use stem cells for treatment of spinal cord injuries partly because of the onerous requirements imposed by the FDA.^{40,41} One study described the FDA as a political organization that is more concerned with protecting its reputation than in protecting public health.⁴²



If the stem cell advocacy groups are to be effective, in hastening application of new therapies they should be calling for the repeal of the 1962 Kefauver-Harris Amendment that added a proof-of-efficacy requirement to the proof-of-safety requirements for FDA drug approval. Requiring efficacy in addition to safety in the wake of the 1962 thalidomide scare was pure politics; thalidomide was entirely a safety issue.

The effect of the Kefauver-Harris Amendment was to reduce the availability of new drugs to the public. The average number of new drugs introduced dropped from **40 per year** before 1962 to **16 per year** soon after 1962.⁴³ Average time from filing to approval for new drugs rose from **7 months** before 1962 to **7.8 years** by 1998.⁴⁰ A 2006 study estimated the cost to bring a new drug to market at between **\$500 million** to **\$2 billion**.⁴⁴

After FDA approval, safety rather than efficacy is mainly what matters because physicians are free to prescribe the drug “off label” for any indication they please. And FDA-approved drugs are not very safe, anyway. The American Medical Association has reported that adverse reactions to FDA-approved drugs in American hospitals is a leading cause of death.⁴⁵

For those who want to see greatly accelerated availability of safe stem cell therapies, the Kefauver-Harris Amendment should be repealed.

Summary

Stem cell therapy has the potential to transform medicine from mostly just treating symptoms to restoration of healthy, youthful tissue following every injury, disease, and age-associated degeneration. Unfortunately, the federal ban placed on stem cell research in 2001 has markedly delayed the introduction of this breakthrough therapy into clinical practice application. Stem cells vary in their potency to become different tissue types. **Adult stem cells** and **cord blood stem cells** have less capacity to become different tissues than pluripotent or embryonic stem cells.⁴ **Embryonic stem cells** can potentially generate any tissue in the body and carry a reduced risk for being rejected by the immune system.^{4,5} Stem cells have been used in medicine for decades, primarily for the treatment of certain cancers and blood disorders.^{7,8} Currently, thousands of clinical trials are underway to evaluate the use of stem cell therapies for a variety of anti-aging and clinical applications. ●

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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HALF OF AGING HUMANS IN THE DEVELOPED WORLD ARE MAGNESIUM DEFICIENT!¹

YOU MAY BE ONE OF THEM.

Optimal uptake of magnesium may now be obtained in a highly *absorbable* form called **Neuro-Mag™** available in **capsules** or **tasty natural lemon-flavored powder**.

A Critical Brain Booster. . .

Magnesium is needed for more than **300** biochemical reactions in the body.²

Long known for its role in cardiovascular³⁻⁵ and bone health,⁶ researchers are now focusing *intensely* on magnesium's benefits for **cognitive function**.²

It is very *hard* for your body to maintain optimal levels of magnesium in the **brain**.² This is of *special* concern for maturing individuals, as magnesium deficiency increases over time.¹

Absorbs Into the Brain

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

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

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

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

Capsules or Powder...Value Priced

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

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

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

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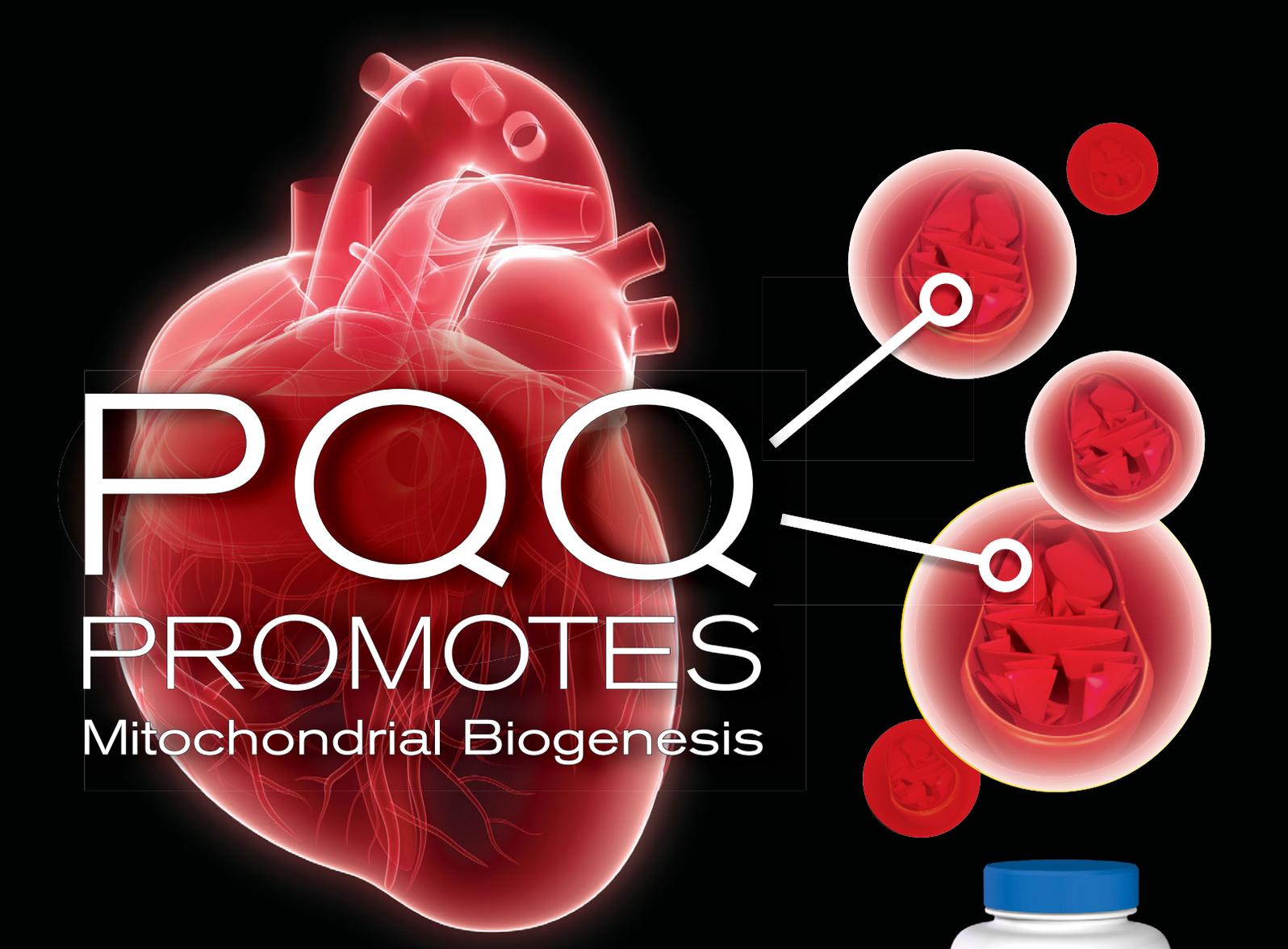
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Item # 01603



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PQQ

PROMOTES

Mitochondrial Biogenesis

Critical Importance of Mitochondria

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

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

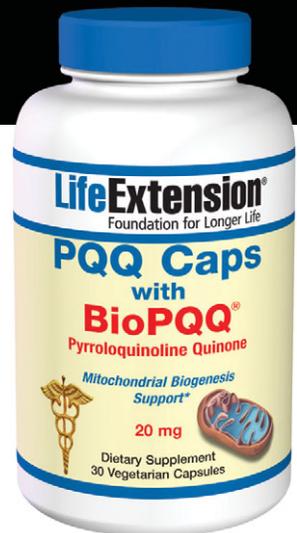
In an unprecedented breakthrough, a compound called **PQQ** (*pyrroloquinoline quinone*) has been shown to support **mitochondrial biogenesis**—the spontaneous generation of **new mitochondria** in aging cells.⁷

PQQ is available as a low-cost dietary supplement.

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

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

PQQ offers a viable alternative.



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.¹⁵
- **Favorably modulates gene expression.** PQQ activates *genes* that promote formation of **new mitochondria**⁷—and beneficially interacts with genes directly involved in mitochondrial health. These same genes also support **healthy body weight**, normal **fat** and **sugar metabolism**, and **youthful cellular proliferation**.¹⁶
- **Mitochondrial defense.** Mitochondria possess their *own* DNA, distinct from the DNA contained in the nucleus. Unfortunately, compared to nuclear DNA, mitochondrial DNA is relatively unprotected. PQQ's antioxidant potency and favorable gene expression profile act to support mitochondrial defense.



Vital Protection for the Aging Heart and Brain

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

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

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

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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BY GARY GOLDFADEN, MD, AND ROBERT GOLDFADEN

Unique **PEPTIDE-** Repairs Aging Skin

For those seeking a new weapon in the fight against aging skin, a peptide has recently been developed that promises to breathe new life into aged and damaged skin.

Peptides are one of the most popular active ingredients for repairing damaged and aging skin today.

Peptides trigger **increased collagen production**,¹ enhance **antioxidant defense**,² and improve **cellular repair**³—all of which result in skin that is softer, smoother, and more radiant-looking.

A new peptide has been developed that mimics the action of the *body's own natural youth hormone*, **thymopoietin**. As a result, it helps trigger cellular reactions and reparative processes that are usually only seen in much younger skin. And best of all, results have been seen in as little as 5 days!

By mimicking thymopoietin, this anti-aging peptide known as **Acetyl Tetrapeptide-2** helps rejuvenate facial skin by improving skin tone and texture. >



Understanding the Youth Hormone

Thymopoietin is a polypeptide hormone secreted by the thymus that affects the rate at which your skin ages. Normal aging causes significant atrophy of the thymus gland, resulting in diminished production of thymopoietin.

Lack of this hormone jeopardizes immune function and negatively affects the body's ability to produce DNA and undergo normal cell division.⁴ Simply put, thymopoietin affects the body's capacity to maintain youthful function in everything from skin cells to brain cells. The loss of thymopoietin is considered by many immunologists to be a *major bio-marker of aging*.⁴

Reinforce Your Skin's Immune Defenses

Studies have shown that T-cells (a type of immune cell that matures in the thymus gland) promote **cellular restoration** by secreting growth hormone and growth hormone releasing factor.⁵⁻⁷ Growth hormone stimulates the growth, reproduction, and regeneration of cells.⁸ And growth hormone releasing factor triggers the production of growth hormone.

All of these biological processes that are vital for the health and longevity of your skin are largely controlled by thymopoietin and the thymus.

Unfortunately, around the age of puberty, the thymus begins to shrink. This results in a lack of thymopoietin in the bloodstream, which in turn compromises the skin's immune system and its ability to reproduce and replace old cells. That's why maintaining adequate levels of this important hormone is critical for maintaining youthful skin.

Stimulate the Growth of New Skin Cells

Thymopoietin stimulates the growth and differentiation of **keratinocytes**. Keratinocytes are specialized skin cells in the epidermis that control the ongoing process of cell turnover and renewal. This is a key component in anti-aging because the skin's ability to renew itself and the rate at which it does so is absolutely essential to keeping the skin looking young.

Keratinocytes make up **95%** of all the cells in the epidermis, the outer layer of the skin.⁹ The keratinocytes that are located in the basal (bottom) layer of the skin are often referred to as **basal cells**.

Keratinocytes perform a number of functions that are vital to the health and beauty of the skin. The keratinocytes in the top layer of skin form a protective bar-

rier against harmful environmental influences (such as bacteria and UV damage).¹⁰ They also lock in water, which keeps the skin soft and moist.

However, it's the keratinocytes located on the bottom layer of the epidermis that produce new replacement cells and start them on their journey to the surface of the skin.⁹

Since thymopoietin stimulates the growth of keratinocytes, adequate thymopoietin levels are necessary for the growth of new skin cells to occur at a healthy rate.

Unfortunately, the older we get, the longer it takes basal keratinocytes to regenerate due to the declining levels of thymopoietin.¹¹ This negatively impacts the rate at which skin cells renew themselves. As a result, your skin gradually becomes thinner and more susceptible to injury and attack. Additionally, since new cells take longer to reach the surface, the dull, devitalized skin cells on the surface eventually dominate—creating the rough, uneven texture so characteristic of aging.



5 Days to Younger-Looking Skin

A **restorative** polypeptide has been developed that helps stimulate the reproductive function of basal cells to *combat* the signs of aging.¹² It's called **Acetyl Tetrapeptide-2**.

This peptide compensates for the natural loss of thymopoietin by **boosting the skin's immune defenses** and stimulating the growth and differentiation of keratinocytes. This innovative ingredient helps trigger cellular reactions and reparative processes that are usually only seen in much younger skin.

Early Experimental Studies Have Been Remarkable!

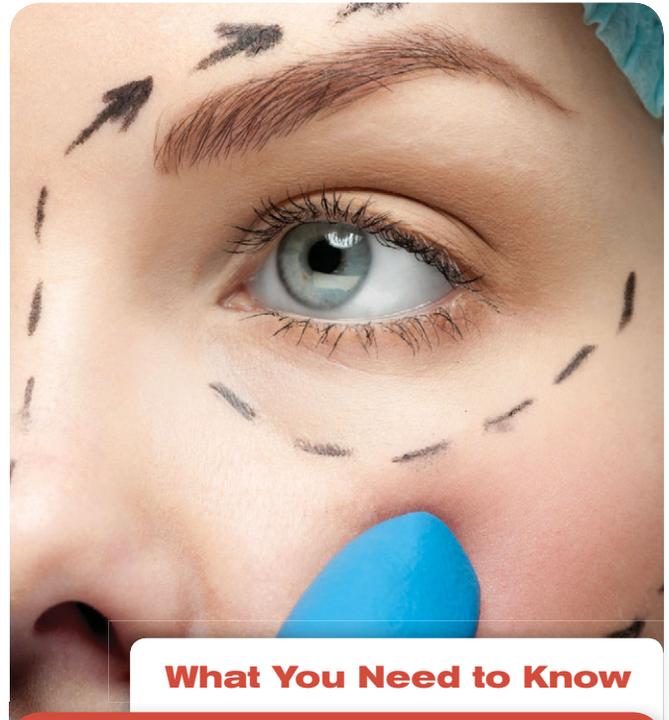
In-vitro tests show that **Acetyl Tetrapeptide-2** increased cellular growth (as measured in keratinocyte density) by **51%** in just 5 days! In addition, it enhanced the metabolic activity of keratinocytes, increasing the production of keratin by **75%** and of keratohyalin by **28%**.¹² Observations of skin biopsies from participants in the study showed a visibly improved skin profile and increased skin regeneration.¹²

But that's not all. This ingredient stimulated keratinocytes to produce something called *granulocyte macrophage colony stimulating factor* (GM-CSF). Granulocyte macrophage colony stimulating factor activates the production of cells that are vital to the skin's immune response (including white blood cells, macrophages, and Langerhans cells). The study revealed that the granulocyte macrophage colony stimulating factor production was boosted by **450%** in just 5 days!¹² By reinforcing immune defenses and enhancing epidermis regeneration, this discovery can help restore aging, mature skin.

Seaweed and Your Skin

Another natural compound found to stimulate the activity of keratinocytes (that improve cell growth) and to counteract the destructive forces of oxidation is *Chondrus crispus*, a seaweed that grows in the Atlantic Ocean.¹³ This **Irish moss**, as it's called, has a number of beneficial effects on the health and vitality of the skin.

Chondrus crispus provides a protective, water-binding barrier that promotes the regeneration of damaged skin and is an excellent source of skin-supporting vitamins, minerals, and phytonutrients.^{13,14} It improves skin softness and silkiness by trapping and holding moisture, which instantly cools and hydrates the skin.¹⁴ And its high sulfur content is incredibly nourishing to the skin.



What You Need to Know

Revive Functionally Compromised Skin Cells

- Your body's youth hormone, **thymopoietin**, is vital for the health and longevity of your skin.
- Thymopoietin reinforces your skin's immune defenses and stimulates the growth of new skin cells.
- Thymopoietin levels decline with age, and many immunologists consider this to be a major bio-marker of aging.
- **Acetyl Tetrapeptide-2** is a unique polypeptide that mimics the powerful action of **thymopoietin**.
- **Acetyl Tetrapeptide-2** actively energizes mature skin, resulting in visibly younger skin.
- In addition, the Irish moss *Chondrus crispus* promotes the regeneration of damaged skin, improves cell growth, counteracts the destructive forces of oxidation, and is an excellent source of skin-supporting vitamins, minerals, and phytonutrients.



IRISH MOSS

Chondrus crispus is a rich source of carrageenan, which is an excellent moisturizer with soothing properties.¹³ As an added benefit, carrageenan also aids the penetration of other active ingredients into your skin,¹⁵ delivering them deep into the epidermis to leave the skin looking younger, healthier, and refreshed.

From a nutrient standpoint, *Chondrus crispus* maintains a unique amino acid profile that is extremely well balanced. In fact, it contains most of the essential amino acids that are needed to sustain life and health.¹⁶

Seaweed contains a number of trace elements essential for the body's healthy function in large quantities.¹⁷ In addition to its wealth of minerals (calcium, phosphorus, sodium, magnesium, and potassium), this nutrient-packed botanical is an excellent source of vitamins and phytonutrients¹⁸ that help rejuvenate and restore ailing skin. The various vitamins, minerals, and other phytochemicals found in seaweed help encourage the necessary repair, regeneration, and defense of the skin.¹⁹

Summary

Your body's youth hormone, **thymopoietin**, is vital for the health and longevity of your skin. Thymopoietin reinforces your skin's immune defenses and stimulates the growth of new skin cells. As we age, our thymus gland atrophies, resulting in the loss of thymopoietin.

An innovative *peptide* called **Acetyl Tetrapeptide-2** has recently been developed that mimics the action of **thymopoietin**. Acetyl Tetrapeptide-2 has been scientifically shown to help revive old and functionally compromised skin cells, causing them to operate in a more youthful fashion.

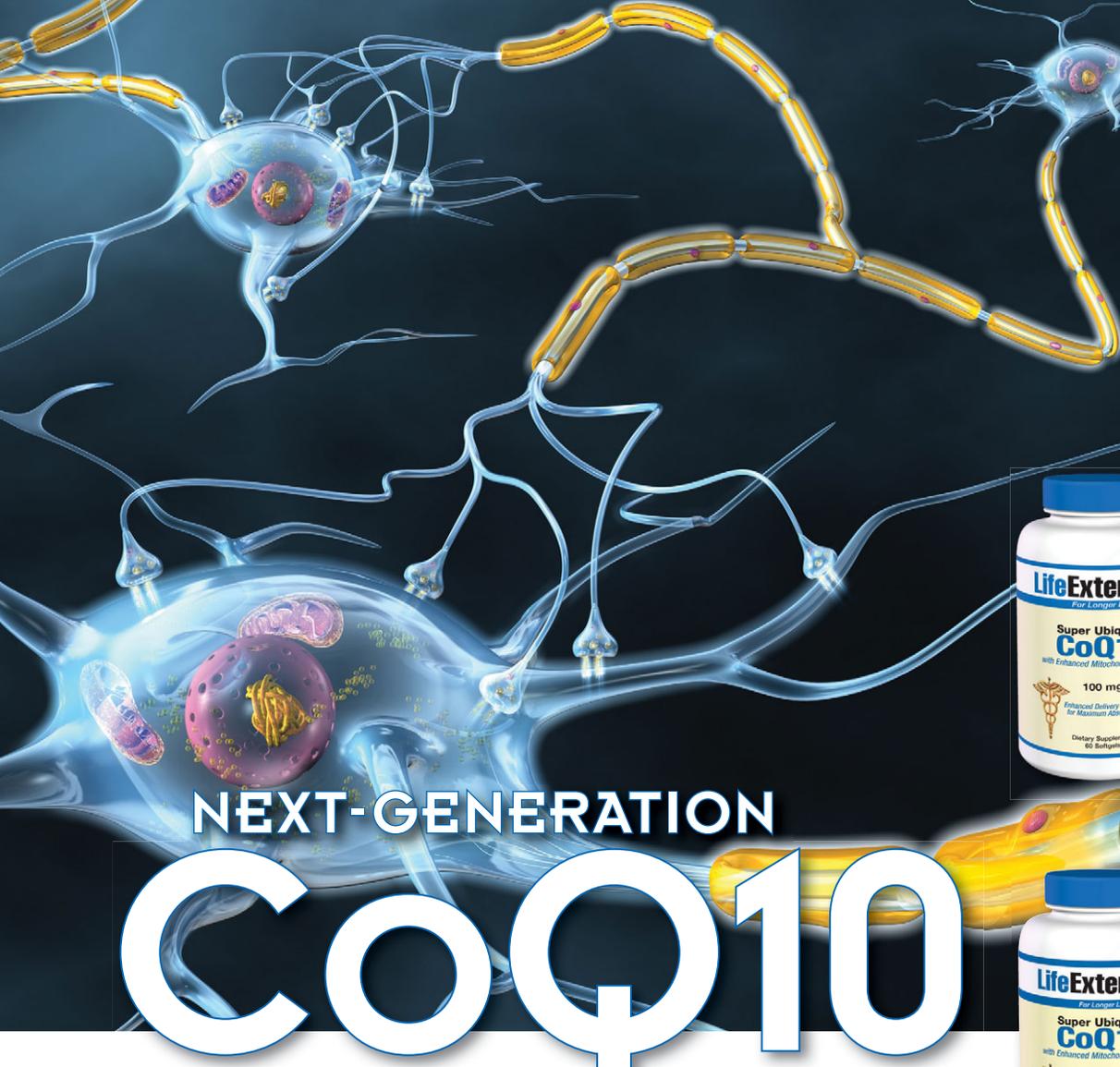
In addition, the botanical seaweed *Chondrus crispus* is known to promote repair of damaged skin cells, improve skin texture, and reduce oxidative damage to the skin.

Together, these two skin rejuvenators improve skin by exfoliating, nourishing, moisturizing, protecting, detoxifying, and regenerating it. The unique combination of nourishing botanical extracts and potent anti-aging polypeptides can breathe new life into aging and damaged skin. ●

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

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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.¹

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.²

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.^{3,4} Additionally, **shilajit** facilitates the more efficient *delivery* of CoQ10 into the mitochondria, which results in enhanced cellular energy.⁵⁻⁹

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

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



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



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



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

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

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Ratings based on results of the 2012 ConsumerLab.com Survey of Supplement Users. More information at www.consumerlab.com.

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

IMMUNE MODULATOR WITH **TINOFEND**[®]

For a Balanced Immune Response!

Successful aging is often dependent on a dynamic immune system. But just having a "strong" immune system isn't enough.¹

A healthy and youthful body requires *balanced* immune-cell signaling to maintain effective and responsive immunity.¹

That's why Life Extension[®] now offers **Immune Modulator with Tinofend**[®], a botanical extract that has been shown to support a normal, *modulated* immune response.²⁻¹¹

TARGETED IMMUNE SUPPORT

The plant known as *Tinospora cordifolia* has a long tradition of use in Ayurvedic medicine.^{12,13}

Tinofend[®] is a standardized extract of active compounds that work synergistically^{5,11} to provide immune-modulatory support.²⁻¹¹ A double-blind, placebo-controlled clinical trial on humans found that **Tinofend**[®] produced significant changes in several immune parameters that are known to help support healthy, immune system *modulation*.¹⁰

MULTIPLE MECHANISMS

Tinofend[®] promotes optimal immune health in **three ways**:

- Helps support the activity that regulates immune response and enhances the function of protective cells called *macrophages*.^{4,11}
- Helps limit the number of *eosinophils* (type of white blood cell) already within normal range.¹⁰
- Provides *polysaccharides* to help optimize the immune system's normal defenses, including *neutrophil* (type of white blood cell) function.^{5,10}

IMMUNE MODULATION

Immune Modulator with Tinofend[®] provides the versatile *Tinospora* compounds shown to help maintain the *balanced* cellular responsiveness, sensitivity and strength of an optimized and *properly-modulated* immune response.²⁻¹¹

The suggested daily dose of 2 capsules of Immune Modulator with Tinofend[®] provides:

Tinofend [®] (<i>Tinospora cordifolia</i>) extract (stem)	900 mg
[std. to 20% polysaccharides (180 mg)]	

A bottle of 60 vegetarian capsules of **Immune Modulator with Tinofend**[®] retails for \$17. If a member buys four bottles, the price is reduced to **\$11.25** per bottle.

Tinofend[®] is a registered trademark of Verdure Sciences, Inc.



Item #01704

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To order Immune Modulator with Tinofend[®], call 1-800-544-4440 or visit www.LifeExtension.com.

COSMESIS YOUTH SERUM

A new weapon has been developed in the fight against aging skin. It's a powerful **peptide** that breathes new life into aging and damaged skin.

By mimicking the action of the body's own natural thymic **youth hormone**, this innovative peptide works at the *cellular level* to reinforce your skin's immune defenses and to stimulate the growth of new skin cells.

The result? Improved tone and texture—in as little as *5 days!*

This anti-aging peptide is called **Acetyl Tetrapeptide-2 (AT-2)**, and it's one of the top ingredients in **Cosmesis Youth Serum**.

5 DAYS TO YOUNGER-LOOKING SKIN

Acetyl Tetrapeptide-2 has been shown to rejuvenate facial skin, improve skin tone and texture—and help defend against the visible signs of *premature aging*.

Experimental studies have shown:¹

- Increased **cellular growth** by **51%**—in just 5 days!
- Increased **keratin** production by **75%**!
- Increased **keratohyalin** production by **28%**!
- Increased production of **granulocyte-macrophage colony-stimulating factor (GM-CSF)**, the substance that activates your skin's immune cells, by **450%**—in just 5 days!

By reinforcing immune defenses and enhancing skin regeneration, this discovery can help restore aging, mature skin to a more youthful appearance.

THE SERUM'S SECRET WEAPON...

Cosmesis Youth Serum contains a seaweed called **Chondrus crispus** that repairs damaged skin cells, improves skin cell growth, and reduces oxidative damage to the skin. This nutrient-packed botanical...

...Provides skin-supporting vitamins, minerals, and phytonutrients that help *rejuvenate* and *restore* aging skin,²

...Improves skin softness and silkiness by trapping and holding moisture, *cooling*, and *hydrating* the skin,³ and

...Provides a protective, water-binding barrier that promotes the *regeneration* of damaged skin.⁴

But that's not all...

The **Chondrus crispus** in **Youth Serum** contains a performance-boosting ingredient called **carrageenan** that delivers active ingredients **deep** into your skin, leaving skin looking younger, healthier, and more refreshed.⁵

Together, the two **skin rejuvenators** in **Cosmesis Youth Serum** help revive aging skin by exfoliating, nourishing, moisturizing, protecting, detoxifying, and regenerating it. The unique combination of nourishing botanical extracts and potent anti-aging polypeptides can breathe new life into aging and damaged skin.

PEPTIDES AND SKIN CARE

Peptides are the *natural choice* for repairing damaged and aging skin. These anti-aging, non-toxic substances...

- Trigger **increased collagen production**.⁶
- Enhance **antioxidant defense**.⁷
- Improve **cellular repair**.⁸

The result? Softer, smoother, more radiant-looking skin.

A 1-oz bottle of **Cosmesis Youth Serum** retails for \$65. If a member buys 2 bottles, the price is reduced to **\$42.75** per bottle.

References

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To order
Cosmesis Youth Serum,
call 1-800-544-4440 or visit
www.LifeExtension.com

A line of skin care products developed by
renowned dermatologist Gary Goldfaden, MD



COSMESIS
SKIN CARE
Developed Exclusively for Life Extension®

COMPREHENSIVE VITAMIN K FORMULA



Super K formula provides in just one daily softgel:

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

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

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

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

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

**To order
Super K with Advanced K2 Complex
or Super Booster, call 1-800-544-4440 or
visit www.LifeExtension.com**

Each bottle of **Super K** lasts **90 days**, so members pay as little as **\$6.75 a month** for this high-potency blend of all three active forms of vitamin K. The retail price for a bottle containing **90 softgels** is \$30. If a member buys four bottles, the price is reduced to **\$20.25 per bottle**.

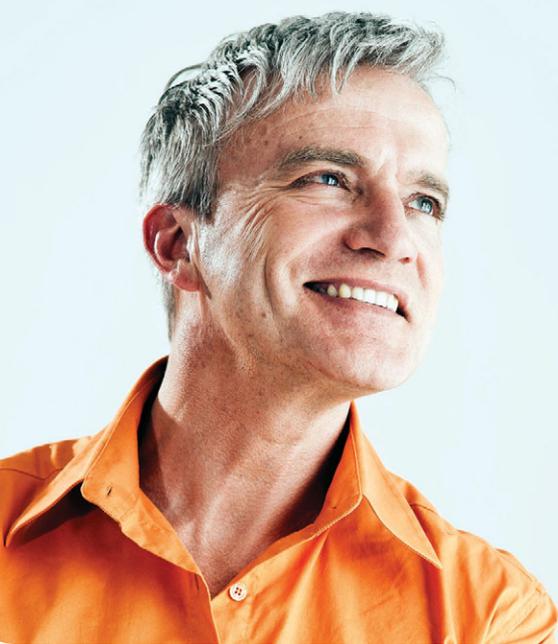
(The same **Super K** formula consisting of Vitamin K1, K2 (MK-4) and K2 (MK-7) can be found in the **Life Extension® Super Booster**. If you take the **Super Booster**, you do not need additional **Super K with Advanced K2 Complex softgels**.)

Warning to Coumadin® (warfarin) Drug Users

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

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SUPER FOODS

BY WILLIAM GAMONSKI

ORANGES

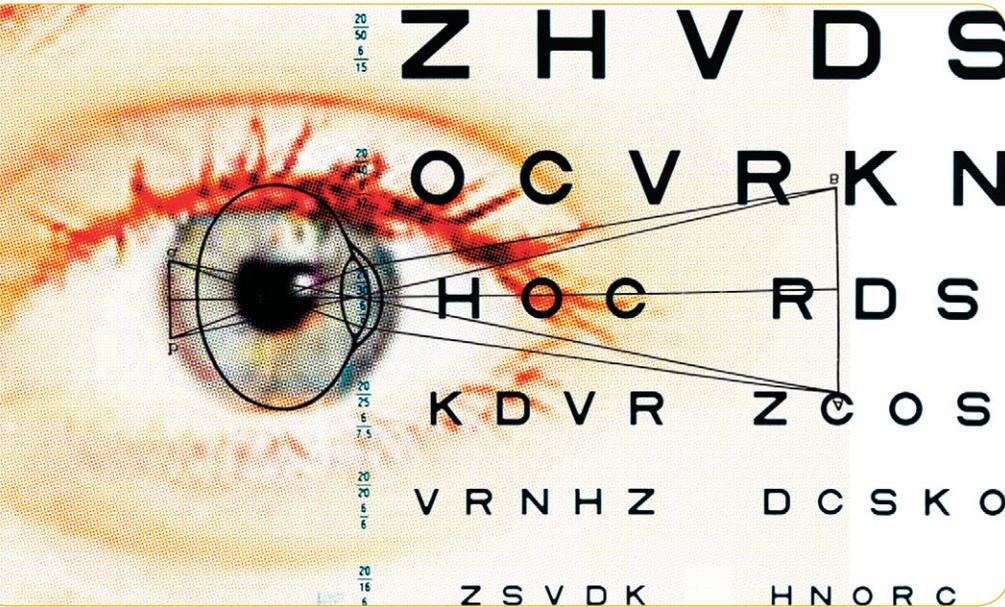
A Squeeze of Nutritional Power

Oranges possess over **60** different **flavonoids**, making them a nutritious fruit to eat on a daily basis.¹ Immensely rich in **hesperidin** and **naringin**, oranges are emerging as a weapon for boosting eye health, fighting heart disease, preventing kidney stones, and enhancing immunity.

Orange's History

While oranges are widely available and fairly inexpensive today, they were once considered a prized luxury before the 20th century. The orange (*Citrus sinensis*) originated in Asia thousands of years ago, with the most common types being bitter and sweet. The latter became





of the vitamin, GABA receptors malfunction, causing retinal nerve cells to fire signals at an excessive rate. This constant workload causes nerve cells to “burn out” and induces cell death. Vitamin C rich oranges allow GABA receptors to function properly, thereby protecting against the loss of retinal nerve cells and preserving vision.⁴

Along with glaucoma, a greater intake of oranges shows promise in defending against age-related macular degeneration, the most common cause of vision loss in individuals over the age of 50.⁵ Researchers analyzed data from more than 118,400 adults between the ages of 30 to 55 regarding fruit and vegetable intake over an 18-year period. They found that those who ate three or more servings of oranges per week had a **39%** lower risk of age-related macular degeneration than those who consumed less than two servings per month.⁶

popular across Europe in the 15th century before Spanish explorers brought it to Florida and California, currently two of the largest US producers of the citrus fruit. Other major world producers include Brazil, Mexico, and Israel.¹

that vitamin C in oranges might be largely responsible for this powerful protective effect.⁴ Retinal nerve cells contain GABA receptors, which help modulate their transmission of electrical signals to the brain. Without sufficient amounts

Boosting Eye Health

Glaucoma is a long-term visual neuropathy defined by structural abnormalities in the nerve fibers of eye structures as well as the optic nerve itself. It can result in permanent vision loss if left untreated.² A wealth of carotenoids, including lutein and beta-cryptoxanthin, along with vitamin C, make oranges well-equipped to protect against this often symptomless disease. In one study, researchers at the University of California revealed that those consuming more than two servings of fresh oranges per week produced an **82%** reduction in glaucoma risk compared to those who ingested less than one serving per week.³

A recent study published in the *Journal of Neuroscience* suggests



Orange Nutritional Facts, 1 Large¹⁵

Nutrients	Amount	DV(%)
Vitamin C	97.9 mg	163%
Dietary Fiber	4.4 g	18%
Folate	55.2 mcg	14%
Thiamine	0.2 mg	11%
Potassium	333 mg	10%
Calcium	73.6 mg	7%
Vitamin B6	0.1 mg	6%



Selecting and Storing Oranges¹

1. The freshest oranges are available winter through summer.
2. Choose fully ripened oranges that are firm and have a smooth texture.
3. Avoid oranges that are soft and changing in color.
4. Oranges can be stored in the refrigerator or at room temperature for approximately two weeks.

Cardiovascular Support

Since endothelial dysfunction is perhaps the main underlying cause of heart disease, scientists are continually pursuing new dietary avenues to protect and improve its function. With their antioxidant and anti-inflammatory properties, oranges are beginning to emerge as the ideal candidate for this role. A study published in the *American Journal of Clinical Nutrition* found that participants with increased risk for cardiovascular disease ingesting about 2 cups of red orange juice daily for one week experienced significant decreases

in inflammatory markers that accompanied a **38.5%** improvement in endothelial function.⁷

In a separate study, French researchers observed comparable results between orange juice and hesperidin beverage supplementation on endothelial function and diastolic blood pressure after four weeks in healthy volunteers, suggesting the high concentration of hesperidin in orange juice contributes to its positive effect on blood vessels.⁸

High levels of homocysteine have been shown to induce endothelial dysfunction and increase the risk for vascular disease.⁹ Oranges contain a plethora of folate, which enhances homocysteine metabolism. Folate is required for methionine synthase to convert dangerous homocysteine into the amino acid methionine, thus preventing the buildup of homocysteine.⁹

Oranges also appear to favorably alter lipid metabolism, especially in those with high cholesterol. Brazilian researchers assigned patients with normal and high cholesterol 3 cups of orange juice or a control for 60 days. At the end of the study, LDL cholesterol fell significantly in the high cholesterol group by **19 mg/dL**, without affecting HDL cholesterol and triglycerides. The results

were attributed to a **27%** increase in the transfer of free cholesterol to HDL where it's transported back to the liver for excretion. No lipid changes were reported for the normal cholesterol group.¹⁰

Kidney Stone Prevention

Kidney stones are an increasingly common condition affecting approximately 1 in 11 individuals in the US.¹¹ Kidney stones were once thought to be a painful disorder that rarely impaired long-term kidney function, but recent research suggests otherwise, with stone formers up to **67%** more likely to develop chronic kidney disease than non-stone formers.¹² Potassium citrate supplements have drawn considerable attention for their ability to inhibit the formation of calcium-oxalate, the most common type of kidney stones. However, its association with gastrointestinal side effects has led researchers to explore other effective alternatives.¹³ Since citrus fruits are naturally rich in potassium citrate, researchers investigated the potential of citrus fruits, particularly orange juice and lemonade, in preventing the occurrence of kidney stones.

Scientists reported in the *Clinical Journal of the American Society of Nephrology* that human volunteers with and without a history of kidney stones adhering to a stone prevention diet supplemented with **13.5 ounces** of orange juice three times daily with meals for one week increased their citrate levels and urinary pH value, which decreased the risk of calcium oxalate stones, whereas those supplemented with lemonade experienced no such changes.¹³

Enhancing Immunity

Although oranges are often touted as immune boosters because of their vitamin C content, recent findings indicate that pectin fiber might be their true standout for improving immunity. Scientists at the University of Illinois gave mice a low-fat diet rich in soluble fiber pectin or insoluble fiber for six weeks before injecting them with an endotoxin to imitate a bacterial infection. The results showed that the pectin group became less sick and recovered **50%** faster than mice in the insoluble group. Pectin fiber was shown to enhance immune function by stimulating the production of the anti-inflammatory molecule interleukin-4.¹⁴

Summary

Oranges contain a wealth of nutrients, from flavonoids to vitamin C, to pectin fiber. Research has shown that this popular fruit protects against the development of glaucoma and age-related macular degeneration, two of the leading causes of blindness. In addition, oranges improve heart health,

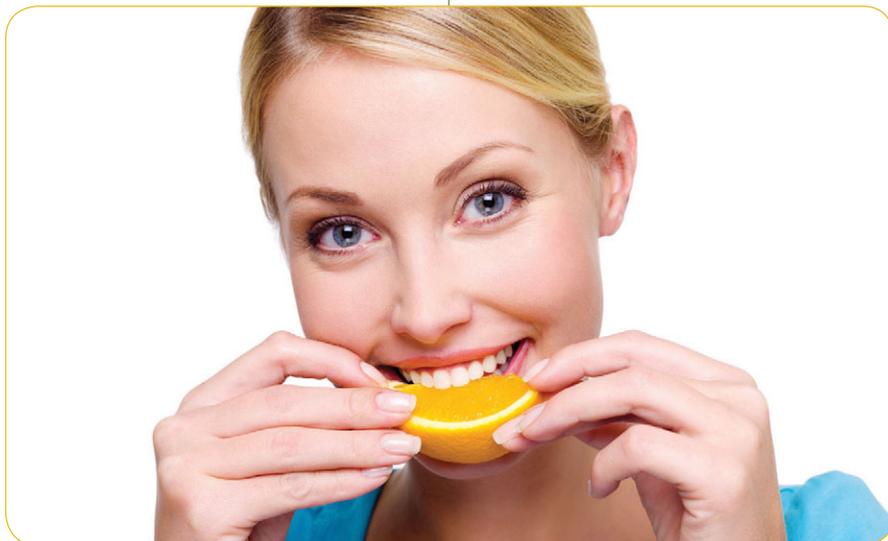
block the formation of common calcium-oxalate kidney stones, and enhance immunity, all of which make them one of the healthiest fruits to eat on a regular basis.

While **orange fruit** contains healthy ingredients, avoid regular consumption of **orange juice**, even though studies reported in this article report short-term favorable affects on vascular risk markers. The reason is that orange juice concentrates contain fructose that causes sharp *after-meal* **glucose spikes** that in the long term can increase the risk of a host of diseases. Feel free to enjoy oranges, but not the concentrated juice. ●

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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ARE YOU GETTING Curcumin's BENEFITS?



How Much Curcumin Are You Absorbing?

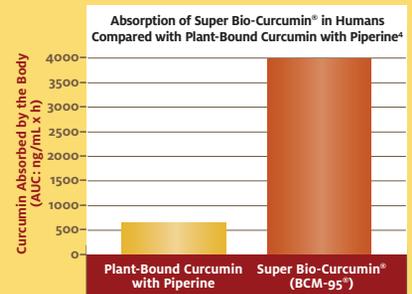


Chart 1. Super Bio-Curcumin® (BCM-95®) showed 6.3 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with plant-bound curcumin with piperine (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over 8 hours).

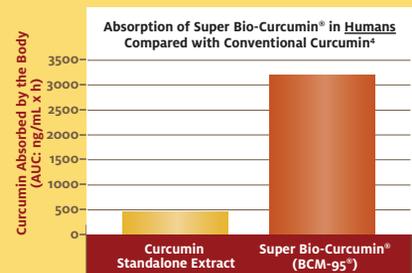


Chart 2. Super Bio-Curcumin® (BCM-95®) showed 6.9 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with conventional curcumin (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over 8 hours).

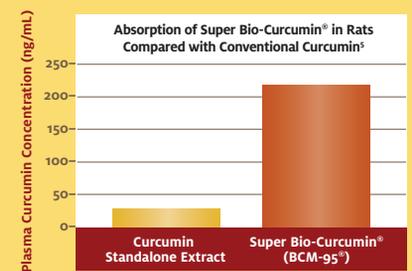


Chart 3. Bioavailability in rats fed with BCM-95® is 7.8 times higher than conventional curcumin.

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:^{1,2}

- 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 extract³ 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.⁴

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

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

NEW



NEXT-GENERATION VITAMIN C

Vitamin C efficacy can be limited because it is quickly utilized and excreted by the body.¹

A novel formula sets a new standard for **rapid absorption**, enhancing the time that vitamin C is delivered to the cells for protection.

In **two** human trials at a distinguished research center, **FAST-C**[®] was compared head-to-head with a leading premium brand of “enhanced absorption” vitamin C.^{2,3}

Their findings validate that **FAST-C**[®] has faster absorption—and without greater excretion!

The Need for Rapid Vitamin C Delivery

Vitamin C neutralizes free radicals,^{4,7} supports biosynthesis of certain neurotransmitters,^{8,9} and promotes production of vital tissue (collagen) that supports arterial walls, skin, and bones.⁷⁻⁹ Vitamin C promotes immunity,^{7,10} boosts lymphocyte glutathione levels,¹¹ and helps regenerate other antioxidants, including vitamin E.¹²

But because it leaves the body quickly,¹ capturing vitamin C’s optimal benefits has required taking supplements several times daily, *hoping* they’ll be effective without posing a risk for acid-sensitive stomachs.

The scientific community has long sought faster-absorbing vitamin C formulas.

Backed by controlled
human trials,

FAST-C[®]
COMBINES FASTER-
ABSORBING ASCORBIC
ACID-MINERAL BLEND
with vitamin C
“recycling” power.



Item# 0177

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 Search for Enhanced Absorption

A leading brand of “enhanced” vitamin C has been promoted claiming to increase vitamin C bioavailability. A *published* study in a top nutritional sciences journal found **no difference** in absorption speed, blood vitamin C increase, or urinary excretion between that product and ascorbic acid (vitamin C).¹³

The good news? A next-generation **FAST-C®** supplement has been *proven* in double-blind, human trials to have **faster absorption**—combined with equal or greater body retention!

This *breakthrough*—**FAST-C®**—is available exclusively to **Life Extension®** members. It also contains *dihydroquercetin* to enhance vitamin C’s “recycling” power.

Next-Generation Breakthrough!

FAST-C® with Dihydroquercetin is the *only* vitamin C product to incorporate:

- Alkalinizing **minerals** that yield an almost completely acid-neutralized—which is better than “buffered”—vitamin C for sensitive stomachs.
- **Piperine (Bioperine®)**, a multi-patented, black pepper alkaloid that significantly accelerates vitamin C absorption, shortening the time to peak plasma concentration³
- **Dihydroquercetin**, a grape leaf derived flavonoid that donates electrons back to vitamin C molecules that have spent their electrons neutralizing free radicals—*regenerating vitamin C to work again!*¹⁴

In recognition of this breakthrough, **FAST-C®** received the prestigious **Scientific Achievement Award** from *Nutrition Business Journal*.¹⁵

Validated Faster in Human Studies

In a soon-to-be journal-published article, scientists evaluated the **FAST-C®** formulation in humans. They found that in just **60 minutes** the **FAST-C®** composition generated a “significantly higher” vitamin C blood increase than the leading, enhanced-absorption vitamin C product.²

To further validate these findings, a *second* clinical trial was conducted to compare two different variations of the formula in **FAST-C®** with the leading “enhanced” brand.

One of the **FAST-C®** formulations produced higher blood concentrations of vitamin C after **30, 60, and even 90 minutes!**

Despite faster and greater rises in blood vitamin C with **FAST-C®** the amounts of vitamin C excreted in the urine were no greater than the amount excreted in the urine with the leading “enhanced” brand—which suggests similar or better vitamin C **retention** by the body.³

***FAST-C® with Dihydroquercetin—
faster-absorbed, self-regenerating,
harder-working.***

Take one (1) tablet once or twice daily. Do not take more than 15 mg per day of Bioperine®.

Each tablet of FAST-C® with Dihydroquercetin provides:

Vitamin C (as ascorbic acid)	500 mg
Calcium (as calcium carbonate)	79 mg
Magnesium (as magnesium hydroxide)	8 mg
Bioperine® piperine [from black pepper (<i>Piper nigrum</i>) extract (fruit)]	3 mg
Total Dihydroquercetins [from grape (<i>Vitis vinifera</i>) extract (leaf)]	25 mg

A bottle of 120 vegetarian tablets of **FAST-C® with Dihydroquercetin** retails for **\$26**. If a member buys four bottles, the price is reduced to just **\$18** per bottle.

FAST-C® is a registered trademark of Scientific Food Solutions, LLC.

Bioperine® is a registered trademark of Sabinsa Corporation.

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To order FAST-C® with Dihydroquercetin, call 1-800-544-4440 or visit www.LifeExtension.com

Advanced RESVERATROL Formula

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

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

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

High-Potency Resveratrol with Synergistic Activators

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

A bottle containing 60 vegetarian capsules of **Optimized Resveratrol with Synergistic Grape-Berry Actives** retails for \$46. If a member buys four bottles, the price is reduced to **\$31** per bottle. The suggested dose of one capsule a day provides:

Trans-Resveratrol	250 mg
Grape-Berry Actives	85 mg
Quercetin	60 mg
Trans-Pterostilbene	0.5 mg
Fisetin	10 mg

Item # 01430



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 Optimized Resveratrol with Synergistic
Grape-Berry Actives, call 1-800-544-4440
or visit www.LifeExtension.com

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



AUTHOR INTERVIEW

Young for Life

One hundred and seventy million Americans are obese and in danger of premature aging. Thirty million are “skinny fat,” not outwardly big but inwardly nutrition deficient and also aging prematurely. The authors of this book, both staunch vegans for decades, were among the prematurely aged “skinny fat” population. After witnessing some of the most challenging symptoms of this accelerated decline, Marilyn Diamond, author of the *New York Times* bestseller *Fit for Life*, and Dr. Donald Schnell transformed their health through a radical lifestyle change to reverse aging that most people over 40 will find easy and intuitive.

Young for Life begins with the premise that as a day-to-day choice, you're either building yourself up or tearing yourself down. In science, building up is known as *anabolism*, and tearing down is known as *catabolism*. The knowledge of how to support anabolism, while avoiding excessive catabolism is the secret to life-long vitality, sexuality, and youthfulness through the use of three key life-changing practices:

- A focus on an abundance of the right molecules of nutrition for anabolism to combat genetic aging.
- Convenience exercise—6-second techniques of muscle contraction that are the foundation of shaping sexy muscle anytime, anywhere.
- Disease-prevention—fighting nutrient deficiency with micronutrient supplements.

The following is an exclusive Life Extension® interview with *Young for Life* authors Marilyn Diamond and Dr. Donald “Rock” Schnell.

LE: You have an entire chapter titled: Solar Eclipse – Our Vitamin D Deficiency. Life Extension has long touted the benefits of this vitamin and you make the case that the mass deficiencies seen in Americans are due to an egregious campaign by Big Pharma and Big Government to silence its benefits.

DS: For nearly 30 years, a collective group of individuals from the dermatology associations, governmental regulatory agencies, and the media have been on a campaign to prevent *healthy* and *safe* sun exposure. What they want you to ignore is a historical fact. We’ve had a positive relationship with the sun for as long as humanity has been on the planet. What you’re not told is that scores of respectable researchers, epidemiologists, and dermatologists have published studies that show that sunlight is good for your health.

LE: All of these warnings have lead to a worldwide epidemic of vitamin D deficiency and to a real-world body count of victims, correct?

DS: Let’s put this into perspective. A study published in June 2008 in the *Archives of Internal Medicine* showed that men with low vitamin D levels suffer over twice as many heart attacks (**2.22 times** more).¹ Now let’s look at what this means in actual body counts.

Each year, about 133,958 Americans die from coronary artery disease–related heart attacks. And each year, tens of millions of dollars are being spent to advertise that cholesterol-lowering drugs reduce heart attacks by **39** to

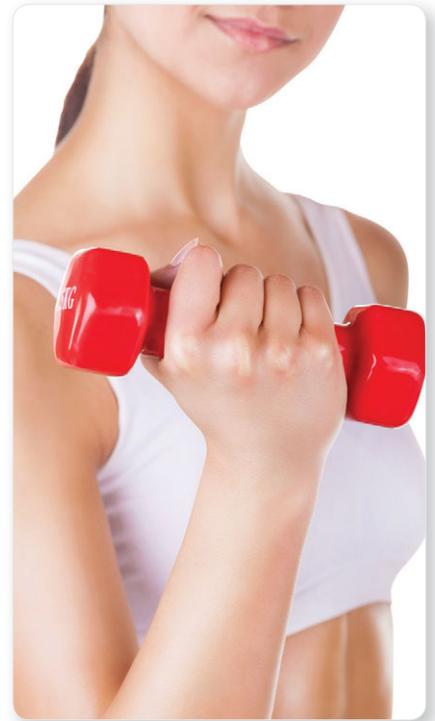
60%. How many more lives could be saved by vitamin D, and without wasting all those advertising dollars?

Combined, all forms of heart disease kill over 724,600 Americans each year. These lethal forms of heart disease include cardiomyopathy, valvular insufficiency, congestive heart failure, arrhythmia, coronary thrombosis (blood clot in coronary artery), and coronary atherosclerosis (narrowing or blockage of coronary arteries). According to that *Archives of Internal Medicine* study, there is *significant* reason to believe that vitamin D could help protect against most of these forms of cardiac-induced death, with the fortuitous side benefit of an increase in libido.¹

LE: You list vitamin E as a lifesaver as well.

DS: Richard A. Passwater, PhD, has been one of America’s leading nutrition-focused biochemists since 1959. He is credited with legitimizing megavitamin therapy through 46 books on nutrition, including the bestseller *Super-Nutrition: Megavitamin Revolution*. Dr. Passwater’s research on cardiovascular health and vitamin E was published in 1971, when he was the first to inform the public of research on antioxidants and free radicals. In 1976, Passwater published more of his research, this time showing that long-term users of vitamin E had less than half the heart disease risk of typical Americans of the same sex and age who did not use the vitamin.

Unfortunately, government and medical experts failed to give a fair hearing to these studies. Instead, the public remained uninformed or unwilling to abandon the anti-saturated-fat and anti-cholesterol chorus in favor of vitamin E supplementation.



LE: You open the first chapter of your book with this question: *How can malnutrition run rampant in the richest nation on earth?* Another way of putting this could be: How are so many obese people, clearly with enough calories available, still deficient in key nutrients?

DS: In this country, food is plentiful, but most of it is processed, artificial, laden with cellular and neurotoxic chemicals, dyes, preservatives, and additives; it is irradiated, fractionated, microwaved, sprayed with pesticides, fungicides, and herbicides; it is stored for long periods or shipped in hot weather; it is contaminated and genetically modified.

Technically, Americans are not starving to death. In fact, we are eating more than enough calories, but we are getting far too few real nutrients. Like a bird attempting to fly with one wing—we’re limping along with symptoms of nutrient deficiencies that we’ve been conditioned to expect and accept.

If you want more energy, but it seems to be slipping away, you're likely deficient in nutrients. The "headache" or "sense of malaise" that keeps you from performing at your peak can be traced directly to your diet.

LE: When did this problem with our food supply start?

DS: Over hundreds of millennia, humans existed on natural foods. These can be defined as foods that are growing and alive, or were recently alive, in nature, in the rain and under the sun—all plant foods, meat, eggs, and fish. We ate our food within minutes or hours of gathering it, because there was little opportunity for storage. Even when we no longer hunted and gathered, we still planted our foods in nature's laboratory of the earth, or found them in the rivers, pastures, and meadows where we lived. We could see food's authenticity. This "stuff of life" was what we recognized as food through the generations, until less than a century ago.

Until that time, there was little possibility of the mass manufacturing, packaging, labeling, warehousing, shipping, and

advertising that completely drive what we eat today. In 1940, a very small percentage of our purchased food was processed. Today, that figure is over **90%**! Processed foods—even when labeled as health foods—are *not* foods; they are modern *artifacts*, a glut of fake foods masquerading as whole, natural foods, consumed in a society that has been conditioned to accept that industry is the modern mom in the kitchen.

LE: The ingestion of nutrient-sparse, pseudo-foods causes what you call *Nutrient Deficiency Disorder*, which you say is clearly one side of the coin responsible for the decline in the health of Americans. The other is what you call *Sedentary Death Syndrome*. Can you explain this condition?

DS: *Sedentary Death Syndrome*, or SeDS, is the term developed by more than 200 leading physiologists to bring attention to the growing epidemic of physical inactivity and poor nutrition, and their relationship to chronic, preventable diseases. It is estimated that **60%** of all Americans are currently at risk for premature disability or death due to poor nutrition and

a sedentary lifestyle. What's most alarming is that some of them are children.

Approximately 2.5 million Americans will die prematurely in the next ten years due to *Sedentary Death Syndrome*; that's greater than the number of deaths related to alcohol, guns, motor vehicles, illicit drug use, and sexual behavior combined. These researchers call *Sedentary Death Syndrome* the second-largest threat to public health and expect it to add as much as \$3 trillion to health care costs over the next ten years, far more than the tax cuts being proposed today.

LE: In your book, you point to some pretty compelling studies that relate exercise to longer life span.

DS: In 2008, British researchers conducted tests on 2,400 sets of twins to measure the length of the telomeres in their DNA, a good indicator of the age-potential of DNA.² With each cell replication, scientists can see that under normal conditions, telomeres tend to shorten, and as they shorten, the ability of the cell to replicate declines until cell replication is no



longer possible. This is one of the major breakthroughs in science today. If we can see that telomeres shorten under certain conditions, we can also determine what we need to do to lengthen them. Never before in the history of humanity have we had this kind of understanding about how to control our longevity.

LE: On this note, you refer to sarcopenia as the epidemic behind the epidemic. Can you explain that?

DS: Sarcopenia is a condition of accelerated muscle wasting that leads to the diseases of premature aging. Identified by the Centers for Disease Control in 1999, this condition was first considered to be a geriatric disease that became severe in one's seventies. However, today muscle wasting can begin even in your twenties or even earlier. As you age, your body naturally loses muscle mass to the tune of about 1 percent a year after age 30; but when you are sedentary and ignore the need for regular muscle contraction to stimulate muscle growth, muscle wasting accelerates, and it can start much earlier in life.

Your very life depends on a healthy ratio of more toned muscle to less fat on your body. Once this healthy ratio is inverted, when you have much more fat than muscle, you expose yourself to the entire chain of the modern killer diseases, including obesity, diabetes, heart attack, stroke, and cancer.

LE: What are the two deadly side effects of muscle wasting?

DS: Muscle wasting has two deadly side effects. First, with less muscle, your metabolism slows down. As your metabolism slows, you burn fewer calories and have less energy. Trapped in the inactivity that leads to *Sedentary Death*



Syndrome, you gain fat weight, which is inactive flabby tissue. The remedy is a lifestyle that easily and quickly builds active, toned muscle tissue, which burns calories even as you rest. Second, the less muscle you have, the less sugar is burned from your blood. Thus, muscle wasting not only prevents fat burning, but also leads to a higher risk of diabetes and heart and kidney disease.

LE: So many lethal problems stem from high blood sugar, but you talk specifically about how increased blood sugar poses problems for our nerves and neurons. How so?

DS: You've heard of diabetic neuropathy—the nerve damage from high blood sugar that can ultimately lead to amputation and death. Did you know that the nerves in your brain and spinal cord are also under siege when your blood sugar is too high? When they are destroyed, and where they are destroyed, the muscles are lost. An early example of this common symptom of nerve damage is the loss of eyesight and hearing. But the greater point we're making is

that a lifestyle that causes excess sugar in the blood affects your nerves and ages you prematurely.

LE: Readers will be interested to know that in addition to wreaking havoc on the body through stress, cortisol also effects sarcopenia, right?

DS: Cortisol plays a major role in sarcopenia. It's the primary catabolic hormone that signals the destruction of your youthful lean muscle tissue, while telling your body to store fat. To fight cortisol, you need to perform anabolic exercises like those in our dynamic Isotonics Routine and eat nutrient-rich anabolic foods before and immediately after exercising.

Often when you're irritable, grouchy, overstressed, or aggressive, cortisol is in control of you. If you wake up in a bad mood, your body could be flooded with cortisol. You don't even know it, but an anabolic food such as plain, unsweetened yogurt will quickly reduce cortisol production. Sugar will also do this, temporarily, for 20 to 30 minutes, but at a serious cost. Sugar suppresses glucagon, your valuable fat-burning hormone.

LE: You mention the importance of many micronutrients, and specifically five other key nutrients to maintain one's youth. Your thoughts on vitamin C are particularly compelling.

DS: Every time you consume vitamin C, somewhere in your body you stop aging. Somewhere you stimulate repair. Somewhere you bring about detoxification. Somewhere you eradicate infection and prevent free radical damage. Somewhere your skin will clear up. You may see fewer wrinkles on your face. According to an article in the August 2002 issue of *Biological Psychiatry*, you'll have more sex and less depression,³ and you'll ward off serious disease. And all this is just scratching the surface, because vitamin C is a miraculous healing nutrient.

What is vitamin C? In our opinion, it should not be classified as a vitamin at all. It stands alone in your body as a unique micronutrient, and it acts like an enzyme in its ability to stimulate a multitude of beneficial biological processes, when it contains the appropriate mineral cofactors. Vitamin C can save your life.

LE: How are collagen and vitamin C linked?

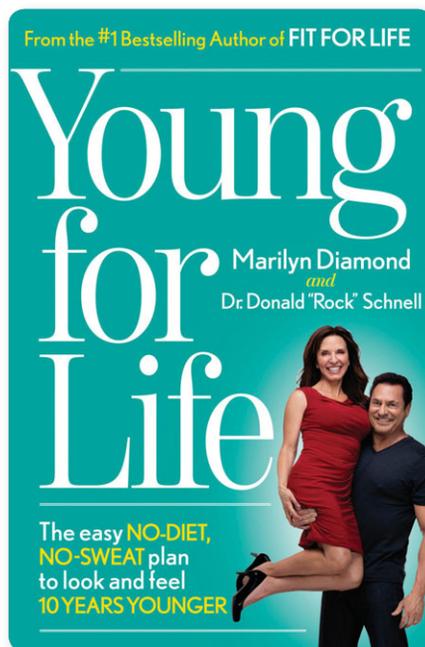
DS: Because a vitamin C deficiency results in poor-quality collagen, suboptimal or minimal amounts of vitamin C over prolonged periods during childhood and early adulthood may be a factor that influences the high incidence of later-life problems such as arthritis and joint diseases, broken hips, heart and vascular diseases that cause sudden death, and the strokes that bring on senility.

Collagen is intimately connected with the entire aging process. Studies show that as you

age, you need larger amounts of vitamin C to maintain and repair collagen damage from stressors in the environment such as pollution, ultraviolet light, CAT scans and other radiation, oxidative stress from free radical formation, and the harmful effects of the protein- and fat-deficient high-carbohydrate and high-sugar diet.

LE: Thank you for all of this information, even though it is literally the tip of the iceberg of what's available in the book. ●

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



To order *Young for Life*, call 1-800-544-4440 or visit www.LifeExtension.com.

Item# 33860
Retail price \$26.99
Member price \$20.25

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Marilyn Diamond gained her claim to fame as the author of *Fit for Life*, one of the best-selling books of all time. In 1986, *Fit for Life* made the Top 25 Best-selling Books in History list. Marilyn's other books include *Fit for Life II*, *Recipes for Life*, *Fitonics*, *A New Way of Eating*, and *The American Vegetarian Cookbook*. Marilyn is a Founder's Day Graduate of New York University and a member of the French National Honor Society.

Dr. Donald Schnell holds a Bachelor of Education from Arizona State University, a Masters in Computer Science from Nova University, and a doctorate in Clinical Hypnotherapy (D.CH) with certification in Medical Hypnotherapy in the State of California. Dr. Schnell is the Founder of Prema Yoga—the Yoga of the Power of Love. He is a certified Reality Therapist, Fire-walking Instructor, and Nimmo therapist.

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.^{1,2}

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:

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

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.

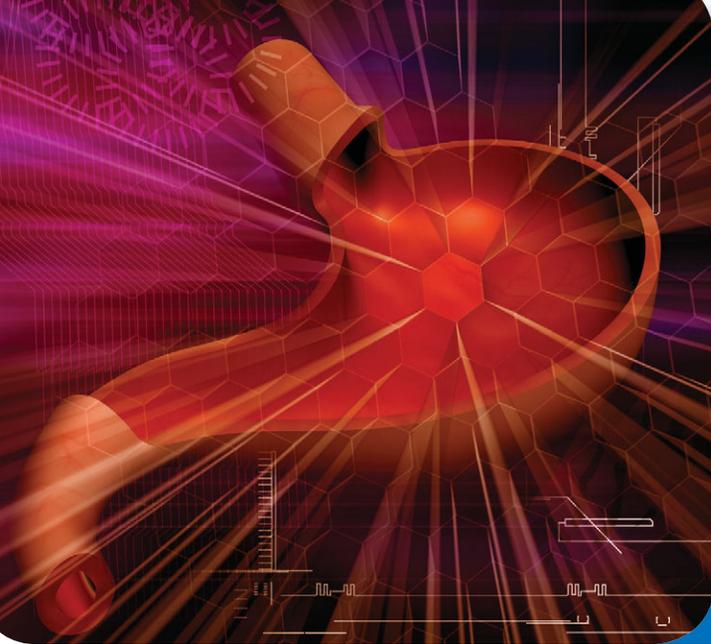
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**To order ArthroMax™ Advanced with UC-II® and AprèsFlex®
call 1-800-544-4440 or visit www.LifeExtension.com**

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



ASK THE PHARMACIST

BY KIMMI LE, PHARMD, CPH

Nutritional Dangers of **Acid Reflux Medications**



Q: I have suffered with acid reflux for many years. My doctor has prescribed Prilosec® indefinitely, which is beyond the maximum recommended window of 8 to 12 weeks. Are there any long-term health complications to this approach and can you suggest any steps I can take to avoid these side effects?

A: Heartburn medications are among the most frequently prescribed medicines in the US with sales exceeding \$13.5 billion annually.¹ Prilosec®, Nexium®, Protonix®, and Aciphex® are known as proton pump inhibitors (PPIs).² They are the most powerful acid secretion inhibitors available today. Unfortunately, long-term use has been linked to nutritional deficiencies, bone fractures, an increased risk of bacterial infection, and even withdrawal symptoms.³⁻⁸

Role of Stomach Acid in Nutrient Absorption

Stomach acid plays an important role in the digestion of your food and nutrients. When the sphincter valve at the end of your esophagus fails to close properly, stomach contents including stomach acid leaks back up into the esophagus, damaging the delicate esophageal lining, causing heartburn. Drugs like Prilosec® inhibit the release of stomach acid and provide some relief. However, the continual reduction of stomach acid through medicines like proton pump inhibitors hinders digestion and absorption of key nutrients.^{9,10} This ultimately leads to deficiencies in key nutrients, such as vitamin B12, iron, calcium, magnesium, folic acid, and zinc.¹¹ Due to the alteration in pH balance in your gut, the absorption of other nutrients is possibly at risk as well.¹¹

- Proton pump inhibitors not only block the release of stomach acid but also something else called “intrinsic factor,”

making it impossible to absorb **vitamin B12**.¹¹⁻¹³

- The inhibition of dietary **iron** can contribute to anemia over a long period of time.¹⁴
- It's well known that **calcium** is best absorbed in the presence of acid.¹⁵
- Proton pump inhibitors are thought to inhibit active transport of **magnesium** in the intestine, leading to deficiencies and potentially serious health outcomes.¹⁶
- Your absorption of **folic acid** is inhibited, disrupting the production of new cells, which helps your body grow and repair itself.^{17,18}
- The absorption of zinc is impaired, which is needed for many enzyme reactions in the body.¹⁹

It is evident that the lack of stomach acid has far-reaching effects that extend well beyond the digestive system.

You can offset these damaging effects by supplementing to provide some protection against these defi-

ciencies. Consider talking to your doctor and at the very least take a blood test (Complete Blood Count, Comprehensive Metabolic Panel) to check for nutrient deficiencies.

Increased Risk of Fractures

A 2011 meta-analysis study in *The Annals of Family Medicine* reported that high doses or long-term usage of proton pump inhibitors (PPIs) have been linked to an increased risk of osteoporosis-related fractures of any type, including wrist, spine, and hip.²⁰ This elevated risk of osteoporosis is connected to the drastic drop in calcium absorption while on these medications.^{21,22} If you are taking a proton pump inhibitor, make sure you avoid a calcium deficiency by supplementing with a high-quality, bio-available calcium to offset the depletion of this mineral. Scientific evidence shows that calcium can be an effective bone builder, especially when combined with vitamin D3 and vitamin K.²³

Increased Risk of Infections

When you decrease acid secretion in the stomach, you also boost the risk of infection.^{4,5,24,25} Without adequate stomach acid present, large amounts of undigested food pass into the intestines, contributing to the growth of opportunistic organisms, an increase in toxins, and an imbalance in intestinal flora.²⁶ Studies published in the *Journal of the American Medical Association* revealed that when taking a proton pump inhibitor drug, the risk of developing pneumonia increases up to **89%**, and the risk of developing a potentially



deadly chronic infection from the intestinal bacterium *Clostridium difficile* increases as well.²⁷⁻²⁹

A randomized, double-blind, controlled trial published in *Gastroenterology* shows that withdrawal from acid blockers can lead to *rebound acid hypersecretion*, which then forces the patient to immediately go back to the acid blocker drug.³⁰ This becomes a vicious cycle of trying to stop the drug, but the body has become conditioned to be dependent on the drug for acid regulation.

Practical Recommendations

If you suffer from acid reflux, there are a number of preventative measures you can take to limit reflux symptoms without having to rely on proton pump inhibitors.^{31,32}

- Eat slow. Eat smaller, frequent meals
- Avoid fried junk food
- Limit alcohol
- Replace sodas with water and other healthy beverages
- Reduce drug intake (caffeine, prescription, and over-the-counter medications)
- Choose foods with care
- Quit smoking
- Don't eat within two to three hours before bedtime
- Maintain a healthy weight
- Wear loose-fitting clothes
- Manage stress

When evaluating your symptoms, your doctor should assess whether they are due to the illness, side effects of the drugs, or if they are caused by a drug-induced nutrient depletion. Taking a high-

quality multivitamin and mineral supplement with a focus on the nutrients being depleted from the acid blockers will generally offset an imbalance.

In addition, a number of natural remedies have been found to soothe the gut:

- Supplement with a good digestive enzyme formula to promote healthy digestion. Look for a formula that includes only proteases (which break down proteins) and lipases (which break down fats). Be aware that many formulas also include carbohydrases (which break down carbohydrates) that increase absorption of sugar and can cause unwanted spikes in post-meal blood sugar levels.
- Take 1-2 teaspoons of apple cider vinegar mixed with water and raw honey to reduce symptoms of acid reflux and poor digestion.
- Deglycyrrhizinated licorice (DGL) has been shown to provide soothing relief of the stomach lining and intestinal tract.³³ Although licorice is best known as a flavor for candy, it contains a compound called glycyrrhizin, which is known to pose certain health problems in high doses. However, many of today's digestive formulas utilize DGL which does not contain the glycyrrhizinated compound. Look for a label that specifically states "DGL" or "deglycyrrhizinated licorice."
- D-limonene, a supplement extracted from the peels of citrus fruit, helps to neutralize gastric acid and supports normal peristalsis for relief of heartburn and gastroesophageal reflux (GERD).³⁴

- Supplement with betaine hydrochloride after meals to help with digestion.
- Re-inoculate the gut with healthy bacteria by using probiotics.

Summary

Despite the well-known safety profile of proton pump inhibitors, the risks associated with long-term use can play an integral part in developing serious health complications later on. More importantly, working toward eliminating the cause of your gastric distress can decrease or even eliminate your need for this medication. (Note: Altering your dose or discontinuing any of your prescription medications should always be done under the care and supervision of your physician.) ●

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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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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.

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<input type="radio"/> MALE LIFE EXTENSION PANEL (LC322582) \$400 \$199 CBC/Chemistry Profile (description on next page) DHEA-S PSA (prostate-specific antigen) Homocysteine C-Reactive Protein (high-sensitivity) Free Testosterone Total Testosterone Estradiol TSH for thyroid function Vitamin D (25-hydroxyvitamin D) Hemoglobin A1c			<input type="radio"/> FEMALE LIFE EXTENSION PANEL (LC322535) \$400 \$199 CBC/Chemistry Profile (description on next page) DHEA-S Estradiol Homocysteine C-Reactive Protein (high-sensitivity) Progesterone Free Testosterone Total Testosterone TSH for thyroid function Vitamin D (25-hydroxyvitamin D) Hemoglobin A1c		
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> NEW & IMPROVED NOW INCLUDES HbA1c </div>			<div style="border: 1px solid black; padding: 5px; display: inline-block;"> NEW & IMPROVED NOW INCLUDES HbA1c </div>		
<input type="radio"/> MALE HORMONE ADD-ON PANEL* (LCADDM) \$206.75 \$116.25 Pregnenolone and Dihydrotestosterone (DHT) To provide an even more in-depth analysis of a man's hormone status, Life Extension has created this panel as an addition to the Male Life Extension Panel. This panel provides information about a testosterone metabolite that can affect the prostate; and the hormone pregnenolone that acts as a precursor to all other steroid hormones.			<input type="radio"/> FEMALE HORMONE ADD-ON PANEL* (LCADDF) \$166.75 \$93.75 Pregnenolone and Total Estrogen 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 information about total estrogen status; and the hormone pregnenolone that acts as a precursor to all other steroid hormones.		
<input type="radio"/> THYROID ADD-ON PANEL (LCTHYROID) \$73.33 \$36 Free T3 & Free T4.			<input type="radio"/> THYROID ADD-ON PANEL (LCTHYROID) \$73.33 \$36 Free T3 & Free T4.		
<input type="radio"/> OMEGA SCORE™™™ (LCOMEGA) \$175 \$99 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.			<input type="radio"/> OMEGA SCORE™™™ (LCOMEGA) \$175 \$99 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.		
<input type="radio"/> COENZYME Q10* (LC120251) \$132 \$74.25 Research is revealing that maintaining higher blood levels of CoQ10 may offer greater health benefits. This test measures blood levels of CoQ10.			<input type="radio"/> COENZYME Q10* (LC120251) \$132 \$74.25 Research is revealing that maintaining higher blood levels of CoQ10 may offer greater health benefits. This test measures blood levels of CoQ10.		
<input type="radio"/> VAP™ TEST (LC804500) \$120 \$67.50 The VAP™ cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid profile. This test includes measurements of LDL particle size and lipoprotein subclasses.			<input type="radio"/> VAP™ TEST (LC804500) (UPDATED) \$120 \$67.50 The VAP™ cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid profile. This test includes measurements of LDL particle size and lipoprotein subclasses.		
<input type="radio"/> FOOD SAFE ALLERGY TEST** (LCM73001) \$264 \$148.50 This test measures delayed (IgG) food allergies for 95 common foods.			<input type="radio"/> FOOD SAFE ALLERGY TEST** (LCM73001) \$264 \$148.50 This test measures delayed (IgG) food allergies for 95 common foods.		
SUGGESTED ADDITIONS TO ANNUAL BLOOD TESTING					
<input type="radio"/> INSULIN (LC004333) \$33.33 \$23.25 Helpful to assess insulin resistance.			<input type="radio"/> HEAVY METALS PANEL (BLOOD) (LC100003) \$265.33 \$149.25 Panel tests for mercury, arsenic, and aluminum.		
<input type="radio"/> CORTISOL (LC004051) \$52 \$29.25 This test is used to help assess adrenal function.			<input type="radio"/> FERRITIN (LC004598) \$37 \$21 Used to evaluate iron stores in the body and to determine iron deficiency anemia.		
<input type="radio"/> LP-PLA2 (PLAC® TEST) (LC123240) \$175 \$93.75 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"/> VITAMIN B12/FOLATE (LC000810) \$44 \$24.75 This test measures the amount of vitamin B12 and folate in the blood.		

* For non-member pricing call 1-800-208-3444.
 ** This test is packaged as a kit, requiring a finger stick performed at home.



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<input type="radio"/> CBC/CHEMISTRY PROFILE (LC381822)	\$47	\$26
Note: This CBC/Chemistry Profile is included in many Life Extension Panels. Please note panel descriptions.		
CARDIOVASCULAR RISK PROFILE		
Total Cholesterol	Cholesterol/HDL Ratio	
HDL Cholesterol	Estimated CHD Risk	
LDL Cholesterol	Glucose	
Triglycerides		
LIVER FUNCTION PANEL		
AST (SGOT)	Total Bilirubin	
ALT (SGPT)	Alkaline phosphatase	
LDH		
KIDNEY FUNCTION PANEL		
BUN	BUN/Creatinine Ratio	
Creatinine	Uric Acid	
BLOOD PROTEIN LEVELS		
Total Protein	Globulin	
Albumin	Albumin/Globulin Ratio	
BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE		
Red Blood Cell Count	Monocytes	
White Blood Cell Count	Lymphocytes	
Eosinophils	Platelet Count	
Basophils	Hemoglobin	
Neutrophils (Absolute)	Hematocrit	
Lymphs (Absolute)	MCV	
Monocytes (Absolute)	MCH	
Eos (Absolute)	MCHC	
Baso (Absolute)	Neutrophils	
RDW		
BLOOD MINERAL PANEL		
Calcium	Sodium	
Potassium	Chloride	
Phosphorus	Iron	
<input type="radio"/> FEMALE WEIGHT LOSS PANEL (LCWLF)	\$398.67	\$224.25
CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, C-Reactive Protein (high-sensitivity), Progesterone, free and total Testosterone, TSH, SHBG, Free T3, Free T4, Insulin.		
<input type="radio"/> MALE WEIGHT LOSS PANEL (LCWLM)	\$398.67	\$224.25
CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, C-Reactive Protein (high-sensitivity), PSA, free and total Testosterone, TSH, SHBG, Free T3, Free T4, Insulin.		
<input type="radio"/> COMPREHENSIVE THYROID PANEL (LC100018)	\$265.33	\$149.25
TSH, T4, Free T4, Free T3, Reverse T3, TPO, ATA.		
<input type="radio"/> LIFE EXTENSION THYROID PANEL (LC304131)	\$100	\$56.25
TSH, T4, Free T3, Free T4.		
<input type="radio"/> FEMALE COMPREHENSIVE HORMONE PANEL† (LC100011)	\$398.66	\$224.25
CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, Total Estrogens, Progesterone, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.		
<input type="radio"/> MALE COMPREHENSIVE HORMONE PANEL† (LC100010)	\$398.66	\$224.25
CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.		
<input type="radio"/> MALE BASIC HORMONE PANEL (LC100012)	\$100	\$56.25
DHEA-S, Estradiol, Total and Free Testosterone, PSA.		
<input type="radio"/> FEMALE BASIC HORMONE PANEL (LC100013)	\$100	\$56.25
DHEA-S, Estradiol, Total and Free Testosterone, Progesterone.		

	(NON-MEMBER) RETAIL PRICE	MEMBER SUPER SALE PRICE
<input type="radio"/> ADRENAL FUNCTION PANEL (LC100021)	\$181.33	\$102
DHEA-s, Cortisol AM/PM, Glucose, Insulin, Lipid Panel, RBC Magnesium		
<input type="radio"/> ENERGY PROFILE (LC100005)	\$500	\$281.25
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"/> ANEMIA PANEL (LC100006)	\$114.66	\$64.50
CBC/Chemistry Profile (see description), Ferritin, Total Iron Binding Capacity (TIBC), Vitamin B12, Folate, Reticulocyte Count.		
<input type="radio"/> INFLAMMATION PANEL (LC100007)	\$180	\$101.25
CBC/Chemistry Profile (see description above), C-Reactive Protein (high sensitivity), Sedimentation Rate, Rheumatoid (RA) Factor, Antinuclear Antibodies (ANA) Screen.		
<input type="radio"/> CARDIAC PLUS† (LC100008)	\$193.33	\$108.75
CBC/Chemistry profile (see description), Vitamin D 25-hydroxy, C-Reactive Protein (high sensitivity), Fibrinogen, Homocysteine.		
<input type="radio"/> VAP™ PLUS† (LC100009)	\$440	\$247.50
VAP™, C-Reactive Protein (high sensitivity), Homocysteine, Fibrinogen, PLAC® Test (Lp-PLA2), Vitamin D 25-hydroxy.		
<input type="radio"/> THYROID ANTIBODY PROFILE (LC100004)	\$132	\$74.25
Thyroid Antithyroglobulin Antibody (ATA) and Thyroid Peroxidase Antibody (TPO).		
<input type="radio"/> DIABESITY PANEL (LC100019)	\$212	\$119.25
Glucose, Insulin, HbA1c, VAP™, Cortisol, C-Reactive Protein.		
<input type="radio"/> MITOCHONDRIAL FUNCTION PANEL (LC100020)	\$212	\$119.25
Carnitine (Free with Total), CoQ10, Glucose		
SINGLE TESTS		
<input type="radio"/> VITAMIN D-25 HYDROXY (LC081950)	\$62.67	\$30
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Cognitex® with Pregnenolone &
NeuroProtection Complex
Cognitex® Basics
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Rich Rewards™ Spicy Cruciferous Vegetable Soup
Rich Rewards™ Cruciferous Vegetable Soup
Rich Rewards™ Lentil Soup
Rich Rewards® Coffee

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®
PhosphoOmega®
Policosanol
Pycnogenol® French Maritime Pine Bark Extract
Red Yeast Rice
Super Absorbable CoQ10™ with d-Limonene
Super Omega-3 EPA/DHA with Sesame
Lignans & Olive Fruit Extract
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with Enhanced
Mitochondrial™ Support
Theaflavin Standardized Extract
TMG Powder
TMG Tablets

HERBAL/PHYTO PRODUCTS

Artichoke Leaf Extract
Berry Complete
Astaxanthin w/Phospholipids
Blueberry Extract
Blueberry Extract w/Pomegranate
Butterbur Extract w/Standardized
Rosmarinic Acid
Calcium D-Glucarate
Enhanced Berry Complete with RZD™ 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
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 with Vitamin C

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
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/Vitamin C Lozenges

MISCELLANEOUS

Blood Pressure Monitor Arm Cuff
 Cell Sensor Gauss Meter™
 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

Children's Formula Life Extension Mix
 Comprehensive Nutrient Packs Basic
 Comprehensive Nutrient Packs Advanced
 Life Extension Booster
 Life Extension Mix™ Capsules
 Life Extension Mix™ Powder
 Life Extension Mix™ Tablets
 Life Extension Mix™ w/o Copper Capsules
 Life Extension Mix™ w/o Copper Tablets
 Life Extension Mix™ w/Extra Niacin
 Life Extension Mix™ w/Extra Niacin w/o Copper
 Life Extension Mix™ w/Stevia Powder
 Life Extension Mix™ w/Stevia w/o Copper Powder
 Life Extension One-Per-Day
 Life Extension Two-Per-Day
 Super Booster Softgels w/Advanced K2 Complex

PET CARE

Cat Mix
 Dog Mix

PROSTATE & URINARY HEALTH

Optimized Cran-Max® with UTRose™
 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 Sendara®
 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
 Peel Off Cleansing Mask
 Pigment Correcting Cream
 (Ultra) Rejuvenex®
 Rejuvenex® Body Lotion
 Rejuvenex® Factor Firming Serum
 Rejuvenating Serum
 Resveratrol Anti-Oxidant Serum
 Skin Lightening Serum
 Skin Restoring Phytoceramides w/Lipowheat®
 Skin Stem Cell Serum
 Stem Cell Cream w/Alpine Rose
 Supercritical Omega 7™
 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
 Breast Health Formula
 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
 Femmensesence MacaPause®

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

VITAMINS

Ascorbyl Palmitate Capsules
 B12
 Beta-Carotene
 Biotin Capsules
 Buffered Vitamin C Powder
 Complete B Complex
 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 Tablets
 Vitamin C
 Vitamin D
 Vitamin D3
 Vitamin D3 w/Sea-Iodine™
 Vitamins D and K w/Sea-Iodine™
 Vitamin E
 Vitamin K1

WEIGHT MANAGEMENT

Alli® Refill Pack
 Advanced Anti-Adipocyte Formula w/AdipoStat & Integra Lean®
 Calorie Control Weight Management™ Formula w/CoffeeGenic® Green Coffee Extract
 CoffeeGenic® Weight Management™ with Green Coffee Extract
 7-Keto DHEA
 DHEA® Complete
 Fucoxanthin Slim™
 HCA
 Integra-Lean® Irvingia
 LuraLean® Caps Special Propolmannan Particle Size
 Optimized Irvingia w/Phase 3™ Calorie Control Complex
 Optimized Saffron with Satiereal®
 Natural Appetite Control
 Natural Glucose Absorption Control
 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
A					
01524	ACETYL-L-CARNITINE - 500 mg, 100 veg. caps	\$34.00	\$25.50		
	Buy 4 bottles, price each	30.00	22.50		
01525	ACETYL-L-CARNITINE ARGINATE - 100 veg. caps	59.00	44.25		
	Buy 4 bottles, price each	50.99	38.24		
01628	ADRENAL ENERGY FORMULA - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01630	ADRENAL ENERGY FORMULA - 120 veg. caps	46.00	34.50		
	Buy 4 bottles, price each	42.00	31.50		
01308	ADVANCED LIPID CONTROL - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01521	ADVANCED ORAL HYGIENE - 60 veg. mint lozenges	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00681	AHCC - 500 mg, 30 caps	59.98	44.99		
	Buy 4 bottles, price each	53.33	40.00		
*46925	ALLI® REFILL PACK - 120 caps	69.95	58.00		
00457	ALPHA-LIPOIC ACID w/BIOTIN (SUPER) - 250 mg, 60 caps	37.00	27.75		
	Buy 4 bottles, price each	32.00	24.00		
01440	ANTI-ALCOHOL ANTIOXIDANTS w/HEPATOPRO - 100 caps	26.00	19.50		
	Buy 4 bottles, price each	23.00	17.25		
01509	ANTI-ADIPOCYTE FORMULA w/ADIPOSTAT & INTEGRA LEAN®(ADVANCED) - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
01625	APPLEWISE POLYPHENOL EXTRACT - 600 mg, 30 veg. caps	21.00	15.75		
	Buy 4 bottles, price each	19.00	14.25		
01039	ARGININE/ORNITHINE - 500/250, 100 caps	16.00	12.00		
	Buy 4 bottles, price each	14.50	10.88		
00038	ARGININE/ORNITHINE POWDER - 150 grams	22.95	17.21		
	Buy 4 bottles, price each	19.00	14.25		
01624	(L)-ARGININE CAPS - 700 mg, 200 veg. caps	26.50	19.88		
	Buy 4 bottles, price each	23.25	17.44		
01617	ARTHROMAX™ w/THEAFLAVINS & APRESFLEX® - 120 veg. caps	44.00	33.00		
	Buy 4 bottles, price each	40.00	30.00		
01618	ARTHROMAX™ ADVANCED w/UC-II® & APRESFLEX® - 60 caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01404	ARTHRO-IMMUNE JOINT SUPPORT - 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
00919	ARTICHOKE LEAF EXTRACT - 500 mg, 180 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.38	19.04		
01533	ASCORBYL PALMITATE - 500 mg, 100 veg. caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
00888	ASHWAGANDHA EXTRACT (OPTIMIZED) - 60 veg. caps	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
01066	ASPIRIN - 81 mg, 300 enteric coated tablets	6.00	4.50		
	Buy 4 bottles, price each	5.33	4.00		
01720	ASTAXANTHIN WITH PHOSPHOLIPIDS - 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					
00920	BENFOTIAMINE w/ THIAMINE - 100 mg, 120 veg. caps	\$19.95	\$14.96		
	Buy 4 bottles, price each	18.60	13.95		
00925	BENFOTIAMINE (MEGA) - 250 mg, 120 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01206	BERRY COMPLETE - 30 veg. caps	21.00	15.75		
	Buy 4 bottles, price each	18.67	14.00		
01406	BERRY COMPLETE w/RZD™ ACAI (ENHANCED) - 60 veg. caps	29.00	21.75		
	Buy 4 bottles, price each	26.00	19.50		
00664	BETA-CAROTENE - 25,000 IU, 100 softgels	11.25	8.44		
	Buy 4 bottles, price each	10.13	7.60		
01622	BIFIDO GI BALANCE - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01073	BILBERRY EXTRACT - 100 mg, 100 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01512	BIOACTIVE MILK PEPTIDES - 30 caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01631	BIO-COLLAGEN w/PATENTED UC-II® - 60 caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
*01006	BIOSIL™ - 5 mg, 30 veg. caps	18.95	15.16		
*01007	BIOSIL™ - 1 fl oz	29.99	23.99		
00102	BIOTIN - 600 mcg, 100 caps	7.50	5.63		
	Buy 4 bottles, price each	6.50	4.88		
01709	BLACK CUMIN SEED OIL - 60 softgels	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
01710	BLACK CUMIN SEED OIL w/BIO-CURCUMIN® - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
01008	BLAST™ - 600 grams of powder	26.95	20.21		
70000	BLOOD PRESSURE MONITOR - ARM CUFF (medium)	99.95	64.97		
70004	BLOOD PRESSURE MONITOR - WRIST (travel size)	69.95	52.46		
01214	BLUEBERRY EXTRACT - 60 veg. caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
01438	BLUEBERRY EXTRACT w/ POMEGRANATE - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01611	BONE RESTORE - 150 caps	22.50	16.88		
	Buy 4 bottles, price each	19.50	14.63		
01711	BONE RESTORE w/VITAMIN K2 - 150 caps	26.00	19.50		
	Buy 4 bottles, price each	23.00	17.25		
01211	BONE STRENGTH FORMULA w/KOACT® - 120 caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
00313	BONE-UP® - 240 caps	28.95	21.71		
	Buy 4 bottles, price each	27.21	20.41		
01379	BOOSTER - 60 softgels	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01680	BOOSTER w/ADVANCED K2 COMPLEX (SUPER) - 60 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01661	BORON - 3 mg, 100 veg. caps	5.95	4.46		
	Buy 4 bottles, price each	5.25	3.94		
00202	BOSWELLA - 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	BRANCHED CHAIN AMINO ACIDS - 90 veg. caps Buy 4 bottles, price each	\$19.50 17.00	\$14.63 12.75		
01699	BREAST HEALTH FORMULA - 60 veg. caps Buy 4 bottles, price each	34.00 30.00	25.50 22.50		
00893	BRITE EYES III - 2 vials, 5 ml each Buy 4 boxes, price each	34.00 32.00	25.50 24.00		
01203	BROMELAIN (SPECIALLY-COATED) - 500 mg, 60 enteric coated tablets Buy 4 bottles, price each	21.00 19.00	15.75 14.25		
00884	BUTTERBUR EXT. w/STANDARDIZED ROSMARINIC ACID - 60 softgels Buy 4 bottles, price each	44.00 39.60	33.00 29.70		
C					
01653	CALCIUM CITRATE w/VITAMIN D - 300 caps Buy 4 bottles, price each	\$24.00 21.25	\$18.00 15.94		
01651	CALCIUM D-GLUCARATE - 200 mg, 60 veg. caps Buy 4 bottles, price each	18.00 15.00	13.50 11.25		
01693	CALORIE CONTROL WEIGHT MANAGEMENT FORMULA w/COFFEEGENIC® GREEN COFFEE EXTRACT BLUEBERRY FLAVOR - 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	CALORIE CONTROL WEIGHT MANAGEMENT FORMULA w/COFFEEGENIC® GREEN COFFEE EXTRACT BLUEBERRY FLAVOR - 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	CARDIO PEAK™ w/STANDARDIZED HAWTHORN & ARJUNA - 120 veg. caps Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
00916	CARNITINE w/GLYCOCARN® (OPTIMIZED) - 60 veg. caps Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
01532	L-CARNITINE - 500 mg, 30 veg. caps Buy 4 bottles, price each	15.00 13.20	11.25 9.90		
01719	L-CARNITINE POWDER NATURAL LEMON FLAVOR - 114 grams Buy 4 jars, price each	28.00 24.00	21.00 18.00		
01258	CARNOSOOTHIE w/PICROPROTECT™ - 60 veg. caps Buy 4 bottles, price each	29.95 27.00	22.46 20.25		
01687	CARNOSINE (SUPER) - 500 mg, 90 veg. caps Buy 4 bottles, price each	66.00 60.00	49.50 45.00		
01003	CAT MIX - 100 grams powder Buy 4 jars, price each	15.00 12.00	11.25 9.00		
01659	CDP CHOLINE CAPS - 250 mg, 60 veg. caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		
00998	CELL SENSOR-EMF DETECTION METER	39.95	29.95		
01370	CHILDREN'S FORMULA LIFE EXTENSION MIX™ - 100 chewable tablets Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00550	CHLORELLA - 500 mg, 200 tablets Buy 4 bottles, price each	23.50 21.00	17.63 15.75		
01571	CHLOROPHYLLIN - 100 mg, 100 veg. caps Buy 4 bottles, price each	24.00 20.00	18.00 15.00		
01359	CHO-LESS™ - 90 capsules	32.50	24.38		
01477	CHROMIUM ULTRA - 100 veg. caps Buy 4 bottles, price each	24.00 21.00	18.00 15.75		
01504	CHROMIUM W/CROMINEX® 3+ (OPTIMIZED) - 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	CINSULIN® W/INSEA® AND CROMINEX® 3+ - 90 veg. caps Buy 4 bottles, price each	\$38.00 34.00	\$28.50 25.50		
00818	CLA BLEND W/SESAME LIGNANS (SUPER) - 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	CLA BLEND w/GUARANA & SESAME (SUPER) -1000 mg, 120 softgels Buy 4 bottles, price each	42.00 38.33	31.50 28.75		
01707	COFFEEGENIC® WEIGHT MANAGEMENT™ w/GREEN COFFEE EXTRACT - 90 veg. caps Buy 4 bottles, price each	48.00 42.00	36.00 31.50		
01697	COGNITEX® w/PREGNENOLONE & NEUROPROTECTION COMPLEX - 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	COGNITEX® w/o PREGNENOLONE w/NEUROPROTECTION COMPLEX - 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	COGNITEX® BASICS - 60 softgels Buy 4 bottles, price each Buy 12 bottles, price each	38.00 35.00 32.00	28.50 26.25 24.00		
01542	COMPLETE B-COMPLEX - 60 veg. caps Buy 4 bottles, price each	10.00 9.00	7.50 6.75		
01795	COMPREHENSIVE NUTRIENT PACKS BASIC - 30 packs Buy 4 boxes, price each	48.00 44.00	36.00 33.00		
01796	COMPREHENSIVE NUTRIENT PACKS ADVANCED - 30 packs Buy 4 boxes, price each	90.00 82.00	67.50 61.50		
00119	COPPER CAPSULES - 2 mg, 100 caps Buy 4 bottles, price each	9.91 8.96	7.43 6.72		
00949	COQ10™ w/ #LIMONENE (SUPER ABSORBABLE) - 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	COQ10™ w/ #LIMONENE (SUPER ABSORBABLE) - 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	COQ10 (SUPER UBIQUINOL) - 100 mg, 60 softgels Buy 4 bottles, price each Buy 10 bottles, price each	56.00 52.00 48.00	42.00 39.00 36.00		
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -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	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -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	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -50 mg, 30 softgels Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -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	CORIOLUS SUPER STRENGTH - 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
C CONTINUED					
80140	COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS - .33 oz Buy 2 bottles, price each	\$49.00 42.00	\$36.75 31.50		
80139	COSMESIS AMBER SELF MICRODERMABRASION - 2 oz Buy 2 jars, price each	49.00 42.00	36.75 31.50		
80118	COSMESIS ANTI-AGING MASK - 2 oz Buy 2 bottles, price each	72.00 63.36	54.00 47.52		
80134	COSMESIS ANTI-GLYCATION SERUM - 1 oz W/BLUEBERRY & POMEGRANATE EXTRACTS Buy 2 bottles, price each	33.00 31.35	24.75 23.51		
80133	COSMESIS ANTIOXIDANT FACIAL MIST - 2 oz Buy 2 bottles, price each	32.00 30.40	24.00 22.80		
80127	COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2 oz Buy 2 jars, price each	45.00 42.80	33.75 32.10		
80128	COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2 oz Buy 2 jars, price each	59.00 51.92	44.25 38.94		
80117	COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2 oz Buy 2 jars, price each	64.00 57.49	48.00 43.12		
80121	COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2 oz Buy 2 jars, price each	58.00 51.04	43.50 38.28		
80105	COSMESIS ANTI-REDNESS & ADULT BLEMISH LOTION - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80147	COSMESIS BIOFLAVONOID CREAM - 1 oz jar Buy 2 jars, price each	46.00 39.00	34.50 29.25		
80144	COSMESIS BROCCOLI SPROUT CREAM - 1 oz Buy 2 jars, price each	46.00 39.00	34.50 29.25		
80120	COSMESIS CORRECTIVE CLEARING MASK - 2 oz Buy 2 jars, price each	64.50 56.76	48.38 42.57		
80141	COSMESIS DNA REPAIR CREAM - 1 oz jar Buy 2 jars, price each	49.00 42.00	36.75 31.50		
80108	COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 oz Buy 2 bottles, price each	74.95 65.95	56.21 49.46		
80123	COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 oz Buy 2 jars, price each	69.50 61.16	52.13 45.87		
80107	COSMESIS FINE LINE-LESS - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80131	COSMESIS HAIR SUPPRESS FORMULA - 4 oz Buy 2 bottles, price each	59.00 51.92	44.25 38.94		
80137	COSMESIS HEALING FORMULA ALL-IN-ONE CREAM - 1 oz Buy 2 jars, price each	53.00 45.43	39.75 34.07		
80115	COSMESIS HEALING MASK - 2 oz Buy 2 bottles, price each	64.50 56.76	48.38 42.57		
80102	COSMESIS HEALING VITAMIN K CREAM - 1 oz Buy 2 bottles, price each	79.50 69.96	59.63 52.47		
80109	COSMESIS HYALURONIC FACIAL MOISTURIZER - 1 oz Buy 2 bottles, price each	58.00 51.04	43.50 38.28		
80110	COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 1 oz Buy 2 bottles, price each	58.00 51.04	43.50 38.28		
80138	COSMESIS HYDRATING ANTIOXIDANT FACE MIST - 4 oz Buy 2 bottles, price each	39.95 38.00	29.96 28.50		
80103	COSMESIS LIFTING & TIGHTENING COMPLEX - 1 oz Buy 2 tubes, price each	74.50 65.56	55.88 49.17		

SUB-TOTAL OF COLUMN 5

No.		Retail Each	Member Each	Qty	Total
80146	COSMESIS LYCOPENE CREAM - 1 oz jar Buy 2 jars, price each	\$28.00 25.40	\$21.00 19.05		
80135	COSMESIS MELATONIN CREAM - 1 oz Buy 2 jars, price each	33.00 27.10	24.75 20.33		
80114	COSMESIS MILD FACIAL CLEANSER - 8 oz Buy 2 bottles, price each	59.00 51.92	44.25 38.94		
80122	COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2 oz Buy 2 jars, price each	64.00 56.32	48.00 42.24		
80111	COSMESIS PIGMENT CORRECTING CREAM - 1/2 oz Buy 2 bottles, price each	74.00 65.12	55.50 48.84		
80106	COSMESIS REJUVENATING SERUM - 1 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80142	COSMESIS RESVERATROL ANTI-OXIDANT SERUM - 1 oz Buy 2 bottles, price each	46.00 39.00	34.50 29.25		
80112	COSMESIS SKIN LIGHTENING SERUM - 1/2 oz Buy 2 bottles, price each	85.00 74.80	63.75 56.10		
80130	COSMESIS SKIN STEM CELL SERUM - 1 oz Buy 2 bottles, price each	74.00 69.00	55.50 51.75		
80143	COSMESIS STEM CELL CREAM W/ALPINE ROSE - 1 oz jar Buy 2 jars, price each	66.00 58.00	49.50 43.50		
80148	COSMESIS TIGHTENING & FIRMING NECK CREAM - 2 oz jar Buy 2 jars, price each	39.00 35.00	29.25 26.25		
80116	COSMESIS ULTRA LIP PLUMPER - 1/3 oz Buy 2 bottles, price each	64.00 56.32	48.00 42.24		
80101	COSMESIS ULTRA WRINKLE RELAXER - 1 oz Buy 2 bottles, price each	89.95 79.76	67.46 59.82		
80113	COSMESIS UNDER EYE REFINING SERUM - 1/2 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80104	COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz Buy 2 bottles, price each	74.50 65.56	55.88 49.17		
80129	COSMESIS VITAMIN C SERUM - 1 oz Buy 2 bottles, price each	85.00 74.80	63.75 56.10		
80136	COSMESIS VITAMIN D LOTION - 4 oz Buy 2 bottles, price each	36.00 33.66	27.00 25.25		
80145	COSMESIS VITAMIN E-ESSENTIAL CREAM - 1 oz Buy 2 jars, price each	28.00 26.00	21.00 19.50		
80149	COSMESIS YOUTH SERUM - 1 oz Buy 2 bottles, price each	65.00 57.00	48.75 42.75		
00862	CRAN-MAX® - 500 mg, 60 veg. caps Buy 4 bottles, price each	17.50 15.00	13.13 11.25		
01424	CRAN-MAX® with UTI ROSE™ (OPTIMIZED) - 60 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01529	CREATINE CAPSULES - 120 veg. caps Buy 4 bottles, price each	10.95 9.25	8.21 6.94		
01746	CREATINE WHEY GLUTAMINE POWDER - 454 grams (vanilla) Buy 4 jars, price each	30.00 27.00	22.50 20.25		
01429	CR MIMETIC LONGEVITY FORMULA - 60 veg. caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
*33840	CRWAY GREAT GLUCOSE CONTROL CD	98.00	82.00		
**CRWAY	CR WAY OPTIMAL HEALTH PROGRAM SOFTWARE	195.00	195.00		
00407	CURCUMIN® (SUPER BIO) - 400 mg, 60 veg. caps Buy 4 bottles, price each	38.00 35.00	28.50 26.25		

SUB-TOTAL OF COLUMN 6

No.		Retail Each	Member Each	Qty	Total
D					
00658	7-KETO® DHEA METABOLITE - 25 mg, 100 caps Buy 4 bottles, price each	\$28.00 24.00	\$21.00 18.00		
01479	7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
01640	DHA (VEGETARIAN SOURCED) - 200 mg, 30 veg. softgels Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
00607	DHEA - 25 mg, 100 tablets (dissolve in mouth) Buy 4 bottles, price each	14.00 11.75	10.50 8.81		
01478	DHEA COMPLETE - 60 veg. caps Buy 4 bottles, price each	48.00 43.20	36.00 32.40		
00335	DHEA - 25 mg, 100 caps Buy 4 bottles, price each	18.00 15.00	13.50 11.25		
00454	DHEA - 15 mg, 100 caps Buy 4 bottles, price each	14.00 12.00	10.50 9.00		
00882	DHEA - 50 mg, 60 caps Buy 4 bottles, price each	19.00 17.00	14.25 12.75		
01689	DHEA - 100 mg, 60 veg. caps Buy 4 bottles, price each	24.00 22.00	18.00 16.50		
01358	DIGEST RC - 30 tablets Buy 4 boxes, price each	19.95 17.00	14.96 12.75		
01272	DIGESTIVE ENZYMES (ENHANCED SUPER) - 100 veg. caps Buy 4 bottles, price each	18.95 16.00	14.21 12.00		
01671	D,L-PHENYLALANINE CAPSULES - 500 mg, 100 veg. caps Buy 4 bottles, price each	18.75 16.00	14.06 12.00		
01540	DMAE BITARTRATE - 150 mg, 200 veg. caps Buy 4 bottles, price each	18.00 15.00	13.50 11.25		
00059	DMG - 125 mg, 60 tablets Buy 4 boxes, price each	22.80 21.00	17.10 15.75		
01570	DNA PROTECTION FORMULA - 60 veg. caps Buy 4 bottles, price each	34.00 32.00	25.50 24.00		
00544	DOG MIX - 100 grams powder Buy 4 jars, price each	19.50 16.00	14.63 12.00		
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA - 2 oz Buy 4 bottles, price each	39.95 32.00	29.96 24.00		
00320	DR. PROCTOR'S HAIR FORMULA SHAMPOO - 8 oz Buy 4 bottles, price each	24.95 22.00	18.71 16.50		
00899	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 2.4 oz Buy 4 jars, price each	39.95 38.95	29.96 29.21		
01672	DUAL-C™ - 90 veg. caps Buy 4 bottles, price each	12.00 10.50	9.00 7.88		
E					
01528	ECHINACEA EXTRACT - 250 mg, 60 veg. caps Buy 4 bottles, price each	\$14.35 12.50	\$10.76 9.38		
01498	ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™ - 60 softgels Buy 4 bottles, price each	56.00 52.00	42.00 39.00		
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® - 60 veg. caps Buy 4 bottles, price each	52.00 46.00	39.00 34.50		
00625	EPA/DHA (MEGA) - 120 softgels Buy 4 bottles, price each	19.95 18.00	14.96 13.50		
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 - 600 mg, 30 veg. tabs Buy 4 bottles, price each	20.00 18.00	15.00 13.50		

SUB-TOTAL OF COLUMN 7

No.		Retail Each	Member Each	Qty	Total
01706	EXTRAORDINARY ENZYMES - 60 caps Buy 4 bottles, price each	\$26.00 24.00	\$19.50 18.00		
01514	EYE PRESSURE SUPPORT w/MIRTOGENOL® - 30 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
F					
01054	FACE MASTER® PLATINUM	\$199.00	\$199.00		
00965	FAST-ACTING JOINT FORMULA - 30 caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
01717	FAST-C® w/DIHYDROQUERCETIN - 120 veg. tabs Buy 4 bottles, price each	26.00 24.00	19.50 18.00		
20053	FEM DOPHILUS® - 30 caps	25.95	19.46		
20055	FEM DOPHILUS® - 60 caps	39.95	29.96		
01064	FEMMENESSENCE MACAPAUSE® - 120 veg. caps	34.99	26.24		
01311	FERNBLOCK® w/SENDARA®(ENHANCED) - 30 veg. caps Buy 4 bottles, price each	39.00 35.00	29.25 26.25		
01670	FIBER FOOD CAPS - 200 veg. caps Buy 4 bottles, price each Buy 10 bottles, price each	16.00 14.00 13.00	12.00 10.50 9.75		
00718	FIBRINOGEN RESIST™ - 30 veg. caps Buy 4 bottles, price each	49.00 44.00	36.75 33.00		
01439	FOLATE (OPTIMIZED) (L-METHYL-FOLATE) 1000 mcg - 100 veg. caps Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01641	FOLIC ACID + B12 CAPSULES - 200 veg. caps Buy 4 bottles, price each	10.50 9.50	7.88 7.13		
00300	FORSKOLIN - 10 mg, 60 caps Buy 4 bottles, price each	15.00 12.50	11.25 9.38		
01513	FUCOIDAN w/MARITECH® 926 (OPTIMIZED) - 60 veg. caps Buy 4 bottles, price each	36.00 33.00	27.00 24.75		
00993	FUCOXANTHIN-SLIM™ - 90 softgels Buy 4 bottles, price each	44.00 39.00	33.00 29.25		
G					
00559	GAMMA E TOCOPHEROL/TOCOTRIENOLS - 60 softgels Buy 4 bottles, price each	\$42.00 37.00	\$31.50 27.75		
00759	GAMMA E TOCOPHEROL w/SESAME LIGNANS - 60 softgels Buy 4 bottles, price each	32.00 29.00	24.00 21.75		
01394	(OPTIMIZED) GARLIC - 200 veg. caps Buy 4 bottles, price each	24.95 21.00	18.71 15.75		
01301	GH PITUITARY SUPPORT DAY FORMULA - 120 vegetarian tabs Buy 4 bottles, price each	48.00 44.00	36.00 33.00		
01302	GH PITUITARY SUPPORT NIGHT FORMULA - 120 veg. caps Buy 4 bottles, price each	25.00 22.50	18.75 16.88		
01228	GINGER FORCE - 60 softgels	29.95	22.46		
01658	GINKGO BILOBA CERTIFIED EXTRACT™ - 120 mg, 365 veg. caps Buy 2 bottles, price each	46.00 43.50	34.50 32.63		
01648	GINKGO EXTRACT 28/7 (SUPER) - 120 mg, 100 veg. caps Buy 4 bottles, price each	29.00 26.50	21.75 19.88		
00756	GLA WITH SESAME LIGNANS (MEGA) - 60 softgels Buy 4 bottles, price each	19.50 18.00	14.63 13.50		
00345	(L) GLUTAMINE CAPSULES - 500 mg, 100 caps Buy 4 bottles, price each	14.95 13.50	11.21 10.13		
00141	(L)-GLUTAMINE POWDER - 100 grams Buy 4 bottles, price each	22.00 20.00	16.50 15.00		

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
G CONTINUED					
00522	GLUCOSAMINE/CHONDROITIN CAPSULES - 100 caps Buy 4 bottles, price each	\$38.00 32.00	\$28.50 24.00		
01541	GLUTATHIONE, CYSTEINE & C - 100 veg. caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
00314	L-GLUTATHIONE (MEGA) - 250 mg, 60 caps Buy 4 bottles, price each	39.64 35.68	29.73 26.76		
01669	GLYCINE - 1,000 mg, 100 veg. caps Buy 4 bottles, price each	12.00 10.80	9.00 8.10		
01091	GRAPE EXTRACT w/RESVERATROL (WHOLE) - 60 veg. caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		
01411	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE - 100 mg, 60 veg. caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		
01604	GREEN COFFEE EXTRACT COFFEEGENIC® - 200 mg, 90 veg. caps Buy 4 bottles, price each	25.00 22.00	18.75 16.50		
01620	GREEN COFFEE EXTRACT COFFEEGENIC® - 400 mg, 90 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
00953	GREEN TEA EXTRACT (MEGA) - lightly caffeinated - 100 veg. caps Buy 4 bottles, price each	28.00 26.50	21.00 19.88		
00954	GREEN TEA EXTRACT (MEGA) - decaffeinated - 100 veg. caps Buy 4 bottles, price each	28.00 26.50	21.00 19.88		
H					
01074	5 HTP - 100 mg, 60 caps	\$27.95	\$20.96		
01675	HCA - 90 veg. caps Buy 4 bottles, price each	18.00 15.50	13.50 11.63		
01393	HEPATOPRO - 900 mg, 60 softgels Buy 4 bottles, price each	50.00 46.00	37.50 34.50		
01435	HOMOCYSTEINE RESIST - 100 caps Buy 4 bottles, price each	24.00 21.60	18.00 16.20		
01527	HUPERZINE A - 200 mcg, 60 veg caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
00661	HYDRODERM® - 1 oz Buy 2 bottles, price each	79.95 65.33	59.96 49.00		
I					
*01060	i26® HYPERIMMUNE EGG - 140 grams powder	\$54.99	\$46.75		
01704	IMMUNE MODULATOR W/TINOFEND® - 60 veg. caps Buy 4 bottles, price each	17.00 15.00	12.75 11.25		
00955	IMMUNE PROTECT W/PARACTIN® - 30 veg. caps Buy 4 bottles, price each	29.50 26.55	22.13 19.91		
01049	INNERPOWER™ - 555 grams powder	42.00	31.50		
01674	INOSITOL CAPSULES - 1000 mg, 360 veg. caps Buy 4 bottles, price each	52.00 48.00	39.00 36.00		
01292	INTEGRA-LEAN® AFRICAN MANGO IRVINGIA - 150 mg, 60 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01002	IODORAL® - 180 tabs	50.00	37.50		
01677	IRON PROTEIN PLUS - 300 mg, 100 veg. caps Buy 4 bottles, price each	28.00 26.00	21.00 19.50		
01492	IRVINGIA W/PHASE 3™ - 120 veg. caps CALORIE CONTROL COMPLEX (OPTIMIZED AFRICAN MANGO) 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
J, K					
00056	JARRO-DOPHILUS EPS™ - 60 veg. caps	\$22.95	\$17.21		
01387	JARRO-DOPHILUS ORAL PROBIOTIC GUM - Pom-Berry flavor, 8 pieces	4.95	3.71		
01388	JARRO-DOPHILUS ORAL PROBIOTIC LOZENGE - Pom-Berry flavor, 8 pieces	4.95	3.71		
01724	K w/ADVANCED K2 COMPLEX (SUPER) - 90 softgels Buy 4 bottles, price each	30.00 27.00	22.50 20.25		
01600	KRILL HEALTHY JOINT FORMULA - 30 softgels Buy 4 bottles, price each	32.00 29.00	24.00 21.75		
01050	(NKO) KRILL OIL PHOSPH OMEGA - 60 softgels	33.95	25.46		
00316	KYOLIC® GARLIC FORMULA 102 - 200 caps Buy 4 bottles, price each	26.45 23.00	19.84 17.25		
00214	KYOLIC® GARLIC FORMULA 105 - 200 caps Buy 4 bottles, price each	27.45 25.00	20.59 18.75		
00789	KYOLIC® RESERVE - 600 mg, 120 caps Buy 4 bottles, price each	27.95 25.00	20.96 18.75		
L					
01681	LACTOFERRIN (APOLACTOFERRIN) CAPS - 60 caps Buy 4 bottles, price each	\$48.00 44.00	\$36.00 33.00		
00020	LECITHIN - 16 oz. granules Buy 4 jars, price each	15.00 12.50	11.25 9.38		
01755	LIFE EXTENSION MIX™ - 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	LIFE EXTENSION MIX™ W/EXTRA NIACIN - 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	LIFE EXTENSION MIX™ - 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	LIFE EXTENSION MIX™ POWDER - 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	LIFE EXTENSION MIX™ - 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	LIFE EXTENSION MIX™ W/EXTRA NIACIN 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	LIFE EXTENSION MIX™ - 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	LIFE EXTENSION MIX™ POWDER - 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	LIFE FLORA™ - 300 mg, 120 caps Buy 4 bottles, price each	20.50 18.75	15.38 14.06		
01608	LIVER EFFICIENCY FORMULA - 30 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01639	5-LOX INHIBITOR W/APRESFLEX® - 100 mg, 60 veg. caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01678	L-LYSINE - 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	LURALEAN® CAPS SPECIAL PROPOLMANNAN PARTICLE SIZE - 120 veg. caps Buy 4 bottles, price each	\$28.00 25.00	\$21.00 18.75		
00455	LYCOPENE EXTRACT (MEGA) - 15 mg, 90 softgels Buy 4 bottles, price each	35.00 30.00	26.25 22.50		
M					
01459	MAGNESIUM CAPS - 500 mg, 100 veg. caps Buy 4 bottles, price each	\$10.00 9.00	\$7.50 6.75		
01682	MAGNESIUM CITRATE - 160 mg, 100 veg. caps Buy 4 bottles, price each	9.00 7.50	6.75 5.63		
01668	MELATONIN - 300 mcg, 100 veg. caps Buy 4 bottles, price each	5.75 5.00	4.31 3.75		
01083	MELATONIN - 500 mcg, 200 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00329	MELATONIN - 1 mg, 60 caps Buy 4 bottles, price each	5.00 4.63	3.75 3.47		
00330	MELATONIN - 3 mg, 60 caps Buy 4 bottles, price each	8.00 6.88	6.00 5.16		
01786	MELATONIN - 3 mg, 60 veg. tabs Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
00331	MELATONIN - 10 mg, 60 caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
00332	MELATONIN - 3 mg, 60 veg. lozenges Buy 4 bottles, price each	8.00 6.88	6.00 5.16		
01787	MELATONIN TIME RELEASE - 300 mcg, 100 veg. tabs Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
01788	MELATONIN TIME RELEASE - 750 mcg, 60 veg. tablets Buy 4 bottles, price each	8.00 7.00	6.00 5.25		
01536	METHYLCOBALAMIN - 1 mg, 60 lozenges (vanilla) Buy 4 bottles, price each	9.95 8.00	7.46 6.00		
01537	METHYLCOBALAMIN - 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	MIGRA-EZE™ (BUTTERBUR) - 60 softgels Buy 4 bottles, price each	29.50 26.33	22.13 19.75		
01522	MILK THISTLE (CERTIFIED EUROPEAN) - 750 mg, 60 veg. caps Buy 4 bottles, price each	34.00 30.00	25.50 22.50		
01517	MILK THISTLE (CERTIFIED EUROPEAN) - 120 veg. caps Buy 4 bottles, price each	52.00 48.00	39.00 36.00		
01698	MIRAFORTE w/STANDARDIZED LIGNANS (SUPER) - 120 caps Buy 4 bottles, price each	62.00 56.00	46.50 42.00		
01579	MITOCHONDRIAL BASICS w/BIOPQQ® - 30 caps Buy 4 bottles, price each	52.00 46.00	39.00 34.50		
01578	MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ® - 120 caps Buy 4 bottles, price each	94.00 84.00	70.50 63.00		
00065	MK-7 - 90 mcg, 60 softgels Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01279	MOUTHWASH W/POMEGRANATE - 16 oz Buy 4 bottles, price each	18.50 17.00	13.88 12.75		
00451	MSM (METHYLSULFONYLMETHANE) - 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
N					
01534	N-ACETYL-L-CYSTEINE - 600 mg, 60 veg. caps Buy 4 bottles, price each	\$14.00 13.50	\$10.50 10.13		
00066	NATTOKINASE - 60 softgels	25.50	19.13		
00891	NATURAL APPETITE CONTROL - 90 softgels Buy 4 bottles, price each	28.00 25.20	21.00 18.90		
00984	NATURAL BP MANAGEMENT - 60 tablets Buy 4 bottles, price each	42.00 37.80	31.50 28.35		
00913	NATURAL ESOPHAGUARD - 10 softgels Buy 2 boxes, price each	19.95 19.00	14.96 14.25		
01692	NATURAL ESTROGEN w/POMEGRANATE EXTRACT - 60 caplets Buy 4 bottles, price each	38.00 33.00	28.50 24.75		
01221	NATURAL FEMALE SUPPORT - 30 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01471	NATURAL GLUCOSE ABSORPTION CONTROL - 60 veg. caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
00698	NATURAL RELIEF 1222™ - 2 oz Buy 4 tubes, price each	28.00 25.00	21.00 18.75		
01626	NATURAL SEX FOR WOMEN® 50+ (ADVANCED) - 90 veg. caps Buy 4 bottles, price each	59.00 45.33	44.25 34.00		
01444	NATURAL SLEEP® - 60 veg. caps Buy 4 bottles, price each	13.00 10.00	9.75 7.50		
01551	NATURAL SLEEP® w/ MELATONIN (ENHANCED) - 30 caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01511	NATURAL SLEEP® w/o MELATONIN (ENHANCED) - 30 caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01445	NATURAL SLEEP® MELATONIN - 5 mg, 60 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00987	NATURAL STRESS RELIEF - 30 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01603	NEURO-MAG™ MAGNESIUM L-THREONATE - 90 veg. caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
01602	NEURO-MAG™ L-THREONATE w/CALCIUM & VITAMIN D 225 grams - Lemon flavor Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
00373	NO-FLUSH NIACIN - 800 mg, 100 caps Buy 4 bottles, price each	19.00 17.00	14.25 12.75		
O					
01623	OLIVE LEAF VASCULAR SUPPORT - 500 mg, 60 veg. caps Buy 4 bottles, price each	\$22.00 20.00	\$16.50 15.00		
01483	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 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	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 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	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) 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
CONTINUED					
01485	OMEGA 3 EPA/DHA W/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 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	OMEGA 3 EPA/DHA W/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) (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	OMEGA-3 LEMON WHIRL - 16 oz bottle	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01633	OMEGA-3 TROPICAL WHIRL - 16 oz bottle	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01701	ONE-PER-DAY - 60 tablets	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01328	ONLY TRACE MINERALS - 90 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
00915	OPTIZINC® - 30 mg, 90 veg. caps	5.95	4.46		
	Buy 4 bottles, price each	5.00	3.75		
01070	ORGANIC TOTAL BODY CLEANSE™ - 14-day supply	34.99	26.24		
P					
00073	PANCREATIN - 500 mg, 50 caps	\$13.22	\$9.92		
	Buy 4 bottles, price each	12.12	9.09		
01323	PEAK ATP® WITH GLYCOCARN® - 60 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	50.00	37.50		
00342	PECTA SOL-C® MODIFIED CITRUS PECTIN - 454 grams powder	99.95	74.96		
	Buy 4 jars, price each	95.70	71.78		
01080	PECTA SOL-C® MODIFIED CITRUS PECTIN - 270 veg. caps	69.95	52.46		
00673	PGX™ PLUS MULBERRY (WELLBETX®) -180 caps	34.95	26.21		
00865	PHARMAGABA™ - 60 chewable tablets	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01676	PHOSPHATIDYLSERINE CAPS - 100 mg, 100 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	48.00	36.00		
01390	PHOSPHOMEGA® - 60 softgels	39.95	26.96		
00561	POLICOSANOL - 10 mg, 60 tablets	24.00	18.00		
	Buy 6 bottles, price each	18.00	13.50		
01423	POMEGRANATE™ (FULL-SPECTRUM) - 30 softgels	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
00956	POMEGRANATE EXTRACT - 30 veg. caps	19.50	14.63		
	Buy 4 bottles, price each	17.55	13.16		
00957	POMEGRANATE JUICE CONCENTRATE - 16 oz. liquid	25.95	19.46		
	Buy 4 bottles, price each	24.00	18.00		
00577	POTASSIUM IODIDE - 1 box, 14 tablets	6.95	5.21		
	Buy 4 boxes, price each	5.25	3.94		
01500	PQQ CAPS W/BIOBQQ® - 10 mg, 30 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01647	PQQ CAPS W/BIOBQQ® - 20 mg, 30 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
00302	PREGNENOLONE - 50 mg, 100 caps	26.00	19.50		
	Buy 4 bottles, price each	22.00	16.50		
00700	PREGNENOLONE - 100 mg, 100 caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		

SUB-TOTAL OF COLUMN 13

No.		Retail Each	Member Each	Qty	Total
***01373	PRELOX® NATURAL SEX FOR MEN® - 60 tablets	\$52.00	\$39.00		
	Buy 4 bottles, price each	48.00	36.00		
01329	PROBIOTIC ALL-FLORA® - 60 veg. caps	25.95	19.46		
01326	PROBIOTIC ANTI-AGING™ - 90 veg. caps	30.95	23.21		
00525	PROBOOST THYMIC PROTEIN A™ - 4 mcg, 30 packets	59.95	44.96		
01441	PROGESTACARE FOR WOMEN - 4 oz cream	34.95	26.21		
01695	PROSTATE FORMULA W/APRESFLEX® STAND. LIGNANS (ULTRA NAT) 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	PROTEIN-ISOLATE (WHEY) VANILLA - 1 lb. powder	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		
01743	PROTEIN-ISOLATE (WHEY) CHOCOLATE - 1 lb. powder	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		
01508	PTEROPURE™ - 50 mg Pterostilbene 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
01075	PURE PLANT PROTEIN - Natural Vanilla 450 grams powder	36.00	27.00		
	Buy 4 jars, price each	33.00	24.75		
01209	PUMPKIN SEED EXTRACT (WATER-SOLUBLE) - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01210	PUMPKIN SEED EXT w/SOY ISOFLAVONES (WATER-SOLUBLE) - 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01637	PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT -100 mg, 60 veg. caps	64.00	48.00		
	Buy 4 bottles, price each	60.00	45.00		
01217	PYRIDOXAL 5'-PHOSPHATE - 100 mg, 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	19.80	14.85		
Q, R					
01309	QUERCETIN (OPTIMIZED) - 250 mg, 60 veg. caps	\$22.00	\$16.50		
	Buy 4 bottles, price each	20.00	15.00		
01030	RED YEAST RICE (Bluebonnet)- 600 mg, 60 veg. caps	17.50	13.13		
00979	RED YEAST RICE (Nature's Plus)- 600 mg, 60 veg. caps	23.95	17.96		
00060	RED YEAST RICE EXTENDED RELEASE - 30 veg. tablets	21.50	16.13		
00605	REGIMINT - 60 enteric-coated caps	19.95	14.96		
	Buy 4 bottles, price each	18.67	14.00		
01708	REISHI EXTRACT MUSHROOM COMPLEX - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01448	REJUVENEX® BODY LOTION - 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	REJUVENEX® FACTOR FIRING SERUM - 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	REJUVENEX® (ULTRA) - 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	REJUVENIGHT® (ULTRA) - 2 oz	39.95	29.96		
	Buy 4 jars, price each	36.00	27.00		
01413	RESVERATROL W/PTEROSTILBENE - 20 mg, 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01410	RESVERATROL W/PTEROSTILBENE - 100 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		

SUB-TOTAL OF COLUMN 14

No.		Retail Each	Member Each	Qty	Total
01430	RESVERATROL w/SYNERGISTIC GRAPE-BERRY ACTIVES (OPTIMIZED) - 250 mg, 60 veg. caps Buy 4 bottles, price each	\$46.00 41.33	\$34.50 31.00		
00889	RHODIOLA EXTRACT - 250 mg, 60 veg. caps Buy 4 bottles, price each	11.75 10.58	8.81 7.94		
00972	(D) RIBOSE POWDER - 150 grams Buy 4 jars, price each	27.50 24.75	20.63 18.56		
01473	(D) RIBOSE TABLETS - 100 veg. tabs Buy 4 bottles, price each	32.00 28.00	24.00 21.00		
01609	RICH REWARDS® BREAKFAST GROUND COFFEE - 12 oz. bag	13.00	9.75		
01610	RICH REWARDS® DECAFFEINATED ROAST GROUND COFFEE - 12 oz. bag	14.00	10.50		
01712	RICH REWARDS™ BLACK BEAN VEGETABLE SOUP - 32 oz. bottle Buy 6 bottles, price each	13.00 12.25	9.75 9.19		
01530	RICH REWARDS™ CRUCIFEROUS VEGETABLE SOUP - 32 oz. bottle Buy 6 bottles, price each	11.95 11.25	8.96 8.44		
01531	RICH REWARDS™ (SPICY) CRUCIFEROUS VEGETABLE SOUP - 32 oz. bottle Buy 6 bottles, price each	11.95 11.25	8.96 8.44		
01705	RICH REWARDS™ LENTIL VEGETABLE SOUP - 32 oz. bottle Buy 6 bottles, price each	13.00 12.25	9.75 9.19		
01208	R-LIPOIC ACID (SUPER) - 300 mg, 60 veg. caps Buy 4 bottles, price each	49.00 45.00	36.75 33.75		
00070	RNA CAPSULES - 500 mg, 100 caps Buy 4 bottles, price each	17.95 16.16	13.46 12.12		
S					
01432	SAFFRON w/SATIREAL (OPTIMIZED) - 60 veg. caps Buy 4 bottles, price each	\$36.00 32.00	\$27.00 24.00		
00358	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 20 enteric coated tablets Buy 8 boxes, price each	16.00 14.00	12.00 10.50		
00453	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 50 enteric coated tablets Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
00557	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 20 enteric coated tablets Buy 6 boxes, price each	28.00 24.00	21.00 18.00		
01055	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 50 enteric coated tablets Buy 4 bottles, price each	66.00 60.00	49.50 45.00		
01543	SEA-IODINE™ - 1000 mcg, 60 caps Buy 4 bottles, price each	8.00 7.20	6.00 5.40		
00046	SELENIUM - 2 oz dropper bottle Buy 4 bottles, price each	9.95 9.45	7.46 7.09		
01679	SE-METHYL L-SELENOCYSTEINE - 200 mcg, 100 veg. caps Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
00318	SERRAFLAZYME - 100 tablets Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00284	SHARK LIVER OIL (NORWEGIAN) - 1000 mg, 30 softgels Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01684	SILYMARIN - 100 mg, 50 veg. caps Buy 4 bottles, price each	9.25 8.25	6.94 6.19		
01596	SKIN RESTORING PHYTOCERAMIDES w/LIPOWHEAT® - 30 veg. liquid caps Buy 4 bottles, price each	25.00 23.00	18.75 17.25		
00961	SODZYME® w/GLISODIN® AND WOLFBERRY - 90 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
00657	SOLARSHIELD SUNGLASSES - 1 pair smoke color Buy 2 pairs, price each	12.99 11.50	9.74 8.63		

SUB-TOTAL OF COLUMN 15

No.		Retail Each	Member Each	Qty	Total
00432	STEVIA EXTRACT - 100 packets, 1 gram each Buy 4 boxes, price each	\$9.95 9.00	\$7.46 6.75		
01396	ST. JOHN'S WORT EXTRACT - 300 mg, 60 veg. caps Buy 4 bottles, price each	10.98 10.00	8.24 7.50		
01476	STRONTIUM - 750 mg, 90 veg. caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
00747	SUNGLASSES (OVERCAST POLARIZED) - gray color, large Buy 2 pairs, price each	27.00 21.00	20.25 15.75		
01649	SUPER ABSORBABLE SOY ISOFLAVONES - 60 veg. caps Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01408	SUPER SAW PALMETTO/NETTLE ROOT w/BETA-SITOSTEROL - 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	SUPER SAW PALMETTO w/BETA-SITOSTEROL - 30 softgels Buy 12 bottles, price each	15.00 12.00	11.25 9.00		
01778	SUPER SELENIUM COMPLEX - 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		
T					
01062	TART CHERRY - 600 mg, 60 caps	\$18.95	\$14.21		
01723	TART CHERRY EXTRACT w/STANDARDIZED CHERRYPURE® - 60 veg. caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
00199	TAURINE - 1000 mg, 50 caps Buy 4 bottles, price each	8.95 8.00	6.71 6.00		
00133	TAURINE POWDER - 300 grams Buy 4 bottles, price each	20.00 16.88	15.00 12.66		
01304	THEAFLAVIN STANDARDIZED EXTRACT - 30 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
01683	(L) THEANINE - 100 mg, 60 veg. caps Buy 4 bottles, price each	24.00 20.50	18.00 15.38		
**01038	THERALAC PROBIOTICS - 30 caps	47.95	35.96		
00668	THYROID FORMULA™ (METABOLIC ADVANTAGE) - 100 caps	21.95	16.46		
00349	TMG POWDER - 50 grams Buy 4 bottles, price each	14.00 11.00	10.50 8.25		
01559	TMG - 500 mg, 60 veg. tablets Buy 4 boxes, price each	11.00 10.00	8.25 7.50		
00781	TOCOTRIENOLS WITH SESAME LIGNANS - 60 softgels Buy 4 bottles, price each	38.00 36.00	28.50 27.00		
01400	TOCOTRIENOLS (SUPER-ABSORBABLE) - 60 softgels Buy 4 bottles, price each	30.00 28.00	22.50 21.00		
01278	TOOTHPASTE - 4 oz (Mint) Buy 4 tubes, price each	9.50 8.67	7.13 6.50		
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT - 60 veg. caps Buy 4 bottles, price each	24.00 22.00	18.00 16.50		
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL - 60 veg. caps Buy 4 bottles, price each	32.00 29.60	24.00 22.20		
01386	TRUFIBER® - 180 grams	32.95	24.71		
01389	TRUFLORA PROBIOTICS & ENZYMES - 32 veg. caps	42.95	32.21		
01722	L-TRYPTOPHAN - 500 mg, 90 veg. caps Buy 4 bottles, price each	33.00 30.00	24.75 22.50		

SUB-TOTAL OF COLUMN 16

Buyers Club Order Form

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No.		Retail Each	Member Each	Qty	Total
T CONTINUED					
01721	TRYPTOPHAN PLUS (OPTIMIZED) - 90 veg. caps	\$32.00	\$24.00		
	Buy 4 bottles, price each	29.00	21.75		
01716	TWO-PER-DAY - 60 tablets	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		
01715	TWO-PER-DAY - 120 tablets	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01714	TWO-PER-DAY - 120 caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
00326	L-TYROSINE - 500 mg, 100 tablets	12.98	9.74		
	Buy 4 bottles, price each	11.81	8.86		
V					
00213	VANADYL SULFATE - 7.5 mg, 100 tablets	\$15.00	\$11.25		
	Buy 4 bottles, price each	12.50	9.38		
00408	VENOTONE - 60 caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01327	VINPOCETINE - 10 mg, 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	14.00	10.50		
01526	VITAMIN B3 NIAICIN - 1,000 mg, 100 veg. caps	12.75	9.56		
	Buy 4 bottles, price each	12.00	9.00		
00372	VITAMIN B3 NIAICIN - 500 mg, 100 caps	7.65	5.74		
	Buy 4 bottles, price each	6.65	4.99		
00098	VITAMIN B5 - 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
01535	VITAMIN B6 - 250 mg, 100 veg. caps	12.50	9.38		
	Buy 4 bottles, price each	11.00	8.25		
00361	VITAMIN B12 - 500 mcg, 100 lozenges	8.75	6.56		
	Buy 4 bottles, price each	7.25	5.44		
01634	VITAMIN C w/ DIHYDROQUERCETIN - 1000 mg, 60 tablets	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
00927	VITAMIN C w/ DIHYDROQUERCETIN - 1000 mg, 250 tablets	25.50	19.13		
	Buy 4 bottles, price each	23.25	17.44		
00084	VITAMIN C (BUFFERED) POWDER - 454.6 grams	23.95	17.96		
	Buy 4 bottles, price each	22.00	16.50		
00864	VITAMIN D3 - 2000 IU, 1 fl oz	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01753	VITAMIN D3 - 1000 IU, 90 softgels	7.00	5.25		
	Buy 4 bottles, price each	6.00	4.50		
01751	VITAMIN D3 - 1000 IU, 250 softgels	12.50	9.38		
	Buy 4 bottles, price each	11.25	8.44		
01713	VITAMIN D3 - 5000 IU, 60 softgels	11.00	8.25		
	Buy 4 bottles, price each	9.90	7.43		
01718	VITAMIN D3 - 7000 IU, 60 softgels	14.00	10.50		
	Buy 4 bottles, price each	12.60	9.45		
01573	VITAMIN D3 w/SEA-IODINE™ - 5000 IU, 60 caps	14.00	10.50		
	Buy 4 bottles, price each	12.50	9.38		
01572	VITAMINS D AND K w/SEA-IODINE™ - 60 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01763	VITAMIN E (NATURAL) - 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	VITAMIN K2 (LOW-DOSE) - 45 mcg, 90 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		

SUB-TOTAL OF COLUMN 17

No.		Retail Each	Member Each	Qty	Total
Z					
01686	ZEAXANTHIN w/LUTEIN & MESO-ZEAXANTHIN PLUS ASTAXANTHIN AND C3G (SUPER) - 60 softgels	\$42.00	\$31.50		
	Buy 4 bottles, price each	38.00	28.50		
01685	ZEAXANTHIN w/LUTEIN & MESO-ZEAXANTHIN AND C3G (SUPER) - 60 softgels	22.00	16.50		
	Buy 4 bottles, price each	19.80	14.85		
00061	ZINC LOZENGES - 75 lozenges	9.50	7.13		
	Buy 4 bottles, price each	6.75	5.06		
01051	ZYFLAMEND® WHOLE BODY - 120 softgels	60.95	45.71		

* These products are not 25% off retail price.

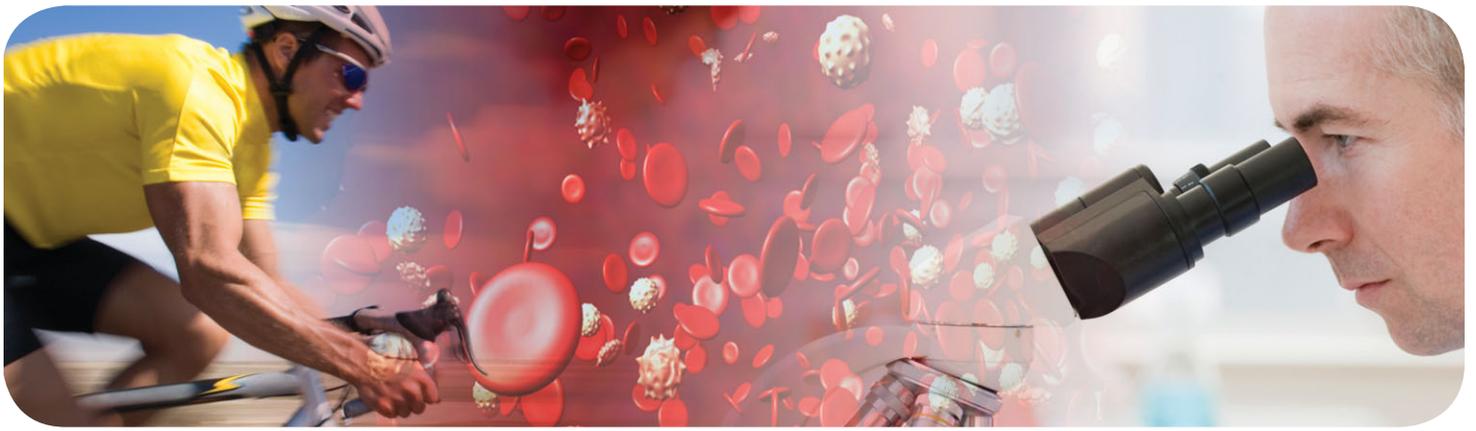
** Not eligible for member discount or member renewal product credit.

*** Due to license restrictions, this product is not for sale to customers outside of the USA.

† Member pricing not valid on this item.

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SUB-TOTAL OF COLUMN 18



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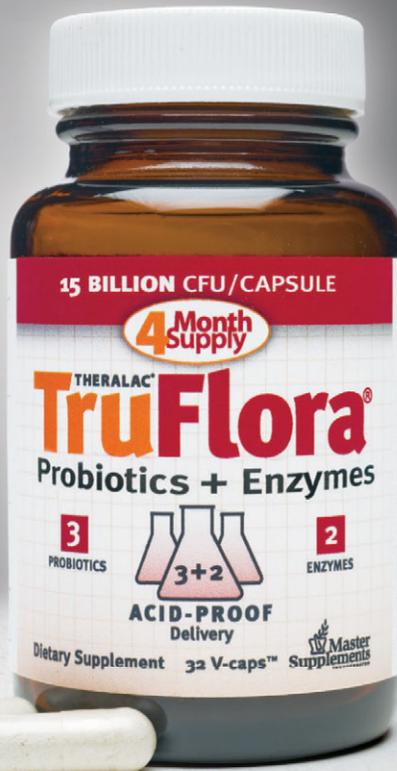
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- + Contains enzymes that help digest problematic yeast cell walls



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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.¹ 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.^{2**}

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® Market Research

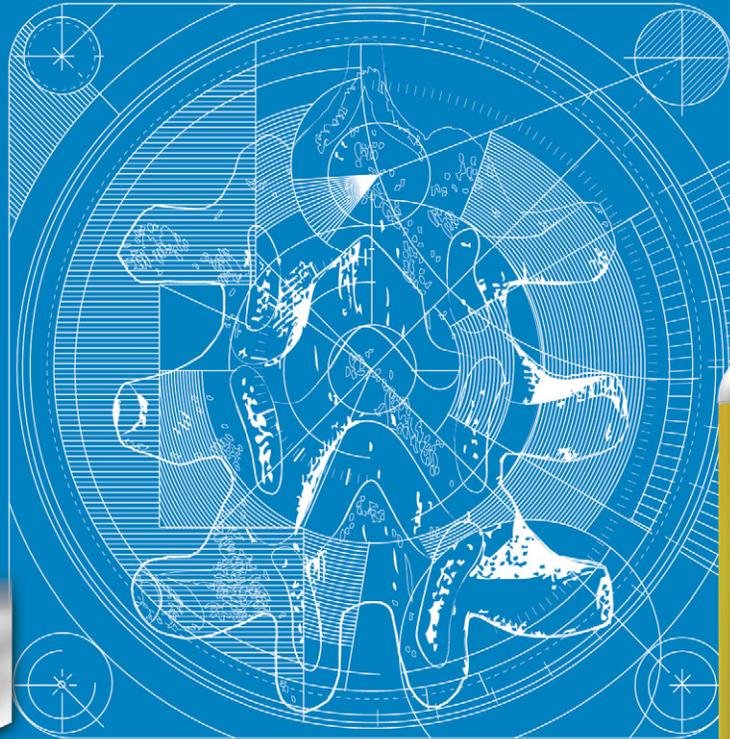
**Supportive but not conclusive evidence shows that consumption of EPA and DHA Omega-3 fatty acids may reduce the risk of coronary heart disease.

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

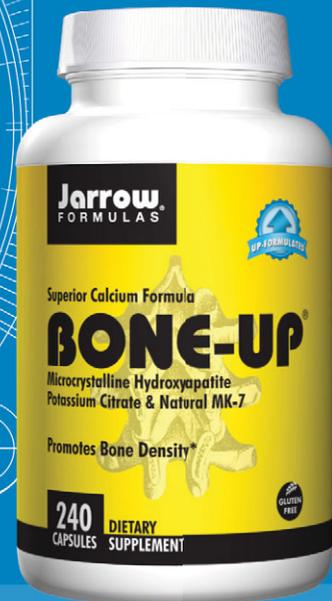
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2%-4% of your skeleton is "rebuilt" every year as calcium and minerals leave the bone and must be replaced.



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VITAMIN K₂



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

Jarrow Formulas® Bone-Up®, 240 capsules Item # 00313: \$28.95
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Comprehensive Brain Support!

COGNITEX®

Brain decline affects all aging humans. Scientific studies demonstrate more **youthful** cognition and memory in response to the proper nutrients. **Cognitex®** provides the following **brain boosting** ingredients in one advanced formula:



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

Vinpocetine enhances circulation, oxygenation, and electrical conductivity of brain cells.

Uridine-5'-monophosphate is a compound naturally found in the milk of nursing mothers and is essential to humans when brains are the youngest. UMP also supports superior cognitive function in aging adults.

Wild blueberry extract has been shown to inhibit oxidative and inflammatory changes in brain cells believed to be involved in memory decline.



ITEM # 01697

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

DHA combines with **phosphatidylserine** to form cell membrane structure. The ability of **phosphatidylserine** to improve cognitive skills has been extensively studied. **Sharp PS® Gold** is a patented compound of **phosphatidylserine** and **DHA** to support normal neuronal cell membrane function and structure.

Ashwagandha inhibits an enzyme (**acetylcholinesterase**) that breaks down acetylcholine in the brain.

Phospholipid grape seed extract improves blood vessel tone and elasticity, thus boosting cerebral oxygen flow.

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

MOST ADVANCED NEUROLOGICAL FORMULA AT NEW LOWER PRICES

The ingredients in **Cognitex®** sell for a small fortune in **Europe**, where they are commonly prescribed. You can obtain them all at a fraction of this cost in the comprehensive **Cognitex®** nutrient formula for the brain.

The retail price for 90 softgels of **Cognitex® with Neuro-Protection Complex** (with or without pregnenolone) is \$74 (**Item # 01697**) and \$72 (**Item # 01696**), respectively. If a member buys eight bottles of either version, the price per bottle is **\$44.17** and **\$42.72**, respectively.

References for most can be found at:
http://www.lef.org/magazine/mag2007/feb2007_report_cognitex_03.htm

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Alpha-Glycerol Phosphoryl Choline (A-GPC)	600 mg
Phosphatidylserine-DHA (PS-DHA) [Sharp-PS® GOLD Conjugated Phosphatidylserine-DHA]	100 mg
Pregnenolone	50 mg
Vinpocetine	20 mg
Phospholipid-Grape Seed Extract	150 mg
Wild Blueberry Extract (<i>Vaccinium angustifolium</i>)	150 mg
Sensoril® Ashwagandha Extract (<i>Withania somnifera</i>)	125 mg
Uridine-5'-Monophosphate (disodium)	50 mg
Proprietary NeuroProtection Complex Blend Perluxan® Hops Extract (<i>Humulus lupulus</i>) Rosemary (<i>Rosmarinus officinalis</i>) Extract	125 mg

To order **Cognitex® with NeuroProtection Complex**, call **1-800-544-4440** or visit **www.LifeExtension.com**

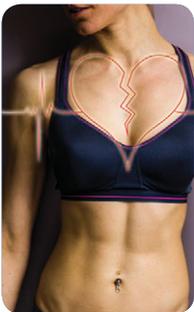
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Studies have shown that the peptide **acetyl tetrapeptide-2** increased cellular growth and increased keratin production, resulting in noticeable skin regeneration.