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October 2012

How Drug Companies Inflict Needless Death!

Foods that Spike Deadly After-Meal Glucose Surges

Activate Signaling Pathways To Reverse Cell Aging

FDA Insider Exposes Vioxx® Scandal



"Tell Our President to Reverse Miscalculation of Justice"



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



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Magnesium L-Threonate
Capsules or Powder
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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 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 Powder** retails for \$40. If a member buys four bottles, the price is reduced to \$27 per bottle. Contains corn.

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LifeExtension®

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D-ribose replenishes the **metabolic energy** needed by all our cells—including those in our heart and brain—thereby improving cardiac and neurological function and vitality.



7 AS WE SEE IT

Pharmaceutical companies and the FDA have a sordid history of covering up lethal side effects about prescription drugs. The evidence reveals our federal government is not concerned about hundreds of thousands of Americans who needlessly perish. Fines levied against pharmaceutical companies represent a 'slap on the wrist' when compared to the enormous profits earned as the dangers of certain drugs were covered up.

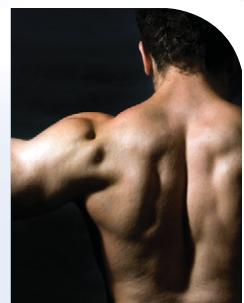


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Nutrient rich pumpkin seeds contain an impressive array of vitamins, minerals, fatty acids, and even tryptophan! Evidence indicates that pumpkin seeds can help combat heart disease, osteoporosis, anxiety, and arthritis.





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Cellular
Energy
with...

NEXT-GENERATION

CoQ10

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}

Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™



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

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

Item # 01425



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Item # 01431

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

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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.

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ARE YOU GETTING Curcumin's BENEFITS?

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

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

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

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

Life Extension®'s Super Bio-Curcumin® derives from turmeric that is 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.



How Much Curcumin Are You Absorbing?

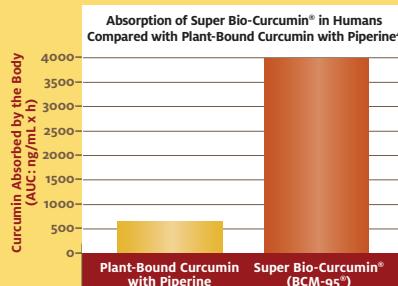


Chart 1. Super Bio-Curcumin® (BCM-95®) showed 6.3 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with plant-bound curcumin with piperine (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin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

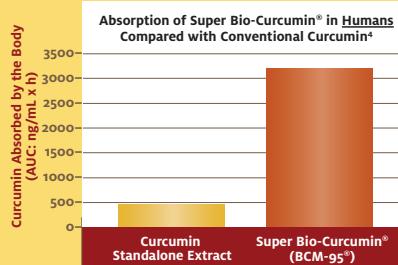


Chart 2. Super Bio-Curcumin® (BCM-95®) showed 6.9 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with conventional curcumin (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed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

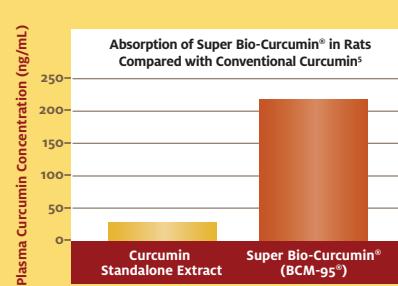


Chart 3. Bioavailability in rats fed with BCM-95® is 7.8 times higher than conventional curcumin.

Legal Murder



BY WILLIAM FALOON



No one knows exactly how many Americans were killed by **Vioxx®**.

According to **Dr. David Graham**, the hero who defied his corrupt **FDA** superiors, **Vioxx®** caused **88,000 to 139,000** excess cases of **heart attack** and **stroke**.^{1,2}

This carnage occurred as **Merck** (the maker of **Vioxx®**) worked closely with high-level **FDA** officials to suppress data showing the lethal dangers of this once-popular arthritis drug.^{3,4}

According to a review published in the *Archives of Internal Medicine*, Merck held back initial data showing **Vioxx®** caused an increase in heart attack and stroke risk.⁵ It took **three more years** of patients needlessly dying before **Vioxx®** was pulled off the market.

The **FDA** never mandated **Vioxx®** be banned. As lawsuits started piling up, **Merck** made a business decision to withdraw **Vioxx®** worldwide, while denying there was a safety issue.⁶

AS WE SEE IT

Merck Pleads Guilty To Criminal Charges

After a seven-year **Justice Department** investigation, Merck pled guilty to a **criminal misdemeanor** that it illegally promoted **Vioxx®** and deceived the government about the drug's **safety**.⁷

Merck paid the federal government a **\$950 million** fine. It has also paid over **\$4 billion** in compensation to victims (or their family members) for the side effects Vioxx® caused, along with punitive damages for covering up the lethal dangers.⁷

Before it was withdrawn, Merck racked up **\$11 billion** in Vioxx® sales.⁸ So with the criminal fine paid to the government and the money paid out so far to victims, Merck appears to be **billions of dollars** ahead financially by knowingly selling a drug that **killed tens of thousands of human beings!**



Egregious Cover Up

Four years before Vioxx® was withdrawn, the results from a large clinical trial were published comparing patients using **naproxen** or **Vioxx®**.

The findings showed a **500% increased risk** of heart attack in **Vioxx®** users compared to those taking **naproxen**.⁹

This trial was designed, performed and paid for by the drug industry. The findings from this trial should have resulted in the **FDA withdrawing** approval of **Vioxx®**.

Instead, the drug industry (working in cahoots with FDA) came up with a ridiculous upside-down analysis of the data. They concluded that **Vioxx®** did not cause a **500% increase** in heart attacks, but instead that **naproxen** resulted in a **500% decrease** in heart attack incidence.¹⁰

Dr. David Graham is the senior epidemiologist in the FDA's **Office of Drug Safety**. Dr. Graham knew that **naproxen** did not reduce **heart attack risk** by **500%**. When Dr. Graham saw how data from this study was being manipulated to cover up Vioxx®'s lethal dangers, he broke rank with corrupt FDA officials.

As you'll read in an eye-opening interview in this month's issue, Dr. Graham's battle to expose the lethal dangers of Vioxx® almost got him **fired** from the **FDA**.

Government Doesn't Care About Victims

As most of you know, the intentional killing of a human is a felony, often punishable by life in prison (or worse).

In the **Justice Department's** settlement with **Merck**, there is no discussion of murder. Instead, Merck agreed to plead guilty to FDA "regulatory" violations involving its promotion of Vioxx® to **rheumatoid arthritis** patients when it was approved only to treat **osteoarthritis**. Merck also pled guilty to misleading **Medicaid** officials about the **safety** of Vioxx®.¹¹

Dr. David Graham estimates that Vioxx® directly killed more Americans than died during the entire **Vietnam War**.⁹

Yet no where in the criminal settlement agreement does Merck have to admit to "intentionally killing people." It appears that the **Justice Department** is not concerned by the human body count. The settlement only requires that **Merck** admit they failed to comply with FDA and Medicaid **regulations**.¹²

Interestingly, there are published studies showing that Vioxx® was effective against **rheumatoid arthritis**, but such data is

irrelevant since the FDA had not “approved” Vioxx® for this indication.¹¹ Our government was more concerned about “**regulatory violations**” than accurately assessing scientific facts about Vioxx® in the treatment of rheumatoid arthritis.

The rationale you’ll read next for Merck not being charged with **felony murder** demonstrates the insidious **influence** pharmaceutical behemoths exert over the federal government.¹³

Why Pharmaceutical Companies Aren’t Criminally Prosecuted

Medicare and **Medicaid** pay out such a large portion of this nation’s healthcare costs that pharmaceutical companies must maintain access to these government spigots to remain in business.

If a drug company is convicted of “**serious healthcare fraud**,” they are automatically excluded from receiving federal payouts.

To protect the financial interests of large pharmaceutical companies, the federal government works out special deals that enables them to avoid accountability for their illicit actions.

In recent years, our government has allowed pharmaceutical companies to escape felony fraud charges, or allows a shell company-subsidiary to take the blame for the parent company’s misdeeds. This is analogous to you committing a murder, but persuading a terminal cancer patient to take the blame for it, and prosecutors then letting you off the hook.

Vioxx® is in a class of drugs known as **COX-II inhibitors**. Another drug in this class approved by the FDA was **Bextra®** made by pharmaceutical behemoth **Pfizer**. Bextra® was also withdrawn because of increased risks of heart



attacks, strokes, and **deaths** in patients prescribed it.¹⁴⁻¹⁶

As we reported in 2010, Pfizer was allowed to use a subsidiary shell company to plead guilty to a criminal charge that it fraudulently sold Bextra®.¹⁷ The fraud was based on Pfizer promoting Bextra®’s use in **higher doses** to relieve **acute surgical pain**, something the drug was never approved for.¹⁸ Using a subsidiary to plead guilty to the **Bextra® charges** enabled **Pfizer** to continue receiving lucrative **Medicare/Medicaid** reimbursement on its other drugs.

By allowing the **Vioxx®** atrocities to be settled on **misdemeanor** charges instead of **felony** counts, **Merck** will continue receiving **billions of dollars** of annual payments from **Medicare/Medicaid**.

Bextra’s Fatal Side Effects Overlooked by FDA

In an analysis presented at the *American Heart Association*, **Bextra®** was shown to more than

double the risk of heart attack or stroke. The lead author of this study commented that, “**This is a time bomb waiting to go off.**”¹⁹

Pfizer paid a settlement to the federal government of **\$1.195 billion** for the fraudulent marketing of Bextra®.²⁰ The record financial payout was not because Bextra® **injured and killed** arthritis patients. The fine was to settle government claims that Pfizer illegally promoted the sale of Bextra® for uses and dosages that the FDA specifically declined to approve.

Just as with **Vioxx®**, the government bases its **Bextra®** fine on **regulatory** violations instead of the fact that **human beings were killed!**

No Equal Justice

The slap-on the wrist settlements of the Vioxx® and Bextra® charges represents an egregious **evasion** of laws that are supposed to prohibit companies engaged in “**serious healthcare fraud**” from receiving tax dollars. Of course

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none of the individual perpetrators at drug companies that caused these horrific numbers of **deaths** ever have to worry about **jail time**.

If a **supplement company** owner knowingly sold a product that caused even one death, he would likely face decades in prison. As you'll read in the first article in this month's issue, a man named **Jay Kimball** sold a drug (liquid deprenyl) that harmed no one, but he is still serving out a **13-year** prison sentence. The **wrongful prosecution** of Jay Kimball, represents one of the worst miscarriages of justice in the history of the American jurisprudence.



Covering up of Vioxx®'s Lethal Dangers

By April 2001, **Merck** had compiled internal data from two large human trials showing a staggering **three-fold increase** in **total mortality** (deaths) in patients using **Vioxx®**.²²

In articles that reported the results of these trials, analyses and statistical tests of the mortality data were obscured. Even the study author's conclusion regarding **safety of Vioxx®** was absurdly stated as the drug being "**well tolerated**".²³

Data submitted to the **FDA** was manipulated to understate the higher numbers of deaths in Vioxx® users. For example, if heart attack or stroke deaths occurred more than 14 days after Vioxx® was discontinued, it was often omitted. Just imagine how many heart attack and stroke victims stopped taking Vioxx® because arthritis was no longer their major medical concern. Paralyzed stroke patients, for instance, have little need for Vioxx®, yet many of these stroke victims die more than 14 days after discontinuing Vioxx®.

After the VIGOR study was published showing a **500% increase** in myocardial infarction (heart attack) in **Vioxx®** users,²⁴ **Merck** directed its sales force to provide physicians with a distorted picture of the relevant scientific evidence.

For instance, Merck sent a bulletin to its Vioxx® sales force of more than 3,000 representatives that ordered:

"DO NOT INITIATE DISCUSSIONS ON THE FDA ARTHRITIS ADVISORY COMMITTEE ... OR THE RESULTS OF THE ... VIGOR STUDY!"²⁵

The Merck bulletin further advised that if a physician inquired about the VIGOR study, the sales representative should indicate that the study showed a gastrointestinal benefit and then say, "I cannot discuss the study with you."²⁵

Merck further instructed its sales reps to show those doctors who asked whether Vioxx® caused myocardial infarction a pamphlet called "The Cardiovascular Card." This pamphlet, prepared by Merck's marketing department, indicated that Vioxx® was associated with 1/8 the mortality from cardiovascular causes of that found with other anti-inflammatory drugs.

The Cardiovascular Card, however, provided a misleading picture of the evidence on Vioxx®. The card did not include any data from the VIGOR study that showed a **500% increase** in heart attack risk. Instead, it presented a pooled analysis of preapproval studies, in most of which low doses of Vioxx® were used for a short time. None of these studies were designed to assess cardiovascular safety, and none included a proper determination of cardiovascular events. In fact, FDA experts had publicly expressed "serious concerns" to the FDA's advisory committee about using the preapproval studies as evidence of Vioxx®'s cardiovascular safety.²⁴

The cover up of the lethal dangers of Vioxx® spanned a period of years, all the while tens of thousands of innocent victims worldwide perished needlessly.

Merck continues to deny there is any safety problem with **Vioxx®**.

In comparing **Jay Kimball's** case to the real crimes of **Merck** and **Pfizer**, the **FDA** did not even attempt to show that Jay's **liquid deprenyl** harmed anyone. The FDA merely cited "**regulatory violations**" involving his improper export of his liquid deprenyl to other countries. The result is **13-years in jail** for **Jay Kimball** and **financial ruination** for his family.²¹

Merck and **Pfizer** knowingly sold drugs (Vioxx® and Bextra®) that killed **tens of thousands** of Americans, yet they continue receiving **billions of Medicare/Medicaid dollars** each year, with no one facing jail time, while their executives lead lavish lifestyles.

Merck Controls Timing of Announcement of Guilty Plea

Even for a company as huge as **Merck**, pleading guilty to criminal misdemeanors is embarrassing.

While the credibility of pharmaceutical companies has sunk to an all-time low, they still pretend to care about the public's health.

Merck's guilty plea was announced the day before Thanksgiving (2011), which is one of the busiest travel days of the year and a time when the fewest people are paying attention to the news.

Talk about absolute power, Merck avoids felony charges, jail time for executives, and embar-

rassing publicity, all while keeping billions of surplus dollars on Vioxx® sales. Jay Kimball, on the other hand, remains incarcerated and his family left indigent.

We Warned Members About Dangers of COX-2 Inhibiting Drugs

While **Merck** was bombarding the public with television commercials claiming that one little pill a day of **Vioxx®** took away arthritis pain, **Life Extension®** warned its members about the lethal dangers of Vioxx® and other drugs that inhibit **only** the COX-2 enzyme.

We knew that Vioxx®'s mechanism of action would result in sharply higher rates of coronary artery blockage and ischemic stroke. So did scientists who evaluated Vioxx® before the FDA approved it.

Despite the criminal guilty plea, the **\$950 million settlement**, and its withdrawal of Vioxx® worldwide, Merck still denies any wrongdoing on the part of its higher level executives or the company itself.

In this issue, we re-print a fascinating interview with **Dr. David Graham**, the head of the FDA's **Office of Drug Safety**. Dr. Graham provides meticulous details about what really goes on inside the FDA as it relates to approving dangerous drugs, with many specifics about the Vioxx® massacre that should have never happened.

Most important is an article on page 24 of this issue about **Jay Kimball**, who remains imprisoned for selling a drug that harmed no one. Life Extension and its volunteer members have finally completed a petition to commute the sentence of Jay Kimball to the outlandish time he has already served.



AS WE SEE IT

I ask all members to log on to our convenient website www.lef.org/lac to easily affix your name to petitions urging President Obama to immediately grant Jay Kimball a commutation of sentence.

For longer life,



William Faloon



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More Guilty Pleas by Big Pharma

As we were finalizing this article, **GlaxoSmithKline** had reached the largest illegal drug settlement to date, agreeing to pay **\$3 billion** and plead guilty to criminal charges that included the drugs **Avandia®** and **Paxil®**.²⁶

Avandia® is a drug used to treat **type II diabetes**. Vascular disease is the leading cause of mortality in diabetic patients.^{27,28} In a study of 227,571 patients, those receiving **Avandia®** were **27% more** likely to suffer **strokes**, **25% more** likely to develop **heart failure** and **14% more** likely to **die** compared to those taking another anti-diabetic drug called **Actos®**.^{29,30} Avandia® increased the very diseases that diabetic patients are most vulnerable to—and GLAXO **covered up** these deadly side effects!³¹

Paxil® is a drug prescribed to treat depression. After years of cover up, Glaxo sent a letter to physicians admitting that the risk of suicidal behavior was **6.7 times higher** in study subjects taking Paxil® compared to placebo.³² Suicide risk is high in depressed individuals, yet

Glaxo covered up suicidal risks as it promoted the so-called "benefits" of Paxil® in treating depression.³²

GLAXO's guilty plea to criminal charges was announced two days before **July 4, 2012**, another busy travel time when few Americans are reading the news.

Two weeks after Glaxo's record settlement, **Johnson and Johnson** agreed to pay **\$2.2 billion** for its illegal marketing of the drug **Risperdal®** to demented elderly patients.³³ Risperdal® is approved mainly to treat schizophrenia, but is associated with a number of deadly side effects including high blood sugar, irregular pulse, and blood pressure irregularities.³⁴ The most troubling side effect of Risperdal® is impairment of judgment and thinking, which is the last thing a demented patient needs.³⁴

In each of these cases, pharmaceutical companies were promoting drugs that worsened the diseases they were intending to treat. We don't yet know how their **guilty pleas** will be manipulated so they don't lose out on lucrative **Medicare/Medicaid** reimbursement.



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Overlooked Benefits of Properly Formulated PROBIOTICS

Probiotics literally means "for life." Traditional diets comprising of foods containing **probiotics** (such as the **Mediterranean Diet**) have been shown to promote health and longevity.¹

People take probiotics to facilitate a healthy GI tract, but probiotics perform many more important functions. For example, researchers have discovered that probiotics inhibit **nuclear factor kappa B** (NFkB), which helps suppress inflammation as well as positively modulate cellular signaling pathways.²

Furthermore, studies have shown that probiotics can influence youthful gene expression.³ Properly formulated probiotics provide biologically active materials that can positively influence many aspects of human health.⁴

The Importance of the GI Tract on Immune Function

A little known fact is that **70-80% of our immunoglobulin-producing cells reside in our gut**, which is populated by nearly 100 trillion microorganisms, many of which are beneficial bacteria.³ These bacteria are considered a living part of the human organism.⁵

With age, we can experience a decline in vital beneficial bacteria and the strength of our immune system. Restoring the gut's friendly bacteria can stimulate and regulate healthy immune function.⁵

A Potent, Immune Enhancing Strain of Bifidobacteria

Researchers have shown that a unique well-studied strain of the bifidobacteria probiotic called **BB536®** increases the number of healthy bacteria in the colon.⁶ An *in vivo* study demonstrated a significant increase in longevity in mice supplemented with bifidobacteria.⁷ Long studied by Japanese scientists, BB536® was found to reduce production of inflammatory cytokines that often accompany seasonal symptom development.⁸

BB536® is a highly researched active probiotic. Each capsule provides 2,000,000,000 (two billion) colony forming units of viable healthy bacteria.

A bottle containing 60 capsules of **Bifido GI Balance** retails for \$20. If a member buys four bottles, the price is reduced to just **\$13.50** per bottle.

Contains milk.

BB536® is a registered trademark of Morinaga Milk Industry Co., Ltd.



Item #01622

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To order
Bifido GI Balance
call 1-800-544-4440,
or visit
www.LifeExtension.com

GREEN TEA EXTRACT

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

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

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

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

If a member buys four bottles of **725 mg Mega Green Tea Extract** capsules, the price is reduced to **\$19.88 per bottle** or as low as **\$6.41 a month** based on the typical intake of just **one** capsule a day. **Contains rice**.



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

FIGHT BACK AGAINST AGING!

Aging is Characterized by Inflammation, Glycation, and Mitochondrial Decay

The loss of cellular vitality is caused by a number of factors, including mitochondrial problems, glycation, and free-radical reactions. Life Extension® members have access to a state-of-the-art nutritional formula called MITOCHONDRIAL ENERGY OPTIMIZER WITH BioPQQ™ that helps protect delicate cellular structures and enables cells to perform life-sustaining metabolic processes.

Mitochondrial Energy Optimizer with BioPQQ™ is designed to counteract age-related structural and functional changes by providing the following unique ingredients:

- **CARNOSINE:** As humans age, proteins in their bodies become **irreversibly damaged** by **glycation** reactions. **Glycation** is the cross-linking of proteins and sugar to form **non-functioning** structures called advanced glycation end products in the body, which can lead to alterations of normal cell function. Carnosine is not only a powerful **anti-glycating** agent, but it also protects **neurons** against reactive and cytotoxic protein carbonyl species associated with normal aging.¹⁻⁵
- **PQQ:** This breakthrough micronutrient has been shown to trigger **mitochondrial biogenesis**—the growth of new mitochondria in aging cells!⁶ PQQ also activates genes involved in protecting the delicate structures within the mitochondria.⁷⁻¹⁰
- **LUTEOLIN:** Systemic inflammation is involved in most undesirable consequences of aging. Culprits behind **inflammatory** reactions are pro-inflammatory **cytokines**, such as **interleukin-1** and **tumor necrosis factor-alpha**. Luteolin is a flavonoid that has been shown to help suppress these inflammatory cytokines.¹¹⁻¹⁶
- **BENFOTIAMINE:** Effectively modulates multiple destructive biochemical pathways that are induced by higher than desirable blood glucose levels. Human mortality studies indicate that **ideal** fasting glucose levels are between **74–85 mg/dL**. Yet many aging people have fasting glucose above **90 mg/dL**, which is less than optimal.¹⁶⁻¹⁹ Benfotiamine protects endothelial cell integrity from the effects of high glucose levels. In addition, benfotiamine exhibits direct antioxidative capacity and supports DNA function.²⁰
- **PYRIDOXAL 5'-PHOSPHATE:** Aging results in the formation of **advanced glycation end products** throughout the body. Pyridoxal 5'-phosphate is the active form of vitamin B6 that has been shown to protect against both lipid and protein **glycation** reactions.²¹⁻²⁴

Bio-Enhanced® is a registered trademark of GeroNova Research, Inc. ArginoCarn® is a registered trademark of Sigma-tau HealthScience, Inc. and is protected by U.S. patent nos. 6,365,622, US 6,703,042, and EP1202956. BioPQQ™ is a trademark of MGC (Japan).



- **R-LIPOIC ACID:** Destructive free-radical activity in the **mitochondria** plays a major role in the loss of cellular vitality. A microencapsulated Bio-Enhanced® **R-lipoic acid** facilitates youthful **mitochondrial energy output** while guarding against **free radicals**. Two forms of lipoic acid are sold on the supplement market, but **R-lipoic acid** is far more potent.²⁵⁻²⁸
- **ACETYL-L-CARNITINE ARGINATE:** The amino acid L-carnitine is required to transport fats into the **mitochondria** to be burned for cellular energy. **Acetyl-L-carnitine arginate** is a patented form of carnitine that also **supports neurites** in the brain.²⁹

Taking all of the individual ingredients in the **Mitochondrial Energy Optimizer with BioPQQ™** separately would be prohibitively expensive, but Life Extension® members obtain this comprehensive formula at substantial savings.

A bottle of **Mitochondrial Energy Optimizer with BioPQQ™** containing **120 capsules** retails for \$94. If a member buys four bottles, the price is reduced to **\$63** per bottle. **Contains soybeans.**

Just four capsules of Mitochondrial Energy Optimizer with BioPQQ™ provide:

Carnosine	1000 mg
ArginoCarn® Acetyl-L-carnitine arginate DiHCl	675 mg
R-Lipoic acid (as microencapsulated Bio-Enhanced®)	150 mg
Benfotiamine	150 mg
Pyridoxal 5'-Phosphate	100 mg
BioPQQ™	10 mg
Luteolin	8 mg



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

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IN THE NEWS

Take Your Vitamin D with Largest Meal of the Day

Vitamin D is a fat-soluble nutrient that does not absorb well on an empty stomach or with a small meal.



A study evaluated a small group of people who took vitamin D on an empty stomach or with a light meal. When these people were instructed instead to take their vitamin D with the **largest meal** of the day, there was a remarkable **56.7% increase** in serum blood (25-hydroxyvitamin D) levels after two to three months.*

This study, conducted at the

Cleveland Clinic Foundation Bone Clinic, demonstrates how much better fat-soluble nutrients absorb when taken with a meal that contains some fat, which is usually the heaviest meal of the day. It helps explain why people who take higher doses of vitamin D sometimes fail to achieve optimal blood levels of **25-hydroxyvitamin D (over 50 ng/mL.)**

Nutrients that should be taken with heaviest meal of the day include **fish oil, lycopene, lutein, zeaxanthin, gamma tocopherol, astaxanthin**, and of course, **vitamin D**.

* J Bone Miner Res. 2010 Apr;25(4):928-30.

Lower DHEA Levels Associated with Higher Risk of Cardiovascular Disease

The Endocrine Society's Annual Meeting was the site of a presentation of the finding of a protective effect for higher levels of dehydroepiandrosterone (DHEA) against the risk of cardiovascular events in men.*

Asa Tivesten, MD, and colleagues analyzed data from 2,416 men enrolled in the Osteoporotic Fractures in Men Sweden study. Blood samples obtained upon enrollment were analyzed for DHEA and DHEA sulfate (DHEA-S).

Over a five year follow-up, 485 cases of fatal or nonfatal cardiovascular events were documented. Having a higher serum DHEA was associated with a lower risk of cardiovascular events, as was having a higher level of DHEA-S. Men whose DHEA-S was among the lowest one-fourth participants had a **25%** higher risk of events compared to the rest of the subjects, and those whose levels of both DHEA and DHEA-S were among the lowest fourth had a **34%** higher risk of any major cardiovascular event.

Editor's Note: DHEA, produced by the adrenal glands, acts as a precursor to the hormones estradiol and testosterone. While some research findings have suggested an association between increased DHEA levels and a reduction in heart disease, the majority of the studies involving DHEA have been small and results have not always been conclusive.

—D. Dye

* Endocrine Society 94th Annual Meeting, June 23, 2012 Houston.



IN THE NEWS

Metformin Shows Promise for the Treatment of Pancreatic Cancer

At the Pancreatic Cancer: Progress and Challenges conference, Christopher Heeschen, MD, PhD, reported positive results for metformin in experiments involving pancreatic cancer cell cultures and mice implanted with pancreatic cancer tumors.* The drug helps eliminate cancer stem cells, a population of cells that are resistant to chemotherapy and which may be responsible for the initiation and recurrence of the disease.

Pretreatment of pancreatic ductal adenocarcinoma cancer stem cells with metformin resulted in activation of AMPK, an enzyme that helps regulate cellular energy. Treatment with a combination of gemcitabine (the standard chemotherapy for pancreatic cancer) and metformin eradicated cancer stem cells as well as other malignant cells. When Dr. Heeschen's team implanted immunocompromised mice with pancreatic cancer tumors and treated them with gemcitabine and/or metformin, animals that received both drugs had fewer tumors and a lower incidence of relapse in comparison with those that received either drug alone.

Editor's Note: Metformin is currently prescribed to diabetic patients and has shown potential as a cancer preventive and treatment, in addition to other possible uses.

—D. Dye

* American Association for Cancer Research Pancreatic Cancer: Progress and Challenges, June 18-21, 2012, Lake Tahoe, NV.

Exercise May Be Needed for Dietary Restriction Benefits

In the journal *Cell Metabolism*, scientists at the Buck Institute for Research on Aging report the outcome of experiments that suggest that it may be necessary to be physically active in order to derive maximum benefit from dietary restriction (DR). Significant restriction of the intake of a particular nutrient or total calories has extended the life span of numerous species in laboratory experiments; however, researchers are still clarifying the mechanisms involved in the technique.*

In a study involving fruit flies, Pankaj Kapahi, PhD, and colleagues observed that the insects became more physically active when their protein source was restricted. The increased physical activity observed in the dietary-restricted flies was associated with greater fat synthesis and breakdown. When fat synthesis in muscle tissue was blocked, so was the life-extending benefit of dietary restriction. And in flies whose motion was limited, the extended life span that normally results from a restricted diet did not occur.

Editor's Note: The researchers additionally determined that in flies genetically engineered to overexpress the hormone AKH (Adipokinetic Hormone), metabolism and activity levels were enhanced and life span was extended, even without dietary restriction. The authors suggest that molecules such as AKH could potentially serve as a dietary restriction mimetic.

—D. Dye

* *Cell Metab.* 2012 Jul 3;16:97-103.



Higher Dose Vitamin D Needed for Fracture Prevention

A pooled analysis of 11 clinical trials reported in a recent issue of the *New England Journal of Medicine* reveals a protective effect for high dose vitamin D supplementation against the risk of fracture in older men and women.* While **800 IU** or more of the vitamin was associated with reduced fracture risk, lower doses did not appear to be effective.

Scientists analyzed data from 31,022 individuals age 65 and older who were assigned to receive oral vitamin D or a placebo in one of 11 randomized, controlled trials. Among those whose vitamin D was among the top **25%** of subjects at a median dose of **800 IU** per day, there was a **30%** lower adjusted risk of hip fracture and a **14%** lower risk of nonvertebral fractures in comparison with those whose vitamin D intake was lowest.

Editor's Note: The study found no fracture-preventive benefit for doses lower than **800 IU** per day, indicating that higher doses may be needed, particularly among those at risk for osteoporosis and fracture. This study publishes what Life Extension has already used to rebut government recommendations against vitamin D.

—D. Dye



* *N Engl J Med.* 2012 Jul 5;367(1):40-9.



IN THE NEWS

Life Extension® Supports Nutritional Research in Chronic Kidney Disease

In a study supported by Life Extension®, recognized by the National Kidney Foundation, and published in the *Journal of Renal Nutrition*, researchers in Texas evaluated the effects of fish oil ingestion in thirty-one patients with chronic kidney disease (CKD)*.

The scientists conducted a double-blind, randomized, placebo-controlled trial in non-dialysis chronic kidney disease patients to evaluate a nutritional supplement vs. placebo upon a variety of proinflammatory parameters. The cytokines evaluated in the study included interleukin 1b (IL-1b) and interleukin 6 (IL-6). The active treatment group received fish oil containing **1,400 mg** of EPA and **1,000 mg** of DHA daily, along with olive fruit extract (**600 mg** daily), and sesame lignans (**20 mg** daily).

The researchers discovered that fish oil, olive fruit extract, and sesame lignans had a significant, beneficial effect upon the inflammatory cytokine IL-1b with lower IL-1b levels in those taking **fish oil-olive fruit-sesame lignans** compared to the inactive placebo group.

Editor's Note: An important consideration in chronic kidney disease, a leading cause of disability in the United States, is excess production of proinflammatory factors called cytokines. These inflammatory factors are implicated in a variety of health conditions, including cardiovascular and joint health, as well as kidney health.

—D. Dye

* *J Ren Nutr.* 2012 Jan 26.

Iron Supplementation Reduces Fatigue in Premenopausal Women

The results of a trial described in the *Canadian Medical Association Journal* reveal a benefit for iron supplements in iron-deficient (but nonanemic) premenopausal women who experienced fatigue.*

Dr. Bernard Favrat and his associates enrolled 198 women aged 18 to 53 for the current trial. Participants were limited to those who had deficient serum ferritin levels of less than **50 micrograms** per liter and hemoglobin levels above **12 grams** per deciliter. Subjects were divided to receive **80 milligrams** iron or a placebo daily for 12 weeks. Fatigue was evaluated at the beginning and end of the study, and blood samples were analyzed for hemoglobin and ferritin at baseline and at 6 and 12 weeks.

Hemoglobin, ferritin, and other factors increased after 6 weeks among women who received iron and continued to be improved at 12 weeks, in contrast with the placebo group, for whom some values declined by the end of the study.

Editor's Note: Reduced iron levels are common among women of childbearing age; however, consuming too much iron increases free radical damage, which has been linked to a number of diseases.

—D. Dye

* *Can Med Assoc J.* 2012 Jul 9.

Researchers Recommend Increase in Vitamin C Dietary Allowance

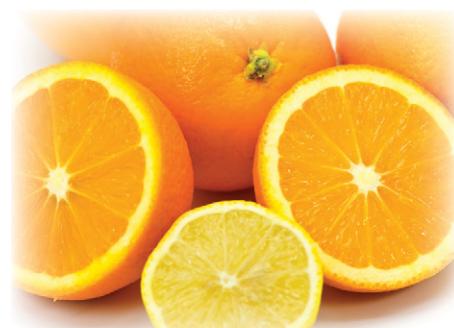
Scientists at Oregon State University's Linus Pauling Institute are proposing an increase in the recommended dietary allowance (RDA) for vitamin C from the current level of **90 milligrams** per day for men and **75 milligrams** for women, to a modest intake of **200 milligrams**. Writing in a recent issue of *Critical Reviews in Food Science and Nutrition*, Professor Balz Frei and his colleagues observe that the current RDA is based on the amount necessary to prevent scurvy and that present methods of evaluating nutrients such as vitamin C have often failed to find further disease-preventive benefits due to faulty methodology.*

Dr. Frei and his coauthors argue that these trials do not always demonstrate the protective properties of compounds already present in the human body, whose benefits may be evident only after many years of optimal intake.

Editor's Note: The authors remark that increased long-term intake of vitamin C will provide greater tissue saturation at a cost of only a penny per day if consumed as a supplement, resulting in a significant payoff of lowered risks of cardiovascular disease and cancer as well as a reduction in the conditions that contribute to these diseases, including inflammation.

—D. Dye

* *Crit Rev Food Sci Nutr.* 2012 Sep;52(9):815-29.



IN THE NEWS



Metformin May Make Brain Cells Grow

A recent study in *Cell Stem Cell* reports on an interesting and potentially beneficial side effect of the diabetes drug metformin: it may encourage the growth of new neurons in the brain.* In mice, this new growth lead to improved intelligence.

Freida Miller, the study's lead author from the University of Toronto-affiliated Hospital for Sick Children is encouraged because the drug is already widely used and considered safe. Mice who took the metformin displayed a plethora of new neurons and it was observed that they had an easier time with some standard mazes during spatial learning tests.

While many people taking metformin have reported some form of cognitive improvement, up until now that was attributed to better control of the diabetes. The possibility is now open that the daily doses of metformin were responsible for these improvements. This discovery could hold the key to successfully treating Alzheimer's symptoms.

—M. Richmond

* Available at: <http://www.cell.com/cell-stem-cell/retrieve/pii/S1934590912001749>. Accessed July 27, 2012.

Bees Can Reverse Brain Aging, May Hold Clues for Alzheimer's

In a recent study published in the journal *Experimental Gerontology*, a team of scientists from Arizona State University (ASU) and the Norwegian University of Life Sciences, led by Gro Amdam, an associate professor in ASU's School of Life Sciences, presented findings that show that tricking older, foraging bees into doing social tasks inside the nest causes changes in the molecular structure of their brains.*

"We knew from previous research that when bees stay in the nest and take care of larvae – the bee babies – they remain mentally competent for as long as we observe them," said Amdam. "However, after a period of nursing, bees fly out gathering food and begin aging very quickly. After just two weeks, foraging bees have worn wings, hairless bodies, and more importantly, lose brain function – basically measured as the ability to learn new things. We wanted to find out if there was plasticity in this aging pattern so we asked the question, 'What would happen if we asked the foraging bees to take care of larval babies again?'

Researchers discovered that after 10 days, about **50%** of the older bees caring for the nest and larvae had significantly improved their ability to learn new things

"Maybe social interventions – changing how you deal with your surroundings – is something we can do today to help our brains stay younger," said Amdam. "Since the proteins being researched in people are the same proteins bees have, these proteins may be able to spontaneously respond to specific social experiences."

—M. Richmond

* Available at: https://asunews.asu.edu/20120702_bee_brainaging. Accessed July 25, 2012.

Generic Plavix Competitors Set to Distribute

In a win for insurance companies and those paying out of pocket for anti-clotting drugs, the patent for the blockbuster drug, Plavix®, recently expired. Shortly following the expiration, the FDA moved quickly to approve upwards of ten generic versions of the drug.*

Plavix®, made by Bristol-Myers Squib, is one of the most profitable drugs of all time and has been used for secondary prevention of heart attacks and stroke in patients who have suffered these events.

With the generic version soon becoming readily available, it is expected that insurance companies will automatically switch patients over to the less expensive version. According to Bristol-Meyer's Squib's 2011 annual report, they state that they "expect a rapid, precipitous, and material decline in Plavix® net sales" once generic drugs hit the market.

—M. Richmond

* Available at: <http://online.wsj.com/article/BT-CO-20120725-715936.html>. Accessed July 25, 2012.



PURE, HEART HEALTHY

Super Omega-3 EPA/DHA



Item # 01482

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

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

Sesame Lignans and Standardized Olive Fruit Extract for Enhanced Benefits

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

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

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

Super Omega-3 (4 regular size softgels) supplies the equivalent content of **6 tablespoons of extra virgin olive oil**. Take two softgels twice daily with meals.

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



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

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

Contains fish (anchovy, mackerel), sesame, and corn.

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.

Just one serving of **SUPER OMEGA-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract** provide:

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

A SMALLER SOFTGEL for easier swallowing!

Some members have requested we make **Super Omega-3** available in a smaller capsule for easier swallowing. We have accomplished this by making **half-size** softgels available.

A bottle containing 240 half-size softgels of **Super Omega-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract** retails for \$32. If a member buys four bottles, the price is reduced to just **\$21** per bottle. If **10 bottles** are purchased, the cost is just **\$18.68** per bottle. (Item # 01619)

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

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

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Most Popular DHEA Dosages



DHEA is a critically important hormone, but its production declines sharply as we age.

Scientists are discovering numerous health benefits when aging people restore their DHEA to youthful ranges.

Life Extension offers a wide range of DHEA supplements to satisfy individual needs.



Item #00335

DHEA 25 mg, 100 Capsules

The minimum dose of DHEA for most healthy aging people is 25 mg a day, though optimal doses are often higher in men. These 25 mg capsules are a popular way to consume the precise amount of DHEA your body may need. A bottle containing 100 **25 mg** capsules of **DHEA** retails for \$15; if a member orders four, the price is reduced to just **\$9.38 per bottle**. Contains rice.



Item #00882

DHEA 50 mg, 60 Capsules

The optimal daily dose of DHEA for most people is 50 mg. These economical 50 mg capsules enable most people to conveniently consume the optimal dose of DHEA in just one capsule. A bottle containing 60 **50 mg** capsules of **DHEA** retails for \$16; if a member orders four bottles, the price is reduced to just **\$10.50 per bottle**.

Contains rice.



Item #00454

DHEA 15 mg, 100 Capsules

While published studies show the greatest benefit occurs when 50-75 mg of DHEA is consumed each day, some women only need a low dose of DHEA. Just one of these 15 mg capsules a day is all some women need to bring DHEA levels back to youthful levels. A bottle containing 100 **15 mg** capsules of **DHEA** retails for \$12; if a member orders four bottles, the price is reduced to just **\$7.50 per bottle**.

DHEA 25 mg, 100 Dissolve-in-Mouth Tablets

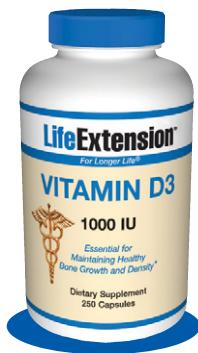
A bottle containing 100 **25 mg dissolve-in-mouth** tablets of **DHEA** retails for \$14; if a member orders four bottles, the price is reduced to just **\$8.81 per bottle**.

Some people want to take DHEA in sublingual tablet form to avoid first pass through the liver, though published studies show that swallowing DHEA capsules consistently boosts blood DHEA levels already within normal range. Contains corn

CAUTION: Do not use DHEA if you are at risk for or have been diagnosed as having any type of hormonal cancer, such as prostate or breast cancer.

To order the **DHEA** supplement that's right for you,
call 1-800-544-4440 or visit www.LifeExtension.com

Which VITAMIN D is Right for You?



Vitamin D3 1,000 IU 250 capsules

Retail: \$12.50

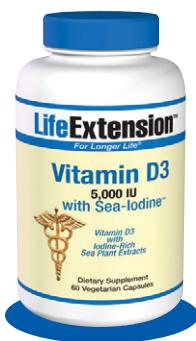
Four-bottle

Member Price: \$8.44 ea.

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

Item # 00251

Please refer to website for allergen information.



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

Retail: \$14

Four-bottle

Member Price: \$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 # 01372

Please refer to website for allergen information.

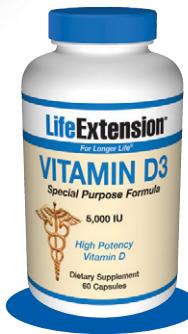
To order any of these high-potency
vitamin D3 supplements, call 1-800-544-4440
or visit www.LifeExtension.com

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 hypercalcemia (high blood calcium levels). People with kidney disease, certain medi-

Study after study confirms the vital importance of maintaining optimal levels of **vitamin D** for broad-spectrum health benefits. Research often indicates that a blood level of 50 ng/mL of **25-hydroxyvitamin D** is ideal.

Because people have individual requirements, Life Extension® has created the largest selection of **vitamin D** supplements available to ensure that you achieve your **vitamin D3** goals, including a 5,000 IU vitamin D formula that also provides 1,000 mcg of iodine per capsule.

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



Vitamin D3 5,000 IU 60 capsules

Retail: \$11

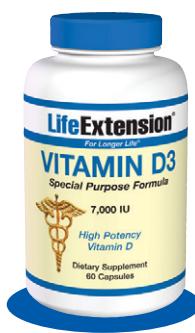
Four-bottle

Member Price: \$7.43 ea.

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

Item # 00713

Please refer to website for allergen information.



Vitamin D3 7,000 IU 60 capsules

Retail: \$14

Four-bottle

Member Price: \$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** capsule should enable these individuals to attain **25-hydroxyvitamin D** blood levels above the desired range of 50 ng/mL.

Item # 01418

Please refer to website for allergen information.



Vitamin D3 Liquid Emulsion 2,000 IU 1 ounce

Retail: \$28

Four-bottle

Member Price: \$18.75 ea.

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

Item # 00864

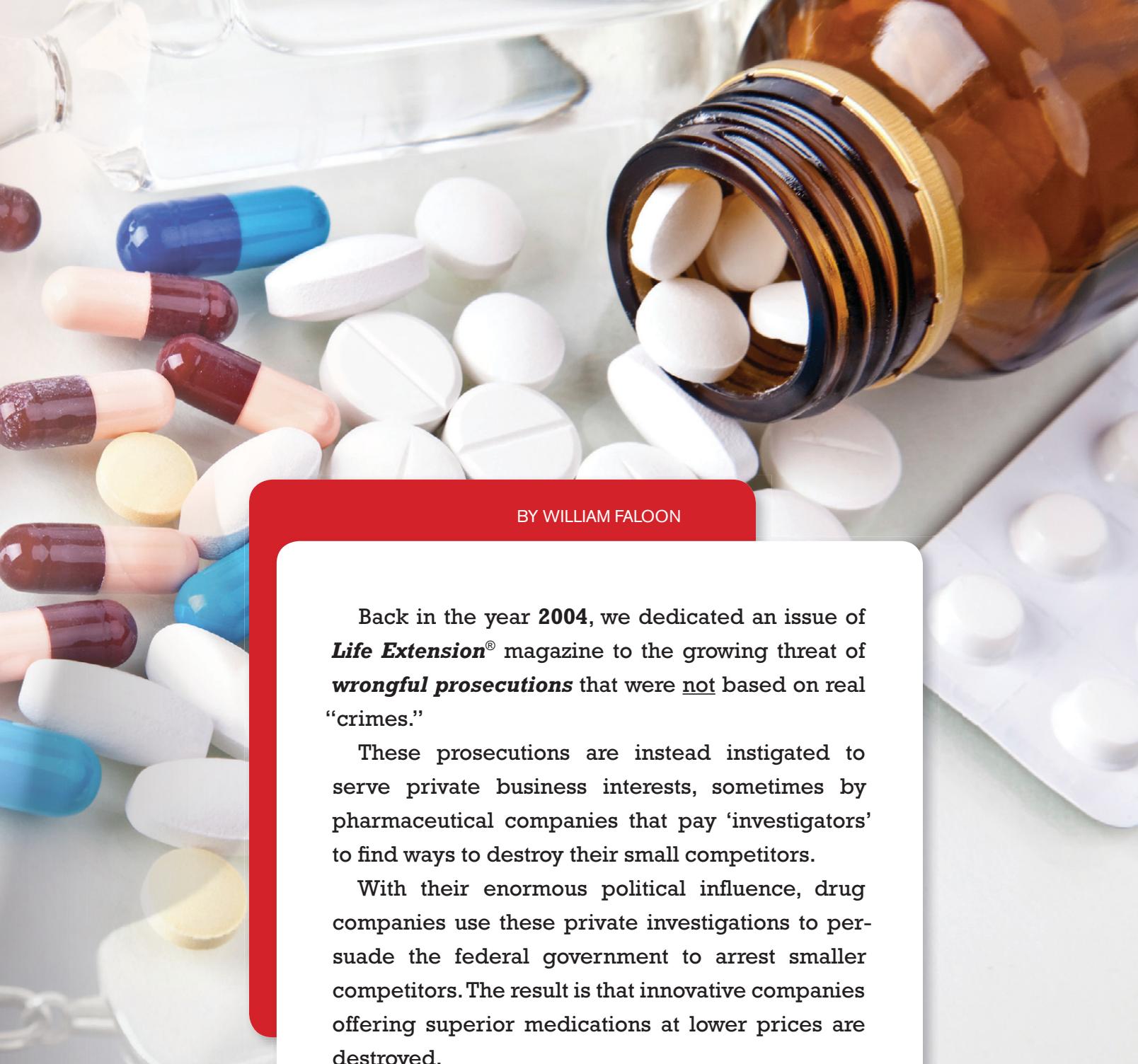
cal conditions (such as hyperparathyroidism or sarcoidosis), and those who use cardiac glycosides (digoxin) or thiazide diuretics should consult a physician before using supplemental vitamin D.

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



A TRAGIC MISCARRIAGE OF JUSTICE

We Must Convince the President
to Release **JAY KIMBALL**



BY WILLIAM FALOON

Back in the year **2004**, we dedicated an issue of ***Life Extension***® magazine to the growing threat of **wrongful prosecutions** that were not based on real “crimes.”

These prosecutions are instead instigated to serve private business interests, sometimes by pharmaceutical companies that pay ‘investigators’ to find ways to destroy their small competitors.

With their enormous political influence, drug companies use these private investigations to persuade the federal government to arrest smaller competitors. The result is that innovative companies offering superior medications at lower prices are destroyed.

Pharmaceutical companies financially flourish, while consumers and the healthcare system of the United States collapses under the weight of this relentless corruption. > >

The most egregious example of **prosecutorial misconduct** occurred in **2000**, when a man named **Jay Kimball** was sentenced to **13 years in jail** for **exporting** a lower cost liquid **deprenyl** that may have been superior to the deprenyl tablets being sold for obscenely high prices in the US. The company making the deprenyl tablets launched a massive “private” investigation against Jay Kimball, and then turned their report over to the FDA and Justice Department.

Contrary to the **100,000** Americans who die each year from Big Pharma’s fraudulently-approved drugs, nothing in the private report suggested anyone was harmed by Jay’s products. Jay was nonetheless **arrested** on technical violations of pharmaceutical “export” laws and punished with such a draconian sentence that he may not leave prison alive unless we succeed in convincing President Obama to vacate his prison sentence to the many years he has already served. This legal process is called “commutation of sentence” and allows the President to order the release of a prisoner but does not nullify the conviction itself.

After reading this article, I urge each of you to contact President Obama’s pardon commission at the Internet address we provide to petition for the immediate release of a human being who did nothing more than to provide a superior medication at a lower cost.

Deprenyl May Be An Anti-Aging Drug

Deprenyl is a drug the FDA approved to treat early-stage Parkinson’s disease. It had long before been used throughout Europe. Deprenyl enhances and prolongs the anti-Parkinson effects of standard drugs like L-dopa.

Deprenyl has also demonstrated intriguing anti-aging properties.¹⁻⁴ According to one study, rats treated with relatively low doses of deprenyl lived up to **38% longer** than the control group.¹

In humans prior to age 45, **dopamine** levels remain fairly stable. After that, dopamine in the human brain decreases by about **13%** each decade. When the dopamine content in the brain reaches about **30%** of normal, Parkinson’s symptoms may be present.⁵ When levels reach **10%** of normal, death ensues.⁵ This has led to the hypothesis that if we live long enough, we will all develop Parkinson’s symptoms due to dopamine depletion in our brains.¹

Monoamineoxidase B (MAO-B) is an enzyme in the brain that degrades neurotransmitters like dopamine. As humans age, MAO-B levels increase and degrade precious dopamine and other neurotransmitters. Deprenyl is a selective inhibitor of MAO-B.⁶ As little as **5 mg** twice a week of deprenyl is all aging human may need to maintain their dopamine at youthful levels.⁵

Not only may deprenyl help prevent degenerative brain diseases, but it can also improve the quality of life, as evidenced by increased ‘mounting frequency’ in old male rats treated with deprenyl compared to untreated controls.^{5,7-10}

Dopamine is a primary “feel good” neurotransmitter that progressively depletes after age 45 in humans.⁵ Restoring dopamine levels using low-dose **deprenyl** (**5 mg** twice a week) may help aging humans regain some of their youthful sense of well being.

Jay Kimball’s Liquid Deprenyl

Deprenyl is now a generic, but when the patent was in force, it sold for a lot of money. Because of the inefficient regulatory environment that limits free market competition, generic deprenyl costs about the same now as when it was covered under a patent.

Jay Kimball had developed a purified *liquid* deprenyl that he claimed was superior to the outlandishly priced tablets the FDA had approved for Parkinson’s patients.¹¹

Jay first started selling his liquid deprenyl over-the-counter in the United States. When the FDA ordered him to stop, he capitulated as his small company lacked the resources to take on the FDA (and Big Pharma) in court. Jay continued, however, to **export** his liquid deprenyl to other countries.¹²

You might ask, what is wrong with *exporting* medicines to other countries? It turns out that unless the FDA first *approves* the export, even sending a medication to *other* countries is “illegal.”

Pharmaceutical Company Destroys Jay Kimball

The pharmaceutical company that sold deprenyl tablets became outraged when Americans who wanted Jay’s purportedly superior liquid deprenyl began ordering it from other countries. That is when Jay got into big trouble.

The company making deprenyl tablets did not like the low-priced competition, so it ran to the FDA demanding that Jay Kimball be stopped. The FDA did not move fast enough to suit the drug company, so it hired a private detective agency to conduct a criminal investigation *independent* of the government. The private detectives did a superb job of documenting that Jay was indeed shipping deprenyl to other countries. This file was turned over to the FDA, which used the information supplied by the private investigators to raid Jay Kimball’s premises and eventually indict him on numerous criminal counts. There were no victims of Jay Kimball’s actions, just violations of FDA “export” regulations.

What happened after Jay was indicted is so unprecedented that few attorneys believe the story until they read it. Just from watching TV, most Americans are aware that defendants are entitled to an **attorney** and that if they cannot afford one, an attorney will be appointed and paid for by the government. In fact, the government is often quite generous in providing a free attorney for violent street criminals. If you murder someone, the government will sometimes pay an expert criminal defense attorney huge fees so that the “incompetent counsel” argument cannot be used to overturn a death-penalty sentence.

Jay did not kill or injure anyone, but he was denied an attorney for his trial. Jay’s problem was that he was not indigent, as are most street criminals. Jay had some money to feed his wife and then 13-year-old son and to provide housing for them. The federal government demanded that Jay liquidate all of his assets to pay for an attorney, or else represent himself in court. That would have meant that his wife and son would have to live on the street.

The federal prosecutors offered him a relatively lenient sentence if he pleaded guilty, but Jay defiantly stated that he had not harmed anyone and did not believe he did anything wrong. Jay was told that if he did not plead guilty, he faced up to 3 years in prison if convicted. Jay pleaded for an attorney, but since he was not flat broke, the government would not pay for one. Jay thus had to represent himself in court against the federal prosecutors, the FDA, and the drug company’s private detectives.

Having never practiced law, Jay did an abysmal job of defending himself and managed to get the judge to despise him in the process. After the jury found Jay guilty, the judge sentenced him to an astounding **13 years** in jail, citing Jay’s conduct in trial as a reason to add **10 years** to what had been a maximum **three year** imprisonment.¹¹

Health Freedom Activists Try to Help

When news spread that Jay Kimball was sentenced to **13 years** in jail for FDA violations that had harmed no one,¹² the health freedom community was outraged. Jay was denied the basic right to have an attorney represent him, and then was sentenced to 10 years beyond the maximum sentence he was told he would face prior to trial. Federal rules mandate that defendants be told their maximum prison sentence exposure in order to determine whether a guilty plea is appropriate.

While Jay had no legal resources to fight with during his trial, *donations* poured in after his conviction. An appeal was filed seeking to overturn the **10 additional**

years the judge had arbitrarily and unjustly imposed on him. Despite the best efforts of one of the nation’s leading criminal defense firms, the appeal was denied (as most are nowadays).

Jay made it clear to the judge that he was a political dissident and did not recognize the FDA’s authority over him. Jay had become the embodiment of a “political prisoner.” As is the case in all police-state countries, this meant he would be sent to the harshest jails the Bureau of Prisons could find. He endured filthy county jails in the beginning and then was sent to one of the worst jails (in Belle Glade, FL), where third-world-like squalor breeds infectious diseases among prisoners.¹¹ Jay contracted traumatic injuries at the hands of guards and infectious diseases that almost killed him. Medical treatment was repeatedly denied.

When the government identifies a political dissident, the punishment often greatly exceeds that of a common street criminal. After all, a dissident dares challenge the very authority of the government itself. An example of this barbaric behavior was **Saddam Hussein**, who jailed those who committed street crimes but summarily executed those suspected of questioning his absolute authority. The same was true of Adolf Hitler’s death camps. Eleven million people were murdered in the Nazi death camps. Six million of those were Jews, with the remainder consisting of

Special Gratitude to Maria Miller for Her Volunteer Work

If it were not for the tireless volunteer work of one of our members, Maria Miller, we would not have been able to maintain contact with Jay Kimball, nor complete the application for commutation of sentence.

Jay Kimball has been denied many rights during his incarceration and has been repeatedly moved to different prison hospitals to treat his health ailments. (Jay is over 70-years-old).

To initiate this commutation of sentence application, Maria Miller was promised a visit with Jay Kimball. After driving for eight hours, prison officials denied Maria access to Jay despite promising the visitation over the phone.

Maria Miller does not know Jay Kimball, but after reading the lengthy court transcripts showing egregious government misconduct, she became as passionate as other health freedom activists have when they learn how our federal government treats its political prisoners.

Please log on to www.lef.org/lac to petition The White House to commute the sentence of Jay Kimball.

unpopular ethnic groups, gypsies, homosexuals, those with physical or mental disabilities, and **political dissidents**.

We Must Stand Together and Insist That President Obama Commute Jay Kimball's Sentence

The pharmaceutical company-motivated indictment, the trial without a defense lawyer and brutal incarceration of Jay Kimball is an abomination on the US justice system.

Based on the enormous growth of Life Extension membership over the past eight years, along with a huge number of pro-freedom groups we have allied ourselves with; I believe we can generate enough letters to President Obama's pardon commission to commute Jay Kimballs' sentence to "time served," which is now the better part of a decade.

Prosecutorial misconduct affecting *ordinary* Americans is growing worse each year. One way of helping to stop this police-state oppression is to convince President Obama to liberate the wrongfully prosecuted and incarcerated Jay Kimball.

Please log on to the special website we have set up (www.lef.org/lac) to sign your name to petitions we are sending to The White House and the Presidential Pardon Commission that demands the immediate release of Jay Kimball. Unlike pharmaceutical executives who intentionally sold lethal drugs like **Vioxx®**, **Bextra®**, **Avandia®**, **Paxil®**, **Risperdal®**, the **FDA** never charged Jay Kimball with **harming** anyone—yet he is confined to what may amount to **life in prison**. ●

Please log on to www.lef.org/lac

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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Challenges We Have Confronted

It has taken us years to get to this point where we can effectively rally health freedom activists to petition the **President of the United States** to release **Jay Kimball**.

Jay has not made it easy as he has up till now refused to allow us to petition for commutation of sentence. Jay instead relentlessly filed appeals showing in meticulous detail the wrongful nature of his conviction and the illegality of the 13-year sentence.

While imprisoned, Jay's wife developed serious health problems. Jay made a monumental mistake of **escaping prison** in an attempt to save his wife's life. After Jay developed his own health problems and checked into a hospital using his Medicare account number, he was re-arrested (but not prosecuted for escape). His wife died afterwards from **metastatic breast cancer**. His daughter now suffers **stage IV breast cancer**. His son has not been able to shake off the **depression** inflicted when his father was taken away at a young age.

The carnage inflicted on Jay Kimball and his family by this miscarriage of justice defies words.

When I first wrote about the plight of **Jay Kimball** in **2004**, some members wrote and assumed I was trying to liberate him because he was a "friend" of mine. That is a categorically false assumption. Jay Kimball has been victimized by an out-of-control criminal justice system to serve the financial wishes of a pharmaceutical company. I am not the kind of person who can sit back and watch the government horrifically trample an individual's rights and do nothing about it.

I hope you all will take a few minutes to log on to www.lef.org/lac and sign the petition that will be sent to President Obama asking that he commute the sentence of Jay Kimball to the decade he has already served for the so-called "crime" of selling an effective compound that harmed no one.

Petition for Redress of Grievances

Tragic Miscarriage of Justice

We request President Obama Commute the Sentence of Jay Kimball

In 2000, a man named **Jay Kimball** was sentenced to **13 years in jail** for selling a deprenyl liquid that claimed to be superior to deprenyl tablets.

The prosecution was initiated by a competitor that made the deprenyl tablets. The competing company funded a “private” investigation against Jay Kimball, and then turned their report over to the FDA and Justice Department.

Nothing in the private report suggested anyone was harmed by Jay Kimball’s products.

Jay was nonetheless arrested on technical violations of the Food, Drug and Cosmetic Act, tried without legal representation, and then punished with a prison sentence far beyond the maximum of three years stated by prosecutors in pre-trial hearings.

Jay Kimball has spent 10 years imprisoned, sometimes under deplorable conditions. He is 72 years old, in poor health, and may not live long enough to be released by his scheduled date of June 15, 2015.

We are petitioning you, the President, to commute the sentence of Jay Kimball to the time he has already spent incarcerated. He represents no danger to society, and it would save considerable tax dollars if he were released. His punishment has already exceeded that of anyone similarly situated, so your commutation would not affect deterrence.

We acknowledge that Jay Kimball should not have escaped in 2005, but ask that you look at the mitigating circumstances, in particular the 13-year sentence that went ten years beyond the three years that was supposed to be the maximum amount of time he faced if he refused to plead guilty.

Jay Kimball has always maintained that his actions were not illegal.

The **Office of the Pardon Attorney** has in their files specific details about this case that provide a compelling basis to question why Jay Kimball was criminally prosecuted, let alone the 13-year prison sentence.

We the undersigned request, you, President Barack Obama, commute the sentence of Jay Kimball to the time he has already served.

NAME

ADDRESS

SIGNATURE

SEND TO:

Office of the Pardon Attorney
Attn: Ronald L. Rodgers
1425 New York Avenue, NW
Suite 11000
Washington, DC 20530
(202) 616-6070

and

President Barack Obama
The White House
1600 Pennsylvania Avenue Northwest
Washington, DC 20500
(202) 456-2121

(You can also send this petition by logging on to www.lef.org/lac)

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®** introduces **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.



Item # 01623

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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To order the new
Olive Leaf Vascular Support
call 1-800-544-4440 or
visit www.LifeExtension.com

Experience Tranquility

Overstressed? Losing sleep?

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

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

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

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

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

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

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

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

The retail price of a 30-count bottle of **Natural Stress Relief** is \$28. If a member buys four bottles, the price of this potent stress-relieving formula is reduced to just **\$18** per bottle.

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

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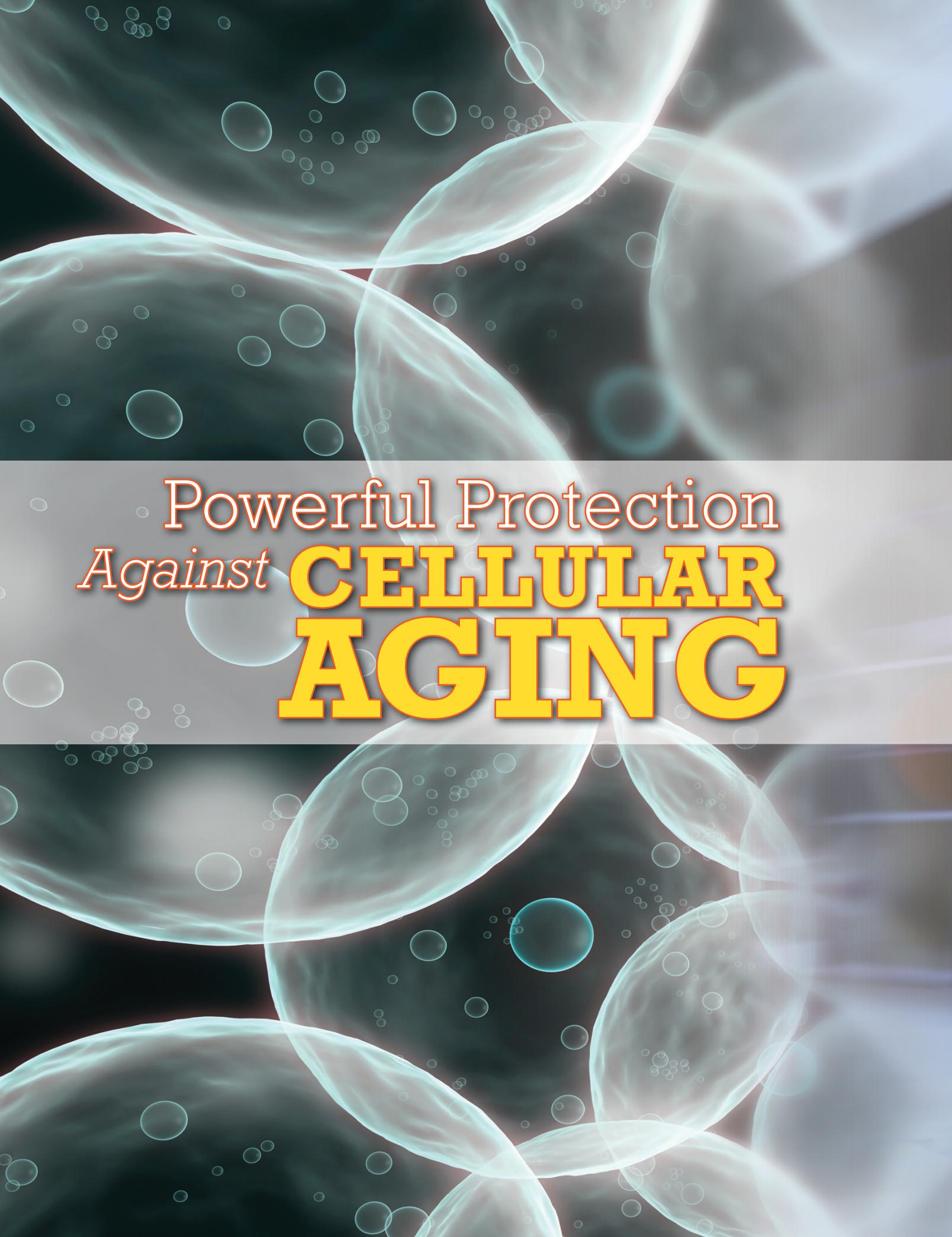
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Contains rice.



Item # 00987

To order Natural Stress Relief
with Lemon Balm and L-Theanine,
call 1-800-544-4440 or visit
www.LifeExtension.com



Powerful Protection
Against **CELLULAR
AGING**

A dynamic photograph of a man in a white long-sleeved shirt and dark shorts jogging towards the right. He is wearing white and blue running shoes. The background is blurred, suggesting motion, with streaks of light in shades of blue and grey.

BY MICHAEL DOWNEY

Conclusive evidence now indicates that **PQQ** (*pyrroloquinoline quinone*) activates **cell signaling** pathways that have the potential to **reverse cellular aging!**¹

PQQ has previously been shown to promote growth of **new mitochondria** within aging cells,¹⁻³ up-regulate cellular metabolism,^{1,2} protect neurons,⁴⁻⁷ and repair DNA!^{1,8}

These and other synergistic **signaling** effects have the combined ability to promote longevity at the critical subcellular level.

PQQ has been found in all plant species ever tested. Scientists have gone so far as to state that PQQ may be “vital to life.”³ > >



An Essential Anti-Aging Nutrient

Scientists have found that **PQQ**, a critical coenzyme, plays a leading role in boosting critical **cell signaling** mechanisms.³

These signaling pathways regulate a variety of physiological and molecular processes throughout the body¹⁰—processes that have an impact on **key biomarkers of aging**, such as mitochondrial function¹¹⁻¹⁶ and cellular defense against oxidative stress.¹⁰

PQQ and Cell Signaling

How can PQQ target *multiple* aging factors?

The answer lies in the potent and **unique** capacity of PQQ to **activate cell signaling pathways**, especially those directly involved in cellular energy metabolism.

Also, similar to the action of **CoQ10**, PQQ actively participates in the **energy transfer** within the mitochondria that supplies the body with most of its bioenergy.

PQQ can even trigger **spontaneous mitochondrial biogenesis**—the creation of *fresh, new mitochondria*!

Specific cell signaling molecules have been found to be **directly activated by PQQ**.

Through these effects, the cell signaling power of PQQ targets aging at both the cellular and subcellular levels.

New research confirm that humans can obtain these multiple benefits after even just short-term supplementation.¹⁷

A wealth of studies now confirm that PQQ's **cell-signaling** activity translates into substantial protection against degenerative and age-related conditions, such as mitochondrial dysfunction,¹ heart degeneration,¹⁸⁻²⁰ brain injury, and cognitive decline.²¹⁻⁴⁰ As one example, research shows that **20 mg** of PQQ daily may reverse age-related cognitive decline in aging humans!

Since PQQ cannot be *synthesized* by your body it is necessary to obtain PQQ from outside sources.^{24,41-43} Fortunately, compared to other plant compounds, PQQ has **greater solubility** and **bioavailability**. PQQ is water-soluble and therefore, more easily absorbed at *low supplemental intakes*.^{1,44,45}

Let's take a look at the modes of action behind PQQ's multiple effects.

Cell Signaling Pathways

Early studies revealed that animals deprived of PQQ exhibit signs of accelerated aging in the form of elevated plasma glucose concentrations, impaired oxygen metabolism, stunted growth, compromised immunity, impaired reproductive capability, reduced numbers and survival rate of offspring, and a decrease in energy-producing mitochondria in their tissue.

Reintroducing PQQ to their diet **reversed** these effects, increasing mitochondrial numbers and restoring systemic function.⁴⁶⁻⁴⁸

PQQ is now linked to favorable effects on cell development, metabolism, and mitochondrial biogenesis. It provides the potential to **reverse cellular aging** and age-related disease by:

- Stimulating spontaneous **growth of new mitochondria** within aging cells.¹
- Regulating **gene expression**.³
- Promoting **tumor cell death from apoptosis**.⁴⁹
- Supporting **mitochondrial protection and repair**.¹
- Providing **powerful antioxidant support** to mitochondria and other body molecules—with up to **5,000 times** the effect of other antioxidants,⁴ and protecting the brain's cells and **neurotransmitter systems** against neurotoxicity^{5,39,50} and amyloid-beta protein.³⁶

The end result of PQQ's activity is subcellular anti-aging and enhanced longevity.

(For more on these beneficial pathways, see box on previous page titled, '**PQQ and Cell Signaling**.'

Heart Benefits

PQQ's cell signaling activities produce measurable health improvements, especially cardio-protective and neuro-protective benefits.

For example, research with animals found that supplementation with PQQ decreased the size of the area of the **heart** injured by acute **coronary artery blockage**. This protective effect was found whether PQQ was given before or after the event—suggesting taking PQQ within the first hours following a cardiac event could deliver invaluable benefit to patients.¹⁸

Following up on this research, scientists then tested both PQQ and the common post-heart-attack treatment *metoprolol* (**Lopressor®**). They found that, while both reduced the size of the damaged area, there was a **greater increase in mitochondrial energy-producing functions with PQQ**.

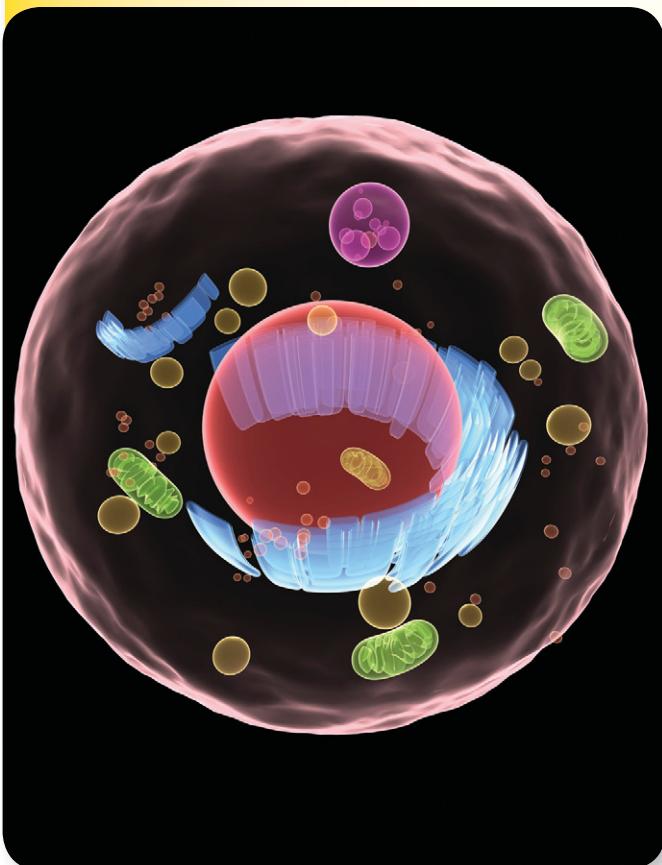
And only PQQ lowered lipid peroxidation!

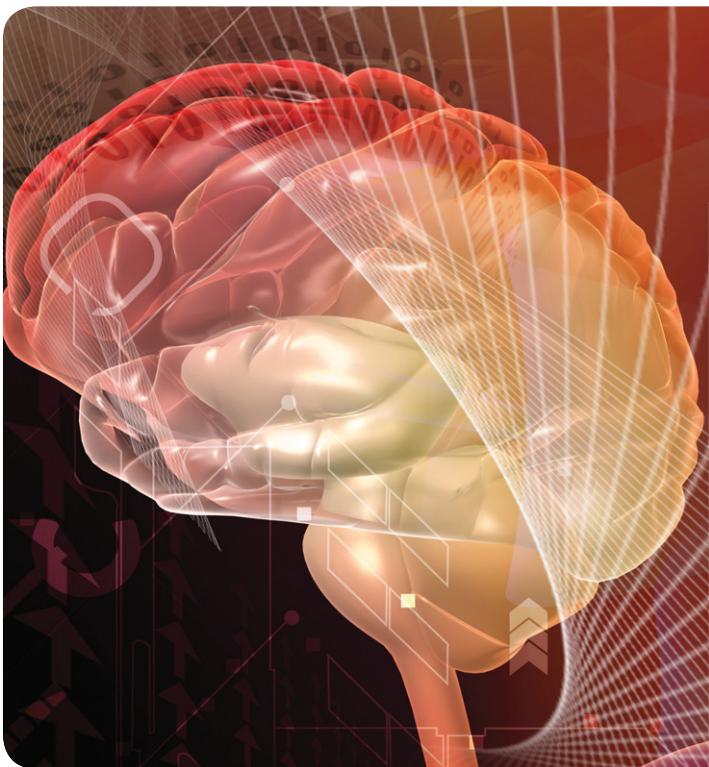
The study team concluded that "PQQ is superior to *metoprolol* in **protecting mitochondria** from ischemia/reperfusion oxidative damage."¹⁹

These same scientists found in later animal research, that "**PQQ reduces oxidative stress, mitochondrial dysfunction, and cell death**" in cardiac muscle cells.²⁰

PQQ: Powerful Protection Against Cellular Aging

- Pyrroloquinoline quinone (PQQ) activates a number of vital, **cell signaling pathways** involved in protecting against cellular aging!
- PQQ-powered signaling mechanisms *create fresh mitochondria*,¹⁻³ upregulate cellular metabolism,^{1,2} improve cognitive performance and protect neurons,⁴⁻⁷ and repair DNA damage!⁸
- These synergistic effects deliver substantial, **subcellular anti-aging** and enhanced longevity.
- Evidenced by studies verifying its wide **cardioprotective** and **neuroprotective** effects, PQQ beneficially modulates a host of key biomolecular functions!





Brain Effects

Scientists found in pre-clinical trials that PQQ reversed **cognitive impairment** caused by oxidative stress and improved performance on memory tests.²¹ PQQ was shown to **protect against a pathologic gene protein** associated with Parkinson's disease.²² Much of the long-term neurological damage that arises after a stroke or spinal cord injury is caused by *reactive nitrogen species* which impose severe stresses on damaged neurons. However, PQQ was found to **suppress reactive nitrogen species** in induced strokes.²⁴

PQQ also blocked a source of *reactive nitrogen species* following spinal cord injury.²⁵ Researchers concluded that PQQ significantly **reduces the size of the damaged area of the brain** even if administered 3 hours after the stroke!²⁷ Additionally, it provides potent **protection against the inflammation and oxidative damage** that results from the sudden return of blood and nutrients to tissues deprived of them by stroke.²⁶ It would seem that PQQ should become a standard nutrient in the hospital emergency room setting for rapid administration to stroke victims.

Illustrating its cell signaling mechanism, PQQ protects **neurons** by modifying a key receptor site within our brain's neurotransmitter system.^{28,29} This inhibits **excitotoxicity**, a response to long-term over-stimulation of neurons that is associated with many neurodegenerative diseases and seizures.³⁰⁻³²

PQQ and Mitochondrial Biogenesis

Greater *mitochondrial* damage has been found in brain cells of humans over 70 relative to those in their early 40s. Many scientists believe *mitochondrial* longevity and the number of functioning mitochondria determine *overall human longevity*.⁵¹⁻⁵³

The coenzyme PQQ, has been shown to induce **mitochondrial biogenesis**—the growth of new mitochondria in aging cells.

While coenzyme Q10, or CoQ10, optimizes the function of mitochondria, PQQ activates genes that govern mitochondrial reproduction, protection, and repair.

To date, the only ways known to reliably stimulate mitochondrial biogenesis have been sustained *calorie restriction* or *strenuous physical activity*—potentially too rigorous for aging individuals.

With its power to safely trigger mitochondrial biogenesis, PQQ represents an extraordinary advance in the quest to reverse cellular aging.

PQQ was shown to **block neurotoxicity** induced by other toxins, including mercury, a factor suspected to play a role in the development of Alzheimer's disease.^{5,33}

Accumulating research indicates that PQQ serves as an intervention in **Alzheimer's** and **Parkinson's disease**—blocking development, and oxidative effects, of *both* the amyloid beta protein associated with Alzheimer's and the alpha-synuclein protein associated with Parkinson's, before they can cause damage.³⁴⁻³⁷

PQQ has been observed to deliver substantial **cognitive benefits**, including improved memory and attention.^{9,38} It activates the manufacture and release of an important, **neuro-protective**, nerve growth factor.³⁸ Scientists tested PQQ's cognitive effects in a double-blind, placebo-controlled clinical trial conducted on humans. In this study of healthy individuals ranging from 45 to 65 years of age, **20 mg a day** of **PQQ** produced clear improvements on standard tests of **greater cognitive function**. Also, the PQQ test group scored **two-fold higher on memory tests** than the control group.⁹

Scores were dramatically higher for a third group that received **300 mg per day** of **CoQ10** along with their **20 mg** of **PQQ**. This underscores the **powerful cognitive benefits** of supplementation with agents shown to be involved in *mitochondrial energy production*.⁹

Summary

Through its broad **cell signaling activity**, PQQ (pyrroloquinoline quinone) modulates the many pathways of aging.

Scientific findings indicate that PQQ-enhanced **signaling** stimulates *mitochondrial biogenesis*,¹⁻³ boosts cellular metabolism,¹ improves cognitive performance and protects neurotransmitters,⁴⁻⁷ and repairs DNA!⁸

Together, these mechanisms support **subcellular anti-aging** and promote longevity.

Studies have shown that PQQ beneficially modulates biomolecular functions that result in substantial *heart* and *brain* defense. As one example, scientists found that PQQ helped produce remarkable **reversal** of cognitive decline in aging humans!⁹ ●

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

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PQQ and Gene Expression

Recent rodent research on gene expression has shown that an induced deficiency of the coenzyme pyrroloquinoline quinone, or PQQ, results in an altering of the expression of a total of **438 genes**.⁵⁴ When the diet is then supplemented with PQQ, the genetic expression pattern reverts to normal. On investigation, the genes most affected by PQQ turned out to be those responsible for:⁵⁸

- Cell signaling
- Cellular stress
- Growth of new mitochondria
- MAP kinase pathways
(*cell-surface-to-nucleus signaling proteins*)
- Transport of metabolites

These findings shed light on PQQ's genetic involvement with *cell signaling*, *antioxidant activity*, and *mitochondrial biogenesis*.

Protecting Mitochondrial DNA

Degradation of mitochondrial DNA leads to mitochondria senescence and death—and extinction of the “host” organism.

As the power generators responsible for almost all bioenergetic production, mitochondria are the site of enormous oxidative activity. A nearly incalculable number of electrons are constantly flowing within the mitochondria, throwing off an equally enormous number of free radicals.

As a result, **mitochondria are much more vulnerable to biochemical insults** than other cellular structures.

And as scientists have discovered over the past several decades, mitochondrial DNA—relative to genetic DNA in the cell’s nucleus (nuclear DNA)—possesses few defenses against free radical damage.^{55,56}

Nuclear DNA is protected by numerous guardian proteins—histones and repair enzymes—that blunt the impact of free radicals. Similar repair systems do not exist to protect mitochondrial DNA.⁵⁵⁻⁵⁷

Also, nuclear DNA is housed within a protective double-membrane that separates it from the rest of the cell. This double-membrane is complemented by a dense matrix of filament proteins called the nuclear lamina, a kind of hard shell casing to further buffer DNA from external impacts.

By comparison, mitochondrial DNA is left almost entirely exposed. It is attached directly to the inner membrane where the mitochondria’s electrochemical furnace rages continuously, generating an enormous volume of toxic reactive oxygen species.

The mitochondria rank among the physiological structures most vulnerable to destruction from oxidative damage.

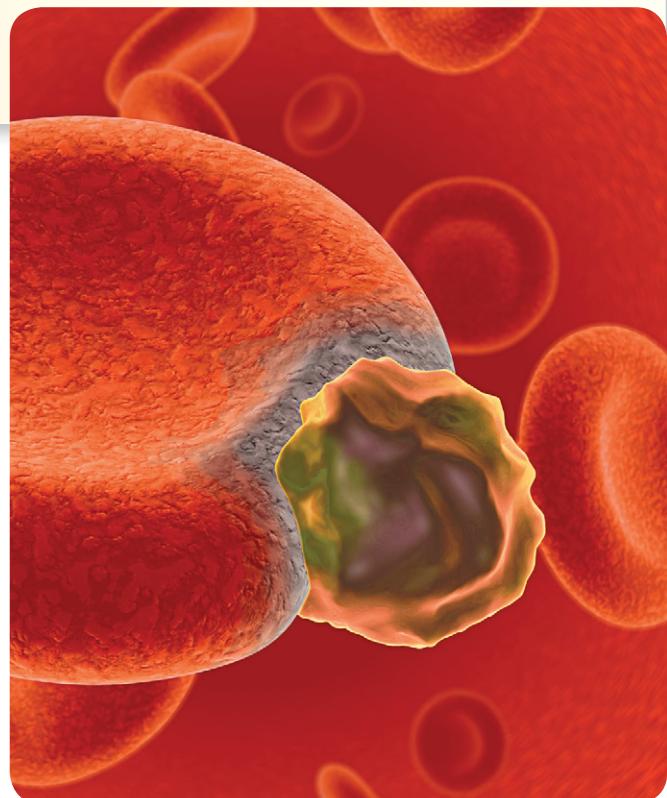
And scientific studies link genetic mutation within the mitochondria to human aging.⁵⁷⁻⁵⁹

PQQ’s formidable free radical-scavenging capacity furnishes the mitochondria with superior antioxidant protection.

As a bioactive coenzyme, PQQ supports optimal function within the mitochondria which is responsible for supplying the body with most of its bioenergy.⁶⁰

Unlike other antioxidant compounds, PQQ’s exceptional stability allows it to carry out thousands of these electron transfers without undergoing molecular breakdown.

In fact, **PQQ is up to 5,000 times more efficient in sustaining antioxidant capacity** than other common antioxidant compounds, such ascorbic acid.⁴



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SAMe FOR BRAIN HEALTH

Life Extension® first introduced SAMe in 1997. Since then, researchers continue to discover impressive benefits of this versatile nutrient. Largely known for its effects on optimal mood, SAMe has also shown benefits for the liver, brain, and joints.

A recent study conducted at Harvard Medical School and Massachusetts General Hospital cited the impressive benefits of SAMe for mood elevation.¹

A report published in Germany indicates that SAMe may help maintain healthy neurological function.* The impressive results showed that:

- SAMe **increased glutathione levels by 50% and glutathione enzyme activity by 115%.**²
- SAMe **decreased a measurement of free radical activity by 46%.**²
- SAMe inhibited **lipid peroxidation by 55% in culture.**²

In addition to these findings, SAMe also improves brain cell **methylation**, thereby facilitating youthful **DNA enzymatic actions** (which may help account for SAMe's mood-elevating properties). These enzymatic reactions are required for the healthy conversion of neurotransmitters such as **serotonin** and **dopamine**.



The good news is that **SAMe** prices continue to **plummet**. Compared to when SAMe was first introduced to the United States in 1997, Life Extension members can now obtain it for **78% less**. On an inflation-adjusted basis, the savings are even greater.

A box of 20 **400 mg** SAMe tablets retails for \$28. When a member buys six boxes, the price is reduced to only **\$18** a box—a **savings of 40%**!

(SAMe is also available in bottles containing 50 400 mg tablets. Retail price is \$66. If a member buys four bottles, the price is reduced to \$45 per bottle.) (Item # 01055)

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To order your supply of premium-grade SAMe,
call 1-800-544-4440 or visit www.LifeExtension.com

CAUTION: SAMe should not be taken by those diagnosed with bipolar disorder.

Comprehensive Pomegranate Protection!

FULL-SPECTRUM POMEGRANATETM FORMULA

Few nutritional sources have gained as much scientific validation as **pomegranate**.¹

The vast majority of research has focused on extracts from the *fruit*. Only recently have scientists identified the synergistic action of compounds specific to other parts of the pomegranate—most notably its **seeds** and **flowers**.

The Next-Generation Pomegranate Formula

Life Extension[®] offers an advanced, cutting-edge pomegranate formula that brings together novel phytonutrients for the first time in a unique, high-potency blend.

Full-Spectrum Pomegranate™ combines standardized extracts from the **whole fruit and flower**, along with pomegranate **seed oil**, to support system-wide health. In addition to the highly absorbable antioxidant powerhouses found in pomegranate fruit,²⁻⁴ **Full-Spectrum Pomegranate™** augments these polyphenols with newly discovered biologically active compounds from other parts of the pomegranate plant.

These little-known nutrients include: **punicanolic acid**, a member of the **triterpene** family of essential oils that provides cellular support to help with inflammation,⁵ and **pomegranata**, to combat age-related metabolic changes.⁶

This superior formula supplies the **complete** nutritional profile of the pomegranate plant. Just one softgel of **Full-Spectrum Pomegranate™** provides polyphenols equivalent to 12.3 ounces of pomegranate juice concentrate (or 30 pomegranates) plus a proprietary blend of **seed oil** and **flower extract**.

One softgel of **Full-Spectrum Pomegranate™** contains:

POMELLA® Pomegranate.....400 mg
(*Punica granatum*) Extract (fruit) [std. to 30%
punicalagins (120 mg)]

PomComplete™ Pomegranate137.5 mg
(*Punica granatum*) Blend [flower extract and
seed oil (standardized to 22% (30 mg) punicic acid)]

Full-Spectrum Pomegranate™

A bottle containing 30 softgels of **Full-Spectrum Pomegranate™** retails for \$24. If a member buys four bottles, the price is reduced to just **\$15.75** per bottle. Item # 01423

Contains soybeans.



Item # 01423

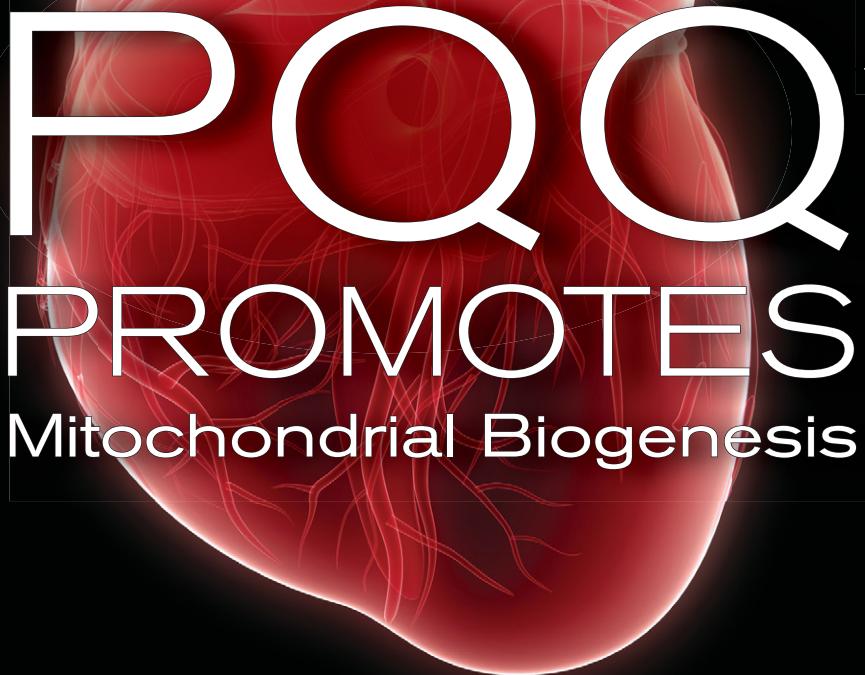
**To order Full-Spectrum Pomegranate™,
call 1-800-544-4440
or visit www.LifeExtension.com**

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POMELLA® extract is covered under U.S. Patent 7,638,640 and POMELLA® is a registered trademark of Verdure Science, Inc.

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.



PQQ PROMOTES Mitochondrial Biogenesis

Critical Importance of Mitochondria

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

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

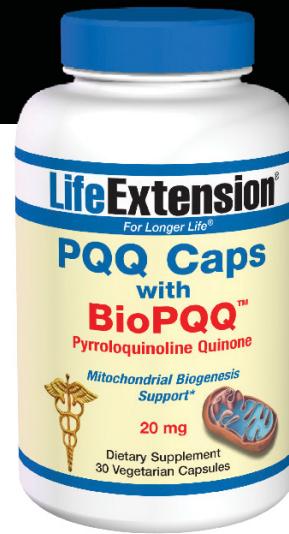
In an unprecedented breakthrough, a compound called **PQQ** (*pyrrolo-quinoline quinone*) has been shown to support **mitochondrial biogenesis**—the spontaneous generation of **new mitochondria** in aging cells.⁷

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.



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 just **\$27** per bottle.

BioPQQ™ is a 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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GLUCOSE CONTROL CAN BE EASY

A close-up photograph of a happy family. In the foreground, a young girl with blonde hair is smiling broadly. Behind her, a man with grey hair and a woman with blonde hair are also smiling. The man has his arm around the woman. The background is slightly blurred.

BY PAUL McGLOTHIN AND MEREDITH AVERILL

Keeping blood sugar levels in check can be much easier if you eat the right foods. The trouble is that many people are accustomed to eating foods that can send blood glucose levels soaring. So the biggest glucose-control challenge may be simply remembering which foods help control glucose and which ones don't. Keep in mind that the benefits of learning about glucose-controlling foods and remembering them may save your life. High glucose levels increase risk of cancer,¹ cardiovascular disease,² Alzheimer's disease,³ and death.⁴

What's really fun is discovering delicious new foods and recipes that keep glucose low. As people move away from foods flavored with sugar, salt, and fat, they enjoy what they eat more than ever: They taste the foods' natural flavors. They love the increased energy they have, too. They are more productive and have more fun—rather than feeling tired and not wanting to do much. > >

Foods to Choose and Foods to Lose

You'll want to become familiar with the Glycemic Index (GI), which ranks carbohydrate-rich foods for their effect on blood glucose. While not infallible, it is an excellent guide for beginners to find the likely effect of their favorite foods on blood glucose.

Foods to **avoid** include those rich in easily digested starches or sugars, such as:

- Dates
- White bread and whole grain bread
- Watermelon
- White potatoes
- Most grains—including rice, millet, and oats
- Sugar in any form—for example: honey, brown sugar, agave, and molasses
- Standard pastas, made of flour—no matter what they are flavored with
- Corn
- Chips
- Pancakes and waffles
- Rice cakes
- Most fruit juices—except lemon, lime, or grapefruit juice
- Pizza

Foods to Choose

Hundreds of delicious low GI foods await you: Most berries, beans, non-starchy vegetables (kale, collards, bok choy, broccoli, squash, tomatoes, etc.) and nuts work well. If you want to eat meat or fish—choose low fat, high-quality meat and fish that are from non-polluted waters and are high in omega-3s.

Understanding Labels is a Key

When selecting a food to include in your healthful low GI diet, don't be fooled by labels. Some marketers will try to make you think a food is good for glucose control when it isn't at all. Food with "Low CALORIE" or "No SUGAR" on the label may still be loaded with high GI starch that will send glucose skyrocketing. Remember: Starch often has as much effect on blood glucose as sugar itself, so always look at the amount of total carbohydrates rather than only total sugars.

If a food has more than **16 grams of total carbohydrate per serving**, be cautious – especially if it is a juice, which is extremely easily digested.

**Besides sugar as a listed ingredient, look for the words in the following chart:
They are sugar in disguise.**

Agave nectar	Barley malt syrup	Barley malt	Beet sugar
Brown sugar	Buttered syrup	Cane juice	Cane juice crystals
Caramel	Carob syrup	Corn sweetener	Corn syrup, or corn syrup solids
Date sugar	Dehydrated cane Juice	Dextrose	Diastatic malt
Ethyl maltol	Fructose	Fruit juice	Fruit juice concentrate
Glucose solids	Golden sugar	Golden syrup	Grape sugar
Glucose	High-fructose corn syrup	Honey	Invert sugar
Lactose	Maltodextrin	Malt syrup	Maltose
Mannitol	Maple syrup	Molasses	Raw sugar
Refiner's syrup	Rice syrup	Saccharose	Sorbitol
Sorghum or sorghum syrup	Sucrose	Sugar	Syrup
Treacle	Turbinado sugar	Xylose	Yellow sugar

And while it's true that some of them—like fructose and high fructose corn syrup—won't raise your blood glucose as much as sucrose (table sugar), they may have even worse effects.^{5,6}

Tricky Labels

Here is an example of how phrases on labels can trick you.

"GOOD-FOR-YOU CEREAL"
**ENDORSED BY MOMS OF THE
 HEALTHIEST KIDS**
JUST TWO GRAMS OF FAT!
LOW SUGAR!
ALL-NATURAL!

Overall tip: Beware when ingredients are provided in such small print that only Superman could read it. That can mean they are trying to hide something.



Be wary when a product makes claims like "Good-for-You" in its name. This kind of statement is meant to influence your buying decision, not to inform you of its actual quality.

Many sly marketers create organizations that sound real, like the MOMS OF THE HEALTHIEST KIDS, when all the organization does (if it exists at all) is endorse whatever the company wants.

Low fat (just two grams) is not better than moderate heart-healthy fat—for your arteries or your glucose levels. Related to this: partially hydrogenated fat is a screaming red flag—the type of fat that your body can't process and that will clog your arteries.

Look at the total carbohydrates—not only the total sugar.

Natural is not the be-all & end-all: Arsenic, after all, is found in nature! Healthful ingredients matter.

Regenerative Power of Calorie Restriction

- High glucose levels increase risk of cancer, cardiovascular disease, Alzheimer's disease, and death.
- The Glycemic Index (GI) ranks carbohydrate-rich foods for their effect on blood glucose and is a good way to start including foods that help support healthy blood glucose levels.
- Reading and understanding food labels is key—remember to watch for hidden sugars and starches.
- Aim for fasting glucose levels in the **80s** or below and postprandial levels not more than **120 mg/dL** measured two hours after eating.
- If lengthening your life span isn't enough, gaining control of your blood glucose levels can lead to increased cognitive and memory capabilities, better blood pressure control, fat loss, increased mental and physical energy, and even reversal of type 2 diabetes.
- *The CR Way to Great Glucose Control CD* and teleconference series can help you take control of your glucose levels and enjoy the regenerative benefits of calorie restriction today!



Knowing Your Glucose Levels

Knowing the effect of your food on your blood glucose levels is very important. To learn this, test your glucose level before and after a meal. That requires a glucometer, also known as a *blood glucose meter*. Don't hesitate to check your blood glucose whenever you need to. Making sure that the food you eat keeps blood glucose low offers huge rewards. Well controlled glucose may activate your adult stem cells – helping to rejuvenate every organ in your body!¹⁷

Aim for fasting glucose levels in the **80s** or below and postprandial levels, measured two hours after eating, of not more than **120 mg/dL**. If you have type 2 diabetes mellitus, you can aim for a fasting glucose goal of **100 mg/dL** or below and a postprandial limit of **130 mg /dL**.⁸

If you are unsure about how a food will affect your blood glucose, use your glucometer to test the glucose-level effect of the food. Make sure to be scientific about it:

1. Test to determine your glucose level before eating.
2. Eat your test food.
3. Test again **30 minutes** after you finish eating the food. If your glucose has risen more than **20 mg/dL** (**40** if you have diabetes), this food will hinder your glucose control efforts.⁹

Making Glucose Testing Affordable

The most expensive aspect of glucose testing is the cost of test strips – the way glucose-testing-supply companies make money. When you visit your doctor, try to get a prescription for glucose testing. This is likely to reduce the cost of purchase. You can take the prescription to your local pharmacy and in many cases redeem it for a free blood glucose meter so you can get started at no cost. You can also ask if your doctor will give you some of the samples that pharmaceutical reps provide.

Another way to get started for free is to check to see which of the big diabetes companies offer free getting-started kits. They will give you the glucometer, hoping you will buy their test strips. Keep in mind that the cheapest isn't always best. Ask your doctor for a glucose-testing-system recommendation.

Glucose Control Program

The importance of glucose control drove the development of *THE CR WAY TO GREAT GLUCOSE CONTROL* Program. It includes a 5-part CD and live teleconferences, where the practical application of glucose control is presented by glucose control experts – Paul McGlothin and Meredith Averill. Plenty of time for your questions to be answered is integrated into each conference.

This hands-on CR Way program provides two sets of glucose control meal plans:

The Optimal Health Plan

For those without diabetes, who want to control glucose for optimal health: Increased cognition, disease prevention, and – ultimately – more energetic, healthier living are emphasized.

The Reversing Type 2 Diabetes Plan

Scientific evidence shows that type 2 diabetes may be both preventable and reversible with a CR Way-based diet.^{10,11} This plan offers foods and recipes that can help lower blood glucose for those who have special glucose control issues.

Lower Glucose: Better Life

When you decide to follow a low GI, CR Way lifestyle, get ready for increased mental and physical capabilities. And watch out for the likely side effects of extra BDNF, a brain-improving molecule that will make you happy – possibly even giddy – and improve your learning speed and memory.¹² Other beneficial molecules will probably kick in too with another host of benefits, such as lower blood pressure and loss of extra fat.¹³ Your new, energetic lifestyle will make it easier to do the things you want to do, and research indicates¹⁴ you will likely live longer. ●

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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THE UPGRADED LIFE EXTENSION MIX™

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

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

Olive polyphenols help protect against LDL oxidation, quench free radicals, and stabilize cell membranes. LIFE EXTENSION MIX™ contains an olive extract standardized to provide the best-documented polyphenol called **hydroxytyrosol**.

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

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

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

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

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

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

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

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

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

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



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

Vegetable-Fruit Complex

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

Water-Soluble Vitamins and Enzymatic Activators

Vitamin C	2000 mg
as: ascorbic acid, calcium, magnesium & niacinamide ascorbates, ascorbyl palmitate, acerola extract	
Natural Folate (from lemon extract)	400 mcg
Biotin	3,000 mcg
Trimethylglycine (TMG) (from sugar beets)	100 mg
Vitamin B1 (thiamine HCl)	125 mg
Vitamin B2 (riboflavin)	50 mg
Supplying: Riboflavin 5'-phosphate	2 mg
Vitamin B3 (niacinamide and niacinamide ascorbate)	117 mg
Vitamin B3 (niacin)	73 mg
Vitamin B5 (D-calcium pantothenate)	600 mg
Pantethine	5 mg
Vitamin B6 (pyridoxine HCl)	5 mg
Pyridoxal 5'-phosphate (vitamin B6)	100 mg
Vitamin B12 (cyanocobalamin)	252 mcg
Vitamin B12 (hydroxylcobalamin)	252 mcg
Vitamin B12 (ion exchange resin)	96 mcg
PABA (para-aminobenzoic acid)	200 mg

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

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

Life Extension Mix™ has been upgraded to include a rich source of anthocyanins from **maqui berry** and one rich source of proanthocyanidins, **tart cherry**. These potent plant-derived antioxidants promote cardiovascular wellness, support comfortable muscle and joint function, and support blood sugar levels already within a healthy range. The full daily dose of Life Extension Mix™ can be obtained for as little as **\$1.49** per day.

Fat-Soluble Vitamins

Vitamin A (acetate)	5,000 IU
Vitamin D3 (cholecalciferol)	2,000 IU
Vitamin C (as calcium ascorbate, ascorbic acid, ascorbyl palmitate, magnesium ascorbate, niacinamide ascorbate, acerola extract)	2,000 mg
Ascorbyl palmitate (fat-soluble vitamin C)	250 mg
Vitamin E (natural d-alpha tocopherol succinate)	100 IU

Amino Acid Complex

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

Mineral Complex

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

Cholinergic Complex

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

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

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

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

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

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

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

LIFE EXTENSION MIX™ provides a high amount of **chromium** to help maintain arterial wall structure and already normal glucose levels.

We have upgraded our chromium-containing products with Crominex® 3+, a highly stable and biologically active form of chromium blended with Capros® and PrimaVie®.

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

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

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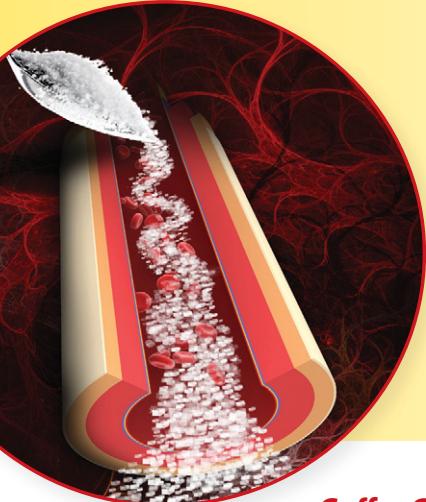
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CAUTION: Some people choose a high-niacin version of Life Extension Mix that provides 862 mg in the daily dose, of which 345 mg is the form of niacin that can cause temporary flushing, itching or gastric disturbances. Liver function testing is recommended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

Contains soybeans, corn, rice, and sesame.



NATURAL APPROACHES FOR OPTIMAL GLUCOSE CONTROL

Standardized **chlorogenic acid** supplements taken before meals can help many people achieve optimal glucose control.

Life Extension® offers a variety of nutrient blends rich in **green coffee bean extract** that provide potent doses of **chlorogenic acid**.

CoffeeGenic™ Green Coffee Extract with Glucose Control Complex

CoffeeGenic™ Green Coffee Extract with Glucose Control Complex contains 200 mg of **CoffeeGenic™ Green Coffee Extract** along with 4 ingredients formulated to help support healthy blood glucose levels already within normal range. Take one capsule 20-30 minutes before each meal to obtain the following nutrients in addition to Green Coffee Bean extract:

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

CoffeeGenic™ Green Coffee (<i>Coffea arabica</i>) Extract (bean)	200 mg
[std to 50% Chlorogenic acid (100 mg)]	
Iodine	25 mcg
(typical value naturally occurring from <i>Ascophyllum nodosum</i> and <i>Fucus vesiculosus</i>)	
Chromium	150 mcg
[as Crominex® 3+ chromium stabilized with Capros® (<i>Phyllanthus emblica</i>) Extract (fruit) and PrimaVie® Shilajit]	
InSea2® [proprietary composition of demineralized polyphenols from brown seaweed Kelp (<i>Ascophyllum nodosum</i>) and Bladderwrack (<i>Fucus vesiculosus</i>)]	125 mg
Integra-Lean® African Mango (<i>Irvingia gabonensis</i>) proprietary Extract (seed)	100 mg
Green Tea (<i>Camellia sinensis</i>) Decaffeinated Extract (leaf)	100 mg
[std. to 98% polyphenols by UV (98 mg), 45% EGCG by HPLC (45 mg)]	

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

(Each serving contains approximately 7 mg caffeine)

A bottle containing **90 vegetarian capsules** of **CoffeeGenic™ Green Coffee Extract with Glucose Control Complex** retails for \$58. If a member buys four bottles, the price is reduced to just **\$39** per bottle.



Item # 01607

1. *Diabetes Metab Syndr Obes*. 2012;5:21-7.

Integra-Lean® Irvingia is protected by U.S. Patent No. 7,537,790. Other patents pending.

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

*This supplement should be taken in conjunction with a healthy diet and regular exercise program. Results may vary.

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



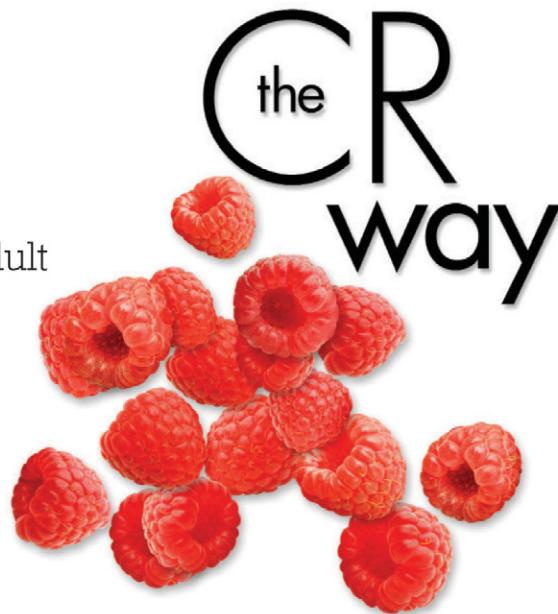
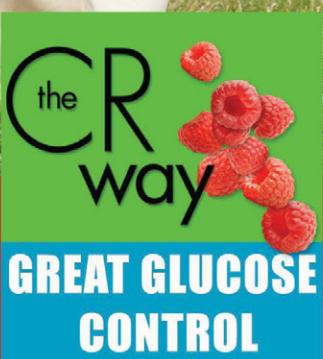
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Item # 01620

Don't let high blood glucose
shorten your life!

Join **THE CR WAY TO
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education course that helps lower glucose.

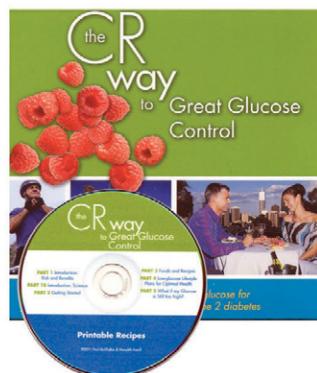


The program starts when you receive the **CR Way to Great Glucose Control CD**, the beautiful 187-page, color-illustrated e-Book that you open, read, and save on your home computer. Enjoy delicious foods, recipes, and unique meal plans that provide glucose guidance for every hour of your day.

This is not like many books or CDs that are bought, put on the shelf, and never used. You'll join two friendly classes via live teleconference with others who share your passion for healthful living. You never have to leave your home to receive caring guidance from experts, Paul McGlothin & Meredith Averill, who show you how delicious and easy low-glucose living can be.

Life is precious. Don't risk the suffering that often results from high blood glucose: memory loss, heart disease, diabetes, cancer, Alzheimer's disease, and—ultimately—shorter life span.

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Retail price \$98
Member price \$82

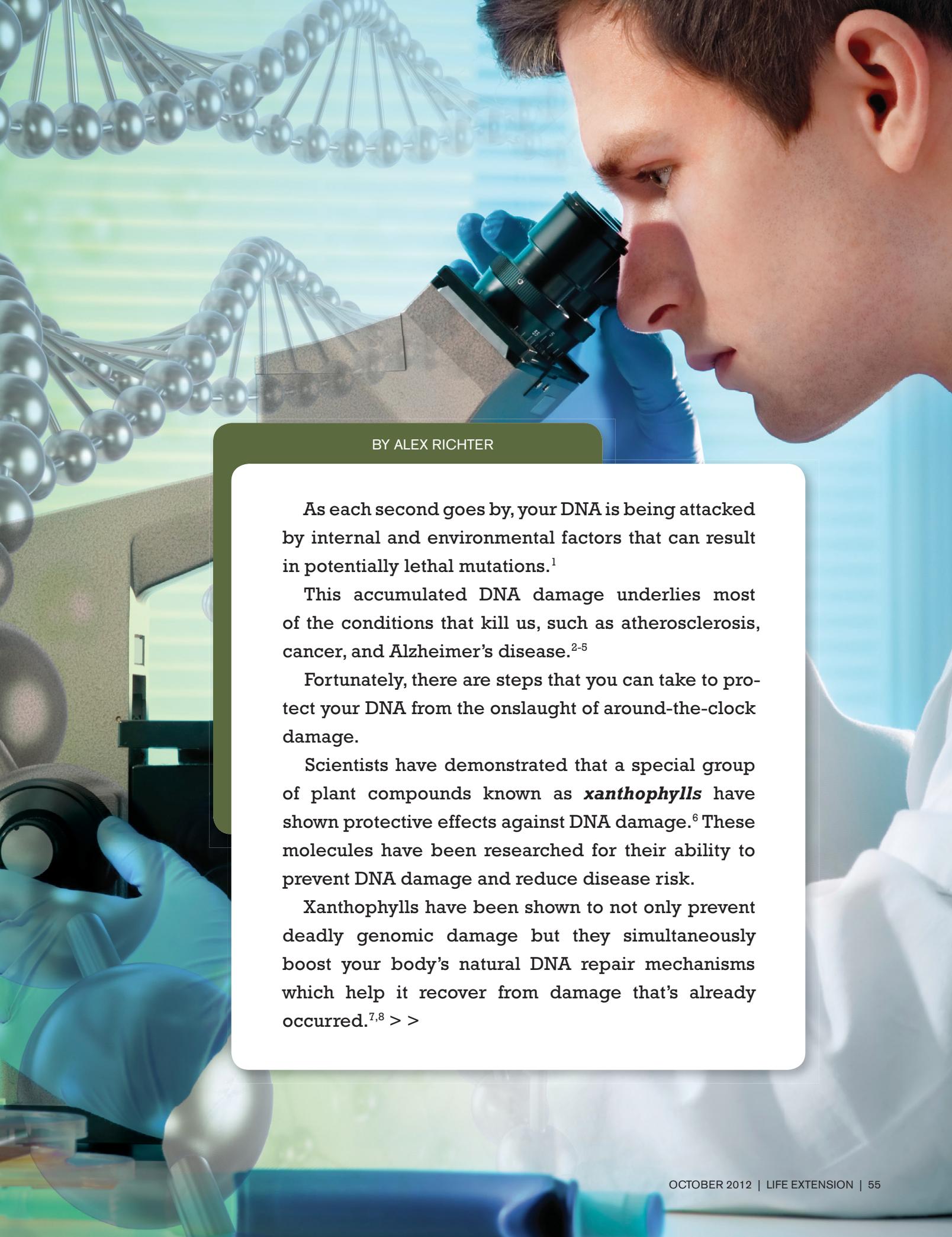


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NOW for **THE CR WAY TO GREAT GLUCOSE CONTROL**.



Defend Against
**DNA
DESTRUCTION**



BY ALEX RICHTER

As each second goes by, your DNA is being attacked by internal and environmental factors that can result in potentially lethal mutations.¹

This accumulated DNA damage underlies most of the conditions that kill us, such as atherosclerosis, cancer, and Alzheimer's disease.²⁻⁵

Fortunately, there are steps that you can take to protect your DNA from the onslaught of around-the-clock damage.

Scientists have demonstrated that a special group of plant compounds known as *xanthophylls* have shown protective effects against DNA damage.⁶ These molecules have been researched for their ability to prevent DNA damage and reduce disease risk.

Xanthophylls have been shown to not only prevent deadly genomic damage but they simultaneously boost your body's natural DNA repair mechanisms which help it recover from damage that's already occurred.^{7,8} >>

Widespread Impact of DNA Damage

The DNA molecule is extremely vulnerable to injury from internal and external sources.^{9,10} Oxygen radicals, toxins, and even sunlight all induce breaks, nicks, and other injuries to the delicate DNA strands.¹¹ Without knowing it, you experience millions of such DNA “accidents” each day. Fortunately, your body has no fewer than five interrelated mechanisms for repairing that damage.⁹ Those mechanisms are so efficient and accurate that your cells and tissues remain stable and disease-free year after year.⁹ Periodically, even the most efficient and accurate repair systems make small errors. And these errors add up. Scientists now recognize that the ability to identify and repair DNA damage is the leading discriminator of who does and does not get cancer and probably many of the other diseases of aging.^{9,10,12}

Xanthophylls Fight DNA Damage

Xanthophylls are concentrated in yellow, orange, and deep green leafy vegetables.^{13,14} Epidemiological studies show that people who consume large amounts



Carotenoid Consumption Lowers Cancer Risk

Ovarian Cancer	55% ⁵⁶
Non-Hodgkin Lymphoma	46% ¹³
Invasive Breast Cancer	17% ⁵⁷
Lung Cancer	17% ¹⁶
Estrogen Receptor-Negative (Treatment-Resistant) Breast Cancer	13% ⁵⁸

People with the highest intake of the carotenoids lutein, zeaxanthin, and astaxanthin are protected against developing many different kinds of cancers.

of fruit and vegetables have lower rates of cancer and other DNA damage-related diseases.^{15,16} But studies that take a closer look show that supplying up to **8 servings** of carotenoid-containing fruits and vegetables per day don’t demonstrate a reduction in DNA damage or improvement in repair mechanisms.¹⁷ Eating **12 servings** per day did produce some benefit particularly with regards to reduction of damaging inflammatory molecules, but most people can’t sustain that level of vegetable consumption.¹⁸ True DNA protection seems to require supplementation to achieve higher levels of these valuable nutrients in your blood.

When human volunteers took capsules containing concentrated xanthophylls, they demonstrated a **40%** reduction in markers of DNA damage in their white blood cells.¹⁹ Individually, **lutein**, **zeaxanthin**, and **astaxanthin** supplements each reduce oxidative stress and DNA destruction in both animal and human studies.²⁰⁻²³ Doses of **4 to 12 mg/day** of xanthophylls, alone or in combination, have been reported to reduce DNA damage in various studies.^{24,25}

Let’s turn now to the compelling body of science that demonstrates how these three xanthophylls can work to prevent catastrophic age-related diseases such as cancer and eye disease by protecting DNA from damage.

Xanthophylls Prevent Cancer

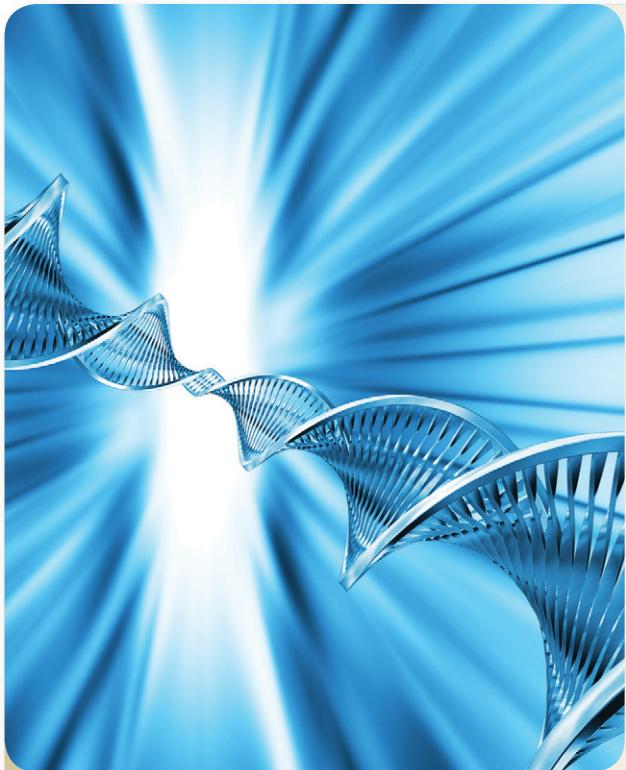
Scientists estimate that poor nutrition and lifestyle habits may play a role in up to **80%** of colon, breast, and prostate cancers and **33%** of all other cancers, including inadequate intake of nutrients that prevent DNA damage and promote DNA repair.^{12,26} Large epidemiological studies consistently show that higher intake of foods rich in lutein, zeaxanthin, and astaxanthin reduce the risk of several different cancer types.^{16,27}

Laboratory studies reveal the reasons for this impressive protection. When tumors are experimentally implanted into mice supplemented with xanthophylls, the rate of tumor growth and the final size of the tumors are reduced by as much as **40%**, compared with un-supplemented animals.²⁸⁻³⁰ The number of tumors triggered by exposure to a carcinogenic chemical can be reduced by **55%** in animals supplemented with xanthophylls such as lutein.²⁹ It takes supplemented animals significantly longer to develop those artificial cancers.³¹⁻³³ How do the xanthophylls exert their powerful anticancer actions?

They do it through a number of mechanisms that strike at different targets throughout the cancer development process:

- They block cancer initiation by limiting DNA damage and strengthening DNA repair mechanisms.^{12,26}
- They suppress genes that promote tumor growth after cancer initiation.³⁴
- They turn on genes that suppress tumor promotion.³⁰
- They reduce inflammation that can promote cancer growth and spread.³³⁻³⁵
- They switch on cancer cells' defective suicide programming (apoptosis), helping to shrink existing cancers and prevent metastatic spread.³⁰
- They slow the development of new blood vessels needed by a rapidly-growing tumor, starving it of its vital nutrient and oxygen supplies.³⁰

Research has shown that supplementation with lutein, zeaxanthin, and astaxanthin boosts the immune system in ways that help it identify and destroy cancerous cells in their earliest stages.^{29,31} Most scientists



What You Need to Know

Defend Your DNA with Carotenoids

- Damage to DNA, the universal blueprint for life, is a fundamental cause of aging and age-related chronic disease.
- DNA repair mechanisms begin to fail with advancing age, resulting in accumulation of damaged DNA throughout the body.
- Growing evidence implicates DNA damage and impaired repair mechanisms in the causation not only of cancer, but of the eye disease called age-related macular degeneration (AMD) as well.
- A special group of carotenoid nutrients, the xanthophylls, combat DNA damage and boost DNA repair mechanisms.
- Supplementation with the xanthophyll nutrients lutein, zeaxanthin, and astaxanthin may help to prevent or slow the development of cancer and other age-related disorders such as AMD.

today recognize that, after prevention of DNA damage, this kind of “immune-surveillance” is an essential and efficient means of preventing a full-blown cancer from emerging.³⁵ The effects of the xanthophylls on skin cancer, the most common cancer in the United States, are especially prominent. Sunlight, and especially its ultraviolet rays, trigger high rates of DNA damage in skin cells that initiate certain types of skin cancer.^{36,37} Ultraviolet radiation weakens the immune system’s anti-cancer surveillance mechanisms.³³

People with the highest intake of lutein and zeaxanthin have a **53%** lower risk of developing skin cancer compared to those with the lowest intake levels.³⁸ Studies show that supplementation with xanthophylls reduces skin’s unhealthy responses to ultraviolet light and enhances its resistance to cancer development.^{36,37} Increased survival time in an animal model of skin cancer has been demonstrated as a result of supplementation.³⁷

What Is Age-Related Macular Degeneration?

The **macula** is the part of the retina that’s most densely packed with vision-producing nerve cells. Despite its tiny size (about **5 mm** in diameter), the macula accounts for the majority of our vision, and virtually all of our “central vision” (what we see when we look directly at something.)

The intense flow of light onto the macula, and the steady production of free radicals by its intensely active mitochondria, imposes massive stresses on the cells in the region. Over time, they can begin to die off, producing a growing “blind spot” directly in the center of our visual field.³⁹ That condition is called age-related macular degeneration, or AMD.

People with early AMD may think they are having trouble focusing, but in fact they simply can’t see well in regions directly in front of their eyes. As time goes on, they develop a sort of “donut” vision able to see clearly around the edges but unable to see at all in the center. Because we need our central vision to read, watch television, or do most other vision-requiring tasks, AMD produces a significant reduction in the quality of life, and in fact can leave many people functionally blind.³⁹

Interestingly, lutein, zeaxanthin, and astaxanthin supplements reduce light-induced skin aging, again in large part because of their ability to combat age-promoting DNA damage.³⁷ Their unique molecular structure seems to make them especially potent at taming the destructive effects of light bombardment on vulnerable tissues. Nowhere is that protection more essential than in the retina of the eye, as we’ll see next.

Carotenoids Prevent AMD

Age-related macular degeneration, or AMD, produces more irreversible loss of vision than any other single cause.^{39,40} As we’ve seen, AMD is the result of constant assault on retinal cells by light energy, which damages their mitochondrial DNA. The retina is protected by cells packed with lutein, zeaxanthin, and meso-zeaxanthin (formed from lutein in the retina). These three nutrients produce light-absorbing characteristics that protect the light-sensing cells from damage.^{41,44}

But levels of these three nutrients in retinal tissue decline with age, as does their dietary intake, leaving your retina — and your vision — increasingly vulnerable to damage.^{43,44}

DNA damage and repair are essential in understanding *age-related macular degeneration*. In this case, damage to DNA in mitochondria is the culprit.^{45,46} Mitochondria generate the power for all of our cells and they are especially important in tissues with high energy demands, such as the heart muscle, nerve tissue, and cells in the retina.



Macular degeneration may cause abnormal new blood vessels to grow under the retina and leak fluid and blood. This is one of the most common causes of decreased vision after age 60.



C3G Offers More Help for Aging Eyes

AMD is the most common cause of major vision loss in older people, but it is far from the only one. Almost everyone suffers from progressive loss of night vision with age. That “night blindness” is the result of slowed regeneration of a pigment called “rhodopsin” that the eye relies on for detection of very low levels of light.

Studies show that a natural plant compound, an anthocyanin called *cyanidin 3-glucoside*, or C3G, can accelerate the regeneration of rhodopsin, potentially restoring dim-light visual sensitivity.^{59,60} C3G, derived from natural dark berries, is therefore a promising addition to any supplement meant to combat age-related vision changes.

Mitochondrial DNA is highly vulnerable to damage both by light and by oxidant stress, and it has limited repair mechanisms.^{45,47} Unrepaired mitochondrial DNA damage causes those cells to become unstable, malfunction, and eventually die, leading to the loss of central vision we identify as age-related macular degeneration.⁴⁷ And the more severe the DNA damage, the more advanced the damage to the retina in AMD.⁴⁸

You can replace your dwindling stores of retinal pigment, however, by raising your consumption of these xanthophyll nutrients.

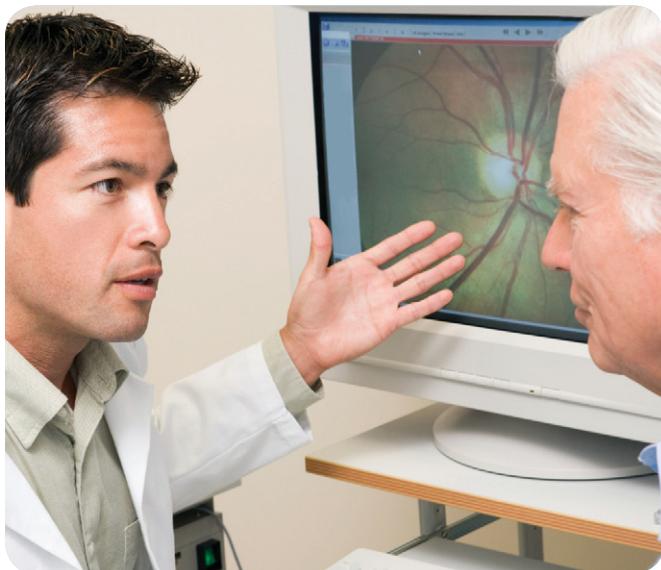
Studies show that people with the highest intake of xanthophylls such as lutein, zeaxanthin, and astaxanthin are at **35% less risk** of developing the most serious form of AMD, so-called “wet,” or neo-vascular disease.⁴⁹ High xanthophyll intake provides up to a **55% reduction** in risk of the less severe, but still disabling, “dry” form of AMD.⁴⁹

Unfortunately, you can’t get enough of these protective xanthophylls from your diet alone.⁴⁴ Supplementation at fairly high levels is required in order to restore protective levels of retinal pigment.⁵⁰

Supplementation studies demonstrate two important and related outcomes of increased xanthophyll consumption. First, people who supplement with these nutrients develop greater concentrations of protective retinal pigments, resulting in improved light protection in their eyes, and lower risk for AMD.^{41,44,50-52}

Second, supplemented people see better. Vision testing shows increased visual acuity in AMD patients taking xanthophyll supplements. One study demonstrated a **5.4 letter** improvement on the standard office eye chart,⁴⁰ while another showed an incredible **1.5 line** improvement.⁵³ The ability to see visual contrast improves with xanthophyll supplementation, as does overall retinal sensitivity to visual images.^{40,52} Xanthophyll supplementation produces objective improvements in the intensity of electrical impulses produced by the retina, a direct measure of increased visual functioning.⁵⁴

These improvements in retinal pigmentation and visual function have been seen with daily doses of



lutein, **12 mg**, and zeaxanthin, **1 mg**, though **10 to 20 mg** have been found to be safe daily doses of each nutrient.^{41,44,50,51,55} Studies using lower doses of lutein (up to **6 mg/day**) generally fail to show any effect.⁵² Products containing free lutein, as opposed to lutein bound up to other molecules, appear to have superior effectiveness.⁵⁵ You may be able to protect vital eye structures by supplementing with the omega-3 fatty acid DHA, **800 mg/day** as well.⁴¹

Big Pharma wants to sell expensive drugs that have only limited benefits (and many side effects) in managing AMD, but experts now agree that supplementation with xanthophylls is “a simple, cost-effective public health intervention that might help to decrease the incidence of AMD.”³⁹

Summary

Damage to DNA is increasingly being understood to underlie many age-related diseases; it may even be one of the primary causes of aging itself.

Prominent conditions in which we understand the role of DNA damage are cancer, and the eye disease called age-related macular degeneration (AMD). Seemingly disparate, these diseases share a common cause, and are showing encouraging signs of responding to a common nutritional supplement.

The xanthophyll molecules, **lutein**, **zeaxanthin**, and **astaxanthin** are powerful preventers of DNA damage. They stimulate DNA repair mechanisms, which fail with advancing age. Studies are showing that these nutrients may slow the development of cancer, and prevent the onset of eye disease. Safe even in high doses, the xanthophylls deserve a place in your age-prevention toolkit. ●

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

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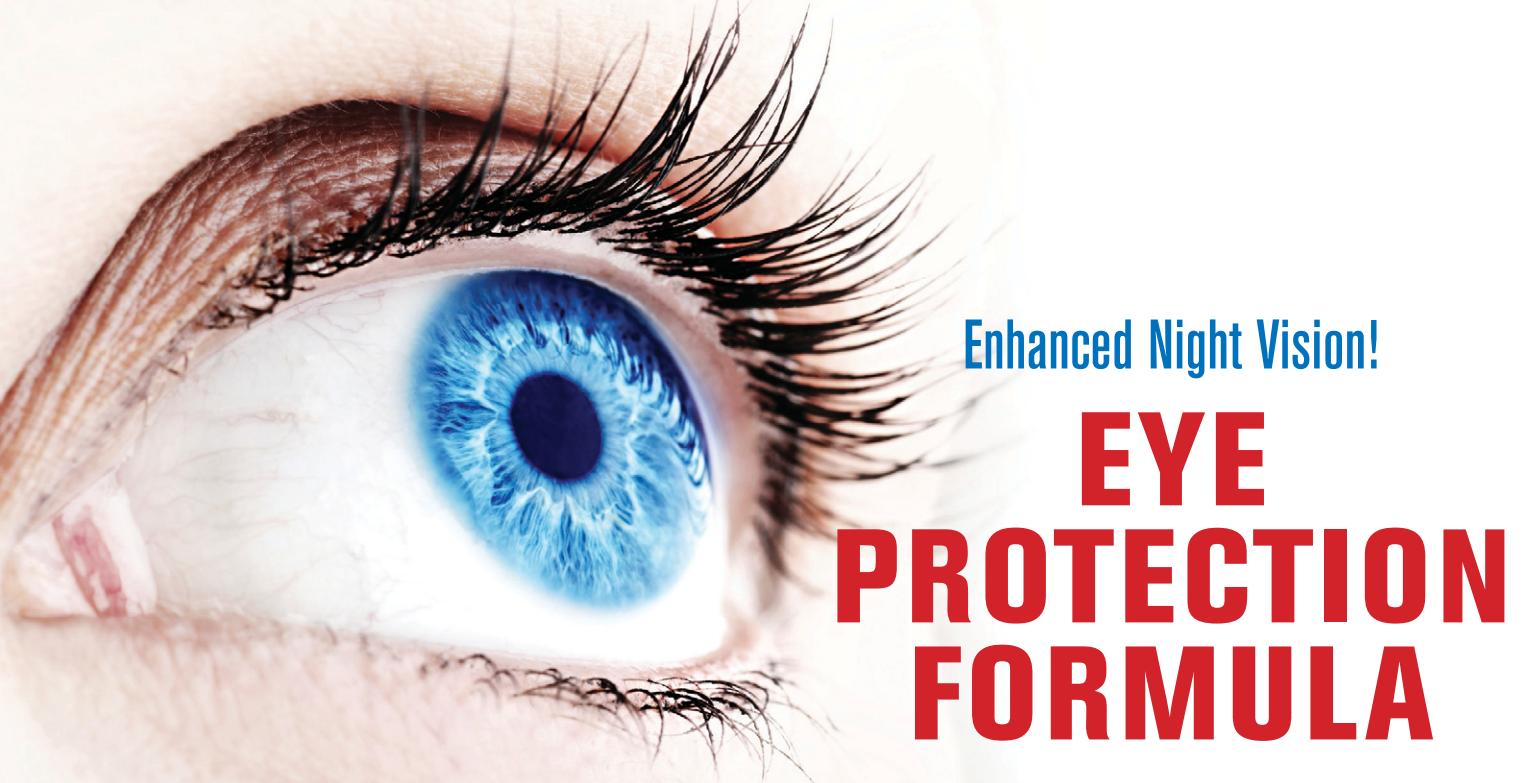
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Super Zeaxanthin contains a potent dose of **C3G** to nourish cells throughout the body.

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

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

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

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[micronized zeaxanthin, OptiLut® , Lutein Plus® and MZ® Marigold Extract (flower)]	
NC3G (Cyanidin-3-glucoside)	2.2 mg
[from European black currant (<i>Ribes nigrum</i>) extract (fruit)]	

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

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For decades, companies have sent samples of liquid fish oil supplements to Life Extension® that claimed to taste good. These were all rejected because they either tasted bad or had an unpleasant aftertaste.

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An abundance of scientific research suggests wide-ranging health dividends from the **omega-3** fatty acids found in fish oil. Unfortunately, the typical, modern Western diet is still disproportionately high in the **omega-6** family of fatty acids and low in healthy omega-3 fatty acids.^{1,2}

For Life Extension® members who want another way to obtain the rich benefits of fish oils, there is now pleasantly natural flavored, easy to use, **liquid omega-3 fish oil!**

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Decades of research and over 15,000 studies confirm the vital importance of the **omega-3** fatty acids known as **eicosapentaenoic acid (EPA)** and **docosahexaenoic acid (DHA)**.

Life Extension® members already know that the **EPA** and **DHA** found in fish oil provide substantial support for normal **heart** and **brain health**.³⁻⁹

But research has increasingly shown that the health-promoting effects of **EPA** and **DHA** may extend to an even **larger range of benefits!**

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EPA (eicosapentaenoic acid)	1,316 mg
DHA (docosahexaenoic acid)	844 mg
Other omega-3 fatty acids	540 mg
Total omega-3 fatty acids	2,700 mg

A bottle containing 16 ounces of **Life Extension® Omega-3 Lemon Whirl** or **Life Extension® Omega-3 Tropical Whirl** retails for \$24. If a member buys four bottles, the price is reduced to **\$16.50** per bottle. If a member buys four bottles of any combination of flavors, the price is reduced to **\$16.50** per bottle.

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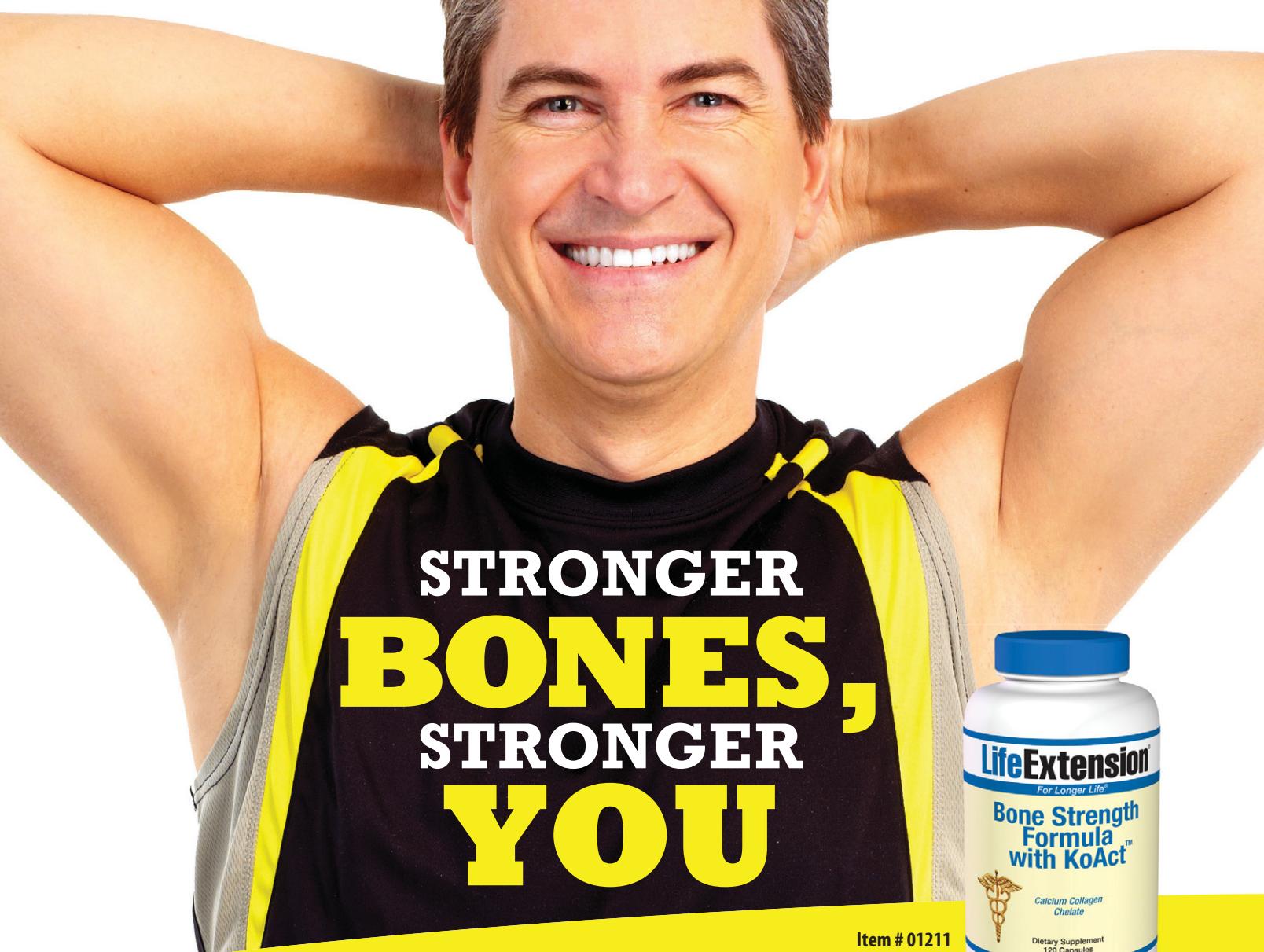
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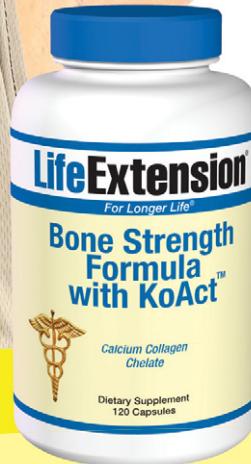
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Vitamin D3 (as cholecalciferol)	1,000 IU
Magnesium (as magnesium citrate)	100 mg
Silica [from standardized Bamboo (Bambusa vulgaris) extract (stem)]	5 mg
Dried Plum (Prunus domestica) extract (fruit) [standardized to 50% polyphenols (50 mg)]	100 mg
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The FDA Exposed:

An Interview With

Dr. David Graham, the Vioxx® Whistleblower

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The following interview with Dr. David Graham (senior drug safety researcher at the FDA) was conducted by Manette Loudon, the lead investigator for Dr. Gary Null. This interview contains jaw-dropping insights about the corruption and crimes that take place every day inside the Food and Drug Administration. This is no outside critic, either: these are the words from a top FDA employee who has worked at the agency for two decades. If you've ever wondered how the drug industry could pull off the greatest con of our time—and turn the human body into a profit-generating machine—you're about to learn the shocking answers in this interview.

This interview is reprinted here with permission from Dr. Gary Null. What you may find particularly troubling is that this interview was conducted in 2005, yet little has changed within the FDA to correct these atrocities. > >

MANETTE: Dr. Graham, it's truly a pleasure to have the opportunity to interview you. Let me begin by asking you how long you've been with the FDA and what your current position is?

DR. GRAHAM: I've been with the FDA for 20 years. I'm currently the Associate Director for Science and Medicine in the Office of Drug Safety. That's my official job. But when I'm here today I'm speaking in my private capacity on my own time, and I do not represent the FDA. We can be pretty certain that the FDA would not agree with most of what I have to say. So with those disclaimers you know everything is okay.

MANETTE: On November 23, 2004 PBS Online News Hour Program you were quoted as making the following statement. "I would argue that the FDA, as currently configured, is incapable of protecting America against another Vioxx®. Simply put, FDA and the Center for Drug Evaluation Research (CDER) are broken." Since you've made that statement, has anything changed within the FDA to fix what's broken and, if not, how serious is the problem that we're dealing with here?

DR. GRAHAM: Since November, when I appeared before the Senate Finance Committee and announced to the world that the FDA was incapable of protecting America from unsafe drugs or from another Vioxx®, very little has changed on the surface and substantively nothing has changed. The structural problems that exist within the FDA, where the people who approve the drugs are also the ones who oversee the post marketing regulation of the drug, remain unchanged. The people who approve a drug when they see that there is a safety problem with it are very reluctant to do anything about it because it will reflect badly on them. They continue to let the damage occur. America is just as at risk now, as it was in November, as it was two years ago, and as it was five years ago.

MANETTE: In that same PBS program, you were also quoted saying, "The organizational structure within the CDER is currently geared towards the review and approval of new drugs. When a serious safety issue arises at post marketing, the immediate reaction is almost always one of denial, rejection and heat. They approved the drugs, so there can't possibly be anything wrong with it. This is an inherent conflict of interest." Based on what you're saying it appears that the FDA is responsible for protecting the interests of pharmaceutical companies and not the American people. Do you believe the FDA can protect the public from dangerous drugs?

DR. GRAHAM: As currently configured, the FDA is not able to adequately protect the American public. It's more interested in protecting the interests of industry. It views industry as its client, and the client is someone whose interest you represent. Unfortunately, that is the way the FDA is currently structured. Within the Center for Drug Evaluation and Research about 80 percent of the resources are geared towards the approval of new drugs and 20 percent is for everything else. Drug safety is about five percent. The "gorilla in the living room" is new drugs and approval. Congress has not only created that structure, they have also worsened that structure through the PDUFA, the Prescription Drug User Fee Act, by which drug companies pay money to the FDA so they will review and approve its drug. So you have that conflict as well.

MANETTE: When did that go into effect?

DR. GRAHAM: The Prescription Drug User Fee Act came into play in 1992. It was passed by Congress as a way of providing the FDA with more funds so that it could hire more physicians and other scientists to review drug applications so that drugs would be approved more quickly. For industry, every day a drug is held up from being marketed, represents a loss of one to two million dollars of profit. The incentive is to review and approve the drugs as quickly as possible, and not stand in the way of profit-making. The FDA cooperates with that mandate.

MANETTE: And what about those new drugs? Are they any better than what already exists on the market?

DR. GRAHAM: It's a myth that is promulgated not only by industry but also by the FDA itself. It's a misperception that our lawmakers in Congress have as well and they've been fed this line by industry. Industry is saying there are all these lifesaving drugs that the FDA is slow to approve and people are dying in the streets because of it. The fact is that probably about two-thirds to three-quarters of the drugs that the FDA reviews are already on the market and are being reviewed for another indication. So, for example, if I've got a drug that can treat bronchitis and now it's going to be used to treat a urinary tract infection well, that's a new indication. But it's the same drug and we already know about the safety of the drug. There is nothing lifesaving there. There is nothing new. There is nothing innovative. A very small proportion of drugs represent a new drug that hasn't been marketed before. Most of those drugs are no better than the ones that exist. If you want to talk about breakthrough drugs – the ones that really make a difference in patients' lives

and represent a revolution in pharmacology – we’re talking about maybe one or two drugs a year. Most of them aren’t breakthroughs and most of them aren’t lifesaving, but they get treated as if they were.

MANETTE: Are you at liberty to discuss some of the problems your colleagues are finding with other drugs and if so, how widespread is the problem?

DR. GRAHAM: I’m really not at liberty to talk about things that pertain to my official duties at the FDA. I can talk in my private capacity, but I can’t talk about material that would be confidential. What I can say is that there are a number of other scientists within the FDA who have also worked with drugs that they know are not safe, even though the FDA has approved or allowed them to remain on the market. They face some of the same difficulties that I do. The difference is that either the problem isn’t as serious in terms of the numbers of people that were injured or that it’s a fatal reaction – they’re not willing to expose themselves to retaliation by the FDA - and retaliation would surely follow.

MANETTE: Do you think we should have any confidence in the FDA and if so, can you elaborate on what they do that you feel benefits the American people?

DR. GRAHAM: In terms of confidence in what the FDA does, there are two things that the FDA determines when it looks at a drug: it determines whether or not a drug is safe and it determines whether or not it’s effective. Regarding the determination of drug effectiveness, I think the FDA does a pretty good job. If the FDA says that the drug will have a particular effect, probably for many of the patients who take the drug it will actually have that effect. If the FDA says a given drug will lower blood pressure and you’re somebody who has high blood pressure, there’s a good chance that the drug will have an effect that lowers your blood pressure. That has to do with the rigor with which they force the drug companies to establish that the drug actually has an effect.

On the safety side, I think that the American public can’t be very confident. They can have some confidence because it turns out that most drugs are remarkably safe. But, when there are unsafe drugs, the FDA is very likely to err on the side of industry. Rarely will they keep a drug from being marketed or pull a drug off the market. A lot of this has to do with the standards that the FDA uses for safety. When they look at efficacy, they assume that the drug doesn’t work and the company has to prove that the drug does work. When they look at safety it’s entirely the opposite. The

FDA assumes the drug is safe and now it’s up to the company to prove that the drug isn’t safe. Well, that’s a no-brainer. What company on earth is going to try to prove that the drug isn’t safe? There’s no incentive for the companies to do things right. The clinical trials that are done are too small, and as a result it’s very unusual to find a serious safety problem in these clinical trials. Safety flaws are discovered after the drug gets on the market.

MANETTE: I read somewhere that a drug only has to be better than a sugar pill

DR. GRAHAM: Right. The standard that the FDA uses to approve a drug is primarily “does the drug work?” That’s what they call efficacy. Most often, they’ll compare the drug against something called a placebo or a sugar pill. It’s basically something that doesn’t have a medical effect. The assumption is that the drug will be no different than the sugar pill. The FDA puts the onus on the drug company to conduct a clinical trial to show that the drug is different from a sugar pill. The way the FDA’s approval standards are, the drug does not necessarily have to have a very great effect in order to be approved. The drug might lower your blood pressure by just a few millimeters of mercury, but the FDA will say we can approve it because it does lower your blood pressure.

Now, would that be a benefit or are there other drugs out there – many other drugs – that patients could take instead that would lower their blood pressure by 10 or 15 or 20 millimeters? The FDA doesn’t really care about that. What happens is the drug gets marketed. You’ve got two drugs that are out there – one drug that effectively lowers your blood pressure a substantial degree and another drug that barely lowers your blood pressure at all. The company that has that second drug markets it like it’s this breakthrough medicine. It lowers your blood pressure and they have all these glitzy ads, direct-to-consumer advertising. Lots of patients and lots of doctors will use that medication. What happens in the process is these patients are actually in a sense being denied a more effective treatment because the FDA doesn’t require that drugs that come on to market be at least equivalent to, or better than, the drugs that are already there. All they have to do is be better than a sugar pill.

MANETTE: When you consider the financial impact your whistleblowing has had on the pharmaceutical industry do you have any fears that your life may be in jeopardy?

DR. GRAHAM: I have tried not to think about that. In the work that I've done I've never really thought about what the financial impact would be on any particular company. I put that out of my mind because my primary concern is whether or not the drug is safe. If it's not safe, how unsafe is it and how many people are being hurt by it? In terms of when I identify an unsafe drug, to me it doesn't really matter what drug company it is. I've helped to get ten different drugs off the market, and they're from ten different drug companies. It's not a vendetta against any particular drug company. I have to hope that the drug companies don't take it personally. I'm just a scientist doing my job and I have to leave the rest to God to protect me.

MANETTE: Has anyone tried to silence you and stop you from becoming a whistleblower?

DR. GRAHAM: Prior to my Senate testimony in mid-November of 2004, there was an orchestrated campaign by senior level FDA managers to intimidate me so that I would not testify before Congress. This intimidation took several forms. One attack came from our acting Center Director who contacted the editor of the *Lancet*, the prestigious medical journal in the United Kingdom, and intimated to the editor that I had committed scientific misconduct and that they shouldn't publish a paper that I had written showing that Vioxx® increases the risks of heart attack. This high-level FDA official never talked to me about this allegation. He just went directly to the *Lancet*.

The second attack was from other high level FDA officials who contacted Senator Grassley's office and attempted to prevent Senator Grassley and his staff from supporting me and calling me as a witness. They knew that if they could disarm Senator Grassley that would neutralize me.

The third attack came from senior FDA officials who contacted Tom Devine, my attorney at the Government Accountability Project, and attempted to convince him that he should not represent me because I was guilty of scientific misconduct; I was a bully; a demigod; and a terrible person that couldn't be trusted. These people were posing as whistleblowers themselves ratting on another whistleblower. Some of these senior level FDA officials were in my supervisory chain and are people I work for. They were involved in a coordinated attempt to discredit me and to smear my name and to prevent me from giving testimony.

There's one other thing that happened the week before I testified. The Acting Commissioner of the FDA invited me to his office and offered me a job in the Commissioner's Office to oversee the revitalization of drug safety for the FDA if I would just leave the

Office of Drug Safety and come to the Commissioner's Office. Obviously he had been tipped off by people in the Senate Finance Committee who are sympathetic to the FDA's status quo that I was going to be called as a witness. To preempt that, he offers me this job, which basically would have been exile to a fancy title with no real ability to have an impact. This was a conspiracy and it was coordinated and there was collaboration among senior level FDA officials. What a mess!

MANETTE: All of these attacks backfired on them. Tell us a little bit about that.

DR. GRAHAM: Well, Senator Grassley and his staff quickly realized that what they were saying about me was fabricated. The editor of *The Lancet* also realized that what the high level FDA officials were saying to him was a pack of lies. He sent emails to them saying it looked to him as if they were trying to interfere with his editorial process. He was very savvy to what these people were doing. Tom Devine, as he said publicly, was very interested in doing the right thing. He said, "We don't want to protect somebody who's a lawbreaker and who really isn't representing the truth so produce your evidence." They had no evidence because there is no evidence. But I produced my evidence. I showed him all the documentation, all the emails, and the reports that I've written. They flunked every test and I passed every test.

In all of the criticism I have received relating to Vioxx® and drug safety, they've never attacked the work or the science that I've done or the results that I've come to. What they've done is call me names. The ad hominem attack is the last refuge of the indefensible. They don't have an argument that's substantial. They know that they're vulnerable. They know that they've disserved the American people. The FDA is responsible for 140,000 heart attacks and 60,000 dead Americans. That's as many people as were killed in the Vietnam War. Yet the FDA points the finger at me and says, "Well, this guy's a rat, you can't trust him," but nobody is calling them to account. Congress isn't calling them to account. For the American people, it's dropped off the radar screen. They should be screaming because this can happen again.

MANETTE: On CNN with Lou Dobbs you said that there was a certain "culture" that exists at the FDA. Can you explain what you meant by that?

DR. GRAHAM: The FDA has a very peculiar culture. It runs like the army so it's very hierachal. You have to go through the chain of command and if somebody up above you says that they want things done in

a particular way well, they want it done in a particular way. The culture also views industry as the client.

They're serving industry rather than the public. In fact, when a former office director for the Office of Drug Safety criticized me and tried to get me to change a report I'd written on another drug – Arava – he said to me and to a colleague who was a coauthor on this report that "industry is our client." I begged to differ with him. I said, "No, industry is not the client, it's the American people, the people who pay our taxes. That's who we're here to serve." He said, "No! Industry is our client." I ended the conversation by saying, "Well, industry may be your client, but it will never be my client."

Another aspect to the culture at the FDA is that it overvalues the benefits of drugs and undervalues the risks of drugs. And so the FDA will always say to you, "Well, we're leaving this drug on the market because the benefits exceed the risks." Well, the FDA has never assessed the benefit of any drug that it's ever approved. It works on what's called efficacy. Does the drug work or not? Does it lower your blood pressure or does it lower your blood sugar? Not: Does it prolong your life? Does it prevent you from having a heart attack? Those are benefits. All they focus on is efficacy.

For example, ask the FDA why on earth they didn't ban high dose Vioxx® after the VIGOR Study showed in early 2000 that it increased the risk of heart attack by 500 percent? High dose Vioxx® was approved for the short-term treatment of acute pain. What earthly benefit was there that exceeds a 500 percent increase in heart attack risk? Ask the FDA to produce its benefit analysis that shows that the benefits exceed the risks. It doesn't exist. The FDA has never looked at benefit. The FDA just says to the American people, "The benefits exceed the risks. Trust me. Believe me." If you held the FDA to its proof the American people would see how badly served they've been by the FDA and its culture that belittles safety in the drug companies' interest.

If the FDA were to pull a drug due to safety issues, it would hurt the marketing of the drug. It might also call into question why they approved the drug in the first place. Therefore, you get this culture of cover-up, this culture of suppression, this culture of denial, and this culture that demonstrates above all else that industry is the client and not the American people.

MANETTE: Have your peers turned against you?

DR. GRAHAM: No. I've been very fortunate. Tom Devine at GAP has told me that the experience of a typical whistleblower is that they'll have the support of their peers but the peers will be so afraid of retaliation that they won't express that support in public.

I've had a very different experience. I've been basically embraced by my peers as someone who has said what they want to say and what they wished they had been able to say and that they recognize as the truth. They're really proud of the fact that I've said it and they're not afraid to be seen with me. They're not afraid to work with me. I've been pretty fortunate in that way.

Now with management it's been another story. Upper management avoids me and doesn't talk to me. I could be walking down the hall and I'll say hello, and they'll act like I'm not there. They don't give me interesting work assignments. They don't call me in to consult on things that I should be consulted on even though I am the senior epidemiologist in the Office of Drug Safety with more experience than any of the other people there. I'm looked up to by the scientific staff because of that expertise. Basically, I feel like I'm in the Gulag.

MANETTE: How do you cope with that going to work each day?

DR. GRAHAM: It's difficult. It's a mind game. They're hoping that I'll just become very frustrated and disillusioned and leave or that I'll slip up in some way so that they can take some sort of action against me. As Tom Devine at GAP has said, I have to be Saint David. I can't afford to make any mistakes. That's very difficult and it is a little bit discouraging. But I've been a target of retaliation in the past. You take ten drugs off the market well, no good deed goes unpunished at the FDA. I've experienced retaliation with many of those other episodes but not as severe as what I've experienced with Vioxx®. This is the first time that my job was actually in jeopardy and where the FDA actually intended to fire me. That was stopped only because Senator Grassley intervened. He put the heat on the FDA and told them, "Lay off. This guy has told the truth. He's helped America. Whose side are you on?"

MANETTE: Were there any warnings that Vioxx® was a problem? Did you see the disaster coming?

DR. GRAHAM: I think that I was afraid that there would be a disaster, but I only became aware of this with the publication of the VIGOR Study, which was this large clinical trial that was done that showed that Vioxx® increased the risk of heart attack five-fold. That study was published in November of 2000. It was written, performed, and paid for by industry. What industry concluded was not that Vioxx® increases the risks of heart attack, but that the drug they were comparing it against—Naproxen®—decreased the risk of

heart attack. I knew that was not a sustainable argument. There was no way that Naproxen® was that protective against heart attacks. Clearly Vioxx® was the problem. I knew that Vioxx® was on the road to becoming a blockbuster drug (20 million users). All the ingredients were there for a disaster.

The FDA is responsible in so far as it could have prevented much of the damage, heart attacks, and deaths simply by banning the high dose Vioxx® back in mid 2000 when they knew the results of the VIGOR Study. But the FDA did nothing for almost two years. They were “negotiating” with the company over a label. What did the label accomplish? Nothing! Before the label 17 or 18 percent of people who took Vioxx® took the high dose. After the label change 17 or 18 percent were still taking the high dose. High dose use didn’t change at all. People didn’t read the label, and if they read the label they wouldn’t know what to do anyway because it was very confusing. The right thing to do would have been to pull the high dose off the market because there is no benefit for short-term relief of acute pain that exceeds this risk. The FDA made bad decisions based on its culture and its institutionalized biases that favor industry, and as a result thousands of Americans died. Americans and Congress should be screaming bloody murder. They should be beating on the doors of the FDA demanding change.

MANETTE: It's estimated that over 200,000 people a year die from prescription drugs. Do you see this as a serious problem and do you think many of these treatments are more dangerous than the disease itself?

DR. GRAHAM: Death from adverse drug reactions is one of the leading causes of death in the United States. It turns out that most of these adverse reactions are actually what are expected in the sense that they are an extension of the drug’s action. For example, we know that drugs for diabetes can lower your blood sugar. If you’re more sensitive to the drug than the normal person and it lowers your blood sugar too much, causing you to have a seizure while driving your car and you get killed, well, you died from an adverse drug reaction, but it wasn’t something unexpected.

The blood thinner Coumadin® is another example. That drug provides a benefit, but it is also responsible for probably more deaths than any single drug currently marketed. But it has a recognized benefit and there aren’t other drugs to do what it does or to do what it does well. So physicians accept that there are patients who are in a serious situation and who might die without the drug, so they take it.

Yes, drugs cause a lot of harm. Unfortunately, we haven’t quantified the benefits. For most of these drugs it’s more belief. It’s faith. We have faith that they’ll confer a benefit, but the FDA hasn’t demonstrated that they confer a benefit. We’re getting much better at quantitating the risks. In the future what we need to do is just take the risks and look hard and dispassionately at what the real benefits are. If the benefits aren’t there we shouldn’t be having discussions about labeling the drug. You need to weed the garden patch of drugs that aren’t doing what they’re supposed to do. The FDA has not been very good about that; it likes to cultivate all these weeds.

MANETTE: In a perfect world what role do you see the FDA playing in our nation’s health?

DR. GRAHAM: In a perfect world, I think the FDA would need to be restructured. If it were restructured properly, I think that it could actually provide a great benefit to the public health. I would recommend several changes. First, I would separate safety and post-marketing from the pre-marketing. I would create a separate center for product safety. Actually, Senator Grassley and Dodd have recently introduced legislation to create an independent center for post-marketing safety that would serve to protect the American people from unsafe drugs. This isn’t happening now.

On the pre-marketing side, the FDA needs to pay greater attention to safety. They need to have larger clinical trials. They need to compare drug products against other drugs that treat the same indication rather than comparing a drug against a sugar pill. What we want in the end are drugs that actually have better benefit.

The FDA also needs to determine the post-marketing benefits of a drug. I’ve done that for several drugs. How many people are actually benefiting? How many people are living longer versus those who are having their lives shortened? Only when you have that kind of information can you make rational decisions about a medication. The times when I’ve done the benefit analysis, I’ve been chastised, criticized and suppressed by the FDA. These benefit analyses should be done as a matter of routine.

There is a lot that the FDA could do to improve, but the changes aren’t going to happen on their own. Congress is going to have to make them happen. There’s an expression, “the zebra doesn’t change its stripes nor the leopard its spots.” The FDA isn’t going to change the way it does business; changes will have to be imposed from outside.

MANETTE: How do you feel about direct-to-consumer advertising?

DR. GRAHAM: Direct-to-consumer advertising in general is a great disservice to the American people. We see wonderful ads of people demonstrating their health, whether they're skating across the ice or doing their Tai chi. Madison Avenue knows that a picture is worth a thousand words, so they convey an image, a message, and it makes an impression on patients and on physicians. It creates needs or desires where there really isn't a need or a desire.

There was a recent study in *The Journal of The American Medical Association* that showed that if patients mentioned a drug that they've seen on television to their physician they were much more likely to be prescribed that drug by the doctor. Drug companies know this. That's why they do it. Would the Vioxx® disaster have been as great and as large in the absence of direct-to-consumer advertising? I submit that the numbers would have been far lower than what they were. Direct-to-consumer advertising is part of what made Vioxx® a blockbuster drug. It helped to rev the market up to get people to want to use the drug.

Clearly, direct-to-consumer advertising does not serve the American people well. Madison Avenue is smarter than the most intelligent American. That's why they make so much money and that's why the drug companies go to them to sell their products. We're not living in a neutral world where the information we're getting is objective and unbiased. It might be that the average American, given all the data, all the facts, and all the information in an objective way could make an intelligent, rational decision. But we don't live in that kind of world. We live in a world where what we're seeing is a visual image of these people being vital and healthy and cured of their illnesses. And it's all because of this little pill that they're taking. A patient with that condition says, "I want to be just like that person." So they go to the doctor and say, "I want that pill." Are their lives changed? Maybe some people's lives are changed, but I think most aren't.

MANETTE: What do you think people hear when they're watching the ad and after the ad they list all the possible side effects?

DR. GRAHAM: I don't think it registers. You have the visual image that conveys one message. Then you have the voice that's speaking over this pictorial being shown telling you what this drug is good for. Then at the end the auctioneer gets on and says, "You know this drug could cause....," and they rattle off 25 different things in three seconds. You're lucky if you

hear anything. I don't think that people come away with it and they certainly don't come away with any sense of how likely it is to happen because the visual image overpowers anything that gets said.

It's the same with the ads that appear in magazines. Companies are required to put some of the labeling in the ad. You have the ad on the one side – that's the picture. It shows this person being healthy because they take this pill. The fine print is all on the next page. People aren't going to read the fine print. It's the same thing with labeling for physicians. Physicians don't read product labels. Where do they learn about drugs? They learn about drugs from the detail person from the drug company or from other colleagues who have used the drug. They're not learning it from the labeling.

MANETTE: Do you think there is a criminal cover-up going on between the FDA and Big Pharma to approve dangerous drugs that sicken and kill Americans?

DR. GRAHAM: I have no knowledge of criminal activity and I'm sure there are legal standards for what's criminal and what's not. I do think that there is an institutional bias at the FDA that says we will look for a way to say "yes" to the approval of any drug that comes down the pipe. If a drug is so bad that they can't find a reason to approve it, they won't. But, if there is any way that they can approve the drug, they will. The way this is done is by what's called the "indication." Why is it that you're going to take the drug? Maybe you're going to take it because you have high blood pressure. Maybe you'll take it because you have high cholesterol. That's the indication. A company may come in with a drug and want to get it approved for five different indications. One of them is a really insignificant indication that affects a very small number of people. The main indication might affect millions of people. The drug doesn't show efficacy for that major indication, but they're able to somehow or another approve the small indication.

So the drug gets approved for this narrow indication, but the FDA and the drug company both know that it's going to be used for that other indication. It's going to be used "off-label." Then, the FDA turns around and says that they don't regulate the "off-label" use of drugs. No. But, they aid and abet it. They allow it to happen and in many instances "off-label" use of a drug product is a public health threat. The FDA has a responsibility to protect the public health. The FDA should be intervening, but they don't. In my own experience I have seen multiple examples where I've heard people say, "We can't ask a company to put that in the labeling because the company will say no." Or, "We

can't do that because that will decrease their marketing. We've got to try to approve this drug. Let's see if we can give them this small indication. At least it's giving them something. You've got to find a way to say yes."

That is the typical attitude of the FDA culture. I think Congress is partially responsible for that because when they issued the PDUFA, the Prescription Drug User Fee Act, what they were really saying was, "We want you to review these drug applications more quickly because you're keeping lifesaving medicines from the American people." That's the line they were fed by Big Pharma. So they pressure the FDA and the FDA gets the message. It's a really pernicious system. I think it's unfortunate. There are many people from the FDA who have examples that they unfortunately can't talk about. They'd lose their job and maybe get thrown in prison because you can't discuss confidential and trade secret information. But the fact is these things happen at the FDA and there have been multiple examples in the past where one could see evidence of that.

MANETTE: Did your faith as a devout Roman Catholic play any role in the decisions you made to put your career on the line to report the truth?

DR. GRAHAM: It did in so far as my faith forms my conscience. It's sort of my sense of what's right and what's wrong and what I am and am not responsible for. I was in a situation here with Vioxx® where I was invited by Senator Grassley's office to testify. I could have told them no, but then they would have subpoenaed me. So of course I went peaceably. I was faced with this dilemma. Should I lay it on the line and tell them the way it really is or do I kind of downplay it? There are ways of doing that.

What I concluded was that I'm now being given the opportunity to tell the truth to the people who are in a position to actually make a difference. I can't make a difference. I can't change the FDA, but Congress can. If I don't tell them the truth, then I'm now responsible, in part, for future deaths. I don't want to become a co-conspirator with the FDA in what happens with Vioxx® because tens of thousands of people were injured or killed because of the FDA's disregard for safety. If I keep quiet about that, now I'm part of the problem. I'm one of them, and at that point then my conscience asks me, "You know what the truth is, are you going to speak it or aren't you?"

So I went ahead and did that and prayed that it all works out well for me personally. That I have a job and I'll be able to support my family, that I'm protected from retaliation, that maybe some good will come out

of that. My faith plays a role, but it wasn't a direct teaching of the church. You have to do x, y and z, but it's the faith as I've internalized it. My conscience is formed by the voice of Christ speaking internally to me. That's what the conscience is; it's the voice of God speaking to each and every one of us about what's right and what's wrong. I knew what was right. If I walked away from that nobody else would have to do anything. I'd be beating myself up because my conscience would condemn me. So yes, faith plays a part in everything that I do. It's not saying I'm a saint, because I'm not. But I can't separate who I am from my religious faith. It's all part of the same person.

MANETTE: Do you think Congress genuinely wants to fix the problems at the FDA or are too many politicians influenced by the pharmaceutical industry?

DR. GRAHAM: I don't know what Congress will do in the end. My hope is that they will act decisively to reform the FDA and make the American people safer by having strong post-marketing. Will that happen or not? I don't know. I think there are many people in Congress who see this as a serious problem and who very much want to see a change. I think at the same time there are other people who don't think it's such a bad problem, and many of those people honestly believe that. For those people I'd say they haven't seen the evidence so they don't really understand how bad the problem is. There are undoubtedly some people who are influenced by industry. Does that influence their judgment in the end? I don't know. They'd probably say no, it doesn't. Maybe at a conscious level it doesn't. But we have the same phenomenon in the scientific world where we look at research studies that are funded by industry and studies that are funded by government, by National Institutes of Health or the Medical Research Council in the United Kingdom. Multiple studies have been done that have shown that if your study is funded by industry you are much likelier – about five times more likely – to come up with the result that's favorable to the drug company than if your study on the same subject is funded by an independent body unrelated to the company.

Now, are the researchers who did this study biased? Are they consciously cheating and manipulating the data and everything else? No. I don't think that's happening at all, but the fact is if the study is funded by industry it's much more likely to be favorable to industry. Without attributing bad motivations to the scientists doing those studies all I can do is point to a strong correlation.

With Congress I would be concerned that there could be a strong correlation there because Pharma

is very bright. They fund as many politicians as they can. They get to the Republicans and the Democrats. Look at the funding on the major committees, the Health, Education, Labor and Pension Committee in the Senate or the Oversight and Investigations Subcommittee in the House. The Wall Street Journal reported recently that many people on these committees are funded by industry to a substantial degree. Industry knows how to exercise influence. What we have to do is overcome that influence with evidence, and then rely on the fact that at the end of the day the Congress will do what's best for the American people.

Will that happen? I don't know because then it gets embroiled in politics. You know, Republicans versus Democrats, the left versus the right, conservatives versus liberals. Yet, what we're talking about is public health and public health is nonpartisan. I can say this with certainty. For every member of the House of Representatives somebody in their district died because of Vioxx®. Somebody in their district had a heart attack because of Vioxx®. For every Senator in the Senate, many more people in their state died because of Vioxx® or had a heart attack because of Vioxx®. It doesn't matter whether it's a red state or a blue state. Those are human beings and what we're talking about is public health. What I'm hoping is that Congress will respond. There is a problem and the evidence is overwhelming, but we'll just have to wait and see.

MANETTE: What are your thoughts on former President Bush's attempt to pass tort reform, which would protect most pharmaceutical companies from lawsuits except in the most egregious cases?

DR. GRAHAM: I think it's dangerous and wrong for the following reasons. We already have an FDA that's been neutralized by industry and sees industry as its client. The Center for Drug Evaluation and The Office of New Drugs dominates drug safety so that the drug safety is not independent. Drug safety can't protect the American people. So government now isn't going to protect the average citizen from the consequences of unsafe drugs. The only alternative they have left is the legal system – the tort system. It's not a wonderful system. It would be much better if we had effective post-marketing regulation so that we could get bad drugs off the market before they hurt more people, but that's been neutralized. All that's left to people now is the courts. That's the only way we have of getting companies to change their behavior.

What tort reform will do is remove that threat as well. It's basically giving companies immunity because now the people who are injured by the drugs

can't recover damages that might actually mean something to industry. I mean \$250,000 for damages; they blow that in one ad campaign. To them that's nothing. But a lawsuit for multiple millions of dollars has more of an impact. Now, is that optimal? No. But the fact is that since we have a regulatory agency that doesn't regulate and we have a public health agency that doesn't protect the public, we have thousands of people who are being injured by products that the FDA knows are unsafe. The FDA knew there was a problem with Vioxx®. They knew it was a big problem back in mid 2000 yet did nothing about it.

There has to be a system in place that reins companies in. If the FDA isn't going to exercise control over companies, then who will? How will it happen? I don't think that working through the courts and lawsuits is a particularly effective way of doing it; but it's the only recourse we have now, and that will be removed as well. You can demonize the trial lawyers but I think that there are patients who are severely injured by drugs. The defense is, "It's on the labels so we're protected." The problem is that nobody reads the labels so how do they protect anyone? The FDA should be making those decisions.

MANETTE: What can you tell us about all the antidepressants on the market that millions of children are taking?

DR. GRAHAM: In early 2004, SSRI antidepressants and suicidal behavior was a big safety issue. The FDA had suppressed a report written by a colleague of mine in drug safety and had prevented him from presenting this information in an advisory committee meeting. That information leaked to the media, embarrassing the FDA because it had been caught suppressing very important information – that most of the antidepressants don't work for treating children. Someone in my supervisory chain initiated a criminal investigation to identify the person who had leaked this information to the media. It turns out that the investigation ordered by these FDA officials was illegal. They broke federal laws – at least two or three federal laws – in ordering this investigation.

I think it's well established that depression is very common in adolescence. With the antidepressants that we have on the market right now only one of them has been shown to work in children and that's Fluoxetine or Prozac®. All the other SSRI antidepressants are no better than sugar pills. However, if you were to read the labeling for these drugs it doesn't point that fact out so patients think one SSRI is as good as another. This is another way that the FDA has betrayed the American public and has betrayed the public health.

With the SSRI and antidepressants what the FDA should have insisted on was a signed informed consent at the time a child was going to be treated. That informed consent would say three things. One, these are the antidepressants that are available. Only Fluoxetine has been shown to work for depression in children. All the other drugs are no better than placebo. That's point two. No better than placebos. No better than sugar pills. Third, all of these drugs appear to have the ability to increase the risk of suicidal behavior. As a parent, if I see that in writing and the psychiatrist or GP is going to write the prescription and put my child on some drug other than Fluoxetine, I can say, "Doc, why are you putting my child on a drug that doesn't work in kids."

The FDA didn't want patients to have that information so they refused to have signed informed consent. The companies didn't want the patients to have that information because all of a sudden the "off-label" use of these drugs would dry up. So whose interest was being served there?

MANETTE: How do you feel about taking the approval process out of the hands of the FDA?

DR. GRAHAM: Well, where would you put it? If you put it somewhere else they're going to eventually become co-opted the way the FDA has been co-opted. I think the most that we could probably hope for is to try to disassociate the industry pressures from the approval decision. You have to change the culture of the organization, and you have to change the incentives in the organization. The culture and the incentives that the FDA operates by would have to be changed, and Congress can do that through legislation and by establishing different standards for how a drug gets approved. Not only do you have to show that the drug is effective, but you've got to show that it works as well or better than other drugs that treat that indication. You've got to prove to me that the drug is safe, not that the drug is harmful because you're never going to prove to me that the drug is harmful. You set up stringent standards of evidence that might lead to the approval of safe drugs that actually have benefits to the population.

Then pair that up with an independent post marketing regulation. Currently, the pre-market people who approve the drug decide what happens after it's on the market. If the drug needs to come off the market, they're the ones who have to say yes at the end of the day. The people at the FDA who approved the drug, the Office of New Drugs, they are the single greatest obstacle when it comes to removing unsafe drugs from the market. I can vouch for that from personal experience. What you have to do is you have to take that

responsibility and power away from them and put it with the group who sees their mission as serving the public and protecting the public health from unsafe drugs. I think if you do those two things you'd be a long way towards getting the FDA on the right footing.

Also, it would probably be beneficial not to have the FDA's funding come from industry. He who pays the piper calls the tune, and we now have a captured agency. Industry underwrites more than 50 percent of the Center for Drug Evaluation's budget. When industry yanks the chain whose neck is going to get tugged? The Center for Drug Evaluation! If industry isn't happy with them and the funding dries up what are we going to do? We're going to have to let half our people go. The program is going to shrink. Congress is going to be jumping up and down on our back. So it's a captured agency and America is not well served when industry is calling all the shots. Yes, industry has a right to make a legitimate profit from marketing products that help the American people. But you shouldn't have a situation that just basically leaves the American public defenseless. And that's what we have right now. We're virtually defenseless.

MANETTE: Are there other Vioxx®'s out there? Do you think this will repeat itself at this high profile level?

DR. GRAHAM: At this current moment I don't think there are other drugs out there that are as bad as Vioxx® in terms of the enormous numbers of people that were hurt. During my Senate testimony I did mention that there were five other drugs that I thought the FDA really needed to reevaluate because in my estimation the benefit to risk was misjudged. After I named those five drugs the FDA was in the media saying that I did junk science and that these drugs were safe and effective and that I was a crackpot. However, recently the FDA announced that they were going to take Bextra® off the market. Well, Bextra® was one of the five I mentioned. They announced that with Acutane® they were going to impose a restricted distribution system. Well, I had recommended a restricted distribution system 15 years ago. The major problem with Acutane® is that it's just so widely overused that it causes an enormous amount of potential harm to pregnancy exposure. If we restricted the use of the drug to the small number of women who really need it each year, the problem would be pretty much resolved. But the FDA didn't want to do that because it would interfere with company profits. If you restrict the distribution and only one-tenth of the people who are getting it now are getting it tomorrow, profit will drop 90 percent. Of course companies aren't going to go along with that and the FDA isn't going to do anything that's going to harm corporate profit.

After my Senate testimony the FDA announced that they can look at other drugs – not only the other three of the five that I mentioned. There are other drugs on the market that I prefer not to talk about that the FDA knows are killing people. Ten or 100 people a year are dying because of the use of a particular drug or being hospitalized. Hundreds or maybe thousands of people are being hospitalized each year. For some of those drugs the benefits do exceed the risks. For others, it's clear that more could and should be done and maybe that means restricting the distribution of the drug's use or maybe it means banning an indication for the drug saying the drug should not be used for particular indications. Maybe it would be something like with the SSRI's where I believe there should be signed informed consent so that parents will know that the drug the doctor is prescribing for their son or daughter actually doesn't work in children.

I think that there are many things that can be done that haven't been done. There are other unsafe drugs out there, and the nature of our business is that a drug could be approved tomorrow that turns out to be the next Vioxx® and we won't know until it happens. Then the question is, how quickly do we identify the problem and how quickly do we take effective action against it? We're pretty good at identifying these problems quickly. Where the FDA falls flat on its face is that there is a long period of time in which it does nothing. Then what it normally does is woefully inadequate and ineffective and as a result the body count mounts and that needs to be changed. Maybe Congress will change that.

MANETTE: Let's talk about incentives. When you say incentives what do you mean? For example, working at the FDA, is their pay somehow based on how many drugs they approve?

DR. GRAHAM: Currently, the performance evaluations for managers at the FDA are built around the drug review. How many reviews did they get done? Did they meet their PDUFA deadlines? It looks bad if you miss your PDUFA deadlines. The unspoken mores—what's the expected—is that you're going to approve as many of these drugs as you can. There has to be an overwhelming reason for you not to approve. Frequently what will happen is that these medical officers in their review will recommend that a drug not be approved and they get overruled by the higher ups because the higher ups are answering to a different set of incentives. You have to change that. A lot of that comes from the leaders. What I want to see is does the drug really make a difference? Is it beneficial?

There are many classes of drugs where we've got 10 or 15 members of that class. They all lower your blood pressure. They all lower your cholesterol. Another one comes along and the FDA feels its obligation to approve it. Why? Maybe the standard should be that for the drugs that come later in a class, they've got to show that they're actually better than the drugs on the market because we've already got these other drugs that work. That would create incentives maybe within industry to develop drugs that are better than the ones that are already there. Currently, the way the incentives are for industry, it's safer to do a "me too" drug, another drug in the same class.

MANETTE: Do you think that the FDA should not be partially funded by industry?

DR. GRAHAM: I think that PDUFA funding for the FDA is a mistake.

MANETTE: Can you explain that a little more clearly because most people don't know what PDUFA funding is?

DR. GRAHAM: The drug companies pay a substantial amount of money to the FDA at the time that they bring a drug application for approval in order for the FDA to review the drug. Basically it's a tax. It's a fee. Industry pays the fee, and the FDA will review the drug application. But the real expectation is from the company: "We've paid our money, now approve our drug." That's basically how the FDA reacts as well. I think that the funding for the FDA should be independent of the industry that it's regulating and I think in the scientific field there's good evidence to support this notion. Industry money is influencing the decisions that get made, and it creates this incentive structure. You have this culture, you have these expectations, you have pressure from Congress. All of them come to a head at the FDA and all of those incentives are in the direction of "approve the drug." That's what happens so I believe that the FDA is unduly influenced by industry and that undue influence is in part the result of industry money funding the FDA operations.

MANETTE: Dr. Graham, thank you for your commitment to your convictions and for sharing insights that drove you to save many lives.

DR. GRAHAM: You're welcome. I hope I've helped. ●

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Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)	1.5 mg

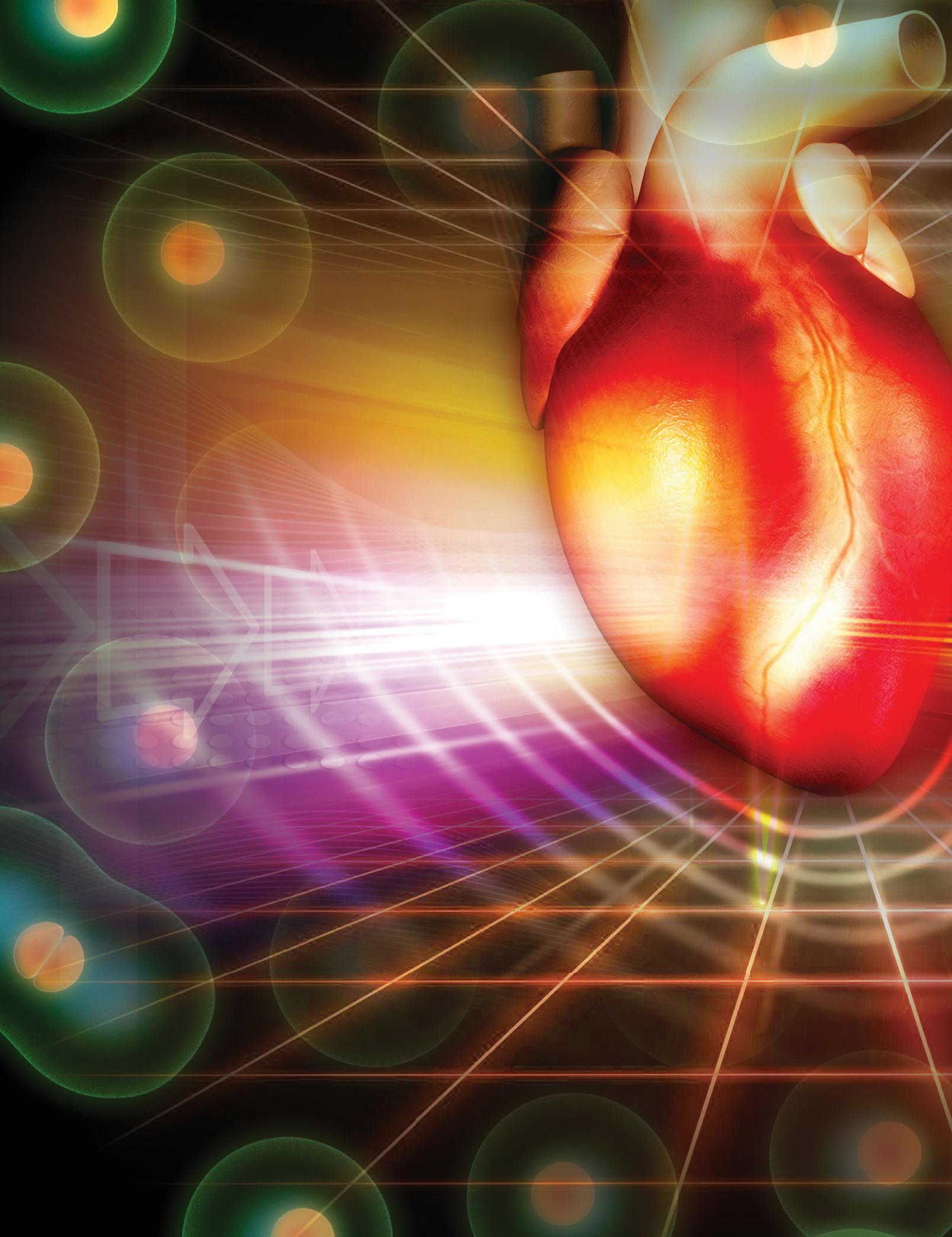
The retail price of a bottle of 120 vegetarian capsules of **ArthroMax™ with Theaflavins and AprèsFlex™** is \$44. If a member buys four bottles, the price is reduced to \$30 per bottle.



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Restoring Cellular Energy Metabolism

BY KIRK STOKEL

Energy is our most precious resource. With age, both our physical and cellular energy levels decline.¹ Not only do we feel tired, but our cells become fatigued and fail to optimally function.

Additionally, our heart muscle weakens and does not contract as fully, often leading to congestive heart failure.² **D-ribose** can help replenish the metabolic energy needed by all our cells, including those in major organs such as our heart and brain.³⁻⁵ The result? Increased vitality, along with improved cardiac and neurological function.

Ribose serves a number of other key processes in the body. Long chains of d-ribose are strung together to form *ribonucleic acid* or *RNA*, the DNA-like structures essential to copying our genes and translating them into functioning proteins.⁶ D-ribose provides *antioxidant* protection for body tissues.⁷ Even the *immune system* needs d-ribose to power its response to infection.⁸

In this article, you'll learn how d-ribose supplementation can assure that vital body processes aren't starved of essential energy molecules. >>

Broad Cardiovascular Support

Cardiovascular disease has *multiple* and interlinked causes.⁹ That's why no single drug or therapy can ever fully prevent or repair cardiovascular damage.

It's also the reason that, generally, heart patients are on multiple medications—to deal with the complexity of their disease.

Supplemental d-ribose is an excellent candidate as a cardioprotectant, because it serves **multiple targets**. It provides defense against heart disease along the entire continuum of events that can lead to cardiac catastrophe.

D-ribose powerfully protects heart tissue against *ischemia-reperfusion injury*. This is the serious damage that occurs in the minutes to hours following a heart attack or stroke, when oxygen-starved (ischemic) tissue is suddenly flooded with oxygen-rich blood as circulation is restored (reperfusion).¹⁰ The sudden availability of oxygen in already-damaged tissue sets off a deadly chain of events, culminating in release of free oxygen radicals and harmful inflammatory responses.

But if high levels of ribose are made available before and immediately after the reperfusion occurs, most of those dangerous changes can be prevented, largely through ribose's actions on *inflammatory blood cells*.¹¹ This effect is so potent that some forward-looking anesthesiologists and surgeons have suggested using IV infusions of ribose during surgical procedures in which ischemia-reperfusion injury is common.¹²

Ischemia, however, is not always an acute event with immediate consequences. Much more commonly,



low-level ischemia occurs on a continuing basis in people with advancing coronary artery disease, gradually producing symptoms such as *angina* (chest pain) with exertion. As ischemia worsens, the pain can occur even while the patient is at rest.

Each episode of angina represents steady depletion of cellular energy levels, with loss of the energy molecule, **ATP** from heart muscle cells.^{13,14} This uses up the heart's normal supply of d-ribose. Under these circumstances, d-ribose becomes a *conditionally essential nutrient*.¹⁵

Continued long enough, this cellular energy starvation is a major contributor to *congestive heart failure* (*CHF*), in which heart muscle can't "squeeze" hard enough to move blood efficiently.¹⁶ The result is that fluid accumulates in tissues throughout the body as a result of poor cardiac "squeeze" (technically called *contractility*). The end result is progressive exercise intolerance, increasing difficulty breathing, and fluid retention. In the extreme, congestive heart failure can result in the deadly accumulation of fluid in the lungs—known as *pulmonary edema*—that is the ultimate cause of death for many victims of heart disease.

Many people with congestive heart failure find themselves on multiple medications aimed at reducing fluid accumulation or chemically increasing the heart's contractility. While these drugs can have some success, none are curative, and most have substantial side effects that can limit their utility.

Fortunately, congestive heart failure can be partially reversed, more readily if it is detected and treated early.

Potent Cardioprotectant

Increasingly, scientists are investigating the *ischemia-energy relationship* that links the severity of heart muscle damage to the supply of **energy-mediating** nutrients such as d-ribose.¹⁷⁻¹⁹

A noted cardiologist and author Stephen T. Sinatra, MD, who has written extensively on the cardiac benefits of d-ribose, recently stated, "Many physicians are not trained to look at heart disease in terms of cellular biochemistry...."¹⁹ But the growing interest in this field over the past decade opens the door to safer and much more effective therapy with **cardiac energy preparations** based on d-ribose, providing *metabolic support* for ailing heart muscle.¹³

The benefits of d-ribose began to interest researchers in the early 1990s. Those early studies were mainly focused on d-ribose as an aid in radiology techniques such as thallium scanning, which indicate areas of ischemia in the heart. Researchers found that by

infusing d-ribose intravenously during the scan, they could see many more areas of heart muscle—*because much more blood was permeating those tissues!*^{16,20}

Too often, individuals with coronary disease have limited mobility or are unable to engage in moderate exercise due to such limitations as lack of energy. German researchers found that they could use d-ribose to *increase exercise tolerance* in people with severe coronary artery disease and chronic ischemia.¹⁰ They gave patients an oral dose of **60 grams daily** in four divided doses for just 3 days to achieve gains in endurance.

More recently, a different German group showed that d-ribose could *improve heart function*, as seen on echocardiograms, while also improving quality of life in patients with congestive heart failure.²¹

Through the recovery of ATP energy molecules and an increase in the heart muscle's energy levels, d-ribose improves heart muscle contractility—the “squeeze” needed to pump blood efficiently to the lungs and the body in general.^{22,23}

When d-ribose was given intravenously to patients who have suffered one or more heart attacks, scientists found that the d-ribose increased the number of heart segments with good contractility, a visible marker of improved function.²⁴

D-ribose’s replenishment of heart muscle energy levels has additional benefits, as was shown in a recent study of patients with advanced congestive heart failure and extreme exercise intolerance.²⁵ Researchers gave these patients d-ribose at **15 grams a day** in three doses. The patients all had impressive improvement in their ability to breathe and ventilate their lungs, and a **44% improvement** in their heart failure classification! These changes were significant, because they meant that this group of severely impaired patients could move about more freely and with increased comfort.

Neuroprotection

D-ribose has unique protective effects specific to brain cells.

In a recent study, cardiologists revealed that d-ribose not only improves heart function and blood flow—but also has a profound impact on *brain tissue* during the period of low blood pressure that can follow a heart attack.²³ D-ribose reduced expression of a protein that triggers cell death in brain cells deprived of blood flow. This can also be a life-saving defense in the case of a stroke.²³

The neuroprotective effect of d-ribose has major implications, because heart attacks and strokes contribute enormously to the age-related cognitive decline that is so prevalent today.



D-Ribose: Increasing Cellular Energy

- **Cellular energy management** is of increasing interest to physicians caring for patients with cardiovascular disease and many other age-related conditions. Reduction in cells’ ability to use available energy exposes tissues to increased risk of damage by oxidants and inflammatory reactions, and reduces organs’ efficiency.
- D-ribose is central to energy metabolism, forming the backbone of the vital ATP molecule that cells use to transfer energy. Cellular damage by oxidants, inflammation, and ischemia/reperfusion injury causes loss of ATP and increased vulnerability to disease.
- Supplementing with d-ribose restores cellular ATP to normal levels, providing powerful protective benefit in cardiovascular disease, even following a heart attack, congestive heart failure, or stroke.
- Supplemental d-ribose also holds promise for management of kidney disease, and even frustrating conditions such as fibromyalgia and restless leg syndrome.
- New discoveries about d-ribose make it one of today’s hottest topics in the context of how we understand the relationship of energy management and chronic illness.

The neuroprotective benefits of ribose may spring partly from the antioxidant effects it provides throughout the body.^{7,26} But it is ribose's remarkable ability to *restore energy-depleted tissues* back to near-normal that is generating enthusiasm among scientists.

Supplementation with d-ribose **increases the available amounts of ATP** in brain tissue, just as it does in heart muscle.²⁷ This is important, because the brain uses an enormous proportion of our total energy resources.

Fibromyalgia

Fibromyalgia (FM) and *chronic fatigue syndrome* are conditions that often occur together and are believed to have a similar underlying cause.²⁸

There's accumulating evidence that **defective production of ATP** is the culprit.²⁸⁻³⁰ These findings make d-ribose a natural candidate as a therapy for those suffering from fibromyalgia and chronic fatigue syndrome. A published case study showed that a woman with fibromyalgia experienced a decrease in symptoms following supplementation with d-ribose.³¹ The patient had been unresponsive to prior medications, and her physicians based their decision on the known *energy-enhancing capabilities* of d-ribose.

A larger study soon followed enlisting 41 patients with fibromyalgia or chronic fatigue syndrome.²⁸ Subjects took **5 grams** of d-ribose **three times daily** until they reached a total of **280 grams**.

There was significant improvement in all five categories on a standard score: energy, sleep, mental clarity, pain intensity, and well-being.²⁸ On average, patients reported a **45% increase** in energy levels.

While fibromyalgia and chronic fatigue syndrome remain complicated and perplexing to scientists, these findings offer real hope for a solution.

Restless Leg Syndrome

Restless leg syndrome (RLS) is a common disorder that affects as many as **15%** of the US population, and it is severe enough to warrant medical treatment in more than a third of those people.^{32,33}

The condition involves an uncontrollable urge to move the legs, accompanied by uncomfortable sensations, and it is usually worse at night.³³ Only a few medications offer even partial relief of restless leg syndrome, and many make the condition worse—leaving sufferers without much recourse.^{32,33}

Disordered energy metabolism has been suggested as one possible cause of restless leg syndrome.

Ungrounded Fear: Can D-Ribose Cause Glycation Reactions?

It is now generally accepted that d-ribose supplementation provides many health benefits, particularly in the area of **cellular energy management**.

Several recent publications, however, have raised the question of whether d-ribose—because it is a sugar—could possibly contribute to development of harmful advanced glycation endproducts.⁴⁰⁻⁴³

The truth seems to be straightforward: Like any sugar, ribose can indeed cause protein glycation, with resulting damage to tissues.⁴² And when ribose is administered experimentally at the same high dose as glucose, ribose quickly causes the protein cross-linking that is the outcome of glycation.⁴⁰

But those studies used artificially high doses and concentrations of ribose, levels never found in humans—even after high-dose supplementation.

For example, in a human study of d-ribose supplementation at doses of **20** and **53 grams** over a 4-hour period, peak serum ribose levels rose to only **4.8 mg/dL** and **81.7 mg/dL**, respectively.⁴⁴

But doses used in the glycation experiments were significantly higher, up to **30** times higher than achievable in human blood!^{42,43}

And in an experiment showing that d-ribose induced glycation and impaired spatial cognition in mice, the ribose concentrations used were equivalent to blood levels of **150 to 750 mg/dL**, clearly vastly higher than have been used in human studies.^{43,44}

Researchers seeking to show that ribose-induced glycation could enhance cartilage damage in an animal model of osteoarthritis showed conclusively that even *direct injection* of ribose into the joint was incapable of triggering sufficient glycation to cause injury!^{45,46}

The doses for d-ribose studies reported in this article—**15 to 60 grams per day** in divided doses—are incapable of causing serum ribose concentrations high enough to get anywhere near the risk of excessive glycation reported in the lab studies.⁴⁴

Also, most human studies recommended splitting the total amount into *three daily doses*; this approach provides even greater assurance that serum d-ribose remains well within safe levels.



Low levels of *adenosine*, the d-ribose-containing central molecule in ATP, have been reported in those suffering from restless leg syndrome.³⁴

Based on that observation, one study has been carried out in which daytime symptoms were eliminated, and nighttime symptoms significantly reduced, on **daily doses of 15 grams** of d-ribose, taken as one 5-gram dose with breakfast, lunch, and dinner.²⁶

It's clearly too early to claim that d-ribose cures the condition, but these encouraging findings—coupled with complete absence of side effects—warrant further investigation.

Kidney Protection

Like the brain and heart, the human kidney receives a high proportion of the body's total blood flow—which makes it equally vulnerable to damage by ischemia-reperfusion mechanisms, the loss and restoration of blood flow.

These kidney injuries can occur as the result of trauma or during any major surgery, sometimes worsened by chronic conditions such as cardiovascular disease and diabetes.³⁵⁻³⁷

Growing evidence suggests that an *immune activation* and *inflammatory response* following this kind of kidney injury creates the bulk of the damage, especially in those with diabetes.^{12,38} Adenosine, which is partly made from d-ribose, is an important regulator of kidney function, and is especially vital during times of injury.³⁹ These observations—coupled with what we know about d-ribose as antioxidant and anti-inflam-

matory—have aroused considerable interest among kidney researchers.

Japanese scientists have led the way in investigating d-ribose as a kidney protector. They have found that in rats subjected to renal ischemia-reperfusion—similar to what can occur during major surgery—d-ribose significantly reduced the release of *inflammatory cytokines*.¹² Kidney function and appearance following the injury was improved substantially.

They also showed that d-ribose reduces activation of *neutrophils*, the ubiquitous white blood cells that are the first to arrive at the scene of an injury but that also release toxic chemicals and oxygen radicals that can cause additional harm.¹¹

Clearly researchers are only beginning to realize the substantial potential of d-ribose for kidney health.

Summary

D-ribose is an essential component in our bodies' **cellular energy management** systems. Additionally, it provides antioxidant, anti-inflammatory, and gene regulatory capabilities. Together these characteristics make it of compelling interest to forward-thinking clinicians and patients.

Supplemental d-ribose demonstrates cardioprotection—even late in the disease process when heart attacks have already occurred, and when heart failure is developing. D-ribose helps ailing heart muscle maximize its effort, and improves blood flow to oxygen-starved cardiac tissue.

D-ribose supplements are only just being explored for similar benefits in brain and kidney tissues, but recent studies offer great hope in those areas. Even perplexing conditions such as fibromyalgia and restless leg syndrome seem to be yielding to the energy-related benefits of d-ribose. ●

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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KRILL HEALTHY JOINT FORMULA

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Maintaining healthy, flexible joints is essential to quality of life. Joint stiffness and discomfort can stand in the way of performing even simple everyday tasks.

Most people do not obtain critical nutrients shown to support youthful joint function and mobility.

To meet this urgent need, **Life Extension®** introduced **Krill Healthy Joint Formula**, a patent-pending blend of deep-sea **whole krill oil** sourced in Antarctica, combined with **hyaluronic acid** and **astaxanthin**.

In a recent clinical trial involving over 100 maturing individuals, a **55% reduction** in joint discomfort was observed in less than three months, with **63%** of participants maintaining ease of motion.¹

THREE SYNERGISTIC COMPOUNDS FOR SUPERIOR BENEFIT

The data reveals that the fatty acids found in krill oil are particularly effective for joint health.² These unique fatty acids have been shown to *specifically target joint tissue*.^{2,3}

Hyaluronic acid occurs naturally in the joints,⁴ where it acts to lubricate and cushion against repeated physical impacts.⁵ Because it forms a major component of cartilage and soft tissue,⁴ it is widely used to promote joint health.⁴⁻⁸

The difficulty has been that hyaluronic acid is a large molecule not well absorbed by the body. When combined with krill oil, it has been shown to reach significantly *higher* levels in the bloodstream than in standalone form.⁸

Krill oil is a natural source of the antioxidant carotenoid **astaxanthin**. Astaxanthin works in multiple ways, including suppression of free radical activity and enhanced mitochondrial function.⁹ It also maintains krill oil's molecular stability.

Most commercially available krill oils do not contain significant amounts of astaxanthin because it is nearly eliminated during processing. **Krill Healthy Joint Formula** is *fortified* with astaxanthin, for maximum stability and superior benefit.

JUST ONE SOFTGEL DAILY

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

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

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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.

Contains crustacean shellfish (krill).

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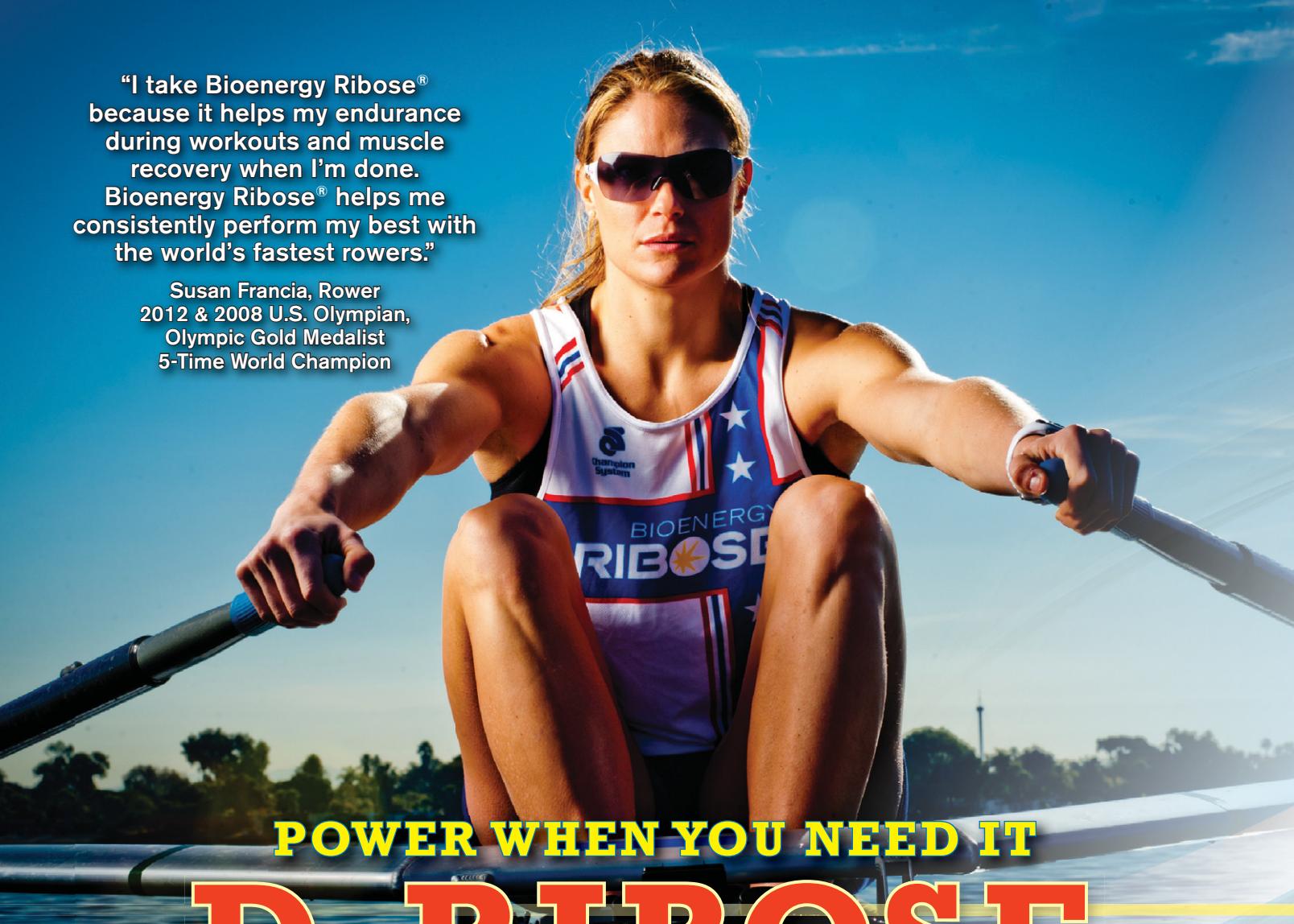


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Susan Francia, Rower
2012 & 2008 U.S. Olympian,
Olympic Gold Medalist
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POWER WHEN YOU NEED IT

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The Energizer of Choice for Olympic Athletes

Many people striving for peak performance—or just concerned about heart health in general—are unaware that depletion of cellular energy in heart and muscle tissue can affect *normal* daily function.

The primary energy source for all cellular processes is a molecule known as ATP (adenosine triphosphate). Healthy, active cells constantly replenish their supply of ATP to produce vital cellular energy. However, under conditions of strenuous exercise, stress, injury, or aging, critical body tissues such as heart and skeletal muscles may not replenish ATP as quickly.

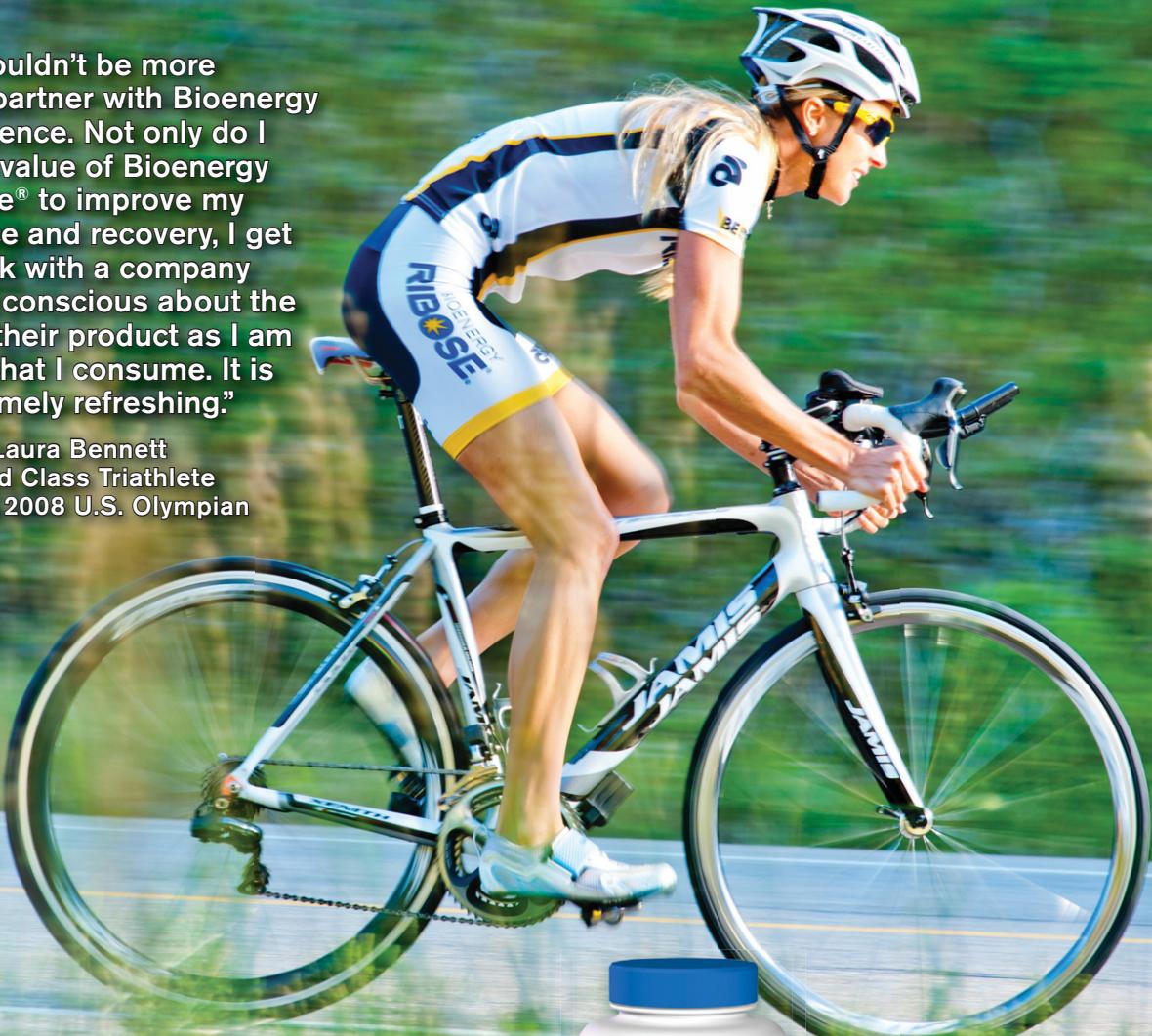
D-ribose, a carbohydrate molecule found in every living organism, facilitates the production of ATP.¹ In studies of healthy athletes, as well as those who have suffered *injury* to the heart muscle, supplying fatigued muscle cells with D-ribose quickly restored ATP levels to normal.²⁻⁴

D-Ribose Tablets and **D-Ribose Powder** can help speed energy recovery, increase energy reserves, and maintain youthful energy levels in heart and muscle tissue.

- For healthy adults seeking to optimize their physical performance or simply restore everyday energy and strength, the recommended daily dose of five tablets of **D-Ribose Tablets** taken with food supplies **5,100 mg** of patented **Bioenergy RIBOSE®**, a premium patented brand of ribose studied in many clinical trials and recommended by leading cardiologists.
- For adults seeking maximum energy support for heart and muscle tissues, the recommended dose is one scoop of **D-Ribose Powder** taken twice daily. Each one-scoop serving supplies **5,000 mg** of **Bioenergy RIBOSE®**. D-Ribose Powder can also be taken in one **5,000 mg** dose just before exercise and another **5,000 mg** dose just after exercise.

"I couldn't be more excited to partner with Bioenergy Life Science. Not only do I get the value of Bioenergy Ribose® to improve my endurance and recovery, I get to work with a company that is as conscious about the purity of their product as I am about what I consume. It is extremely refreshing."

Laura Bennett
World Class Triathlete
2012 & 2008 U.S. Olympian



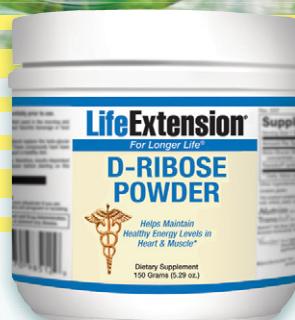
A bottle containing 100 tablets of **1,020 mg D-Ribose Tablets** retails for \$32. If a member buys four bottles, the price is reduced to just **\$21** per bottle. A jar containing 30 servings of **5,000 mg D-Ribose Powder** retails for \$27.50. If a member buys four jars, the price is reduced to just **\$18.56** per jar.

To order **D-Ribose Tablets or Powder**,
call **1-800-544-4440** or
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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.



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Caution: D-ribose can actually lower blood sugar levels. Therefore, people with insulin-dependent diabetes should check with their health care practitioner before taking it. D-ribose should be taken with meals, or mixed into juice, milk, or fruit, to offset the blood glucose-lowering effect.

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Dr. Morgentaler, the Director of Men's Health Boston, is an Associate Clinical Professor of Urology at Harvard Medical School, Beth Israel Deaconess Medical Center. Dr. Morgentaler and his clinical work with testosterone were featured in *The New Yorker*, and his comments have been published in journals such as *Newsweek* and *US News and World Report*.



Daniel Amen, MD

Dr. Amen is a psychiatrist, brain imaging and brain enhancement expert and four time *New York Times* bestselling author. He is the medical director of Amen Clinics, Inc. in Newport Beach and Fairfield, California, Bellevue, Washington, and Reston, Virginia, which have the world's largest database of brain SPECT studies.



Michael A. Schmidt, PhD

Dr. Schmidt did his Ph.D. research in molecular medicine within the Life Sciences Division at NASA Ames Research Center. He is a member of the Society for Neuroscience and the Metabolomics Society, and is the author of *Brain-Building Nutrition and of Beyond Antibiotics: Strategies for Living in a World of Emerging Infections and Antibiotic-Resistant Bacteria* (2009).

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WELLNESS PROFILE

BY JON FINKEL

Media Mogul Muscle

Think only young people should lift weights? Or only pro athletes should take supplements? Think again. Celebrity exercise physiologist, Marco Borges, shatters some common workout myths for *Life Extension*® readers.

The roster of celebrities lining up to give credit to Marco Borges for teaching them how to live a healthy lifestyle reads like a Grammy nominations list, with Jay-Z, Beyoncé Knowles, and Gwen Stefani acting as headliners. Not to mention the dozens of other business moguls, pro athletes, and readers who have seen him or his work featured in *Vogue Magazine* and *Best Life Magazine*. Now, with his book titled *Power Moves: The 4 Motions to Transform Your Body for Life*, Borges is quick to give credit to the philosophy, training routine, nutrition plan, and supplement regimen that got him where he is today. Beginning with the latter, he says that he relies on a huge array of *Life Extension* products to maintain optimal health.

"A brilliant teacher of the idea that 'working out is not just a temporary fix to lose weight—it's a way of life!'"—PHARRELL

Power Moves

THE 4 MOTIONS TO TRANSFORM YOUR BODY FOR LIFE

MARCO BORGES
WITH A FOREWORD BY JAY-Z

A photograph of Marco Borges in mid-air, performing a dynamic movement that looks like a combination of a lunge and a jump. He is wearing a white tank top and black shorts, and is wearing athletic shoes. The background is plain and light-colored.

WELLNESS PROFILE

"Life Extension has the most amazing products," Borges says. "I love the Life Extension Mix. I just switched from the tablets to the powder and I love it. I find that it's the most comprehensive multi-vitamin product on the market."

As Borges talks, he opens up his medicine cabinet and runs through a list of the products that he takes on a regular basis: ubiquinol CoQ10, lycopene, mitochondrial energy boosters, gamma tocopherols, omega-3's, resveratrol, vitamin D, glucosamine, and chondroitin.

"You guys have bar none the best research of anyone out there," he says. "I started taking the resveratrol because of all the great research out there that I've come across."

That research includes a vast array of clinical studies as well as a CBS News *60 Minutes* report that highlighted some of the benefits



MARCO'S LIFE EXTENSION SUPPLEMENT CABINET

- Life Extension Mix Powder
- Glucosamine/Chondroitin Capsules
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- Super Ubiquinol CoQ10
- Mitochondrial Energy Optimizer
- Vitamin D
- Gamma E Tocopherol with Sesame Lignans
- Resveratrol
- Lycopene

of resveratrol, including signs that it may help slow or even reverse certain areas of the aging process. For Borges, who has plenty of clients that fall into the "middle-aged population" range, passing on knowledge about supplements like resveratrol is just one part of his total body health philosophy.

"When it comes to the aging population, I also recommend glucosamine and chondroitin," he says.

Glucosamine is important because studies have shown that aging people tend to lose their ability to produce glucosamine, which may lead to joint pain or damage. For active individuals, this leads to a decreased range of movement, which may lead to pain and less inclination to exercise. Chondroitin is usually taken with glucosamine to facilitate its entry into the joints.

"In addition to the supplements, I've also noticed that as people get older they want to eat less and less," Borges says. "Sometimes they eat so little that they start to atrophy. That's why I recommend they take a really good protein shake. That way they're getting at least 20 grams of protein a day to help maintain the muscle they already have."

Of course, in order to sustain muscle mass and preserve our strength as we age, it is imperative to continue to do some type of resistance training on a regular basis. It's in this area of physical training that Borges wants to shed the myth that weight training isn't just for bodybuilders or young professional athletes.

"The aging population needs to understand that weight training isn't just something you do when you're young," he says. "People think that if they're in their 60s, 70s, or 80s they won't benefit from strength training, but

nothing could be further from the truth. You start losing about 1% of strength per year around age 50, so you must remain engaged in a resistance training routine or your muscles will atrophy."

At the bare minimum, Borges recommends some sort of stretching program one to two days a week, just so people can keep their range of motion. But even if that's all you're going to do, he says that you still need to warm up and cool down. In order to warm-up for an exercise or a good stretch, you should go for a nice paced walk for 15 to 20 minutes. If the walk is going to be your exercise for the day, then try to at least walk at a moderate pace for a half hour.

"After a workout, I always recommend a good 10 minute slow or moderate paced walk to cool down before stretching," Borges says. "Many aging clients want to stretch to keep range of motion, but your muscles have to be warm to reap the benefits of a good stretch. If you tried to stretch a cold muscle, that's like putting a rubber band in the freezer. When you pull a frozen rubber band, it's going to snap, but if you put it out in the hot sun, the rubber becomes more pliable."

Also, if you exercise, you don't want your muscles to cool in a knot or contracted position or you'll wake up and feel stiff later. If you want to delay or offset soreness, Borges' recommendation is to engage in a 15-20 minute stretching program after exercise.

He points to the fact that as we get older, we're more susceptible to injury because of overusage of a muscle or muscle group. That's because whatever the activity, the older you get, the more times a muscle has done a particular movement the likelihood increases that it may break down. For instance, if you play tennis and don't stretch,

6 STEPS FOR A SQUAT PRESS

1. Stand with your feet shoulder width apart. Your arms should be bent with hands at shoulder height.
2. Squat down with your hips pushed back, as if you were about to sit in a chair.
3. Continue to squat until your thighs are parallel with the ground (or your glutes touch a chair beneath you).
4. As you squat, simultaneously reach up with your arms toward the sky.
5. Slowly come back to a starting position: standing with your hands at shoulder height.
6. Repeat. Begin with 5 and build up to 15 reps.



as you get older, you'll be more susceptible to shoulder soreness and things like tennis elbow. For those of you who don't play tennis or have a particular athletic interest, Borges says that while exercising is important, it's just as imperative to enjoy the type of exercise that you're doing.

"I think it's really important to find something that you like," he says. "If you're looking for permanence, you can't force yourself to do something. At the end of the day, it's all about engaging the body. The more we move, the more we improve. I can't begin to tell you how many people attended my bike spinning class in Florida who at first thought they couldn't do it. People in their 60s, 70s, and 80s. They would come as a group and start at a very low resistance. Each of them moved at their own pace, so they could coexist in the

same routine. Eventually, they all improved!"

If you aren't into tennis, bicycling, golf, or a particular exercise, you can still benefit from some very basic movements. Borges suggests even doing a few sets of squat presses can be beneficial. A squat press engages the core, quadriceps, hamstrings, shoulders and calves, which makes it a near total body movement. *(See sidebar for instructions on how to do a squat press.)

"I don't recommend squatting too low," he explains. "What I have my clients do is place a chair behind them and you tap the chair with your glutes and stand right back up again. This exercise is important because we lose explosiveness the older we get. Even if you're 80 years old, you always need explosiveness. When you get out of bed or get out of a car, you

want to be able to just pop up and get going. That takes explosiveness. We take it for granted until we no longer have it."

Exercises like the squat press take only a few minutes to learn but have benefits that can last you for the rest of your life.

"For people who haven't exercised in a while, they often have this image of the old Nautilus machines," Borges says. "They're not thinking creatively. With just a few simple movements done for reps several times a week and some cardiovascular exercise, aging individuals can improve and maintain their coordination, stability, and balance." ●

For more information, visit
www.marcoborges.com.

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



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SUPER FOODS

BY WILLIAM GAMONSKI

The True Potency of the PUMPKIN SEED



While most people only think of pumpkins on Thanksgiving or Halloween, the seeds of this fruit offer an impressive cocktail of health enhancing and disease fighting compounds, vitamins, and minerals that can be consumed year-round. In addition, they are packed with **tryptophan** and **essential fatty acids**.¹ Emerging evidence indicates that pumpkin seeds represent a potent functional food in the battle against heart disease, osteoporosis, bladder dysfunction, anxiety, and arthritis.

SUPER FOODS



Pumpkin's History

Native to North America, pumpkins (*Cucurbita pepo*) were first embraced by Native Americans for their multi-purpose properties before the fruit's seeds were passed along to European explorers and spread throughout Europe. Pumpkins, and their seeds known as pepitas, belong to the gourd family *Cucurbitaceae*. The United States is currently the largest producer of pumpkins followed by Mexico, India, and China.¹

Improving Bladder Function

Among its unique multitude of health benefits, pumpkin seeds standout for their ability to effectively treat an overactive bladder, a condition characterized by a sudden urge to urinate that may lead to an involuntary loss of urine.² Researchers estimate that **16%** of men and women suffer from overactive bladder symptoms such as urination urgency as well as frequent daytime and night

urination.³ Although an overactive bladder poses no threat to overall health, it has been shown to reduce quality of life.⁴

Several studies have shown compelling data in pumpkin seed extract's ability to support bladder function and combat the symptoms associated with an overactive bladder. In an animal study published in the *Japanese Journal of Medicine and Pharmaceutical Science*, rats supplemented with pumpkin seed extract significantly improved bladder function and decreased urinary frequency.⁵

The promising results of pumpkin seed extract for an overactive bladder were also demonstrated in humans. Japanese scientists examined the effects of pumpkin seed and soybean germ extracts on urinary frequency during the daytime and night in 39 postmenopausal women aged 52 to 86 over a 6-week period.⁶ At the end of the study, participants experienced significant decreases in the number of daytime and night urinations.

In another study, 45 men aged 65 or older experienced significant reductions in nighttime urinary

frequency and improved sleep satisfaction after supplementing with the combination extract for six weeks.⁷

Furthermore, pumpkin seeds might provide dramatic relief for aging men suffering from urinary symptoms caused by benign prostatic hyperplasia, or an enlarged prostate. Researchers revealed that 53 men ages 50-80 taking a pumpkin seed extract containing mixture for three months produced an over **40%** increase in urinary flow and a **30%** reduction in nighttime urinary frequency compared with those taking a placebo.⁸

Thwarting Heart Disease

Pumpkin seeds modulate several cardiovascular disease risk factors. In a recent study published in the *African Journal of Traditional, Complementary and Alternative Medicines*, researchers found that rats induced with atherosclerosis and supplemented with pumpkin seeds for 37 days experienced not only significant increases in protective HDL cholesterol but also a **47%** decrease in total cholesterol and a **78%** reduction in LDL cholesterol.⁹

One possible reason for pumpkin seeds LDL cholesterol lowering effects is due to its high concentration of phytosterols, plant compounds that inhibit cholesterol absorption in the small intestine.¹⁰ Pumpkin seeds have the third highest phytosterol content among nuts and seeds commonly consumed as snacks.¹¹

While managing LDL cholesterol is often the focal point of many heart boosting regimens, research indicates that increasing HDL cholesterol might play an equally pivotal role in heart protection as higher levels have been

associated with a decrease in cardiovascular disease risk.¹²

Pumpkin seed oil has favorable effects on HDL cholesterol, according to a study reported in the journal *Climacteric*. Researchers randomly assigned 35 postmenopausal women 2 g of pumpkin seed oil or wheat germ oil daily for 12 weeks.¹³ Measurements of blood lipids and blood pressure were recorded. The results showed that the pumpkin seed oil group experienced a 16% increase in HDL cholesterol levels in addition to a nearly 7% drop in diastolic blood pressure level.¹³

The antihypertensive potential of pumpkin seed oil was further supported in another study. Egyptian researchers caused hypertension in rats by inhibiting nitric oxide synthase, the enzyme responsible for generating the blood pressure regulating molecule nitric oxide. The hypertensive rats were then administered pumpkin seed oil or the antihypertensive medication amlodipine daily for six weeks. Findings showed that pumpkin seed oil was as effective as amlodipine in reversing elevated blood pressure in rats by restoring nitric oxide levels close to normal.¹⁴

Pumpkin Seeds Nutritional Facts, 1/4 of a Cup¹

Nutrients	Amount	DV(%)
Manganese	1.47 mg	73.5%
Tryptophan	0.17 g	53.1%
Magnesium	190.92 mg	47.7%
Phosphorous	397.64 mg	39.7%
Copper	0.43 mg	21.5%
Protein	9.75 g	19.5%
Zinc	2.52 mg	16.8%
Iron	2.84 mg	15.7%

Ways to Enjoy Pumpkin Seeds¹

1. For roasted pumpkin seeds, bake them in the oven at 160 to 170°F for 15 to 20 minutes.
2. Add pumpkin seeds to soups, stew, and meatloaf.
3. Sprinkle them on top of salads, cereals, and yogurt.
4. Eat them raw as a snack.

Bone Protection

Pumpkin seeds are a rich source of magnesium, phosphorous, and zinc, all overlooked minerals in optimizing bone health and preventing osteoporosis. Researchers at the University of Tennessee assessed the relationship between magnesium intake and bone mineral density, a major factor in the development of osteoporosis, in over 2,000 elderly men and women aged 70-79. After taking into account confounding factors of



age, calcium intake, osteoporosis status, BMI, and physical activity, researchers concluded that higher intakes of magnesium were correlated with greater bone mineral density, particularly for caucasian individuals.¹⁵ Researchers believe one possible mechanism for magnesium's beneficial effects is its ability to promote a more alkaline environment inside bones, which has shown to be conducive to boosting bone mineral density.

In a separate study published in the journal *Osteoporosis International*, scientists uncovered a strong association between fracture risk and dietary intake of phosphorous and zinc in more than 6,000 men ages 46-68. After analyzing data from a 2.4 year follow-up, participants with the lowest intake of zinc and phosphorous had increased fracture risk compared with those who consumed the highest intake of both minerals.¹⁶

Easing Arthritis

Pumpkin seed oil has also shown powerful antioxidant properties that might ease inflammation associated with arthritic symptoms. In a study published in the journal *Pharmacology Research*, rats induced with

SUPER FOODS

arthritis showed significant increased levels of inflammation that were reduced when administered pumpkin seed oil; results that compared favorably to when the rats received the non-steroidal anti-inflammatory drug indomethacin. Furthermore, the indomethacin-supplemented rats experienced increased levels of liver lipid peroxidation, an indicator of liver injury, whereas the pumpkin seed oil group experienced no side effects.¹⁷

Anxiety Relief

A study published in the *Canadian Journal of Physiology and Pharmacology* revealed that tryptophan, an amino acid abundant in pumpkin seeds, might help alleviate anxiety. Since tryptophan is converted to serotonin, a neurotransmitter that enhances mood and promotes well-being in the brain, researchers investigated whether consuming a tryptophan rich food could boost serotonin levels and reduce anxiety symptoms. They discovered that subjects with anxiety disorder who consumed tryptophan rich gourd seeds with carbohydrates before an anxiety test experienced greater improvements in subjective and objective measures on the Endler Multidimensional Anxiety Scale compared with those who consumed only carbohydrates.¹⁸

Summary

With a remarkable assortment of health-enhancing nutrients, from magnesium, protein, niacin, and zinc, to its high concentration of tryptophan and essential fatty acids, pumpkin seeds provide a powerful health punch that offers protection against common health problems including cardio-

vascular disease and osteoporosis. It also provides powerful relief for people suffering from bladder dysfunction, anxiety, and arthritis. While pumpkin seeds are synonymous with Halloween, consider incorporating these nutritional gems into your diet on a regular basis to reap their broad-spectrum health benefits. ●

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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Applied directly to the delicate tissue of the face, **Cosmesis Lycopene Cream**—with its unique combination of lycopene and extracts of green, red, and white tea—provides targeted support against the visible effects of UV radiation and oxidative stress.

ENHANCED PENETRATION— DEEP INTO SKIN CELLS

Only a small fraction of the lycopene you eat ever reaches your skin.

Because the lycopene in raw tomatoes is tightly bound to indigestible fiber, little of it is absorbed by your body.¹ And most of the lycopene that is ingested gets deposited in fat-rich organs such as your eyes, adrenal glands, colon, and liver—instead of your skin.^{1,2}

The good news is the fat soluble nature and small molecule size of this plant nutrient make it *more easily absorbed* when applied topically to the lipid-rich environment of the skin.³

Cosmesis has created a topical lycopene formulation in an antioxidant cream format.

ANTIOXIDANT SYNERGY— A DIFFERENCE YOU CAN SEE

Research suggests that antioxidants work synergistically,⁴ so Cosmesis has incorporated a concentrated tea blend extract, containing **polyphenol-rich components of red, green, and white tea!**

Because of this, the protective effects of both lycopene and the tea extract bioactives can combine to support the ability of healthy human skin to maintain its normal growth and repair, while providing natural protection against free radicals, and optimal defense against the visible effects of UV radiation!⁴⁻⁷

To order **Cosmesis Lycopene Cream**,
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- **Promoting normal antioxidant activity:** Lycopene is a potent scavenger of the free radicals that contribute to aging.⁴
- **Strengthening your skin’s collagen:** Lycopene can help inhibit the activity of enzymes involved in the destruction of collagen.¹¹
- **Supporting your body’s normal protection of skin-cell DNA:** Lycopene can help support the skin’s natural ability to ease inflammation, promote cell renewal, and aid in the protection of DNA from the destructive ravages of UVB exposure.⁷

The retail price of a 1 oz. jar of **Cosmesis Lycopene Cream** is \$28. If a member buys two jars, the price is reduced to just **\$19.05** a jar.



Item #80146

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IS IT LOW T?

TAKE
THE TEST

PLEASE ANSWER YES OR NO

- | | YES | NO |
|--|-----|----|
| 1. DO YOU HAVE A DECREASE IN LIBIDO (SEX DRIVE)? | | |
| 2. DO YOU HAVE A LACK OF ENERGY? | | |
| 3. DO YOU HAVE A DECREASE IN STRENGTH AND/OR ENDURANCE? | | |
| 4. HAVE YOU LOST HEIGHT? | | |
| 5. HAVE YOU NOTICED A DECREASED "ENJOYMENT OF LIFE?" | | |
| 6. ARE YOU SAD AND/OR GRUMPY? | | |
| 7. ARE YOUR ERECTIONS LESS STRONG? | | |
| 8. HAVE YOU NOTICED A RECENT DETERIORATION IN YOUR ABILITY TO PLAY SPORTS? | | |
| 9. ARE YOU FALLING ASLEEP AFTER DINNER? | | |
| 10. HAS THERE BEEN A RECENT DETERIORATION IN YOUR WORK PERFORMANCE? | | |

The above ADAM* questionnaire was developed by John E. Morley, M.B., B.Ch.
It is to be used solely as a screening tool to assist a physician in diagnosing
androgen (testosterone) deficiency. *Androgen Deficiency in the Aging Male.

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Aging individuals frequently encounter a *weakening* of the **bladder** and its **sphincter muscle** that controls the release of **urine**.

Laboratory and human clinical studies demonstrate that ingestion of **water-soluble pumpkin seed extract** (with soy isoflavones) can significantly improve the *structural support* of the bladder and the *function* of the sphincter muscle.

The data supporting the value of **water-soluble pumpkin seed extract** (with soy isoflavones) is particularly strong in studies performed in **women**. A clinical study of aging *men* also demonstrated positive results.

HOW TO USE PUMPKIN SEED-SOY EXTRACTS

The pumpkin seed has a long history of use in helping to maintain healthy bladder function. Japanese scientists have patented a method to obtain the *water-soluble* constituents of the pumpkin seed, which are absorbed far more efficiently into the bloodstream.

These *water-soluble* pumpkin seed extracts appear to be the active constituents to help with the **urinary discomforts** endured by so many maturing women and men.

Clinical studies on women and men have used capsules containing **262 mg** of *water-soluble pumpkin seed extract* and **50 mg** of **soy isoflavones** taken two times each day. The results from human studies show the maximum benefits occurring after six to eight weeks of continued use.

WATER-SOLUBLE PUMPKIN SEED AND SOY EXTRACT

Based on the remarkable and consistent clinical results, **Life Extension** is making the identical Japanese formula used in the human studies available to its members for the first time.

A bottle containing 60 **Water-Soluble Pumpkin Seed Extract with Soy Isoflavones** vegetarian capsules retails for \$22. If a member buys four bottles, the price is reduced to only **\$15 per bottle**. Each capsule provides **262 mg** of water-soluble pumpkin seed extract and **50 mg** of soy isoflavones.

Item # 01210 Contains soybeans.

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Free Testosterone Total Testosterone
Estradiol Vitamin D 25-hydroxy
PSA (prostate-specific antigen)
C-Reactive Protein (high-sensitivity)

FEMALE LIFE EXTENSION PANEL (LC322535) \$269

CBC/Chemistry Profile DHEA-S
Estradiol Homocysteine
Progesterone TSH for thyroid function
Free Testosterone Total Testosterone
C-Reactive Protein Vitamin D 25-hydroxy (high sensitivity)

MALE WEIGHT LOSS PANEL (LCWLM) \$299

CBC/Chemistry Profile DHEA-S
Insulin PSA
Free Testosterone (prostate-specific antigen)
Estradiol Total Testosterone
Free T3 TSH
C-Reactive Protein Free T4
(high sensitivity) SHBG

FEMALE WEIGHT LOSS PANEL (LCWLF) \$299

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Progesterone Insulin
Free Testosterone Total Testosterone
Estradiol TSH
Free T3 Free T4
C-Reactive Protein SHBG (high sensitivity)

MALE HORMONE ADD-ON PANEL (LCADDM)* \$155

Pregnenolone and Dihydrotestosterone (DHT)
To provide an even more in-depth analysis of a man's hormone status, Life Extension has created this panel as an addition to the Male Life Extension Panel. This panel provides valuable information about a testosterone metabolite that can affect the prostate, and the mother hormone that acts as a precursor to all other hormones.

FEMALE HORMONE ADD-ON PANEL (LCADDF)* \$125

Pregnenolone and Total Estrogens
To provide an even more in-depth analysis of a woman's hormone status, Life Extension has created this panel as an addition to the Female Life Extension Panel. This panel provides valuable information about total estrogen status, and the mother hormone that acts as a precursor to all other hormones.

LIFE EXTENSION THYROID PANEL (LC304131) \$75

TSH, T4, Free T3, Free T4.

FEMALE COMPREHENSIVE HORMONE PANEL* (LC100011) \$299

CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, Total Estrogens, Progesterone, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.

MALE COMPREHENSIVE HORMONE PANEL* (LC100010) \$299

(LC100010) CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.

THE CBC/CHEMISTRY PROFILE (LC381822) \$35

OVER 40 PARAMETERS TESTED

CARDIOVASCULAR RISK PROFILE

Total Cholesterol	Cholesterol/HDL Ratio
HDL Cholesterol	Estimated CHD Risk
LDL Cholesterol	Glucose
Triglycerides	Iron

LIVER FUNCTION PANEL

AST (SGOT)	Total Bilirubin
ALT (SGPT)	Alkaline Phosphatase
LDH	

KIDNEY FUNCTION PANEL

BUN	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
Polys (Absolute)	Hematocrit
Lymphs (Absolute)	MCV
Monocytes (Absolute)	MCH
Eos (Absolute)	MCHC
Baso (Absolute)	Polynucleated Cells
RDW	

BLOOD MINERAL PANEL

Calcium	Sodium
Potassium	Chloride
Phosphorus	Iron

NOTE: CBC/Chemistry profile is included in the Male and Female Life Extension panels and Weight Loss Panels.

GENERAL HEALTH

HEMOGLOBIN A1C (HbA1C) (LC001453) \$31

Hemoglobin A1C evaluates long-term blood sugar control. Serum glucose sometimes reacts with important proteins in the body rendering them nonfunctional. Since this process, known as glycation is one of the leading theories of aging, Life Extension® believes everyone should check their A1C level.

VITAMIN D (25OH) (LC081950) \$47

This test is used to rule out vitamin D deficiency as a cause of bone disease. It can also be used to identify hypercalcemia.

FOOD SAFE ALLERGY TEST (LCM73001) \$174

This test measures delayed (IgG) food allergies for 95 common foods.

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Taking aspirin to prevent heart attack? Is it working? This is a random urine test used to measure your resistance to aspirin.

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Provides valuable information on your risk of developing heart disease, sudden heart attack, and cardiac death. The Omega Score™ also includes your AA:EPA ratio, allowing you to determine and track a major factor in total body inflammation.

COQ10* (COENZYME Q10) (LC120251) \$145

This test is used to check the blood level of CoQ10 and will enable more precise dosing for anyone seeking to achieve and maintain high levels of this critical antioxidant.

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

** This test is packaged as a kit, requiring a finger stick performed at home.



Other Popular Panels

Life Extension Member Pricing

<input type="radio"/> ENERGY PROFILE (LC100005)	\$375
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)	\$86
CBC/Chemistry Profile (see description), Ferritin, Total Iron Binding Capacity (TIBC), Vitamin B12, Folate, Reticulocyte Count.	
<input type="radio"/> INFLAMMATION PANEL (LC100007)	\$135
CBC/Chemistry Profile (see description above), C-Reactive Protein (high sensitivity), Sedimentation Rate, Rheumatoid (RA) Factor, Antinuclear Antibodies (ANA) Screen.	
<input type="radio"/> THYROID ANTIBODY PROFILE (LC100004)	\$99
Thyroid Antithyroglobulin Antibody (ATA) and Thyroid Peroxidase Antibody (TPO).	

Popular Single Tests

<input type="radio"/> HORMONES	
<input type="radio"/> CORTISOL (LC004051)	\$39
This test is to measure adrenal function.	
<input type="radio"/> DHEA-SULFATE (LC004020)	\$61
This test shows if you are taking the proper amount of DHEA. This test normally costs \$100 or more at commercial laboratories.	
<input type="radio"/> DIHYDROTESTOSTERONE (DHT)* (LC500142)	\$99
Measures serum concentrations of DHT.	
<input type="radio"/> ESTRADIOL (LC004515)	\$33
For men and women. Determines the proper amount in the body.	
<input type="radio"/> INSULIN FASTING* (LC004333)	\$42
Can predict those at risk of diabetes, obesity, and heart and other diseases.	
<input type="radio"/> PREGNENOLONE* (LC140707)	\$116
Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.	
<input type="radio"/> PROGESTERONE (LC004317)	\$55
Primarily for women. Determines the proper amount in the body.	
<input type="radio"/> SEX HORMONE BINDING GLOBULIN (SHBG) (LC082016)	\$33
This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens.	
<input type="radio"/> SOMATOMEDIN C (IGF-1) (LC010363)	\$75
Indicates growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality.	

Blood tests available only in the continental United States.

For non-member prices
call 1-800-208-3444

<input type="radio"/> CARDIAC RISK	\$125
<input type="radio"/> Lp-PLA2 (PLAC TEST)* (LC123240)	
This test is used to aid in predicting risk for coronary heart disease, and ischemic stroke associated with atherosclerosis. Lp-PLA2 is a cardiovascular risk factor that provides unique information about the stability of the plaque inside your arteries.	
<input type="radio"/> C-REACTIVE PROTEIN (HIGH-SENSITIVITY) (LC120766)	\$42
Measures inflammation factors in arteries. Recent studies indicate that C-reactive protein may be the most accurate risk factor for predicting heart attack and stroke.	
<input type="radio"/> CARDIAC PLUS* (LC100008)	\$145
CBC/Chemistry profile (see description), Vitamin D 25-hydroxy, C-Reactive Protein (high sensitivity), Fibrinogen, Homocysteine.	
<input type="radio"/> VAP PLUS* (LC100009)	\$330
VAP, C-Reactive Protein (high sensitivity), Homocysteine, Fibrinogen, PLAC® Test (Lp-PLA2), Vitamin D 25-hydroxy.	
<input type="radio"/> FIBRINOGEN* (LC001610)	\$31
High levels of this blood-clotting factor increase the risk of heart attack and stroke.	
<input type="radio"/> HOMOCYSTEINE (LC706994)	\$64
Can indicate if you are likely to have a heart attack or stroke. Even if you take folic acid, you still may have dangerously high levels of this artery-clotting metabolic debris that can be lowered with high doses of TMG, vitamin B6, and vitamin B12.	
<input type="radio"/> VAP™ TEST* (LC804500)	\$90
The VAP cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid profile. Direct measurements, not estimations, are provided for total cholesterol, LDL, HDL, VLDL, and cholesterol subclasses.	
<input type="radio"/> MALE HEALTH	
<input type="radio"/> PSA (PROSTATE-SPECIFIC ANTIGEN) (LC010322)	\$31
Can provide an early warning sign for prostate disorders and possible cancer.	
<input type="radio"/> FREE-PSA (INCLUDES TOTAL PSA)* (LC480780)	\$61
Recommended to determine if an elevated PSA is indicative of prostate cancer.	
<input type="radio"/> BONE HEALTH	
<input type="radio"/> OSTEOCALCIN* (LC010249)	\$91
Osteocalcin is often used as a biochemical marker, or biomarker, for the bone formation process. It has been routinely observed that higher serum osteocalcin levels are relatively well correlated with bone diseases characterized by increased bone turnover, especially osteoporosis.	
<input type="radio"/> DPD CROSS LINK URINE TEST (LC511105)	\$79
The deoxypyridinoline (DPD) urine test can be used to measure bone re-absorption rates in healthy individuals and in those with enhanced risk of developing metabolic bone diseases. Deoxypyridinoline can be used to monitor therapies (which may include bisphosphonate drugs) in people diagnosed with osteoporosis.	

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

ORDER LIFE-SAVING BLOOD TESTS FROM VIRTUALLY ANYWHERE IN THE US!

TERMS AND CONDITIONS

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

Signature of Life Extension Member _____

X _____

Life Extension Foundation Members only _____

MEMBER NO.

Male Female _____

Name _____

Date of Birth (required) / /

Address _____

City _____

State _____ Zip _____

Phone _____

Credit Card No. _____

Expiration Date / /

Mail your order form to:

LifeExtension
NATIONAL DIAGNOSTICS, INC.

3600 West Commercial Boulevard
Fort Lauderdale, FL 33309

Phone your order to: 1-800-208-3444

Fax your order to: 1-866-728-1050

Products

AMINO ACIDS

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

BONE & JOINT HEALTH

ArthroMax™ with Theaflavins and AprèsFlex™
ArthroMax™ Advanced with UC-II® and AprèsFlex™
Bone-Up™
Bone Restore™
Bone Strength Formula w/KoAct™
Chondroitin Sulfate
Chondrox
Fast Acting Joint Formula
Glucosamine Chondroitin Capsules

BRAIN HEALTH

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
CDP Choline Capsules
Cognitex® with NeuroProtection Complex
Cognitex® with Pregnenolone & NeuroProtection Complex
Cognitex® Basics
DMAE
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin with B5 and BHA
Lecithin Granules
Methylcobalamin Lozenges
Neuro-Mag™ Magnesium L-Threonate
Optimized Ashwagandha Extract
Phosphatidylserine Capsules
Rhodiola Extract
Super Ginkgo Extract
Vinpocetine

DIGESTIVE

Bifido GI Balance
Bromelain Powder
Carnosothe w/PicroProtect
Digest RC™
Enhanced Super Digestive Enzymes
Life Flora™
Natural EsophaGuard
Pancreatin
Probiotic All-Flora®
Probiotic Anti-Aging
Probiotic Cleanse™
Probiotic Colon™
Regimint
Theralac Probiotics

DURK AND SANDY PRODUCTS

Blast™
Dual-C
Inner Power™
Memory Upgrade™

EYE CARE

Bilberry Extract
Blackcurrant Freeze Dried Extract
Brite Eyes III
Eye Pressure Support with Mirtogenol®
Overcast Polarized Sunglasses
Solarshield Sunglasses
Super Zeaxanthin with Lutein & Meso-Zeaxanthin and C3G
Vision Optimizer

FIBER

AppleWise Polyphenol
Fiber Food
Hi-Lignan® Nutri-Flax®
TruFiber®
WellBetX PGX® Soluble Fiber Blend

FOOD

Spicy Cruciferous Vegetable Soup
Cruciferous Vegetable Soup
Rich Rewards Coffee

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

HEART HEALTH

AppleWise Polyphenol
Advanced Lipid Control
Aspirin (Enteric Coated)
Blood Fruit
Cho-Less™
D-Ribose Capsules
D-Ribose Powder
Endothelial Defense™ with Full-Spectrum Pomegranate™
Fibrinogen Resist
Forskolin
Garlicforce™
Homocysteine Resist
Krill Healthy Joint Formula
Natural BP Management
Olive Leaf Vascular Support
Peak ATP® with GlycoCarn®
PhosphOmega®
Policosanol
Pycnogenol® French Maritime Pine Bark Extract
Red Yeast Rice
Super Absorbable CoQ10™ with d-Limonene
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with Enhanced Mitochondrial™ Support
Syrtrinol™
Theaflavin Standardized Extract
TMG Powder
TMG Tablets

HERBAL/PHYTO PRODUCTS

Artichoke Leaf Extract
Astaxanthin
Berry Complete
Blueberry Extract
Blueberry Extract w/Pomegranate
Butterbur Extract w/Standardized Rosmarinic Acid
Calcium D-Glucarate
Cilantro Herbal Extract
Citrus Bioflavonoid
Enhanced Berry Complete with RZD™ Acai
Floradix® Iron & Herbs
Floravital® Iron & Herbs
Full-Spectrum Pomegranate™
Grapeseed Extract with Resveratrol & Pterostilbene
Huperzine A with Natural Vitamin E
Kyolic® Garlic Formula 105
Kyolic® Reserve
Mega Green Tea Extract
Mega Green Tea Extract (Decaffeinated) (also w/CoffeeGenic Green Coffee extract)
Mega Lycopene Extract
Nutrim
Optimized Ashwagandha Extract
Optimized Garlic
Pomegranate Extract
Pomegranate Juice Concentrate
ProGreens®
Pure-Gar™
Pycnogenol
Optimized Quercetin
Resveratrol with Synergistic Grape-Berry Actives
Rhodiola Extract
Rosmarinic Acid Extract
Silymarin
SODzyme™ with GliSODin®
Stevia Extract

Super Bio-Curcumin®

Super Ginkgo Extract
Triple Action Cruciferous Vegetable Extract
Venotone
Whole Grape Extract

HORMONES

Advanced Natural Sex for Women®
Cordyceps CS-4
7-Keto® DHEA
DHEA
DHEA Complete
GH Pituitary Support Day Formula
GH Pituitary Support Night Formula
Melatonin
Melatonin Timed Release
Natural Estrogen with Pomegranate Extract
Pregnenolone
ProFem Cream
Pure IGF
Super Miraforte with Standardized Lignans

IMMUNE ENHANCEMENT

AHCC® (Active Hexose Correlated Compound)
Aloe Vera Force™
Buffered Vitamin C Powder
Echinacea
Enhanced Life Extension Whey Protein
i26 Hyperimmune Egg
Immune Protect with PARACTIN®
Lactoferrin
Lifeshield® Immunity™
Maitake SX-Fraction
Norwegian Shark Liver Oil
Optimized Fucoidan w/Maritech® 926
Primal Defense™
ProBoost™ Thymic Protein A
Pure Gar™
Sambu® Guard
Supercritical Oreganoforce™
Thymic Immune Factors
Ultimate Flora Advanced Immunity
Vitamin C with Dihydroquercetin
Zinc Lozenges with Vitamin C

INFLAMMATORY REACTIONS

Arthro-Immune Joint Support
ArthroMax™ with Theaflavins
Boswella
Boswella™ Topical Cream
Bromelain (Specially-coated)
Emulsified Norwegian Cod Liver Oil
Emulsified Super Twin EPA/DHA
Fast Acting Joint Formula
Ginger Force
Krill Oil
5-LOX Inhibitor w/AprèsFlex™
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Natural Relief 1222™ Cream
Omega-3 Whirl
Serraflazyme
SODzyme™ with GliSODin® and Wolfberry
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Tart Cherry
Udo's Choice Oil
Zyflamend® Tiny Caps®

LIVER HEALTH

Branch Chain Amino Acids
N-Acetyl Cysteine
Liver Force
Liver Efficiency Formula
Certified European Milk Thistle
Hepatopro
SAMe
Silymarin

MINERALS

Biosil
Bone Restore
Bone Strength Formula w/KoAct®
Bone-Up™
Boron Capsules
Calcium Citrate with D3
Chromium Ultra
Copper
Dr. Strum's Intensive Bone Formula
Floradix® Iron & Herbs

Products

Floravital® Iron & Herbs

Iodoral

Iron Protein Plus

Magnesium

Magnesium Citrate

Mineral Formula for Men

Mineral Formula for Women

Only Trace Minerals

Optimized Chromium w/Crominex® 3+

OptiZinc

Sea-Iodine™

Selenium

Se-Methyl L-Selenocysteine

Strontium

Vanadyl Sulfate

Zinc/Vitamin C Lozenges

MISCELLANEOUS

Blender

Blood Pressure Monitor Arm Cuff Medium

Cell Sensor Gauss Meter™

CR Way Edition Advanced Dietary Software

Empty Gelatin Capsules

LifeShield® Breathe™

The Capsule Filler Machine

MITOCHONDRIAL SUPPORT

Acetyl-L-Carnitine

Acetyl-L-Carnitine-Arginate

Mitochondrial Basics w/BioPQQ™

Mitochondrial Energy Optimizer w/BioPQQ™

Optimized Carnitine with GlycoCarn®

Super Absorbable CoQ10™ with d-Limonene

Super Alpha Lipoic Acid with Biotin

Super R-Lipoic Acid

Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™

MOOD RELIEF

Adrenal Energy Formula™

Bioactive Milk Peptides

Holy Basil

LifeShield® Cordyceps

L-Theanine

5 HTP

Enhanced Natural Sleep® w/ Melatonin

Enhanced Natural Sleep® w/o Melatonin

Natural Stress Relief

Stabilium® 200

SAME

St. John's Wort Extract

MOUTH CARE

Advanced Oral Hygiene

Mist Oral III™ with CoQ10

Mouthwash w/Pomegranate

Toothpaste

MULTIVITAMIN

Children's Formula Life Extension Mix

Comprehensive Nutrient Pack

Life Extension Booster

Life Extension Mix™ Capsules

Life Extension Mix™ Powder

Life Extension Mix™ Tablets

Life Extension Mix™ w/o Copper Capsules

Life Extension Mix™ w/o Copper Tablets

Life Extension Mix™ w/Extra Niacin

Life Extension Mix™ w/Extra Niacin w/o Copper

Life Extension Mix™ w/Stevia Powder

Life Extension Mix™ w/Stevia w/o Copper Powder

Life Extension One-Per-Day

Life Extension Two-Per-Day

Super Booster Softgels w/Advanced K2 Complex

PET CARE

Cat Mix

Dog Mix

PROSTATE & URINARY HEALTH

BetterWOMAN®

Optimized Cran-Max® with UTI/Rose™

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®

Broccoli Sprout

Corrective Clearing Mask

DermaWhey

DNA Repair Cream

Dual-Action MicroDermAbrasion

Elastin Collagen Body Firming Lotion

Essential Plant Lipids Reparative Serum

Face Master® Platinum

Face Rejuvenating Antioxidant Cream

Enhanced FernBlock® with Sendara™

Fine Line-Less

Hair Suppress Formula

Healing Formula All-in-One Cream

Healing Mask

Hyaluronic Facial Moisturizer

Hydrating Anti-oxidant Face Mist

Hydroderm®

Lavilin Underarm Deodorant

Lifting & Tightening Complex

LifeShield® Reishi

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

Rejuvenex® Factor Firming Serum

Rejuvenating Serum

Resveratrol Anti-Oxidant Serum

Skin Lightening Serum

Skin Restoring Ceramides w/Lipowheat™

Skin Stem Cell Serum

Stem Cell Cream w/Alpine Rose

Supercritical Omega 7™

Total Sun Protection Cream

Ultra Rejuvenex®

Ultra RejuveNight® w/ Progesterone

Ultra RejuveNight® w/o Progesterone

Ultra Lip Plumper

Ultra Wrinkle Relaxer

Under Eye Refining Serum

Under Eye Rescue Cream

Vitamin C Serum

Vitamin D Lotion

Vitamin E-ssential Cream

Vitamin K Healing Cream

SOY

Natural Estrogen w/Pomegranate

Soy Protein Concentrate

Super Absorbable Soy Isoflavones

Ultra Soy Extract

SPECIAL PURPOSE FORMULA

Anti-Alcohol Antioxidants w/HepatoProtection Complex

Benfotiamine w/Thiamine

Breast Health Formula

Butterbur Extract w/Standardized Rosmarinic Acid

Chlorella

Chlorophyllin w/Zinc

Cleanse Smart

Green Coffee Extract CoffeeGenic™

(also w/Glucose control)

Coriolus Super Strength

CR Mimetic Longevity Formula

Cinsulin® w/InSea²®

and Crominex® 3+

EDTA

European Leg Solution Diosmin 95

Fem Dophilus

Femmenessence MacaPause®

Flush & Be Fit

GlucoFit™

Hearos™ Ear Plugs

Ideal Bowel Support 299

Maitake SX-Fraction™

Migra-eeze™

Natural Female Support

Organic Total Body Cleanse

Pecta-Sol®

Potassium Iodide

PQQ Caps with BioPQQ™

PteroPure™

Prelox® Natural Sex for Men®

Pyridoxal 5' - Phosphate

Rosmarinic Acid Extract

Ultra Natural Prostate w/AprèsFlex™

and Standardized Lignans

SPORTS PERFORMANCE

Creatine Capsules

Creatine Powder

Enhanced Life Extension Protein

DMG (N, N-dimethylglycine)

Inosine

L-Glutamine Capsules

L-Glutamine Powder

VITAMINS

Ascorbic Acid Powder

Ascorbyl Palmitate Capsules

B1

B2

B12

Beta-Carotene

Biotin Capsules

Biotin Powder

Buffered Vitamin C Powder

Complete B Complex

Folic Acid + B12

Gamma E Tocopherol w/Sesame Lignans

Gamma E Tocopherol/Tocotrienols

Inositol Capsules

Inositol Powder

Mega Lycopene Extract

Methylcobalamin

MK-7

No-Flush Niacin

Optimized Folate

PABA Capsules

Super Ascorbate C Capsules

Super Ascorbate C Powder

Super K w/Advanced K2 Complex

Supercritical Omega 7™

Tocotrienols w/Sesame Lignans

Vitamin A Nutrisorb

Vitamin B3 (Niacin) Capsules

Vitamin B6

Vitamin B12 Tablets

Vitamin C

Vitamin D

Vitamin D3

Vitamin D3 w/Sea-Iodine™

Vitamins D and K w/Sea-Iodine™

Vitamin E

Vitamin K1

WEIGHT MANAGEMENT

All® Refill Pack

Advanced Anti-Adipocyte Formula

w/AdipoStat & Integra Lean®

Anti-Adipocyte Formula w/AdipoStat

Calorie Control Weight Management Formula

w/CoffeeGenic™ 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

Stevia Liquid Extract

Super CLA Blend w/Guarana and

Sesame Lignans

Super CLA Blend w/Sesame Lignans

Udo's Choice Wholesome Fast Food Blend

WellBetX PGX® Soluble Fiber Blend

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
A					
00449	ACETYL-L-CARNITINE - 500 mg, 100 caps	\$34.00	\$25.50		
	Buy 4 bottles, price each	30.00	22.50		
00788	ACETYL-L-CARNITINE ARGINATE - 100 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		
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		
01375	ALOE VERA FORCE™ - 60 veg. caps	34.95	26.21		
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		
01510	ANTI-ADIPOCYTE FORMULA w/ADIPOSTAT - 60 veg. caps	35.00	26.25		
	Buy 4 bottles, price each	32.00	24.00		
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		
01025	(L)-ARGININE FREE-FORM POWDER - 100 grams	15.98	11.99		
	Buy 4 bottles, price each	14.31	10.73		
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		
00080	ASCORBIC ACID POWDER - 454 grams	38.00	28.50		
	Buy 4 bottles, price each	34.93	26.20		
00082	ASCORBYL PALMITATE - 500 mg, 100 caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		

SUB-TOTAL OF COLUMN 1

OCTOBER 2012

No.		Retail Each	Member Each	Qty	Total
B					
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		
00708	ASTAXANTHIN - 2 mg, 30 softgels	10.25	7.69		
C					
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		
00653	BETTERWOMAN® - 40 caps	40.00	30.00		
	Buy 4 bottles, price each	38.00	28.50		
01622	BIFFIDO GI BALANCE - 60 caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01073	BILBERRY EXTRACT - 100 mg, 100 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
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		
00145	BIOTIN POWDER - 30 grams	12.50	9.38		
	Buy 4 bottles, price each	11.00	8.25		
01008	BLAST™ - 600 grams of powder	26.95	20.21		
51526	BLENDER - 28 oz bottle	8.99	6.74		
01636	BLOOD FRUIT - 32 oz bottle	49.95	37.46		
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		
01506	BONE FORMULA (DR. STRUM'S INTENSIVE) - 300 veg. caps	56.00	42.00		
	Buy 4 bottles, price each	50.00	37.50		
01611	BONE RESTORE - 150 caps	22.50	16.88		
	Buy 4 bottles, price each	19.50	14.63		
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	24.95	18.71		
	Buy 4 bottles, price each	22.50	16.88		
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		
00621	BORON - 3 mg, 100 caps	5.95	4.46		
	Buy 4 bottles, price each	5.25	3.94		

SUB-TOTAL OF COLUMN 2

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

To order online visit: www.LifeExtension.com

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
00202	BOSWELLA - 100 caps	\$38.00	\$28.50		
	Buy 4 bottles, price each	30.00	22.50		
00258	BOSWELLA TOPICAL CREAM - 4 oz	15.00	11.25		
	Buy 4 jars, price each	13.00	9.75		
01253	BRANCHED CHAIN AMINO ACIDS - 90 veg. caps	19.50	14.63		
	Buy 4 bottles, price each	17.00	12.75		
00999	BREAST HEALTH FORMULA - 60 veg. caps	34.00	25.50		
	Buy 4 bottles, price each	30.00	22.50		
00893	BRITE EYES III - 2 vials, 5 ml each	34.00	25.50		
	Buy 4 boxes, price each	32.00	24.00		
00136	BROMELAIN POWDER - 100 grams	21.00	15.75		
	Buy 4 bottles, price each	18.75	14.06		
01203	BROMELAIN (SPECIALY-COATED) - 500 mg, 60 enteric coated tablets	21.00	15.75		
	Buy 4 bottles, price each	19.00	14.25		
00884	BUTTERBUR EXT. w/STANDARDIZED ROSMARINIC ACID - 60 softgels	44.00	33.00		
	Buy 4 bottles, price each	39.60	29.70		
C					
01015	CALCIUM CITRATE w/VITAMIN D - 300 caps	\$24.00	\$18.00		
	Buy 4 bottles, price each	21.25	15.94		
00535	CALCIUM D-GLUCARATE - 200 mg, 60 caps	18.00	13.50		
	Buy 4 bottles, price each	15.00	11.25		
01693	CALORIE CONTROL WEIGHT MANAGEMENT FORMULA w/COFFEEGENIC™ GREEN COFFEE EXTRACT BLUEBERRY FLAVOR - 414 grams powder	60.00	45.00		
	Buy 4 jars, price each	54.00	40.50		
	Buy 8 jars, price each	50.00	37.50		
01694	CALORIE CONTROL WEIGHT MANAGEMENT FORMULA w/COFFEEGENIC™ GREEN COFFEE EXTRACT BLUEBERRY FLAVOR - 60 individual packs	64.00	48.00		
	Buy 4 boxes, price each	60.00	45.00		
	Buy 8 boxes, price each	56.00	42.00		
00118	CAPSULE FILLER MACHINE FOR "00" CAPSULES	18.95	14.21		
	Buy 4 machines, price each	18.25	13.69		
00613	CAPSULE FILLER MACHINE FOR "0" CAPSULES	18.95	14.21		
	Buy 4 machines, price each	18.25	13.69		
00916	CARNITINE w/GLYCOCARN® (OPTIMIZED) - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01041	L-CARNITINE - 500 mg, 30 caps	15.00	11.25		
	Buy 4 bottles, price each	13.20	9.90		
01258	CARNOSOOTHE w/PICROPROTECT™ - 60 veg. caps	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01287	CARNOSINE (SUPER) - 500 mg, 90 caps	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
01003	CAT MIX - 100 grams powder	15.00	11.25		
	Buy 4 jars, price each	12.00	9.00		
00390	CDP CHOLINE CAPS - 250 mg, 60 caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
00998	CELL SENSOR-EMF DETECTION METER	39.95	29.95		
01370	CHILDREN'S FORMULA LIFE EXTENSION MIX™ - 100 chewable tablets	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00550	CHLORELLA - 500 mg, 200 tablets	23.50	17.63		
	Buy 4 bottles, price each	21.00	15.75		
01571	CHLOROPHYLLIN w/ZINC - 100 mg, 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	20.00	15.00		
01359	CHO-LESS™ - 90 capsules	32.50	24.38		
00541	CHOLINE CHLORIDE - 16 oz liquid	14.95	11.21		
	Buy 4 bottles, price each	14.00	10.50		

SUB-TOTAL OF COLUMN 3

No.		Retail Each	Member Each	Qty	Total
00364	CHONDROITIN SULFATE CONCENTRATE - 400 mg, 60 tablets	\$19.95	\$14.96		
	Buy 4 bottles, price each	18.00	13.50		
01477	CHROMIUM ULTRA - 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
01504	CHROMIUM W/CROMINEX® 3+ (OPTIMIZED) - 500 mcg, 60 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
00551	CILANTRO HERBAL EXTRACT - 1 oz	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
01503	CINSULIN® W/INSEA® AND CROMINEX® 3+ - 90 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
00069	CITRUS BIOFLAVONOID - 100 caps	16.79	12.59		
	Buy 4 bottles, price each	15.56	11.67		
00818	CLA BLEND W/SESAME LIGNANS (SUPER) - 1000 mg, 120 softgels	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
	Buy 10 bottles, price each	26.33	19.75		
00819	CLA BLEND w/GUARANA & SESAME (SUPER) -1000 mg, 120 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.33	28.75		
01078	CLEANSE SMART - 60 caps	31.99	23.99		
00050	COD LIVER OIL (EMULSIFIED) - 12 fl oz (355 ml)	14.58	10.94		
	Buy 4 bottles, price each	12.27	9.20		
00293	COD LIVER OIL (EMULSIFIED) - 100 softgels (Emulsified)	10.97	8.23		
	Buy 4 bottles, price each	10.34	7.76		
00922	COGNITEX® w/PREGNENOLONE & NEUROPROTECTION COMPLEX - 90 softgels	74.00	55.50		
	Buy 4 bottles, price each	66.60	49.95		
	Buy 12 bottles, price each	64.00	48.00		
00921	COGNITEX® w/o PREGNENOLONE w/NEUROPROTECTION COMPLEX - 90 softgels	72.00	54.00		
	Buy 4 bottles, price each	64.00	48.00		
	Buy 12 bottles, price each	62.00	46.50		
01421	COGNITEX® BASICS - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		
00110	COMPLETE B-COMPLEX - 180 caps	21.50	16.13		
	Buy 4 bottles, price each	18.00	13.50		
01595	COMPREHENSIVE NUTRIENT PACK - 30-day supply	189.00	141.75		
	Buy 4 bottles, price each	171.00	128.25		
00119	COPPER CAPSULES - 2 mg, 100 caps	9.91	7.43		
	Buy 4 bottles, price each	8.96	6.72		
00949	COQ10™ w/ d-LIMONENE (SUPER ABSORBABLE) - 50 mg, 60 softgels	25.00	18.75		
	Buy 4 bottles, price each	22.00	16.50		
	Buy 10 bottles, price each	20.00	15.00		
00950	COQ10™ w/ d-LIMONENE (SUPER ABSORBABLE) - 100 mg, 100 softgels	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
	Buy 10 bottles, price each	56.00	42.00		
01226	COQ10 (SUPER UBIQUINOL) - 100 mg, 60 softgels	56.00	42.00		
	Buy 4 bottles, price each	52.00	39.00		
	Buy 10 bottles, price each	48.00	36.00		
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -100 mg, 60 softgels	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
	Buy 10 bottles, price each	52.00	39.00		
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -50 mg, 100 softgels	58.00	43.50		
	Buy 4 bottles, price each	53.00	39.75		
	Buy 10 bottles, price each	50.00	37.50		
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -50 mg, 30 softgels	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		

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					
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -200 mg, 30 softgels	\$62.00	\$46.50		
	Buy 4 bottles, price each	56.00	42.00		
	Buy 10 bottles, price each	52.00	39.00		
01397	CORDYCEPS CS-4™ - 60 veg. caps	29.99	22.49		
01053	CORIOLUS SUPER STRENGTH - 600 mg, 150 veg. caps	99.95	74.96		
80140	COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS - .33 oz	49.00	36.75		
	Buy 2 bottles, price each	42.00	31.50		
80139	COSMESIS AMBER SELF MICRODERMABRASION - 2 oz	49.00	36.75		
	Buy 2 jars, price each	42.00	31.50		
80118	COSMESIS ANTI-AGING MASK - 2 oz	72.00	54.00		
	Buy 2 bottles, price each	63.36	47.52		
80134	COSMESIS ANTI-GLYCATION SERUM - 1 oz W/BLUEBERRY & POMEGRANATE EXTRACTS	33.00	24.75		
	Buy 2 bottles, price each	31.35	23.51		
80133	COSMESIS ANTIOXIDANT FACIAL MIST - 2 oz	32.00	24.00		
	Buy 2 bottles, price each	30.40	22.80		
80127	COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2 oz	45.00	33.75		
	Buy 2 jars, price each	42.80	32.10		
80128	COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2 oz	59.00	44.25		
	Buy 2 jars, price each	51.92	38.94		
80117	COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2 oz	64.00	48.00		
	Buy 2 jars, price each	57.49	43.12		
80121	COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2 oz	58.00	43.50		
	Buy 2 jars, price each	51.04	38.28		
80105	COSMESIS ANTI-REDNESS & BLEMISH LOTION - 1 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80144	COSMESIS BROCCOLI SPROUT CREAM - 1 oz	46.00	34.50		
	Buy 2 jars, price each	39.00	29.25		
80120	COSMESIS CORRECTIVE CLEARING MASK - 2 oz	64.50	48.38		
	Buy 2 jars, price each	56.76	42.57		
80141	COSMESIS DNA REPAIR CREAM - 1 oz jar	49.00	36.75		
	Buy 2 jars, price each	42.00	31.50		
80108	COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 oz	74.95	56.21		
	Buy 2 bottles, price each	65.95	49.46		
80123	COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 oz	69.50	52.13		
	Buy 2 jars, price each	61.16	45.87		
80107	COSMESIS FINE LINE-LESS - 1 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80131	COSMESIS HAIR SUPPRESS FORMULA - 4 oz	59.00	44.25		
	Buy 2 bottles, price each	51.92	38.94		
80137	COSMESIS HEALING FORMULA ALL-IN-ONE CREAM - 1 oz	53.00	39.75		
	Buy 2 jars, price each	45.43	34.07		
80115	COSMESIS HEALING MASK - 2 oz	64.50	48.38		
	Buy 2 bottles, price each	56.76	42.57		
80102	COSMESIS HEALING VITAMIN K CREAM - 1 oz	79.50	59.63		
	Buy 2 bottles, price each	69.96	52.47		
80109	COSMESIS HYALURONIC FACIAL MOISTURIZER - 1 oz	58.00	43.50		
	Buy 2 bottles, price each	51.04	38.28		
80110	COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 1 oz	58.00	43.50		
	Buy 2 bottles, price each	51.04	38.28		
80138	COSMESIS HYDRATING ANTI-OXIDANT FACE MIST - 4 oz	39.95	29.96		
	Buy 2 bottles, price each	38.00	28.50		
80103	COSMESIS LIFTING & TIGHTENING COMPLEX - 1 oz	74.50	55.88		
	Buy 2 tubes, price each	65.56	49.17		

SUB-TOTAL OF COLUMN 5

OCTOBER 2012

No.		Retail Each	Member Each	Qty	Total
COSMESIS LYCOPENE CREAM - 1 oz jar					
80146	COSMESIS LYCOPENE CREAM - 1 oz jar	\$28.00	\$21.00		
	Buy 2 jars, price each	25.40	19.05		
80135	COSMESIS MELATONIN CREAM - 1 oz	33.00	24.75		
	Buy 2 jars, price each	27.10	20.33		
80114	COSMESIS MILD FACIAL CLEANSER - 8 oz	59.00	44.25		
	Buy 2 bottles, price each	51.92	38.94		
80122	COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2 oz	64.00	48.00		
	Buy 2 jars, price each	56.32	42.24		
80111	COSMESIS PIGMENT CORRECTING CREAM - 1/2 oz	74.00	55.50		
	Buy 2 bottles, price each	65.12	48.84		
80106	COSMESIS REJUVENATING SERUM - 1 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80142	COSMESIS RESVERATROL ANTI-OXIDANT SERUM - 1 oz	46.00	34.50		
	Buy 2 bottles, price each	39.00	29.25		
80112	COSMESIS SKIN LIGHTENING SERUM - 1/2 oz	85.00	63.75		
	Buy 2 bottles, price each	74.80	56.10		
80130	COSMESIS SKIN STEM CELL SERUM - 1 oz	74.00	55.50		
	Buy 2 bottles, price each	69.00	51.75		
80143	COSMESIS STEM CELL CREAM W/ALPINE ROSE - 1 oz jar	66.00	49.50		
	Buy 2 jars, price each	58.00	43.50		
80116	COSMESIS ULTRA LIP PLUMPER - 1/3 oz	64.00	48.00		
	Buy 2 bottles, price each	56.32	42.24		
80101	COSMESIS ULTRA WRINKLE RELAXER - 1 oz	89.95	67.46		
	Buy 2 bottles, price each	79.76	59.82		
80113	COSMESIS UNDER EYE REFINING SERUM - 1/2 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80104	COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80129	COSMESIS VITAMIN C SERUM - 1 oz	85.00	63.75		
	Buy 2 bottles, price each	74.80	56.10		
80136	COSMESIS VITAMIN D LOTION - 4 oz	36.00	27.00		
	Buy 2 bottles, price each	33.66	25.25		
80145	COSMESIS VITAMIN E-ESSENTIAL CREAM - 1 oz	28.00	21.00		
	Buy 2 jars, price each	26.00	19.50		
00862	CRAN-MAX® - 500 mg, 60 veg. caps	17.50	13.13		
	Buy 4 bottles, price each	15.00	11.25		
01424	CRAN-MAX® with UTIROS® (OPTIMIZED) - 60 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00609	CREATINE CAPSULES - 120 caps	10.95	8.21		
	Buy 4 bottles, price each	9.25	6.94		
00610	CREATINE POWDER - 500 grams	29.00	21.75		
	Buy 4 bottles, price each	26.63	19.97		
01646	CREATINE WHEY GLUTAMINE POWDER - 1000 grams (vanilla)	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01530	CRUCIFEROUS VEGETABLE SOUP - 32 oz. bottle	11.95	8.96		
	Buy 6 bottles, price each	11.25	8.44		
01531	(SPICY) CRUCIFEROUS VEGETABLE SOUP - 32 oz. bottle	11.95	8.96		
	Buy 6 bottles, price each	11.25	8.44		
01429	CR MIMETIC LONGEVITY FORMULA - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	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	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		

SUB-TOTAL OF COLUMN 6

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

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
D					
01313	DERMAWHEY - 400 mg, 60 caps	\$65.00	\$48.75		
	Buy 4 bottles, price each	59.00	44.25		
00658	7-KETO® DHEA METABOLITE - 25 mg, 100 caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01479	7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
00607	DHEA - 25 mg, 100 tablets (dissolve in mouth)	14.00	10.50		
	Buy 4 bottles, price each	11.75	8.81		
01478	DHEA COMPLETE - 60 veg. caps	48.00	36.00		
	Buy 4 bottles, price each	43.20	32.40		
00335	DHEA - 25 mg, 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
00454	DHEA - 15 mg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	10.00	7.50		
00882	DHEA - 50 mg, 60 caps	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
00883	DHEA - 100 mg, 60 caps	22.50	16.88		
	Buy 4 bottles, price each	19.00	14.25		
01358	DIGEST RC - 30 tablets	19.95	14.96		
	Buy 4 boxes, price each	17.00	12.75		
01272	DIGESTIVE ENZYMES (ENHANCED SUPER) - 100 veg. caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
00034	D,L-PHENYLALANINE CAPSULES - 500 mg, 100 caps	18.75	14.06		
	Buy 4 bottles, price each	16.00	12.00		
00257	DMAE BITARTRATE - 150 mg, 200 caps	14.00	10.50		
	Buy 4 bottles, price each	10.50	7.88		
00059	DMG - 125 mg, 60 tablets	22.80	17.10		
	Buy 4 boxes, price each	21.00	15.75		
01570	DNA PROTECTION FORMULA - 60 veg. caps	34.00	25.50		
	Buy 4 bottles, price each	32.00	24.00		
00544	DOG MIX - 100 grams powder	19.50	14.63		
	Buy 4 jars, price each	16.00	12.00		
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA - 2 oz	39.95	29.96		
	Buy 4 bottles, price each	32.00	24.00		
00320	DR. PROCTOR'S HAIR FORMULA SHAMPOO - 8 oz	24.95	18.71		
	Buy 4 bottles, price each	22.00	16.50		
00899	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 2.4 oz	39.95	29.96		
	Buy 4 jars, price each	38.95	29.21		
00240	DUAL-C - 90 caps	12.00	9.00		
	Buy 4 bottles, price each	10.50	7.88		
E					
00388	ECHINACEA EXTRACT - 250 mg, 60 caps	\$14.35	\$10.76		
	Buy 4 bottles, price each	12.50	9.38		
01395	EDTA - 500 mg, 60 caps	9.98	7.49		
01321	ELASTIN & COLLAGEN BODY FIRMING LOTION - 8 fl. oz.	10.00	7.50		
01498	ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™ - 60 softgels	56.00	42.00		
	Buy 4 bottles, price each	52.00	39.00		
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® - 60 veg. caps	52.00	39.00		
	Buy 4 bottles, price each	46.00	34.50		
00625	EPA/DHA (MEGA) - 120 softgels	19.95	14.96		
	Buy 4 bottles, price each	18.00	13.50		
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 - 600 mg, 30 veg. tabs	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01514	EYE PRESSURE SUPPORT w/MIRTGENOL® - 30 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		

SUB-TOTAL OF COLUMN 7

No.		Retail Each	Member Each	Qty	Total
F					
'01054	FACE MASTER® PLATINUM				
00965	FAST-ACTING JOINT FORMULA - 30 caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
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	39.00	29.25		
	Buy 4 bottles, price each	35.00	26.25		
00229	FIBER FOOD CAPS - 200 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 10 bottles, price each	11.90	8.93		
00718	FIBRINOGEN RESIST™ - 30 veg. caps	49.00	36.75		
	Buy 4 bottles, price each	44.00	33.00		
00873	FLAXSEED POWDER (HI-LIGNAN® NUTRI-FLAX®) - 16 oz powder	9.95	7.46		
01384	FLORADIX® IRON & HERBS - 17 fl. oz	43.99	35.19		
01382	FLORAVITAL® IRON & HERBS - 17 fl. oz	43.99	35.19		
01212	FLUSH + BE FIT - 2-week cleanse for women	29.99	22.49		
01439	FOLATE (OPTIMIZED) (L-METHYLFOLATE) 1000 mcg - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
00347	FOLIC ACID + B12 CAPSULES - 200 caps	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		
00300	FORSKOLIN - 10 mg, 60 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
01513	FUCOIDAN w/MARITECH® 926 (OPTIMIZED) - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
00993	FUCOXANTHIN-SLIM™ - 90 softgels	44.00	33.00		
	Buy 4 bottles, price each	39.00	29.25		
G					
00127	GABA POWDER - 100 grams	\$23.75	\$17.81		
	Buy 4 bottles, price each	22.50	16.88		
00559	GAMMA E TOCOPHEROL/TOCOTRIENOLS - 60 softgels	42.00	31.50		
	Buy 4 bottles, price each	37.00	27.75		
00759	GAMMA E TOCOPHEROL W/SESAME LIGNANS - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01394	(OPTIMIZED) GARLIC - 200 veg. caps	24.95	18.71		
	Buy 4 bottles, price each	21.00	15.75		
01378	GARLIC FORCE™ - 30 softgels	34.95	26.21		
00117	GELATIN CAPSULES - 1000 empty caps size "00"	19.00	14.25		
	Buy 4 bags, price each	18.00	13.50		
01301	GH PITUITARY SUPPORT DAY FORMULA - 120 vegetarian tabs	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01302	GH PITUITARY SUPPORT NIGHT FORMULA - 120 veg. caps	25.00	18.75		
	Buy 4 bottles, price each	22.50	16.88		
01228	GINGER FORCE - 60 softgels	29.95	22.46		
00778	GINKGO BILOBA CERTIFIED EXTRACT™ - 120 mg, 365 caps	46.00	34.50		
	Buy 2 bottles, price each	43.50	32.63		
00504	GINKGO EXTRACT (SUPER) - 120 mg, 100 caps	29.00	21.75		
	Buy 4 bottles, price each	26.50	19.88		
01032	(PANAX RED) GINSENG - 60 veg. caps	29.99	22.49		
00756	GLA WITH SESAME LIGNANS (MEGA) - 60 softgels	19.50	14.63		
	Buy 4 bottles, price each	18.00	13.50		
00345	(L) GLUTAMINE CAPSULES - 500 mg, 100 caps	14.95	11.21		
	Buy 4 bottles, price each	13.50	10.13		
00141	(L)-GLUTAMINE POWDER - 100 grams	19.00	14.25		
	Buy 4 bottles, price each	16.88	12.66		

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
00522	GLUCOSAMINE/CHONDROITIN CAPSULES - 100 caps	\$38.00	\$28.50		
	Buy 4 bottles, price each	32.00	24.00		
00512	GLUCOFIT™ - 100 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
00113	GLUTATHIONE, CYSTEINE & C - 750 mg, 100 caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00314	L-GLUTATHIONE (MEGA) - 250 mg, 60 caps	39.64	29.73		
	Buy 4 bottles, price each	35.68	26.76		
00795	GLYCINE - 1000 mg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	10.80	8.10		
00128	GLYCINE POWDER - 300 grams	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01091	GRAPE EXTRACT w/RESVERATROL (WHOLE) - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
01411	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE - 100 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
01604	GREEN COFFEE EXTRACT COFFEEGENIC™ - 200 mg, 90 veg. caps	25.00	18.75		
	Buy 4 bottles, price each	22.00	16.50		
01620	GREEN COFFEE EXTRACT COFFEEGENIC™ - 400 mg, 90 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
01607	GREEN COFFEE EXTRACT COFFEEGENIC™ - 90 veg. caps w/GLUCOSE CONTROL COMPLEX	58.00	43.50		
	Buy 4 bottles, price each	52.00	39.00		
00953	GREEN TEA EXTRACT (MEGA) - lightly caffeinated - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	26.50	19.88		
00954	GREEN TEA EXTRACT (MEGA) - decaffeinated - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	26.50	19.88		
01606	GREEN TEA W/COFFEEGENIC™ GREEN COFFEE EXTRACT (MEGA) 120 veg. caps, low caffeine	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
H					
01074	5 HTP - 100 mg, 60 caps	\$27.95	\$20.96		
00010	HAIR CONDITIONER - 16 oz	6.00	4.50		
	Buy 4 bottles, price each	4.50	3.38		
00230	HCA - 90 caps	18.00	13.50		
	Buy 4 bottles, price each	15.50	11.63		
01629	HEAROS™ EAR PLUGS - 1 pack - regular size	14.00	10.50		
01635	HEAROS™ EAR PLUGS - 1 pack - small size	14.00	10.50		
01393	HEPATOPRO - 900 mg, 60 softgels	50.00	37.50		
	Buy 4 bottles, price each	46.00	34.50		
01433	HOLY BASIL - 60 softgel caps	34.95	26.21		
01434	HOLY BASIL - 120 softgel caps	54.95	41.21		
01435	HOMOCYSTEINE RESIST - 100 caps	24.00	18.00		
	Buy 4 bottles, price each	21.60	16.20		
01527	HUPERZINE A - 200 mcg, 60 veg caps	34.00	25.50		
	Buy 4 bottles, price each	30.00	22.50		
00661	HYDRODERM® - 1 oz	79.95	59.96		
	Buy 2 bottles, price each	65.33	49.00		
I					
*01060	i26® HYPERIMMUNE EGG - 140 grams powder	\$49.99	\$42.00		
*01319	i26® HYPERIMMUNE EGG - 135 capsules	31.99	25.59		
*01318	i26® HYPERIMMUNE EGG CHEWABLES - (vanilla) 45 tablets	31.99	25.59		
01065	IDEAL BOWEL SUPPORT 299V - 30 veg. caps	21.95	16.46		
00955	IMMUNE PROTECT W/PARACTIN® - 30 veg. caps	29.50	22.13		
	Buy 4 bottles, price each	26.55	19.91		

SUB-TOTAL OF COLUMN 9

OCTOBER 2012

No.		Retail Each	Member Each	Qty	Total
01049	INNERPOWER™ - 555 grams powder	\$42.00	\$31.50		
00155	INOSINE - 500 mg, 60 caps	22.95	17.21		
	Buy 4 bottles, price each	21.00	15.75		
00410	INOSITOL CAPSULES - 1000 mg, 360 caps	48.00	36.00		
	Buy 4 bottles, price each	43.75	32.81		
00108	INOSITOL POWDER - 100 grams	18.00	13.50		
	Buy 4 bottles, price each	16.88	12.66		
01292	INTEGRA-LEAN® IRVINGIA - 150 mg, 60 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01002	IODORAL® - 180 tabs	50.00	37.50		
00563	IRON PROTEIN PLUS - 300 mg, 100 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01492	IRVINGIA W/PHASE 3™ - 120 veg. caps CALORIE CONTROL COMPLEX (OPTIMIZED)	56.00	42.00		
	Buy 4 bottles, price each	48.00	36.00		
J, K					
00056	JARRO-DOPHILUS EPS™ - 60 veg. caps	\$21.95	\$16.46		
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		
01224	K w/ADVANCED K2 COMPLEX (SUPER) - 90 softgels	26.00	19.50		
	Buy 4 bottles, price each	23.00	17.25		
01600	KRILL HEALTHY JOINT FORMULA - 30 softgels	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01050	(NKO) KRILL OIL - 60 softgels	33.95	25.46		
00316	KYOLIC® GARLIC FORMULA 102 - 200 caps	23.95	17.96		
	Buy 4 bottles, price each	20.50	15.38		
00214	KYOLIC® GARLIC FORMULA 105 - 200 caps	22.95	17.21		
	Buy 4 bottles, price each	18.25	13.69		
00789	KYOLIC® RESERVE - 600 mg, 120 caps	24.75	18.56		
	Buy 4 bottles, price each	21.45	16.09		
L					
00513	LACTOFERRIN (APOLACTOFERRIN) CAPS - 60 caps	\$44.00	\$33.00		
	Buy 4 bottles, price each	40.00	30.00		
00017	LAVILIN UNDERARM DEODORANT - 12.5 grams cream	16.99	12.74		
	Buy 4 jars, price each	15.75	11.81		
00020	LECITHIN - 16 oz. granules	15.00	11.25		
	Buy 4 jars, price each	12.50	9.38		
01655	LIFE EXTENSION MIX™ - 315 tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01657	LIFE EXTENSION MIX™ W/EXTRA NIACIN - 315 tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01654	LIFE EXTENSION MIX™ - 490 caps	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
01656	LIFE EXTENSION MIX™ POWDER - 14.81 oz	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
01665	LIFE EXTENSION MIX™ - 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		

SUB-TOTAL OF COLUMN 10

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

To order online visit: www.LifeExtension.com

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01667	LIFE EXTENSION MIX™ W/EXTRA NIACIN 315 tablets w/o copper	\$98.00	\$73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01664	LIFE EXTENSION MIX™ - 490 caps w/o copper	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
01666	LIFE EXTENSION MIX™ POWDER - 14.81 oz w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
00263	LIFE FLORA™ - 300 mg, 120 caps	20.50	15.38		
	Buy 4 bottles, price each	18.75	14.06		
01377	LIFESHIELD® BREATHE™ - 60 veg. caps	34.95	26.21		
01349	LIFESHIELD® CORDYCEPS - 60 veg. caps	34.95	26.21		
01314	LIFESHIELD® IMMUNITY™ - 60 veg. caps	39.95	29.96		
01339	LIFESHIELD® REISHI™ - 60 veg. caps	34.95	26.21		
01608	LIVER EFFICIENCY FORMULA - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01227	LIVER FORCE - 60 veg. caps	34.95	26.21		
01639	5-LOX INHIBITOR W/APRESFLEX™ - 100 mg, 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01013	L-LYSINE - 620 mg, 100 caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
00129	L-LYSINE POWDER - 300 grams	16.00	12.00		
	Buy 4 bottles, price each	13.75	10.31		
01470	LURALEAN® CAPS SPECIAL PROPOLMANNAN	28.00	21.00		
	PARTICLE SIZE - 120 veg. caps				
	Buy 4 bottles, price each	25.00	18.75		
00455	LYCOPENE EXTRACT (MEGA) - 15 mg, 90 softgels	35.00	26.25		
	Buy 4 bottles, price each	30.00	22.50		
M					
01369	MAGNESIUM CAPS - 500 mg, 100 veg. caps	\$10.00	\$7.50		
	Buy 4 bottles, price each	9.00	6.75		
00502	MAGNESIUM CITRATE - 160 mg, 100 caps	9.00	6.75		
	Buy 4 bottles, price each	7.50	5.63		
00704	MAITAKE™ SX-FRACTION - 90 veg. tablets	49.95	37.46		
00547	MELATONIN - 300 mcg, 100 caps	5.75	4.31		
	Buy 4 bottles, price each	5.00	3.75		
01083	MELATONIN - 500 mcg, 200 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00329	MELATONIN - 1 mg, 60 caps	5.00	3.75		
	Buy 4 bottles, price each	4.63	3.47		
00330	MELATONIN - 3 mg, 60 caps	8.00	6.00		
	Buy 4 bottles, price each	6.88	5.16		
01086	MELATONIN - 3 mg, 60 time-release veg. caps	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
00331	MELATONIN - 10 mg, 60 caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
00332	MELATONIN - 3 mg, 60 lozenges	8.00	6.00		
	Buy 4 bottles, price each	6.88	5.16		
01087	MELATONIN TIME RELEASE - 300 mcg, 100 veg. caps	6.25	4.69		
	Buy 4 bottles, price each	5.63	4.22		
01088	MELATONIN TIME RELEASE - 750 mcg, 60 veg. caps	5.75	4.31		
	Buy 4 bottles, price each	5.00	3.75		

SUB-TOTAL OF COLUMN 11

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

No.		Retail Each	Member Each	Qty	Total
01009	MEMORY UPGRADE™ - 600 grams powder	\$26.95	\$20.21		
01536	METHYLCOBALAMIN - 1 mg, 60 lozenges (vanilla)	9.95	7.46		
	Buy 4 bottles, price each	8.00	6.00		
01537	METHYLCOBALAMIN - 5 mg, 60 lozenges (vanilla)	32.00	24.00		
	Buy 4 bottles, price each	25.00	18.75		
	Buy 10 bottles, price each	23.00	17.25		
00709	MIGRA-EEZE™ (BUTTERBUR) - 60 softgels	29.50	22.13		
	Buy 4 bottles, price each	26.33	19.75		
01522	MILK THISTLE (CERTIFIED EUROPEAN) - 750 mg, 60 veg. caps	34.00	25.50		
	Buy 4 bottles, price each	30.00	22.50		
01517	MILK THISTLE (CERTIFIED EUROPEAN) - 120 veg. caps	52.00	39.00		
	Buy 4 bottles, price each	48.00	36.00		
00623	MINERAL FORMULA FOR MEN - 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 12 bottles, price each	10.83	8.13		
00624	MINERAL FORMULA FOR WOMEN - 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 12 bottles, price each	10.83	8.13		
01315	MIRAFORTE w/STANDARDIZED LIGNANS (SUPER) - 120 caps	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
01569	MITOCHONDRIAL BASICS w/BIOPQQ™ - 30 caps	52.00	39.00		
	Buy 4 bottles, price each	46.00	34.50		
01568	MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ™ - 120 caps	94.00	70.50		
	Buy 4 bottles, price each	84.00	63.00		
00803	MIST ORAL III w/COQ10 - 2 fl oz	28.00	21.00		
	Buy 4 bottles, price each	25.33	19.00		
00065	MK-7 - 90 mcg, 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01279	MOUTHWASH W/POMEGRANATE - 16 oz	18.50	13.88		
	Buy 4 bottles, price each	17.00	12.75		
00451	MSM (METHYLSULFONYLMETHANE) - 1000 mg, 100 caps	14.00	10.50		
	Buy 4 bottles, price each	11.95	8.96		
N					
00215	β-ACETYL-L-CYSTEINE - 600 mg, 60 caps	\$14.00	\$10.50		
	Buy 4 bottles, price each	13.50	10.13		
00066	NATTOKINASE - 60 softgels	24.98	18.74		
00891	NATURAL APPETITE CONTROL - 90 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.20	18.90		
00984	NATURAL BP MANAGEMENT - 60 tablets	42.00	31.50		
	Buy 4 bottles, price each	37.80	28.35		
00913	NATURAL ESOPHAGUARD - 10 softgels	19.95	14.96		
	Buy 2 boxes, price each	19.00	14.25		
00712	NATURAL ESTROGEN w/POMEGRANATE EXTRACT - 60 caplets	38.00	28.50		
	Buy 4 bottles, price each	33.00	24.75		
01221	NATURAL FEMALE SUPPORT - 30 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01471	NATURAL GLUCOSE ABSORPTION CONTROL - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
00698	NATURAL RELIEF 1222™ - 2 oz	28.00	21.00		
	Buy 4 tubes, price each	25.00	18.75		
01627	NATURAL SEX FOR WOMEN ® (ADVANCED) - 60 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		

SUB-TOTAL OF COLUMN 12

OCTOBER 2012

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
N CONTINUED					
01626	NATURAL SEX FOR WOMEN® 50+ (ADVANCED) - 90 veg. caps	\$59.00	\$44.25		
	Buy 4 bottles, price each	45.33	34.00		
01084	NATURAL SLEEP® - 3 mg, 60 veg. caps	12.99	9.74		
	Buy 4 bottles, price each	10.00	7.50		
01507	NATURAL SLEEP® (ENHANCED) W/ MELATONIN - 30 caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01511	NATURAL SLEEP® (ENHANCED) W/O MELATONIN - 30 caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01085	NATURAL SLEEP MELATONIN® - 5 mg, 60 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00987	NATURAL STRESS RELIEF - 30 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01603	NEURO-MAG™ MAGNESIUM L-THREONATE - 90 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01602	NEURO-MAG™ L-THREONATE W/CALCIUM & VITAMIN D 205 grams - Lemon flavor	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
00373	NO-FLUSH NIACIN - 800 mg, 100 caps	19.00	14.25		
	Buy 4 bottles, price each	17.00	12.75		
01035	NUTRIM - 225 grams powder	25.95	19.46		
O					
01623	OLIVE LEAF VASCULAR SUPPORT - 500 mg, 60 veg. caps	\$22.00	\$16.50		
	Buy 4 bottles, price each	20.00	15.00		
01483	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 60 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01482	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 120 softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	24.90	18.68		
01484	OMEGA 3 EPA/DHA W/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 120 enteric coated softgels	34.00	25.50		
	Buy 4 bottles, price each	31.00	23.25		
	Buy 10 bottles, price each	28.00	21.00		
01619	OMEGA 3 EPA/DHA W/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) (SMALL SOFTGEL)	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		
01601	ONE-PER-DAY - 60 veg. 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	OPTIZING® - 30 mg, 90 veg. caps	5.95	4.46		
	Buy 4 bottles, price each	5.00	3.75		
01348	OREGANOFORCE™ - 30 softgels	34.95	26.21		
01070	ORGANIC TOTAL BODY CLEANSE™ - 14-day supply	34.99	26.24		

SUB-TOTAL OF COLUMN 13

OCTOBER 2012

No.		Retail Each	Member Each	Qty	Total
P					
00107	PABA CAPS - 500 mg, 100 caps	\$15.42	\$11.57		
	Buy 4 bottles, price each	13.59	10.19		
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	59.00	44.25		
	Buy 4 bottles, price each	56.00	42.00		
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™ SOLUBLE FIBER BLEND (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		
00368	PHOSPHATIDYLSERINE CAPS - 100 mg, 100 caps	54.00	40.50		
	Buy 4 bottles, price each	48.00	36.00		
01390	PHOSPHOMEZA® - 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/BIOPQQ™ - 10 mg, 30 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01647	PQQ CAPS W/BIOPQQ™ - 20 mg, 30 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
00302	PREGNENOLONE - 50 mg, 100 caps	24.00	18.00		
	Buy 4 bottles, price each	19.00	14.25		
00700	PREGNENOLONE - 100 mg, 100 caps	26.00	19.50		
	Buy 4 bottles, price each	22.50	16.88		
***01373	PRELOX® NATURAL SEX FOR MEN® - 60 tablets	52.00	39.00		
	Buy 4 bottles, price each	48.00	36.00		
00571	PRIMAL DEFENSE™ - 90 caplets	49.95	37.46		
	Buy 4 bottles, price each	48.50	36.38		
01329	PROBIOTIC ALL-FLORA® - 60 veg. caps	25.95	19.46		
01326	PROBIOTIC ANTI-AGING™ - 90 veg. caps	30.95	23.21		
01324	PROBIOTIC CLEANSET™ - 90 veg. caps	29.95	22.46		
01322	PROBIOTIC COLON™ - 90 veg. caps	30.95	23.21		
00525	PROBOOST THYMIC PROTEIN ATM™ - 4 mcg, 30 packets	59.95	44.96		
00869	PRO FEM CREAM - 2 fl oz (Progesterone Cream)	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01020	PROGREENS® - 15 stick pack	22.50	16.88		
01072	PRO-M INTERNAL DEODORIZER - 500 mg, 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01695	PROSTATE FORMULA W/APRESLEX™ 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		
01642	PROTEIN - VANILLA - (Enhanced Life Extension) - 1 lb. powder	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01643	PROTEIN - CHOCOLATE - (Enhanced Life Extension) - 1 lb. powder	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		

SUB-TOTAL OF COLUMN 14

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

To order online visit: www.LifeExtension.com

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01644	PROTEIN - NATURAL - (Enhanced Life Extension) -1 lb. powder	\$30.00	\$22.50		
	Buy 4 bottles, price each	27.00	20.25		
01645	PROTEIN - BERRY - (Enhanced Life Extension) -1 lb. powder	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01508	PTEROPOURE™ - 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	\$18.00	\$13.50		
	Buy 4 bottles, price each	17.00	12.75		
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		
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		
00918	REJUVENEX® FACTOR - 1.7 oz airless pump	65.00	48.75		
	Buy 2 bottles, price each	60.00	45.00		
	Buy 4 bottles, price each	55.00	41.25		
	Buy 8 bottles, price each	49.91	37.43		
01621	REJUVENEX® FACTOR FIRMING SERUM - 1.7 oz	65.00	48.75		
	Buy 2 bottles, price each	60.00	45.00		
	Buy 4 bottles, price each	55.00	41.25		
	Buy 8 bottles, price each	49.91	37.43		
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		
00706	REJUVENIGHT® w/PROGESTERONE (ULTRA) - 2 oz	42.00	31.50		
	Buy 4 jars, price each	38.00	28.50		
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		
01430	RESVERATROL w/SYNERGISTIC GRAPE-BERRY ACTIVES (OPTIMIZED) - 250 mg, 60 veg. caps	46.00	34.50		
	Buy 4 bottles, price each	41.33	31.00		
00889	RHODIOLA EXTRACT - 250 mg, 60 veg. caps	11.75	8.81		
	Buy 4 bottles, price each	10.58	7.94		
00972	(D) RIBOSE POWDER - 150 grams	27.50	20.63		
	Buy 4 jars, price each	24.75	18.56		
01473	(D) RIBOSE TABLETS - 100 veg. tabs	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		

SUB-TOTAL OF COLUMN 15

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

No.		Retail Each	Member Each	Qty	Total
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		
01208	R-LOPOIC ACID (SUPER) - 300 mg, 60 veg. caps	49.00	36.75		
	Buy 4 bottles, price each	45.00	33.75		
00070	RNA CAPSULES - 500 mg, 100 caps	17.95	13.46		
	Buy 4 bottles, price each	16.16	12.12		
00917	ROSMARINIC ACID EXTRACT - 60 veg. caps	59.00	44.25		
	Buy 4 bottles, price each	53.00	39.75		
S					
01067	SACCHAROMYCES BOULARDII+MOS - 90 veg. caps	\$21.95	\$16.46		
01432	SAFFRON w/SATIREAL (OPTIMIZED) - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
*00573	SAMBU® GUARD - 175 ml	17.79	14.23		
00358	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 20 enteric coated tablets	16.00	12.00		
	Buy 8 boxes, price each	14.00	10.50		
00453	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 50 enteric coated tablets	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
00557	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 20 enteric coated tablets	28.00	21.00		
	Buy 6 boxes, price each	24.00	18.00		
01055	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 50 enteric coated tablets	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
01043	SEA-IODINE™ - 1000 mcg, 60 veg. caps	8.00	6.00		
	Buy 4 bottles, price each	7.20	5.40		
00046	SELENIUM - 2 oz dropper bottle	9.95	7.46		
	Buy 4 bottles, price each	9.45	7.09		
00567	SE-METHYL L-SELENOCYSTEINE - 200 mcg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
00318	SERRAFLAZYME - 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00011	SHAMPOO - 16 fl oz	6.00	4.50		
	Buy 4 bottles, price each	4.75	3.56		
00284	SHARK LIVER OIL (NORWEGIAN) - 1000 mg, 30 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00184	SILYMARIN - 100 mg, 50 caps	9.25	6.94		
	Buy 4 bottles, price each	8.25	6.19		
01502	SKIN RESTORING CERAMIDES w/LIPOWHEAT™ - 30 liquid caps	25.00	18.75		
	Buy 4 bottles, price each	23.00	17.25		
00961	SODZYME® w/GLISODIN® AND WOLFBERRY - 90 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
00657	SOLARSHIELD SUNGLASSES - 1 pair smoke color	12.99	9.74		
	Buy 2 pairs, price each	11.50	8.63		
01097	SOY EXTRACT (ULTRA) - 150 veg. caps	87.00	65.25		
	Buy 4 bottles, price each	78.00	58.50		
00286	SOY PROTEIN CONCENTRATE - 16 oz of powder	12.00	9.00		
	Buy 4 jars, price each	10.63	7.97		
01099	STABILIJUM® 200 - 30 caps	30.00	22.50		
00432	STEVIA EXTRACT - 100 packets, 1 gram each	9.95	7.46		
	Buy 4 boxes, price each	9.00	6.75		
01396	ST. JOHN'S WORT EXTRACT - 300 mg, 60 veg. caps	10.98	8.24		
	Buy 4 bottles, price each	10.00	7.50		
00327	ST. JOHN'S WORT EXTRACT (PLANETARY) - 600 mg, 60 tablets	16.75	12.56		
	Buy 4 bottles, price each	13.85	10.39		
01476	STRONTIUM - 750 mg, 90 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		

SUB-TOTAL OF COLUMN 16

OCTOBER 2012

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
S CONTINUED					
00747	SUNGGLASSES (OVERCAST POLARIZED) - gray color, large	\$27.00	\$20.25		
	Buy 2 pairs, price each	21.00	15.75		
00748	SUNGGLASSES (OVERCAST POLARIZED) - gray color, medium	27.00	20.25		
	Buy 2 pairs, price each	21.00	15.75		
00758	SUPER ABSORBABLE SOY ISOFLAVONES - 60 caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01381	SUPERCritical OMEGA 7™ - 60 softgels caps	56.95	42.71		
01408	SUPER SAW PALMETTO/NETTLE ROOT W/BETA-SITOSTEROL 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	26.00	19.50		
	Buy 12 bottles, price each	24.00	18.00		
01407	SUPER SAW PALMETTO W/BETA-SITOSTEROL - 30 softgels	15.00	11.25		
	Buy 12 bottles, price each	12.00	9.00		
00578	SUPER SELENIUM COMPLEX - 200 mcg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	10.00	7.50		
	Buy 12 bottles, price each	9.00	6.75		
00674	SYTRINOL™ - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
T					
TAL•SH™ COSMETICS • For information please call 1-800-544-4440 or visit www.LifeExtension.com					
01062	TART CHERRY - 600 mg, 60 caps	\$18.95	\$14.21		
00199	TAURINE - 1000 mg, 50 caps	8.95	6.71		
	Buy 4 bottles, price each	8.00	6.00		
00133	TAURINE POWDER - 300 grams	20.00	15.00		
	Buy 4 bottles, price each	16.88	12.66		
01304	THEAFLAVIN STANDARDIZED EXTRACT - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00555	(L) THEANINE - 100 mg, 60 caps	24.00	18.00		
	Buy 4 bottles, price each	20.50	15.38		
***01038	ATHERALAC PROBIOTICS - 30 caps	44.95	33.71		
00224	THYMIC IMMUNE FACTORS - 100 caps	18.00	13.50		
	Buy 4 bottles, price each	14.00	10.50		
00668	THYROID FORMULA™ (METABOLIC ADVANTAGE) - 100 caps	21.95	16.46		
00349	TMG POWDER - 50 grams	14.00	10.50		
	Buy 4 bottles, price each	11.00	8.25		
00359	TMG - 500 mg, 180 tablets	18.00	13.50		
	Buy 4 bottles, price each	15.50	11.63		
00781	TOCOTRIENOLS WITH SESAME LIGNANS - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	36.00	27.00		
01400	TOCOTRIENOLS (SUPER-ABSORBABLE) - 60 softgels	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
01278	TOOTHPASTE - 4 oz (Mint)	9.50	7.13		
	Buy 4 tubes, price each	8.67	6.50		
01274	TOTAL SUN PROTECTION CREAM W/BETA GLUCAN - 4 oz	28.00	21.00		
	Buy 4 tubes, price each	25.20	18.90		
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT W/RESVERATROL - 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	29.60	22.20		
01386	TRUFIBER® - 180 grams	29.95	22.46		
01389	TRUFLORA PROBIOTICS & ENZYMES - 32 veg. caps	39.95	29.96		
01616	TWO-PER-DAY - 60 veg. tablets	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		

SUB-TOTAL OF COLUMN 17

OCTOBER 2012

No.		Retail Each	Member Each	Qty	Total
01615	TWO-PER-DAY - 120 veg. tablets	\$20.00	\$15.00		
	Buy 4 bottles, price each	18.00	13.50		
01614	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		
U					
* 00310	UDO'S OIL 3-6-9 BLEND - 17 fl oz	\$27.79	\$22.23		
* 00311	UDO'S 3-6-9 OIL BLEND - 180 caps	34.79	27.83		
* 00322	UDO'S CHOICE® WHOLESOME FAST FOOD - 16 oz bottle	27.99	22.39		
01061	ULTIMATE FLORA ADVANCED IMMUNITY PROBIOTICS - 30 caps	29.99	22.49		
V					
00213	VANADYL SULFATE - 7.5 mg, 100 tablets	\$15.00	\$11.25		
	Buy 4 bottles, price each	12.50	9.38		
00252	VELVET DEER ANTLER - 250 mg, 30 caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
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		
01033	VISION OPTIMIZER - 90 caps	29.95	22.46		
01219	VITAMIN A NUTRISORB - 0.6 fl oz	27.00	20.25		
00091	VITAMIN B1 CAPS - 500 mg, 100 caps	18.73	14.05		
	Buy 4 bottles, price each	17.00	12.75		
00093	VITAMIN B2 CAPS - 100 mg, 100 caps	14.32	10.74		
	Buy 4 bottles, price each	13.00	9.75		
00096	VITAMIN B3 NIACIN - 1000 mg, 100 caps	12.75	9.56		
	Buy 4 bottles, price each	12.00	9.00		
00372	VITAMIN B3 NIACIN - 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		
00556	VITAMIN B6 - 250 mg, 100 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		
00251	VITAMIN D3 - 1000 IU, 250 caps	12.50	9.38		
	Buy 4 bottles, price each	11.25	8.44		
00713	VITAMIN D3 - 5000 IU, 60 caps	11.00	8.25		
	Buy 4 bottles, price each	9.90	7.43		
01418	VITAMIN D3 - 7000 IU, 60 caps	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		
01472	VITAMINS D AND K w/SEA-IODINE™ - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		

SUB-TOTAL OF COLUMN 18

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

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No.		Retail Each	Member Each	Qty	Total
00063	VITAMIN E (PURE NATURAL) - 400 IU, 100 caps	\$18.75	\$14.06		
	Buy 4 bottles, price each	17.25	12.94		
	Buy 10 bottles, price each	15.00	11.25		
01225	VITAMIN K2 (LOW-DOSE) - 45 mcg, 90 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
Z					
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		
01029	ZYFLAMEND® TINY CAPS® - 180 softgels	31.95	23.96		

SUB-TOTAL OF COLUMN 19

* 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.

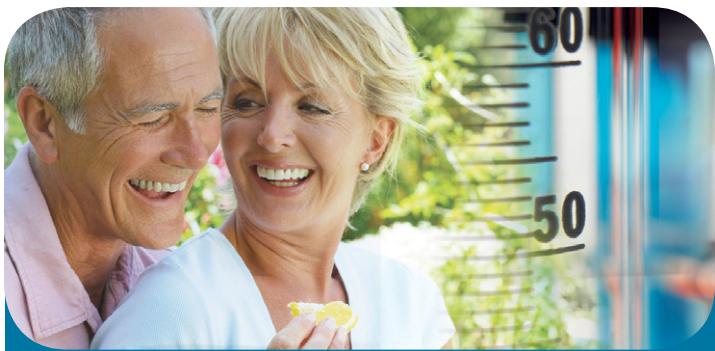
[†]Member pricing not valid on this item.

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When you join the Life Extension Foundation®, we update you on the latest published medical research by sending you FREE books. Our most impressive publication is the 1,666-page *Disease Prevention and Treatment* protocol book that contains novel therapies to treat 133 common diseases of aging. *Disease Prevention and Treatment* is the only book that combines conventional and alternative therapies in order to implement a treatment regimen for fighting the multiple processes involved in degenerative disease.

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I want to contribute to your research efforts to extend the healthy human life span. Enclosed is my first year's membership donation of \$75 to join the most elite group of longevity enthusiasts in the world. (Canadians add \$7, all others outside the U.S. add \$35) Item code: MEMB1. Call for multiple year membership rates.

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33848	YOUR BEST INVESTMENT SECRETS TO A HEALTHY BODY AND MIND • by Edwin Lee, MD	2012	\$24.95	\$18.71	
33847	THE FATIGUE SOLUTION • by Dr. Eva Cwynar	2012	\$24.95	\$18.71	
33844	ABUNDANCE: THE FUTURE IS BETTER THAN YOU THINK • by Steven Kotler and Petere Diamandis	2012	\$26.99	\$20.24	
33843	BOMBSHELL • by Suzanne Somers	2012	\$26.00	\$19.50	
33845	DRUG MUGGERS • by R.Ph. Susy Cohen	2012	\$21.99	\$16.49	
33842	HEART ATTACK PROOF • by Michael Ozner, MD	2012	\$19.95	\$14.96	
33835	PHARMOCRACY • by William Faloon Buy 4 books, price each	2011	\$24.00	\$9.60 \$8.00	
33839	THE GOLDEN RATIO LIFESTYLE DIET • by Robert Friedman, MD, and Matthew Cross	2012	\$19.95	\$14.96	
33838	YOUR GUIDE TO HEALTHY SKIN THE NATURAL WAY • by Gary Goldfaden, MD	2012	\$26.00	\$15.00	
33837	WHEAT BELLY • by William Davis, MD	2011	\$25.99	\$19.49	
33833	THE LIFE PLAN • by Jeffry S. Life, MD, PhD	2011	\$26.00	\$19.50	
33832	YOUR BONES • by Lara Pizzorno, MA, LMT	2011	\$12.00	\$9.00	
33829	THE IMMORTALITY EDGE • by Michael Fossel, MD, PhD, Greta Blackburn, David Woynarowski, MD	2011	\$25.95	\$18.17	
33825	THE EMPOWERED PATIENT • by Elizabeth Cohen	2010	\$15.00	\$10.50	
33824	VITAMIN D SOLUTION • by Michael F. Holick, PhD, MD	2010	\$25.95	\$18.17	
33822	BREAKTHROUGH: EIGHT STEPS TO WELLNESS • by Suzanne Somers (paperback)	2010	\$15.00	\$10.50	
33836	WEIGHT LOSS GUIDE • by Steven V. Joyal, MD and William Faloon (hardcover) (3rd Edition)	2010	\$29.95	\$8.99	
33820	YOUR BLOOD DOESN'T LIE! • by Sergey Dzugan, MD, PhD	2010	\$24.95	\$17.47	
33816	FDA: FAILURE, DECEPTION, ABUSE • by Life Extension Foundation	2010	\$20.00	\$15.00	
33818	STAY YOUNG & SEXY WITH BIO-IDENTICAL HORMONE REPLACEMENT • by Jonathan Wright, MD	2010	\$19.95	\$14.96	
33815	KNOCKOUT • by Suzanne Somers	2009	\$25.99	\$17.00	
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Food for Thought

JARROW FORMULAS® PhosphOmega® and LIFE EXTENSION® Cognitex® Together Nourish the Brain

DHA + EPA and the Brain

Two members of the omega-3 family of fatty acids, docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), are especially noted for their health supporting properties. In particular, DHA is the predominant omega-3 fatty acid found in the brain, nervous system and retina. In fact, DHA makes up approximately 40% of the polyunsaturated fatty acids in the brain and roughly 60% in the retina. DHA is so important that the body is able to recognize it and transport it to the nervous system. The prevalence of DHA in brain cell membranes is associated with the fluidity and function of those membranes. In addition, both DHA and EPA are associated with a healthy inflammatory response.

PhosphOmega® is a rich source of DHA and EPA bound to phospholipids. This is the form that is typical of the human brain and also typical of much omega-3-rich seafood. In other words, PhosphOmega® is brain food.

Phospholipid Delivery for a Better Omega-3

PhosphOmega® provides omega-3 fatty acids as nature intended, as a complex of phospholipids with DHA and EPA acting synergistically at the cell membrane level.* Most fish oil products consist of ethyl ester (EE) or triglyceride forms.* Phospholipid-bound omega-3s are better absorbed and utilized than are the EE or triglyceride forms. And phospholipid-bound omega-3s are much more stable — more resistant to oxidation and rancidity — than are the EE or triglyceride forms. Astaxanthin is included in PhosphOmega® to provide added protection for stability and freshness. PhosphOmega®'s purity and quality meet or exceed the standards set by two standards governing bodies, the Council for Responsible Nutrition (CRN) and the Global Organization for EPA and DHA omega-3s (GOED).

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

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Cognitex® for Cutting Edge Nutrients

Cognitex® with NeuroProtection Complex provides nine cutting-edge brain boosting ingredients. One of these, uridine-5'-monophosphate (UMP), is a basic building block of RNA/DNA as well as of phosphatides, such as phosphatidylcholine, that are critical to brain function and the health of neuronal cell membranes.

To bolster UMP's impact on brain function, Cognitex® contains Sharp-PS® GOLD to promote normal neuronal cell membrane activities and structure. With this structure in place, vinpocetine enhances circulation and oxygenation of brain cells while phospholipid-grape seed extract improves blood vessel tone and elasticity, thus boosting oxygen flow to the brain. Cognitex® also includes L-alpha glyceryl phosphoryl choline to boost acetylcholine and Sensoril® ashwagandha extract to boost brain function. Wild blueberry extract is included to protect against free-radical damage, and pregnenolone has shown beneficial properties, as well. Pregnenolone and standardized extracts of hops, ginger and rosemary round out the formula. Cognitex® supplies nine key ingredients to enhance neuronal communication and support cognition and memory.

Jarrow
FORMULAS

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Comprehensive VITAMIN K Formula

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

Item # 01224

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

Vitamin K1	1000 mcg
Vitamin K2 (MK-4)	1000 mcg
Vitamin K2 (MK-7)	100 mcg



Each bottle of **Super K** lasts **90 days**, so members pay as little as **\$5.75 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 \$26. If a member buys four bottles, the price is reduced to just **\$17.25 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**. Contains tree nuts (coconut).

Warning to Coumadin® (warfarin) Drug Users

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

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

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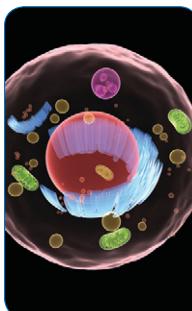
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7 A TRAGIC MISCARRIAGE OF JUSTICE

Jay Kimball was sentenced to **13 years** in prison for exporting a low-cost anti-aging drug. We urge you to sign an on-line petition asking President Obama to commute this wrongful jail sentence.



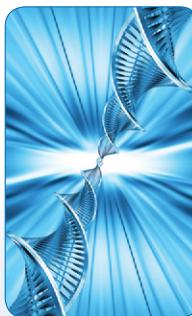
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A critical coenzyme known as **PQQ** activates vital cell-signaling pathways involved in creating *new* mitochondria to potentially reverse **subcellular aging!**



44 GLUCOSE CONTROL CAN BE EASY

After-meal surges in blood glucose induce oxidative stress that impairs endothelial function, reduces arterial blow flow, and increases risk for cardiovascular diseases. Take *control* of your blood sugar levels and stop dangerous post-meal glucose surges.



54 PREVENT DNA DESTRUCTION

Xanthophylls combat DNA damage, boost **DNA repair** mechanisms, and may prevent the development of cancer, macular degeneration, and other diseases of aging.



67 FDA INSIDER EXPOSES VIOXX® SCANDAL

Senior drug safety researcher Dr. David Graham, who uncovered dangers of **Vioxx®** states that the FDA is incapable of protecting Americans from unsafe drugs.



80 BOOST METABOLIC ENERGY

D-ribose replenishes the **metabolic energy** needed by all our cells—including those in our heart and brain—thereby improving cardiac and neurological function and vitality.