WHY DOCTORS AREN’T CURING HEART DISEASE

FRAN DRESCHER’S Mission to Defeat Cancer

OMEGA-3s UNDER ATTACK!
Scientific Rebuttal to Flawed AMA Report

Beans and Barley
Slow Glucose Absorption

A Better Form of Astaxanthin

Preempt Cancer with Cruciferous Vegetables

Rejuvenate Aged Neck Tissues
A common complaint among older adults is loss of physical and mental energy. As people age, their cells’ ability to produce energy is diminished. Many scientists believe that cellular energy deficit is a critical factor in the onset of many problems.

The Russian herb *rhodiola* (*Rhodiola rosea*) has demonstrated a remarkable ability to support cellular energy metabolism.* Rhodiola promotes higher levels of ATP (adenosine triphosphate) and CP (creatinine phosphate) in the cellular power plants known as the *mitochondria*, thus providing more of the energy molecules need to power many daily activities.1

In a human trial, *rhodiola* aided exercise endurance after just a single dose.2 In another double-blind, crossover human trial, *rhodiola* increased several measures of mental performance, including associative thinking, short-term memory, calculation, concentration, and speed of audiovisual perception. Statistically significant improvements were reported after just two weeks of supplementation.3

Life Extension® has formulated a *Rhodiola Extract* that provides 250 mg of *Rhodiola rosea* extract in each capsule.

Unlike other rhodiola supplements on the market today, *Rhodiola Extract* uses only the authentic *Rhodiola rosea* species and is standardized to contain 3% *rosavins* and not less than 1% *salidrosides*—matching the concentrations of active “adaptogens” used in clinical trials.

*Rhodiola Extract* is an extremely low-cost supplement. The retail price of a bottle of 60 vegetarian capsules (a two- month supply) of *Rhodiola Extract* is just $11.75. If a member orders four bottles, the price is reduced to only $7.94 per bottle!

Caution: Individuals with manic or bipolar disorder should not use *rhodiola*. Take early in the day if *Rhodiola Extract* interferes with your sleep.

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

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24 ENHANCED ASTAXANTHIN FOR BETTER ABSORPTION
Over the past decade, researchers have recognized that astaxanthin’s unique molecular structure traps more free radicals compared to most other nutrients. Its full benefits, however, have been limited due to its relatively poor absorption ability. By combining carotenoids like astaxanthin with phospholipids, their bio-availability increases by nearly 12-fold for more potent systemic protection.

36 FOODS THAT SAFELY REDUCE BLOOD GLUCOSE
Maintaining optimal blood sugar levels is a powerful predictor of longevity. In addition to the proven strategies used by Life Extension® members, certain foods—notably barley and black beans—can lower blood glucose levels. Incorporating these foods into your diet can help prevent glycemic-related disorders such as diabetes, heart disease, cancer, and obesity.

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7 REBUTTAL TO ATTACK AGAINST FISH OIL
Despite improvements in prevention and treatment, heart disease kills 600,000 Americans each year, and stroke nearly 130,000. In the face of this epidemic carnage, the American Medical Association published a report questioning the value of fish oil in cardiovascular disease patients. This rebuttal exposes the many flaws in the American Medical Association report, the inaccurate portrayal of it by the media, and the inability of most doctors to understand that successful treatment of atherosclerotic disease requires more than one intervention.

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After eight doctors and as many misdiagnosis, TV star Fran Drescher finally discovered that she had gynecological cancer. Based on this medical ordeal, Drescher founded the Cancer Schmancer movement, which focuses on early diagnosis, prevention through healthy choices, and avoiding cancer-causing environmental toxins. Her mission is to have all Americans either prevent cancer or be diagnosed no later than stage one.

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In his new book, Dr. Neal Barnard reveals how new imaging techniques allow scientists to better understand the aging brain. Here, he reveals his groundbreaking 3-step plan that incorporates specific foods, nutrients, and environmental factors to help you prevent Alzheimer’s disease and dementia.
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APRIL 2013
The anatomy of the female urinary tract differs greatly from men, resulting in the need for additional nutritional support for women.

A wealth of published studies indicates that cranberry polyphenols may help to support a healthy urinary tract.1-5

Of particular importance is the flavonoid content of the cranberry, including anthocyanins and proanthocyanidins. These natural compounds exert powerful antioxidant effects that can reduce oxidative stress.

Recent clinical data suggest that the proanthocyanidins found only in cranberries also possess unique molecular features that specifically promote urinary system health.6-8

A Synergistic Compound Available Only in Europe—Until Now

In a significant advance, Life Extension® has identified a unique compound available overseas but little-known in the United States that provides a synergistic complement to the whole cranberry’s phytonutrient profile.

UTIRose™ is derived from Hibiscus sabdariffa, a species native to Europe, Asia, and Africa. Scientific analysis has shown that this species’ flower and calyx (the green floral envelope surrounding the blossom) are rich in active polyphenols, including flavonoids, sambubiosides, and anthocyanins.

Life Extension® uses a unique, patented process in the manufacture of Optimized Cran-Max® with UTIRose™. Each daily serving supplies the complete phenolic profile of the whole cranberry plus hibiscus polyphenols in a standardized, highly absorbable, concentrated form. Two capsules of Optimized Cran-Max® with UTIRose™ contain:

- UTIRose™ (Hibiscus sabdariffa) extract (flower, calyx) 200 mg
- Cran-Max® Cranberry infused whole fruit extract 500 mg

The suggested daily amount of Cran-Max® in this formula alone (500 mg) was demonstrated to provide the anthocyanin equivalent of seven 8 oz glasses of Ocean Spray® Cranberry Juice Cocktail.9

The price for one bottle of Optimized Cran-Max® with UTIRose™ containing 60 vegetarian capsules is $18. If a member buys four bottles, the price is reduced to $12 per bottle.

References
LIFE EXTENSION | APRIL 2013

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

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Scientists have known that when blood sugar combines with fats and proteins the result is known as glycation which produces accelerated aging. Even those with blood sugar levels within normal range experience the impact of systemic glycation on a daily basis.

Fortunately, researchers in Japan developed benfotiamine, a unique form of vitamin B1 (thiamine) that supports healthy blood sugar metabolism and protects against glycation. What makes benfotiamine especially effective is that unlike ordinary vitamin B1, it is fat-soluble and can easily penetrate the inside of cells. Regular vitamin B1 is water soluble and has a short lifespan in the body.

Mega Benfotiamine helps inhibit the formation of advanced glycation end products (AGEs), to maintain healthy endothelial, retinal, kidney and nerve cell function.

Each capsule provides 250 milligrams of benfotiamine and 10 milligrams of vitamin B1 (as thiamine HCl).

The suggested daily dose is one to four capsules, taken with or without food. A bottle containing 120 vegetarian capsules of 250 milligrams Mega Benfotiamine retails for $30. If a member buys four bottles, the price is reduced to only $20.25 per bottle. Contains rice.

References
In 1938, Orson Welles’ fictional broadcast of Earth being invaded by Martians was aired on CBS Radio. The resulting hysteria drove over a million Americans to flee into hiding or force open armories so citizens could defend against the attacking space monsters.

CBS’s on-air dramatization of the H.G. Wells novel “War of the Worlds” is history’s most effective manipulation (by a single broadcast) of the perception of reality in the consciousness of the masses.

This kind of chaos is not confined to last century. In September 2012, the American Medical Association published a study by three Greek doctors that proclaimed there is no value to recommending omega-3 supplements to cardiac patients.1

Consumers were misled as the media inaccurately represented the study’s findings. This manipulation of reality will cause millions of needless deaths throughout the world if not retracted.

I titled this piece “Science by Ambush” because the media turned this flawed report into headline news and, in the process, failed to include an objective rebuttal.

This article will expose flaws that discredit this study’s conclusions, the media’s inappropriate portrayal of this study, the public’s lack of knowledge about how to use omega-3s, and the inability of most people to understand that the successful treatment of atherosclerotic disease requires more than one intervention. >
The September 12, 2012, issue of the *Journal of the American Medical Association* published a data analysis of 20 self-selected *prior* studies on fish oil and vascular disease.

Their findings showed that in response to a modest daily intake of fish oil (only 1,370 milligrams of EPA/DHA), the following positive effects were observed:*

- 9% reduction in cardiac death
- 13% reduction in sudden death
- 11% reduction in myocardial infarction (heart attack)
- 4% reduction in all-cause mortality

The authors of this study claimed that the data they assembled did not have "*statistically significant association*" and therefore no likely benefits were observed in the 20 studies they reviewed where a modest dose of fish oil was used for a short treatment term (median 2 years).

Not all participants in this analysis took fish oil capsules. Some of the estimated daily EPA/DHA intake was based on food guidance counseling. Omitted from the authors’ analysis were studies showing more robust heart attack reduction in response to *higher doses of fish oil* used by enlightened consumers today.

The authors nonetheless concluded that their observations “*do not justify the use of omega-3 as a structured intervention in everyday clinical practice or guidelines supporting dietary omega-3 administration.*”

What most physicians do not understand, however, is the *magnitude of damage* that is already present in the inner arterial lining of *cardiac patients*. These patients already suffered a heart attack or developed problems that required intervention with stents, bypass surgery, and/or aggressive drug therapy, and thus had significant *pre-existing arterial disease*.

In my previous career, I was involved in thousands of *autopsy* cases where I could see and feel the effects of aging in the form of *blocked and hardened arteries* throughout a deceased person’s body. There was often such severe arterial occlusion that my colleagues would question how the person lived as long as they did.

Arterial disease begins at birth and progresses as we mature. Over a certain age, many people become victims of “*accelerated atherosclerosis*” whereby a coronary artery that was only 30% occluded three years earlier rapidly becomes 90–100% blocked.

What is remarkable is how much *damage* can be inflicted to our vital circulatory system before death ensues. The point I’m getting at is that by the time...
people manifest outward signs of vascular disease (such as needing a coronary stent), there is a ragging inferno going on inside their arterial walls that is not going to be extinguished with fish oil alone.

Most of the subjects in these studies analyzed by JAMA had already suffered a heart attack or coronary artery blockage and the fish oil was being used for “secondary prevention” purposes. At this advanced stage, the window had long ago closed for a modest dose of any treatment to be effective.

To clarify, let’s say you are barbecuing outdoors and you accidentally ignite a bush next to your house. You turn your garden hose on full blast and rapidly extinguish the fire. Based on your experience, you can categorically state that garden hoses are effective in preventing houses from being destroyed by fire.

While there is solid evidence to document that fish oil is more effective than a garden hose in this analogy, what JAMA has in essence published are selected efforts of mainstream doctors using an inadequate dose of fish oil, over too short a time period, to put out a ragging inferno going on inside the arteries of cardiac patients.

Comparison With Statin Drugs

By reducing LDL cholesterol, statin drugs have been shown to lower heart attack risk.²

A healthy person without arterial disease can sometimes get by with using a modest dose (10 mg/day) of a drug like simvastatin. Along with healthier dietary patterns, this can slash LDL levels from a dangerous 140 mg/dL to the safe range for healthy people now recognized to be under 100 mg/dL.

How Much EPA/DHA Should Be Consumed Each Day?

This dose of statin drug, however, will not reduce LDL-C levels aggressively enough for those with pre-existing arterial disease. These individuals need to get their LDL under 70 mg/dL, which, in the example cited, may require a daily dose of simvastatin of 80 mg per day. It is at these high doses that statin drugs inflict most of their nasty side effects.

Since the medical establishment recommends that those with pre-existing arterial disease take higher doses of statin drugs, it is ludicrous to think that a modest dose of fish oil would show a significant effect on the relatively unhealthy patient populations analyzed in the JAMA report.

About 60% of your brain mass consists of fats that comprise vital cell membranes.³ DHA is the dominant omega-3 fat in healthy brain cells. Since people cannot make DHA internally, it has to come from diet or supplemental sources.

For the JAMA authors to state that there is no place in clinical practice to encourage omega-3 intake borders on medical negligence. The fact that they hand-selected studies where inadequate doses of omega-3s were used hints at a sizeable bias against non-drug approaches to treating disease.

Based on the totality of evidence showing multiple health benefits associated with greater omega-3 intake, Life Extension® long ago recommended that members should supplement with 2,400 mg of EPA/DHA each day. This recommendation was based on the three assumptions listed on the next page.
1. Foundation members are health-conscious individuals who consume **food sources** of omega-3s like cold-water fish, thus providing greater average intake of omega-3 than **2,400 mg** daily.

2. Foundation members take annual blood tests that measure **triglyceride** levels. If triglycerides are over **100 mg/dL** of blood, there would be a greater consumption of omega-3s, along with lifestyle, drug, and other supplement alterations. (Some people, for instance, require daily doses of **4,800 mg** of EPA/DHA to suppress artery-clogging triglycerides.)

3. Findings from **Omega Score** blood test results show that at least **2,400 mg** a day of **EPA/DHA** is needed to achieve optimal omega-3 blood levels. (Some people require more than **2,400 mg** of omega-3s to boost blood levels.)

The media used the **JAMA** study to create headlines like "**Fish oil supplements don’t prevent heart attacks, study says.**" The **JAMA** report, however, was based on an average daily intake of only **1,370 mg** of EPA/DHA in individuals who mostly suffered significant pre-existing arterial disease, i.e., **atherosclerosis**. In fact, half of the studies included in the meta-analysis used an omega-3 dose of **less than 1,000 mg** daily. This amount of EPA/DHA is too low to reverse the underlying progression of atherosclerosis that most of the study group suffered.

The unhealthy study subjects used in the **JAMA** study consisted of population groups in countries throughout the world. Based on what the **JAMA** authors wrote, these study subjects presumably consumed less than **58%** of the **minimum** amount of EPA/DHA that **Life Extension** members take. Some of these population groups took no other supplement to protect against heart attack since these nutrients are not openly sold in those countries.

I use the term “**presumably consumed**” in the previous paragraph because it is not clear that study subjects even got **58%** of the EPA/DHA they needed. The **JAMA** study results were based either on patients instructed to take fish oil capsules or patients provided with “dietary guidance counseling.” This kind of diet counseling is notoriously unreliable, especially over the longer term when people tend to gravitate back to unhealthy dietary habits. The same is often true of people who are told to swallow large fish oil capsules by their doctors but fail to comply for all kinds of reasons including the fact that they don’t like swallowing large capsules!

As you will read in the sidebar on page 13, the findings from the **JAMA** study (where lower-dose EPA/DHA was inconsistently used on unhealthy patient groups for a relative short term) have nothing to do with what health-conscious people are doing today to guard against heart attack, which includes taking the **proper dose** of EPA/DHA each day.

### Why Most Consumers Don’t Benefit From Fish Oil

The environment that we at **Life Extension** exist in is far removed from the mainstream. We are privileged to interact with exceptional physician/scientists and the world’s most knowledgeable health consumers (i.e., our members).

Recently, we found ourselves so out of touch with the mainstream that we went to considerable expense to empanel outside **focus groups** to educate us on how the lay public thinks about nutrition and their health. To participate in these focus groups, people had to be health-conscious consumers who used dietary supplements. The level of **ignorance** uncovered by these **focus group sessions** was appalling.

Virtually all the focus group participants had “heard” good things about omega-3s, but they had no idea how much they were taking or how much EPA/DHA they should use. Most of them claimed to
purchase omega-3 supplements on a somewhat irregular basis, usually when they saw them displayed on a pharmacy or supermarket shelf. Some claimed to take one fish oil capsule daily while others claimed to take them when they would remember.

If a survey were conducted to identify people who took omega-3 supplements, virtually every participant in these focus groups would have been categorized as an omega-3 supplement user. Yet virtually none of them were taking the potency needed to stave off heart disease.

When conventional doctors and the media claim that people don’t benefit from supplements, they are often correct in that most consumers have no idea how much of what supplement they should take to stave off disease. This should not dissuade knowledgeable individuals, who know what to take and have the discipline to do so on a consistent basis, from following an evidence-based program that includes at least 2,400 mg of supplemental EPA/DHA daily along with healthy dietary patterns.

**Good Ratings for the Media**

Just imagine being in the “news” business where every day you have to generate attention-grabbing headlines to sell newspapers or attract viewers.

You see a study published in the *Journal of the American Medical Association* meant for doctors, but since it relates to a popular dietary supplement, you have a sound-bite headline for the day. No need to look at details — such as the *JAMA* study stating that even subjects who consumed inadequate doses of fish oil appeared to derive some reductions in heart attack risk.

**Methodology Problems with the JAMA Meta-Analysis**

Flaws in the design of the *JAMA* meta-analysis of 20 self-selected studies call its findings into question for the following reasons:

- Inclusion of trials of poor methodological quality. Nearly half of the sample size of the meta-analysis came from two open-label trials. Open-label trials allow both the subjects and researchers to know what treatment is being provided in the study. This type of study is considered to be of inferior quality compared to double-blind, placebo-controlled trials, where researchers and subjects do not know which intervention the subjects are receiving.

- High level of variability in the trials’ cardiovascular event rates & baseline risk. There was a high degree of variability in the baseline cardiovascular risk and cardiovascular event rates in the trials included in this meta-analysis. This means it was difficult to assess which subjects were at greater risk of heart attack at baseline. If those given fish oil, for instance, also had higher vascular risk at the beginning of the study, then the validity of the data is severely compromised.

- Limited number of studies included. Only 20 of 3,635 studies the authors examined were used in this meta-analysis. This provides a very limited view of the research that has been conducted on fish oil for cardiovascular disease.

There has been a significant amount of research conducted on the cardiovascular benefits of fish oil beyond what was selected for the *JAMA* analysis. For example, in a PubMed.gov (U.S. National Library of Medicine) search for clinical trials of “fish oil and triglycerides,” there were over 500 results.

Just hype up the *JAMA* study’s conclusion and you have yourself a startling headline that most of your audience will want to know more about, i.e. ambush journalism.

This is how the general public makes their life-and-death decisions, which is rather pathetic considering we live in a world where most everyone has Internet access to assess the facts for themselves.
Bottom Line: The subjects in the JAMA report were people with existing heart problems, the dosages they were taking were too small, and they probably were not taking the additional supplements that have long been recommended to generate a multi-pronged attack against heart disease.

What Do Humans Need To Do To Prevent Atherosclerosis?

The aging process damages blood vessels even when conventional risk factors such as cholesterol and blood pressure are within normal ranges.

Despite aggressive intervention with diet, exercise, supplements, and drugs, pathological changes still occur in the arterial wall that predispose aging adults to vascular diseases. The encouraging news is that validated methods have been developed to address the underlying reason why arteries become occluded as people reach the later stages of their lives.

For the past 40 years, the standard way to treat coronary atherosclerosis has been to bypass the blocked arteries. Recuperation from coronary bypass surgery can take months, and some patients are afflicted with lifetime impairments such as memory loss, chronic inflammation, and depression. Coronary artery stenting has become more common in recent years, but this is not a cure for systemic atherosclerosis.

The scientific literature reveals that atherosclerosis is associated with high blood levels of C-reactive protein, insulin, iron, LDL, homocysteine, fibrinogen, and triglycerides along with low levels of HDL and testosterone (in men). Optimizing blood levels of these substances can dramatically reduce heart attack and stroke risk.

Cardiologists Only Partially Correct Atherogenic Risk Factors

Prescribing a statin drug is what doctors typically do to prevent and treat coronary atherosclerosis. Cholesterol and LDL, however, are only two players in the atherosclerosis process.

There are now two fish oil “drugs” approved by the FDA to lower triglycerides. Fish oil also protects against atherosclerosis by reducing inflammation and inhibiting abnormal platelet aggregation. But even fish oil and statin drugs are not going to adequately counteract all factors involved in coronary artery disease.

Mainstream cardiologists fail to appreciate that coronary atherosclerosis is a sign of systemic arterial dysfunction requiring aggressive therapy to correct.

To read more about the steps you need to take to reduce your odds of being stricken with a vascular disorder, refer to the articles on pages 68 and 78 of this month’s issue.

How We Protect You

Life Extension’s annual Blood Test Super Sale commences April 1, 2013. The reason I am alerting you early is to enable you to start preparing for your annual comprehensive blood tests.

Make sure, for example, that you take your omega-3 and vitamin D supplements with the heaviest meal of the day. These fat-soluble nutrients absorb far better when consumed with the meal of the day that contains the most fat. A problem we fear occurs in clinical studies is that participants take fat-soluble nutrients on relatively empty stomachs, which leads to poor absorption and subsequent failure to derive benefits.

The extensive focus group sessions we conducted reveal the typical consumer has no idea what they need to do to protect against the degenerative diseases of aging.

We provide our members with every means of support possible, from access to knowledgeable health advisors and low-cost comprehensive blood testing, to accurately reported scientific data and ongoing clinical research.

The public, on the other hand, is left to rely on a sound-bite frenzied news media for health data, which often involves flouting a scary medical headline without assessing a story’s veracity. I call this science by ambush because it blind sides an established principle, and denies an opportunity for meaningful rebuttal!

For longer life,

William Faloon
A number of studies have indicated that higher doses of fish oil leads to beneficial effects in preventing cardiovascular disease events or reducing risk factors. For example:

A randomized, placebo-controlled trial found 1,800 mg of combined EPA plus DHA was associated with a 10% lower rate of cardiac events, 12% lower rate of non-fatal infarctions, and an almost 11% lower rate of cardiac deaths.5

In a large intervention study, 18,000 patients were randomized to receive either a statin medication alone or a statin plus 1,800 mg of EPA-fish oil daily. After 5 years, those with a history of coronary artery disease had a 19% lower rate of major coronary events in the statin-plus EPA-fish oil group compared to the statin-only group.6

A randomized, double-blind, placebo-controlled trial with chronic hemodialysis patients found that 1,700 mg of omega-3 fatty acids daily was associated with a 70% reduction in the relative risk of myocardial infarction.7

A randomized, controlled trial using 3,300 mg of EPA and DHA (and then a decreased dosage) found a trend toward lower cardiovascular event occurrence with fish oil supplementation. Seven cardiovascular events occurred in the placebo group (not given fish oil) while only two cardiovascular events occurred in the fish oil-supplemented group during the study.8

A meta-analysis with an average fish oil dose of 3,700 mg found lowered systolic blood pressure by an average 2.1 mmHg and diastolic by 1.6 mmHg.9

In a randomized trial with peripheral arterial disease patients, 2,000 mg of omega-3 fatty acids daily resulted in a 49% improvement in flow-mediated dilation, a marker of endothelial cell health.10

In contrast to the findings of the JAMA meta-analysis, two important studies demonstrated significant benefits with even moderate fish oil doses:

The GISSI-Prevenzione study (a large, randomized, controlled trial) found that 1,000 mg/day of EPA and DHA in 11,323 patients with a history of recent myocardial infarction reduced the risk of total mortality by 20% and sudden death by 45%.11,12

The DART study – a randomized, controlled trial that examined the effects of advising 2,033 subjects to increase dietary fatty fish – revealed a 29% reduction in all-cause mortality compared with those not advised.13

The Journal of the American Medical Association (JAMA) meta-analysis also conflicts with other reviews of fish-oil research. Other meta-analyses have demonstrated a reduced risk of cardiovascular disease outcomes in those supplemented with omega-3 fatty acids from fish oil. For example:

A 2009 meta-analysis of randomized, controlled trials found that dietary supplementation with omega-3 fatty acids reduced the incidence of sudden cardiac death in subjects with prior myocardial infarction.14

Another 2009 meta-analysis of randomized, controlled trials found that dietary supplementation with omega-3 fatty acids reduced the risk of cardiovascular death, sudden cardiac death, all-cause mortality, and non-fatal cardiovascular events in patients with a history of certain cardiovascular events or risk factors.15

A 2008 meta-analysis found a significant reduction in death from cardiac causes with fish oil supplementation.16

A 2002 meta-analysis of randomized, controlled trials concluded that omega-3 fatty acids reduced overall mortality, mortality due to myocardial infarction, and sudden death in patients with coronary heart disease.17


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

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

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

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

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

**ADVANCED MOLECULAR STRUCTURE**

Not just any form of collagen will do. Normally, when chicken collagen is processed, its molecular shape is changed. It loses bioactivity and becomes denatured—which researchers found has no beneficial effect² on the immune system.

Fortunately, a unique processing technique preserves the correct molecular shape of the collagen³,⁴—and preserves its bioactivity⁵—producing a form known as undenatured collagen.

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

**SCIENTIFICALLY VALIDATED**

Scientific studies have found that UC-II® reduced sensitive joint discomfort and eased joint function.1,4-10 One double-blind, placebo-controlled study on patients found that UC-II® provided relief by 33% and decreased joint discomfort scores by a remarkable 40%—in just 90 days!¹

**CONVENIENT ONE-PER-DAY DOSE**

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

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

To order Life Extension® Bio-Collagen with Patented UC-II®, call 1-800-544-4440 or visit www.LifeExtension.com

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.
Meta-analysis Links Increased Magnesium Intake with Fasting Glucose and Insulin Reductions

The results of a meta-analysis published in the Journal of Nutrition reveal an association between diets that include higher amounts of magnesium with lower blood levels of fasting glucose and insulin.*

Researchers sought to determine the influence of genetic variations associated with glycemic traits or magnesium metabolism on fasting glucose and insulin levels, which are elevated in metabolic syndrome and type II diabetes. They analyzed data from up to 52,684 nondiabetic men and women who participated in 15 studies. Participants were genotyped for up to 25 single nucleotide polymorphisms related to fasting glucose, insulin, or magnesium.

Reductions in both fasting glucose and fasting insulin were observed in association with increased magnesium.

Editor’s Note: The authors concluded that, “Their results indicate that higher dietary magnesium intake is inversely associated with fasting glucose and fasting insulin in individuals free of diabetes.”

—D. Dye


Review Explores Effects of Curcumin on Life Span

A review published online recently in the journal BioFactors documents a benefit for curcumin, a compound that occurs in the spice turmeric, in extending the life of several species.*

In a study involving the roundworm C. elegans, growth media containing a low concentration of curcumin increased mean (average) life span by 39% and maximum life span by 21.4%.

In a study with fruit flies, which generally survive an average of 64 days, an increase of mean life span to 80 days occurred in curcumin-fed flies. Another study involving two strains of flies found varying effects of curcumin in male and female flies, with females of one strain and males of another strain experiencing an extension in life span. A third fly study also revealed a variation in male and female response to curcumin, although the compound was shown to extend life in both genders.

Editor’s Note: The curcumin metabolite tetrahydrocurcumin has also been associated with life span extension. In male mice supplemented with the curcumin metabolite beginning at the age of 13 months, mean life span was increased by an average of 84 days in comparison with unsupplemented mice.

—D. Dye

* Biofactors. 2013 Jan 17.
IN THE NEWS

Grape Seed Extract Goes After Aggressive Cancer Cells

An article published in the journal Cancer Letters reveals a potent effect for grape seed extract against colorectal cancer in experiments involving cultured cancer cells. The findings indicate a beneficial effect for grape seed extract that increases with higher stage cancer.*

Molly Derry of the University of Colorado and her associates tested the effect of grape seed extract in colorectal cancer cell lines in various stages of disease. They observed an increase in several of grape seed extract’s anticancer mechanisms in association with increasing cancer stage. The effect is in sharp contrast with that of chemotherapy, which becomes less potent in association with increased metastatic potential.

The discovery is of significance in view of the increased prevalence of colorectal cancer in Western societies, coupled with the fact that many of those diagnosed are at an advanced stage of cancer.

Editor’s Note: No harmful effects from the compound occurred in healthy cells.

—D. Dye


Study Confirms CoQ10 Decline in Statin-Treated Patients

The Journal of the American College of Cardiology published the finding of Danish researchers of reductions in glucose tolerance and coenzyme Q10 levels in men treated with simvastatin, one of several statin drugs commonly prescribed to lower cholesterol.*

The current study included ten individuals treated for high cholesterol with simvastatin for at least one year and ten healthy control subjects. Participants underwent oral glucose tolerance tests, muscle biopsies, and blood testing for numerous factors. Four of those in the simvastatin group reported muscle pain, compared to none of the controls. Among simvastatin-treated subjects, glucose levels were significantly higher during two-hour oral glucose tolerance testing in comparison with untreated controls. When tissue biopsy results were compared, CoQ10 and the antioxidant enzymes catalase, manganese superoxide dismutase, and glutathione peroxidase were lower in those treated with simvastatin (Zocor®).

Editor’s Note: While statin drugs are of benefit to millions of people at risk for cardiovascular events, their effect on coenzyme Q10, an important mitochondrial cofactor, has not been well publicized in mainstream medical media. (Mitochondria are the cells’ energy-producing organelles.)

—D. Dye


Heart Attack Risk Lower Among Women with High Anthocyanin Intake

An article in a recent issue of Circulation reported the finding of Danish researchers of reductions in glucose tolerance and coenzyme Q10 levels in men treated with simvastatin, one of several statin drugs commonly prescribed to lower cholesterol.*

The current study included ten individuals treated for high cholesterol with simvastatin for at least one year and ten healthy control subjects. Participants underwent oral glucose tolerance tests, muscle biopsies, and blood testing for numerous factors. Four of those in the simvastatin group reported muscle pain, compared to none of the controls. Among simvastatin-treated subjects, glucose levels were significantly higher during two-hour oral glucose tolerance testing in comparison with untreated controls. When tissue biopsy results were compared, CoQ10 and the antioxidant enzymes catalase, manganese superoxide dismutase, and glutathione peroxidase were lower in those treated with simvastatin (Zocor®).

Editor’s Note: While statin drugs are of benefit to millions of people at risk for cardiovascular events, their effect on coenzyme Q10, an important mitochondrial cofactor, has not been well publicized in mainstream medical media. (Mitochondria are the cells’ energy-producing organelles.)

—D. Dye

Calcium Supplementation Increases Fat Loss in Obese and Overweight Young Adults

In an article published in *Nutrition Journal*, researchers in China report a beneficial effect for supplementation with calcium and vitamin D in reducing the body fat of overweight and obese college students.*

The trial included 43 men and women with a body mass index (BMI) of 24 or higher. Participants were randomized to receive an energy restricted diet supplemented with 600 mg of elemental calcium and 125 IU vitamin D3, or an unsupplemented diet for 12 weeks.

While the amount of weight lost by both groups was similar, a significantly greater reduction in fat mass loss and fat percentage occurred in the participants that received calcium in comparison with unsupplemented subjects. Men and women who received calcium and vitamin D experienced a **53.6%** greater decrease in fat mass loss than the control subjects, and had a greater reduction in visceral fat mass and fat area.

**Editor's Note:** Among other mechanisms of body fat reduction, a calcium rich diet has been demonstrated to increase fat oxidation and fat cell apoptosis while reducing lipid absorption. “Future research in this area should be oriented toward a better understanding of the dose–response effect of calcium supplementation (with or without vitamin D) on weight management by administering different dosages of this mineral,” the authors conclude.

——D. Dye

* *Nutr J.* 2013 Jan 8;12(1):8.

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Curcumin Shows Promise Easing Arthritis Pain

In the medical journal *Phytotherapy Research*, two researchers, one from the Nirmala Medical Centre in India and the other from Baylor Research Institute and the Sammons Cancer Center in Texas, published their work on curcumin.* They showed that curcumin is more effective than the common anti-inflammatory medication diclofenac for the pain associated with mild, active rheumatoid arthritis.

In the study, rheumatoid arthritis patients taking curcumin for eight weeks had a **44%** reduction in pain symptoms, while those taking diclofenac had a **42%** reduction. It may not seem like there is a big difference between curcumin and diclofenac, but the difference was significant.

Interestingly, the curcumin group also had a greater reduction in overall inflammation (rheumatoid arthritis may have slightly improved) compared to the diclofenac group. Most importantly, there were no adverse events with curcumin.

This was an initial study, but was well controlled and randomized. Larger clinical trials, however, are needed to confirm these results. —D. Dye


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Life Extension® Products Receive Top Awards!

Once again, Life Extension has received top ratings in ConsumerLab.com’s annual survey! Below are the areas in which Life Extension took home the number one ranking:

**#1 Rated Catalog/Internet Supplement Brand Based on Customer Satisfaction (2 time winner!)**

**#1 Rated CoQ10 Product (2nd Year in a Row!)**

**#1 Rated Two-Per-Day Multivitamin Product (2nd Year in a Row!)**
**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.

**Unrivaled Potency and Absorbatibility with BCM-95®**

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

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

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

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

**References**


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

**Bio-Curcumin®** and BCM-95® are registered trademarks of Dolcas-Biotech, LLC.


To order Super Bio-Curcumin®, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
WHAT IS THE IDEAL GARLIC SUPPLEMENT?

Numerous garlic products can be found in health food stores. Each garlic manufacturer claims that its products are of the best quality and provide optimal health benefits. Garlic supplements, however, are not that simple.

When garlic is aged, its harsh and highly odorous compounds are converted into more beneficial and much less odorous compounds. Numerous studies have suggested that supplementing one’s diet with aged garlic extract may be beneficial. Published data about aged garlic extract shows that it:

1. Helps maintain healthy endothelial function and structure.*1,2
2. Helps maintain healthy immune function. #3,4
3. Helps maintain healthy cellular DNA structure.*5,6

**Why Life Extension Recommends Kyolic® Aged Garlic Extract™**

The Life Extension Foundation recommends dietary supplements based on the published, peer-reviewed scientific literature. There are more published studies substantiating the multiple benefits of Kyolic® Aged Garlic Extract™ than any other brand.

While some other garlic preparations may work as well as Kyolic®, we do not want our members risking their precious health on a supplement that has not been specifically documented to work. We therefore recommend Kyolic® over all other brands.

**Easy-To-Swallow Kyolic® Garlic Capsules**

When Kyolic® introduced a high-potency tablet two years ago, we at Life Extension were very pleased. Previous Kyolic® supplements required many capsules to be swallowed to obtain a sufficient quantity of aged garlic extract powder.

Some people have encountered difficulty in swallowing the large Kyolic® tablets. The good news is that Kyolic® has a higher-potency capsule available. Each one of these easy-to-swallow capsules provides 600-mg of standardized aged garlic extract. The suggested dose for healthy people is two capsules per day with meals.

The retail price for a bottle containing 120 600-mg capsules of Kyolic® Reserve is $27.95. If a member buys four bottles, the price is reduced to only $18.75 per bottle.

To order Kyolic® Reserve 600-mg capsules, call 1-800-544-4440 or visit www.LifeExtension.com

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These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Remarkable Weight Reduction with CoffeeGenic™
Green Coffee Bean Extract (GCA™)

In a placebo-controlled, human study, subjects took 350 mg of green coffee extract three times daily (before meals).

Study subjects were not asked to change their calorie intake or exercise level, but people participating in weight loss trials often do make lifestyle changes in order to increase their odds of shedding body fat.

The impressive findings, published in January 2012, noted that men and women lost an average of 17.6 pounds—over 10% of body weight—after 12 weeks of green coffee extract supplementation! There was also an average 4.44% reduction in body fat percentage!

The conclusion is that green coffee extract supports the ability to lose weight. The form of green coffee bean extract used in this successful weight loss study is CoffeeGenic™ Green Coffee Extract (GCA™).

How CoffeeGenic™ Works

The active ingredient in green coffee bean extract is chlorogenic acid.

Published studies on chlorogenic acid demonstrate a wide range of supportive properties related to insulin sensitivity and to glucose formation and absorption.

Clinical research has shown that chlorogenic acid helps limit after-meal glucose surges, supporting healthy blood sugar levels for those already within the normal range.

CoffeeGenic™ Green Coffee Extract (GCA™) provides a standardized dose of chlorogenic acid extracted from green coffee beans.
Comprehensive Formula

The standardized green coffee extract in the CoffeeGenic™ Weight Management™ with Green Coffee Extract (GCA™) formula has been enhanced with the following nutrients to reinforce the ability to support weight-loss:

1. Green Tea Decaffeinated Extract
   Green tea contains health-promoting polyphenols, including epigallocatechin-3-gallate (EGCG). A number of studies suggest it helps support healthy metabolic rate and weight loss.6,13

2. Iodine
   This trace element is involved in the production of thyroid hormones that regulate the basal metabolic rate—which affects the body’s rate of calorie burn.14

3. Chromium
   Chromium plays an important role in glucose utilization and is required for the release of energy from glucose. It is now generally recognized as helping maintain healthy blood sugar levels for those already in the normal range.15-17

4. Integra-Lean® African Mango IGOB-131®
   Fat cells secrete leptin, a hormone that signals our brain that we’ve eaten enough.18 But some individuals have become resistant to leptin, resulting in added pounds. An extract from an African mango called Irvingia gabonensis has been shown to support leptin sensitivity—followed by weight loss and a slimming of the waistline.19,20 African mango also helps the body control the rate of carbohydrate absorption from the intestines, and therefore, the caloric impact of starchy and sugary foods. And this extract supports healthy levels of adiponectin, a hormone that regulates metabolism of lipids and glucose. Research indicates it has the ability to promote weight loss.20

To order CoffeeGenic™ Weight Management™ with Green Coffee Extract (GCA™), call 1-800-544-4440 or visit www.lifeextension.com

Based on the latest research, CoffeeGenic™ Weight Management™ with Green Coffee Extract (GCA™) provides in each capsule:

- CoffeeGenic™ Green Coffee Bean Extract [Standardized to 50% chlorogenic acid] 350 mg
- Integra-Lean® African Mango (Irvingia gabonensis) proprietary extract (seed) 100 mg
- Chromium [as Crominex® 3+ chromium stabilized with Capros® (Phyllanthus emblica) extract (fruit) and PrimaVie® Shilajit] 150 mcg
- Iodine (as potassium iodide) 100 mcg
- Green Tea decaffeinated extract [98% polyphenols, 45% EGCG] 50 mg

The suggested dose is just one capsule before each meal.
A bottle of 90 vegetarian capsules of CoffeeGenic™ Weight Management™ with Green Coffee Extract (GCA™) retails for $48. If a member buys four bottles, the price is reduced to $31.50 per bottle.

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

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

References:

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.
Researchers in Japan have long looked to the sea for sources of new medications. A big focus has been on astaxanthin found in microalgae.\textsuperscript{1,2}

Astaxanthin functions as a natural sunscreen for marine plants.\textsuperscript{3} Because astaxanthin is so effective at absorbing solar radiation, investigators first proposed it would make an effective topical sunscreen.\textsuperscript{1-4} But as researchers looked closer, they discovered that astaxanthin shields other areas against destructive free radicals.\textsuperscript{4,5}

Almost every cell in the body, including the eyes, brain, heart, and kidney, can benefit from astaxanthin.\textsuperscript{1,6,7} Recent laboratory studies show that astaxanthin can even increase life span!\textsuperscript{8,9}

The discovery of a new way to boost astaxanthin absorption by \textbf{12-fold} means more of this broad-spectrum nutrient is available to your entire body. >
Astaxanthin is a red pigment molecule that is a member of the carotenoid family found in certain marine algae. When eaten by shrimp and crustaceans, the pigment lends its reddish hue to their shells.\textsuperscript{10} As astaxanthin makes its way up the food chain, the color becomes still more concentrated, creating the beautiful reds and pinks we see in fish such as salmon and in marine birds like flamingos.\textsuperscript{6,10}

Researchers have sought to explore the use of astaxanthin as a topical sunscreen because of its powerful ultraviolet light-absorbing properties.\textsuperscript{5} They soon found, however, that astaxanthin has many additional benefits, including free radical scavenging, mitochondrial protection, anti-inflammatory effects, and protection from glycation.\textsuperscript{11-18}
In the words of one researcher, astaxanthin shows “demonstrable promise for slowing age-related functional decline.”

Though the work is only in its infancy, astaxanthin has already been shown to extend the life span of the simple worm called *C. elegans*. Extending life in primitive organisms like *C. elegans* is an important first test of compounds with the potential for increasing longevity in humans.

Let’s examine some of the more compelling literature on astaxanthin, highlighting its vast ability to protect and promote healthy immune functioning, reduce cancer risk, mitigate the impact of diabesity, protect heart muscle and blood vessels, slow brain aging, and support eye health.

**Astaxanthin: Potent Skin Protection from the Inside Out**

Recent studies show that astaxanthin can rejuvenative skin from within. Astaxanthin is among the most powerful and versatile marine plant antioxidants known, and as such, it has the ability to scavenge skin-damaging free radicals. Even though astaxanthin is widely distributed through most organs in the body, it accumulates in the skin, where it makes its way into all skin layers (topical sunscreens can reach only the outermost layers). This can provide potent protection against ultraviolet radiation, the most powerful environmental risk factor for skin cancer.

Skin cells that are exposed to ultraviolet light produce bursts of free radicals that trigger aging effects such as skin sagging and wrinkles, and promotes cancer. When astaxanthin is applied to skin cells in culture, it prevents all of those ultraviolet-induced destructive effects, suggesting that it should significantly prevent ultraviolet-induced skin aging.

Human studies demonstrate that 6 mg/day of astaxanthin for 6-8 weeks reduces crow’s feet wrinkles, water loss, and age spot size while enhancing moisture content, elasticity, and skin texture in both men and women, particularly when combined with topical astaxanthin application.

### Boosting Immune Function

Your immune system protects you from infections and routinely patrols your body for emerging cancer cells, but when it is over-activated, it can trigger allergic responses such as asthma and autoimmune diseases. Studies demonstrate that astaxanthin helps balance the immune system by stimulating its infection- and cancer-fighting components—while also helping suppress the overactive immune responses that create needless inflammation.

Astaxanthin increases the numbers and activity of white blood cells called lymphocytes and natural killer cells that are responsible for creating the body’s innate immune response to invaders. In a mouse model of breast cancer, astaxanthin-treated animals showed higher levels of cancer-killing cells and protective interferon, resulting in delayed tumor growth.

Astaxanthin has similar immune-boosting effects in humans, improving the ability of protective white blood cells to surround and destroy infecting organisms, especially fungi such as *Candida albicans*. Astaxanthin also protects human lymphocytes and neutrophils against the oxidant stresses imposed by the actions of certain white blood cells without reducing the killing effects of white blood cells themselves.

Human studies reveal astaxanthin’s beneficial actions on the over-activated immune system in patients with allergies and asthma. When astaxan-
thin (along with ginkgo extract) was applied to white blood cells from asthmatic patients, it suppressed reactive cell activation as well as or better than the antihistamine drugs *cetirizine* (Zyrtec®) and *azelastin* (Astelin®). A subsequent study showed that combining these compounds with the drugs resulted in improved antihistamine activity.

**Preventing Cancer at Every Stage**

Epidemiological studies reveal that dietary intake of astaxanthin along with other carotenoids is associated with the reduced risk of many different types of cancer. Increased intake of carotenoids such as astaxanthin typically lowers cancer risk. Unlike many pharmaceuticals, astaxanthin shows beneficial effects against cancer at each stage of its development.

1. It prevents cancer initiation by protecting DNA from ultraviolet and oxidant damage.
2. It promotes early detection and destruction of cells that have undergone malignant transformation by boosting immune surveillance.
3. It prevents cancerous growth in cells that evade immune detection by reducing inflammatory changes such as those that appear in aging.
4. It blocks the rapid cell replication of tumors in their growth phase by stopping the cancer cell reproductive cycle and restoring cancer cells’ ability to die off by apoptosis.
5. It prevents tumors from spreading by reducing tumor production of tissue-melting proteins.

Animal studies show that these properties of astaxanthin contribute to a reduced number of precancerous lesions in the colon, and to fewer and smaller tumors when they do develop in the colon and breast.

**Reducing Diabesity and Its Consequences**

Diabetes and obesity are so closely intertwined that scientists now speak of them together as one entity, diabesity. Diabesity is a major component of metabolic syndrome. Astaxanthin holds multiple benefits in managing diabesity, with its resulting oxidant stress, high levels of chronic inflammation, and extensive tissue damage from protein and lipid glycation.
Lab studies reveal that when obese and/or diabetic animals are supplemented with astaxanthin, they experience lower blood glucose levels, improved insulin sensitivity, and reduced inflammation and oxidative stress. In addition, astaxanthin preserved the ability of the pancreas to secrete insulin.

Astaxanthin supplementation also prevents massive body weight gain in animals fed high-fat or high-fructose diets. Obese animals, like obese humans, develop dangerous fat accumulations in their livers, predisposing them to cirrhosis and liver cancer. Astaxanthin supplements have been found to reduce liver fats and triglyceride levels. In overweight and obese humans, astaxanthin suppresses dangerous lipid peroxidation and stimulates healthy natural antioxidant defenses in the body.

In addition to preventing the main elements of diabesity, astaxanthin helps alleviate the long-term consequences faced by diabetics. Studies show that astaxanthin supplementation slows the development of diabetic nephropathy (kidney disease), reduces cataract formation and diabetic retinopathy (both preventable forms of blindness in diabetics), and reduces the many cardiovascular complications of diabesity.

Protecting Cardiovascular Health

Astaxanthin has powerful antioxidant effects that fight cardiovascular diseases at multiple levels. In hypertensive rats, astaxanthin lowers blood pressure, improves endothelial function, and delays hyper-
tension-induced strokes. In humans and animals, astaxanthin helps normalize lipid profiles, reducing triglyceride and cholesterol levels while boosting beneficial HDL-cholesterol. These effects reduce the risk of a clot forming within a major vessel.

Astaxanthin also reduces inflammation and reduces the production of certain enzymes that destabilize plaques and make them vulnerable to rupture and that block blood flow.

In the heart muscle itself, astaxanthin boosts mitochondrial energy delivery, which helps the heart muscle contract more powerfully and efficiently. This is especially valuable in the event of a heart attack because it helps surviving muscle to rapidly take over from damaged areas.

People with cardiovascular disease are at risk for vascular dementia, a form of cognitive decline caused by decreased brain blood flow and damage to cerebral vessels. Astaxanthin supplements in such animals reduce the rate of complications such as strokes, and improve cognitive performance, allowing the animals to live more vigorous and active lives.

**Slowing Brain Aging**

Astaxanthin exerts multiple beneficial effects in the brain. Unlike many other antioxidant molecules, astaxanthin crosses the blood-brain barrier, allowing it to saturate and protect brain tissue. These features have led experts to label astaxanthin a “natural brain food.”

In animal models, astaxanthin has been found to reduce the risk of stroke, diminish the size of stroke areas in the brain, and improve motor activity following a stroke. One study, in fact, demonstrated that pre-treatment with astaxanthin completely prevented ischemic brain injury following 2 hours of blockage of one of the brain's largest arteries.

Astaxanthin also directly combats the oxidative impact of abnormal proteins in both Alzheimer's and Parkinson's diseases. Studies show that beta-amyloid, the toxic protein found in the brains of Alzheimer's patients, is also found on red blood cells, where it reduces oxygen delivery to tissues. Supplementation with astaxanthin has been found to decrease the accumulation of amyloid-beta on red blood cells.

A human study has determined that doses of astaxanthin as high as 20 mg once daily for 4 weeks are free of side effects and suggested that the supplement was effective for age-related decline in cognitive and psychomotor functions. And 12 mg/day astaxanthin improved cognitive health scores and learning scores in a study of healthy middle-aged and elderly subjects with age-related forgetfulness.

**Important Promoter of Eye Health**

Age- and diabetes-related eye diseases contribute to visual impairments and blindness in millions of Americans. Astaxanthin has been found to prevent or slow three of the most common eye diseases: age-related macular degeneration, cataracts, and glaucoma.
The human retina naturally contains the carotenoids lutein and zeaxanthin, molecules closely related to astaxanthin. Supplementation with all three carotenoids (astaxanthin 4 mg/day, lutein 10 mg/day, zeaxanthin 1 mg/day) has been shown to improve visual acuity and contrast detection in people with early age-related macular degeneration. In laboratory studies, astaxanthin supplementation protects retinal cells against oxidative stress and significantly reduces the area of destructive new blood vessel growth on retinas, a hallmark of advanced macular degeneration.

Studies of patients with age-related macular degeneration reveal significant improvements in retinal electrical outputs following supplementation with astaxanthin and other carotenoids.

Glaucoma, an increase in the pressure of fluid inside the eyeball, eventually results in retinal cell death from oxidant damage and loss of blood flow. Astaxanthin restores retinal parameters to normal in eyes with experimentally-induced glaucoma.

**Summary**

Astaxanthin, a red pigment that originates in marine algae, is one of nature’s most potent antioxidants. It has numerous other useful properties as well: it is an efficient blocker of ultraviolet radiation, it reduces the impact of glycation, and it decreases inflammatory responses.

Studies are revealing astaxanthin’s remarkable ability to fight the prime causes of aging, not only in the skin, where it was first studied, but in organs and tissues throughout the body. Astaxanthin protects and promotes healthy immune functioning, reduces cancer risks, mitigates the impact of diabesity, protects heart muscle and blood vessels, slows brain aging, and supports eye health.

These multiple benefits of astaxanthin, coupled with its proven safety record, make it a vital component of a responsible program of nutritional supplementation.

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

**References**


ASTAXANTHIN PROVIDES BROAD SPECTRUM PROTECTION


Now with CoffeeGenic™ Green Coffee Bean Extract (GCA™)

CALORIE CONTROL WEIGHT MANAGEMENT FORMULA

Importance of Taking Calorie Control Weight Management Formula Before Heavy Meals

Once we accept the fact that weight loss requires more than diet and exercise alone, it becomes easy to understand the importance of taking the Calorie Control Weight Management formula before two heaviest meals of the day to help neutralize the unwanted effects of caloric excess. Those seeking to emulate the dose used in the 2012 study that induced an average 17.6 pounds of weight loss might want to also take a 200 mg capsule of standardized green coffee bean extract along with a serving of Calorie Control Weight Management Formula with CoffeeGenic™ Green Coffee Extract (GCA™) before meals.

Each appetizing blueberry flavored stick pack or scoop of the Calorie Control Weight Management Formula with CoffeeGenic™ Green Coffee Extract, powder provides:

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

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

A bottle containing 60 servings of Calorie Control Weight Management Formula with CoffeeGenic™ Green Coffee Extract (GCA™) natural blueberry flavor powder retails for $60. If a member buys four jars, the price is reduced to just $40.50 per jar.

For added convenience of use, this new formula also comes in 60 individual stick packs. Each box containing 60 servings of Calorie Control Weight Management Formula with CoffeeGenic™ Green Coffee Extract (GCA™) natural blueberry flavor powder retails for $64. If a member buys four boxes, the price is reduced to just $45 per box. Item # 01694* Contains soybeans. Contains corn.

References

To order any of the Calorie Control Weight Management Formulas with CoffeeGenic™ Green Coffee Extract (GCA™), call 1-800-544-4440 or visit www.LifeExtension.com

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

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

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

(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.

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.)
Astaxanthin is a fat-soluble compound. The challenge to deriving maximum benefits is its normally limited absorption—as low as about 50%. Assimilation of astaxanthin is impeded by limited uptake and intestinal degradation.

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

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

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

ASTAXANTHIN

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

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

References

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

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

As we age, one of our priorities is maintaining optimal glucose levels to avoid heart disease, cancer, and diabetes.\textsuperscript{1-6} 

Fortunately, many Life Extension\textsuperscript{®} members use supplements, hormones, and drugs to improve their insulin sensitivity, which facilitates the more efficient removal of glucose from the blood.\textsuperscript{6-12} 

Less well-known, however, is the fact that there are certain foods proven to decrease blood sugar levels!\textsuperscript{7,13-16} Specifically, barley and black beans have been extensively studied for their ability to maintain glycemic control. 

In this article, you will learn how these two foods have been shown to lower blood sugar and inhibit diabetes and other glycemic-stress-related problems such as cardiovascular disease and obesity. 

Including these two glucose-lowering foods as part of your normal diet can help maintain better blood sugar levels. >
Barley Lowers Blood Sugar and Insulin Levels

Excessive dietary carbohydrates, such as white rice and potatoes, trigger surges in blood glucose, a key factor in the worldwide epidemic of type II diabetes.\textsuperscript{17,18} Aging increases this effect—beginning as early as age 20.\textsuperscript{17}

National Institutes of Health data indicate that 35\% of Americans aged 20 or older have abnormally high blood glucose levels—known as prediabetes—as do 50\% of those aged 65 years or older!\textsuperscript{17}

Fortunately, research has established that consumption of insoluble dietary fiber—which is found in certain whole grains, including \textit{barley}\textsuperscript{19}—is associated with a reduced risk of type II diabetes.\textsuperscript{20}

\textbf{Barley} is also a rich source of \textit{soluble} fiber.\textsuperscript{19}

In fact, one study conducted on overweight women found significantly lower insulin and glucose responses following barley ingestion, compared to ingestion of oats.\textsuperscript{15} The researchers concluded that particle size—flour versus flakes—made little difference. The reduced glucose effect was determined to be the result of the higher content of the soluble fiber in the \textit{barley}.\textsuperscript{15}
Another study found that, by suppressing free fatty acid levels in the blood, whole barley regulates blood sugar better than other grains—and for up to 10 hours after consumption.21

Our bodies cannot digest the viscous soluble fiber in barley, which binds with water to slow food passage through the digestive system. This tempers the body’s glucose and insulin responses after a meal.22,23

Substantial research has demonstrated that the soluble fiber in barley lowers postprandial glucose and insulin.15,21-27 This has been demonstrated not only in the more common single-meal test studies of limited duration, but also in a 12-week study that pinpointed the longer-term effects of barley consumption on non-diabetic individuals on a weight-neutral diet.28

This prospective, randomized, placebo controlled, double blind trial evaluated 50 healthy subjects without prior diagnosis of diabetes. After 12 weeks, the scientists found that daily ingestion of soluble barley fiber significantly reduced fasting serum insulin values and, during oral glucose tolerance tests, significantly lowered blood glucose responses.28

The team concluded that soluble barley fiber "may slow the deterioration of insulin sensitivity for individuals at increased risk for diabetes mellitus."28

Barley Effects Beyond Blood Sugar

Barley improves risk factors for cardiovascular disease and stroke.

Barley fiber increases the excretion of bile acids into the intestines. Since these acids are comprised of oxidized cholesterol, this lowers total serum cholesterol.29 Studies have confirmed that barley lowers cholesterol,30 low-density lipoprotein (LDL),31,32 and blood pressure.33

Barley is a rich source of soluble and insoluble fiber—both of which benefit gastrointestinal health.

The soluble fiber in barley binds with water, adding bulk to stools and promoting regular bowel movements.34 Some of the insoluble fiber in barley is digested by colonic bacteria to produce short-chain fatty acids, which may promote bowel health35 and accelerate repair of colonic mucosa in those with ulcerative colitis.35

Like other fiber-rich foods, barley is associated with weight control.

Some trials have suggested that greater dietary fiber consumption increases satiety and decreases caloric intake.36-38 A diet high in protein and fiber—both found in barley—has been shown to minimize overall daily calorie ingestion.39,40
**Black Beans Also Target Blood Sugar!**

Epidemiological studies showed a strong association between increased consumption of the common bean (*Phaseolus vulgaris*)—which includes **black beans**, pintos, and others—and a reduced risk of chronic diseases, including type II diabetes.41-44

In 2012, this was confirmed in two separate, randomized trials in which beans were demonstrated to significantly lower glycemic response in type II diabetics.16,45

Scientists believe that the compounds in beans may slow activity of the alpha-amylase enzymes that help break down starch into sugar. This would reduce or slow sugar release.

Also, beans have a low GI (glycemic index), which by definition means they produce a relatively low rise in blood glucose after a meal46-48—compared to high-glycemic index items such as white rice, which sharply elevate postprandial glucose and increase oxidative stress.49-51

The glucose-lowering effects of beans consumed alone has been well documented, although at least one study had measured this effect when beans were eaten as part of a meal.16,41,48,52 However, a large study recently published in the *British Journal of Nutrition* found that beans significantly reduce glycemic response even when combined with other—even higher glycemic index—foods.41

Also, a review and meta-analysis that examined 41 studies found that bean consumption—alone, or as part of a low-glycemic index or a high-fiber diet—improves markers of longer-term glycemic control in humans.46

Specifically, this review found that beans produced improvements in HbA1c (glycated hemoglobin) and fructosamine (glycated serum protein).46 Both are markers for longer-term plasma glucose concentration. These observed improvements indicate that beans deliver significant diabetic control **over a prolonged period.**46

These findings clearly demonstrate that **aging** individuals—both those with, and those at risk for, type II diabetes—can restore glycemic control with simple diet changes that increase intake of black beans and barley.

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**Black Beans Help Prevent Devastating DNA Damage**

A study was designed to evaluate the toxicogenic (toxin-producing) versus protective effect of cooked and dehydrated black beans on bone marrow and peripheral blood cells of mice.

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**Reduce Blood Glucose**

- Aging promotes dangerously increased levels of blood sugar.
- In addition to nutrients, hormones, and drugs, certain foods improve glycemic control.
- Barley and black beans are both excellent sources of fiber and can not only minimize the amount of calories consumed, but can improve feelings of fullness after meals as well.
- Barley and black beans have been shown to improve blood glucose and insulin levels.
- Research demonstrates that these food items help prevent diabetes and glycemic-related disorders such as cardiovascular disease and obesity.
Remarkably, these scientists found that black beans significantly reduced the frequency of genetic damage induced by chemical mutagens in these types of cells.\textsuperscript{53}

Although not originally part of the study, they also observed that black beans afforded leukocytes the same protection against induced DNA damage.\textsuperscript{53}

### Beans Lower Cardiovascular Disease Risk Factors

Research has shown that beans lower cholesterol.\textsuperscript{44,54-56} This effect is largely attributed to their high soluble-fiber content—a benefit also associated with other soluble-fiber-rich foods.

But beans deliver other cardiovascular effects that flow from their capacity to affect blood sugar.

Both elevated after-meal glucose and chronic hyperglycemia can increase oxidative stress, worsen endothelium-dependent vasodilation, and raise blood pressure—all serious factors in cardiovascular disease.\textsuperscript{50,57-59} However, by controlling after-meal glucose responses and promoting prolonged diabetic control, beans may help prevent these glucose-related cardiovascular risk factors.$^{16,28,46}$

In fact, research has now confirmed that low glycemic index foods such as beans are associated with a lower risk for cardiovascular disease, even after accounting for known risk factors such as smoking, diabetes, obesity, and family history of heart disease.\textsuperscript{43-45,60}

### A High-Bean Diet Improves Biomarkers for Cancer Risk

Scientists have identified mechanisms by which increased insulin response raises cancer risk.\textsuperscript{61,62}

Studies have found that higher bean intake, by reducing insulin, inflammatory markers, and altering cell signaling pathways, is associated with reduced cancer risk.\textsuperscript{63-65}

### Beans May Inhibit Obesity

Beyond evidence of decreased calorie ingestion with increased fiber diets,\textsuperscript{36-40} observational and controlled studies indicate that consumption of beans improves short-term satiety and weight loss, when combined with energy restriction.\textsuperscript{66,67}

### Black Beans Promote Healthy Gastrointestinal Function

The indigestible fraction—which is a measure of the level of indigestibility of a food—in black beans has been shown to be greater than the indigestible fraction in some other beans such as lentils and chickpeas.\textsuperscript{68} In fact, the indigestible fraction of black beans provides colonic bacteria with the perfect mixture of compounds to generate butyric acid, which is used by colon-lining cells called colonocytes to fuel their activity and keep the lower digestive tract functioning smoothly. It affects cellular proliferation, differentiation and apoptosis (programmed cell death), and has anti-inflammatory effects.\textsuperscript{69}

### Summary

Evidence strongly indicates that barley and black beans provide superior food options to help reduce blood sugar levels and offer protection from oxidative stress and chronic diseases. They can be substituted for unhealthy foods that have become so prevalent in Western diets.●

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


FOODS THAT SAFELY REDUCE BLOOD GLUCOSE


New Vitamin D3 Softgels
For Superior Absorption

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

Keep in mind that you may already be getting 1,000-3,000 IU of vitamin D in your multi-nutrient formulas. A new vitamin D is now available in superior absorbing softgels. A recent study demonstrated that the use of one 5,000 IU vitamin D softgel daily resulted in a near 30% increase in vitamin D levels in just 60 days.

Vitamin D3 1,000 IU
250 softgels
Retail: $12.50
Four-bottle Member Price: $8.44 ea.
Commercial companies offered only 400 IU vitamin D products when Life Extension long ago introduced a 1,000 IU version. For most people, this 1,000 IU potency is insufficient to attain optimal vitamin D blood levels. For smaller individuals who obtain 2,000-3,000 IU in their multi-nutrient formulas (and children), this potency of vitamin D may be suitable.

Item # 01751

Vitamin D3 5,000 IU
60 softgels
Retail: $11
Four-bottle Member Price: $7.43 ea.
For those already obtaining 1,000-3,000 IU of vitamin D in their multi-nutrient formulas, this 5,000 IU potency is what many need to achieve optimal vitamin D blood levels.

Item # 01713

Vitamin D3 5,000 IU
with Sea-Iodine™*
60 capsules (non-softgel)
Retail: $14
Four-bottle Member Price: $9.38 ea.
Most people do not ingest enough vitamin D and iodine, especially those seeking to reduce their salt intake. Combining 5,000 IU of vitamin D3 and 1,000 mcg of iodine into one capsule makes taking these two nutrients economical and convenient.

Item # 01573

Vitamin D3 7,000 IU
60 softgels
Retail: $14
Four-bottle Member Price: $9.45 ea.
Some individuals (such as those weighing more than 180 pounds) may require higher potencies of vitamin D. When combined with 1,000-3,000 IU obtained from multi-nutrient formulas, this 7,000 IU vitamin D3 softgel should enable these individuals to attain 25-hydroxyvitamin D blood levels above the desired range of 50 ng/mL.

Item # 01718

Vitamin D3 Liquid Emulsion 2,000 IU
1 ounce
Retail: $28
Four-bottle Member Price: $18.75 ea.
For those rare individuals who have difficulty absorbing enough vitamin D3 from softgels, this liquid emulsion of vitamin D can be used.

Item # 00864

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

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

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

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
A New Low-Glycemic Healthy Soup without High-Glycemic Carbs Found in Commercial Soups

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

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

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

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

Barley scientifically shown to:

- Support the colonic fermentation of indigestible or insoluble carbohydrates.
- Provide a rich source of soluble fiber, which promotes bowel function and metabolic health.
- Support blood sugar and insulin levels that are already in the normal range—which it does better than other grains.
- Help maintain levels of total cholesterol, LDL cholesterol, and blood pressure already in the normal range.
- Support weight control through increased satiety and decreased overall caloric ingestion.

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

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

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

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

References
The first thing you recognize about Fran Drescher, obviously, is her voice. It’s as distinct as your own mother’s.

It’s the voice that carried her to two Emmy Award nominations for her work on the hit sitcom, The Nanny. It’s the voice that has been featured on The Simpsons and Law & Order: Criminal Intent, but lately, Drescher is putting her extraordinary vocals to use as an activist for her anti-cancer group, Cancer Schmancer, whose mission is to end cancer mortality due to late stage diagnosis by preventing it from occurring and catching it early.

For Drescher, the genesis of this project comes from her personal experience as a uterine cancer survivor who was misdiagnosed and mistreated by doctors for several years.

“It took me two years and eight doctors before finally being told I had gynecologic cancer,” she says. “It motivated me to write the book Cancer Schmancer, which became a New York Times bestseller because I didn’t want what happened to me to happen to other people. When I went on my book tour, I realized that what happened to me actually happens to millions of people! Missed diagnosis, late diagnosis, it’s far too common. Thank God I was only stage one when I was finally diagnosed.”

When Drescher looks back on her early years as a patient she recognizes that she didn’t know what questions to even ask of her doctors. Being the comedian that she is, she naturally puts a comedic spin on the entire experience.

“It took me two years of seeing doctors to get a diagnosis after being misdiagnosed for a peri-menopausal condition I didn’t have,” she says. “It motivated me to write the book Cancer Schmancer, which became a New York Times bestseller because I didn’t want what happened to me to happen to other people. When I went on my book tour, I realized that what happened to me actually happens to millions of people! Missed diagnosis, late diagnosis, it’s far too common. Thank God I was only stage one when I was finally diagnosed.”
Formulating a Vision

While Drescher was on her lecture tour for the book, the personal stories of frustration that people were telling her about their own cancer experience caused a light bulb to go off in her head.

“I just had a vision that everyone should be diagnosed at stage one,” Drescher says. “I think that’s where our healthcare needs to go. I started creating the Cancer Schmancer movement as an early detection organization. The cornerstone of the movement now involves prevention as well because I think that the nation is too focused on the cure without thinking about what the causes are and eliminating them.”
To that end, the Cancer Schmancer movement promotes the Trash Cancer prevention program, which is dedicated to shifting the trajectory of disease. The program challenges consumers to question what they put in, on and around them while they’re at home.

“The home is the most constant place we spend the most time,” she says. “It’s the one place we have the most control over.”

When Drescher mentions the word ‘control,’ she’s talking about controlling or eliminating our exposure to carcinogens through environmental toxins that we sometimes willingly assault our bodies with on a daily basis. To back this up, she says that before a woman walks out the door in the morning, on average, she has used at least 12 personal care items. Men, on average, use eight.

While many of the items on the ingredient list that may have toxic properties are said to only be detected in trace elements, there’s really no data on the effect of assaulting your body every day with your particular combination of chemicals. Whether your toiletries contain small amounts of formaldehyde or lead, you may be putting yourself at risk.

**Practical Ways to Eliminate Toxic Exposure**

As an example, Drescher talks about the use of aluminum in most anti-perspirant deodorants.

“Many people that end up with Alzheimer’s disease, Parkinson’s disease, and other neurological problems are often found to have high levels of aluminum in their bodies,” she explains. “When people use aluminum-based deodorant, they are sealing up one of the most effective ways the body has to detox itself through perspiration. So not only are you sealing toxins in your body, you’re doing it with a toxin: aluminum.”

Life Extension® mentioned the cancer-causing dangers of cooking at high heat in a recent issue, but compounding the problem of cooking at high temperatures is the problem of scorching food in aluminum containers. When you use aluminum baking pans or aluminum foil on the barbecue, it makes it easy for dangerous chemicals that we can’t see or smell to seep into our food.

“People really need to educate themselves and question everything about how they prepare their food,” Drescher says. “Even our most trusted brands that we grew up with, that our mothers and grandmothers used, may be bringing harmful substances into your house.”

In addition to health and beauty products, Drescher says that dangerous chemicals are lurking in cleaning products, laundry products, dishwashing detergent, kitchen cleansers, and even baby products.

**Beyond the Household**

Ten years ago, Cancer Schmancer was just a book; now it’s a full-fledged movement with Fortune 500 company affiliations and an advisory board that includes doctors from such prestigious...
institutions as the Memorial Sloan Kettering Cancer Center, the Woman’s Cancer Research Institute at Cedars-Sinai Outpatient Cancer Clinic, and even the Walter Reed Army Medical Center. Yet the movement is just getting started.

“It’s a work in progress,” Drescher says. “There were times when it was hard, when there was just me and two other women. It was so much work I thought it was going to kill me. I thought I’d get cancer from trying to help people not get cancer! We fortunately now have a staff where we can get by, but we’re a lean, mean organization.”

Lean, mean, and effective. Drescher and her organization are responsible for the unanimous passage of Johanna’s Law by all 100 senators. Officially known as the **Gynecologic Cancer Education and Awareness Act**, the bill is named for Johanna Silver Gordon, who died from ovarian cancer in 2000. President George W. Bush signed the bill into law on January 12, 2007, which allocated millions of dollars to the US Department of Health and Human Services to launch a national campaign in 2008 to educate American women and health professionals about the signs and symptoms of gynecologic cancers.

“We’re very proud that we successfully passed that act,” Drescher says. “All 100 senators said yes! We are now very excited about our next policy initiative, which is to come up with a full, deceit-free label for products. It’s a bipartisan bill that will offer manufacturers a government seal of approval that they are selling a carcinogen-free product.”

The way this program would work is that companies would agree to submit their product to a third party lab at their own expense to determine if the ingredients in their product are harmful or not.

“The goal is to force companies to put out a label that the average consumer can understand,” she says. “Customers shouldn’t have to have a degree from MIT to figure out what’s in the product they’re buying.”

### Changing the Healthcare Landscape

Cancer Schmancer also recently partnered with Humana Inc., one of the nation’s leading health and well-being companies, to promote its Trash Cancer initiative.

“I applaud Humana with what they’re doing with their own vitality program,” Drescher says. “They’re trying to shift from a health insurance company to being a company that helps prevent disease and encourages people not to get sick in the first place. They do this by creating incentive programs for people to stay healthy. It’s a philosophy that I hope other companies will follow. Hopefully, the dinosaurs who

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**Cancer Schmancer’s Gynecologic Cancer Cheat Sheet**

In the United States, more than 83,000 patients are diagnosed with a gynecologic cancer annually. The three most common gynecologic cancers are uterine, ovarian, and cervical cancer. Each cancer may have a variety of symptoms and associated risk factors that may include:

#### Risk Factors:
- I am not getting screened regularly with a Pap test
- I am at high-risk for human papillomaviruses (HPV)
- I smoke
- I am very overweight
- I eat a diet high in fat
- I am a woman older than age 60
- I started menstruating at an early age—before age 12
- I take hormone replacement therapy (HRT) drugs

#### Warning Symptoms:
- Indigestion, heartburn, nausea, or gas
- Abdominal swelling or discomfort
- Pelvic pain or cramping
- Bloating or a sense of fullness, even after small meals
- Backache
- Painful, frequent, or burning urination with no infection
- Diarrhea or constipation
- Loss of appetite or unintentional weight loss or gain
- Vaginal bleeding or irregular periods
- Unusual vaginal bleeding or discharge after menopause
- Pain during intercourse

These symptoms can often be similar to other diseases and conditions. However, if you are experiencing any of the above symptoms, make an appointment with your doctor right away. You should discuss which of the following screening and diagnostic tools may be appropriate for you: PAP Test, CA 125 Blood Test, Trans-vaginal Ultrasound, Biopsy.

resist this change, the elected officials and doctors still subscribing to 20th century ideas about healthcare will fall by the wayside.”

In this regard, Cancer Schmancer and Life Extension share the common philosophy that the best way to battle disease and increase longevity is to avoid getting a disease in the first place.

“Nobody goes through life unscathed,” Drescher says. “For me, turning pain into purpose is very healing. I really feel like I got famous, I got cancer, and now this is my life’s mission.”

To complete her mission, Drescher says that she takes care of herself now more than ever. She eats more organic, more vegan, and is more natural in her lifestyle.

“You really need to think of your health first and factor in as many stress-reducing, health-boosting strategies as you can,” she says. “When you have a compromised immune system your body can’t battle the way it needs to. The more you deplete your body, the more you’re setting yourself up for failure.”

For Drescher, failure, either with her own health, or concerning her mission with the Cancer Schmancer movement, is not an option.

“I’m just an average person who didn’t even finish college, but I’m a US citizen and I’m very patriotic and I care about the health of the people in our country,” she explains, the passion coming through in her voice. “The United States is still the beacon of light on this planet. What we’re doing to raise awareness with cancer prevention, through our website, through our organization, and through articles like this with Life Extension is hopefully shifting the course of the health of the American people and having a domino effect on the rest of the world when it comes to battling cancer.”

For more information on Fran Drescher or the Cancer Schmancer organization, visit: www.cancerschmancer.org

If you have any questions on the scientific content of this article, please call a Life Extension® Health Advisor at 1-866-864-3027.
Women today face a growing number of health issues, including the need to support DNA gene structure in the breast. Detrimental factors such as the aging process, along with the daily bombardment of environmental estrogen-like compounds, demonstrate the need to support a woman’s breast cellular structure.

A wealth of research shows that specific botanical extracts can positively influence cellular status and remove some of the anxiety women face about maintaining a healthy balance of estrogens.

Two important metabolites that estrogen is broken down to in the body are: the good 2-hydroxyestrone and the bad 16 alpha-hydroxyestrone. Scientists have identified nutrients like indole-3-carbinol (I3C) that can tip the delicate balance of estrogens in favor of the good form.

Women seeking to proactively restore their youthful hormonal balance can now take a new, phytonutrient-based formula that helps support healthy estrogen activity and detoxification. Some of the active ingredients in the Breast Health Formula are:

- **Phytoestrogens** that function as selective estrogen receptor modifiers help block certain estrogen receptor sites on cells, thus preventing bad estrogen from exerting its harmful effects
- **Plant lignans** that boost beneficial enterolactone levels and favorably alter estrogen metabolism
- **Cruciferous Vegetable Extracts** (such as I3C) that effectively increase 2-hydroxyestrone while reducing undesirable 16 alpha-hydroxyestrone
- **Calcium D-Glucarate** to safely facilitate the removal of harmful estrogen from the body
- **Vitamin D** to promote healthy genetic regulatory switching to aging cells

Breast Health Formula provides nutrients that have demonstrated broad-spectrum support for preserving optimal breast health.

The daily dose of two capsules supplies:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broccoli (Brassica oleracea L.) GMO-free Extract (standardized to 4% glucosinolates)</td>
<td>550 mg</td>
</tr>
<tr>
<td>Watercress (Nasturtium officinale) 4:1 extract (leaf)</td>
<td>100 mg</td>
</tr>
<tr>
<td>Sawasabi Wasabi (Wasabia japonica) powder (rhizome) (standardized to 12,000 ppm Total Isothiocyanate)</td>
<td>35 mg</td>
</tr>
<tr>
<td>Indole-3-Carbinol (I3C) concentrate</td>
<td>14 mg</td>
</tr>
<tr>
<td>D-Glucarate</td>
<td>137.5 mg</td>
</tr>
<tr>
<td>Vitamin D3 (as cholecalciferol)</td>
<td>1000 IU</td>
</tr>
<tr>
<td>Enterolactone Precursors Proprietary Blend</td>
<td>25 mg</td>
</tr>
<tr>
<td>HMR lignan™ Norway spruce (Picea abies) standardized lignan extract (knot wood) and Secoisolariciresinol diglucoside from ActiFlax™ flax (Linum usitatissimum L.) lignan extract (seed)</td>
<td>2 mg</td>
</tr>
</tbody>
</table>

The retail price for 60 vegetarian capsules of Breast Health Formula is $34. If a member buys four bottles, the price is reduced to only $22.50 per bottle. Contains soybeans.

ActiFlax™ is a trademark of Pharma Science Nutrients, Inc., all rights reserved; SoySelect® is a registered trademark of Indena S.p.A.; HMR lignan™ trademark is used under license from Linea S4™; Sawasabi™ is a trademark of B&D Nutritional Ingredients, Inc. Novasoy® is a registered trademark of Archer Daniels Midland company.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
The Next-Generation 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 pomegranate, 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™ Pomegranate ............................................. 137.5 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 $15.75 per bottle. Item # 01423

Contains soybeans.

References:

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.
7-Keto® DHEA safely increases fat-burning enzymes in the liver. Human subjects who consumed 200 mg of 7-Keto® DHEA in conjunction with a diet and exercise program lost more weight than those who took a placebo.4

To augment the fat-loss benefits of diet and exercise, Life Extension offers 100-mg 7-Keto® DHEA vegetarian capsules and a supplement called DHEA Complete that contains 25 mg of DHEA and 100 mg of 7-Keto® DHEA in each capsule.

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

Note: Those with hormone-sensitive cancers should avoid regular DHEA, but this caution does not apply to 7-Keto® DHEA. Unlike regular DHEA, 7-Keto® does not increase testosterone or estrogen levels in the body.

References

7-Keto® is a registered trademark of Humanetics Corporation.

A bottle containing 60 100-mg vegetarian capsules of 7-Keto® DHEA, along with a special antioxidant blend, retails for $40; if a member orders four bottles, the price is reduced to only $27 per bottle.

For those seeking to combine the multiple benefits of DHEA and 7-Keto® DHEA in a single formula, DHEA Complete provides 25 mg of regular DHEA and 100 mg of 7-Keto® DHEA per capsule. A bottle containing 60 100-mg vegetarian capsules of 7-Keto® DHEA, along with 25 mg of regular DHEA and a special antioxidant blend, retails for $48; if a member orders four bottles, the price is reduced to only $32.40 per bottle.

To order 7-Keto® DHEA or DHEA Complete, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
Shampoos, pesticides, drinking water, plastics, and vehicle emissions contain cancer-causing toxins that we are exposed to on a daily basis.

These chemicals can ultimately lead to cancer by damaging our DNA and impeding our detoxification pathways.\textsuperscript{1-4} In a cruel twist, some of these toxins even activate cancer-causing genes that could otherwise have remained dormant.\textsuperscript{5,6}

Today, it is impossible to avoid the constant onslaught of environmental toxins. But what is possible is to equip your body with the tools it needs to identify toxins and remove them from your system before they can cause any damage.

\textbf{Cruciferous vegetables} do just that. They optimize your body’s \textit{detoxification system} in order to neutralize many of these chemical threats—and maintain the integrity of your DNA in the process.\textsuperscript{7-9}

Decades of research have shown that ingesting \textit{cruciferous vegetables} can \textit{slash risk of cancer} by up to \textit{54\%}.\textsuperscript{10-18} These findings show reduced risk of virtually every major type of cancer.\textsuperscript{19-29}

In this article, you’ll learn about the specific components of cruciferous vegetables that fight cancer—and, more importantly, you’ll discover how to harness the powers of cruciferous vegetables to maximize their cancer-fighting benefits. >
Reducing the Effect of Environmental Toxins

Cruciferous vegetables (cabbage family, broccoli, cauliflower, mustard greens, and Brussels sprouts) are some of the most powerful cancer-fighters nature has to offer. Numerous studies have shown that consuming cruciferous vegetables can sharply reduce your risk of cancer.10-18

They’ve been found to be effective against a vast array of cancers including breast, prostate, colon, lung, bladder, ovarian, kidney, and more. Compounds in cruciferous vegetables also have been found to provide long-term anticancer protection even after they’ve been cleared from the body.30,31

No other food group can boast such powerful, broad-reaching anticancer benefits. We’ve known for years that people with the highest overall intake of cruciferous vegetables experience a substantial reduction in the risk of many kinds of cancer—now we’re starting to understand why.
Our bodies are equipped with enzyme systems to fight off toxic threats. Unfortunately, if your enzyme systems aren’t functioning properly, they can have the opposite effect: They can activate those toxins, causing them to become even more lethally carcinogenic. Making matters worse, some toxins suppress protective enzymes, impairing their ability to protect us from cancer.

That’s where cruciferous compounds come in. Cruciferous compounds help support the key enzyme systems that are so vital for detoxifying your body of harmful, cancer-causing environmental toxins. The result is unprecedented protection from many of the unavoidable cancer-causing toxins we face on a daily basis.

**Glucosinolates: Powerful Chemoprevention**

Among cruciferous vegetables’ many powerful components, one group stands out. They’re called glucosinolates, which are found in broccoli and broccoli sprouts. They are converted within the body to a number of active constituents that fight cancer through multi-targeted mechanisms.
For example:

- Glucosinolates reduce the carcinogenicity of many environmental toxins by boosting the genetic expression of important detoxifying enzymes.\(^8,48\)
- They protect DNA from oxidative damage caused by toxins (up to 28% reduction in human research), thereby preventing the initial changes that can lead to cancer.\(^49\)
- Glucosinolate derivatives encourage cancer cells to commit suicide, and they suppress genes that create the new blood vessels that support rapid growth of tumors.\(^50\)
- Finally, there’s evidence that glucosinolate derivatives can turn off genes that promote the spread of cancer.\(^50\)

Because glucosinolates directly affect the function and expression of genes (the epigenetic effect), experts point out that their protective effects are both wide-ranging and long-lasting.\(^50\)

Human research reveals that higher dietary intakes of glucosinolates are associated with a reduction in prostate cancer risk by 32%.\(^45\) Derivatives of the glucosinolates abundant in broccoli sprouts help prevent stomach cancer by killing the H. pylori bacterium. They also reduce symptoms and biomarkers of inflammation in infected individuals.\(^51\)

It’s important to note that cooking cruciferous vegetables reduces the rate of glucosinolate conversion to active molecules by about 300%, which is one good reason why supplementation may offer a better alternative.\(^52-54\)

**Indole-3 Carbinol (I3C)**

Indole-3-carbinol (I3C) is one of the most widely-studied components of cruciferous vegetables. Studies have shown that it helps fight cancers of the breast, prostate, and reproductive tract, as well as colon and blood cancers.\(^55\)

In cancers of the reproductive tract, I3C helps prevent the development of tumors by benefitting important ratios of estrogen metabolites such as the 2-hydroxyestrone:16α-hydroxyestrone ratio and 2-hydroxyestrone:estriol ratios.\(^56-58\) Note that 2-hydroxyestrone is an estrogen metabolite that seems to protect against cancer, whereas 16-hydroxyestrone may promote cancer.

Treatment with I3C has also been shown to have a positive effect on recurrent respiratory papillomatosis, a precancerous condition that produces growths in
The throat and voice-box. Studies show that treatment with I3C completely stops the growth of papilloma in about 33% of patients and reduces the growth rate and need for surgery in another 33% of patients.59,60 I3C is also beneficial in early cervical cancers known as carcinoma in situ. In one study, 50% of the patients receiving 200 mg/day of I3C had complete regression of carcinoma in situ, while none of the patients in the placebo group were found to be free of carcinoma in situ after 12 weeks.61 And in women with a potentially pre-cancerous condition known as vulvar intraepithelial neoplasia, treatment with 200 or 400 mg/day of I3C reduced the size and severity of lesions on the vaginal labia.62

Animal studies of I3C show a reduction in tumor number and size in experimental models of cancers of the breast, lung, and prostate.63-65

Di-indolyl-methane (DIM)
The compound DIM is produced in the body following ingestion of glucosinolates derived from cruciferous vegetables. Animal models, basic lab studies, and limited phase 1 clinical trials show that DIM prevents tumors of the prostate, ovary, cervix, and thyroid, as well as several types of leukemia.66-73 DIM also appears to suppress cancer stem cells, the lingering, super-potent cells that can cause a cancer to recur even years after apparently successful treatment.74,75

Beneficial Anticancer Hormone Effects of Cruciferous Vegetables

Many cancers, especially those of the reproductive tissues, depend on the presence of sex hormones (primarily estrogen and testosterone) to sustain their growth. Therefore, many treatment approaches rely on blocking or reducing levels of sex hormones in cancer victims. The problem is, conventional drugs can cause side effects and may harm reproductive potential. That’s where cruciferous vegetables come in.

Some components of cruciferous vegetables act more gently and by multiple mechanisms to impede the growth of such hormone-dependent cancers, making them an important part of chemoprevention strategies.

Phenethyl isothiocyanate (PEITC), a natural metabolite of glucosinolates from watercress, has been found, for example, to down-regulate androgen receptors, minimizing stimulation of prostate cancer by testosterone.94 3,3'-Diindolylmethane (DIM), another glucosinolate metabolic product, prevents stimulation of prostate cancer cells by both androgens and estrogen.89,95,96

Breast cancers are commonly estrogen-dependent; sulforaphane and indole-3-carbinol (I3C), still other glucosinolate products, decrease the amounts of cancer-stimulating estrogen receptor-alpha molecules present on cells, inhibiting their proliferation.97,98 This effect has been shown to be active in thyroid cancers as well, which are much more common in women than in men.66,99 DIM has a complementary effect, stimulating cancer-suppressing estrogen receptor-beta molecules.100

Finally, a late 2012 study revealed that I3C also induces degradation of the pro-cancer estrogen receptor alpha, and at the same time reduces expression of tumor-promoting insulin-like growth factor receptor-1 in breast cancer cells.101

Thus, a single serving of a complete cruciferous vegetable supplement can protect reproductive tissues from a whole array of harmful hormonal influences, potentially making you much less likely to develop these devastating malignancies.
Like the other components of cruciferous vegetables, DIM induces cancer cell death by apoptosis, inhibits cancer cell growth, slows or stops new blood vessel development in tumors, and can inhibit factors allowing cancer cells to invade healthy tissue.69

Like I3C, DIM helps prevent the growth of estrogen-dependent tumors, such as those of the female breast and reproductive tract, by boosting the ratio of 2-hydroxyestrone:16α-hydroxyestrone.66,76

Studies in mice demonstrate that DIM can completely prevent the progression of pre-cancerous lesions of the cervix, caused by human papilloma virus (HPV), to full-blown cancer.77 In fact, researchers now theorize that DIM could possibly make the human papilloma virus vaccine more effective, so that it could be given to women already infected with the virus. (Currently it is only effective prior to infection.)77 DIM also increases levels of protective interferon gamma in mouse models of cervical cancer.68

Watercress Extract

One particular cruciferous vegetable, watercress, brings together the very best actions of the other cruciferous vegetables and their components we’ve discussed so far: Studies have shown that watercress has a positive effect on lung, colorectal, and prostate cancers. Watercress is especially rich in another glucosinolate derivative, called phenethyl-isothiocyanate (PEITC).78 PEITC inhibits carcinogen-activating enzymes, induces cancer detoxification enzymes, and protects against DNA damage.78,79 PEITC is also a remarkably specific epigenetic modulator that turns on genes that suppress cancer.80,81

These effects make watercress extracts particularly appealing in the case of some of our most potent environmental carcinogens, such as those found in tobacco smoke.82-84 Watercress and PEITC are also showing promise in other malignancies caused by activated carcinogens, such as colorectal and prostate cancers.85-87

Look for supplements that contain watercress extract, rather than purified PEITC, because the watercress extracts also contain small amounts of other detoxifying enzyme inducers with even greater potency.78 These substances help prevent cancer growth by reducing inflammatory stimuli such as nitric oxide.88

How to Get the Most Benefit from Cruciferous Vegetables

In order to get the maximum health benefits from cruciferous vegetables, make sure you’re consuming a variety of them. Every member of the cruciferous family contains a different set of the glucosinolates that help fight cancer.

For example, broccoli, Brussels sprouts, and cabbage are good sources of a glucosinolate called glucoraphanin, the precursor of sulforaphane. Watercress is an excellent source of the glucosinolate gluconasturtiin, the precursor of PEITC. And garden cress, cabbage, and Indian cress are top sources of a glucosinolate known as glucotropaeolin, the precursor of benzyl isothiocyanate (BITC).

Cancer Risk Reduction by Cruciferous Vegetables

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Risk Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorectal</td>
<td>49%13</td>
</tr>
<tr>
<td>Melanoma Skin Cancer</td>
<td>46%17</td>
</tr>
<tr>
<td>Prostate</td>
<td>42%20</td>
</tr>
<tr>
<td>Pancreas</td>
<td>34%19</td>
</tr>
<tr>
<td>Kidney</td>
<td>32%15</td>
</tr>
<tr>
<td>Bladder</td>
<td>31%11</td>
</tr>
<tr>
<td>Esophagus</td>
<td>28%12</td>
</tr>
<tr>
<td>Ovary</td>
<td>24%18</td>
</tr>
<tr>
<td>Lung</td>
<td>22%16</td>
</tr>
<tr>
<td>Breast</td>
<td>17%12</td>
</tr>
<tr>
<td>Mouth and Throat</td>
<td>17%12</td>
</tr>
</tbody>
</table>

This table shows the reduction in risk for various cancer types, for those consuming the highest versus the lowest amounts of cruciferous vegetables.
Next, make sure they’re not overcooked. Boiling, steaming, and microwaving at high power substantially decreases the bioavailability of cruciferous vegetables’ cancer-fighting compounds. As beneficial for you as cruciferous vegetables are, there are some things you need to be aware of: The glucosinolate content varies greatly even among individual plants of the same type—and even among parts of the same plant. Even these relative concentrations change during the course of a single plant’s growth cycle.

That’s why, in addition to eating a variety of cruciferous vegetables, it’s important to take a standardized cruciferous compound supplement. A good cruciferous vegetable supplement should contain I3C, DIM, and PEITC—and for even greater impact, should also include extracts of raw broccoli, cabbage, watercress, and other plant compounds such as apigenin.

**Extracts that Complement Cruciferous Vegetables**

Several plant extracts complement the detoxifying and epigenetic effects of cruciferous vegetables, making them valuable additions to a comprehensive cancer-prevention supplement. The three most potent ones include apigenin, cat’s claw, and rosemary.

1. **Apigenin** is a bioflavonoid found in celery, parsley, and some other plants that has known chemopreventive effects. These include stopping the cell reproductive cycle, inducing cancer cell death by apoptosis, preventing metastasis, and slowing new blood vessel formation. Clinical studies show that 20 mg/day of apigenin, in combination with 20 mg/day of the green tea extract EGCG, drastically reduced the rate of colon cancer recurrence following surgical treatment (only 7% of treated patients had recurrences, while 47% of the control patients had recurrences). Apigenin shows promise in laboratory and animal studies of cancers of the mouth, skin, and pancreas, as well as in leukemia.

2. The second extract that can be used to complement cruciferous compounds is called **Cat’s Claw** (Uncaria tomentosa). Lab studies have shown that Uncaria extracts are effective against tumor cells from breast, cervical, lung, thyroid, and colon cancers as well as leukemia. Uncaria extracts contain powerful antioxidants that protect—and can even repair—DNA from environmental damage. The result is protection from cancer, especially in organs with a rapid rate of cell turnover, such as skin, colon, and lung, where a small amount of DNA damage can have a rapidly accumulating pro-cancer effect. Uncaria extracts reduced reductions in immune function after chemotherapy while inducing programmed cell death (apoptosis) in malignant cells.

3. **Rosemary** extracts have shown effectiveness in lab studies of colon, skin, and ovarian cancers, and leukemia. Rosemary is capable of enhancing the ability of the body to rid itself of potential carcinogens. In addition, rosemary offers remarkable protection against radiation, shielding cells of the blood and gastrointestinal tract in particular from radiation’s ionizing and oxidizing effects. Rosemary slows or stops DNA damage and tumor cell proliferation, induces apoptosis of tumor cells, and markedly suppresses genes that enable tissue invasion and metastatic spread. Currently, oncologists are giving special attention to the combination of rosemary extracts plus vitamin D3—and for good reason. Together, these supplements promote normal cell differentiation into mature, non-cancerous white blood cells, helping prevent conversion into leukemia cells.

**Summary**

Environmental toxins are major causes of cancer. They cause damage to our DNA and can activate cancer-causing genes that would otherwise have remained dormant. Although it’s impossible to avoid these toxins, you can arm your body with the tools it needs to...
identify the toxins and remove them from your system before they can cause any damage.

**Cruciferous vegetables** neutralize chemical threats by optimizing your body’s detoxification system, by maintaining the integrity of your DNA, and by activating the genes necessary to fight cancer. The result is unprecedented cancer protection from the unavoidable assaults of daily living.

Many of the cruciferous vegetables’ constituents hold up poorly under cooking and processing conditions. That’s why the best way to consistently gain the benefits of cruciferous compounds is to lightly steam the vegetables and/or obtain them in *standardized* dietary supplements.

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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**References**


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

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.

References:

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

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
According to the National Institutes of Health, magnesium is required for more than 300 biochemical reactions in the body. Magnesium "helps maintain normal muscle and nerve function, keeps heart rhythm steady, supports a healthy immune system, and keeps bones strong. Magnesium also helps maintain blood sugar levels already within normal range, promotes normal blood pressure, and is known to be involved in energy metabolism and protein synthesis."1,2

With so many of our body’s critical functions dependent upon magnesium, supplementation can help ensure that you obtain healthy levels of this vital mineral. The recommended intake of magnesium to maintain vascular health is 500 mg or more a day. With Life Extension®’s Magnesium Capsules you can easily obtain 500 mg of elemental magnesium in each vegetarian capsule.

The retail price of a bottle containing 100 500 mg Magnesium Capsules is $10. If a member buys four bottles, the price is reduced to just $6.75 per bottle.

Caution: If taken in high doses, magnesium may have a laxative effect. If this occurs, divide dosing, reduce intake, or discontinue product.

References:
Scientists have identified specific extracts from cruciferous vegetables—such as broccoli, cauliflower, cabbage and Brussels sprouts—that help maintain healthy hormone metabolite balance. Triple Action Cruciferous Vegetable Extract combines some of these plant extracts into a comprehensive formula for optimal DNA protection.

I3C (indole-3-carbinol) and DIM (di-indolyl-methane) favorably modulate estrogen metabolism and induce liver detoxification enzymes to help neutralize potentially harmful estrogen metabolites and xenoestrogens (estrogen-like environmental chemicals).1-4

Extracts of broccoli, watercress, and rosemary provide glucosinolates, isothiocyanates, carnosic acid, and carnosol—bioactive compounds that have a multitude of favorable effects on estrogen metabolism and cell division.5-8 Apigenin, a powerful plant flavonoid found in plants such as parsley and celery, is also added to the formula to boost cell protection,9 while 25 mg of a natural source of benzyl isothiocyanate (BITC), are included to maintain cell health.10

Consumers should be aware that while consumption of cruciferous vegetables is highly recommended, the cooking process depletes many of the beneficial compounds such as I3C.

For those weighing less than 160 pounds, just one capsule a day provides optimal potencies. Those weighing over 160 pounds should consider taking two capsules a day. A 60 vegetarian capsules bottle of Triple Action Cruciferous Vegetable Extract retails for $24. If a member buys four bottles, the price is reduced to $16.50 per bottle.

Those who want to obtain the benefits of trans-resveratrol can order Triple Action Cruciferous Vegetable Extract with Resveratrol. Each capsule provides 20 mg of trans-resveratrol in addition to the vegetable extracts and retails for $32 per 60-capsule bottle. When a member buys four bottles, the price is reduced to $22.20 per bottle.

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

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

Atherosclerosis is the underlying cause of most heart attacks and strokes, yet doctors remain confused as to how this artery-blocking process occurs.

Most cardiologists overlook specific mechanisms that inflict arterial wall damage and the ensuing progression to occlusive atherosclerotic disease. The result is that only a few of the factors that accelerate arterial blockage (such as elevated LDL) are addressed in today’s clinical setting.

Doctors think of an atherosclerotic lesion as a “clog” consisting of fat, cholesterol, and platelets that have accumulated on an inner arterial wall. As a result, they tell their patients to eat less fat, take a statin drug (if cholesterol levels are high), and use a baby aspirin to prevent arterial platelet aggregation. The problem with these approaches is that while they may postpone a heart attack or stroke, they fail to correct the underlying pathologies that cause atherosclerotic lesions to form and progress.

If people are to live long lives free of the ravages of atherosclerosis, these lethal misconceptions must be cleared up. Otherwise, there will be an epidemic of aging people receiving coronary stents, undergoing bypass surgeries, and dropping dead from sudden heart attacks. >
Why Arteries Clog as We Age

The aging process damages blood vessels, even when conventional risk factors such as cholesterol and blood pressure are within normal ranges.

For over 40 years, the standard treatment for coronary atherosclerosis has been to bypass the blocked arteries. Recuperation from this procedure can take months, and some patients are afflicted with lifetime impairments such as chronic inflammation, memory loss, and depression.1-11

Stenting open narrowed coronary arteries has become prevalent over the past decade, but this procedure is not a cure for underlying systemic endothelial dysfunction and atherosclerosis.
MISCONCEPTIONS ABOUT ATHEROSCLEROSIS

A review of the scientific literature reveals that atherosclerosis is associated with high blood levels of homocysteine, fibrinogen, C-reactive protein, glucose, cholesterol, insulin, iron, LDL, and triglycerides along with low levels of HDL and testosterone (in men). Optimizing blood levels of these substances can dramatically reduce heart attack and stroke risk.

Despite thousands of studies validating that atherosclerosis is a multifactorial process, today’s doctors often prescribe a statin drug as the sole therapy to prevent and treat coronary atherosclerosis. Mainstream cardiologists fail to appreciate that coronary atherosclerosis is a sign of systemic arterial dysfunction requiring aggressive therapy to correct.

**Anatomy of the Artery**

Arteries are the blood vessels that bear the full force of each heartbeat. Most people think of arteries as flexible tubes whose only function is to carry blood that flows continuously throughout the body. In fact, arteries are dynamic, functioning muscular structures that, when healthy, expand and contract to facilitate circulation and maintain optimal blood pressure.

The outer layer of the artery comprises mostly connective tissue and provides structural containment for the two layers beneath. The middle area comprises elastic smooth muscle that provides the contractile strength to make possible the artery’s expansion and contraction with each heartbeat. The inner layer, known as the endothelium, comprises a thin area of endothelial cells whose integrity is crucial if atherosclerosis is to be prevented.

Poor health habits and normal aging result in endothelial dysfunction, a process in which the endothelium boundary is broken, arterial flexibility is diminished, abnormal platelet aggregation occurs, and atherosclerotic lesions form in response to arterial wall (endothelium) injuries.

**How Do Most Heart Attacks and Strokes Occur?**

The two prime factors involved in occlusive arterial disease are abnormal platelet aggregation and endothelial dysfunction. When the endothelium is not functioning properly, our platelets (blood-clotting cells) become dangerously over-activated. This can cause a sudden arterial blood clot, or contribute to progression of atherosclerosis by stimulating inflammation.

A primary mechanism involved in endothelial dysfunction is the depletion of nitric oxide, often caused from the oxidation of LDL and other blood components. Nitric oxide is produced by endothelial cells. It regulates vascular elasticity, maintains cardiac contraction, prevents vessel injury, and helps protect against atherosclerosis.

As humans age, endothelial function becomes altered. Due to a variety of insults, a depletion of nitric oxide occurs in the endothelium. One consequence of nitric oxide depletion is the inability of arteries to expand and contract with youthful elasticity. The continual stiffening and occlusion of aged arteries is the number one health risk that people in Western societies face. In order to maintain healthy arterial dilation, the endothelium has to manufacture enough nitric oxide. Impairment in nitric oxide release by the aging endothelium causes arterial dysfunction.

Therapies used by today’s mainstream cardiologists (aspirin, statin, and certain anti-hypertensive drugs) have a beneficial effect on the endothelium, but they may only postpone a serious vascular event. If a person lives long enough, the chronic depletion of endothelial nitric oxide results in impairment of arterial function and progressive restriction of blood flow to vital parts of the body.

**Summary**

Endothelial cells line the arteries, veins, arterioles, and capillaries of the vascular system. Doctors used to view the endothelium as a relatively inert structure that played no active role in vascular function. Starting around 20 years ago, research has shown that
the endothelium is dynamic and participates in vital aspects of arterial structure and function. Over the years, Life Extension® has reported on advances related to protecting the endothelium against age-related deterioration, such as the remarkable ability of pomegranate to reverse clinical measurements of systemic atherosclerosis (in both carotid and coronary arteries).

A typical 50-year-old human can postpone a major cardiovascular event by following relatively simple steps, such as eating healthy and taking a low-dose statin drug if LDL is over 100 mg/dL. As that same person ages, however, multiple processes involved in endothelial dysfunction too often manifest in the form of a vascular-related disorder.

Endothelial cells that line blood vessels are crucial to maintaining vascular integrity. Endothelial dysfunction is a critical factor in the initiation and progression of cardiovascular disease, yet mainstream doctors continue to ignore this dominant underlying cause of arterial occlusion. Pomegranate extracts protect against endothelial dysfunction via several well-defined mechanisms, including protection of vital endothelial nitric oxide.

Atherosclerosis remains the number-one cause of death and disability in the United States. The graphic on the next page shows 17 independent risk factors of atherosclerosis, with low EPA/DHA blood levels being only one of the elements that must be controlled if heart attack and ischemic stroke are to be averted.

Annual blood testing is critical to identifying one’s individual risk factors. Modest-dose fish oil alone will not reverse the endothelial dysfunction that exists in aging humans with preexisting atherosclerosis.

To read specifically how atherosclerosis initiates and progresses, refer to the next article.

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

Guard Against Lethal Medical Misconceptions

- Doctors think of an atherosclerotic lesion as a “clog” consisting of fat, cholesterol, and platelets that have accumulated on an inner arterial wall.
- Despite thousands of studies validating that atherosclerosis is a multifactorial process, today’s doctors often prescribe a statin drug as the sole therapy to prevent and treat coronary atherosclerosis.
- Stenting open narrowed coronary arteries has become prevalent over the past decade, but this procedure is not a cure for underlying systemic endothelial dysfunction and atherosclerosis.
- The aging process damages blood vessels, even when conventional risk factors such as cholesterol and blood pressure are within normal ranges.
- A review of the scientific literature reveals that atherosclerosis is associated with high blood levels of homocysteine, fibrinogen, C-reactive protein, glucose, cholesterol, insulin, iron, LDL, and triglycerides, along with low levels of HDL and testosterone (in men).
- Poor health habits and normal aging result in endothelial dysfunction, a process in which the endothelium boundary is broken, arterial flexibility is diminished, abnormal platelet aggregation occurs, and atherosclerotic lesions form in response to arterial wall (endothelium) injuries.
- A primary mechanism involved in endothelial dysfunction is the depletion of nitric oxide, often caused from the oxidation of LDL and other blood components.
- Annual blood testing is critical to identifying one’s individual risk factors.
Why Some Elderly People Need More Than a Statin Drug

Did you know that popular “statin” drugs used to reduce LDL and cholesterol often lose their ability to protect against vascular disease as people age?71-73 The reason is simple. Aging arteries are subjected to more destructive forces than blood vessels of young people.

Statins have shown beneficial effects to the endothelium in addition to reducing cholesterol and LDL. As we age, however, we must go beyond basic therapies (such as statin drugs) that may have protected us in younger years.

Prevention of the epidemic of stroke and heart disease in the elderly requires that we aggressively counteract the underlying causes of endothelial dysfunction.

Some people require the proper dose of statin drug to control excess cholesterol-LDL, but all aging humans need to take assertive actions to protect their precious endothelium against the functional and structural distortions that lead to arterial occlusion.

References
This image depicts daggers aimed at an artery occluded with atherosclerotic plaque. Any one of these “daggers” can initiate and propagate vascular disease. In the real world, aging humans suffer small pricks from the point of these daggers over a lifetime. The cumulative effect of these dagger pricks (risk factors) is arterial occlusion and, far too often, stroke or acute heart attack.


39. Armaganian D, Batlouni M. Serum ferritin levels and other indicators of organic iron as risk factors or markers in coronary artery disease. Rev Port Cardiol. 2003 Feb;22(2):185-95; discussion 197-201.


MISCONCEPTIONS ABOUT ATHEROSCLEROSIS


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, 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 $21 per bottle. If 10 bottles are purchased, the cost is $18.68 per bottle. (Item # 01482)

The daily dose (four softgels) of SUPER OMEGA-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract provides:

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

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 $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

References
14. Life Extension

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

Supportive but not conclusive evidence shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease. EPA/DHA 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.
**ENHANCED HEART MUSCLE FUNCTION**

**Cardiotonics** have traditionally been used to improve heart function and vitality. Formulated for optimum heart muscle health, **Cardio Peak™ with Standardized Hawthorn and Arjuna** provides dual cardiotonic support. Extensive research demonstrates that the botanical extracts **Hawthorn** and **Arjuna** deliver optimum support for normal heart muscle function and coronary artery health.1,7

**Hawthorn: Peak Cardiotonic Support**

Used for centuries in Europe for heart health, the cardiotonic effects of **Hawthorn** extract have been well documented in numerous clinical trials.1,9-12 Hawthorn contains specific bioflavonoid complexes targeted to help promote normal circulation and efficient heart function.2,5,12 Studies indicate that the constituents in Hawthorn powerfully support:

- **Strong contractile force** of human heart muscle.3
- **Protection** for heart muscle cells from oxidant damage.1,2
- **Normal gene expression** to promote cardiovascular health.2,4,5
- **Improved cardiovascular performance.**6

**Arjuna: Boosting Heart-Health Benefits**

Traditionally used for cardiovascular health, **arjuna** extract complements the effects of hawthorn in support of enhanced heart function.6,17 A number of scientific studies have shown that arjuna delivers strong support for:

- **Enhanced heart muscle tone**, improving its “squeeze” and increasing the amount of blood it can pump each second without exhaustion.16
- **Healthy endothelial function.**8
- **Improved exercise endurance.**17

A comprehensive program that includes diet, exercise, and lifestyle changes is important to your cardiovascular health. For unique **cardiotonic support** for a strong and healthy heart, **Cardio Peak™ with Standardized Hawthorn and Arjuna** may become a key element in your daily regimen!

To order **Cardio Peak™ with Standardized Hawthorn and Arjuna**, call 1-800-544-4440 or visit www.LifeExtension.com

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The suggested **twice daily dosage of 2 capsules of Cardio Peak™ with Standardized Hawthorn and Arjuna** provides:

- **Rejuna™ Arjuna** (Terminalia arjuna) 1,500 mg
  10:1 extract (bark) (std. to 40% polyphenols (600 mg))
- **Hawthorn-Derived Oligomeric Proanthocyanidins (OPCs)** 60 mg
  from standardized Hawthorn (Crataegus monogyna and Crataegus laevigata) extract (leaf and flower)

A bottle of 120 vegetarian capsules of **Cardio Peak™ with Standardized Hawthorn and Arjuna** retails for $36. If a member buys four bottles, the price is reduced to **$24** per bottle.

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**References**


Rejuna™ is a trademark of Verdure Sciences, 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.
How Atherosclerosis Develops in Aging Humans

At least one of every two Americans over the age of 65 has atherosclerosis.¹ It is so common in older people that some experts used to think that it was part of the normal aging process.²

We are going to explain in detail here how atherosclerosis develops, so you can fully understand why a modest dose of fish oil alone is not going to reverse this process in those with preexisting vascular disease.

While we understand that some members may find the material in this article overly technical, it is important we publish it so that our many physician members understand the challenges in treating aging humans with significant pre-existing atherosclerosis. >
How Atherosclerotic Lesions Develop

Atherosclerosis begins with changes in endothelial cell function that cause white blood cells moving through the blood to stick to the endothelium (inner arterial wall) instead of flowing by normally. The endothelium then becomes weakened. This allows blood cells and toxic substances circulating in the blood to pass through the endothelium and enter the artery’s sub-endothelial compartment. Lipid or fat-like substances such as LDL and triglycerides in the blood then accumulate in this area.
The lipids that accumulate in the broken endothelium become oxidized, causing the smooth muscle cells to try to “repair” the damaged endothelium. The result of this repair process is smooth muscle cell infiltration into the endothelium causing the formation of the initial atherosclerotic lesion. Depending on an individual’s risk factors—such as poor diet, lack of exercise, smoking, high blood pressure, and the aging process itself—fat accumulation continues and the atherosclerotic process accelerates.

Immune cells called macrophages then invade the damaged arterial area to digest the fat. But smooth muscle cells that have migrated to the area have already changed their nature to scavenge fat. These fat-laden white blood cells and smooth muscle cells are called “foam cells,” and provoke a chronic inflammatory attack by various immune components.

Smooth muscle cells try to curtail the injury to the endothelium by producing collagen, which forms a cap over the injury site. Calcium then accumulates over the injury site to form a material resembling bone. This is why atherosclerosis used to be referred to as “hardening of the arteries.”

This complex array of foam cells, calcification, and lipid accumulation is called an atherosclerotic plaque. The plaque grows, and if it becomes unstable, it is vulnerable to acute rupture that exposes the contents of the plaque to blood. Platelets can then rapidly accumulate around this ruptured plaque, resulting in an acute blockage (or blood clot) on the inner surface of the blood vessel wall. This clot can become very large and occlude the vessel. Even small plaques, if they rupture, can interfere with blood flow and cause an acute heart attack.

Alternatively, atherosclerotic plaques can grow to such a degree as to restrict blood flow severely. When blood flow within an artery is greatly compromised by a large plaque or blood clot, the cells of tissues that depend on blood flow from that artery become damaged or die. Coronary atherosclerosis cuts off the heart’s blood supply by occluding the heart’s arteries, which stops the oxygen supply to the heart, thus causing a heart attack. An ischemic stroke results when atherosclerotic processes cut off the oxygen supply to a portion of the brain.

As you can see, therefore, much more is involved in the development of atherosclerosis than just high cholesterol and LDL. We must emphasize, however, that maintaining optimal LDL and cholesterol levels is an important component of an atherosclerosis-prevention program.

**Protecting Your Arterial Walls**

High blood pressure, elevated LDL-cholesterol-triglycerides, low HDL, smoking, diabetes, obesity, and lack of exercise contribute to **endothelial dysfunction** and the subsequent development of atherosclerosis.

Other significant artery-damaging factors are high-normal levels of glucose, insulin, iron, homocysteine, and fibrinogen, and any level of C-reactive protein that is higher than optimal.
Homocysteine can induce the initial atherosclerotic injury to the endothelium, then facilitate the oxidation of the fat and LDL that accumulate beneath the damaged endothelium, and finally contribute to the abnormal accumulation of blood components around the atherosclerotic plaque.

Fibrinogen is a clotting factor that accumulates at the site of the endothelial lesion. Fibrinogen contributes to plaque buildup and can participate in the arterial blockage after an unstable atherosclerotic plaque ruptures.

Glucose at high-normal levels may accelerate the glycation process that causes arterial stiffening, while high-normal fasting glucose and insulin inflicts direct damage to the endothelium. High levels of iron promote oxidation of LDL in the damaged endothelium, while low levels of testosterone (in men) appear to interfere with normal endothelial function.

C-reactive protein is an inflammatory marker and directly damages the endothelium. Chronic inflammation, as evidenced by persistent high levels of C-reactive protein, not only creates initial injuries to the endothelium, but also accelerates the progression of existing atherosclerotic lesions.

In response to a large number of published studies, enlightened people are taking charge of the health of their arteries. They are eating better, exercising regularly, and undergoing regular blood testing to identify the specific drugs, hormones, and dietary supplements they need to reduce their atherosclerotic risk factors.

The emphasis in treating aging humans with pre-existing arterial disease is that all risk factors should be controlled if there is to be an opportunity to reverse the occlusion of vital arteries. When only a few atherogenic factors like elevated LDL are lowered, disease progression is virtually inevitable, albeit at a slower rate.

**Summary**

At least one of every two Americans over the age of 65 has atherosclerosis. A number of biochemical factors in the blood can affect the development of atherosclerosis such as elevated LDL cholesterol, low HDL cholesterol, and elevated glucose, homocysteine or fibrinogen to name a few. Atherosclerosis begins with changes in endothelial cell function that cause white blood cells and lipids moving through the blood to stick to the endothelium (inner arterial wall) instead of flowing by normally. The endothelium then becomes weakened. This allows blood cells and toxic substances circulating in the blood to pass through the endothelium and enter the artery’s sub-endothelial compartment. Lipid or fat-like substances such as LDL and triglycerides in the blood then accumulate in this area.

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**Pathway to the Development of Deadly Arterial Plaque**

- At least one of every two Americans over the age of 65 has atherosclerosis.
- Life Extension has identified 17 major risk factors for atherosclerosis.
- Atherosclerosis begins with changes in endothelial cell function that cause white blood cells and lipids moving through the blood to stick to the endothelium (inner arterial wall) instead of flowing by normally.
- The lipids that accumulate in the broken endothelium become oxidized, causing the smooth muscle cells to try to “repair” the damaged endothelium.
- Immune cells called macrophages then invade the damaged arterial area to digest the fat.
- Smooth muscle cells try to curtail the injury to the endothelium by producing collagen, which forms a cap over the injury site.
- Fat-laden white blood cells and smooth muscle cells become “foam cells” which provoke a chronic inflammatory attack by various immune components.
- This complex array of foam cells, calcification, and lipid accumulation is called an atherosclerotic plaque.
Immune cells called macrophages then invade the damaged arterial area to digest the fat. But smooth muscle cells that have migrated to the area have already changed their nature to scavenge fat. These fat-laden white blood cells and smooth muscle cells are called “foam cells,” and provoke a chronic inflammatory attack by various immune components. Smooth muscle cells try to curtail the injury to the endothelium by producing collagen, which forms a cap over the injury site. Calcium then accumulates over the injury site to form a material resembling bone.

This complex array of foam cells, calcification, and lipid accumulation is called an atherosclerotic plaque. This plaque can become unstable resulting in an increased risk of rupture and clot formation. Alternatively, the plaque can continue to grow to a size so large that it impedes or completely blocks blood flow. Either path can lead to a potentially life-threatening stroke or heart attack.

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

References

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 (pyrroloquinoline quinone) has been shown to support mitochondrial biogenesis—the spontaneous generation of new mitochondria in aging cells.⁷

PQQ is available as a low-cost dietary supplement.

Mitochondria are cellular energy generators that supply virtually all the power your body requires for a healthy life span. An abundance of published studies underscores the critical importance of the mitochondria to overall health, especially as we age.⁸⁻¹⁴

Energy-intensive organs like the heart and brain are dense with mitochondria.

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

PQQ offers a viable alternative.
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—as beneficially interacts with genes directly involved in mitochondrial health. These same genes also support healthy body weight, normal fat and sugar metabolism, and youthful cellular proliferation.16

- **Mitochondrial defense.** Mitochondria possess their own DNA, distinct from the DNA contained in the nucleus. Unfortunately, compared to nuclear DNA, mitochondrial DNA is relatively unprotected. PQQ’s antioxidant potency and favorable gene expression profile act to support mitochondrial defense.

Vital Protection for the Aging Heart and Brain

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

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

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

A Breakthrough Weapon in the Battle Against Aging

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

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

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

BioPQQ® is a 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

References


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.
Revitalize Your Aging Neck

Most skin care regimens are formulated only for fighting the fine lines and wrinkles on the face. Your neck, however, is a dead giveaway of age.

The thin skin on your neck is especially prone to sagging and wrinkles—and often well before your face shows your age. You’ve seen many women on TV who have had face lifts but take one look at their neck and you see the visible effects of aging.

In fact, your neck and upper chest/shoulder/torso area (collectively referred to as the décolleté) may be one of the most underappreciated features of a youthful appearance.

For years, maturing individuals seeking to rejuvenate their necks resorted to potentially dangerous cosmetic procedures such as peels, laser resurfacing, Botox injections, and surgery.¹

But there are safer, effective, more natural approaches to fighting the visible signs of an aging neck. Advances in research have led to the discovery of compounds that offer novel approaches to reversing the visible signs of aging. These compounds have been shown to act as chemical messengers between the dermal layers of the skin, thus allowing efficient communication to protect, repair, and strengthen the skin from the inside out.

In this article, you will learn about agents that help restore and retain a youthful-appearing neck and décolleté. >
Maintaining Skin Cohesion

The dermo-epidermal junction is an area that connects the epidermal skin layer with the dermal layer beneath it. Acting as a communication center between the two skin layers, it maintains skin cohesion and distributes essential nutrients to the epidermis for healthy skin.\(^2\)

As we age, the dermo-epidermal junction of the skin begins to flatten out, diminishing the contact between the epidermis and dermis.\(^3\) As a result, the skin begins to lose its elasticity and firmness. This is reflected in the skin of the neck with the development of wrinkles and sagging.

Fortunately, there is a way to rebuild this vital connection between the layers of aging skin. The peptide compound *hexapeptide-10* has been shown to stimulate the formation of *laminin-5*, *α6-integrin*, and *hemidesmosomes*,\(^4\) vital building blocks of the dermo-epidermal junction that allow it to reconstruct connectivity between epidermal and dermal cells. This reinforces the skin’s tightness and promotes more elasticity.

In one study, scientists tested the effects of hexapeptide-10 on several skin parameters in healthy volunteers for 60 days. The results revealed a 9% boost in elasticity and a 53% improvement in skin compactness. Skin tone was also enhanced by 46%.\(^4\)

Support Vital Skin Structures

Your skin has a network of fibers that work to keep it firm and taut. *Collagen type I* provides mechanical strength to the structure, while *elastin* is responsible for skin’s resilience and its ability to recoil back into position. These elements are continuously breaking down and being regenerated. However, factors such as excessive sun exposure, smoking, inflammation, and air pollution cause collagen type I and elastin to break down at a faster pace than they’re being regenerated.\(^5\) Over time, this accelerates aging, which manifests itself as wrinkles and loose skin.

There’s one notable ingredient that has been shown to both slow the breakdown and increase the formation of these vital skin structures. An in vitro study showed that the compound *acetyl-dipeptide-13 diphenylglycine* protected elastin from destruction by decreasing the activity of *elastase* by 23%.\(^6\) Additionally, when the cells that make collagen were exposed to *acetyl-dipeptide-13 diphenylglycine*, they experienced an astonishing 99% increase in collagen type I formation.\(^6\)

In a human study, participants who used a topical application of acetyl-dipeptide-13 for eight weeks improved their overall skin elasticity by 14% and tightness by 16%.\(^6\)

Fight Free Radical Damage

Free radicals wreak havoc on the skin’s integrity and structure, especially in the thin skin of the neck. That’s why a broad spectrum antioxidant defense is a cornerstone of any skin care regimen. And when it comes to antioxidant power, you can’t beat the goji berry.

*Goji berries* boast an extremely high rating on the ORAC scale, an indicator of antioxidant potency.\(^7\) They’ve been shown to boost human blood antioxidant activity by up to 57%.\(^8\) A 2004 study showed that goji berries inhibited the formation of free radicals by an incredible 82%, further confirming their outstanding antioxidant properties.\(^9\)

Goji berries have a tremendous amount of nutrients that nurture and protect the skin. They contain more collagen-building vitamin C than an orange, along with vitamin E to reduce wrinkles and seal in moisture.\(^10\)

Goji berries also contain bioactive polysaccharides, complex carbohydrates that repair and rejuvenate the skin of the neck by suppressing the elevation of enzymes involved in collagen destruction.\(^11\)
Halt Collage Destruction

The Indian gooseberry (*Phyllanthus emblica*) has been celebrated for centuries in India for its high antioxidant capacity and potent anti-inflammatory effects. These attributes have sparked interest in the fruit’s potential as a topical ingredient in skin care preparations. And as it turns out, Indian gooseberry has the potential to protect against one of the chief causes of premature aging: ultraviolet (UV) damage.

Sun damaged skin causes an internal breakdown of collagen that contributes to fine lines, wrinkles, age spots, and uneven skin tone. When scientists investigated the impact of the Indian gooseberry on UV radiated human skin fibroblasts, they found that the fruit extract was effective in protecting against UV damage by inhibiting the expression of matrix metalloproteinases in the specialized skin cells.

The powerful berry has been found to offer other benefits to the aging skin, including boosting the synthesis of collagen type I, halting the collagen-destructive ability of collagenase, and promoting dermal wound healing.

Keep Skin Hydrated

In order for skin to stay healthy and young looking, it must be properly hydrated and nourished. Hyaluronic acid plays a vital role in creating an environment in which skin cells obtain proper hydration and nourishment. Along with water and protein complexes, hyaluronic acid acts as a filler in between the spaces of a fiber network consisting mostly of collagen and elastin beneath the surface of your skin.

The compound's main function is to attract and retain water, leading the skin to hold moisture and in return lessens the visibility of fine lines. What’s more, hyaluronic acid is responsible for transporting essential nutrients to the skin cells, supplying them with the weapons required to rejuvenate themselves.

What You Need to Know

Restoring a Youthful-Appearing Neck and Décolleté

- The skin of the neck and décolleté is one of the most important features of a youthful appearance, but is often the most neglected area in a skin care regimen.
- The thin skin of the neck and décolleté makes it prone to damage by external factors such as UV damage and chemical pollutants, resulting in the formation of wrinkles, age spots, fine lines, and uneven skin tone.
- Topical ingredients, including hexapeptide-10, acetyl-dipeptide-13, goji berries, Indian gooseberry, and hyaluronic acid are safe and effective weapons in protecting, repairing and strengthening your skin, revealing a more youthful-looking neck and décolleté.
Over time, hyaluronic acid synthesis decreases due to the unfavorable effects of UV radiation and free radical damage, severely depleting its reserves. Replenishing hyaluronic acid can nourish your aging neck, providing increased skin hydration and firmer skin tone.

Summary

A youthful-looking neck and décolleté is the hallmark of a youthful appearance. Novel agents, including hexapeptide-10, acetyl-dipeptide-13, goji berry, Indian gooseberry, and hyaluronic acid work together to repair the dermo-epidermal junction, strengthen the underlying skin structure, and increase hydration to help restore a youthful-appearing neck and décolleté.

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

References


5 Ingredients for Firmer, Younger Skin

- **Hexapeptide-10** reconstructs the connectivity of the dermo-epidermal junction, thereby reinforcing the skin’s elasticity and firmness.
- **Acetyl-dipeptide-13 diphenylglycine** improves skin’s tightness by halting the breakdown of elastin and stimulating the synthesis of collagen type I synthesis.
- **Goji berries** have unparalleled antioxidant power that protects the skin’s integrity and internal structure from free radical damage.
- **Indian gooseberry** defends against UV damage that leads to an early loss of elasticity.
- **Hyaluronic acid** provides increased skin hydration and firmer skin tone.
Skin Restoring Phytoceramides with Lipowheat™

Your Skin’s Internal Moisturizer

Ceramides are essential for preserving healthy-looking skin. That’s why they’re included in so many anti-aging face creams.

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

Restore Ceramides Naturally from Within!
The ceramides that young skin naturally produces to retain its supple appearance are identical to those present in wheat!

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

That’s why Life Extension® brought together these skin-nourishing oils in a concentrated oral formula called Skin Restoring Phytoceramides with Lipowheat™. Lipowheat™ is a proprietary ceramide blend that offers nutritional support for aging skin to complement the topical products you may already be using.

The Moisturizing Pill the Japanese Have Enjoyed for a Decade!

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

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

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

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

Contains wheat.

Lipowheat™ is a trademark of LAEVPHARM Group of Companies.

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

References

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.
RejuveneX® Factor provides 28 active ingredients in a deep-penetrating serum. To get these skin protecting and rejuvenating compounds elsewhere, you’d need to layer on a dozen expensive creams—each providing only 2 or 3 of these active ingredients.

The good news is that—for a fraction of the cost—RejuveneX® Factor Firming Serum delivers optimal dosages of the full range of clinically proven technologies… to promote the appearance of youthful, firmer, and more vibrant skin.

**SERUM VS. CREAM**

RejuveneX® Factor is a serum—a more concentrated format that is thinner than a cream and ensures superior absorption of its 28 skin enhancing compounds.

RejuveneX® Factor Firming Serum comes in an airless pump to protect the integrity of the bioactives, and utilizes a patented deep-layer delivery system that provides sustained release for 6 to 8 hours.

RejuveneX® Factor Firming Serum is uniquely free of paraben, irritants, estrogenic chemicals, mineral oil, and synthetic fragrances.

**HUGE SAVINGS**

A 1.7 oz bottle of Rejuvenex® Factor Firming Serum retails for $65. If a member buys two bottles, the price is reduced to $38 a bottle. If six bottles are purchased, the price is only $28.89 a bottle.

### Rejuvenex® Factor Firming Serum Provides 28 Active Compounds:

- **Taurine**: Helps neutralize free radicals and inhibit premature aging of the skin.
- **Salicylic acid**: Supports production of new skin cells.
- **Ceramide-2**: Promotes the shedding of old skin cells and helps retain moisture.
- **Thiolic acid (alpha lipoic acid)**: Supports the skin’s normal antioxidant protection.
- **Lactic acid**: Helps the body shed dead skin cells.
- **Vitamin C (ascorbyl phosphate)**: Helps strengthen the skin barrier and promote collagen production.
- **Hylasome® EG10 (hyaluronate crosspolymer)**: Holds more moisture in skin cells and targets free radicals.
- **Glycerin**: Minimizes the appearance of wrinkles by supporting elasticity and moisture retention.
- **Avobenzone**: Helps protect the skin from the visible effects of sunlight exposure.
- **Glycine soja (soybean) oil**: Promotes collagen production and skin elasticity and supports UV defense.
- **Panthenol**: Potent support for skin’s normal moisturizing ability.
- **DMAE (dimethyaminoethanol)**: Helps smoothe and firm skin.
- **Botanimoist® AMS (Pyrus malus)**: Helps boost hydration of skin cells.
- **Botanistat® PF-64**: Helps preserves serum against environmental toxins (avoiding the preservative paraben).
- **Pomegranate (Punica granatum) extract**: Reduces visible signs of aging by promoting skin cell turnover.
- **Green tea (Camellia sinensis) extract**: Provides antioxidant support to help prevent signs of premature aging.
- **White tea (Camellia sinensis) extract**: Protects the skin from visible signs of UV exposure.
- **QuSome® delivery system**: Breakthrough delivery system delivers maximum active ingredients directly into the skin.
- **Matrixyl® synthe'6™**: Helps minimize the appearance of fine lines and wrinkles.
- **Vegetal Filling Spheres™**: Expands with moisture to allow plumping of wrinkles.
- **PolyP (sodium polyphosphate)**: Supports production of collagen.
- **Pichia-fermented Resveratrol extract**: Increases hydration, diminishing the appearance of lines.
- **Tocopherol (vitamin E)**: Superior penetration helps reduce the appearance of fine lines and wrinkles.
- **Tocopheryl acetate (vitamin E)**: Promotes skin repair and natural defenses against premature skin aging.
- **Beta-glucan**: Supports collagen formation, defense against UV exposure, and healthy skin.
- **RNA**: Promotes production and turnover of new skin cells.
- **Sodium PCA**: Helps skin stay moisturized, soft, supple, and firm, and helps prevent breakouts.
- **Hydroxydecyl ubiquinone (CoQ10)**: Supports collagen and elastin for smoother, younger-looking skin.
Is Your ANTI-AGING PROGRAM Missing Something?

If you’re not targeting the thin skin of your neck area, then you’re overlooking one of the most obvious signs of aging. Your neck and upper chest/shoulder/torso area is a dead giveaway of your age because its thin skin is especially prone to sagging and wrinkles. But it doesn’t have to be.

Advances in research have led to the discovery of compounds that offer a novel approach to supporting the delicate skin of your neck and décolleté. Scientists have discovered that these compounds act as key regulators of the biochemical environment within the dermal layers of the skin. This facilitates the communication necessary to protect, repair, and strengthen your skin from the inside out.

ULTIMATE NECK–CHEST SKIN SUPPORT

Cosmesis Skin Care combines these compounds in one high-potency formula that targets multiple factors involved in skin aging. It contains 5 intensive ingredients that work to help restore and retain youthful-looking skin:

- **Hexapeptide-10** helps improve the connectivity of the dermo-epidermal junction, reinforcing the skin’s elasticity and firmness.
- **Acetyl-dipeptide-13 diphenylglycine** improves skin’s tightness by halting the breakdown of elastin and stimulating the synthesis of collagen type I.
- **Goji berries** have unparalleled antioxidant power that protects the skin’s internal structure from free radical damage.
- **Indian gooseberry** helps protect against UV damage that leads to collagen breakdown and an early loss of elasticity.
- **Hyaluronic acid** increases skin hydration and facilitates communication between skin layers.

Together, these 5 ingredients provide you with ultimate support for the delicate skin of the neck to help defend against the visible signs of aging.

A 2 oz jar of Cosmesis Skin Care Tightening & Firming Neck Cream retails for $39. If a member buys two jars, the price is reduced to $26.25 per jar.

To order Cosmesis Skin Care Tightening & Firming Neck Cream, call 1–800–544–4440 or visit www.LifeExtension.com

References

Extraordinary Enzymes

Digestive Support That Does Not Promote Glucose Spikes

Human studies suggest that supplementary enzymes may improve digestion and help minimize post-meal glucose surges. Since proteins, plant fibers, and fats are broken down differently, one needs the proper spectrum of enzymes for optimal digestion.

A new multi-enzyme formula facilitates both optimal nutrient absorption and broad relief from digestive discomforts without promoting after-meal glucose surges.

**TWELVE PREMIUM ENZYMES**

Extraordinary Enzymes provides a potent array of protease, cellulase, and lipase enzymes specially formulated to adapt to a variety of stomach acid pH conditions and powerfully support digestion.

With a total of twelve different enzymes, this unique formula supports the digestion of just about any food that may pose a problem for you—whether a protein, fiber, or fat.

Extraordinary Enzymes provides a blend of powerful enzymes to help your system convert a variety of foods to energy and readily absorb the nutrients in the foods you consume. This formulation may enhance protein content in your body and allow for better fat utilization.

Together, these enzymes work by an all-natural, synergistic process to help provide nutritional support for a healthy digestive system.

The twelve enzymes in value-priced Extraordinary Enzymes are:

- **Protease SP (Bacillus sp., Aspergillus oryzae)** 97,000 HUT
- **Protease S (Aspergillus melleus)** 10,500 PC
- **Acid Protease (Aspergillus niger)** 10 SAPU
- **Lipase (Candida rugosa, Rhizopus oryzae, Aspergillus niger)** 4,000 FIP
- **Cellulase (Trichoderma longibrachiatum)** 2,400 CU
- **Trypsin (Porcine)** 20,000 USP
- **Chymotrypsin (Porcine)** 3,336 USP
- **Phytase (Aspergillus niger)** 20 FTU
- **Beta-Glucanase (Trichoderma longibrachiatum)** 30 BGU
- **Hemicellulase (Aspergillus niger)** 4,000 HCU
- **Pectinase (Aspergillus niger)** 50 endo-PGU
- **Xylanase (Trichoderma longibrachiatum)** 600 XU
- **Total Nutrient Absorption Blend** 200 mg

**WHAT’S NOT IN EXTRAORDINARY ENZYMES?**

Unlike commercial digestive enzyme supplements, amylase is intentionally left out of Extraordinary Enzymes. The reason is that amylase breaks down starches into glucose that is rapidly absorbed into the bloodstream.

Extraordinary Enzymes facilitates the healthy breakdown of plant fibers that cause people to avoid healthy vegetables because of digestive discomforts.

Most people will take one capsule before the two heaviest meals, which provides 400 mg of natural digestive enzymes each day.

A bottle of 60 capsules of Extraordinary Enzymes retails for $26. If a member buys four bottles, the price is reduced to $18 per bottle.

Contains milk, soybeans, tree nuts (coconut), and wheat.

**References**


To order Extraordinary Enzymes, call 1-800-544-4440 or visit www.Life Extension.com

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

An Effective 3-Step Plan to Protect Your Mind and Strengthen Your Memory

Losing memory and brainpower is not just “a part of life” that everyone must endure as part of the aging process. Just as diet, environment, and lifestyle play an integral role in the health of the body, the same goes for the brain. Researchers from around the world have uncovered specific nutrients that either endanger or offer protection to the brain. New imaging techniques have been developed that allow scientists to study the brain as a living system—to learn how it functions and how the brain is affected by time, nutrition, and lifestyle. Cutting edge testing has begun to offer clues as to who is most at risk for cognitive disease as time passes. As this body of research has amassed, it has become clear that specific foods, eating behaviors, lifestyle, and environmental factors can have a powerful effect on the function of the brain.

The following is an exclusive Life Extension® interview about Dr. Neal Barnard’s new book, Power Foods for the Brain—An Effective 3-Step Plan to Protect Your Mind and Strengthen Your Memory, which unifies this growing body of data and offers a groundbreaking 3-step plan to safeguard your brain function now and in the future.

LE: Early in your book, you explain the concept of building a “shield” for your brain and you mention it when talking
about protecting your brain from toxic metals. What metals would people be surprised are actually found in the brain and what negative impact do they have?

**NB:** Many people experience memory lapses from time to time. And memory problems grow more severe as the years catch up with us. Alzheimer’s disease attacks half of Americans by age 85. It is financially devastating, of course, but the personal costs are incalculable. We need to be able to shield ourselves from the threats to brain health. These include toxic metals, as well as unhealthy fats, certain prescription drugs and their side effects, as well as many other things. Metals are particularly important. When researchers study individuals who have died with Alzheimer’s disease, their brains contain beta-amyloid plaques. Under the microscope, they look a bit like tiny meatballs in between the brain cells. When researchers tease these plaques apart, they find not only beta-amyloid protein, but also certain metals. Iron, for starters. Of course, we need a certain amount of iron. Traces of iron are part of the hemoglobin molecules that your red blood cells use to carry oxygen in your bloodstream. If you didn’t have iron, you would be anemic. But excess iron threatens brain health. That is also true for copper. Aluminum is also under suspicion.

Back in the 1980s, researchers in England noticed that Alzheimer’s disease cases tended to be clustered in those counties that had more aluminum in the drinking water. They had as much as 50% higher risk of Alzheimer’s compared to the lower-aluminum counties. Studies elsewhere had similar findings. This area remains controversial, but while researchers fight it out, it makes sense to protect yourself.

**LE:** What are “rusty brain cells” and how did you come up with that description?

**NB:** If you were to leave a cast iron pan on your backyard picnic table for a day or two and a bit of rain happened to fall, what happens? Iron rusts. That’s oxidation. And iron oxidizes in your body, too. When that oxidation process occurs, it tends to produce free radicals. A free radical starts out as an innocent molecule. It could be oxygen—oxygen that your body needs for health. But if the oxygen molecule loses an electron or an electron gets into an unstable orbit, it becomes a free radical. Free radicals form in your bloodstream, in your cells, and even in your brain. And each one is like a spark, burning holes in your brain. As iron oxidizes, it encourages free radicals to form. Most Americans get too much iron, because of the meaty diets that are part of the culture. The iron in meat is called heme iron, and it tends to be a bit too absorbable; it can overload you with iron. The very best foods for iron are our neglected friends, beans and green leafy vegetables. These foods have a special form of iron called non-heme iron, which is more absorbable when your body needs more and less absorbable when your body has enough iron already. They help prevent the lows and highs in iron that can be bad for your brain.

**LE:** While we’re talking about this, are these metals lurking in everyday use?

**NB:** Well, let’s start in the kitchen. Is there a cast-iron pan on your stove? How about copper pipes. They became popular in the early part of the 20th century, and if your drinking water has been sitting in copper pipes overnight, there is copper in the water you’re drinking. Red meats tend to be high in metals, especially iron. And the mother lode of copper is a plate of liver. It might surprise you that one of the biggest sources of metals is a typical multiple vitamin. Now, the vitamins themselves are fine. But in many formulations, manufacturers add iron that you may not need. It pays to look for a vitamin without added metals. Beans and greens, along with fruits and grains, give you the iron and copper you need, without the risk of overdoing it. When water passes through a municipal treatment plant, aluminum is typically added as part of the process of making impurities settle out. And unfortunately, traces of aluminum remain. You turn on your tap and out comes the water mixed with aluminum. Aluminum pots and pans can leak some aluminum into foods. The baking powder used in the pancakes you may have had for breakfast probably has aluminum in it, unless you used aluminum-free baking powder, which is available at any grocery store. Frozen pizzas may have aluminum in the cheese or the crust. Those little single-serve salt and sugar packets often have aluminum to keep the salt or sugar from caking. If you buy antacids, read the labels. Some have aluminum; others are aluminum-free.

**Editor’s Note:** There is a debate as to whether people should take a small amount of copper in their multi-nutrient formulas. Deficiency of copper can create serious problems, including loss of communication (synaptic transmission) between brain cells. Once copper is used to facilitate synaptic transmission it can turn into a neurotoxin that the brain must buffer against. Protection against copper toxicity to brain cells can be obtained by supplementing with 1,000 milligrams a day of carnosine.*

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LE: Turning our attention to the American diet for a second, how do saturated fats negatively affect the brain?

NB: In 2003, researchers with the Chicago Health and Aging Project found that saturated fat—the kind of fat that predominates in animal products—is linked to Alzheimer's disease. Some study participants ate a lot of saturated fat—about 25 grams a day. Others ate only about half that amount, about 13 grams per day. It turned out those who got about 25 grams of saturated fat each day had more than 3 times the risk of developing Alzheimer's disease, compared with those who ate less “bad fat.” If you add it up, it is easy to get to the 25 grams of “bad fat” per day that was a problem in the Chicago study: a couple of eggs, one strip of bacon, one chicken thigh (without the skin), a glass of milk, a small pizza. All together, that’s more than 25 grams of saturated fat. Trans fats—partially hydrogenated oils—are a problem, too.

LE: So why do these fats cause problems for the brain?

NB: Well, we’ve known for a long time that “bad fats” tend to increase your cholesterol level. And if you have too many cholesterol particles flowing through your arteries, they can lead to artery blockages, not just in the heart, but in the arteries to the brain, too. California researchers studied a group of 9,844 people, measuring their cholesterol levels in the 1960s and 1970s when their average age was around 40. Then three decades later, they looked to see who developed memory problems. It turned out that the higher the cholesterol, the higher the risk of Alzheimer’s disease. But there is more to it. Fatty diets and high cholesterol levels seem to cause the brain to produce more beta-amyloid. A team of researchers took blood samples immediately after death from individuals who had had Alzheimer’s disease, and then at autopsy they looked inside the brain. They found that the higher the level of cholesterol in the blood, the more beta-amyloid was inside the brain. The best advice for protecting your brain—not to mention your heart and your health overall, is to avoid animal products. I did not grow up with a vegan diet, but having seen its power—not to mention how delightful the foods can be—I’ve adopted an entirely vegan diet, and I only wish I’d done it earlier.

LE: You are quick to point out that some fats are essential, namely the omega-3 fat, alpha-linolenic acid. Why is that so important and how do they play a role in brain function?

NB: Alpha-linolenic acid is one of two essential fats. In our bodies, it is lengthened to other fats that are essential to brain function. The healthiest source is green leafy vegetables, surprisingly enough. We don’t think of broccoli or other green vegetables as having any fat. And they don’t have very much—not nearly as much as beef or chicken breast or salmon. But about 8% of the calories in broccoli are from fat, and proportionately, they are high in ALA. The take-home message is that there are traces of good fats, not just in broccoli but in kale, collards, and other green vegetables. There is more of it in walnuts and flaxseeds, and in certain oils, especially canola oil, and even supplements that you can buy at the store. If you include green vegetables and nuts in your routine, you’ll get good fats for your brain. Also, it pays to avoid other fats, because they can tie up the enzymes that lengthen ALA to the other forms.

LE: At the beginning of Chapter 5 in your book, you list a few vitamins and nutrients that play crucial roles in building a “vitamin shield” for your brain. Can you name a few and why they’re so vital?

NB: Vitamin E is a powerful antioxidant. That means that it knocks out free radicals. It is in spinach, in mangoes, in sweet potatoes, and in much larger amounts of nuts and seeds. It makes a real difference. Earlier I mentioned the Chicago Health and Aging Project, which looked at how foods affect the brain. In that study, those who got more vitamin E had less than half the risk of Alzheimer’s disease, compared with people who were missing vitamin E. So vitamin E plays a huge role. The bottom line is that iron and copper make sparks—free radicals. Vitamin E is the fire extinguisher that blows all those sparks away.
Three B-vitamins play key roles, too. At the University of Oxford, researchers tested folate, B6, and B12 in a research study. Half the participants got these vitamins, while the other half got a dummy pill—a placebo. The people who received the placebo had the usual problems with memory as the years went by. But those who got the three B-vitamins did much better; they generally preserved their memories as the years went by. The researchers also did an MRI scan to actually measure the brain, and found that those who were getting a dummy pill had continuing brain atrophy, something that is often seen in older people. They lost about 2.5% of their brain volume per year. But in the B-vitamin group, atrophy was reduced to just 0.5% per year. The vitamins work, we believe, by knocking out a toxic chemical called homocysteine, which can be very rough on the brain. Your doctor can check your homocysteine level, and if you’re high, these vitamins can remove it and that can make a big difference. Folate is in green leafy vegetables. Vitamin B6 is in beans and bananas, and many other foods. Vitamin B12 is supplemented in many foods such as cereals. It is also in vitamin supplements. These vitamins protect you.

**LE:** Since our diets influence more than one part of our bodies, how does something as common as excess blood sugar affect the brain? And how important is managing blood sugar for brain health and what would be a solid blood glucose management strategy?

**NB:** Some researchers have begun to speak of a role of insulin in memory problems, including Alzheimer’s disease. While that research is underway, it certainly makes sense to control blood sugar. But the way to do this is not to avoid natural sugars or starches—the usual naïve approach that has gotten a lot of attention. Rather, the answer is to avoid animal products and other fatty foods. As fat enters the cells, it interferes with insulin’s ability to work. So it pays to emphasize vegetables, beans, whole grains, and fruit, and skip animal products and greasy foods in general. Avoiding fats is a much more powerful step than avoiding healthful carbohydrates.

**LE:** How important is exercise to maintaining a healthy brain? What have studies shown?

**NB:** It protects the brain, just as it protects the heart. At the University of Illinois, researchers asked 120 adults to take a brisk walk for 10 minutes, 3 times a week. And then they increased the length of each walk to 15 minutes the next week, then to 20 minutes the following week, and so on, until they got to about 40 minutes, three times a week. Over time, this simple exercise program actually reversed the age-related shrinking of the brain that occurs in most sedentary people. Memory improved as well.

**LE:** Aside from supplements, what are a few ways that people can actually strengthen their brains?

**NB:** These are the key steps:

1. Avoid bad fats. That means saturated fat and trans fats.
2. Emphasize vegetables, fruits, whole grains, and beans.
3. Take a vitamin B12 supplement daily.
4. Be on the lookout for excess iron, copper, and aluminum.
5. Get plenty of exercise—physical and mental.
6. Get plenty of rest and sleep.

**LE:** And finally, Power Foods for the Brain is an outstanding resource for anyone interested in improving mental health through their diet. If people followed your guidance, could we prevent Alzheimer’s disease and other forms of dementia?

**NB:** Evidence suggests we could cut the risk of these conditions dramatically. In the same way that the previous generation learned how to use foods to tackle heart disease and reduce cancer risk, the current generation is learning that foods can protect the brain, too.

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

Dr. Neal Barnard is president of the Physician’s Committee for Responsible Medicine, a faculty member of the George Washington School of Medicine, and the founding member of the Whole Foods Medical Advisory Board. He is a New York Times bestselling author and a monthly columnist for the Vegetarian Times. He is featured in the new, nationally released documentary, Forks Over Knives, and has previously appeared on Today, Good Morning America, Ellen, and Dr. Oz. For more information visit: [http://www.nealbarnard.org/](http://www.nealbarnard.org/).

To order Power Foods for the Brain, call 1-800-544-4440 or visit www.LifeExtension.com

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Not all coffee provides the same powerful protection.12
When it comes to obtaining coffee’s full range of health benefits, most people aren’t getting their money’s worth!
The reason? Most of the coffee bean’s polyphenol content is destroyed during the roasting process.
Among the most beneficial of these polyphenols is chlorogenic acid, a potent inhibitor of the glucose-6-phosphatase enzyme that stimulates excess gluconeogenesis.

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

Savory Taste Without Stomach Upset

Have you given up coffee because it upsets your stomach? With Rich Rewards®, you can enjoy coffee again. The HealthyRoast™ process also preserves special, naturally occurring compounds in coffee that soothe your stomach.
Concerned about caffeine but don’t like the weak taste of decaffeinated coffee? With Rich Rewards® Decaffeinated Roast, you can limit your caffeine intake without compromising on flavor. The caffeine is removed through a completely chemical-free Water Process, which relies solely on water and carbon filters. It delivers the full flavor, aroma, and body of the arabica bean.
Life Extension’s Rich Rewards® coffees give you a uniquely beneficial brew with superior flavor. The Rich Rewards® Breakfast Blend contains up to 87% more chlorogenic acid than conventional caffeinated coffees. Rich Rewards® Decaffeinated Roast contains up to 187% more chlorogenic acid than conventional decaffeinated coffees.

Comparison of Conventional Coffee to Life Extension’s Rich Rewards® Blend

<table>
<thead>
<tr>
<th>Chlorogenic Acid</th>
<th>Chlorogenic Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional Coffee (Caffeinated)</td>
<td>92 mg</td>
</tr>
<tr>
<td>Conventional Coffee (Decaffeinated)</td>
<td>46 mg</td>
</tr>
</tbody>
</table>

This chart shows Life Extension’s Rich Rewards® Breakfast Blend contains up to 87% more chlorogenic acid than conventional caffeinated coffees and the Rich Rewards® Decaffeinated Roast contains up to 187% more chlorogenic acid than conventional decaffeinated coffees. This enables one to obtain the benefits of heavy coffee drinking in about half the number of cups.

References
* US Patent 6,723,368.

To order either of the Rich Rewards® Antioxidant Coffees call 1-800-544-4440 or visit www.LifeExtension.com
Opportunities

If you had your life to relive, what would you do differently?

Imagine actually having the opportunity.

Cryopreservation is the science of using ultra-cold temperature to preserve human life with the intent of restoring good health when technology becomes available to do so. Call Alcor or visit our website today for your free information package.

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www.alcor.org
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 oleuropein5-8 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 leaf9-13—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.

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.

References

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

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Blood testing provides the ultimate information regarding correctable risk factors that may predispose you to disorders such as cancer, diabetes, cardiovascular disease, and more. Information about general health and nutritional status can also be gained through standard blood analysis. Standing behind the belief that blood testing is an essential component of any program designed to attain optimal health and longevity, Life Extension® offers this innovative and convenient service at a very affordable price. Not only is comprehensive blood testing an important step in safeguarding your health, it is a simple process from virtually anywhere in the United States.

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

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

For Our Local Members:
For those residing in the Ft. Lauderdale, Florida area, blood-draws are also performed at the Life Extension Nutrition Center from 9:00 am to 2:00 pm Monday through Saturday. Simply purchase the blood test and have it drawn with no wait! Our address is 9990 North Federal Highway, Ft. Lauderdale, FL, 33308-2633.

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

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

Most Popular Panels

**The Ultimate Information**

**COMPREHENSIVE PANELS**

**MALE LIFE EXTENSION PANEL (LC322582)**
Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: C-Reactive Protein

$299

**FEMALE LIFE EXTENSION PANEL (LC322553)**
Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: C-Reactive Protein

$299

**MALE WEIGHT LOSS PANEL (LCWLM)**
Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: C-Reactive Protein

$299

**FEMALE WEIGHT LOSS PANEL (LCWLF)**
Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: C-Reactive Protein

$299

**MALE HORMONE ADD-ON PANEL (LCADD1)**
Progesterone and Dihydrotestosterone (DHT)

$155

**FEMALE HORMONE ADD-ON PANEL (LCADD2)**
Progesterone and Total Estrogens

$125

**LIFE EXTENSION THYROID PANEL (LC304131)**
TSH, T4, Free T3, Free T4.

$75

**COMPLETE COMPREHENSIVE PANEL**

**MALE COMPLETE COMPREHENSIVE PANEL (LC100010)**
CBC/Chemistry Profile (see description above), DHEA-S, Estradiol, Total Estrogens, Progesterone, Progesterone, Total and Free Testosterone, TSH, Free T3.

$299

**THE CBC/CHEMISTRY PROFILE (LC381822)**
Over 40 parameters tested

$35

**HOMOGLABIN A1C (HBATC)**
It measures 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.

$31

**VITAMIN D (250H)**

$47

**FOOD SAFE ALLERGY TEST**

$198

**ASPIRINWORKS™**(LC501620)
Taking aspirin to prevent heart attack? Is it working? This is a random urine test used to measure your resistance to aspirin.

$149

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

$131.25

**COQ10** (COENZYME Q10)**(LC120251)
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.

$149
This test shows if you are taking the proper amount of DHEA. This test normally costs $100 or more at commercial laboratories.

**INFLAMMATION PANEL (LC100007)**  
CBC/Chemistry Profile (see description), Sedimentation Rate, Rheumatoid (RA) Factor, Antinuclear Antibodies (ANA) Screen.

$135

**THYROID ANTIBODY PROFILE (LC100004)**  
Thyroid Antibody (TPO), Thyrotropin-Releasing Hormone (TRH), Thyroid Peroxidase Antibody (TPO).  

$99

**Popular Single Tests**

**HORMONES**  
**CORtISOL (LC084051)**  
This test is to measure adrenal function.

$39

**DHEA-SULFATE (LC040420)**  
This test shows if you are taking the proper amount of DHEA. This test normally costs $100 or more at commercial laboratories.

$61

**DIHYDROTESTOSTERONE (DHT)**  
(LC500142)  
Measures serum concentrations of DHT.

$99

**ESTRADIOL (LC004515)**  
For men and women. Determines the proper amount in the body.

$33

**INSULIN FASTING (LC004333)**  
Can predict those at risk of diabetes, obesity, and heart and other diseases.

$42

**PREGNANOLONE**  
(LC140707)  
Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing’s syndrome.

$116

**PROGESTERONE**  
(LC004317)  
Primarily for women. Determines the proper amount in the body.

$55

**SEX HORMONE BINDING GLOBULIN (SHBG)**  
(LC082016)  
This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens.

$33

**SOMATOMEDIN C (IGF-1)**  
(LC010363)  
Indicates growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality.

$75

**CARDIOC RISK**  
**LP-PLA2 (PLAC TEST)***  
(LC123240)  
This test is used to aid in predicting risk for coronary heart disease, and ischemic stroke associated with atherosclerosis.  

$125

**C-REACTIVE PROTEIN (HIGH-SENSITIVITY)**  
(LC120766)  
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.

$42

**CARDIOC PLUS**  
(LC100008)  
CBC/Chemistry profile (see description), Thyroid D 25-hydroxy, C-Reactive Protein (high sensitivity), Fibrinogen, Homocysteine.

$145

**VAP PLUS**  
(LC100009)  
VAP, C-Reactive Protein (high sensitivity), Homocysteine, Fibrinogen, PLAC™ Test (LP-PLA2), Vitamin D 25-hydroxy.

$330

**FIBRINOGEN***  
(LC003610)  
High levels of this blood-clotting factor increase the risk of heart attack and stroke.

$31

**HOMOCYSTEINE**  
(LC705994)  
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 factor.

$64

**VAP™ TEST***  
(LC804500)  
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.

$90

**MALE HEALTH**  
**PSA (PROSTATE-SPECIFIC ANTIGEN)**  
(LC010322)  
Can provide an early warning sign for prostate disorders and possible cancer.

$31

**FREE-PSA (INCLUDES TOTAL PSA)**  
(LC480780)  
Recommended to determine if an elevated PSA is indicative of prostate cancer.

$41

**BONE HEALTH**  
**OSTEOCALCIN***  
(LC010249)  
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.

$91

**DPD CROSS-LINK URINE TEST**  
(LC511105)  
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.

$79

**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.

Expiry Date / 

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Life Extension  
3600 West Commercial Boulevard  
Fort Lauderdale, FL 33309

Phone your order to: 1-800-208-3444  
Fax your order to: 1-866-728-1050

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Acetyl-L-Carnitine-Arginine
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L-Arginine Capsules
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Optimized Carnitine with GlycoCarn®
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ArthroMax™ with Theaflavins and AprèsFlex™
ArthroMax™ Advanced with UC-II® and AprèsFlex™
Bone Up™
Bone Restore
Bone Restore w/Vitamin K2
Bone Strength Formula w/KoAct™
Chondrox
Fast Acting Joint Formula
Glucosamine Chondroitin Capsules

BRAIN HEALTH
Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginine
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
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Extraordinary Enzymes
Life Flora™
Natural Esophaguard
Pancreatin
Probiotic All-Flora®
Probiotic Anti-Aging
Regimin
Therlac Probiotics

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Memory Upgrade™

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Brite Eyes III
Eye Pressure Support with Mirtogenol®
Overcast Polarized Sunglasses
Solarshield Sunglasses

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Astrantin
Berry Complete
Bio-Enhanced Astrantin w/Phospholipids
Blueberry Extract
Blueberry Extract w/Pomegranate
Butterbur Extract w/Standardized Rosmarinic Acid
Calcium D-Glucarate
Cilantro Herbal Extract
Enhanced Berry Complete with RZD™ Acai Full-Spectrum Pomegranate™ Grapeseed Extract with Resveratrol & Pterostilbene
Huperzine A
Koyalc® Garlic Formula 105
Koyalc® 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

FOOD
Rich Rewards™ Black Bean Vegetable Soup
Rich Rewards™ Spicy Cruciferous Vegetable Soup
Rich Rewards™ Cruciferous Vegetable Soup
Rich Rewards™ Lentil Soup
Rich Rewards™ Coffee

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

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

HEART HEALTH
Applewise Polyphenol
Advanced Lipid Control
Aspirin (Enteric Coated)
Cardio Peak™ w/Standardized Hawthorn and Arjuna
Chol-Less™
D-Ribose Capsules
D-Ribose Powder
Endothelial Defense™ with Full-Spectrum Pomegranate™
Fibrinogen Resist
Forskolin
Homocysteine Resist
Kril Healthy Joint Formula
Natural BP Management
Olive Leaf Vascular Support
Peak ATP® with GlycoCarn®
PhosphoOmega®
Policosanol
Pycnogenol® French Maritime Pine Bark Extract
Red Yeast Rice
Super Absorbable CoQ10™ with d-Limonene
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with Enhanced Mitochondrial™ Support
Sytiriol™
Theaflavin Standardized Extract
TMG Powder
TMG Tablets

FIBER
Applewise Polyphenol
Echinacea Extract
Enhanced Life Extension Whey Protein
26 Hyperimmune Egg
Immune Protect with PARACTIN™
Lactoferrin
Norwegian Shark Liver Oil
Optimized Fucoxidin w/Maritech® 926
Primal Defense™
ProBoost™ Thymic Protein A
Pure Gar™
Reishi Extract Mushroom Complex
Vitamin C with Dihydroquercetin
Zinc Lozenges with Vitamin C

IMMUNE ENHANCEMENT
AHCC® (Active Hexose Correlated Compound)
Black Cumin Seed Oil
Black Cumin Seed Oil w/Bio-Curcumin®
Buffered Vitamin C Powder
Echinacea Extract
Enhanced Life Extension Whey Protein
26 Hyperimmune Egg
Immune Protect with PARACTIN™
Lactoferrin
Norwegian Shark Liver Oil
Optimized Fucoxidin w/Maritech® 926
Primal Defense™
ProBoost™ Thymic Protein A
Pure Gar™
Reishi Extract Mushroom Complex
Vitamin C with Dihydroquercetin
Zinc Lozenges with Vitamin C

INFLAMMATORY REACTIONS
Arthro-Max™ with Theaflavins
Boswellia
Boswellia® Topical Cream
Bromelain (Specially-coated)
DHA (Vegetarian Sourced)
Fast Acting Joint Formula
Ginger Force
Kril Oil
5-LOX Inhibitor with AprèsFlex™
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Natural Relief 1222™ Cream
Omega-3 Whirl
Serrafflazine
SO-Dymes™ with GlisODin® and Wolfberry
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Tart Cherry
Zyflamend® Whole Body

LIVER HEALTH
Branch Chain Amino Acids
N-Acetyl Cysteine
Liver Efficiency Formula
Certified European Milk Thistle
Hepatopro
SAMe
Silymarin

PROTEINS
Acetyl-L-Carnitine

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

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Rich Rewards™ Lentil Soup
Rich Rewards™ Coffee

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Dr. Proctor’s Shampoo
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D-Ribose Powder
Endothelial Defense™ with Full-Spectrum Pomegranate™
Fibrinogen Resist
Forskolin
Homocysteine Resist
Kril Healthy Joint Formula
Natural BP Management
Olive Leaf Vascular Support
Peak ATP® with GlycoCarn®
PhosphoOmega®
Policosanol
Pycnogenol® French Maritime Pine Bark Extract
Red Yeast Rice
Super Absorbable CoQ10™ with d-Limonene
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Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with Enhanced Mitochondrial™ Support
Sytiriol™
Theaflavin Standardized Extract
TMG Powder
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HERBAL/PHYTO PRODUCTS
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Astrantin
Berry Complete
Bio-Enhanced Astrantin w/Phospholipids
Blueberry Extract
Blueberry Extract w/Pomegranate
Butterbur Extract w/Standardized Rosmarinic Acid
Calcium D-Glucarate
Cilantro Herbal Extract
Enhanced Berry Complete with RZD™ Acai Full-Spectrum Pomegranate™ Grapeseed Extract with Resveratrol & Pterostilbene
Huperzine A
Koyalc® Garlic Formula 105
Koyalc® 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

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MINERALS
Biosil
Bone Restore
Bone Strength Formula w/CoAct
Bone-Up™
Boron Capsules
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Chromium Ultra
Copper
Iodoral
Iron Plus
Magnesium
Magnesium Citrate
Only Trace Minerals
Optimized Chromium w/Crominex® 3+
OptiZinc
Sea-Iodine™
Selenium
Se-Methyl L-Selenocysteine
Strontium
Vanadyl Sulfate
Zinc/Vitamin C Lozenges

MISCELLANEOUS
Blender
Blood Pressure Monitor Arm Cuff Medium
Cell Sensor Gauss Meter™
CR Way Edition Advanced Dietary Software
The Capsule Filler Machine

MITOCHONDRIAL SUPPORT
Acetyl-L-Carnitine-Arginate
Mitochondrial Basics w/BioPQQ™
Mitochondrial Energy Optimizer w/BioPQQ™
Optimized Carnitine with GlycoCarn®
Super Absorbable CoQ10™ with d-Limonene
Super Alpha Lipoic Acid with Biotin
Super R-Lipoic Acid
Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™

MOOD RELIEF
Adrenal Energy Formula
Bioactive Milk Peptides
L-Theanine
5-HTP
Enhanced Natural Sleep® w/ Melatonin
Enhanced Natural Sleep® w/o Melatonin
Natural Stress Relief
Stabilium® 200
SAMe
St. John’s Wort Extract

MOUTH CARE
Advanced Oral Hygiene
Bioactives
L-Theanine
5-HTP
NutriFlora™ w/CoQ10
Mouthwash w/Pomegranate
Toothpaste

MULTIVITAMIN
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Comprehensive Nutrient Packs Basic
Comprehensive Nutrient Packs Advanced
Life Extension Booster
Life Extension Mix™ Capsules
Life Extension Mix™ Powder
Life Extension Mix™ Tablets
Bone Strength Mix™ w/o Copper Tablets
Life Extension Mix™ w/Extra Iodine
Life Extension Mix™ w/Extra Iodine 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
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Optimized Cran-Max® w/UTIRose™
5-LOXIN®

(Water-Soluble) Pumpkin Seed Extract
Super Saw Palmetto with Beta-Sitosterol
Super Saw Palmetto/Nettle Root Formula
w/Beta-Sitosterol
Ultra Natural Prostate Formula

SKIN CARE
Advanced Under Eye Serum with Stem Cells
Aber 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™
Bioflavored Cream
Broccoli Sprout
Corrective Clearing Mask
DermaWhey
DNA Repair Cream
Dual-Action MicroDermAbrasion
Essential Plant Lipids Reparative Serum
Face Master® Platinum
Face Rejuvenating Antioxidant Cream
Enhanced FernBlock® w/ 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
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
Reveratrol Anti-Oxidant Serum
Skin Lightening Serum
Skin Restoring Phytoceramides 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 Lip Plumper
Ultra Wrinkle Relaxer
Under Eye Refining Serum
Under Eye Rescue Cream
Vitamin C Serum
Vitamin D Lotion
Vitamin E Essential Cream
Vitamin K Healing Cream

SOY
Natural Estrogen w/Pomegranate
Super Absorbable Soy Isoflavones

SPECIAL PURPOSE FORMULA
Anti-Alcohol Antioxidants w/HepatoProtection Complex
Benfotiamine w/Thiamine
Breast Health Formula
Butterbur Extract w/Standardized Rosmarinic Acid
Chlorella
Chlorophyllin w/Zinc
Green Coffee Extract CoffeeGenic™ (also w/Glucose control)
Coriolus Super Strength
CR Mimetic Longevity Formula
Cuslinein® w/InSea® and Crominex® 5+

European Leg Solution Diosmin 95
Fem Dophilus
Femmenessence MacaPause®
Hears™ Ear Plugs
Migra-eze™
Natural Female Support
Organic Total Body Cleanse
Pecta-Sol®
Potassium Iodide
POQ Caps w/ BioPOQ™
PteroPure™
Prelox® Natural Sex for Men®
Pyridoxal 5'-Phosphate
Rosemarinic Acid Extract
Ultra Natural Prostate w/ApresFlex™ and Standardized Lignans

SPORTS PERFORMANCE
Creatine Capsules
Enhanced Life Extension Protein
DMG (N, N-dimethylglycine)
L-Glutamine Capsules
L-Glutamine Powder

VITAMINS
Ascorbyl Palmitate Capsules
B2
B12
Beta-Carotene
Biotin Capsules
Buffered Vitamin C Powder
Complete B Complex
Folic Acid + B12
Gamma E Tocopherol w/Sesame Lignans
Gamma E Tocopherol/Tocotrienols
Inositol Capsules
Mega Lycopene Extract
Methylcobalamin
MK-7
No-Flush Niacin
Optimized Folate
Super Ascorbate C Capsules
Super Ascorbate C Powder
Super K w/Advanced K2 Complex
Tocotrienols w/Sesame Lignans
Vitamin A Nutriorb
Vitamin B3 (Niacin) Capsules
Vitamin B6
Vitamin B12 Tablets
Vitamin C
Vitamin D
Vitamin D3
Vitamin D3 w/Sea-Iodine™
Vitamins D and K w/Sea-Iodine™
Vitamin E
Vitamin K1

WEIGHT MANAGEMENT
Alli® Refill Pack
Advanced Anti-Adipocyte Formula w/AdiposeStat & Integra Lean®
Calorie Control Weight Management™ Formula w/CoffeeGenic™ Green Coffee Extract
CoffeeGenic™ Weight Management™ with Green Coffee Extract
7-Keto DHEA
DHEA® Complete
Fucosanthin Slim™
HCA
Integra-Lean® Irvingia
LuraLean® Caps Special Propolmannan
Particle Size
Optimized Irvingia w/Phase 3™ Calorie Control Complex
Optimized Saffron w/Satiereal®
Natural Appetite Control
Natural Glucose Absorption Control
Stevia Liquid Extract
Super CLA Blend/Guarana and Sesame Lignans
Super CLA Blend w/Sesame Lignans
WellBetX PGX® Soluble Fiber Blend
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**Sub-Total of Column 1**

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**Sub-Total of Column 2**

To order call: 1.954.766.8433 or 1.800.544.4440

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

April 2013
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LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS  APRIL 2013

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### Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

**APRIL 2013 LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS**

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**SUB-TOTAL OF COLUMN 5**

**SUB-TOTAL OF COLUMN 6**
Bargain prices when you order 4 bottles or jars at a time:

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**SUB-TOTAL OF COLUMN 10**
## Buyers Club Order Form

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**SUB-TOTAL OF COLUMN 11**

**SUB-TOTAL OF COLUMN 12**

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

APRIL 2013

To order online visit: www.LifeExtension.com

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**Sub-Total of Column 13**

- **SUB-TOTAL OF COLUMN 13**

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**Sub-Total of Column 14**

- **SUB-TOTAL OF COLUMN 14**

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To order call: 1.954.766.8433 or 1.800.544.4440

APRIL 2013

*LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS*
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**SUB-TOTAL OF COLUMN 16**

**APRIL 2013**
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* 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.
‡ Due to license restrictions, this product is not for sale to Canada.
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Item code: MEMB1. Call for multiple year membership rates.

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Address

City ST ZIP

Email Phone

☐ Check enclosed (payable to Life Extension Foundation®)

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

APRIL 2013
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ORDER TOTALS

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Postage And Handling (Any size order, continental U.S.) $5.50
C.O.D.s (Add $7 for C.O.D. orders)
Shipping
GRAND TOTAL (Must be in U.S. dollars)

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Print membership No. for member discount

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  Enclosed is $75 for annual membership. (Canadians add $70, all others outside the U.S. add $35.00). Send me: Disease Prevention & Treatment Protocol Book

- Check here for C.O.D. orders
- Check here for UPS Blue Label (2nd Day)
- Check here for UPS Red Label (Overnight)

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**Not a Member? Join Today!**

- $17.50 Canadian members only
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- $30.00 International air mail for $30.00

**Subtotal (U.S. Dollars)**

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Shipping only $5.50 U.S. • $17.50 Canada • $12.50 Hawaii, Alaska, U.S. Virgin Islands, Puerto Rico • UK Flat rate $25 USD (Add $7 for C.O.D. • Add $16.00 for UPS overnight • Add $700 for UPS 2nd day air • International air mail costs will be added.)

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**PLEASE MAIL TO:**
Life Extension Foundation Buyers Club, Inc.
P.O. Box 407198 • Ft Lauderdale, Florida 33340-7198
Or Call Toll Free 1-800-544-4440 • Fax: 866-728-1050 • Local Number: 954-766-8433
Other International Shipping Restrictions May Apply. Please visit www.lef.org/vitamins-supplements/shipping/shipping-information.htm for details.

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**FAX**

**VISA/MASTERCARD/AMEX/DISCOVER #**

**EXP. DATE**

**SIGNATURE**

**COD**

**UPS RED LABEL**

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

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

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

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

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

The retail price for one bottle of Ultra Natural Prostate Formula with AprèsFlex™ and Standardized Lignans is $38. If a member buys four, the price is reduced to $26.25 per bottle. If a member buys 12 bottles, the price is reduced to $24 per bottle.

Contains soybeans and corn.

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

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

To order Ultra Natural Prostate Formula with AprèsFlex™, call 1-800-544-4440 or visit www.LifeExtension.com

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Better Bones by Design
2%-4% of your skeleton is “rebuilt” every year as calcium and minerals leave the bone and must be replaced.

Jarrow Formulas® Presents . . .
A Complete Multi-Nutrient Bone Health System!

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

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

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

Jarrow Formulas® Bone-Up®, 240 capsules Item # 00313: $24.95
If a member buys four bottles, the price will be reduced to $16.88 per bottle.
To order, call (800)544-4440 or visit www.LifeExtension.com

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

New Chapter Zyflamend & Life Extension Super Omega-3

A Holistic Approach to Cardiovascular Health
Maintaining heart health and a strong cardiovascular system are vital to a healthy body. Diet and exercise are the most important factors. Scientists and doctors both agree that a program of preventive health today is preferable to a treatment program tomorrow. But unfortunately, most Americans don’t eat enough heart-healthy foods or get enough exercise. We now know that there are several additional factors that can support cardiovascular health, including:
• Supporting the body’s healthy inflammation response*
• Consuming “good fats” such as Omega-3 fatty acids

What is the Inflammation Response?
Our body’s inflammation response is a natural healing process. We often think of the inflammation response as something we can feel—such as in our joints and muscles where there are large numbers of sensitive nerve endings. But we can also have a response we can’t feel, where sensitive nerves aren’t concentrated—including in the heart and blood vessels. Whether we’re aware of it or not, this inflammation response can affect every organ and cell.

Extensively Researched Herbal Blend
New Chapter’s Zyflamend represents a scientific breakthrough in supporting a healthy inflammation response.* Zyflamend is formulated based on a large body of scientific research showing its ten herbs and spices contain hundreds of plant compounds that support a healthy inflammation response.* Just as important as a daily multivitamin, Zyflamend is the patented herbal protocol to help your whole body’s natural inflammation process stay balanced and healthy every day.* Zyflamend has been studied at leading research institutions and shown to benefit multiple areas of health, including heart health.*

Omega-3 is Important for Cardiovascular Health
Life Extension’s Super Omega-3 is a premium, scientifically validated fish oil concentrate. Super Omega-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract promotes a healthy heart.* Fish oils (and other fatty acids) have a tendency to oxidize, rendering them nutritionally inferior. Scientific studies show that when added to fish oil, sesame lignans safeguard against oxidation and direct fatty acids toward pathways that help with inflammatory reactions.* To further emulate the benefits of a Mediterranean diet, Super Omega-3 delivers standardized, high-potency olive fruit extract. Research shows that when combined with olive oil, fish oil supplements help with inflammation better than fish oil alone.1

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

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

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

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

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

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

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

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

---

**Comprehensive Ocular Protection in One Daily Softgel**

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

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<td>OptiLut®, Lutein Plus® and MZ®</td>
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<td>Marigold (Tagetes erecta) extract (flower) [free lutein equivalent 10 mg]</td>
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<td>Zeaxanthin &amp; Meso-zeaxanthin blend</td>
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<td>[Paprika (capsicum annuum) extract (fruit), OptiLut®, Lutein Plus® and MZ® Marigold Extract (flower)]</td>
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<td>C3G (Cyanidin-3-glucoside)</td>
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The retail price for a bottle containing 60 softgels of **Super Zeaxanthin with Lutein, Meso-Zeaxanthin and C3G** is $22. If a member buys four bottles, the price is reduced to **$14.85 per bottle**.

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OptiLut® is a registered trademark of NutriScience Innovations, LLC.
LuteinPlus® and MZ® are registered trademarks of Nutriproducts Ltd., 7 Marfleet, CB22 5LA, UK, licensed under US Patents 6,218,436 & 6,329,432.

References

To order **Super Zeaxanthin with Lutein, Meso-Zeaxanthin and C3G**, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com).
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