

MOST SOUGHT AFTER ANTI-AGING DRUG

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February 2016

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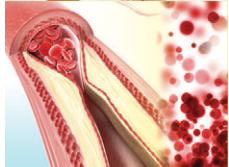
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REPORTS



36 BEAUTY FROM WITHIN

Wrinkled skin, brittle nails, and dry hair indicate a decline in our internal **structural** proteins. Replenishing these proteins through bioavailable **keratin**, **collagen**, and other micronutrients can revitalize skin, hair, and nails from the inside out.



46 SLOW DEVELOPMENT OF ATHEROSCLEROSIS

Long before a heart attack/stroke occurs, fatty plaques form in the arteries. In a significant advance, **two** nutrients have been shown to dramatically slow the **worsening** of atherosclerotic plaque (by **95%**), reduce **unstable** plaque, and improve **endothelial function** (by **66%**).



60 PROTECT AGAINST AGE-RELATED VISION LOSS

New evidence corroborates that **lutein** and **zeaxanthin** strongly maintain the eye's macula, enabling aging adults to reduce the risk of **macular degeneration** by **40%**. Other studies show that these plant carotenoids protect against **cataracts** and other degenerative disorders.



70 IMPACT OF ENVIRONMENTAL TOXINS ON CANCER INCIDENCE

We are surrounded by **environmental toxins** that lead to DNA damage and cancer. Compelling studies show how specific nutrients can protect and help counteract these harmful chemicals.



86 A LEADING CAUSE OF AVOIDABLE DEATH

Recently, *The New England Journal of Medicine* reported that smoking raises the risk of nearly every known disease, from kidney and liver disease to diabetes and Crohn's disease. For those who do not smoke, avoiding second- and thirdhand smoke is imperative.

DEPARTMENTS



7 AS WE SEE IT:

THE MOST SOUGHT-AFTER ANTI-AGING DRUG

Back in the **1980s-1990s**, Life Extension® battled the **FDA** to approve a European drug called **deprenyl**. The reason we fought so hard was because deprenyl studies showed remarkable **longevity benefits** in animals and elevations of "feel-good" **dopamine** in humans. The FDA finally approved deprenyl, but only for treating Parkinson's disease. For those unable to obtain a deprenyl prescription, compelling research shows that a novel **green oat extract** exerts the same mechanism as deprenyl to preserve brain **dopamine** levels. Clinical studies show how this **green oat extract** can improve blood flow to the brain and cognitive function.

17 IN THE NEWS

CoQ10 supports periodontal health; vitamin D slashes cancer mortality up to **52%**; cranberries boost vascular function; metabolic syndrome increases vitamin E requirement; vitamin C has benefits similar to exercise; vitamin D maintains muscle; calcium reduces ICU mortality; omega-3 slows cognitive decline, and much more.



101 WELLNESS PROFILE

Sandy and Stewart Levine have supported each other in their health program throughout their 46-year marriage. As Life Extension® proponents, they explain the diet, supplements, and exercises that make up their ongoing health and longevity choices.





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- **Pterostilbene, fisetin**, and other **fruit** compounds work synergistically with resveratrol to facilitate youthful gene expression and mimic calorie restriction.^{2,4}

* The new **Optimized Resveratrol with Nicotinamide Riboside** provides 2.5 times the previous amount of **quercetin**.

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To order Optimized Resveratrol with Nicotinamide Riboside,
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LifeExtension® Magazine

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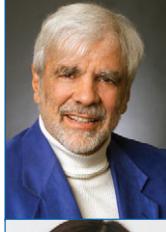
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* *J Diet Suppl.* 2011 Jun; 8(2):158-68

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The Most Sought-After Anti-Aging Drug



BY WILLIAM FALOON

In the 1980s-1990s, published studies in **Europe** showed remarkable **life span** increases in animals given a drug called **deprenyl**.¹⁻⁶

In elderly rats treated with deprenyl, remaining life span doubled in response to the drug.² Aged **dogs** given deprenyl had **twice** the survival rate compared with placebo-treated dogs.⁷ Mice that were immune-suppressed lived up to about **200% longer** on **deprenyl**.⁸ (Most elderly humans suffer immune suppression).^{9,10}

Not only were life spans lengthened, but some deprenyl-supplemented animals displayed more **youthful** energy levels, as related to **sexual** activity.²

This outpour of scientific data from Europe had aging Americans clamoring to get their hands on deprenyl. It started being used in Europe to treat Parkinson's disease in the **1970s**, but the **FDA** did not approve deprenyl until **1989**.¹¹

When deprenyl was finally approved, it cost Americans **4 times** more money than what Europeans were paying for the identical drug.¹² Unwilling to pay this extortionist price, Americans began ordering personal-use supplies from Europe.

The **FDA** struck back and launched **criminal investigations** against those seeking to make deprenyl more affordable.¹³ The FDA did this at the behest of the drug company that owned the patent on deprenyl.

One individual made a liquid form of **deprenyl** that sold quite well until he was arrested by the FDA and sent to prison for almost 13 years.^{12,14} Back in those days, deprenyl was the most sought-after anti-aging drug.

Some of our supporters still use deprenyl, though getting a physician to prescribe it for **anti-aging** purposes is sometimes impossible. This article will describe how Americans can now derive the anti-aging **mechanism** of deprenyl in a low-cost **nutrient**.



Deprenyl is a drug the FDA approved to treat early-stage Parkinson's disease. It was enthusiastically greeted by neurologists when first approved in the United States, but its therapeutic effect on advanced Parkinson's patients was disappointing.^{15,16}

That's because a significant drop in **dopamine** occurs before symptoms of Parkinson's disease become evident. Therefore, most Parkinson's patients have already lost so many dopamine-producing neurons that deprenyl is of little value.^{17,18}

Deprenyl enhances the anti-Parkinson effects of standard drugs.^{19,20} Its primary mechanism is to inhibit an **enzyme** in the brain that destroys **dopamine**.

Longevity enthusiasts realized 30 years ago that if low-dose deprenyl is initiated before the onset of **Parkinson's** symptoms, the brain might be protected against Parkinson's and other neurodegenerative diseases.

By inhibiting this dopamine-degrading enzyme, it was theorized, people might not only live longer, but behave younger.

This same enzyme (MAO-B) may be involved in the destruction of dopamine-producing neurons.

Dopamine Levels in the Brain

Prior to age **45** in people, **dopamine** levels remain fairly stable.²¹ After that, dopamine in the human brain decreases by about **13%** each decade.²²

When the dopamine-producing neuron content in the brain reaches about **30%** of normal, **Parkinson's** symptoms may be present.²⁰

When dopamine levels reach **10%** of normal, **death** ensues.^{21,23}



This has led to the hypothesis that if we live long enough, we will all develop Parkinson's symptoms due to **dopamine depletion** in our brains.^{24,25}

How Deprenyl Works in the Brain

Monoamine oxidase B (MAO-B) is an enzyme in the brain that degrades neurotransmitters like **dopamine**.²⁶

As humans age, **MAO-B** levels begin to increase and degrade precious dopamine and other neurotransmitters.²⁷⁻²⁹

Deprenyl is a selective inhibitor of MAO-B.^{22,28,30} As little as **5 mg** twice a **week** of deprenyl is all aging humans may need to maintain their dopamine at youthful levels.^{31,32}

Parkinson's patients were prescribed **10 mg** a day of deprenyl. The inventor of the drug (Dr. Joseph Knoll) believed this dose was too high.^{31,33-35}

It was long ago hypothesized that low-dose deprenyl might help prevent degenerative brain diseases and improve the quality of life.^{36,37} This is evidenced by increased "**mounting frequency**" in old male

rats treated with deprenyl compared to untreated controls.³⁸⁻⁴¹

Dopamine is a primary "*feel-good*" neurotransmitter that progressively depletes as humans age.^{42,43} By restoring dopamine and other neurotransmitter levels using low-dose **deprenyl**, aging humans may regain some of their youthful sense of well-being.⁴⁴

Deprenyl has demonstrated intriguing **anti-aging** properties.^{1,45} Animals given relatively low doses of the drug live much **longer** than control groups not receiving deprenyl.

Need to Suppress MAO-B in Aging Brains

The enzyme **monoamine oxidase B** (MAO-B) serves a function in youth by keeping neurotransmitter levels from elevating too high.⁴⁶ As we age past 45 years, however, MAO-B levels begin a steady rise that results the depletion in **dopamine** seen in elderly individuals.^{21,22,29,47}

MAO-B also may inflict toxic damage to brain cells via several well-defined mechanisms.^{29,48-50}

Excess MAO-B not only deprives us of our youthful emotions by

depleting dopamine, but also impairs cognitive functions by decreasing **acetylcholine** while simultaneously accelerating brain aging.⁵¹⁻⁵⁵

People today should take steps to suppress MAO-B levels as they age past 45 years. Those who are already taking low-dose deprenyl (**5 mg** twice a week) may be deriving enormous benefits by protecting against MAO-B toxicity.²¹

The problem is that most doctors will not prescribe deprenyl to non-Parkinson's patients. Insurance companies are unlikely pay for "off-label" use.

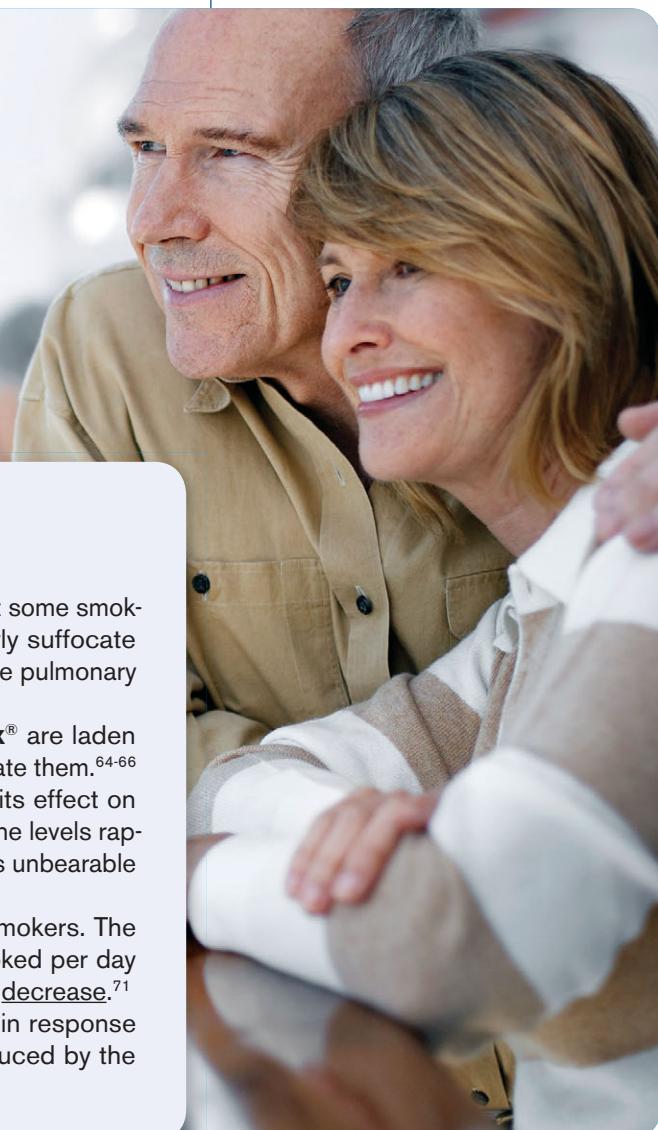
MAO-B-Inhibiting Nutrient

A unique extract from a wild variety of **green oat** has demonstrated **MAO-B-inhibiting** properties. Randomized, placebo-controlled, double-blind crossover studies have confirmed green oat's neurological benefits.^{56,57}

One study of 20 people aged 30 to 60 years showed increases in electrical brain activity during concentration tests in response to supplementation with this **green oat extract**. At two hours, there was about a **38%** increase in delta activity and about a **25%** increase

in theta activity compared to placebo.⁵⁷ Enhanced delta and theta activity is associated with increased focus and concentration, perceptual speed, and executive functioning.⁵⁸

A second human clinical trial involved 36 elderly people with average to below-average levels of cognitive performance. Those taking the **green oat extract** showed a **65% improvement** in a test of cognitive function compared to the placebo arm of the study. Even study subjects with **mild cognitive impairment** showed greater than **26% improvement** on the overall cognitive test score.⁵⁶



Green Oat Helps Facilitate Smoking Cessation

Nicotine addiction can be so difficult to overcome that some smokers who develop lung disease still cannot stop and slowly suffocate themselves to death with emphysema or chronic obstructive pulmonary disease (COPD).⁶¹⁻⁶³

FDA-approved smoking cessation drugs like **Chantix®** are laden with so many horrific side effects that few patients can tolerate them.⁶⁴⁻⁶⁶

One of the many mechanisms of nicotine addiction is its effect on **dopamine** levels in the brain.⁶⁷⁻⁶⁹ Without nicotine, dopamine levels rapidly drop in smokers,⁷⁰ making quitting deadly tobacco habits unbearable for many individuals.

Green oat extract was studied on a group of male smokers. The result showed that self-reported number of cigarettes smoked per day dropped from an average of **19.5** to **8.9**—a more than **50% decrease**.⁷¹

These smoking-reduction results are thought to occur in response to the improvement in **dopaminergic transmission** induced by the **green oat extract**.

A third study involved 42 people with self-reported age-related cognitive decline. The mean age of this group was about 59 years. In response to supplementation with this **green oat extract**, a test called “global speed of performance” increased by about **180%** compared to the placebo arm of the study. This same clinical trial showed small but statistically significant improvements in executive function, episodic memory, and working memory.⁵⁹

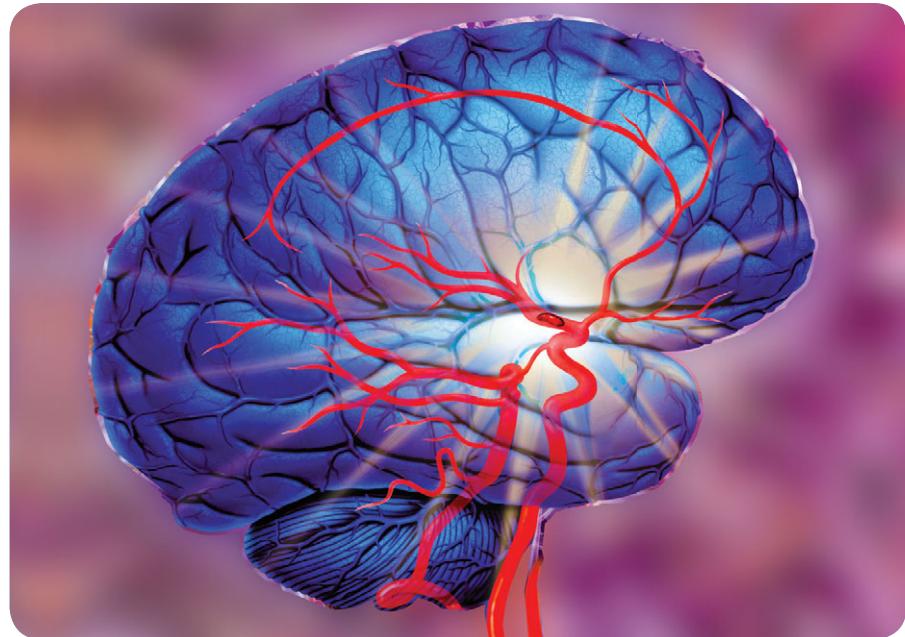
After a series of successful animal studies, these human trials are showing promising results in neurological performance in response to supplementation with **green oat extract**.⁶⁰

Winning the War against Biological Aging

There are **mechanisms of aging** that health conscious individuals have been able to circumvent with proper use of hormones, nutrients, lifestyle modifications, and certain prescription drugs.

A missing gap in our quest to protect against neurological aging was the inability to persuade more physicians to prescribe **low-dose deprenyl** to their patients over age 45. We certainly tried, running full page ads in major newspapers in the early 1990s attacking the FDA for delaying approval of deprenyl. We also berated the FDA for enabling deprenyl to become so expensive when Americans were finally allowed access to it.

With new research supporting the **MAO-B-inhibiting** effects of this novel **green oat extract**, Americans can now safely and affordably reduce their brain levels of this dopamine-degrading enzyme.



Annual Super Sale

It was back in **1988** that I realized our supporters needed an **extra discount** once a year so they can stock up on supplements they use throughout the year.

The response to our annual **Super Sale** is so overwhelming that those who wait to call on the last day are often put on hold for many minutes, something that almost **never** happens during any other day of the year.

Our scientific team continues to develop **better** products at **lower** overall prices.

The discounts when purchasing four or more bottles are enormous, as are the valuable **Reward Dollars** that are automatically credited with every purchase.

It is during the **Super Sale** period, however, when prices on **all** of our advanced nutrient formulas are most sharply discounted.

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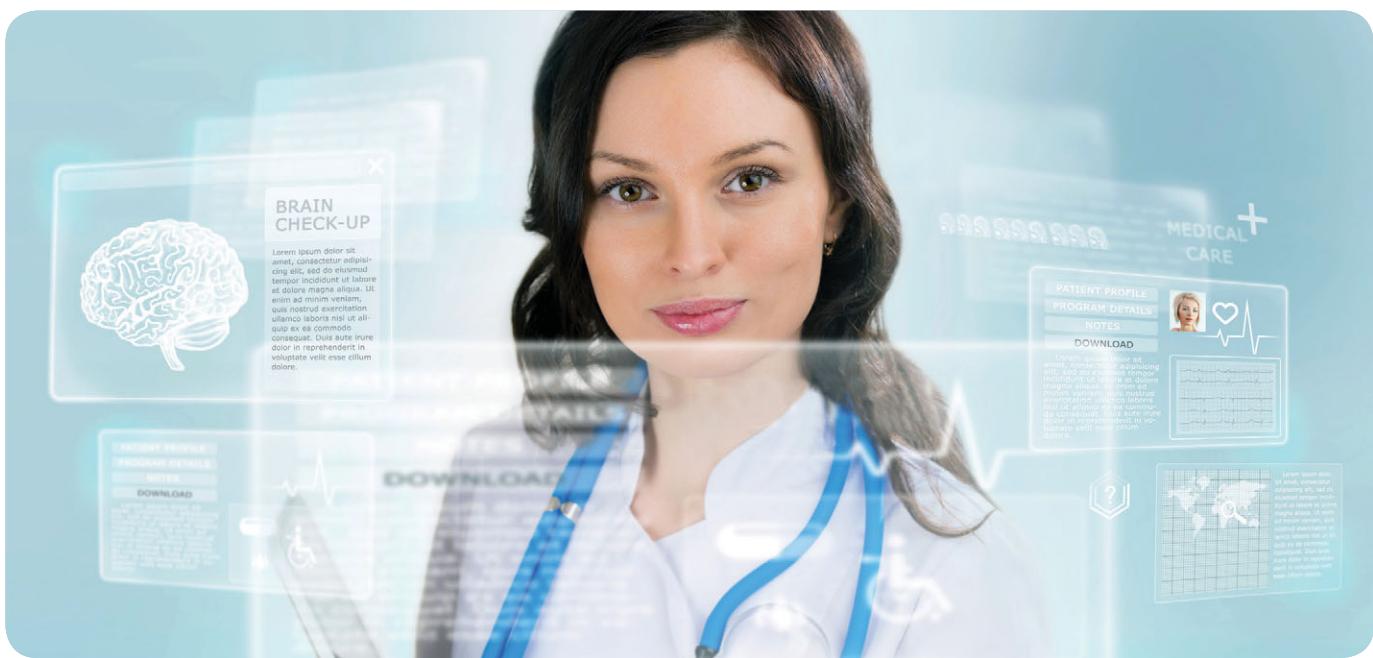
A handwritten signature in black ink, appearing to read "William Falloon".

William Falloon

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Aggressive Support for Aging Immune Systems

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A culprit is an imbalance that involves a deficit of *naïve* T cells and a surplus of *memory* T cells. This produces a less vigilant immune response—or **immune senescence**,¹ which has been linked to problematic outcomes in normal aging.²

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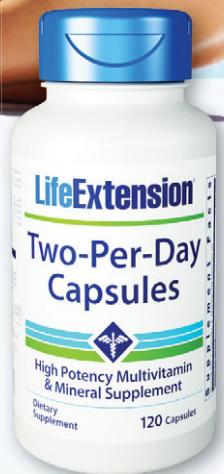
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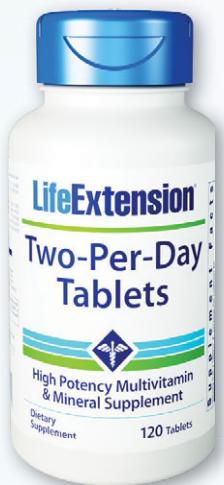
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CoQ10 Can Improve Periodontal Health

An article published in the *Journal of Clinical and Diagnostic Research* found that supplementing with **CoQ10** reduces gingivitis and improves periodontal health.*

In the randomized, double-blind trial, 30 patients (average age 33 years) with plaque-induced gingival inflammation were divided into two groups.

The first group was given CoQ10 supplements following scaling and root planing (a deep cleaning to remove plaque and tartar), while the second group received a placebo following their cleaning. Plaque index, gingival index, and probing depth were recorded at baseline, one month, and three months.

After three months, researchers noted a significant reduction in gingival **inflammation** in patients who supplemented with CoQ10 compared to subjects taking the placebo.

Editor's Note: Previous studies have shown that **CoQ10** doses of just **50 to 75 mg** daily can halt deterioration of the gums, sometimes within just days of starting treatment. For maintaining cardiac and brain health in aging individuals, recommended doses of the **ubiquinol** form of CoQ10 are usually **100 mg** a day and higher.

* *J Clin Diagn Res.* 2015 Aug;9(8):26-8.



Higher Vitamin D Levels Reduce Cancer Death Rates up to 52%

The *Journal of Clinical Endocrinology & Metabolism* published a meticulous analysis of past trials showing that patients with colorectal cancer, breast cancer, and lymphoma experienced a significantly reduced risk of mortality with higher serum vitamin D levels at diagnosis compared to those with low levels.*

Researchers selected 25 studies involving 17,332 cases of cancer for their meta-analysis.

Compared to lowest quartile, those with vitamin D levels in the top **25%** range at the time of diagnosis had far better survival outcomes. For each of the following cancers, the risk of dying decreased by:

- **37%** for **breast cancer** patients
- **45%** for **colorectal cancer** patients
- **52%** for **lymphoma** patients

"By reviewing studies that collectively examined vitamin D levels in 17,332 cancer patients, our analysis demonstrated that vitamin D levels are linked to better outcomes in several types of cancer," stated Dr. Hui Wang, MD, PhD, Professor of the Institute for Nutritional Sciences at the Shanghai Institutes for Biological Sciences at the Chinese Academy of Sciences in Shanghai. "The results suggest vitamin D may influence the prognosis for people with breast cancer, colorectal cancer, and lymphoma, in particular."

Researchers found the strongest links between vitamin D levels and survival in breast cancer, lymphoma, and colorectal cancer. There was less evidence of a connection in people with lung cancer, gastric cancer, prostate cancer, leukemia, melanoma, or Merkel cell carcinoma.

Editor's Note: Meta-analysis shows **4%** reduction in death for all causes for every **4 ng/mL increase** in circulating 25-OH vitamin D levels within the range the researchers examined. Serum vitamin D levels in those who don't supplement are often below **13 ng/mL**. By increasing vitamin D intake to **5,000 to 8,000 IU** a day, optimal serum levels of **50 to 80 ng/mL** can be achieved.

* *JCEM.* 2014 Apr 29.

Cranberries Protect the Heart

Research presented at the annual Berry Health Benefits Symposium 2015 revealed an association between cranberry juice intake and improved vascular function in healthy men.*

In a randomized trial, 10 men received juice concentrate mixed with water in varying concentrations. Flow-mediated vasodilation (an evaluation of endothelial function), blood pressure, and arterial stiffness were measured before intake and at one, two, four, six, and eight hours post-consumption. Urine and plasma samples were analyzed for levels of 60 cranberry polyphenols and their metabolites.

Researchers found improvement in flow-mediated dilation in association with all concentrations of cranberry juice. Benefit was noted as early as one hour with a duration of up to six hours. Systolic blood pressure was reduced among those who received the highest concentration.

Editor's Note: Plasma and urine polyphenol concentrations varied in accordance with the compound evaluated and the amount consumed by each individual.

* Berry Health Benefits Symposium. 2015 Oct 12.

Obesity Prevalence of Adults in 2014 across the US and Territories**

- No state had a prevalence of obesity less than **20%**.
- Five states and the District of Columbia had a prevalence of obesity between **20%** and **<25%**.
- Two territories plus 23 states had a prevalence of obesity between **25%** and **<30%**.
- Nineteen states had a prevalence of obesity between **30%** and **<35%**.
- Three states had a prevalence of **35%** or greater.
- The Midwest had the highest prevalence of obesity (**30.7%**), followed by the South (**30.6%**), the Northeast (**27.3%**), and the West (**25.7%**).

** Available at: <http://www.cdc.gov/obesity/data/prevalence-maps.html>. Accessed November 16, 2015.

New Survey Says US Obesity Rates Continue to Climb

According to a recent survey of 5,000 participants conducted by the Centers for Disease Control and Prevention, obesity rates rose to approximately **37.7%** for adults in the US, up from **32%** in 2003 to 2004, despite a major push to raise awareness about healthy eating.*

Lead author Cynthia Ogden says women are more likely to be obese. To date, **38%** of women are obese compared to **34%** of men.

Age is also a factor, researchers say, since the older Americans get, the more likely they are to be classified as obese. Compared to younger adults in their 20s and 30s, who had a **32%** obesity rate, the rate for middle-aged people in their 40s and 50s climbed to **40%**.

Race and ethnicity are also factors. Just **11.7%** of adult Asian Americans are obese, while African Americans struggle with a **48%** obesity rate.

Experts say medical providers should rethink how they approach talking to patients about a healthy diet and lifestyle. Lisa Cimperman, a registered dietitian at University Hospitals Case Medical Center, said in the past people did heed warnings to *not* eat certain products but didn't add healthy food to their diets.

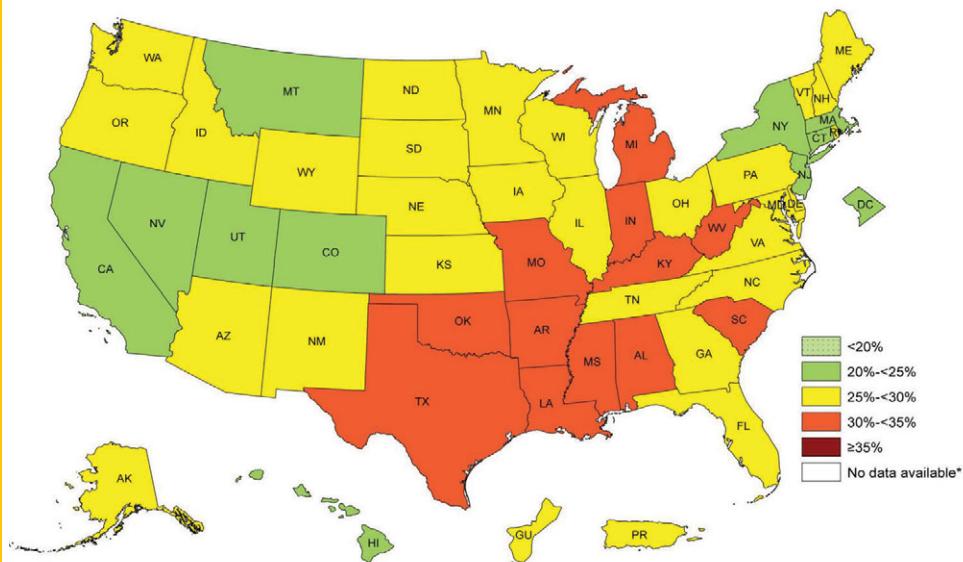
"The best example we have is we got this message out that we need to reduce fat consumption and [people] reduced their fat intake [but] replaced it with refined carbohydrates," Cimperman said. "The intake of refined carbohydrates was just as bad as a high-fat diet."

New initiatives attempting to focus on a more holistic approach to eating healthy with an emphasis on eating fresh, unprocessed foods may be too new to show any results in the report, Cimperman said.

Editor's Note: Obesity increases the risk of a number of health problems, including heart disease, high blood pressure, stroke, type II diabetes, osteoarthritis, and certain kinds of cancer. Those with a BMI of 40 or higher may lose 6.5 to 13.7 years of life as a result of obesity.

* Available at: <http://abcnews.go.com/Health/obesity-rising-us-push-eat-healthy-cdc-finds/story?id=35163934>. Accessed November 16, 2015.

Available at: http://www.nytimes.com/2015/11/12/health/obesity-rises-despite-all-efforts-to-fight-it-us-health-officials-say.html?_r=0. Accessed November 16, 2015.





Metabolic Syndrome May Increase Vitamin E Need

An article published in the *American Journal of Clinical Nutrition* reveals that in those with metabolic syndrome, the need for **vitamin E** could be **greater** than among those without it.*

Researchers gave 10 healthy participants and 10 subjects with metabolic syndrome a natural alpha-tocopherol supplement. Dr. Richard S. Bruno and associates determined that those with metabolic syndrome absorbed less vitamin E than those without the syndrome. However, the researchers found that drinking milk, which contains fat that aids in vitamin E absorption, increased the amount absorbed to between **26.1%** and **29.5%**, depending upon the health status of the participant.

The researchers found that a lipoprotein in the liver that secretes vitamin E into the bloodstream and another lipoprotein generated by the small intestine contained lower levels of vitamin E in participants with metabolic syndrome compared to healthy subjects.

Editor's Note: "This could imply that people with metabolic syndrome either have impairment of absorption of vitamin E at the small intestine or because of an inability for vitamin E to get out of the liver," Dr. Bruno stated.

* *Am J Clin Nutr.* 2015 Oct 7.

Vitamin D Linked with Reduced Breast Cancer Risk in Hormone Replacement Users

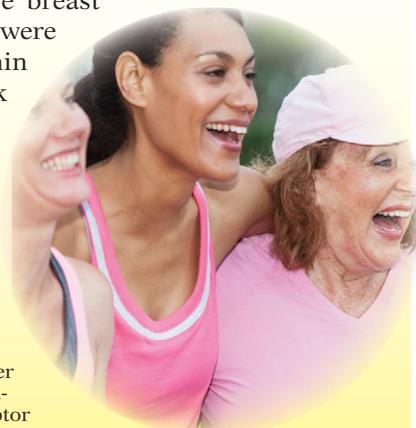
An article published in the *American Journal of Clinical Nutrition* reveals the finding of an association between **vitamin D** supplementation and a lower risk of developing invasive breast cancer among postmenopausal users of hormone replacement.*

The study included 57,403 postmenopausal subjects between the ages of 40 to 65 years upon recruitment in 1990. Questionnaires completed every two to three years provided information concerning vitamin D intake, menopausal hormone therapy use, and other factors.

From 1995 to 2008, 2,482 invasive breast cancers were diagnosed. Women who were currently supplementing with vitamin D had an **18% lower** adjusted risk of developing breast cancer than those who had never supplemented with the vitamin. Further analysis revealed that current supplementation was associated with a lower risk of postmenopausal breast cancer only among those who had used hormone replacement therapy.

Editor's Note: The protective effect was stronger against tumors that were estrogen-receptor positive compared to those that were estrogen-receptor negative.

* *Am J Clin Nutr.* 2015 Sep 9.



Vitamin C Supplements Provide Exercise Benefit

Researchers at the 14th International Conference on Endothelin: Physiology, Pathophysiology, and Therapeutics in Savannah, Georgia, presented a paper stating the cardiovascular benefit for supplementing with **vitamin C** is similar to that elicited by exercise in overweight and obese adults.* The discovery could be of benefit for people who fail to engage in recommended physical activities on a regular basis, as is the case with over half of those who are overweight or obese.



Postdoctoral research fellow Caitlin Dow, PhD, and colleagues at the University of Colorado compared a regular walking program to the effects of **500 mg** timed-release vitamin C per day in 35 sedentary, overweight, or obese men and women for three months. They determined that supplementing with the vitamin decreased vasoconstriction due to endogenous ET-1 activity as much as walking does.

Editor's Note: Blood vessels in those who are overweight and obese exhibit increased activity of endothelin (ET)-1, a small vessel-constricting protein. Higher levels increase the susceptibility of the vessels to constriction, which affects blood flow and elevates the risk of vascular disease. Although exercise is known to reduce ET-1 activity, many individuals are faced with time challenges or other limitations that reduce their ability to participate in physical activities.

* 14th International Conference on Endothelin: Physiology, Pathophysiology, and Therapeutics. 2015 Sep 2-5.

IN THE NEWS



Vitamin D Helps Older Women Maintain Muscle

The 2015 Annual Meeting of The North American Menopause Society featured a presentation of research conducted at Sao Paulo State University in Brazil, which found that supplementing with **vitamin D** was associated with improved maintenance of muscle mass and increased strength in women up to 12 years past the menopausal transition.*

In a double-blind trial, 160 women with a history of falls during the previous year received **1,000 IU**s vitamin D3 per day or a placebo for nine months. Total-body dual energy X-ray absorptiometry (DXA) scanning assessed muscle mass and handgrip strength and a chair-rising test evaluated strength at the beginning and end of the study.

Among those who received vitamin D, muscle strength increased by an average of **25.3%**. Those who received a placebo experienced a **6.8% decline** in muscle mass and were nearly twice as likely to undergo a fall as the vitamin D-supplemented group.

Editor's Note: The North American Menopause Society Executive Director Wulf H. Utian, MD, PhD, DSc (Med), noted: "While this study is unlikely to decide the debate over vitamin D, it provides further evidence to support the use of vitamin D supplements by postmenopausal women in an effort to reduce frailty and an increased risk of falling."

* 2015 Annual Meeting of The North American Menopause Society. 2015 Sep 30.

Reduced Mortality in Calcium-Supplemented Patients

The journal *SpringerPlus* reported the outcome of a study of critically ill adults, which found that supplementation with calcium lowered the risk of mortality within 28 to 90 days after intensive care unit (ICU) admission.*

Researchers at Jinhua Hospital of Zhejiang University in Zhejiang, China, analyzed data from 32,551 ICU patients admitted to Boston's Beth Israel Deaconess Medical Center from 2001 to 2008. Supplemental calcium used during the patients' stays included such forms as calcium carbonate, calcium chloride, calcium gluconate, and others.

Within the 28 days of ICU admission, there were 4,489 deaths. Patients who consumed supplemental calcium had an adjusted **49%** lower risk of dying compared to those who did not supplement during the 28 days following ICU admission. A reduction in 90 day mortality was also observed in association with calcium supplementation.

Editor's Note: Calcium plays a vital role in maintaining normal physiologic function, particularly signal transduction, and that severely low blood calcium levels have been associated with an increased risk of death. "Since hypocalcemia is independently associated with increased mortality, it is not surprising that calcium supplementation is associated with improved outcome," the authors write.

* *Springer Plus*. 2015 Oct 13.

Increased Omega-3 Correlates with Lower Rate of Cognitive Decline

An article published in the *Journal of Alzheimer's Disease* reveals a decreased rate of cognitive deterioration in **Alzheimer's disease** patients who had **higher** levels of **omega-3** fatty acids.*

The study included 174 men and women with Alzheimer's disease who were randomized to receive a **low-dose** supplement that provided **150 mg** EPA and **430 mg** DHA per day or a placebo for six months, followed by a six month period during which all participants were supplemented with omega-3. Plasma omega-3 fatty acid levels and cognitive performance were assessed at the beginning of the study, and at six and 12 months.

Increasing plasma eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), and docosapentaenoic acid (DPA) levels over time were associated with **preservation of cognitive function**. Associations were significant for word recall and delayed word recall, which are categorized as episodic memory functions.

Editor's Note: "Since our study suggests a dose-response relationship between plasma levels of omega-3 fatty acids and preservation of cognitive functioning, future omega-3 fatty acid trials in patients with mild Alzheimer's disease should consider exploring graded (and body weight-adjusted) doses of omega-3 fatty acids," suggest authors Maria Eriksson of the Karolinska Institutet and colleagues.

* *J Alz Dis*. 2015 Sep 4.





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A properly functioning thyroid helps support:

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The addition of **vitamin B12**, **iodine**, **tyrosine**, and **vitamin A** further enhances its benefits.

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

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	Retail Price	Super Sale Price
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Vitamin K1 is found in plants. It is often bound to plant fiber and requires intestinal conversion to transform into bioactive active **vitamin K2**.¹⁻³ Data supports value of K1 in addition to the K2 forms.⁴⁻⁷



Vitamin K2 is the active form that keeps calcium in bone and out of arteries. **MK-4** is rapidly absorbed,⁸⁻⁹ while **MK-7** provides 24-hour bioavailability of vitamin K2.⁹



Trans-zeaxanthin, meso-zeaxanthin, and lutein supports eye health and healthy vision.



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Blueberry extract boosts DNA function and sustain healthy blood sugar levels already within normal range.^{12,13}



Gamma tocopherol is a form of vitamin E that quenches the damaging **peroxynitrite** free radical.¹⁰⁻¹¹ Those who take **alpha**-tocopherol should also take **gamma** tocopherol.



Lycopene supports prostate health, protect against free radical activity, and guard against LDL oxidation.^{15,16}



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Vitamin B12 helps maintain a healthy nervous system and metabolism.¹⁹ Vitamin B12 levels decrease with age.²⁰



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Vitamin B12	300 mcg
Chlorophyllin	100 mg
Gamma E Mixed Tocopherols	359 mg
Gamma tocopherol	197.45 - 269.25 mg
Delta tocopherol	71.8 - 107.7 mg
Alpha tocopherol	30.52 - 43.08 mg
Beta tocopherol	< 17.95 mg

MacuGuard® Carotenoid Phospholipid Blend	145 mg
Phospholipids, marigold extract (flower)	
[providing 10 mg free lutein]	
4 mg meso-zeaxanthin & trans-zeaxanthin]	
C3G (Cyanidin-3-glucoside)	2.2 mg
[from European black currant extract (fruit)]	
Lycopene proprietary blend	10 mg
[from Micronized Lycopene and Tomat-O-Red® natural tomato extract (fruit)]	
Sesame Seed Lignan Extract	20 mg
Wild Blueberry Whole Extract (fruit)	100 mg

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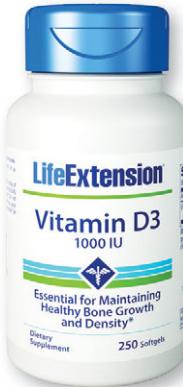
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D₃

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New research on the vital benefits of **vitamin D** emerges on a daily basis. Studies confirm that **optimal** levels of vitamin D are in the range of **50-80 ng/mL** of **25-hydroxy vitamin D**.

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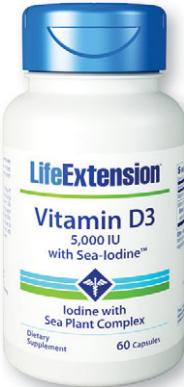


Vitamin D3 • 1,000 IU

250 softgels • Retail: \$12.50

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For most people, a **1,000 IU** potency is insufficient to attain optimal **vitamin D** blood levels. However, this potency may be suitable for smaller individuals who obtain **2,000-3,000 IU** in their multi-nutrient formulas (and children). **Item # 01751**

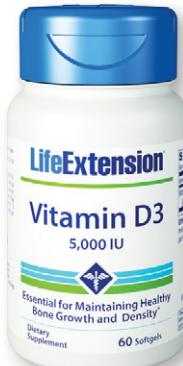


Vitamin D3 • 5,000 IU With Sea-Iodine™*

60 capsules (non-softgel) • Retail: \$14

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Most people, especially those seeking to reduce their salt intake, do not ingest enough iodine. Combining **5,000 IU** of **vitamin D3** with **1,000 mcg** of **iodine** into one capsule makes taking these two nutrients economical and convenient. **Item # 01758**



Vitamin D3 • 5,000 IU

60 softgels • Retail: \$10

Super Sale Four bottles: \$5.85 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 may be needed to achieve optimal blood levels. **Item # 01713**



Vitamin D3 • 7,000 IU

60 softgels • Retail: \$14

Super Sale Four bottles: \$8.51 ea.

Some people (such as those weighing more than 180 pounds) may require even more **vitamin D**. When combined with **1,000-3,000 IU** taken in a multi-nutrient formula, this **7,000 IU** softgel should enable these individuals to attain blood levels above **50 ng/mL**. **Item # 01718**



Vitamin D3 Liquid • 2,000 IU (Natural Mint Flavor)

1 ounce • Retail: \$28

Super Sale Four bottles: \$16.88 ea.

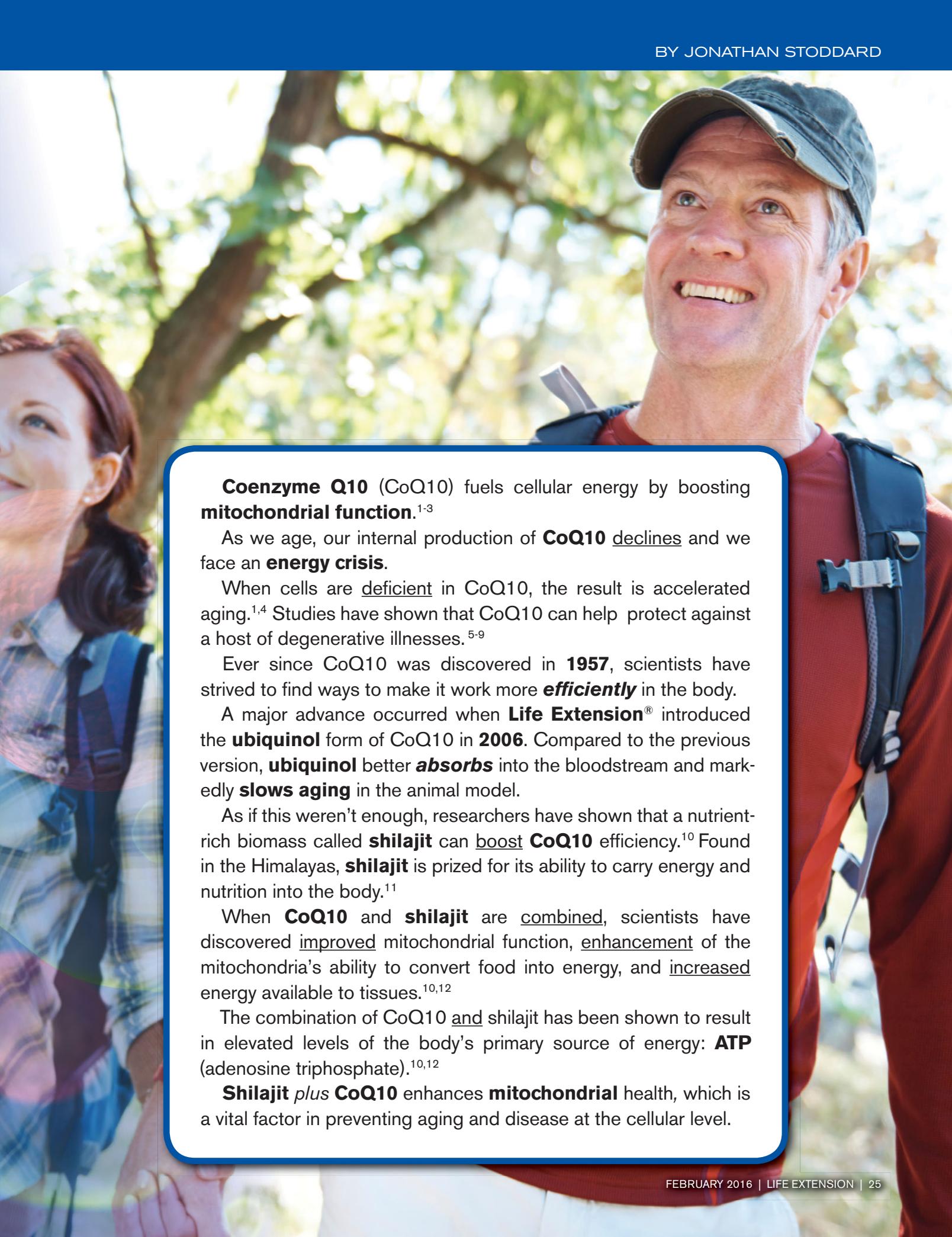
Great for travel and for those individuals who have difficulty absorbing enough vitamin D3 from softgels, this liquid vitamin D is ideal. **Item # 01732**
Also available without mint. (Item # 00864)

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-hydroxy vitamin 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.

SHILAJIT BOOSTS COQ10 EFFICIENCY



Coenzyme Q10 (CoQ10) fuels cellular energy by boosting mitochondrial function.¹⁻³

As we age, our internal production of **CoQ10** declines and we face an **energy crisis**.

When cells are deficient in CoQ10, the result is accelerated aging.^{1,4} Studies have shown that CoQ10 can help protect against a host of degenerative illnesses.⁵⁻⁹

Ever since CoQ10 was discovered in **1957**, scientists have strived to find ways to make it work more **efficiently** in the body.

A major advance occurred when **Life Extension®** introduced the **ubiquinol** form of CoQ10 in **2006**. Compared to the previous version, **ubiquinol** better **absorbs** into the bloodstream and markedly **slows aging** in the animal model.

As if this weren't enough, researchers have shown that a nutrient-rich biomass called **shilajit** can boost **CoQ10** efficiency.¹⁰ Found in the Himalayas, **shilajit** is prized for its ability to carry energy and nutrition into the body.¹¹

When **CoQ10** and **shilajit** are combined, scientists have discovered improved mitochondrial function, enhancement of the mitochondria's ability to convert food into energy, and increased energy available to tissues.^{10,12}

The combination of CoQ10 and shilajit has been shown to result in elevated levels of the body's primary source of energy: **ATP** (adenosine triphosphate).^{10,12}

Shilajit plus CoQ10 enhances **mitochondrial** health, which is a vital factor in preventing aging and disease at the cellular level.

Ancient Remedy Solves Modern Energy Crisis

For centuries, practitioners of Ayurvedic medicine (one of the world's oldest holistic healing systems) relied on a curious substance called *shilajit* to treat or prevent a host of health problems.¹³⁻¹⁶ Preserved in the rocks of the Himalayas, shilajit is a rich organic material that forms in the part of the earth called the *rhizosphere*—the thin layer where living roots and microorganisms interact with the rocky core of the planet itself.¹³

In traditional medicine, shilajit is prized for its ability to restore energy, increase fertility, enhance immunity, and safeguard memory against the effects of aging.^{10,12}

Now, modern scientists have proven that this rare herbal tonic beneficially impacts cellular energy, diabetes, Alzheimer's, and Parkinson's disease, and that it can reduce inflammation, improve memory, protect against cognitive decline, and more.^{10,12,13,17,18}

As scientists further investigated the properties of shilajit, they determined that it is an *adaptogen*,^{13,14} which is a substance that helps the body *adapt* to internal and external stressors. In other words, shilajit is a natural stress-fighting, fatigue-busting substance that can not only help one feel revitalized, but can help *rejuvenate* tired cells. This can beneficially impact the entire body.



So how does it work?

It's simple. Shilajit restores and sustains cellular energy by enhancing the production of the body's *primary source of energy*: **adenosine triphosphate**, or simply **ATP**.¹² ATP is the usable energy that is formed when organelles called **mitochondria** convert energy from food. As people age, this conversion process becomes sluggish, resulting in a body-wide energy deficiency.

Mitochondria and Aging

It would be impossible to overstate the importance **mitochondria** play in overall health and longevity. Mitochondria are cellular generators responsible for producing the body's primary source of energy, called *adenosine triphosphate* (ATP). ATP provides at least **95%** of the cellular energy that powers all living functions, from muscle contractions to hormone production, and everything in between.

Unfortunately, mitochondria function less and less efficiently as we age, causing a ripple effect of health consequences throughout the entire body. Less available energy means organs and tissues function less efficiently. This makes mitochondrial dysfunction especially damaging for the heart and brain, since they have the highest energy demands in the body.¹⁹

It should come as no surprise, then, that **mitochondrial dysfunction** has been linked to numerous degenerative illnesses, ranging from diabetes to neurological disorders to heart failure.^{20,21}

The high energy output of mitochondria makes them highly vulnerable to oxidative damage.²²⁻²⁶ Evidence strongly indicates that over time, accumulated damage to the DNA of the mitochondria leads directly to metabolic disorders (such as diabetes) and degenerative disorders (such as Alzheimer's).²⁷⁻³⁶

Ultimately, the downstream effects caused by mitochondrial dysfunction speed aging and death. The scientific evidence on this point is so strong that a growing number of cell biologists believe that the *number and functionality* of the mitochondria can specifically determine an individual's longevity.³⁷⁻³⁹

The good news is that it's not only possible to slow this cellular aging process *but reverse it*. The key lies in a nutrient you're already familiar with: **coenzyme Q10**.

CoQ10 and Mitochondria

CoQ10 is already well-known for its ability to protect cells from damage, and for its remarkable effects against common heart ailments and neurological disorders.



What you might not know is that CoQ10 is absolutely essential for normal mitochondrial function (namely, the production and transfer of energy).¹⁻³

Studies have found that when cells or organisms are deficient in CoQ10, it results in increased mitochondrial oxidative stress and accelerated aging.^{1,4} Supplementation with the right form of CoQ10 has been shown to slow aging in the animal model and extend life span.^{5,6}

One study showed that rats supplemented with CoQ10 experience an **11.7%** increase in average life span.⁴⁰ In human terms, based on today's life expectancy of **78.8** years, this translates to a more than nine-year increase in life span.⁴¹

The surge of available energy made possible by CoQ10 is especially beneficial for the heart. Studies have found that CoQ10 supplementation improves cardiac systolic function and ejection fraction.^{42,43} Another study showed that when combined with selenium, CoQ10 slashed the death rate from cardiovascular disease by more than half!⁴⁴ The science is so strong that one of the study authors proclaimed CoQ10 to be a "*scientific breakthrough in the management of chronic heart failure.*"⁴⁵

CoQ10 has two primary ways of protecting mitochondria from age-related decay and death. First, it plays an essential role in the **electron transport chain**, facilitating the efficient transfer of electrons into ATP.⁴⁶ Second, it acts as a powerful scavenger of free radicals, *neutralizing* their lethal action and dramatically reducing oxidative damage.⁴⁶

Mitochondria and Aging

- Our bodies face an energy crisis as we age because our mitochondria begin to succumb to the ravages of high chemical and electrical stresses.
- Aging mitochondria and low output of the energy-carrying molecule ATP are associated with accelerated aging of the brain, heart, and other organs.
- Mitochondrial aging can be slowed, and their energy production restored, by administration of nutrients that smooth the flow of energy down the mitochondrial electron transport chain.
- Shilajit, an ancient remedy sourced from minerals and organic substances from the Himalayas, contains compounds that shuttle electrons along that chain, reducing the damage to mitochondria to preserve their function.
- Studies show that shilajit administration boosts ATP production, reduces mitochondrial damage, and protects heart and brain from age-associated energy loss.
- When combined with CoQ10, shilajit may prove to be the ideal mitochondrial nutrient combination, and should be used in combination to optimally enhance your energy supply and protect your organs.

As a result, CoQ10 offers a powerful way to help slow, or even *reverse*, a natural aging process by *restoring* youthful mitochondrial protection against free radicals.^{47,48}

There's just one problem. CoQ10 can quickly become depleted in the body because it donates its own electrons in order to neutralize the flood of free radicals. That makes ensuring the body's continued supply of CoQ10 critical.

And that's why there continues to be so much excitement about **shilajit**. While practically unheard of in modern medicine, this ancient Ayurvedic adaptogen has been found to **stabilize, revitalize, and preserve** CoQ10 in its **active (ubiquinol)** form, boosting the levels of CoQ10 that are critical for protection against mitochondrial aging.^{10,14,17,49}



When used along with CoQ10, the combination produces benefits above and beyond what each nutrient offers individually, providing a powerful *synergistic* effect that boosts energy, protects mitochondria, and reduces aging at the cellular level.

As you're about to read, one particular breakthrough study demonstrates this perfectly.

Powerful Duo Produces Dramatic Results

A team of researchers published a compelling study showing how **shilajit plus CoQ10** preserves and protects energy function.¹⁰ The researchers engaged mice in strenuous and stressful physical activity for two hours each day for seven days.

Subjecting laboratory animals to obligatory exercise is one of the most direct ways to study energy balance. In a forced swim test, the animals swim to a state of exhaustion, and their blood is drawn both before and after exercise to measure energy markers. In unsupplemented animals, the expected outcome is a reduction in ATP, as mitochondria reach their maximum ability to produce it.

For this study, the animals were divided into groups that either received no supplements, CoQ10 alone, shilajit alone, or a combination of *both* shilajit and CoQ10.¹⁰ After subjecting the mice to the forced swim test, the researchers measured the ATP content in muscle, brain, and blood.

The unsupplemented group showed significant *reductions* in ATP content of muscle, brain, and blood. This was expected, since the exercise demanded ATP for energy, which was eventually exhausted as mitochondria failed to keep up.

Age-Related Decline in Coenzyme Q10 Tissue Levels

As humans grow older, their natural internal synthesis of coenzyme Q10 diminishes greatly. Those who use statin drugs also suffer CoQ10 deficit.

The following list reveals the tissue-specific decrease in CoQ10 that occurs normally with aging:

Tissue Affected	% Decrease of CoQ10
Heart muscle wall	72% ⁷⁰
Pancreas	69% ⁷¹
Epidermis (skin)	75% ⁷²
Kidney	35% ⁷¹
Liver	17% ⁷¹
Heart	57% ⁷¹
Adrenal Gland	47% ⁷¹

Remarkably, all three supplemented groups maintained higher levels of ATP in muscle, brain, and blood. Individually, both shilajit and CoQ10 by themselves produced significant elevations of ATP compared with the unsupplemented animals. But the key discovery was that the **combination** of these two nutrients had a *synergistic* effect, producing *greater* ATP recovery than seen with either nutrient alone.

In fact, in the brain and blood, the shilajit/CoQ10 combination brought ATP levels back *nearly to those of un-exercised control animals!* As an added benefit, supplementation with shilajit prevented significant drops in CoQ10 levels in the blood of exercised mice.

Ultimately, the synergistic effects of **shilajit plus CoQ10** offer an unparalleled option to protect mitochondrial DNA and **combat aging**.

In a similar experiment, mice were induced to develop **chronic fatigue syndrome** by undergoing daily forced swimming for 21 days, and then subjected to a series of stress tests that evaluated their mobility and anxiety levels.⁵⁰ **Shilajit** was administered prior to the induction of **chronic fatigue syndrome** in some of the animals.

The results of this study showed that *unsupplemented* animals experienced prolonged immobility, decreased climbing behaviors, and increased anxiety. Supplemented mice did *not* demonstrate these deleterious changes. The supplemented animals also showed no signs of the chronic fatigue syndrome-induced mitochondrial oxidative stress seen in control animals. This study provides further demonstration of shilajit's energy-boosting capabilities, and hints at the exciting neuro-behavioral effects seen in other studies.

Why Such Dramatic Results?

The answer lies in components found in **shilajit** that work synergistically with **CoQ10** such as **fulvic acid** and related **humic** substances.

Fulvic acid stimulates mitochondrial energy transfer and makes mitochondrial extraction of energy more efficient,⁵¹ while **humic substances** speed the transfer of electrons along the electron transport chain, enhancing its efficiency.⁵²⁻⁵⁵

Ultimately, these actions give shilajit properties similar to a fuel supplement for a car engine: They make the entire energy-production apparatus run more efficiently, with fewer waste products and destructive effects. This keeps mitochondria in a youthful, more potent condition that allows them to deliver cleaner energy, in larger amounts, and with less wear and tear. This powerfully opposes the age-promoting effects of mitochondrial burnout.

Shilajit's energy-boosting, mitochondrial-protecting capabilities translate into meaningful results in animal studies of two of the body's biggest energy-consumers: the brain and heart.

Shilajit and the Aging Brain

One devastating consequence of mitochondrial aging and loss of ATP production is deterioration of the central nervous system function.

In fact, poor mitochondrial energy production is considered both a *cause* and a *consequence* of memory loss and neurodegenerative diseases like **Alzheimer's** and **Parkinson's**.⁵⁶⁻⁵⁸ A growing body of evidence shows that **shilajit** has the potential to *reverse* many of these neurological changes.

Numerous studies have shown that shilajit fights Alzheimer's on multiple fronts. First, the neurotransmitter **acetylcholine** is known to be deficient in patients with Alzheimer's disease. Acetylcholine is a brain chemical that is important for memory and attention. It is believed that maintaining healthy acetylcholine could help prevent the worsening of Alzheimer's symptoms. That's where shilajit comes in: It helps produce a beneficial *increase* in acetylcholine in the brain by reducing levels of an enzyme that breaks it down.⁵⁹

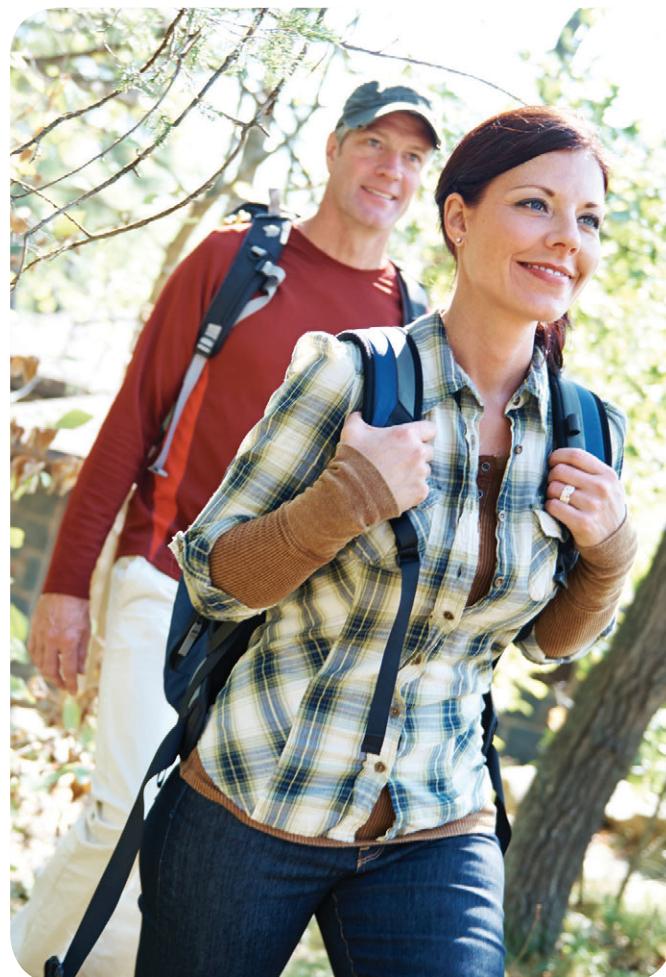
Another hallmark of Alzheimer's disease is the buildup of abnormal proteins called **tau** (within brain cells) and **beta-amyloid** (outside of cells), which appear to induce neuronal dysfunction and early cell death. Inhibiting these abnormal protein deposits is a promising target of Alzheimer's drug therapy, though no drug has yet emerged that effectively reduces such aggregates.^{60,61}

But **shilajit** has succeeded where drugs have failed: Lab studies demonstrate that one of the principal substances in shilajit (fulvic acid) inhibits the buildup of dangerous **tau proteins**. It even goes one step beyond that. In an exciting discovery, shilajit was found to significantly untangle filaments of the offending protein, an apparent *reversal* of the progression of Alzheimer's!^{60,61}

Shilajit exerts beneficial effects on Parkinson's disease by increasing levels of essential neurotransmitters (brain signaling molecules) such as **dopamine**, which is reduced in Parkinson's. In addition, an early study on rats in mazes showed that shilajit significantly improved performance and reduced anxiety levels.⁶²

Shilajit and Heart Function

Ayurvedic practitioners have traditionally used shilajit as a treatment for hypertension and improving heart function.⁶³ Recent studies have validated shilajit's heart-healthy benefits, specifically for those with high blood pressure or other cardiac stressing conditions.



The Cellular “Bucket Brigade”

Mitochondria are minuscule organelles that are responsible for converting energy from the food one ingests into usable energy. Without a consistent supply of that chemical energy, cells rapidly lose their viability, tissues function poorly, and organs begin to fail—all hallmarks of accelerating aging.

Mitochondria break down food into usable energy called ATP. This is a complex multi-step process that occurs along the electron transport chain, which serves as a “power line” through which chemical energy is released and transferred into ATP.

Like an aging power plant, mitochondria function less efficiently with time, causing them to work harder in order to produce the energy the body needs to function. As a result, the mitochondria gradually deteriorate, leading to a decrease in vital ATP production and an increase in free radical generation. Over time, this continuous free-radical onslaught destroys the mitochondria.

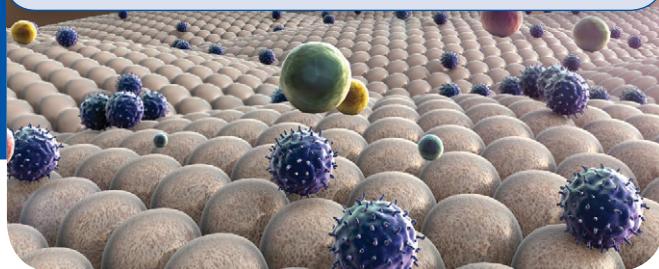
Left unchecked, this fatal cycle speeds the general decline in overall function that accompanies aging^{66–68} and contributes to the onset of degenerative disease.⁶⁹

Think of the **energy chain** as an old-fashioned **bucket brigade**, with each enzyme and co-factor in the chain handing its electron burden on to the next in line. There are three ways to make the brigade more effective: You can **provide more members, speed the transfer** of buckets from hand to hand, and **make more water available** to fill the buckets.

The combination of **CoQ10** and **shilajit** support all three of these important steps.

CoQ10 provides more energy chain “members” to move electrons down the line to increase ATP production. **Shilajit’s** components **speed electron transfer** down the energy chain, making it more efficient^{52,53} and also **make more electrons available** to CoQ10, preserving CoQ10 in its active form.

These important actions **rejuvenate** aging mitochondria, boost ATP output, and free up energy for vital cellular processes.



The first study evaluated a tiny marine organism called Daphnia. Although they are invertebrates, Daphnia have hearts that respond similarly to those of humans when exposed to a variety of cardiac medications, making them an ideal test organism.⁶³ When Daphnia were treated with low doses of shilajit, their heart rates fell significantly, an effect frequently sought in patients with high blood pressure or other cardiac stressing conditions, suggesting a use for shilajit in humans with these conditions.⁶³

Similar reductions in heart rate and blood pressure were seen in laboratory rats. One particular study showed that shilajit has important effects that mimic the parasympathetic nervous system. This is the system that goes into action to induce the opposite of the “fight-or-flight” reflex, producing a state of calm, with low heart rate and blood pressure.⁶⁴ Healthy rats treated with shilajit showed significant reductions in blood pressure, heart rate, and respiratory rate, suggesting a beneficial energy-conserving status.⁶⁴

Many people are excited to learn that shilajit helps protect against the kind of heart muscle injury that occurs during a heart attack. This was demonstrated in a study of rats that were divided into two groups: one served as a control group and the other received shilajit supplementation for seven days *prior* to treatment with a drug (isoproterenol) that induces heart muscle injury.⁶⁵

Following treatment with isoproterenol, unsupplemented animals developed areas of heart muscle damage and a loss of pressure generated by heart contractions. By contrast, shilajit-supplemented rats maintained pumping pressure, had smaller and less severe areas of muscle damage, and displayed lower levels of injury-marking heart muscle enzymes.⁶⁵

Summary

Mitochondrial dysfunction is linked to a broad range of degenerative illness, from diabetes and neurological disorders to heart and kidney failure.

Shilajit helps combat mitochondrial dysfunction-induced aging. Working synergistically with **CoQ10**, shilajit boosts energy, protects mitochondria, and reduces aging at the cellular level.

Studies show that **shilajit** acts like a fuel supplement in a race car, boosting efficiency and reducing wear and tear on essential structures. These effects are showing great promise in preventing the aging of energy-intensive tissues like the heart and brain.

Most readers of this magazine have enjoyed the synergistic effects of **shilajit** and **ubiquinol CoQ10** for the past eight years in the supplements they use daily. ●



Energy Availability in Forced-Swim Mice¹⁰

Treatment Group	ATP in Muscle (µmol/g)	ATP in Brain (µmol/g)	ATP in Blood (mmol/L)
Control	1.39	0.27	0.69
Swim only	0.25	0.18	0.45
Swim + shilajit	0.49	0.21	0.59
Swim + CoQ10	0.48	0.20	0.57
Swim + shilajit + CoQ10	0.61	0.28	0.62

Energy availability from ATP in muscle, brain, and blood of mice. ATP levels plunge from control to swim-only groups, reflecting exhaustion of unsupplemented mitochondria unable to produce more ATP, but animals supplemented with either CoQ10 or shilajit have moderate increases in ATP, and dually supplemented animals have highest ATP levels of all, reflecting synergistic effect of both nutrients.

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

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.

MAINTAIN YOUTHFUL MITOCHONDRIA FUNCTION



CoQ10 Energizes Aging Cells by Enhancing Mitochondria Activity

Published studies on CoQ10 absorption clearly show that **ubiquinol** CoQ10 is superior to the conventional ubiquinone form. In middle-age mice, **ubiquinol** proved **40%** more effective in slowing measurements of aging compared to ubiquinone.¹

A 2014 study further validates that **ubiquinol** activates mitochondrial functions to slow aging in mouse models.²

Life Extension® goes one step further and adds **shilajit** to its ubiquinol formula in a product called **Super Ubiquinol CoQ10**. Shilajit has been shown to promote mitochondrial metabolism, helping mitochondria convert fats and sugars into ATP—the main source of cellular energy.³⁻⁸ When combined with **ubiquinol**, it has been shown to **double** levels of CoQ10 in the mitochondria.⁹

The latest studies reveal that when **shilajit** is combined with CoQ10, cellular energy substantially increases. Combining the two ingredients produced a **56%** increase in energy production in the brain—**40%** more than CoQ10 alone! In the muscles, there was a **144%** increase!¹⁰

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Life Extension® combines these two energy-activating ingredients in an exclusive **ubiquinol-shilajit** formulation available in three different potencies:

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Item #01431 • 30 **200 mg** softgels
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10 bottles		\$32.40 each



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BEAUTY FROM WITHIN



BEAUTY from **WITHIN:** Healthy Hair, Skin, and Nails

People today go to extreme lengths to cover up tired, dull, lifeless skin, nails, and hair.

What few understand is that outward appearances of skin wrinkles, brittle nails, and dry hair are more than superficial cosmetic issues. They are indicators of the **aging** of **connective tissue** throughout our body.¹⁻³

Connective tissue provides support to hair, skin, and nails. As we mature, a decline in the production of **structural proteins** causes deterioration of the body's connective tissues.

Fortunately, many of these surface changes can be thwarted using an ingestible combination of bioavailable **keratin** and **collagen**.

Clinical studies document **reversals** in markers of superficial aging in response to **replenishing** the body's **structural proteins**.

These improvements are reflected through more lustrous hair, stronger nails, and vibrant skin.

Why Cosmetics Fail

As we age, our bodies produce less **keratin** and **collagen**, two key structural proteins that are essential to the health of the tissues that comprise hair, skin, and nails.

On the *outside* of our body, this breakdown results in hair loss, dry and wrinkled skin, and dull, brittle nails.

However, these “cosmetic” changes are reflective of more serious problems on the *inside*, including changes in blood vessel walls, bone, connective tissues, and other vital organs where these essential structural proteins are predominant.

The Keratin Connection

For many who have cosmetic problems that occur due to the decline in the body’s **keratin** supply, the logical solution is to replace the essential keratin in the body.

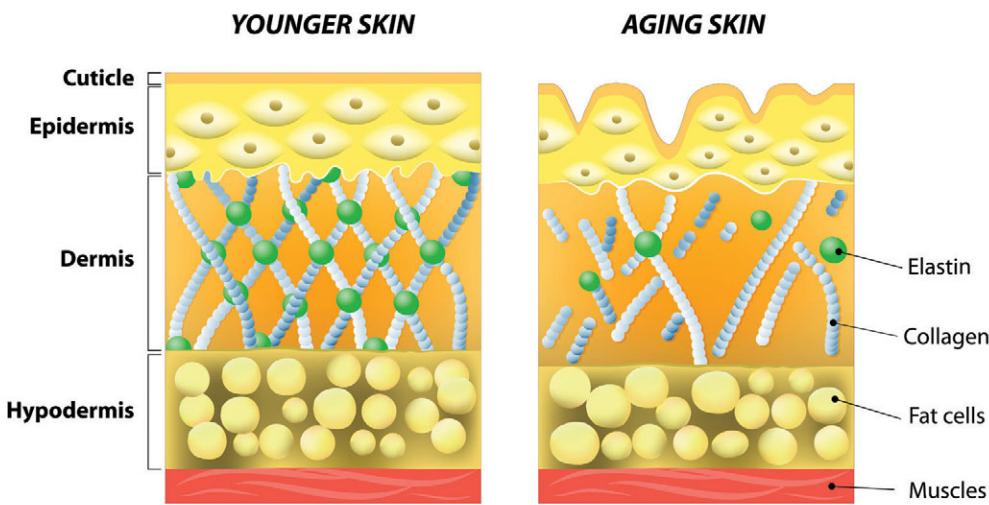
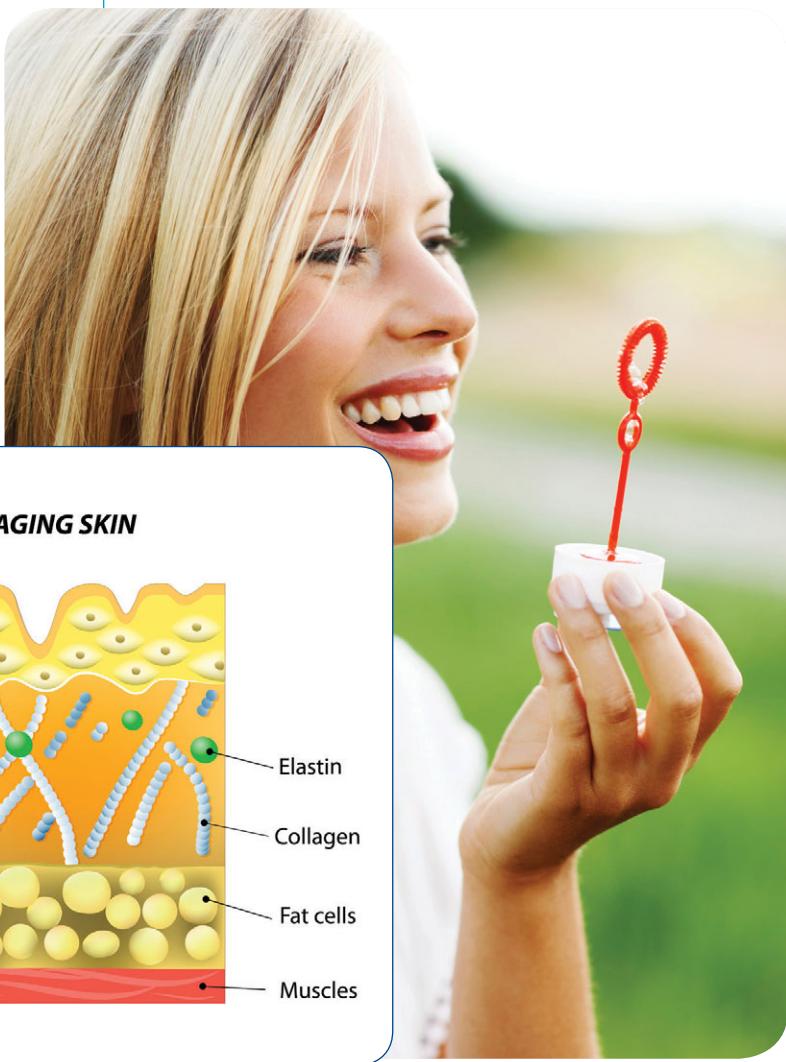
The problem with many commercial keratin preparations is that they are made from hooves, horns, and feathers. As a result, they lack biological activity in humans because they have been overprocessed during exposure to heat and other harsh conditions.⁴

Scientists have developed a patented process that makes keratin soluble, preserves its bioactivity, and makes it digestible. **Solubilized keratin** contains highly bioavailable protein-forming building blocks, including sulfur-containing amino acids, to replace the keratin that is lost in the aging process.^{4,5}

The result is the delivery of high-quality keratin proteins *directly* to the cells that help form hair, nails, and skin.⁴ Solubilized keratin has a high bioavailability, meaning that it can rapidly start replenishing depleted keratin.⁶

Laboratory studies have shown that soluble keratin stimulates skin cells to proliferate at a rate up to 160% greater than they would without the protein, permitting cells to then increase their own production of structural proteins.⁴ This results in an increase in the thickness of the epidermis, which translates to **a reduction in fine lines and depth of wrinkles**. Furthermore, promotion of healthy skin cells also reduces water loss by improving the skin’s barrier function and providing firmness and elasticity.^{4,7}

Chronic oxidative stress and ultraviolet light exposure can lead to a decline in skin vitality.⁸ In preclinical research, supplementation with this new keratin has shown to rebuild the natural enzyme systems in cells, including **glutathione** and **superoxide dismutase**.⁴



What You Need to Know

Beauty from Within

- Deteriorating hair, nails, and skin appearance is not only unsightly, but is a visible sign of aging connective tissue proteins throughout the body.
- This occurs as a result of a decline in the body's production of keratin and collagen.
- Insufficient intake of specific vitamins and minerals further contributes to the loss of essential structural proteins.
- Many of these changes can now be prevented, slowed, or even reversed with a novel combination of bioavailable keratin and collagen, along with specific vitamins and minerals.

Evidence of Clinical Efficacy

Clinical studies have demonstrated real-world benefits of supplementing with **solubilized keratin**.

In 2010, scientists revealed the results of their study on female subjects who had damaged, fragile, and stressed hair to determine if an **oral** keratin supplement would be effective in strengthening hair and facilitating hair growth.⁹ The women took daily supplements of **500 mg** of solubilized keratin, along with zinc, vitamin B3, copper, vitamin B5, vitamin B6, and biotin for 90 days.

The subjects' hair was tested for integrity and strength using three standard ways of measuring hair quality: scanning electron microscopic photos (shows hair appearance), number of hairs lost after washing (indicates hair strength), and mechanical force on individual hairs (shows hair strength).

First, electron microscopic photos showed dramatic healing of individual hair shafts. At the beginning of the study, the photos indicated elevated, uneven cuticle surfaces, but by day 90 the photos showed a smooth, interlocking, watertight cuticle. This change translates into smoother, shinier hair.

In addition, the number of hairs lost during washing was significantly reduced by **30%** and hair strength increased by **12%**. The researchers concluded that the keratin supplement strengthened hair, promoted hair growth, and improved hair appearance.



Hair and Nail Improvements

A 2014 randomized controlled trial found that the same keratin formulation was effective for decreasing the rate and amount of hair loss and improving the strength and appearance of nails in adult women.¹⁰

Subjects were women between 40 and 71 years old who had clinical signs of damaged hair and nails. They took two capsules of solubilized keratin or a placebo daily for 90 days.

By day 90, the researchers observed the following improvements:

- 47.1%** subjective improvement in hair appearance
- 5.9%** improvement in hair strength
- 9.2%** increase in hair follicles in the growth phase (the placebo group had no significant increase)
- 47%** reduction in the number of hairs that could be removed from the scalp in a hair-pull test, an evaluation in which 20 to 60 hairs are grasped between the fingers and firmly tugged away from the scalp to see how many can be removed

At the structural level, the amino acid composition of hair protein changed favorably in the supplemented group.¹⁰ By day 90, all four amino acids tested had a statistically significant increase showing the bioavailability of solubilized keratin.

Nail parameters were also significantly improved in the test group.¹⁰ Supplemented subjects showed an **87.5%** improvement in the tendency of their nails to break, compared with **28.5%** in the placebo group.

Why Keratin Is Important

Keratin is an important component of hair, skin, and nails.

The hair shaft is made primarily of **keratin**. The age-related decline in keratin synthesis leads to deterioration of stability and flexibility²⁴ of the hair shaft, leaving hair vulnerable to dryness and breakage with brushing and the use of styling products and tools.

Similar to the hair shaft, the human fingernail is made almost entirely of **keratin**.^{25,26} As we age and produce less keratin, fingernails become brittle, resulting in splitting and fissuring. Nails can also develop yellow or gray discoloration and become dull or opaque in appearance.

These changes can occur as a result of various factors, such as circulatory changes that reduce the delivery of nutrients to the nail bed, exposure to the sun's ultraviolet radiation, which damages the cell replication process, repetitive cycles of wetting and drying, and exposure to cosmetic and other chemicals.²⁷ These and other factors, in addition to loss of keratin content, result in impairment of the intercellular adhesion that maintains the integrity of the nail plate.¹

Keratin is also largely responsible for making skin strong, waterproof, supple, and flexible. Skin strength and resistance to tearing and penetration comes from an abundance of tough, but flexible fibers of keratin in the *epidermis*, the outer layer of the skin. Keratin cells and fibers also maintain the moisture content of the skin by providing a waterproof yet water-retaining barrier.

As we age, the cells that produce keratin are slower to renew themselves and progress through the skin layers to the surface. This causes the skin to become vulnerable and much of the waterproofing and water-retaining properties of the protective outer layer are lost. The result is a dry and dull appearance.^{3,28}

Dry skin associated with lower keratin content creates more than just appearance problems. Dry skin causes itching and irritation that can lead to scratching and excoriation, further compromising the health and integrity of skin.²⁹

The age-related decline in keratin production makes supplementing with this compound extremely important for preventing or reversing many of these seemingly cosmetic signs of age.



Five additional nail health parameters showed significant improvements for the supplemented group compared with baseline:

- Hardness improved **50%**
- Resistance to bending and breaking increased **54.2%**
- Maintenance of overall nail integrity improved **33.2%**
- Nail smoothness increased **37.5%**
- The white, or natural, appearance of the nail improved **20.8%**

Keratin Improves Skin Appearance

In 2013, the same keratin formulation was evaluated in a randomized, double-blind, placebo-controlled clinical trial to determine its effectiveness in improving **skin health** and **appearance**.¹¹

Subjects were females between 40 and 71 years old who already showed signs of skin aging. They took two capsules of **solubilized keratin** or a placebo daily for 90 days. Researchers determined that the supplement improved skin moisture, reduced wrinkle depth, and improved skin elasticity.

By day 30, subjects had already achieved a statistically significant **13.3%** improvement in skin moisture. By day 60, there was a **22.2%** improvement, and by day 90, there was up to **30.4%** improvement in skin moisture. Interestingly, placebo recipients showed a **decrease** in skin moisture at these times.

Women taking the keratin supplement also experienced almost a **12%** reduction in wrinkle depth after taking the keratin supplement for 90 days. This translated to visible improvements in wrinkle depth in **58.3%** of subjects, significantly more than the placebo group.

By day 90, skin elasticity was improved **16.8%**, skin smoothness improved **17.9%**, and skin roughness decreased almost **9%** when compared to the placebo group.

Supporting Healthy Skin from Within

In addition to keratin, **collagen** is vital for healthy, vibrant skin. Collagen makes up **70%** of the weight of the *dermis*,¹² the inner layer of the skin, and provides supple flexibility and supports *elastin*, the protein that allows the skin to stretch and return to its original shape.

As with keratin, there is an age-related decline in the number of collagen fibers in the dermis. With time, the cells that produce collagen fibers slow down, and the remaining fibers stiffen, break, and begin to lose shape. Elastin fibers begin to fray and lose elasticity. This deterioration of collagen and elastin leads to a wrinkled and sagging appearance.³

In order to combat this problem, scientists have developed **Bioactive Collagen Peptides®** that provide building blocks for collagen synthesis and stimulate the production of new collagen and elastin in the extracellular matrix of the skin.¹³ This provides increased suppleness and elasticity to aging skin.

Animal studies show that hydrolyzed (partially broken-down) collagen peptides increase the expression of collagen, helping to produce stronger, suppler skin.

Before and after pictures of eye wrinkle volume reductions after eight weeks of treatment with Bioactive Collagen Peptides®.¹³



Additionally, these collagen peptides reduce activity of **metalloproteinase 2**, a “protein-melting” enzyme that degrades collagen and hastens skin aging.¹⁴

In 2014, scientists conducted a double-blind, placebo-controlled study to evaluate the effectiveness of a collagen peptide **oral** supplement on clinical signs of aging skin.¹⁵ Subjects supplemented with either **2.5** or **5 grams** of **Bioactive Collagen Peptides®** or a placebo for eight weeks, and researchers measured skin elasticity, moisture content, and roughness.

Both doses of the **Bioactive Collagen Peptides®** resulted in a **7%** improvement in skin elasticity. Even four weeks *after* the last supplementation dose, the supplemented group retained higher skin elasticity than the placebo group. The improvement in skin elasticity was markedly greater in the subgroup of women aged 50 years and older.

Improves Wrinkles

A second double-blind, placebo-controlled study of the effectiveness of **Bioactive Collagen Peptides®** oral supplement was published in 2014.¹³ The primary focus of this study was to evaluate the effect on skin wrinkles and synthesis of the dermal matrix. Subjects were 114 women aged 45 to 65 years old. Skin wrinkles were measured regularly during the eight-week trial of daily oral supplementation of **2.5 grams**.

At four weeks, the volume of eye wrinkles for the supplemented group had decreased significantly by **7.2%**, compared with placebo recipients. At eight weeks, that difference had risen to **20.1%**, a **one-fifth** reduction in the size of unsightly eye wrinkles.

The researchers for this study also measured the amount of texture- and flexibility-preserving structural proteins in the dermal matrix. The greater the content of these proteins, the healthier and suppler the skin appears. Supplemented subjects had a **65%** increase in the accumulation of essential type-I pro-collagen and an **18%** increase in elastin fibers.



Courtesy GELITA AG, adapted from *Skin Pharmacol Physiol.* 2014;27:113-9.

Biotin Improves Nail Health

Animal studies have demonstrated that biotin supplementation is especially beneficial for healthy nails and leads to improvement in the hardness and integrity of the nail structure.¹⁶

Biotin's beneficial effects on the health and appearance of fingernails have been established for more than 25 years. As far back as 1989, a study of the effect of biotin on aged and damaged fingernails showed that daily supplementation with **2.5 mg** of biotin yielded firmer and harder fingernails for **91%** of treated subjects after approximately 5.5 months.¹⁷

A year later, a group of women with brittle, splitting, or soft fingernails received biotin supplements and were then compared to a control group with healthy nails.¹⁸ In the supplemented group, fingernail thickness increased by **25%**, reaching the same degree of thickness as in the control group. Nail splitting was also reduced for the supplemented group. Electron microscopy revealed that the irregular arrangement of cells on the nail surface of brittle nails became more regular.

Finally, a small retrospective study in 1993 found that when 44 adults with brittle and splitting nails took **2.5 mg** per day of biotin for at least one month, **63%** of subjects experienced a clinical improvement in nail integrity, as shown by a decrease in the brittleness and splitting of the nail.¹⁹



A novel, oral formulation of specialized bioavailable collagen and keratin, plus biotin, silicon, and other micronutrients, has been shown to support healthy protein structures at both the microscopic and the visible levels. These changes, while visible to the eye, represent a much deeper shift in the protein structure and composition of the entire body.

Health and beauty reflected in hair, nails, and skin can only be truly achieved from within, and many of the changes that are often seen as an inevitable part of aging, can be prevented and even reversed now that essential proteins can be restored by oral supplementation. ●

Additional Collagen Support

Silicon is an essential trace element involved in the metabolism of connective tissue.²⁰⁻²² It plays an important role by activating the hydroxylation enzymes for crosslinking collagen, supporting its elasticity and strength.²³ Better collagen ultimately translates into better hair, skin, and nails.

Summary

The health and vitality of hair, nails, and skin begins with the health of the tissues that comprise them. Expensive cosmetics will only temporarily cover the telling signs of a tired and aging body.

An entirely different approach is to nourish the aging body's vital structural proteins from within by strengthening the essential **keratin** and **collagen** needed to sustain structural integrity and an attractive appearance.

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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Revitalize Hair, Skin, and Nail Beauty from Within

The quickest way to betray age is through tired, unhealthy hair, skin, and nails.

Working from the inside out, orally ingested nutrients are demonstrating clearly visible outward benefits. Clinical studies reveal these nutrients promote the structural proteins of collagen and keratin that keep hair, skin, and nails looking vibrant.

Here are the nutrients contained in a novel rejuvenation formula:

- **Cynatine® HNS Plus:** This ingredient combination provides solubilized **keratin**, zinc, vitamins B3, B5, and B6, copper, and biotin—the raw materials needed for keratin formation for strong hair, skin, and nails. Clinical studies using **Cynatine®** showed an impressive **11.5% reduction** in the appearance of wrinkles and a marked **improvement** of almost **50%** in hair brightness and luster.¹⁻²

- **VERISOL® Bioactive Collagen Peptides®:** This patented bioavailable composition of **Bioactive Collagen Peptides®** supports the skin extracellular matrix by stimulating the formation of new collagen and elastin to promote the suppleness and elasticity of aging skin.³ Clinical studies on women demonstrated an average **20% reduction** in eye wrinkle volume after just eight weeks, an **18% increase** in elastin,³ and a **7% increase** in skin elasticity⁴—an effect even more pronounced in women over 50.⁴

- **Biotin:** Biotin is an essential co-factor in the synthesis of fat and **protein** molecules that are prominent in skin, hair, and nails.⁵ Studies demonstrate that biotin supplementation supports strength, hardness, and integrity of the nail.⁶

- **Silicon:** Silicon is required for the formation of the protein cross-links that hold **collagen** and **keratin** molecules in their unique, functional shapes.⁷

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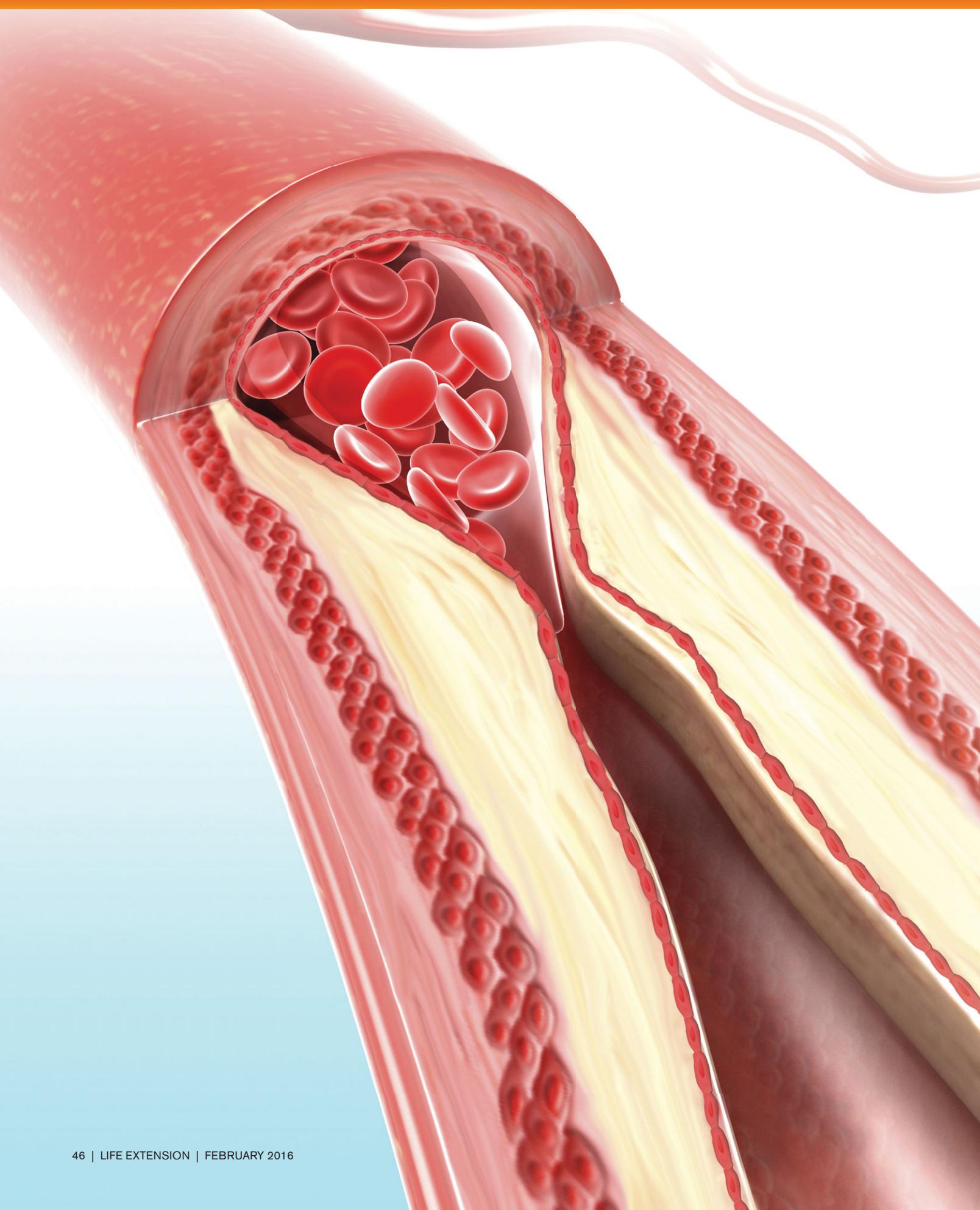
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To order **Hair, Skin & Nails Rejuvenation Formula with VERISOL®**, call **1-800-544-4440** or visit www.LifeExtension.com

SLOW PROGRESSION OF ATHEROSCLEROTIC PLAQUE



Slow the Progression of Atherosclerotic Plaque

Atherosclerosis is the term used to describe damage and obstruction to the linings of the arteries.¹ When **blood flow** is impeded or blocked, the result can be death or disability from a **stroke** or **heart attack**.¹

A study on this topic published in *The Lancet* attracted worldwide attention. It documented that **mummified human bodies** dating back **4,000 years** suffered **clogged arteries**.²

As **Life Extension**[®] has long argued, atherosclerosis is a **disease of aging** that has always been prevalent.

It took MRI imaging to document clear signs of **heart disease** in **34%** of **mummified humans** whose estimated mean age at death was **43** years. Those who died at an estimated mean age of **32** years were less likely to show signs of atherosclerosis.²

The prevalence and severity of **atherosclerosis** worsens with aging. We at **Life Extension**[®] receive calls from people who suffer **70% to 95%** blockage in their coronary arteries. These individuals often have several **stents** that prop open the most occluded part of their arteries. These stents or bypass surgery do nothing to slow the deterioration and further narrowing of their atherosclerotic blood vessels.

In a significant advance, two nutrients have been shown to dramatically slow the **worsening** of **atherosclerotic plaque** (by **95%**), reduce **unstable** plaque, and improve **endothelial function** (by **66%**).

Those with **pre-existing** coronary or cerebral atherosclerosis should read this article carefully. It describes the unique ways these two nutrients slash markers of **heart attack** and **stroke** risk in controlled **human** studies.

Urgent Need to Increase Plaque Stability

There is more to preventing **atherosclerosis** than simply preventing the *formation* of plaque. Much of the danger posed by plaque occurs when it becomes **unstable**.

Early on in the process, plaques are soft on the inside but covered with a hard, thick, fibrous cap on the plaque surface that faces the blood flow.

As long as these plaques remain thick, they are **stable**, meaning they are firm enough to not pose a major risk of rupturing.^{3,4} Over time, the cap begins to thin and weaken, making the plaque more vulnerable to rupturing. This is a catastrophic event that leads to sudden heart attack and stroke.

An important step in lowering acute cardiovascular risk therefore is to help *stabilize* plaques. That's exactly what ***Centella asiatica*** does. Stable plaques stay where they are and don't break loose to cause a tragic outcome.

Centella asiatica, an Asian aquatic plant long used in traditional medicine,^{1,2} helps stabilize thin-capped fibroatheromas, and in doing so reduces the potential for a rupture. It works by promoting the formation of **collagen**.⁵

While we typically associate collagen with the skin, this structural protein is also a prominent component of thick fibroatheromatous plaques that helps reinforce them, making them less likely to rupture.^{5,6}

The active constituents of *Centella asiatica* are triterpenoid molecules that improve the synthesis of collagen.^{1,2,7}

By boosting the production of collagen, *Centella asiatica* extracts promote wound healing.^{2,8} This is

key in stabilizing plaques because a plaque lesion is essentially a wound inside an arterial wall. Ultimately, by promoting collagen synthesis, *Centella asiatica* promotes **remodeling** of thin-capped, soft plaques into thicker-capped, harder, and more stable structures that are less likely to rupture and cause a heart attack or stroke.⁷

In addition to stabilizing plaque lesions by enhancing collagen production, basic lab studies show that *Centella asiatica* also has the potential to help stop the progression of atherosclerosis. To achieve this, *Centella asiatica* reduces the adhesion of **monocytes**, which are immune system-derived cells that infiltrate artery linings to promote progression of atherosclerosis.⁹

Human Studies on *Centella Asiatica*

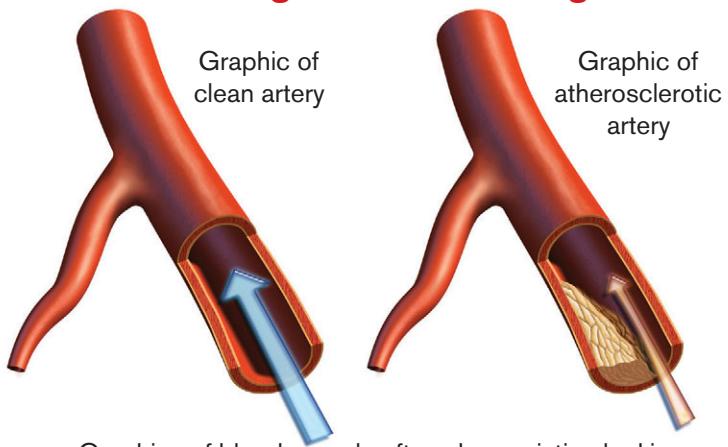
Human studies have now been performed that demonstrate *Centella asiatica*'s ability to help increase the stability of soft, thin-capped lesions in the arteries of patients with known vulnerable plaques.

A two-part study was conducted in order to examine if *Centella asiatica* extract could help stabilize plaque lesions in the carotid arteries (the main arteries that lead to the brain). The first part was a pilot study in which patients with known high-risk plaque (meaning soft, thin-capped plaque lesions that were more likely to rupture) supplemented with **60 mg** of *Centella asiatica* extract three times a day. After 12 months, the *Centella asiatica* extract significantly increased the density, or hardness, of plaques in the carotid arteries by an average of **30%**.⁶

The second part of the study was a randomized, placebo-controlled trial using the same dose of *Centella asiatica* or placebo. Once again, after 12 months, the density (a measure of collagen content and stability of the plaques) was assessed by ultrasound. The results showed that the plaques' density increased **33%** in the supplemented group, with no significant changes in placebo subjects. The *Centella asiatica*-supplemented subjects also experienced a significant improvement in plaque texture (meaning hardness).⁶

Just to clarify, the existing plaque density in the *Centella asiatica* group increased, which improved the **stability** of the plaque. There was no increase in the occlusion of the carotid arteries, just an improvement in the **stability** of existing plaque. Perhaps most significantly, subjects taking *Centella asiatica* experienced **half** as many cardiovascular events (angina, heart attack, etc.) as the placebo recipients. In addition, while images from magnetic

Damaged Arterial Linings



Graphics of blood vessels often show pristine looking red blood with various components gingly flowing through flawless arteries. The reality is that as humans age, the accumulation of chronic damage to the endothelium that lines the arteries sets the stage for occlusive atherosclerosis.

resonance imaging (MRI) revealed evidence of reduced blood flow in brain areas in **17%** of the control subjects, this occurred in only **7%** of supplemented individuals. This is a significant difference, and one that would sharply reduce the risk of a future stroke.⁶

Benefits in High-Risk Patients

A similar but more detailed study was carried out in individuals with high-risk (softer, thin-capped) atherosclerotic plaques in their femoral (main leg) arteries.⁵ The same parameters were followed in this study, with individuals receiving **60 mg** of *Centella asiatica* extract three times daily, or placebo, for 12 months. This group was made up of high-risk individuals with softer, thin-capped atherosclerotic lesions in their femoral arteries.

The results were measured using ultrasound scans. The virtue of ultrasound is that it emits sound waves that can detect whether atherosclerotic plaque is “soft” or “hard.”

Soft tissue reflects back a **darker** image because this softer plaque absorbs more of the ultrasound wave. Conversely, more desirable “hard” arterial plaque bounces back **brighter** because it reflects back more sound waves. Prior studies have shown that **darker** plaques are associated with increased risk of stroke because these soft plaques are more likely to rupture.⁵

By the end of this study, there was a significant **63%** increase in the brightness of the ultrasound echo returned from the lesions in the *Centella asiatica*-supplemented group. This indicated a lower risk for rupture. Once again, no significant change was seen in placebo recipients.⁵

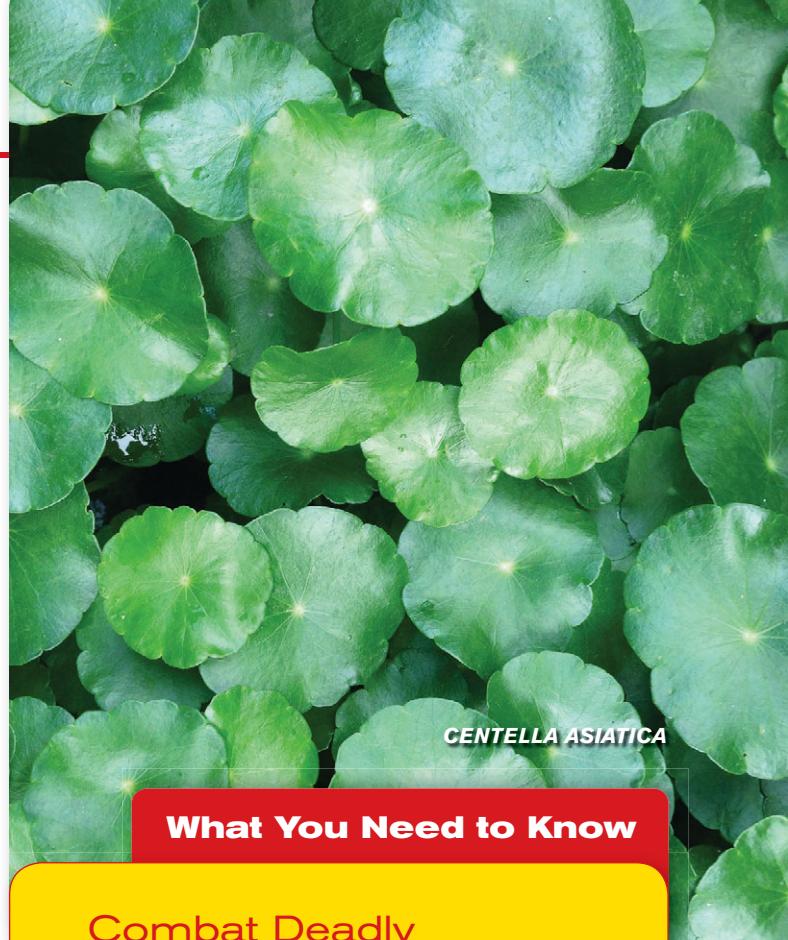
In addition, while plaque size increased in control subjects by **23%**, *Centella asiatica*-supplemented patients experienced no change in plaque size.⁵

Ultimately, treatment with *Centella asiatica* reduced the risk of plaque thinning, rupture, and subsequent blockage of arteries through stabilization and hardening of plaque lesions.

Now, let's look at how this natural plaque-stabilizing extract is complemented by **Pycnogenol®**, which reduces the progression of atherosclerosis.

Pycnogenol® Slows Atherosclerosis Progression

Pycnogenol® is a standardized extract derived from the French maritime pine, *Pinus pinaster*. It consists of a mixture of bioactive compounds called *procyanidins* and *phenolic acids*,^{10,11} which have been shown to slow the progression of *atherosclerosis*.¹²



What You Need to Know

Combat Deadly Atherosclerosis

- Atherosclerotic plaques, which are now known to begin in early life, continue to progress even after symptoms develop.
- While reducing blood lipids, getting exercise, and watching your diet are important parts of a cardiovascular prevention regimen, it is now clear that those are not enough to prevent plaque progression and ultimate rupture, which causes an acute heart attack, stroke, or other cardiovascular event.
- Two natural botanicals have now been shown to have complementary properties: Pycnogenol® slows plaque progression, while *Centella asiatica* stabilizes plaque lesions, thickening their caps and reducing their vulnerability to rupture.
- The combination of the two supplements has undergone clinical trials in more than 2,000 people with atherosclerotic plaque, and has demonstrated a significant reduction, not only in plaque progression and texture, but also in prevention of new cardiovascular symptoms.
- Each supplement has been tested individually, and both are now available in a single vascular health-promoting formula.

Pycnogenol® helps slow this progression by reducing the development of fat cells and cellular signaling molecules that specifically contribute to the formation of plaque.

It does this by suppressing the production of **adipose-differentiation-related protein**. This protein is crucial for the development of both fat cells and the production of various inflammatory cytokines (signaling molecules) that contribute to plaque formation and progression.^{13,14} Pycnogenol® achieves this by reducing a major inflammation-signaling molecular complex called nuclear factor kappaB (**NF-kappaB**). This results in lower levels of inflammation.^{13,14} As we know, this is critical because chronic inflammation is a major factor in the development of atherosclerosis.



Atherosclerosis Has Long Plagued Mankind

According to the lead investigator of *The Lancet* study showing clogged arteries in mummified humans:

*"The fact that we found similar levels of atherosclerosis in all of the different cultures we studied, all of whom had very different lifestyles and diets, suggests that atherosclerosis may have been far more common in the ancient world than previously thought."*⁵

—Randall Thompson, MD

These findings help confirm that **atherosclerosis** has always been widespread. The encouraging news is that methods to prevent and even reverse it are being validated in modern clinical studies.

In addition, animal studies show that Pycnogenol® reduces areas of plaque and lipid deposition in mice with atherosclerosis, accompanied by reductions in total cholesterol and triglyceride levels and increases in protective high-density lipoprotein (HDL) cholesterol.¹³

Improving Endothelial Function

Improving endothelial function is also an important step in reducing the development and progression of atherosclerotic plaque.^{15,16}

Lab experiments show that **Pycnogenol®** stimulates a vital enzyme called **endothelial nitric oxide synthase** (eNOS). This action is critical to the health of blood vessels because *endothelial nitric oxide synthase* produces **nitric oxide**, the signaling molecule that endothelial cells use to communicate with the smooth muscle cells in arterial walls, helping them to relax and open up arteries.¹⁷

This ability was demonstrated in lab experiments in which scientists constricted tissue from the aorta, which is the main blood vessel leading from the heart. The aortic constriction was done using norepinephrine and epinephrine that are normally released in response to stress. This technique mimics what happens in human arteries when blood flow is reduced.

What they discovered is that when the aorta was **pre-treated** with Pycnogenol®, it *prevented* this dangerous constriction of the blood vessels. This beneficial effect occurred as a result of *increased* nitric oxide synthesis, which signals arterial wall cells to relax, producing a wider artery and increasing blood flow. In addition, scientists found that increasing nitric oxide levels also *decreases* platelet aggregation and stickiness to vessel walls, reducing the risks of blood clots and enlarging plaques.¹⁷

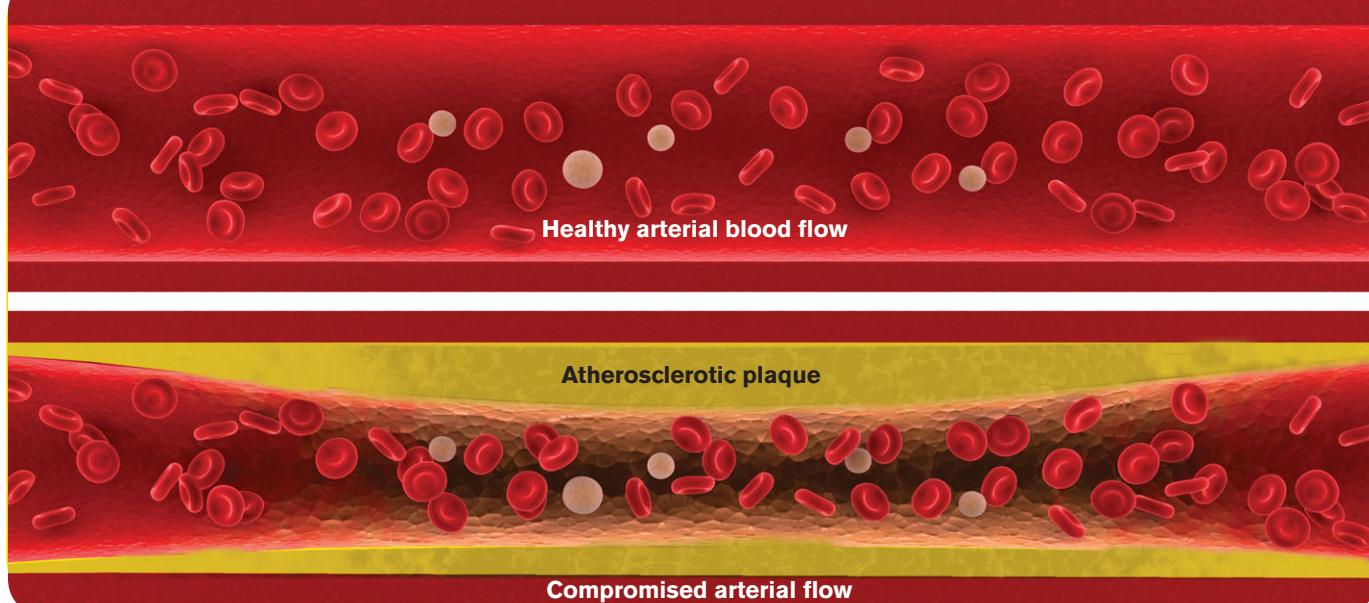
All of these complementary actions have been found to be especially beneficial in humans with coronary artery disease, as we're about to see.

How Pycnogenol® Benefits Coronary Artery Disease

The **coronary arteries** are critical because they supply the heart with blood, oxygen, and nutrients. Coronary artery disease develops because of plaque and inflammation that narrow the arteries, decreasing blood flow to the heart.

A human controlled trial demonstrated that Pycnogenol® was able to improve **endothelial function** in patients with **coronary artery disease**, an effect that helps to limit the progression of atherosclerosis.¹⁸

In this randomized, placebo-controlled crossover study, 23 patients with coronary artery disease received



either placebo or Pycnogenol® (**200 mg** per day) for eight weeks, followed by a two-week “washout” period. After that, the patients received the reverse (crossover) assignment for another eight weeks.¹⁸

In order to determine Pycnogenol®'s effect, the scientists assessed the patients' endothelial function at the start of the study and after each treatment period by measuring **flow-mediated dilation** (a measure of how much arteries dilate in response to changes in blood flow) in the brachial artery (main artery to the forearm).

What they found was that treatment with Pycnogenol® produced a significant **32% increase** in **flow-mediated dilation** and in endothelial function while placebo treatment produced **no** significant changes. Furthermore, levels of *isoprostanes* (an index of how much oxidized fat is present and a measure of overall oxidant stress) fell **7%** in treated subjects with **no change** in placebo recipients.¹⁸

This study provides support for Pycnogenol®'s ability to slow the fundamental, early arterial changes leading to plaque formation and progression.

New Study Corroborates Pycnogenol®'s Benefits

Still greater improvements in **endothelial function** were demonstrated in a **2015** study by leading Pycnogenol® researchers in Italy.¹⁹ The study is especially important because it involved people with **only borderline** high blood pressure, blood lipids, and blood sugar, who as yet had no obvious atherosclerotic changes in their blood vessels and no existing coronary artery disease. In other words, these patients were like most people. They had definitive risk factors, but had not yet developed any clinically relevant disease. They thus were in an ideal situation for early, preventive intervention.

As in the preceding study, the main outcome measure was **flow-mediated dilation**. In this study, 93 individuals with borderline risk factors were enrolled, including 32 with hypertension, 31 with elevated

blood lipids, and 30 with elevated blood sugar.¹⁹ All participants continued their use of the best available medical management for their symptoms, while half of the subjects in each group also took **150 mg** of Pycnogenol® per day. Measurements of **flow-mediated dilation** were made at baseline, at eight weeks, and again at 12 weeks.

By the eight-week mark, **flow-mediated dilation** had increased in the supplemented subjects by **55%**, and at 12 weeks by a total of **66%**. During the same time period, control patients who had not supplemented with Pycnogenol® showed no significant changes in flow-mediated dilation. Measurements of blood flow by a different method, laser Doppler flux, demonstrated similar increases in blood flow at eight and 12 weeks, with flow at 12 weeks no different from normal values.¹⁹

Interpretation of this study suggests, in the authors' own words, “... *an important preventive possibility for borderline hypertensive, hyperglycemic, and hyperlipidemic subjects.*”¹⁹ Again, it's essential to point out that the borderline status of these patients reflects the situation in which most people find themselves, that is, with only mild or no symptoms but at growing risk for **endothelial dysfunction** leading to plaque formation and ultimately, a cardiovascular catastrophe.

Clearly, both Pycnogenol® and *Centella asiatica* extracts have value individually in reducing plaque progression and promoting plaque stability, with additional early protection by Pycnogenol® from endothelial dysfunction. However, two compelling studies show that when these two supplements are used together, they provide even more powerful benefits.

Combined Benefits of Pycnogenol® and *Centella Asiatica*

Two studies of the **Pycnogenol®** plus ***Centella asiatica*** extract supplement were performed by the same research group at a prestigious university. Both were

designed to explore the impact of this **combination** of ingredients in subjects with two classifications of atherosclerotic lesions.

The first group had mild atherosclerotic lesions that were producing no symptoms and that were not yet blocking arteries (**class IV**). The second group had more advanced lesions that extended more than **50%** to **60%** into arteries (**class V**). Critically, both studies were carried out in people who, at the time of enrollment, had relatively early cardiovascular disease. This is vital because we know that prevention is always superior to attempts to cure these chronic, age-related disorders and because most readers fall into that category.

Let's take a look at the first study.

Reduced Risk of Progression of Plaques

The first study was performed among 1,363 subjects aged 45 to 60, who appeared healthy and had no conventional cardiovascular risk factors.¹² All subjects had plaques that did not yet narrow the diameter of the carotid or femoral arteries by more than **50%**, as seen on ultrasound, and no subjects were experiencing signs or symptoms of cardiovascular disease.

After enrollment, subjects were divided into six different groups:

- Controls, who received only education, exercise, diet, and lifestyle recommendations (which were also given to the subjects in all of the treatment groups)

- Pycnogenol® **50 mg** daily (low-dose)
- Pycnogenol® **100 mg** daily (higher-dose)
- Aspirin, **100 mg** daily or *ticlopidine* (a prescription antiplatelet drug) for aspirin-intolerant subjects
- Aspirin, **100 mg** daily plus Pycnogenol® **100 mg** daily
- Pycnogenol® **100 mg** plus *Centella asiatica* extract **100 mg** daily.

All subjects underwent an ultrasound measurement every six months for 30 months in order to determine arterial wall structure and number of plaques that progressed from not blocking blood flow (**class IV**) to blocking blood flow (**class V**).



The Dangers of Arterial Plaque

Cardiovascular disease remains the leading cause of death among older adults.²⁰

Atherosclerosis, the thickening and narrowing of arteries, is the cumulative result of elevated cholesterol, chronic inflammation, and other factors. It leads to coronary heart disease (heart attack), stroke, and peripheral vascular disease.²⁰

In recent years, we've developed a vastly more sophisticated understanding of the processes leading up to devastating arterial blockage by **plaque lesions**.

Their foundation begins even before the teen years with the development of so-called **fatty streaks**, or regions of increased fat in the walls of arteries.²⁰⁻²² At first, the small damaged fatty streak areas trigger a "healing" response, as if the streak areas were a wound, attracting inflammatory cells that ingest and store excess fats.¹⁷

Eventually, **arterial plaque** begins to take shape as a core of fats develops outside of inflammatory cells.^{20,22}

These plaques become less stable over time, making them more vulnerable to rupture, which leads to heart attacks and strokes.

Anything we can do to slow the progression of early fatty deposits to plaque lesions is beneficial, and anything we can do stabilize these plaques makes the risk of a sudden catastrophic heart attack or stroke much less likely.

Two particular supplements have been found to do just that. **Pycnogenol®** has been shown to slow the progression of atherosclerotic plaques. A specialized extract of ***Centella asiatica*** helps to stabilize those plaques, reducing the risk of a life-threatening rupture.

Together, these two supplements can help prevent plaque progression in those with milder atherosclerosis and reduce the development of symptoms in those with more severe disease.



Simplified view of atherosclerotic plaque causing arterial narrowing and reduction of blood flow.

By the end of the study, plaque progression was increased in all groups not receiving **100 mg** per day of Pycnogenol®, indicating the ability of this dose of Pycnogenol® to prevent plaque progression.¹² The following is a breakdown of the percentage of plaques that worsened from **class IV** to a **class V**:

- **21.3%** in control patients (worst responding group)
- **16.6%** of the aspirin/ticlopidine group
- **8.4%** in low-dose **Pycnogenol®**
- **5.3%** in higher-dose **Pycnogenol®**
- **4.0%** in **Pycnogenol®** plus aspirin
- **1.1%** in the **Pycnogenol®** and **Centella asiatica** group (best responding group by far)

Indeed, the risk of plaque progression in the group taking **Pycnogenol®** and **Centella asiatica** was **95% lower** than in the control group. This was *far superior* to the standard antiplatelet therapy group (aspirin/ticlopidine), which was only modestly better than the control (worst responding) group.

Impact on Advanced Atherosclerosis

The researchers' next study was carried out on 824 subjects with more advanced atherosclerosis, namely, with at least one carotid or femoral arterial lesion that extended more than **50%** into the arterial wall (**class V**) but who were, again, without symptoms at the start of the study.²⁴

The same doses and group assignments were used as in the prior study, and patients were followed up for 42 months.

Once again, in all groups not receiving **100 mg** of Pycnogenol®, the plaque lesions increased significantly, but they did not meaningfully increase in any of the groups receiving **100 mg** of Pycnogenol®.²⁴ The following is a breakdown of each group's percentage of plaques that worsened from **class V** (meaning symptom-free) to **class VI** (those with symptoms):

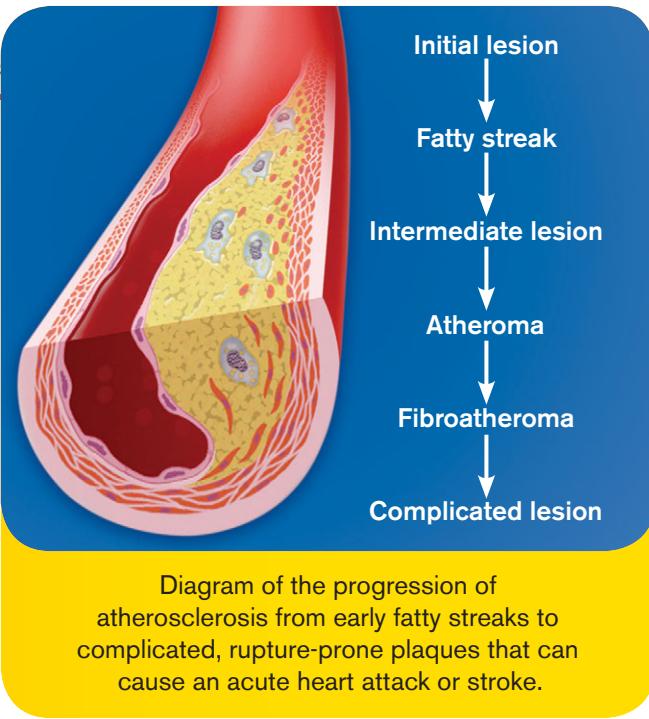
- **48%** of control subjects (worst responding group)
- **21%** of the aspirin/ticlopidine group
- **10%** of **Pycnogenol® 100 mg** alone
- **11%** in **Pycnogenol®** plus aspirin
- **6.5%** of the **Pycnogenol®** and **Centella asiatica** group (best responding group)

Remember that in this study, progression was defined as going from a symptom-free state to one in which symptoms occurred. These were not minor symptoms, but rather those of significant loss of blood flow to the brain, such as numbness, tingling, or loss of function on the same side of the brain (for those with carotid artery plaque), or to the leg, such as pain, pallor, or numbness in the leg (for those with femoral artery plaque).

In other words, these figures for the **Pycnogenol®** and **Centella asiatica** combination reflect a **7.4-fold reduction** in risk of developing profoundly disturbing symptoms of cardiovascular disease compared with controls, and a **3.22-fold** reduction compared with the antiplatelet (aspirin/ticlopidine) group.

Powerful Combination Combats Plaque Progression

Confirming the findings of earlier studies, Italian researchers followed a group of middle-aged individuals with atherosclerotic plaques for four years. Study participants were assigned to receive Pycnogenol® or a combination of Pycnogenol® and *Centella asiatica*. Plaque progression was assessed through arterial ultrasound every six months. Although both supplemented groups showed reductions in the progression of arterial plaque, the reduction was more pronounced in the group receiving the combination. This led researchers to conclude, "Pycnogenol® and the combination Pycnogenol® plus *Centella asiatica* reduce the progression of arterial plaques and the progression to clinical stages."²³



Even more exciting is that when compared to the control group, those in the **Pycnogenol®** and ***Centella asiatica*** group had a nearly **4-fold** reduction in the risk of being hospitalized for a full-blown cardiovascular event.

Summary

Cardiovascular disease, including heart attacks, strokes, and peripheral vascular disease, remains the leading cause of disability and death in Americans and others around the world. We've focused for years on lowering blood cholesterol and other lipids, but that turns out to be only part of the story.

New findings show that a person's risk for having a cardiovascular "event" is highest for those with the most advanced arterial plaques, particularly those with thin caps and soft cores that are vulnerable to rupture, and then catastrophically block the artery.

Two supplements in particular have been found to help prevent dangerous atherosclerosis.

Pycnogenol® has been demonstrated to slow the progression of atherosclerotic plaques. ***Centella asiatica*** preserves the hard, thick cap on atherosclerotic plaques. Such thick-capped plaques are less likely to rupture and produce a potentially fatal cardiovascular event.

When used together, these two supplements help to prevent plaque progression in those with milder atherosclerosis, and to reduce the development of symptoms in those with more severe disease.

In addition to efforts to lower lipid/glucose levels, a combination of **Pycnogenol®** and ***Centella asiatica*** provides the backup that most adults need for more comprehensive cardiovascular protection.

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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Atherosclerosis Begins Early in Life

Long before a heart attack or stroke occurs, dangerous fatty plaques begin to form in the arteries, starting as early as the teen years.²¹ Progression to vascular disease can occur slowly over decades.

The hidden danger is that the symptoms of cardiovascular problems are not always apparent until it's too late.

Despite the billions of dollars spent on statin drugs and surgical interventions such as stents and bypass, heart disease remains the number one cause of death for Americans.²⁶ More needs to be done to reduce this epidemic.

Researchers have identified two specialized botanical compounds, ***Centella asiatica*** and **Pycnogenol®** that have been shown in university studies to *slow* the progression of dangerous arterial plaques, while also *stabilizing* existing plaques.

In one human study, the risk of plaque progression in the group taking **Pycnogenol®** and ***Centella asiatica*** was **95% lower** than in the control group.¹² In addition, **Pycnogenol®** has been shown to improve **endothelial function** by **66%** in just 12 weeks.¹⁹

When used together, both of these extracts help reduce two of the major causes of heart disease in those with milder atherosclerosis, while reducing the development of symptoms in those with more severe disease.^{12,24}

Ultrasonic Classes of Atherosclerotic Lesions¹²

Ultrasonic Class	Ultrasonic Characteristics
CLASS I	Normal artery Intimal surface is a straight line; intima, media, and adventitia are clearly separated
CLASS II	Intimal irregularities ± medial granulation Intimal surface is irregular and/or adventitia appears granular; separation of intima media and adventitia is not clear; intima-media thickness (IMT) <1 mm
CLASS III	Intima media thickening (>1 mm) Appearances as in Class II, but intima-media thickness >1 mm
CLASS IV	Non-stenotic atherosclerotic plaque Localized thickening >1.5 mm producing less than 50% diameter stenosis
CLASS V	Stenotic atherosclerotic plaque Localized thickening producing more than 50% diameter stenosis
CLASS VI	Symptomatic stenotic atherosclerotic plaque As in Class V but associated with ipsilateral cerebral hemispheric symptoms or lower limb ischemic symptoms

Intima refers to the innermost layer of the artery, composed of endothelial cells, while media refers to the smooth muscle layer that comprises the artery wall, and adventitia is the loose connective tissue surrounding the artery. IMT: intima-media thickness, a long-term measure of atherosclerosis that is predictive of future cardiovascular events (thicker is more severe disease).²⁵ Stenotic means measurable narrowing of the blood flow channel inside the artery. All classes lower than VI occur without symptoms.

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AMPK ACTIVATOR

A PARADIGM IN CONTROLLING AGING

Found in every cell,^{1,2} AMPK promotes **longevity factors** that have been shown to extend life span in numerous organisms.^{3,4} Increasing AMPK signaling "turns off" many damaging effects of aging, thus enabling cells to return to their youthful vitality.⁵

Importance of AMPK

Studies show **increased** AMPK activity supports reduced fat storage,⁶ new mitochondria production,⁷ and the promotion of healthy blood glucose and lipids already within normal range.⁴

Gynostemma Pentaphyllum

An extract of the plant *Gynostemma pentaphyllum* promotes AMPK activation!⁸⁻¹⁰ In one of many studies showing a wide variety of benefits, researchers documented a 1-inch reduction in **abdominal circumference** in overweight individuals who took **450 mg** daily of *G. pentaphyllum* extract for 12 weeks.¹¹

Trans-Tiliroside

Trans-tiliroside, extracted from plants such as **rose hips**, boosts AMPK activation, but triggers different downstream metabolic benefits than *G. pentaphyllum*.¹²⁻¹⁴ Among its many benefits, a low equivalent dose of **56 mg** daily *trans*-tiliroside has been shown by researchers in preclinical studies to promote healthy blood glucose levels and body weight already within normal range.¹⁵

Activate Your AMPK!

Over **7,500** published studies document the role that AMPK plays in protecting critical cellular functions. Those seeking healthy aging should prioritize re-activating their AMPK cellular enzyme.

AMPK Activator provides nutrients shown to significantly boost AMPK activity. The suggested daily dosage of **AMPK Activator** is to take two capsules with the first meal of the day and one capsule with the second meal. Three capsules provide:

ActivAMP®

<i>Gynostemma pentaphyllum</i> extract	450 mg
Rose hip extract	1,119 mg
Standardized to 5% <i>trans</i> -tiliroside	56 mg

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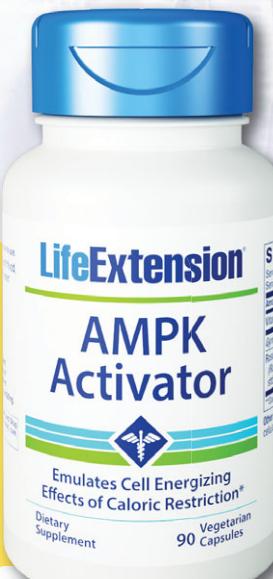
This supplement should be taken in conjunction with a healthy diet and regular exercise program.



AMPK Activator

Item #01907 • 90 vegetarian capsules

	Retail Price	Super Sale Price
1 bottle	\$48	\$32.40
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The accumulation of arterial **plaque** is a normal consequence of aging, but this plaque can become unstable—potentially affecting the vascular endothelium.¹

Arterial Protect provides a combination of patented and tested ingredients documented to support the body's ability to control arterial plaque formation.

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- **Pycnogenol®** also helps modulate healthy inflammation and inhibit platelet aggregation.³
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When the two ingredients in **Arterial Protect** were given to human volunteers, progression of arterial plaque was substantially reduced.¹

For enhanced arterial protection, take just one vegetarian capsule daily of **Arterial Protect** to stabilize arterial plaque and promote healthy blood flow.

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Arterial Protect

Item #02004 • 30 vegetarian capsules

	Retail Price	Super Sale Price
1 bottle	\$48	\$32.40
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Super Omega-3 EPA/DHA with Sesame Lignans & Olive Extract • 120 softgels, Item #01982 A highly refined fish oil blend derived from pristine waters off the coast of Alaska is formulated to remain exceptionally fresh. This purified EPA/DHA from Alaskan Pollock, plus sesame lignans and potent olive (fruit plus leaf) extract, provide essential components of the Mediterranean diet clearly differentiating this omega-3 formula from commercial fish oil.	\$32	\$18.90 (four-bottle purchase) \$15.35 (ten-bottle purchase)
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MacuGuard® Ocular Support • 60 softgels, Item #01926 Offers triple eye protection with <i>meso</i> -zeaxanthin, lutein, and <i>trans</i> -zeaxanthin. This product is not needed by those already taking Health Booster, which contains these same ingredients.	\$22	\$13.37 (four-bottle purchase)
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FLORASSIST® Balance • 30 liquid vegetarian capsules, Item #01825 Dual-encapsulation technology delivers potent doses of the <u>six</u> most important probiotic strains.	\$32	\$18.90 (four-bottle purchase)

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\$72

\$43.20

(four-bottle purchase)

Mega Green Tea Extract (lightly caffeinated) • 725 mg, 100 vegetarian capsules, Item #00953

A highly concentrated **98%** polyphenol extract delivering **45%** of the health-promoting catechin EGCG.

\$30

\$16.20

(four-bottle purchase)

Life Extension Mix™ • 315 tablets, Item #02055

This upgraded high-potency multi-nutrient formula contains **5-methyltetrahydrofolate** (5-MTHF), the biologically active form of folate that is up to **7 times** more bioavailable than folic acid.

\$80

\$46.80

(four-bottle purchase)

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Bone Restore • 120 capsules, Item #01726

Highly absorbable forms of calcium and FruiteX B® OsteoBoron®, magnesium, zinc, and vitamin D3. Also available with vitamin K2 at a slightly higher price. (Those taking Super K or Health Booster don't need additional vitamin K.)

\$22

\$12.83

(four-bottle purchase)

Cognitex® with Brain Shield® (Gastrodin) • 90 softgels, Item #01896

Optimal support for the brain. Includes gastrodin, alpha-glyceryl phosphoryl choline, vinpocetine, phosphatidylserine, uridine-5'-monophosphate, and more. Available with or without pregnenolone.

\$60

\$35.10

(four-bottle purchase)

Enhanced Super Digestive Enzymes with Probiotics • 60 vegetarian capsules, Item #02022

Contains amylase, protease, lipase, cellulase, and lactase to break down protein, starch and short sugar chains, fat, cellulose, and lactose. It has the added benefit of the probiotic *Bacillus coagulans*, which creates a coating that resists digestion in the stomach, allowing it to fully colonize in the intestines.

\$28

\$16.20

(four-bottle purchase)

Immune Senescence Protection Formula™ • 60 vegetarian tablets, Item #02005

Standardized full-spectrum **Reishi** mushroom extract with **Cistanche** and **Pu-erh tea** extracts to help restore youthful immune balance.

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(four-bottle purchase)

Triple Action Thyroid • 60 vegetarian capsules, Item #02003

A combination of ashwagandha, guggul, and Korean ginseng extract work in synergy to combat many of the ailments arising from a poorly functioning, suboptimal thyroid.

\$36

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(four-bottle purchase)

European Milk Thistle • 60 softgels, Item #01922

High-absorption phospholipid-enhanced formula delivers nearly **5 times** more active components to the bloodstream to support detoxification processes as well as promote liver health and function.

\$28

\$16.88

(four-bottle purchase)

Skin Restoring Phytoceramides • 350 mg, 30 liquid vegetarian capsules, Item #01596

Oral phytoceramides derived from wheat can reach the skin's deepest layers to offset the body's natural decline with age.

\$25

\$15.53

(four-bottle purchase)

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

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

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\$21.60

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FLORASSIST® Oral Hygiene • 30 lozenges, Item #02011

This unique blend of two powerful, oral probiotics—*S. salivarius* and *Bacillus coagulans*—inhibits harmful bacteria that develop in your mouth, affecting your teeth, gums, and overall health.

\$20

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(four-bottle purchase)

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\$38

\$23.63

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Neuro-Mag® Magnesium L-Threonate • 90 vegetarian capsules, Item #01603

Optimal form of magnesium to protect synaptic density of neurons.

\$40

\$24.30

(four-bottle purchase)

PREVENT AGE-RELATED VISION LOSS



Prevent Age-Related Vision Loss



The two leading causes of blindness are age-related **macular degeneration** and **cataract** formation.¹⁻³

While declining vision is devastating in and of itself, new research shows that **macular degeneration** is linked to development of **Alzheimer's disease**.⁴

Fortunately, two potent plant compounds, **lutein** and **zeaxanthin**, have been found to not only reduce incidences of **macular degeneration** and **cataracts**, but may also reduce **Alzheimer's** risk.⁵⁻⁹

According to a recent study, people with the **highest** intakes of lutein and zeaxanthin had a **40% reduced** risk of developing advanced macular degeneration!⁹

When combined with a third carotenoid called **meso-zeaxanthin**, the three have been found to provide even greater benefits for people with early age-related macular degeneration.¹⁰

These low-cost natural compounds are readily available so that everyone can benefit from their potential to protect against vision loss and dementia.

Protection against Age-Related Macular Degeneration

Age-related **macular degeneration** is a progressive, chronic disease of the **macula**, which is the pigmented area near the center of the retina. The macula is responsible for central vision. It is the part of the eye that enables an individual to see fine details necessary for everyday activities, such as reading, driving, and telling time.

When the macula deteriorates, it can lead to everything from blurred vision to the distortion of central vision, and even to the complete loss of central vision.

Sadly, macular degeneration is projected to affect almost 300 million people worldwide in the next 25 years.¹¹ Prescription medications offer nothing in terms of preventing macular degeneration.

The good news is that a recent article in *JAMA Ophthalmology* confirms previous findings on two natural compounds, **lutein** and **zeaxanthin**, and their ability to significantly reduce the risk of developing this debilitating eye disease.⁹

Lutein and zeaxanthin are **carotenoids**, natural compounds found in vegetables that give them their color. Out of the hundreds of carotenoids in nature, only **lutein**, **zeaxanthin**, and **meso-zeaxanthin** are selectively present in high concentrations in the **macula**, giving this part of the eye its distinctive yellow color.

Even more significantly, these three carotenoids play a significant role in protecting the macula against UV light that causes oxidative stress, a key culprit in

the damage caused to the macula during macular degeneration.¹²⁻¹⁸ In essence, these carotenoids function as natural “sunglasses” for the eye, protecting it from harmful light and maintaining the function of the macula.

As a result, multiple research studies have demonstrated those who have the highest intakes of these eye-protective carotenoids have the lowest risk of developing macular degeneration. Let's take a look at the studies.

A 40% Reduced Risk of Macular Degeneration

The research detailed in the *JAMA* article previously mentioned was a decades-long prospective cohort study that began in 1984 and ended in 2010. During this time period, data from 69,443 women and 38,603 men who participated in the Nurses' Health Study and the Health Professionals Follow-up Study were analyzed. All the participants were 50 years old or older and did not have macular degeneration at the start of both studies. Intake of carotenoids, including lutein and zeaxanthin, were calculated from food intake data sheets and repeated food questionnaires at baseline and follow-up.

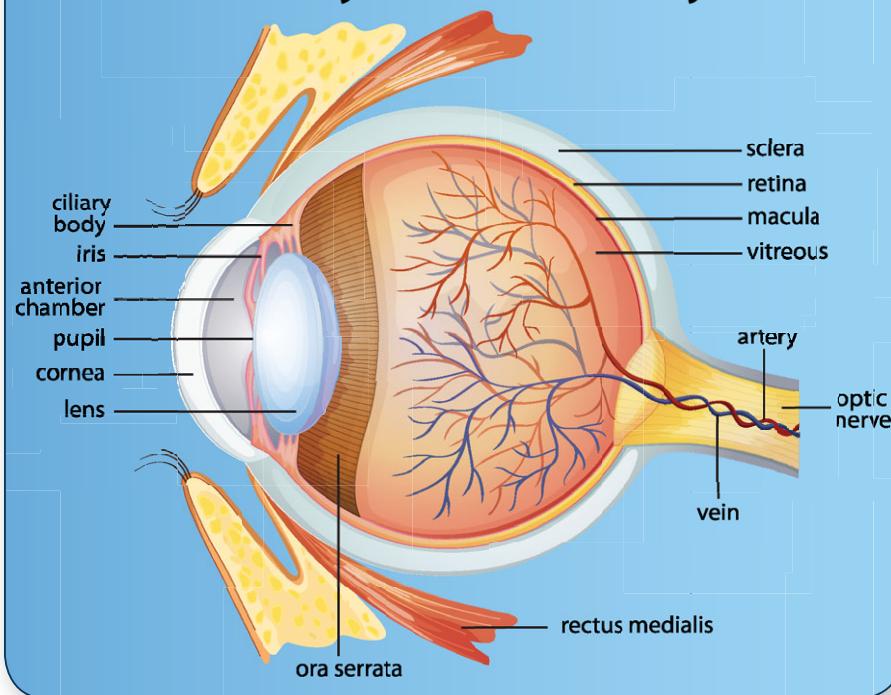
At the end of the study, researchers identified 1,361 cases of intermediate macular degeneration and 1,118 cases of advanced macular degeneration. When the authors of the article compared these numbers with the established levels of lutein and zeaxanthin,

they found that those participants, men and women alike, who had the highest intake of these carotenoids, decreased their risk of developing advanced macular degeneration by a significant **40%** compared to those who had the lowest intake.⁹

Benefits for Those with Early Macular Degeneration

In addition to reducing the risk of developing macular degeneration, other recent studies have demonstrated the beneficial impact of lutein and zeaxanthin for those who already have early macular degeneration. A randomized, double-blind, placebo-controlled trial examined the effects of lutein and zeaxanthin on macular pigmentation and visual performance in 112 men and women, aged 68 to 78, with early age-related macular degeneration.⁸

Anatomy of the Human Eye



During the study, participants received lutein only, a combination of lutein plus zeaxanthin, or a placebo daily. Scientists evaluated the following important parameters of vision health:

- Serum concentrations of **lutein** and **zeaxanthin** (the amount in the blood).
- **Macular pigment optical density**, which is a measurement of the thickness of the macular pigment: Higher density reduces the risk of macular degeneration, while lower density increases the risk.¹⁹
- **Best-corrected visual acuity**, a test that measures the sharpness or clarity of vision (not overall quality of vision). This determines the degree to which vision can be corrected with glasses or contact lenses.
- **Contrast sensitivity**, a test that measures the ability to distinguish between an object and its background. Having low contrast sensitivity can lead to problems with night driving and can increase the risk of falling.
- **Vision-related quality of life**.

After two years, researchers were able to show that **serum concentrations** of lutein, zeaxanthin, and **macular pigment optical density** significantly increased for all treatment groups receiving either **lutein** or the combination of **lutein-zeaxanthin**. There were no adverse side effects. In terms of visual performance, there was an increase in **contrast sensitivity** in the active treatment groups. Compared to placebo, those taking lutein and zeaxanthin showed a significant increase in the **vision-related quality of life** score.

While there were no improvements seen in **best-corrected visual acuity**, this study demonstrated that supplementation with lutein and zeaxanthin have multiple benefits for those suffering from early macular degeneration.

How to Enhance the Benefits of Lutein and Zeaxanthin

As beneficial as these two nutrients are, their impact is even more dramatic when combined with a third compound: **meso-zeaxanthin**. Formed in the macula from zeaxanthin, *meso*-zeaxanthin is one of the three carotenoids we mentioned earlier that is present in the macula.

Because all three are present in the macula, it only makes sense that all three together offer the most benefits to eye health, which is exactly what this next study found.



What You Need to Know

Prevent Age-Related Macular Degeneration

- Age-related macular degeneration is the leading cause of blindness in the Western world for those aged 60 and older.
- High levels of lutein and zeaxanthin, as well as *meso*-zeaxanthin, can safely and effectively reduce the risk of developing macular degeneration while slowing visual loss in people with macular degeneration.
- Other natural compounds high in free radical scavenging activity, such as astaxanthin and cyanidin-3-glucoside, have been shown in laboratory studies to have significant potential in preventing macular degeneration.
- Lutein and zeaxanthin have also been shown in multiple studies to be effective in helping to prevent cataracts, another leading cause of vision loss.
- Having macular degeneration has been linked with Alzheimer's, but studies have shown that people with high levels of lutein and zeaxanthin have better cognition than those with lower levels, in addition to having a lower chance of developing Alzheimer's.

A randomized, single-blind trial examined the effects of combinations of lutein, zeaxanthin, and *meso*-zeaxanthin in patients with early macular degeneration.²⁰ The study involved 52 men and women averaging 66 years of age who were followed over 12 months and assigned to receive the combination **lutein** and **zeaxanthin** or lutein, zeaxanthin, and ***meso*-zeaxanthin**.

Types of Macular Degeneration

Macular degeneration is generally grouped into two categories: dry macular degeneration or wet macular degeneration. In dry macular degeneration, which affects about **90%** of people with macular degeneration, the macula becomes progressively brittle and thin over time and due to these changes, loses its ability to transmit images to the brain. Dry macular degeneration is also called nonexudative macular degeneration because there's no leakage from surrounding blood vessels.

In wet macular degeneration, which affects approximately **10%** of people with macular degeneration, new blood vessels develop in the choroid, which is a layer of connective tissue and blood vessels underneath the retina. Since these new blood vessels aren't as strong as the original vessels, they have a tendency to break and leak into the retina, including the macula, causing scar tissue to form, which can damage and kill retinal cells. Wet macular degeneration is also known as exudative macular degeneration, since there's exudate, or leakage, from the new choroid-layer blood vessels.²⁷



Vision was assessed using two of the testing parameters we mentioned earlier: **macular pigment optical density** and **best-corrected visual acuity**. While there were significant improvements in vision in both groups at the end of the study, the most statistically significant improvements were seen in the group taking the combination of ***meso*-zeaxanthin** along with **lutein** and **zeaxanthin**.

The same researchers did a three-year follow-up of the original participants, and as in the first study, they found that those taking ***meso*-zeaxanthin** in addition to lutein and zeaxanthin had the most significant improvements in vision, specifically in terms of enhancing **contrast sensitivity** and increasing **macular pigment**. This led the authors to conclude that taking these three carotenoid nutrients together provided the most benefits for those suffering from early age-related macular degeneration.²¹

Protection against Cataracts

In addition to battling age-related macular degeneration, lutein and zeaxanthin have been found to significantly reduce the risk of another cause of vision loss: **cataracts**. A cataract is a clouding of the lens of the eye and is caused in large part by oxidative stress and glycation. In America alone, it is projected that 50 million people will have cataracts by 2050.²

A study out of Melbourne, Australia, examined the relationship between lutein, zeaxanthin, and the risk of cataracts in 3,271 people aged 40 or greater over a two-year period. What they found is that the men and women who ate a diet with foods high in lutein and zeaxanthin had a statistically significant lower risk of developing cataracts.²²

This was confirmed in a more recent meta-analysis published in 2014. After analyzing data from studies with 41,999 total participants, 4,416 of whom had cataracts, the authors of the study determined that the intake of dietary **lutein** and **zeaxanthin** was associated with a reduced risk of developing age-related **cataracts**.⁶

The Link between Macular Degeneration and Alzheimer's

Scientists have long known that the retina is a direct extension of the brain. With this knowledge, researchers have been examining the eyes, retina, and macula to determine if changes in the **macular pigment optical density** might be an indicator of something more than vision problems. Specifically, they wanted to determine if these changes might reflect pathological processes, like **Alzheimer's disease**, and cognitive impairments in the brain.^{23,24}

The first study examined whether or not **macular pigment optical density**, along with lutein and zeaxanthin, is related to cognitive functioning in older adults.²⁴ Researchers tested 108 men and women with an average age of 77 years for serum carotenoid levels, **macular pigment optical density**, and cognition, including memory and brain processing speed. Results of the study showed that **macular pigment optical density** was significantly associated with cognition. Those with higher **macular pigment optical density** showed better cognition, as well as verbal learning and fluency, recall, and processing speed. Higher serum levels of **lutein** and **zeaxanthin** were associated with a statistically significant level to verbal fluency.

Other research has shown a link between macular degeneration and the risk of developing Alzheimer's specifically. In an eight-year-long population-based cohort study, researchers examined 4,993 men and women aged 65 or older with macular degeneration. For the control cohort, they recruited 24,965 participants matched for age and gender. At a mean follow-up time of 4.4 years, the researchers discovered that the patients with macular degeneration had a statistically higher risk of developing Alzheimer's than those participants without macular degeneration.⁴

Because of studies like this, scientists are now investigating whether or not increasing lutein and/or zeaxanthin intake could be beneficial in decreasing the risk of developing Alzheimer's. While more research needs to be done, a recent study from France provides evidence that these carotenoids could do just that.⁵

French researchers followed 1,092 men and women, aged 65 or older, for up to 10 years and took baseline

readings of multiple serum carotenoids, including lutein and zeaxanthin. At follow-up, researchers found that low lutein concentrations were significantly associated with Alzheimer's disease. This led the researchers to conclude that maintaining higher amounts of lutein in the blood could moderately decrease the risk of Alzheimer's.⁵

It is important to point out that the association between macular degeneration and onset of Alzheimer's may relate to the lack of brain activity that occurs in aging individuals who lose their eyesight. One method of staving off dementia is to keep one's neurons highly active via mental and physical exercises. The blinding impact of advanced macular degeneration limits one's ability to maintain healthy stimulation of one's neurons.²⁸



Additional Ways to Protect against Macular Degeneration

In addition to lutein and zeaxanthin, two natural compounds have also been found to be key players in preventing the underlying damage that can lead to the development of age-related macular degeneration. One is **astaxanthin**, a red carotenoid found in seafood and algae, and the other is **cyanidin-3-glucoside (C3G)**, a purple plant-based pigment in the class of compounds called anthocyanins.

In a study, researchers examined the protective effect of astaxanthin against light-induced retinal damage.²⁵ This is the kind of damage that is a key component of damage to the macula, ultimately leading to macular degeneration.

In this study, scientists gave mice astaxanthin and then exposed them to very bright light (8,000 lux) for three hours in order to induce retinal oxidative damage.

The researchers found that astaxanthin protected the retina against light-induced oxidative damage. This led them to conclude that dietary astaxanthin could help prevent and inhibit the progression of **dry macular degeneration**, as well as **retinitis pigmentosa**, a group of inherited diseases that cause retinal damage.

In another recently published study on the protective effects of anthocyanins, specifically C3G, on light-induced retinal pigment epithelial cell damage, researchers determined that multiple anthocyanins protected human retinal pigment epithelial cells against oxidative damage and found C3G to be significantly superior. The study authors concluded that anthocyanins in general, and C3G specifically, are promising candidates for the prevention of pathological changes in the retina.²⁶

Summary

Age-related macular degeneration and cataracts are two of the leading causes of vision loss in the elderly.

Lutein and **zeaxanthin**, carotenoids found in high quantities in the macula of the eye, have been shown in multiple studies to reduce the risk of developing both of these eye diseases. Adding a third carotenoid, **meso-zeaxanthin**, has been found to produce even greater benefits.

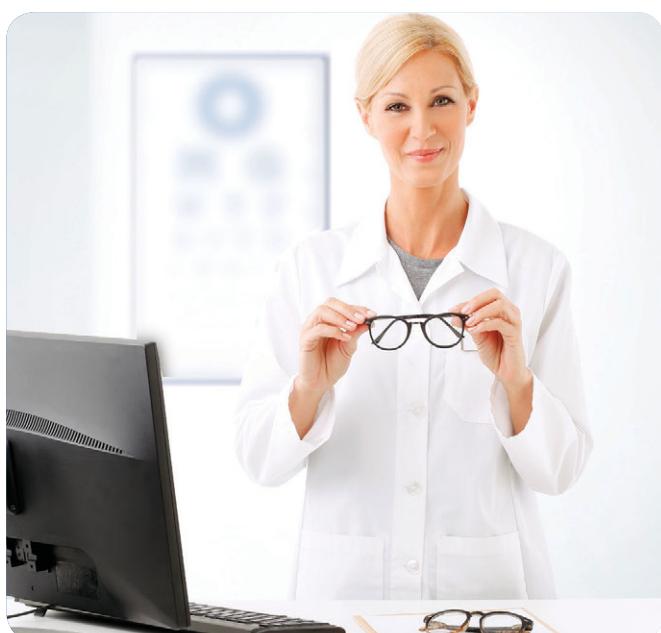
Now, research has shown that having macular degeneration puts people at higher risk for developing Alzheimer's disease. Fortunately, studies have shown that one of the nutrients that helps protect vision, **lutein**, may also reduce the risk of developing Alzheimer's.

Ultimately, the carotenoids lutein, zeaxanthin, and *meso*-zeaxanthin may not only help people protect their vision, but could also help protect cognitive function. ●

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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ULTIMATE eye HYDRATION

Maintaining eye support is essential for optimal eye health.

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

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

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The **Brite Eyes III** formula is buffered in a way to make it **soothing to the eye**. The suggested use of **Brite Eyes III** is to instill 1 to 2 drops in the affected eye as needed.

Brite Eyes III

Item #00893 • 2 vials (5 mL each)

	Retail Price	Super Sale Price
1 box	\$34	\$22.95
4 boxes		\$21.60 each



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

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

TAKE GAMMA TOCOPHEROL TO ENSURE YOU'RE GETTING

THE MOST OPTIMAL FORM OF VITAMIN E

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

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

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

SESAME LIGNANS: THE NATURAL VITAMIN E BOOSTER

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

In a human study that combined **gamma tocopherol** with **sesame lignans**, gamma tocopherol/sesame was **25% more effective** than gamma tocopherol/tocotrienols in suppressing tissue measurements for free radical and inflammatory damage.^{4,5}

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

WORLD'S MOST COMPREHENSIVE VITAMIN E FORMULA!

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

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

Gamma tocopherol	230 mg
Delta tocopherol	90 mg
Alpha tocopherol	35 mg
Sesame lignan extract	20 mg



Gamma E Tocopherol with Sesame Lignans

Item #00759 • 60 softgels

	Retail Price	Super Sale Price
1 bottle	\$32	\$21.60
4 bottles		\$19.58 each

To order **Gamma E Tocopherol with Sesame Lignans**, call **1-800-544-4440** or visit www.LifeExtension.com

Contains soybeans.

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MacuGuard®

Provides Powerful Eye Protection



MacuGuard® Ocular Support with Astaxanthin contains the nutritional building blocks necessary to maintain the structural integrity of your eyes.¹⁻⁷

- Supports **lutein** concentration in the eye
- Supports **lutein** absorption in the bloodstream
- Provides **phospholipids** to enhance **lutein** in cell membranes
- Maintains **zeaxanthin** concentrations in the eye
- Provides **trans-zeaxanthin** and **meso-zeaxanthin**, which are difficult to obtain from diet alone
- Contains **cyanidin-3-glucoside** to help with night vision
- Provides **astaxanthin** to protect against free radical-induced DNA damage

To order **MacuGuard® Ocular Support with Astaxanthin**, call **1-800-544-4440** or visit www.LifeExtension.com

MacuGuard® Ocular Support with Astaxanthin

Item #01927 • 60 softgels

	Retail Price	Super Sale Price
1 bottle	\$42	\$28.35
4 bottles		\$25.65 each

Suggested dose is one softgel daily with or without food. Each bottle of **MacuGuard®** provides a **two-month** supply.

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ENVIRONMENTAL TOXINS AND CANCER RISK



Environmental Toxins and CANCER RISK

The chemicals in our water, air, and food, the materials in our home, and nonionizing radiation present cancer risks.¹⁻⁵

But that doesn't mean that we are defenseless. Researchers have identified several *mechanisms* by which most cancer-producing toxins disrupt our body's defense systems. Compelling evidence reveals how we can defend against these carcinogenic mechanisms.

After reading this article, you'll be able to select protective approaches that best fit your individual exposure to help counteract some of the highest risks in your own environment.

How Toxins Produce Cancer

While we once thought of “cancer” as a single devastating disease, we now recognize that a range of cells, in various tissues, can undergo “malignant transformation” to become cancer.⁶

In fact, the body’s natural defenses are repeatedly inhibiting processes involved in cancer development through a series of targeted responses, much like a nation’s security forces.

On occasion, however, a precancerous or malignant cell slips through all of those defenses and may proceed to start a tumor.

In the worst case, the tumor can release tiny clumps of malignant cells that spread cancer to distant parts of the body. Metastatic cancer is almost always a predictor of death as a result of the disease.⁷

Despite the vast number and diversity of cancer types, there are a relatively small number of events that typically occur in the progression from healthy cell to malignancy. Toxic environmental chemicals, electromagnetic fields,^{8,9} and ionizing radiation may initiate and/or promote malignancy, operating along a number of mechanisms. Some of these mechanisms include:¹⁰⁻²²

- DNA damage,
- Liver detoxification impairment,
- Immune impairment,
- Endocrine disruptors, and
- Loss of apoptosis.

Powerful Cancer Prevention from Mother Nature

It is easy to become fearful about the vast numbers of toxic chemicals and other influences all around us, lurking to produce catastrophic cancers. Fortunately, there are solutions in the form of specific nutrients with powerful cancer-preventing effects.

Compelling scientific studies show that specific nutrients counteract major processes by which toxic compounds and radiation promote malignancies.

By discussing the five major pathways through which toxins initiate cancer, and the nutrients that specifically counteract each of those cancer-promoting processes, we can put together a rigorous cancer chemoprevention regimen.

DNA Damage

The first way toxins may lead to cancer is by breaking DNA strands. Damage to DNA is a major initiating factor in cellular transformation to cancer. DNA damage

TABLE 1: Nutrients That Reduce DNA Damage

Nutrient	Cancers Affected*
Carotenoids (lutein, astaxanthin, lycopene) ³⁸⁻⁴³	Prostate, colon
Coenzyme Q10 ⁴⁴⁻⁴⁶	Colon, head-and-neck
Fish oil (omega-3 fats) ^{47,48}	Colon, skin
Genistein (from soy) ⁴⁹	Leukemia
Plant polyphenols ^{28,50,51}	Multiple
Probiotics (<i>Lactobacillus rhamnosus</i>) ³⁴	Colon
Quercetin ⁴⁵	Head-and-neck
Selenium ^{29,30}	Colon, breast
Vitamin C ^{32,33,52-56}	Breast, colon, skin
Vitamin D ^{36,57}	Colon, skin
Vitamin E ^{31,58-63}	Liver, breast

*These are only a few of the types of cancers affected by these nutrients.

can be caused by toxins that break DNA strands (such as pro-oxidant chemicals or ionizing radiation).^{10,23} Such damage can induce mutations in the DNA that trigger cancer.²⁴⁻²⁷ That is why nutrients that prevent DNA damage, or ones that promote its **repair**, are so potent in protecting against cancer.

Given the role of oxidative stress in causing such damage, **nutrients that reduce DNA damage** (i.e. **vitamins C** and **E** and the trace mineral **selenium**), are often considered as a first line of defense.²⁸⁻³³

Surprisingly, **probiotics**, which are normally associated with improved gastrointestinal function, have been found to be effective at reducing DNA damage specifically in the colon. This may help to prevent **colon cancer**, the third cause of cancer-related deaths in the US.^{34,35}

And, while sunlight exposure can boost vitamin D levels, such exposure also raises DNA skin damage, but **vitamin D supplementation** can protect against DNA damage throughout the body.^{36,37}

Nearly a dozen nutrients have been found to prevent DNA damage, resulting in a positive impact on cancers of the prostate, colon, breast, skin, liver, and more.

Table 1 above lists just a few of the nutrients known for their DNA-protective effects.

Liver Detoxification Systems

The second way environmental toxins cause cancer is through their detrimental impact on liver detoxification systems. **Liver detoxification systems** play a major role in managing ingested toxins because blood from the digestive tract goes to the liver before being pumped around to the remainder of the body.

The liver has two major detoxification pathways: Phase I and Phase II. **Phase I** enzymes convert toxic chemicals into compounds that may be more toxic than the parent compound.⁶⁴ Unfortunately, if the toxic load is too heavy, it can cause overactivity of Phase I enzymes, which can have the reverse effect of converting relatively harmless substances into potential DNA-damaging carcinogens.^{11,12,65}

Making matters worse, the worst offenders of overactive Phase I enzymes are substances some people encounter on a daily basis, including alcohol, saturated fats, and exhaust fumes, among others.^{64,66}

In **Phase II** detoxification, the liver adds another substance to the toxic chemical in order to make it more water soluble. This allows your body to excrete the toxin through bile or urine, helping remove the potentially carcinogenic substance from the body.^{11,12,64,67,68}

For these reasons, cancer-preventive nutrients that influence liver metabolism are generally those that *regulate* toxin-enhancing Phase I reactions, *promote* toxin-neutralizing Phase II reactions, or, in many cases, do both.⁶⁹⁻⁷¹ Nutrients that regulate these liver detoxification systems come largely from dietary plants and their extracts.

Several nutrients have this dual action on liver enzymes, including curcumin, folic acid, and garlic, among others. Research suggests this may have a positive impact on preventing some of the most common and deadly cancers.^{50,51}

See **Table 2** for a list of nutrients that prevent cancer by regulating the liver's detoxification enzymes.

Immune Surveillance

The third way environmental toxins can cause cancer is through their impact on immune surveillance. **Immune surveillance** refers to the immune system's continual search for cells bearing signs that they have become cancerous.⁹² A number of environmental toxins can suppress immune surveillance, raising the risk that a malignant cell will slip under the radar, form a tumor, and successfully spread to other parts of the body.^{13,17,93}

Nutrients that enhance immune surveillance are only now being recognized as powerful contributors to the body's lifelong fight against cancer. These nutrients boost those components of the immune system that are



What You Need to Know

Environmental Toxins and Cancer

- The heavily industrialized nature of our modern world constantly exposes us to toxic, cancer-inducing, and cancer-promoting influences.
- Chemical toxins as well as various sources of radiation can initiate cancer through DNA damage and promote tumor development through mechanisms involving liver enzyme systems, suppressed immunity, disruption of your hormones, and hijacking of cells' normal death-inducing programs.
- You can't realistically evade all of the factors that can cause cancer in your life, but you can leverage modern scientific knowledge to your benefit.
- Many nutrients are available with known cancer-fighting benefits, including those that directly counteract the major processes by which toxic compounds and radiation promote malignancies.
- Choose one or more nutrients from each category to provide yourself with the best possible natural protection against toxic, cancer-inducing forces in your environment.

TABLE 2: Nutrients That Regulate Liver Detoxification Enzymes

Nutrient	Impact on Liver Enzymes	Cancers Affected*
Chlorophyllin ⁷²	Inhibit Phase I; boost Phase II	Liver, colon, prostate
Curcumin ⁷³⁻⁷⁸	Inhibit Phase I; boost Phase II	Breast, colon, prostate, pancreas
Folic acid ⁷⁹⁻⁸¹	Inhibit Phase I; boost Phase II	Breast, pancreas
Garlic ⁸²⁻⁸⁶	Inhibit Phase I; boost Phase II	Breast, liver, prostate
Genistein ⁸⁷	Boost Phase II	Colon
Isothiocyanates (sulforaphane, PEITC) from cruciferous vegetables ^{69,72,88}	Inhibit Phase I; boost Phase II	Liver, colon, breast, prostate
Plant flavonoids (i.e. chrysin, genistein, quercetin) ^{89,90}	Inhibit Phase I; boost Phase II	Multiple
Silymarin (milk thistle) ⁹¹	Boost Phase II	Liver

*These are only a few of the types of cancers affected by these nutrients.



responsible for recognizing the unique tumor “markers” displayed on the surface of malignant cells, and then destroying those cells.

Nutrients that enhance immune surveillance may stimulate growth and proliferation of **tumor-detecting lymphocytes**, promote a vigorous attack on tumor cells by so-called “**natural killer cells**,” and/or stimulate **antibody production**, which aids in immobilization and destruction of malignant cells.

Table 3 lists nutrients capable of activating one or more components of the immune system in order to destroy developing cancers.

Endocrine Disruptors

The fourth way environmental toxins can cause cancer is through their impact on endocrine disruptors. **Endocrine disruptors** are chemicals that interact with sex hormones and/or their receptors to promote cancer development.^{17-19,118}

Not surprisingly, **nutrients that inhibit endocrine disruptors** show promise in preventing hormone-dependent cancers such as those of the breast, uterus, and prostate. Although scientists don’t yet fully know how these nutrients work to inhibit endocrine disruptors, it may involve enhanced excretion or reduced absorption of toxins from the intestinal tract.^{119,120}

Table 4 lists nutrients capable of inhibiting endocrine-disrupting pollutants. In addition, there are also a number of **plant flavonoids** (i.e. chrysin, genistein, quercetin) that are effective against endocrine-disrupting toxins.

They appear to reduce the activity of estrogen-producing enzymes such as aromatase, thereby reducing overall sex hormone predominance and starving hormone-dependent tumors of their vital growth factors.⁸⁹

Loss of Apoptosis

Another way environmental toxins are associated with cancer is through inducing a loss of apoptosis, or programmed cell death. **Loss of apoptosis** refers to the “immortality” typical of cancer cells. Normal body cells are programmed to die off when appropriate.¹³⁰ Cancer cells have lost this ability (often as a result of DNA damage), which allows them to reproduce essentially without limit.¹³¹ A number of chemical toxins, particularly **aflatoxin**, a potent inducer of liver damage, can switch off the gene responsible for producing apoptosis,¹³² which results in cancer promotion.²⁰⁻²²

Nutrients that restore cells’ natural ability to die by apoptosis represent the final category in our listing of nutrients that help fight against cancers caused

by environmental toxins. These nutrients typically act by modifying various signaling pathways. This means that they can activate genes that become suppressed when cells become cancerous, including genes that normally support the graceful death of a cell that is no longer useful or poses a threat.¹³³

By restoring the natural self-destruction program initiated by apoptosis genes, these nutrients put a sharp roadblock in the way of a developing tumor. This allows other anticancer mechanisms such as immune surveillance to clear the remainder of the battlefield.¹³³

Nutrients known to promote apoptosis include coffee extract, quercetin, pine bark extract, and selenium. Research shows they have a positive impact on bladder, colon, and ovarian cancers, among others.

See **Table 5** for a more detailed list of nutrients that promote or restore apoptosis capabilities in malignant cells.

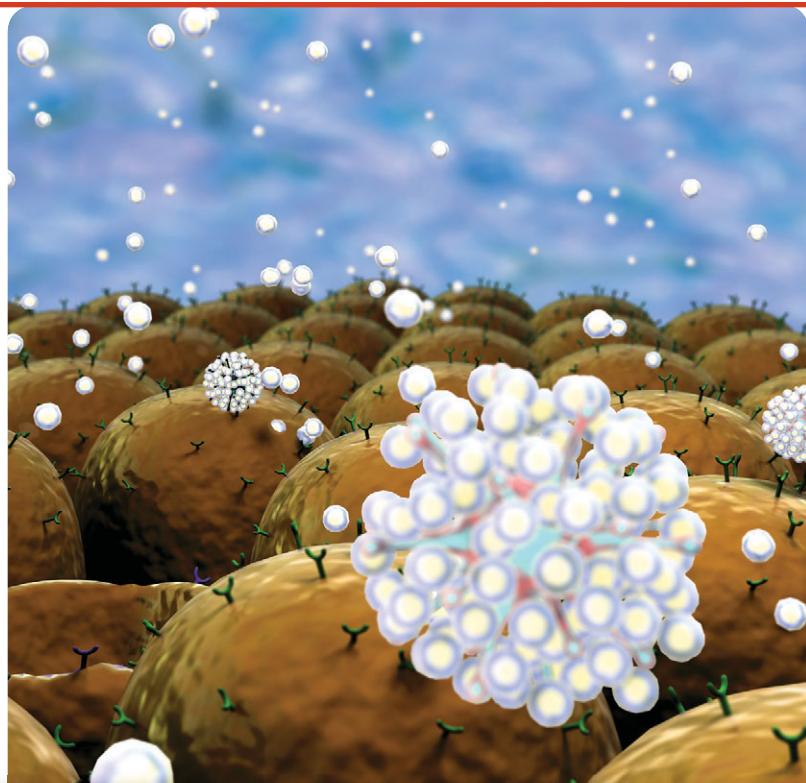


TABLE 3: Nutrients That Boost Immune Surveillance

Nutrient	Immune Mechanism	Cancers Affected*
Enzymatically modified rice bran ⁹⁴⁻⁹⁷	Increases natural killer cell activity	Leukemia, Multiple Myeloma, Liver
<i>Cistanche</i> extracts ⁹⁸⁻¹⁰¹	Increases naïve T-cells, increased expression of transforming growth factor beta, decreases inflammation	Colon
Grape seed proanthocyanidins ¹⁰²	Induction of immunoregulatory cytokines; stimulation of tumor-destroying T cells	Skin
Green tea polyphenols (EGCG) ¹⁰²⁻¹⁰⁷	Activation of tumor-killing T-lymphocytes and natural killer cells; induction of immunoregulatory cytokines	Colon, skin, lung, prostate, breast
Probiotics (lactic acid bacteria) ¹⁰⁸⁻¹¹⁰	Decrease inflammation; increase immunoregulatory cytokines; increased interferon-gamma production	Colon, skin
Reishi mushroom (<i>Ganoderma lucidum</i>) ¹¹¹⁻¹¹⁴	Enhanced proliferation of tumor-killing T-lymphocytes, antibody-producing B-lymphocytes, and natural killer cells	Liver, lymphoma, lung
Resveratrol ^{115,116}	Sensitizes tumor cells to killing by cytokine-induced killer cells; enhances cytokine-induced killer cell activity	Leukemia
Silymarin ¹⁰²	Induction of immunoregulatory cytokines; stimulation of tumor-destroying T cells	Skin
Vitamin D ¹¹⁷	Reduced inflammation	Colon

*These are only a few of the types of cancers affected by these nutrients.

Sources of Cancer-Inducing and Cancer-Promoting Toxins

While it is impossible to avoid all cancer-causing environmental toxins, it is important to be aware of some of the most prominent sources. We have compiled a list of common toxins broken down by their environmental sources. As you'll see from this list, these can be found in sources we interact with on a daily basis, including our food, water, plastic, cell phones, and even sunlight.

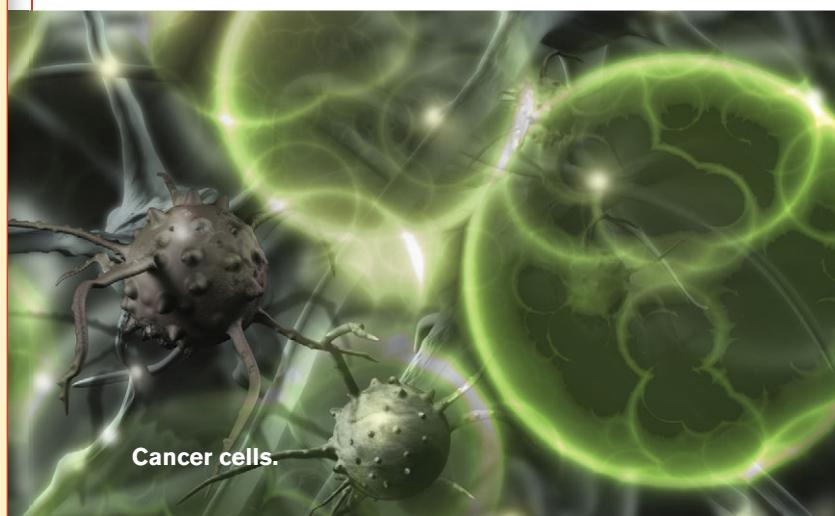
- **Aflatoxins** are toxic chemicals produced by *Aspergillus* fungi growing on grains and peanuts, particularly those stored improperly. Chronic exposure induces cancer by multiple mechanisms.^{155,156}
- **Polycyclic aromatic hydrocarbons** are chemical structures composed of carbon, hydrogen, and occasionally other atoms. They are products of fossil fuel combustion, particularly petrochemicals, and are a major source of cancer-causing chemicals in polluted air.^{157,158}
- **Bisphenol A (BPA)** is one of the highest-volume toxic chemicals found worldwide.¹⁵⁹ It is used in making all kinds of plastics and resins, including water bottles and food containers.

TABLE 4: Nutrients That Inhibit Endocrine Disruptors

Nutrient	Toxin Inhibited	Cancers Affected*
<i>Chlorella pyrenoidosa</i> ¹²⁰⁻¹²⁴ (More efficiently obtained as chlorophyllin)	Dioxin (a polychlorinated biphenyl [PCB]), perfluorinated compounds (PFCs)	Breast, prostate
Folic acid ¹²⁵⁻¹²⁷	Bisphenol A (BPA), phthalates	Breast, prostate
Genistein ^{125,126}	BPA, phthalates	Breast, prostate
Probiotics (<i>Lactobacillus</i> , <i>Bifidobacterium</i>) ^{119,128,129}	BPA	Breast, prostate
Vitamin C ⁵²	Heavy metals (lead, copper, iron)	Liver, lung, prostate
Vitamin E ⁵²	Heavy metals (lead, copper, iron)	Liver, lung, prostate

*These are only a few of the types of cancers affected by these nutrients.

- **Heavy metals** (including cadmium, arsenic, nickel, lead, and mercury) are naturally occurring components of the earth's crust.¹⁶⁰ Human exposure results from mining,¹⁶¹ smelting,¹⁶² and petroleum manufacturing,¹⁶³ all of which release heavy metals into the air, water, and soil.
- **Pesticides and herbicides**,¹⁶⁴ especially those containing organic chemicals bonded to chlorine or bromine, are found in agricultural settings, where they make their way into the food chain. Sadly, even after the highly toxic dichlorodiphenyltrichloroethane (DDT) was banned, risks still abound, both because of persistent DDT in the environment and because newer compounds intended to replace DDT (such as methoxychlor) are turning out to have their own cancer-inducing properties.¹⁸
- **Dioxins** and dioxin-like chemicals such as polychlorinated biphenyls (PCBs) are commonly found in foods of animal origin (meat, dairy, and fish),^{165,166} depending on the country of origin.¹⁶⁷
- **Heterocyclic amines** are chemicals that form when meat is cooked at high temperatures (e.g., grilled or broiled).⁷²
- **Ultraviolet radiation** is a natural component of sunlight, but serves as a powerful source of many of the changes that lead to cancer.¹⁶⁸
- **Electromagnetic field radiation**, especially the kind produced by cellular phones and their transmitting stations,¹⁶⁹ are only now emerging as potential environmental threats. Such radiation is associated with DNA damage,¹⁷⁰⁻¹⁷² potentially leading to cancer.^{173,174}



This is by no means an exhaustive listing of cancer-related environmental toxins. Toxins are ubiquitous, particularly in our highly industrialized society. They are, therefore, nearly impossible to avoid, but as we have read, we know that we are not helpless. We can arm ourselves with knowledge about natural products capable of offsetting much of the increased cancer risk posed by environmental toxins.

Summary

We are awash in a sea of toxins and invisible radiation that constantly promotes malignant transformation of our cells, leading to persistently high rates of cancer.

Despite the seemingly immeasurable amount of environmental toxins, there are five mechanisms through which they typically work to promote cancer. This allows us to identify nutrients that have cancer-fighting properties that work specifically against these mechanisms.

Just as the chemicals that cause cancer do so by multiple mechanisms, natural products offer multiple, overlapping, and complementary approaches to cancer prevention.

By becoming familiar with the major cancer-inducing and cancer-promoting toxic influences in your world, you can then develop a supplement regimen that covers all five mechanisms by which we know that toxins and radiation induce cancerous changes.

By choosing carefully from among the nutrients listed in this article, you can establish a solid cancer-fighting base in your own body—one that works with your natural defenses to defeat cancers before they get established. ●

If you have any questions on the scientific content of this article, please call a Life Extension®

Health Advisor at 1-866-864-3027.



Table 5: Nutrients That Promote Apoptosis

Nutrient	Cancers Affected*
Chlorophyllin ^{134,135}	Bladder
Coffee extract ¹³⁶	Colon
Curcumin ^{25,137,138}	Leukemia, colon
<i>Emblia officinalis</i> (amla; Indian gooseberry) ¹³⁹	Ovary
Green tea extract (EGCG) ¹⁴⁰⁻¹⁴⁴	Leukemia, lymphoma, head-and-neck
Lycopene ³⁸	Prostate
Phenyl isothiocyanate (PEITC) from cruciferous vegetables ⁶⁷	Bladder, lung
Pine bark extract (Enzogenol) ^{145,146}	Leukemia
Prebiotics (fermentable fiber, which produces butyrate, induces apoptosis) ¹³⁶	Colon
Probiotics (<i>Lactobacillus salivarius</i>) ¹⁴⁷	Oral
Propolis ^{136,148}	Colon
Quercetin ¹³⁹	Ovary
Red clover isoflavones ¹⁴⁹	Prostate
Rosemary (carnosol) ^{150, 151}	Prostate, colon, skin, breast, kidney, liver
Sarsaparilla (<i>Smilax glabra</i>) ¹⁵²	Multiple
Selenium ¹⁵³	Colon, lung, prostate
Soy isoflavones (genistein, daidzein) ^{38,154}	Prostate

*These are only a few of the types of cancers affected by these nutrients.

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Toxins That Induce or Promote Cancer*

Basic Mechanism	Toxins
Increased DNA damage	Aflatoxin A1 ¹⁷⁵ Air pollutants (polycyclic aromatic hydrocarbons, tobacco smoke) ^{157, 158, 176-181} Arsenic ¹⁸² Bisphenol A (BPA) ¹⁸³ Cadmium chloride ¹⁷⁵ Microwave radiation ¹⁸⁴ Mobile phone radiation ^{169, 185} Nickel salts ¹⁸⁶ Paraquat (an herbicide) ¹⁷⁵ Pesticides ¹⁸⁷⁻¹⁸⁹ Ultraviolet light ^{36, 102}
Activation by liver enzymes	Aflatoxin B1 ^{190, 191} Dioxin ¹⁹² Heterocyclic amines (from cooking meat) ^{190, 193} Nicotine ¹⁹⁴ Paraquat ¹⁹⁴ Polycyclic aromatic hydrocarbons (e.g., benzo[a]pyrene) ^{192, 194}
Suppress immune surveillance	Dioxin ¹⁶ Mercury ¹⁹⁵ Mycotoxins (e.g., aflatoxins, fumonisins, and deoxynivalenol) ^{155, 196} Perfluorinated hydrocarbons ¹⁹⁵ Tobacco smoke ¹⁹⁷ Ultraviolet light ¹⁰⁸
Endocrine disruption	BPA ¹⁹⁸⁻²⁰⁰ Cyprodinil (a fungicide related to polycyclic aromatic hydrocarbons) ²⁰¹ DDT ²⁰² Dioxin ^{17, 203} Heavy metals (arsenic, cadmium, lead, mercury) ¹⁹⁸ Methoxychlor ¹⁸ Phthalates ^{198, 204, 205} Polychlorinated/polybrominated organic compounds (e.g., PCBs) ^{167, 204, 206} Polycyclic aromatic hydrocarbons ^{198, 204} Triclosan ¹⁸
Loss of apoptosis	Aflatoxins ²⁰⁷⁻²⁰⁹ Heavy metals ²¹⁰⁻²¹³ Pesticides/herbicides ²¹⁴ UV light ^{215, 216}

*These are only a few of many toxins that induce/promote a wide range of cancers.



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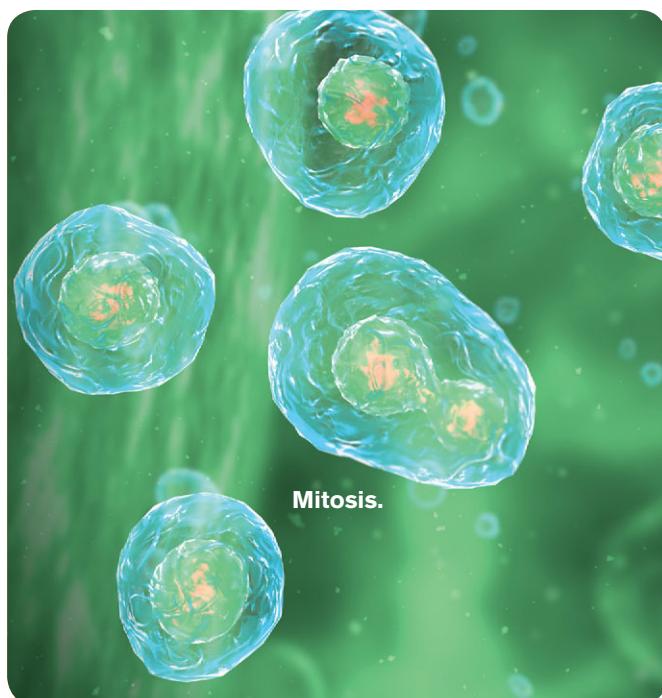
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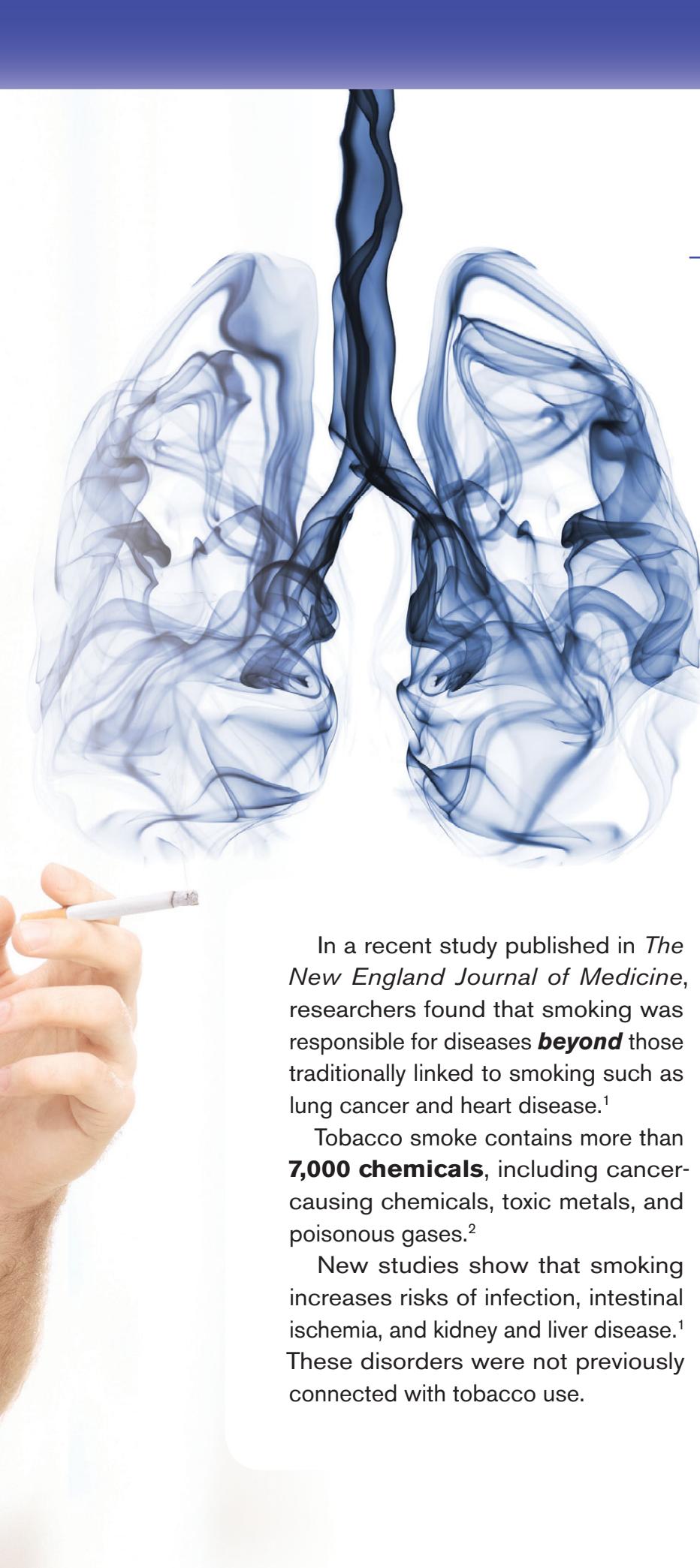
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HEALTH RISKS OF SMOKING





SMOKING: The Leading Cause of AVOIDABLE DEATH

In a recent study published in *The New England Journal of Medicine*, researchers found that smoking was responsible for diseases **beyond** those traditionally linked to smoking such as lung cancer and heart disease.¹

Tobacco smoke contains more than **7,000 chemicals**, including cancer-causing chemicals, toxic metals, and poisonous gases.²

New studies show that smoking increases risks of infection, intestinal ischemia, and kidney and liver disease.¹ These disorders were not previously connected with tobacco use.

With more than 42 million Americans smoking, causing approximately half a million deaths a year, smokers will clog our medical system and drain it of resources as they face a spectrum of diseases.³

It is important that you take steps to avoid inhaling **secondhand** smoke and to clean up lingering toxins that are referred to as **thirdhand** smoke. Thirdhand smoke is defined as "**residual tobacco smoke contamination that remains after the cigarette is extinguished**".

Leading Cause of Death

Cigarette smoking is the *leading avoidable cause of death worldwide*. All forms of tobacco use raise a person's risk of virtually every chronic disease that plagues humanity. For example...

- Smokers are **5 times** more likely to die from pneumonia.⁶
- Smokers have a **48%** increased colon cancer risk.⁷
- Smokers have a **1.7-fold** increased risk of Crohn's disease.⁸
- Smokers have a **129%** increased risk in developing nonalcoholic fatty liver disease.⁹
- Smokers have a **2-fold** increase in the risk of dying from amyotrophic lateral sclerosis, or Lou Gehrig's disease.¹⁰

The worst part is that these dangers exist even if you don't smoke. Secondhand smoke, also known as ***passive smoking***, is surprisingly destructive.^{9,11-27} Researchers are even discussing thirdhand smoke as an emerging

Chemicals in Tobacco Smoke¹³

Tobacco smoke contains a deadly mix of more than 7,000 chemicals. Hundreds are toxic. About 70 can cause cancer. Here are some of the chemicals.

CANCER-CAUSING CHEMICALS:

- **Formaldehyde.** Used to embalm dead bodies.
- **Benzene.** Found in gasoline.
- **Polonium-210.** Radioactive and very toxic.
- **Vinyl chloride.** Used to make pipes.

TOXIC METALS:

- **Chromium.** Used to make steel.
- **Arsenic.** Used in pesticides.
- **Lead.** Once used in paint.
- **Cadmium.** Used in making batteries.

POISONOUS GASES:

- **Carbon monoxide.** Found in car exhaust.
- **Hydrogen cyanide.** Used in chemical weapons.
- **Ammonia.** Used in household cleaners.
- **Butane.** Used in lighter fluid.
- **Toluene.** Found in paint thinners.

and important concept in both the environmental and public health fields.²⁸⁻³⁰ Thirdhand smoke is defined by experts as "*residual tobacco smoke contamination that remains after the cigarette is extinguished.*"³¹

Tobacco smoke contains more than **7,000 chemicals**, including cancer-causing chemicals, toxic metals, and poisonous gases (see sidebar).² With so many deadly molecules in just one puff, it is no wonder that tobacco use raises levels of the two major sources of aging in the body: oxidant stress and inflammation.^{12,32-44}

To make matters worse, researchers have studied the *epigenetic* influence of inhaled toxins from tobacco smoke. Epigenetics is the field that studies the biological mechanisms that turn genes on and off. It is believed that lung cancer, chronic obstructive pulmonary disease (COPD), asthma, and cardiovascular disease are linked with epigenetic changes due to tobacco smoke.⁴⁵⁻⁴⁹ It is believed that one DNA mutation is introduced into the genome for every 15 cigarettes smoked.⁵⁰

The good news is that stopping smoking benefits all smokers, regardless of their age or how long they have smoked.^{34,51-57} It also benefits those around them who are exposed to the secondhand smoke and thirdhand residual tobacco toxins that remain after the cigarette is extinguished.

Lung Conditions Caused by Smoking

While smoking clearly raises the risk of ***lung cancer***, both active and passive smoking also produce numerous other lung disorders that can shorten life span.

Smoking radically raises the risk of developing ***pneumonia***, a condition that remains a leading killer of older adults.^{58,59} In one study, smokers were **5 times** more likely to die from pneumonia than nonsmokers, and at a substantially younger age.⁶

Smoking's powerful pro-inflammatory effects can be seen in a study of patients with ***chronic obstructive pulmonary disease*** who continued to smoke.⁶⁰ Two measures of inflammation, *high-sensitivity C-reactive protein* (hs-CRP) and *fibrinogen*, rose sharply after a single cigarette, with the effects lasting up to 35 minutes. Such constant exposure to an acute inflammatory stimulus wreaks havoc on delicate lung tissue.⁶⁰

Unfortunately, many smokers who develop chronic obstructive pulmonary disease believe that the damage is done, and that there is little point in trying to quit. However, this is not the case. According to a study published in 2014, nonsmokers with the disease had vastly better lung function than did current smokers.⁶¹ The authors concluded that "*tobacco cessation is warranted in smokers with chronic obstructive pulmonary disease.*"⁶¹

Smoking Damages Endothelial Cells

The impact of smoking on cardiovascular disease remained controversial until the early 1960s, when the giant Framingham heart disease study showed smoking's heart-related dangers.⁶² By 1964, the results of that study were so alarming that the Surgeon General issued the first of the now-familiar warnings about smoking.^{4,5} Today smoking is known as an independent and entirely preventable risk factor for **atherosclerosis** and **cardiovascular disease**.⁶³

No doubt these cardiovascular impacts are due to a number of harmful toxins found in cigarette smoke. In addition to nicotine and carbon monoxide, cigarette smoke contains countless cardiac toxins, including the toxic metal cadmium, which some researchers believe contributes directly to the increased cardiovascular risk experienced by smokers.⁶⁴

Smoking is especially damaging to the delicate endothelial cells lining arterial walls.⁶⁵ These cells are critical in maintaining the health of blood vessels and controlling blood flow and pressure. They are also extremely sensitive to oxidant stress. Multiple components of cigarette smoke conspire to harm endothelial cells, and damaged endothelial cells lay the groundwork for formation of cholesterol-laden, inflammatory plaque.⁶⁵

Smoke-induced inflammation in and around plaque triggers swelling that can block arteries and increase the stickiness of platelets. This leads to clot formation that can abruptly stop blood flow, producing a heart attack or stroke.⁶⁵

Smoking also induces "tissue remodeling," a process that encourages overgrowth of smooth-muscle cells

that form artery walls, resulting in thickening and stiffening of the arteries.⁶⁵

Smoking has even greater negative effects on the heart and blood vessels of people with high blood pressure.⁶⁶ One recent study showed that hypertensive people who smoked less than 20 pack-years (one pack-year is defined as 20 cigarettes smoked every day for one year) had a **19%** increase in cardiovascular death compared with those who never smoked, and those who smoked *more* than 20 pack-years had a **33%** increase in death risk from cardiovascular disease.⁶⁶



What You Need to Know

The Age-Accelerating Dangers of Smoking

- More than 50 years after the Surgeon General's first report found smoking harmful for health, researchers are still discovering numerous ways in which tobacco harms the human body.
- All forms of tobacco, smoked or otherwise, raise the risk of almost every disease or chronic condition known.
- Hypertensives that smoke have an increased risk (19% to 33% depending on pack-years) of dying from cardiovascular disease.⁶⁶

- Smoking raises the risk of serious stomach conditions by 132% over that of nonsmokers.⁸⁸
- Diabetes and obesity are exacerbated and potentially even caused by smoking.
- It's never too late. Quitting now benefits all smokers and those exposed to them.^{51,57}

Cigarette smoking has a profoundly harmful effect on blood cholesterol levels as well, causing a reduction in beneficial HDL ("good") cholesterol levels. It does this by damaging enzymes that normally assure proper fat loading into the HDL cholesterol complex.⁶³

Unfortunately, smokers using conventional cholesterol-lowering treatments such as a statin remain at a high cardiovascular risk. In fact, one study showed that smokers taking statin drugs had an **86% increase** in the risk of having a "major cardiovascular event" such as a heart attack, stroke, or death compared with nonsmokers on statins.⁶⁷

The good news is, it's never too late to receive the benefits of quitting smoking, especially when it comes to cardiovascular disease. According to a study published in the *European Heart Journal*, those who stopped smoking after having a heart attack reduced their risk of dying by **36%** over just two years.⁵⁷

Smoking Doubles Diabetes Risk

Smoking creates a double risk when it comes to **diabetes**. Not only does it increase a person's risk of developing diabetes, it dramatically exacerbates the age-accelerating effects of having diabetes.^{19,68-73} There's a good reason for this. High blood sugar damages blood vessels and components of tobacco smoke further aggravate that damage, raising the risk of diabetic complications such as kidney and eye disease.⁶⁸ In addition, smoking is known to be associated with insulin resistance, inflammation, and disturbances of blood lipids, all of which are already increased by having diabetes.⁶⁸

Smoking has a negative effect on blood sugar control and insulin requirements.⁶⁹ Studies show that a



marker of long-term glucose level (hemoglobin A1c) was significantly higher in type I diabetics that smoked than in nonsmokers, and smokers required higher insulin doses to control their blood sugar.⁶⁹ The study also showed that diabetics who smoked had lower levels of protective HDL cholesterol (which further confirms the cholesterol effect discussed earlier), and they also had a significantly increased amount of protein in their urine, a marker of early kidney damage.⁶⁹

The grave cardiovascular effects of smoking in diabetics are highlighted by a 2015 study showing that smoking sharply raises the risk of having dangerously thickened carotid arteries.¹⁹ Importantly, **these risks occurred in both active and passive smokers**. Having thickened carotid arteries is a serious risk because the carotids are the brain's main source of blood. If they become blocked, the result is a catastrophic and often fatal stroke.

Unfortunately, secondhand (passive) smoke can be just as dangerous as smoking itself for diabetics. Compared to diabetics with no exposure to secondhand smoke, women diabetics exposed to secondhand smoke experienced a **3.5-fold** increased risk of cardiovascular disease and a **2.2-fold** increased risk of having plaque in their carotid arteries.¹⁹

Male active and passive smokers had thicker carotid arteries as well, and male active smokers had a **2.9-fold** increase in the risk of having carotid plaque.¹⁹

Smoking also complicates other diabetes-related health risks. For example, type II diabetics who are heavy smokers (but who don't drink) are at a **64%** increased risk of having a large waist circumference, a **78%** increased risk for having elevated blood triglycerides, and a more than **200%** increased risk for having low protective HDL-cholesterol levels.⁷³

What Is a Pack-Year?

A pack-year is how scientists measure how much a person has smoked over a long period of time. Pack-years are calculated by multiplying the number of packs of cigarettes smoked per day by the total number of years the person has smoked. For amounts less than a whole pack, that number is first divided by 20 (the number of cigarettes in a pack) and then multiplied by the number of years smoked.¹¹⁴ For example, 10 pack-years means a person has smoked a pack of cigarettes every day for 10 years, two packs of cigarettes per day for five years, or 10 cigarettes a day for 20 years.

Smoking and Obesity

Smokers already have an elevated risk of developing type II diabetes, but that risk is even greater in smokers who are overweight or obese.⁷¹ In one study, men of normal weight who smoked had a nearly **3.5-fold increase** in the risk of developing diabetes compared to normal-weight nonsmokers, while obese smokers had a nearly **4-fold increased risk** of developing diabetes compared with obese nonsmokers. While a **4-fold** increase is bad enough, remember that this increased risk is *in addition to* the increased risks of diabetes presented by obesity itself. Increasing that risk by a factor of four therefore has an outsized impact on diabetes risk.⁷¹

Worldwide, the combination of **smoking and obesity** produces excess death and disability.⁷⁴ Smoking has been associated with the presence of abdominal obesity in patients with type II diabetes. Thus, smoking exacerbates the already high health risks posed by obesity and diabetes (often called “diabesity”).⁷⁵ This directly contradicts the myth that smoking contributes to weight loss.

Tobacco Causes Intestinal Problems

Smoking is a major risk factor for a host of gastrointestinal disorders, including peptic ulcers, inflammatory bowel diseases such as Crohn's disease and ulcerative colitis, and cancers of the gastrointestinal tract.^{7,8,76-88}

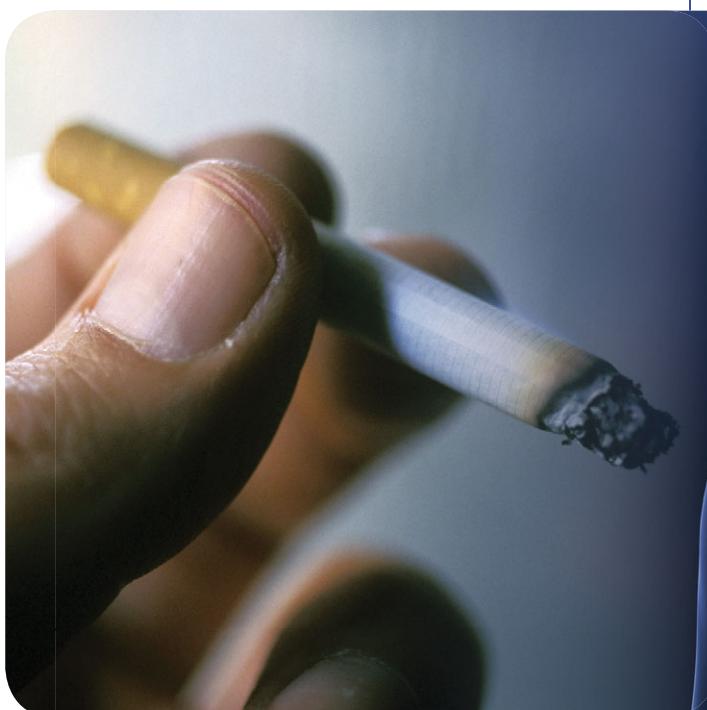
A study published in *International Journal of Molecular Medicine* showed that there are numerous

Tobacco Use and Body Weight

Many smokers, especially younger ones, feel that smoking helps them either lose weight or keep from gaining it. A recent study proved that notion completely wrong, and in fact demonstrated that people who have smoked for more than 20 years were **54%** more likely to be overweight than nonsmokers.¹¹⁵ Use of oral tobacco (like snuff or chewing tobacco) also increases the risk of obesity.¹¹⁶

factors involved in the connection between smoking and gastrointestinal disorders. First, cigarette smoke wreaks havoc on the vital mucosal cells that line the entire gastrointestinal tract. In a healthy body, these cells normally replace themselves every few days. Not only does smoking inhibit this critical cell renewal, it can outright kill them.⁸³

In addition, this study found that smoking reduces blood flow to the intestine, potentially impairing nutrient uptake and waste disposal, and also damages the intestinal immune system, which is a vital factor in preventing both infections and cancers. But by far, the most fundamental cancer-inducing and cancer-promoting impacts of smoking seem to be damage to DNA, stimulation of new blood vessel growth to tumors, and loss of normal immune surveillance for malignant cells.⁸³



These effects can be seen in the clear link between smoking and cancer risk. The longer a person has smoked, and the more that person smoked, the higher the risk. For instance:

- People who have smoked at any point in their lives have a **19%** increased risk of colorectal cancer, especially rectal cancer.⁷
- Those who have smoked for more than 20 years have a **26%** increased risk of these cancers.⁷
- People who smoke about a pack a day have a **30%** increased risk.⁷
- And those who have smoked more than a pack daily or smoked for more than 30 years have a **48%** increased rectal cancer risk.⁷

In addition to their increased cancer risk, current cigarette smokers have a **132%** increased risk of developing a painful and potentially serious stomach condition called ***peptic ulcer disease***.⁸⁸

Nicotine itself increases the likelihood of another painful condition, ***gastrointestinal reflux disease*** (GERD), because it relaxes the sphincter muscle at the lower end of the esophagus. This allows damaging stomach contents to wash into the esophagus where they cause pain and increase cancer risk.⁷⁸ Even infants exposed to secondhand smoke are significantly more likely to develop gastrointestinal reflux disease.⁷⁹

In addition to increasing the risk of developing gastrointestinal reflux disease, animal studies show that cigarette smoke can accelerate the damage done by gastrointestinal reflux disease, which is especially concerning since it increases the risk of a precancerous

condition called ***Barrett's esophagus***.⁷⁷ In fact, human studies reveal that smokers with gastrointestinal reflux disease have a **44%** increased risk of Barrett's esophagus compared with nonsmokers with gastrointestinal reflux disease.^{80,82}

With its powerful pro-inflammatory effects, it is hardly surprising that smoking increases the risk of ***inflammatory bowel disease***.⁸ Specifically, studies show that current smokers have a **1.7-fold** increased risk of Crohn's disease, while former smokers have a **3-fold** elevated risk of ulcerative colitis.⁸

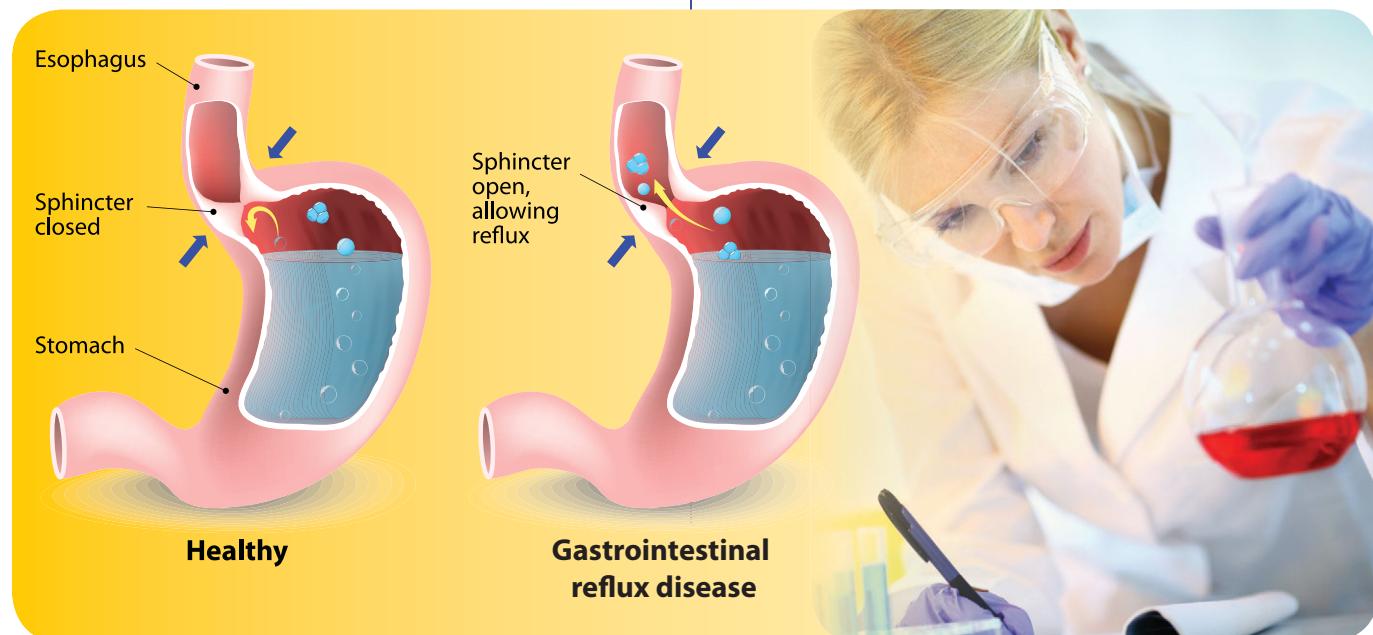
Smoking increases the likelihood of complications from ***diverticulitis***, including intestinal perforations and recurrent episodes of diverticulitis even after surgical treatment.⁸⁶

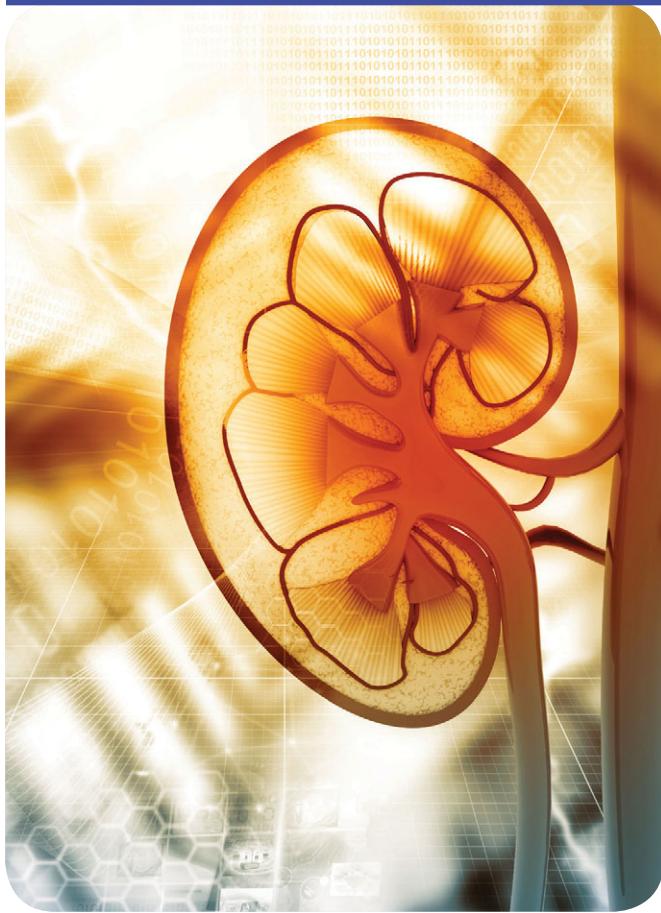
It also increases the risk of developing ***colonic polyps***, which are small growths in the lining of the colon that are often an early stage in the development of colorectal cancers. Current smokers have a **70%** elevated risk of developing polyps, while former smokers have a **31%** greater risk than that of people who have never smoked.⁸⁵

Smoking's Impact on the Kidneys

The kidney is not an organ most people think about as a target of smoking-induced damage, but both active and passive smoking can cause substantial damage to kidney function.^{13-15,89-95}

Smoke induces powerful oxidant stresses on kidney cells.¹⁴ Two specific elements of cigarette smoke, cadmium and lead, are directly toxic to the structures that clear the kidney of metabolic waste.¹⁴ These microscopic filters are called ***glomeruli***, and each kidney has about a million of them.⁹⁶





The impact of smoking on the kidney is known to be greater in men than in women,⁹⁰ with one study showing a **29%** increase in the risk of kidney failure in male smokers compared to people who never smoked.⁹²

But perhaps the most alarming part about smoking's dangerous impact on the kidneys is that you don't have to be a smoker to experience serious smoke-induced kidney damage.

Multiple studies have shown that nonsmokers exposed to secondhand tobacco smoke have a substantially elevated risk for malignancies in the kidney.^{91,95} One possible reason for this is that exposure to smoke produces potentially cancer-inducing DNA damage in kidney cells.²⁵

In addition, an animal study found that passive cigarette smoke leads to significant fibrosis (thickening) of the glomeruli (the kidney's filters), which causes the kidneys to be less functional.¹³ A human study verified the dangers, showing that both active and passive smoke exposure produces kidney damage. This was demonstrated when urinalyses from both groups showed early loss of protein in the urine, a powerful sign of impending kidney disease.¹⁵

Unfortunately, adults aren't the only ones impacted. A large national study demonstrated increasingly poor function of the kidney's filtration system in teens

exposed to smoke, clearly showing that the dangerous effects of secondhand smoke begin as early as adolescence.⁸⁹ Even school-aged children show alarming signs of kidney problems if they are exposed to secondhand smoke. One study found that children exposed to secondhand smoke have a **164%** higher risk of having protein in the urine, compared to those not exposed.⁹³

Fortunately, it's never too late to reduce the risks associated with smoking. Researchers found a protective effect on the kidneys in people who had stopped smoking for more than 10 years.⁹⁵

Tobacco Damages the Liver

The liver is the body's primary detoxification organ. It performs thousands of chemical reactions daily to neutralize toxins from the environment. Smoking-induced DNA damage has been linked to abnormal expression of toxin-metabolizing enzymes in the liver.⁹⁷

The metabolic detoxification that occurs in the liver starts with **phase I** enzymes that convert a toxic chemical into a less harmful chemical that can be metabolized by **phase II** enzymes. Unfortunately, if the toxic load is too heavy, it can induce or cause overactivity of phase I enzymes, resulting in high levels of free radicals.

Smoking increases the expression of phase I enzymes, which results in an increased risk of cancer in other parts of the body, such as the lungs. Here we see the impact of the close interrelationships between organs and systems: Smoking induces liver damage that can raise the risk for lung cancer.⁹⁷

Another dangerous liver disease that's on the rise is **nonalcoholic fatty liver disease** (NAFLD), a condition in which fat accumulates in the liver. This silent disease produces no symptoms, but can continue to grow until it progresses into a potentially deadly disorder known as nonalcoholic steatohepatitis. Nonalcoholic steatohepatitis can progress to liver fibrosis, a state in which most liver tissue is replaced by the equivalent of scar tissue, and in which liver failure becomes imminent.

Recent studies show that cigarette smoking is associated with an acceleration of nonalcoholic fatty liver disease progression, putting smokers at a massively elevated risk for catastrophic liver failure.⁹⁸ Compared to people who have never smoked, former smokers had a **45%** increase, heavy smokers had a **129%** increase, and obese smokers had a shocking **800%** increase in their risk of developing this liver disorder.⁹

With the growing number of obese children, the risk of pediatric nonalcoholic fatty liver disease is also rising. If these children are exposed to secondhand smoke, they are **4 times** as likely to develop nonalcoholic fatty liver disease compared to kids in nonsmoking households.

Wild Green Oat Extract for Smoking Cessation

When a tobacco user ingests or smokes nicotine, a chain of events that results in the release of dopamine produces a satisfying, even euphoric, initial sensation.¹¹⁷

Once the stimulus goes away, users are then left with a relative dopamine deficiency that causes cravings and the subsequent dependence on yet another dose of nicotine.¹¹⁸

This cycle caught the attention of Japanese scientists who decided to test an extract that worked on dopamine pathways. A group of male smokers took **300 mg wild green oat extract** after each meal (**900 mg per day**) for 28 days. Average cigarette consumption before supplementation was close to one pack per day (20 cigarettes). At the end of the study, the average consumption fell to 8.9 cigarettes per day. This was an impressive **54% decrease** in tobacco use from baseline.¹¹⁹

As always, the more smoke exposure, the higher the risk: For every additional pack per day smoked in the home, the risk of nonalcoholic fatty liver disease rises an additional **80%.**⁹⁹

Although most people tend to think of **liver cirrhosis** as a disease related to alcohol consumption, recent studies show that smoking has a surprisingly strong impact as well.¹⁰⁰ Compared with people who never smoked, women smokers are more than **twice** as likely, and men are **40%** more likely, to develop liver cirrhosis.¹⁰⁰ And the combination of tobacco and alcohol use is even more damaging, with laboratory studies showing that the two together substantially increase the risk of both liver and pancreatic damage.¹⁰¹

Smoking also nearly doubles the risk of developing **hepatocellular carcinoma**, the most common liver cancer among men. And for male smokers who are also infected with hepatitis C, the risk of developing this cancer increases by nearly **140-fold.**¹⁰²

Tobacco Smoke Damages Bones

Osteoporosis, a condition in which the bones become weak and brittle, is on the rise in all societies as people are living longer. While age is one of the contributing factors, smoking is also a known risk for osteoporosis.^{103,104} It interferes with sex hormone production, intestinal calcium absorption, adrenal hormone metabolism, and the normal bone remodeling process.¹⁰⁵



Osteoporosis affects men as well as women and studies show that the longer a man has smoked, the greater his risk of developing osteoporosis.¹⁰⁶ A study of otherwise healthy young male military recruits demonstrated that relatively short durations of smoking produce significant loss of bone mineral density, highlighting the fact that a person doesn't have to be a lifetime smoker to have bone loss.¹⁰⁷

In animal studies, even secondhand smoke exposure had numerous negative effects on bones, including decreasing bone mineral content and density, inhibiting new bone formation while increasing bone resorption, decreasing the thickness of the hard outer layer (cortex) of the bone, and producing weaker, more easily fractured bones.¹⁶

Researchers studied secondhand smoke exposure in a group of postmenopausal women who had never smoked.¹⁰⁸ Among those women who had lived with family members who actively smoked, the risk of developing hip osteoporosis was increased more than **3.5-fold**, while those who lived with smokers who consumed more than 20 cigarettes per day had a more than **5-fold** increased risk of low back osteoporosis, and a more than **4-fold** risk of osteoporosis of the hip.¹⁰⁸

Smoking Damages Brain Cells

Smoking has been found to have a negative impact on brain cells, increasing the risk of devastating diseases such as **amyotrophic lateral sclerosis** (Lou Gehrig's disease) and Alzheimer's.

The many toxins in cigarette smoke, particularly the production of formaldehyde in smoke, is thought to damage the delicate lipid (fat) membranes of brain cells, which results in the loss of brain cells and function. In one study, the risk of dying from amyotrophic lateral sclerosis, a neurodegenerative disease that can strike even in early middle age, was increased by nearly **2-fold** in smokers compared with people who had never smoked.¹⁰

Active or former smokers are also at an increased risk for **Alzheimer's** disease. And even if a person doesn't develop Alzheimer's outright, laboratory studies reveal that smoking can induce pathological brain changes similar to the disease. Studies suggest that oxidative stress is one of the primary mechanisms behind damage to brain cells in smokers.¹⁰⁹

While epidemiological studies point clearly to an increased risk for Alzheimer's disease in smokers, the data are less clear in Parkinson's disease. In fact, studies have indicated that smoking could have a small protective effect against Parkinson's, possibly due to drug-like effects of nicotine.¹¹⁰⁻¹¹² Nevertheless, the many other toxic compounds in cigarettes make smoking a poor preventive strategy for these neurodegenerative diseases.¹¹³

Summary

Cigarette smoking is the leading avoidable cause of death worldwide. Even after 50 years of public service announcements, tobacco companies still rake in billions of dollars in profits. While it is common knowledge that smoking causes lung cancer, most people are still unaware of the fact that smoking—indeed, any tobacco use—dramatically accelerates aging in all body systems.

Tobacco smoke contains thousands of chemical compounds that can do substantial damage to almost every organ and system in the body. Tobacco use sharply raises levels of oxidant stress and inflammation, increasing the risk for a plethora of diseases and serious conditions.

You should avoid contact with **secondhand** smoke and thoroughly clean walls, ceilings, and other places where smokers have left their toxic waste behind. This "**thirdhand**" smoke is emerging as an important concept in environmental and public health fields,²⁸⁻³⁰ and is defined as "*residual tobacco smoke contamination that remains after the cigarette is extinguished.*"³¹ ●

If you have any questions on the scientific content

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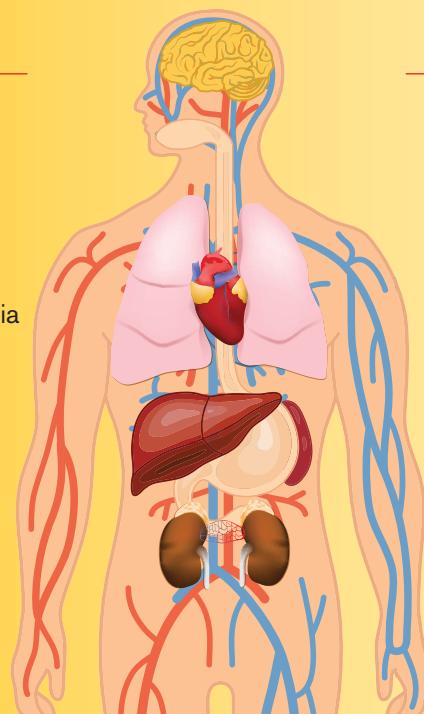
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Health Consequences Causally Linked to Smoking⁵

Cancers and diseases in red are new conditions causally linked to smoking in the latest 2014 Surgeon General's report.⁵

CANCERS

- Oropharynx
- Larynx
- Esophagus
- Trachea, bronchus, and lung
- Acute myeloid leukemia
- Stomach
- Liver**
- Pancreas
- Kidney and ureter
- Cervix
- Bladder
- Colorectal**



CHRONIC DISEASES

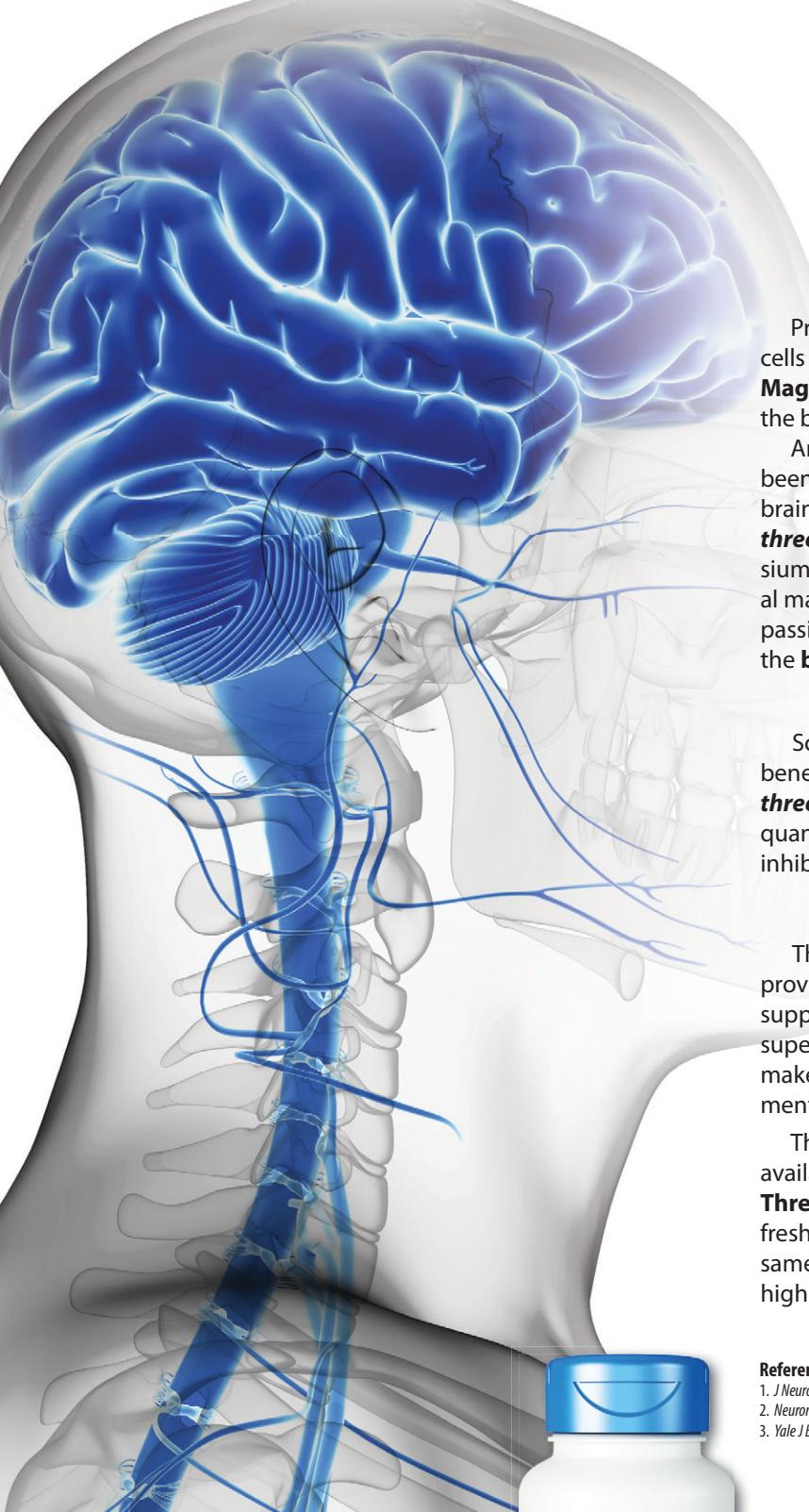
- Stroke
- Blindness, cataracts, **age-related macular degeneration**
- Congenital defects-maternal smoking: orofacial clefts**
- Periodontitis
- Aortic aneurysm, early abdominal aortic atherosclerosis in young adults
- Coronary heart disease
- Pneumonia
- Atherosclerotic peripheral vascular disease
- Stroke
- Blindness, cataracts, **age-related macular degeneration**
- Congenital defects-maternal smoking: orofacial clefts**
- Periodontitis
- Aortic aneurysm, early abdominal aortic atherosclerosis in young adults
- Coronary heart disease
- Pneumonia
- Atherosclerotic peripheral vascular disease
- Chronic obstructive pulmonary disease, **tuberculosis**, asthma, and other respiratory effects
- Diabetes**
- Reproductive effects in women (including reduced fertility)
- Hip fractures
- Ectopic pregnancy
- Male sexual function – erectile dysfunction**
- Rheumatoid arthritis
- Immune function
- Overall diminished health

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MAGNESIUM BOOSTS BRAIN HEALTH

Profound shrinkage of **synaptic connections** between nerve cells is one of the major hallmarks associated with brain aging. **Magnesium** is a critical factor in controlling **synaptic density** in the brain.¹

An innovative form of magnesium called **Neuro-Mag®** has been shown to specifically target multiple areas of the aging brain. In fact, preclinical models show that the **magnesium-L-threonate** contained in **Neuro-Mag®** boosted levels of magnesium in spinal fluid by **15%** versus no increase from conventional magnesium.² This means that this form of **magnesium** is passing through the blood-brain barrier for assimilation into the **brain**.

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The suggested daily dose of three **Neuro-Mag®** capsules provides **2,000 mg** of **Magnesium-L-Threonate**. While supplying a modest **144 mg** of elemental magnesium, its superior absorption into the bloodstream and nervous system make it a preferred choice for maturing individuals to supplement with.

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

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Advanced Defense Against Cellular Aging

NAD+ Cell Regenerator

If you are experiencing fatigue and lack of motivation, it may be due to the age-related decline in NAD+ levels¹ and subsequent impairment of healthy cellular metabolism.²

NAD+ (*nicotinamide adenine dinucleotide*) promotes systemic youthful functions and is found in every cell in the body.³ In addition, **NAD+** plays an essential role in regulating **genes**^{4,5} that control aging.⁶

How To Boost NAD+ Levels Within Your Cells

Newly patented **nicotinamide riboside** increases cellular levels of **NAD+** in the body.^{7,8}

For the first time, aging humans have an effective and affordable method to boost the critical **NAD+** enzyme for refreshed vitality.

Nicotinamide riboside represents an innovative advance to combat aging that functions via unique mechanisms not found in typical dietary supplements. It has emerged as a front-line weapon in **Life Extension®'s** ongoing war against premature aging.

The name of this new **nicotinamide riboside** formulation is **NAD+ Cell Regenerator™**.

Multiple Benefits Of Increasing NAD+ Cellular Levels

Nicotinamide riboside has been documented to help replenish cellular **NAD+** and in the process:

- Promote sirtuin (SIRT1 and SIRT3) gene activation,⁶
- Enhance growth and efficiency of mitochondria—supporting energy levels and physical performance,⁶
- Favorably modulate metabolism,⁶
- Contribute to neuronal health—supporting cognitive function during aging,⁹⁻¹¹
- Promote insulin activity—supporting healthy blood sugar in those within the normal range.⁶

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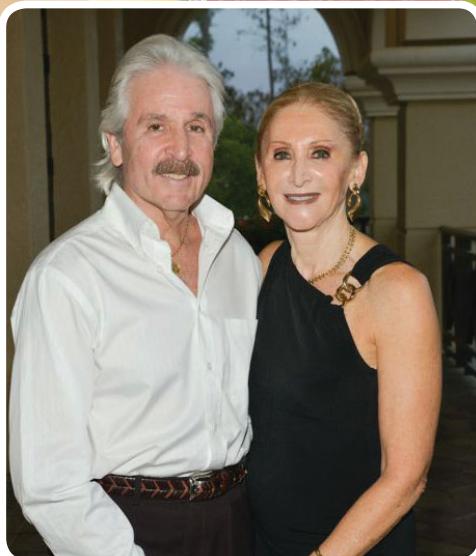
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BY DONNA CARUSO



Sandy and Stewart Levine

Marriage Health Longevity



It isn't often that you find a long-married, health-conscious couple like Sandy and Stewart Levine. Together, they exemplify that rare union almost everyone seeks: a seamless blend of individuality and alliance, independence and connection, all with a strong component of mutual love and respect.

Throughout their 46-year marriage, the Levines have consistently worked to learn as much as possible about how to live a long, active, healthful life. Strong proponents of Life Extension®'s philosophy, products, and state-of-the-art information, the Levines are a perfect illustration of how couples with a mutual interest in good health can successfully help and support one another for a lifetime.

Origins of Getting Healthy

Now 68 and 72, Sandy and Stewart grew up in New Jersey, but moved to Florida 32 years ago and have been happy there ever since.

"I was always athletic," says Stewart, recalling that he started boxing when he was just 8. "I was a skinny kid and small," he explains, "and boxing helped me defend myself."

He also earned brown belts in karate and jiu-jitsu, while playing baseball and basketball. He trained as a weightlifter while still in his teens, an activity he continues to this day. Stewart mentions that most people don't realize that Olympic weightlifters were found to be the second most flexible athletes after gymnasts. He also had an interest in bodybuilding and entered contests as a young man. He notes that he no longer carries the weight he had then, largely due to changes that he and his wife made in their diets.

"I grew up as a meat-and-potatoes man," he recalls, "but when I was 17 and got into supplements and protein to help build muscle, I also got healthier."

In his 20s, Stewart started running just prior to joining the Army.

"I've been running ever since," he remarks, "10 miles a week, rain or shine."

Certified as a personal trainer nine years ago, Stewart, now retired from the business world, works part time in a local country club gym as a personal trainer. He has found that he is uniquely able to help many older people because he understands their physical needs and issues better than most younger trainers.

Sandy, a teacher straight out of college, taught elementary school for 16 years. Married at 22 after

Stewart returned from the Army, she recalls that they were not healthy eaters, making poor food choices due to lack of knowledge. Then Sandy got sick.

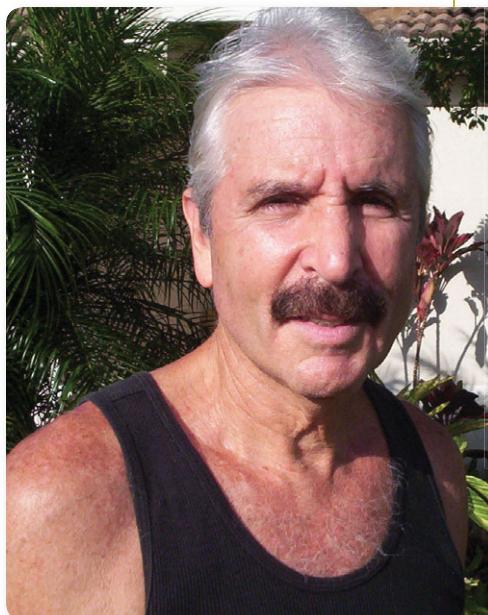
Suffering from stomach pain, which was later diagnosed as leaky gut, Sandy kept getting worse until she discovered holistic medicine. "That's how I changed my life around," she says, "and Stewart, of course, followed."

After becoming macrobiotics and switching to a vegetarian diet, Sandy's condition improved dramatically. But it wasn't until she found a doctor who used an allergy program with meridian points that she says she was finally cured.

A Healthy Diet

"We try to eat whatever comes naturally from the ground," Sandy explains, noting that they are very oriented toward whole food.

"We don't eat out much anymore," she explains. "We eat a lot of raw foods and salads. In Florida, raw foods feel right, lots of fresh fruit and vegetables."



While their diet is plant based, they now also include some organic poultry and fish.

Both Sandy and Stewart enjoy reading *Life Extension®* magazine and discovering ways to improve their diets. One of the major changes they've made is eliminating all added sugar.

"It's very challenging to give up something like sugar," Sandy explains, "but people who do that find tremendous improvement in their ability to eat well and change their whole lifestyle."

The Levines also avoid anything made with white flour.

"We've been eating healthy for about 40 years now," says Stewart, "no red meat [either]."

Sandy and Stewart Levines' Supplements

- AMPK Activator
- Bone Restore
- Glucosamine/chondroitin/MSM
- Immune Senescence Protection Formula™
- Krill Oil
- Magnesium
- Melatonin
- Probiotics
- Strontium Caps
- Super K with Advanced K2 Complex
- Super Bio-Curcumin®
- Rhodiola Extract (3% Rosavins)
- Taurine
- Vitamin C
- Vitamin D3

Choosing Supplements

Discovering which supplements felt right for them has been a long ongoing process for the Levines. They both pay close attention to articles in *Life Extension®* magazine and sometimes agree to add a supplement to the ones they both already take.

"The one we started taking most recently is **taurine**," notes Stewart. "We read an article that pointed out that as you grow older, your brain cells start diminishing, and it seemed like something we could benefit from."

The right supplements, says Sandy, reversed her osteopenia (reduced bone mass or density), which she was diagnosed with about 10 years ago. Although she had been lifting weights for many years, Sandy discovered her bone density was not great.

"My gynecologist said I'm a poster child for osteoporosis," because, she explains, she is small and thin. Her mother had painful osteoporosis and Sandy, not wanting to follow suit, began doing research and pinpointed the supplements that completely reversed her condition: strontium, vitamin D, *Life Extension®*'s Bone Restore, and vitamin K. Sandy adds that Stewart also was found to have lost some bone density, but after taking these supplements, he is now "perfect again."

Sandy says that sometimes after reading an article regarding a new supplement, something resonates. "I talk to Stewart and we agree that this [new product] is something we should both use." She adds that "I have found over the years that I'm leaning more and more toward *Life Extension®* products. They really work. They are excellent quality."



Daily Exercise

Keeping active and exercising is vital to both Sandy and Stewart. For Stewart, it's something that he does with regularity and enjoyment. He's been weightlifting and running for most of his life, and now uses equipment at the gym where he works. Exercise is second nature to Stewart, and he needs no reminders or encouragement to exercise his body.

For Sandy, it's been a learning experience over many years, what she calls a journey. "I came from a very nonathletic family," she says, "so watching Stewart as an example and seeing how he metabolized food and how much easier it was for him to deal with weight issues, that motivated me."

Sandy has been exercising regularly for 30 years, lifting weights, running, doing water workouts, using gym equipment, and walking. Her youthful illness served as a warning and once she became healthy, she wanted to continue doing everything she could to stay that way.

Sandy and Stewart added meditation to their health routines 35 years ago and continue to practice it daily, finding a sense of peacefulness and presence conducive to better overall health.

An Eye on Longevity

"People see me and they don't believe I'm 72 years old," remarks Stewart. "They think I'm at least 15 years younger." But he adds that the goal is not just looking younger, but also feeling younger.

"When you change your lifestyle, eat right, exercise, and do all the right things, you feel much younger," he explains. "You can only take care of your own life, travel your own road. The benefits soon become obvious."

"Your genetic makeup has something to do with your longevity," Stewart continues, "but they also found that it's only **25%**. The other **75%** is you making lifestyle changes, and that is what will prolong your life."

He explains that his brother died at 55 from a heart attack and his mother at 67 from a stroke.

"That helped sway me to change my life and do the kind of living I'm doing now. I'm 72 and I've never had anything major wrong with me."

But he cautions that it's not longevity alone, but "longevity with quality." He feels he and Sandy are doing everything they can to stay healthy and live long lives.

Sandy's Hypnosis Practice

While Stewart focuses on his work as a personal trainer, Sandy is a licensed real estate broker, selling homes and condos in Naples, Florida. She also practices hypnosis, where she concentrates on helping people, often women, achieve weight loss, in addition to treating smoking and sleep problems. A member of Toastmasters, Sandy enjoys giving talks on both health and hypnosis.



Her interest in diet and supplements has greatly helped Sandy understand the problems many people have with addictive, emotional eating.

"It's re-evaluating what you do with food and how you look at food and how you reward yourself with food," she explains. For some people, one session can be sufficient, but many come back several times, and still others may do well for a while and then come back for a "tune-up."

She sees herself as a facilitator and insists that any improvement comes from people doing it for themselves.

Advice from the Levines

After 46 years of sharing their lives, Sandy and Stewart have learned enough to effectively help others in their everyday lives and work. When asked what advice they would give *Life Extension®* readers, here's what they had to say in their own words:

- If you change your lifestyle, exercise, take the right supplements, and eat the right foods, your body will be strong and will ultimately take care of you.
- Change your priorities about food and stop thinking about what tastes good going down or thinking of food as a reward. You can love to eat and still get all the benefits by eating wholesome food.
- Your desire to change must be conscious and strong. If you are truly willing to make important changes, you will maintain them.

- It's never too late to change, regardless of where you are in life. There's always a benefit if you switch to healthy eating habits, exercise, take supplements, and relieve stress, which are all vital for good health.
- If you follow good health practices, longevity will probably increase, but you never know what might happen each day, so remember to enjoy your life *while* you're living it.
- Share your story with others and help them find better health.

Working Together

When asked if they would be the same person today if they had grown older separately, Stewart and Sandy both immediately answered "no." It's clear that their love and respect for each other and their shared desire to live as healthy a life as possible has added immeasurably to their active, happy lives today and to their excellent outlook for continuing to be in good health tomorrow. Their openness to new ideas and constant search to improve their lives are an inspiration to everyone who meets them. ●

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

For more information, you can email Sandy and Stewart Levine at sandylevine@aol.com

OPTIMIZE DIGESTION and INTESTINAL BALANCE

Digestive enzymes are essential to the body's **absorption** and optimal utilization of food and all its nutrients.^{1,2}

Normal aging and related health issues can decrease production of digestive enzymes,^{3,4} resulting in a **bloated** feeling and other discomforts after eating a large meal.

Enhanced Super Digestive Enzymes provides specific **enzymes** required to support the natural reactions that break down food—demonstrated to optimize digestion and nutrient absorption.⁵⁻⁸ Here is the broad array of **enzymes** contained in this formula:

- **Protease** to help break down proteins,
- **Amylase** to break down starch and short sugar chains called oligosaccharides,
- **Lipase** to break down fats,
- **Cellulase** to break down the indigestible polysaccharide in dietary cellulose, and
- **Lactase** to break down lactose.

Enhanced Super Digestive Enzymes with Probiotics provides the same enzymes that are in **Enhanced Super Digestive Enzymes**—but with the added benefits of the **probiotic** *B. coagulans*.

This **probiotic** creates a natural protective shield that resists digestion in the stomach allowing it to fully colonize in the intestines.⁹ Probiotics such as *B. coagulans* support digestive health and suppress less beneficial bacteria to improve digestive comfort.⁹⁻¹⁰

To order **Enhanced Super Digestive Enzymes** or **Enhanced Super Digestive Enzymes with Probiotics**, call 1-800-544-4440 or visit www.LifeExtension.com



Enhanced Super Digestive Enzymes

Item #02021 • 60 vegetarian capsules

	Retail Price	Super Sale Price
1 bottle	\$22	\$14.85
4 bottles		\$13.50 each



Enhanced Super Digestive Enzymes with Probiotics

Item #02022 • 60 vegetarian capsules

	Retail Price	Super Sale Price
1 bottle	\$28	\$18.90
4 bottles		\$16.20 each



References

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2. *JOP.* 2005 May 10;6(3):206-15.
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10. Available at: http://www.sabinsa.com/newsroom/WhitePapers/Probiotics_For_Health_And_Well_Being_Nutra.pdf. Accessed September 30, 2015.

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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 Customers:

For those residing in the Ft. Lauderdale, Florida area, blood-draws are also performed at the Life Extension Nutrition Center from 9:00 am to 2:00 pm Monday through Saturday. Simply purchase the blood test and have it drawn with no wait! Our address is 5990 North Federal Highway, Ft. Lauderdale, FL, 33308-2633.

Blood Testing The Ultimate Information

MOST POPULAR PANELS

All of the blood test prices you see here are 25% off retail.

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**, **DHEA-S**, **Homocysteine**, **TSH** for thyroid function, **Free Testosterone**, **Estradiol**, **Total Testosterone**, **Vitamin D 25-hydroxy**, **PSA** (prostate-specific antigen), **Hemoglobin A1c**.

\$269

FEMALE LIFE EXTENSION PANEL (LC322535)

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**, **DHEA-S**, **Homocysteine**, **TSH** for thyroid function, **Free Testosterone**, **Estradiol**, **Total Testosterone**, **Progesterone**, **Vitamin D 25-hydroxy**, **Hemoglobin A1c**.

\$269

WEIGHT LOSS PANEL-COMPREHENSIVE (LC100028)

CBC/Chemistry profile (see description at right), **DHEA-S**, free and total **Testosterone**, **Estradiol**, **Progesterone**, **Cortisol**, **TSH**, **Free T3**, **Free T4**, **Reverse T3**, **Insulin**, **Hemoglobin A1c**, **Vitamin D 25-hydroxy**, **C-Reactive Protein** (high sensitivity), and **Ferritin**.

\$275

MALE ELITE PANEL* (LC100016)

Chem/CBC profile, Free and Total **Testosterone**, Total **Estrogens**, **Estradiol**, **DHEA-S**, **Progesterone**, **Pregnenolone**, **DHT**, **FSH**, **LH**, **TSH**, **Free T3**, **Free T4**, **Reverse T3**, **Free and Total PSA**, **IGF-1**, **SHBG**, **Vitamin D 25-OH**, **hs-CRP**, **Ferritin**, **Homocysteine**

\$575

FEMALE ELITE PANEL* (LC100017)

Chem/CBC profile, Free and Total **Testosterone**, Total **Estrogens**, **Estradiol**, **Estrone**, **DHEA-S**, **Progesterone**, **Pregnenolone**, **DHT**, **FSH**, **LH**, **TSH**, **Free T3**, **Free T4**, **Reverse T3**, **IGF-1**, **SHBG**, **Vitamin D 25-OH**, **hs-CRP**, **Ferritin**, **Homocysteine**

\$575

MALE HORMONE ADD-ON PANEL (LCADDM)*

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

\$120

FEMALE HORMONE ADD-ON PANEL (LCADDf)*

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

\$125

COMPREHENSIVE THYROID PANEL (LC100018)

TSH, **T4**, **Free T4**, **Free T3**, **Reverse T3**, **TPO**, **ATA**

\$199

LIFE EXTENSION THYROID PANEL (LC304131)

TSH, **T4**, **Free T3**, **Free T4**.

\$75

THYROID PANEL WITH REVERSE T3 (LC100044)

TSH, **T4**, **Free T3**, **Free T4**, **Reverse T3**

\$94

MALE COMPREHENSIVE HORMONE PANEL*

(LC100010) **CBC/Chemistry Profile** (see description above right), **DHEA-S**, **Estradiol**, **DHT**, **PSA**, **Pregnenolone**, **Total and Free Testosterone**, **SHBG**, **TSH**, **Free T3**, **Free T4**, **Cortisol**.

\$299

THE CBC/CHEMISTRY PROFILE (LC381822)

Note: This **CBC/Chemistry Profile** is included in many **Life Extension panels**. Please check panel descriptions.

\$35

CARDIOVASCULAR RISK PROFILE

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

LIVER FUNCTION PANEL

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

KIDNEY FUNCTION PANEL

BUN	BUN/Creatinine Ratio
Creatinine	Uric Acid

BLOOD PROTEIN LEVELS

Total Protein	Globulin
Albumin	Albumin/Globulin Ratio

BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE

Red Blood Cell Count	Monocytes
White Blood Cell Count	Lymphocytes
Eosinophils	Platelet Count
Basophils	Hemoglobin
Polys (Absolute)	Hematocrit
Lymphs (Absolute)	MCV
Monocytes (Absolute)	MCH
Eos (Absolute)	MCHC
Baso (Absolute)	Polynucleated Cells
RDW	

BLOOD MINERAL PANEL

Calcium	Sodium
Potassium	Chloride
Phosphorus	Iron

FEMALE COMPREHENSIVE HORMONE PANEL*

(LC100011) **CBC/Chemistry Profile** (see description above right), **DHEA-S**, **Estradiol**, **Total Estrogens**, **Progesterone**, **Pregnenolone**, **Total and Free Testosterone**, **SHBG**, **TSH**, **Free T3**, **Free T4**, **Cortisol**.

\$299

FOOD SAFE ALLERGY TEST** (LCM73001)

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

\$198

STRESS MANAGEMENT PROFILE (LC100043)

Cortisol AM/PM, **DHEA-S**, **Glucose**, **Insulin**, **Progesterone**, **Free T3**, **Lipid Panel**

\$125

HEALTHY AGING PANEL-COMPREHENSIVE*

(LC100026) **CBC/Chemistry profile** (see description above), **C-Reactive Protein** (high sensitivity), **Vitamin B12**, **Folate**, **Homocysteine**, **Vitamin D 25-hydroxy**, **Hemoglobin A1c**, **TSH**, **Free T3**, **Free T4**, **Ferritin**, **Urinalysis**, **Fibrinogen**, and **Insulin**.

\$249

HEALTHY AGING PANEL-BASIC* (LC100025)

CBC/Chemistry profile (see description above), **C-Reactive Protein** (high sensitivity), **Vitamin B12**, **Folate**, **Vitamin D 25-hydroxy**, **Hemoglobin A1c**, **TSH**, **Ferritin**, and **Insulin**.

\$149

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

VAP™ PLUS* (LC100009)

VAP, C-Reactive Protein (high sensitivity), Homocysteine, Fibrinogen, PLAC® Test (Lp-PLA2), Vitamin D 25-hydroxy.

\$330

Special OFFER
until
2/1/16



Other Popular Tests and Panels

<input type="radio"/> NUTRIENT PANEL* (LC100024)	\$349
Vitamin B12, Folate, Vitamin D 25-hydroxy, Vitamin C, Vitamin A, Selenium, Zinc, CoQ10, and RBC Magnesium.	
<input type="radio"/> CHRONIC FATIGUE PROFILE (LC100005)	\$375
CBC/Chemistry Profile (see description previous page), Epstein –Barr Virus antibodies (IgG and IgM), Cytomegalovirus Antibodies (IgG and IgM), Ferritin, Total and Free Testosterone, DHEA-S, Free T3, Free T4, Cortisol, C-Reactive Protein (high sensitivity), Vitamin B12, Folate, Insulin.	
<input type="radio"/> ANEMIA PANEL * (LC100006)	\$79
CBC/Chemistry Profile (see description previous page), Ferritin, Total Iron Binding Capacity (TIBC), Vitamin B12, Folate	
<input type="radio"/> AUTOIMMUNE DISEASE SCREEN* (L100041)	\$199
ANA screen, hs-CRP, TNF, Immunoglobulins, IgA, IgG, IgM	
<input type="radio"/> DIABETES MANAGEMENT PROFILE – COMPREHENSIVE (LC100040)	\$129
Hemoglobin A1C, Glucose, Insulin, Lipid Panel, Glycomark	
<input type="radio"/> DIABETES MANAGEMENT PROFILE – BASIC (LC100039)	\$39
Hemoglobin A1C, Glucose, Insulin	
ADVANCED CARDIAC BIOMARKERS	
<input type="radio"/> ADVANCED OXIDIZED LDL PANEL * (LC100035)	\$285
This panel looks at vascular inflammatory biomarkers, beginning with lifestyle choices to the development of metabolic as well as cardiovascular disease and the formation of vulnerable plaque. The panel contains the following tests: F2-Isoprostanes, Myeloperoxidase, and Oxidized LDL.	
<input type="radio"/> OXIDIZED LDL PANEL* (LC100034)	\$175
This panel looks at vascular inflammatory biomarkers, beginning with the development of metabolic as well as cardiovascular disease and the formation of vulnerable plaque. The panel contains the following tests: Myeloperoxidase and Oxidized LDL.	
<input type="radio"/> OXIDIZED LDL * (LC817472)	\$75
OxLDL is a powerful initiator of inflammatory changes in the artery wall, which eventually lead to the formation of plaque.	



With Your Healthy Rewards, you earn LE Dollars back on every purchase you make — including blood tests!

See www.LifeExtension.com/Rewards for details.

* 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.

<input type="radio"/> HORMONES	
<input type="radio"/> DHEA-SULFATE (LC004020)	\$61
This test shows if you are taking the proper amount of DHEA. This test normally costs \$100 or more at commercial laboratories.	
<input type="radio"/> MALE BASIC HORMONE PANEL (LC100012)	\$75
DHEA-S, Estradiol, Free and Total Testosterone, PSA	
<input type="radio"/> FEMALE BASIC HORMONE PANEL (LC100013)	\$75
DHEA-S, Estradiol, Free and Total Testosterone, Progesterone	
<input type="radio"/> DIHYDROTESTOSTERONE (DHT)* (LC500142)	\$50
Measures serum concentrations of DHT.	
<input type="radio"/> ESTRADIOL (LC004515)	\$33
For men and women. Determines the proper amount in the body.	
<input type="radio"/> INSULIN FASTING (LC004333)	\$29.90
Can predict those at risk of diabetes, obesity, heart and other diseases.	
<input type="radio"/> PREGNENOLONE* (LC140707)	\$116
Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.	
<input type="radio"/> PROGESTERONE (LC004317)	\$55
Primarily for women. Determines the proper amount in the body.	
<input type="radio"/> SEX HORMONE BINDING GLOBULIN (SHBG) (LC082016)	\$33
This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens.	
GENERAL HEALTH	
<input type="radio"/> VITAMIN D (25OH) (LC081950)	\$47
This test is used to rule out vitamin D deficiency as a cause of bone disease. It can also be used to identify hypercalcemia.	
<input type="radio"/> FERRITIN (LC004598)	\$28
Ferritin levels reflect your body's iron stores and is also a biomarker for insulin resistance.	
<input type="radio"/> VITAMIN B12/FOLATE* (LC000810)	\$39.68
Measurements of B12 and Folate help evaluate your general health and nutritional status since the B vitamins are important for cardiac health as well as energy production.	
<input type="radio"/> PSA (PROSTATE SPECIFIC ANTIGEN) (LC010322)	\$31
Screening test for prostate disorders and possible cancer.	

Blood tests available in the continental United States only.
Restrictions apply in NY, NJ, PA, RI, and MA.
Not available in Maryland.

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

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

TERMS AND CONDITIONS

This blood test service is for informational purposes only and no specific medical advice will be provided. National Diagnostics, Inc., and Life Extension® 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 Life Extension® 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 _____

X _____

CUSTOMER NO.

Male Female

Name _____

Date of Birth (required) / /

Address _____

City _____

State _____ Zip _____

Phone _____

Credit Card No. _____

Expiration Date / /

Mail your order form to:

LifeExtension
National Diagnostics, Inc.

3600 West Commercial Boulevard
Fort Lauderdale, FL 33309

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

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

Amino Acids

Arginine/L-Ornithine Capsules
Arginine Ornithine Powder
Branched Chain Amino Acids
D,L-Phenylalanine Capsules
L-Arginine Caps
L-Carnitine
L-Glutamine
L-Glutamine Powder
L-Lysine
L-Taurine Powder
L-Tyrosine Powder
Super Carnosine
Taurine

Blood Pressure & Vascular Support

Advanced Olive Leaf Vascular Support with Celery Seed Extract
Arterial Protect
Blood Pressure Monitor Arm Cuff
Endothelial Defense™ with Full-Spectrum Pomegranate™ and CORDIART™
Endothelial Defense™ with GliSODin®
Full-Spectrum Pomegranate™
Natural BP Management
NitroVasc with CORDIART™
Pomegranate Complete
Pomegranate Extract Capsules

Bone Health

Bone Restore
Bone Restore with Vitamin K2
Bone Strength Formula with KoAct®
Bone-Up™
Calcium Citrate with Vitamin D
Dr. Strum's Intensive Bone Formula
Strontium Caps

Brain Health

Acetyl-L-Carnitine
Acetyl-L-Carnitine Arginate
Blast
Brain Shield® Gastrodin
Cognitex® Basics
Cognitex® with Brain Shield®
Cognitex® with Pregnenolone & Brain Shield®
Cognizin® CDP-Choline Caps
DMAE Bitartrate (dimethylaminoethanol)
Dopa-Mind™
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin Granules
Migra-Eeze™
Migra-Mag with Brain Shield®
Neuro-Mag® Magnesium L-Threonate
Neuro-Mag® Magnesium L-Threonate with Calcium and Vitamin D3
Optimized Ashwagandha Extract
Prevagen™
PS (Phosphatidylserine) Caps
Super Ginkgo Extract 28/7
Vinpocetine

Cholesterol Management

Advanced Lipid Control
Cho-Less™
CHOL-Support™
Policosanol
Red Yeast Rice
Theaflavins Standardized Extract
Vitamin B3 Niacin Capsules

Digestion Support

Artichoke Leaf Extract
Carnosothe with PicroProtect™
Digest RC®
Effervescent Vitamin C - Magnesium Crystals
Enhanced Super Digestive Enzymes
Enhanced Super Digestive Enzymes w/Probiotics

Esophageal Guardian

Extraordinary Enzymes
Fem Dophilus
Ginger Force®
Organic Golden Flax Seed
Pancreatin
Regimint
Tranquil Tract™
TruFiber™
WellBetX PGX plus Mulberry

Energy Management

Adrenal Energy Formula
Asian Energy Boost
D-Ribose Powder
D-Ribose Tablets
Forskolin
Mitochondrial Basics with BioPQQ®
Mitochondrial Energy Optimizer with BioPQQ®
NAD+ Cell Regenerator™
Peak ATP® with GlycoCarn®
PQQ Caps with BioPQQ®
Rhodiola Extract
RiboGen™ French Oak Wood Extract
Triple Action Thyroid

Eye Health

Astaxanthin with Phospholipids
Brite Eyes III
Certified European Bilberry Extract
Eye Pressure Support with Mirtogenol®
MacuGuard® Ocular Support
MacuGuard® Ocular Support with Astaxanthin
Tear Support with MaquiBright®

Fish Oil & Omegas

Mega EPA/DHA
Mega GLA with Sesame Lignans
OMEGA FOUNDATIONS™ Super Omega-3 EPA/DHA with Sesame Lignans & Olive Extract
OMEGA FOUNDATIONS™ Super Omega-3 Plus EPA/DHA with Sesame Lignans, Olive Extract, Krill & Astaxanthin
Organic Golden Flax Seed
Provinal® Purified Omega-7
Vegetarian Sourced DHA

Food

Rich Rewards® Breakfast Blend
Rich Rewards® Breakfast Blend Natural Mocha Flavor
Rich Rewards® Breakfast Blend Natural Vanilla Flavor
Rich Rewards® Breakfast Blend Whole Bean Coffee
Rich Rewards® Decaf Roast
Stevia Sweetener

Glucose Management

CinSulin® with InSea™ and Crominex® 3+
CoffeeGenic® Green Coffee Extract
Mega Benfotiamine
Natural Glucose Absorption Control
Tri Sugar Shield®

Heart Health

Aspirin (Enteric Coated)
Bio Active Folate & Vitamin B12 Caps
Cardio Peak™ with Standardized Hawthorn and Arjuna
Fibrinogen Resist™ with Nattokinase
Optimized Carnitine with GlycoCarn®
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with BioPQQ®
Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™
Super-Absorbable CoQ10 Ubiquinone with d-Limonene
TMG Powder
TMG Liquid Capsules

Hormone Balance

DHEA (Dehydroepiandrosterone)
Inner Power
Pregnenolone
Triple Action Cruciferous Vegetable Extract with Resveratrol
Triple Action Cruciferous Vegetable Extract

Immune Support

AHCC®
Echinacea Extract
Enhanced Zinc Lozenges
i26 Hyperimmune Egg
Immune Modulator with Tinofend®
Immune Protect with PARACTIN®
Immune Senescence Protection Formula™
Kinoko® Gold AHCC
Kyolic® Garlic Formula 102
Kyolic® Garlic Formula 105
Kyolic® Reserve
Lactoferrin (apolactoferrin) Caps
NK Cell Activator™
Optimized Garlic
Optimized Quercetin
Peony Immune
ProBoost Thymic Protein A
Reishi Extract Mushroom Complex
Standardized Cistanche
Ten Mushroom Formula®
Zinc Lozenges

Inflammation Management

5-LOX Inhibitor with AprésFlex®
Advanced Bio-Curcumin® with Ginger & Turmerones
Black Cumin Seed Oil with Bio-Curcumin®
Black Cumin Seed Oil
Boswellia
Cytokine Suppress™ with EGCG
Nervia®
Serraflazyme
Specially-Coated Bromelain
Super Bio-Curcumin®
Zyflamend® Whole Body

Joint Support

Arthro-Immune Joint Support
ArthroMax® Advanced with UC-II® & AprésFlex®
ArthroMax® with Theaflavins & AprésFlex®
Bio-Collagen with Patented UC-II®
Fast-Acting Joint Formula
Glucosamine/Chondroitin Capsules
Kril Healthy Joint Formula
MSM (Methylsulfonylmethane)

Kidney & Bladder Support

Cran-Max® Cranberry Whole Fruit Concentrate
Optimized Cran-Max® with Ellirose™
Water-Soluble Pumpkin Seed Extract

Liver Health & Detoxification

Anti-Alcohol Antioxidants with HepatoProtection Complex
Calcium D-Glucarate
Chlorella
Chlorophyllin
European Milk Thistle
Glutathione, Cysteine & C
HepatoPro
Liver Efficiency Formula
Mega L-Glutathione Capsules
N-Acetyl-L-Cysteine
PectaSol-C®
Silymarin
SODzyme® with GliSODin® & Wolfberry

Longevity & Wellness

AMPK Activator
AppleWise Polyphenol Extract
Berry Complete
Blueberry Extract
Blueberry Extract with Pomegranate

CR Mimetic Longevity Formula
 DNA Protection Formula
 Enhanced Berry Complete with Acai
 Essential Daily Nutrients
 Grapeseed Extract with
 Resveratrol & Pterostilbene
 Mega Green Tea Extract (decaffeinated)
 Mega Green Tea Extract (lightly caffeinated)
 Optimized Fucoidan with Maritech® 926
 Optimized Resveratrol
 Optimized Resveratrol with Nicotinamide
 Riboside
 pTeroPure®
 Pycnogenol® French Maritime
 Pine Bark Extract
 Resveratrol with Pterostilbene
 RNA (Ribonucleic Acid)
 Super Alpha-Lipoic Acid
 Super R-Lipoic Acid
 X-R Shield

Men's Health

Mega Lycopene Extract
 PalmettoGuard® Saw Palmetto with
 Beta-Sitosterol
 PalmettoGuard® Saw Palmetto/Nettle Root
 Formula with Beta-Sitosterol
 Pomi-T®
 Prelox® Natural Sex for Men®
 Super MiraForte with Standardized Lignans
 Triple Strength ProstaPollen™
 Ultra Natural Prostate

Minerals

Boron
 Chromium Ultra
 Copper
 Iron Protein Plus
 Magnesium (Citrate)
 Magnesium Caps
 Only Trace Minerals
 Optimized Chromium with Crominex® 3+
 Sea-Iodine™
 Se-Methyl L-Selenocysteine
 Super Selenium Complex
 Vanadyl Sulfate
 Zinc Caps

Miscellaneous

Advanced Iodine Complete
 Solarshield® Sunglasses

Mood & Stress Management

5 HTP
 L-Theanine
 Natural Stress Relief
 SAMe (S-Adenosyl-Methionine)

Multivitamins

Children's Formula Life Extension Mix™
 Comprehensive Nutrient Packs ADVANCED
 Life Extension Mix™ Capsules without Copper
 Life Extension Mix™ Capsules
 Life Extension Mix™ Powder without Copper
 Life Extension Mix™ Powder
 Life Extension Mix™ Tablets with Extra Niacin
 Life Extension Mix™ Tablets without Copper
 Life Extension Mix™ Tablets
 Once-Daily Health Booster
 One-Per-Day Tablets
 Two-Per-Day Capsules
 Two-Per-Day Tablets

Personal Care

Anti-Aging Rejuvenating Scalp Serum
 Biosil
 Dr. Proctor's Advanced Hair Formula
 Dr. Proctor's Shampoo
 European Leg Solution Featuring Certified
 Diosmin 95
 Face Master Platinum
 Facial Toning System
 Hair, Skin & Nail Rejuvenation Formula
 w/VERISOL®

Hair Suppress Formula
 Life Extension Toothpaste
 Sinus Cleanser
 Venotone
 Xyliwhite Mouthwash

Pet Care

Cat Mix
 Dog Mix

Probiotics

Bifido GI Balance
 BroccoMax®
 FlorAssist® Heart Health Probiotic
 FlorAssist® Oral Hygiene
 FlorAssist® Balance
 FlorAssist® Throat Health
 Jarro-Dophilus EPS®
 Theralac® Probiotics
 TruFlora® Probiotics

Skin Care

Advanced Anti-Glycation Peptide Serum
 Advanced Lightening Cream
 Advanced Peptide Hand Therapy
 Advanced Triple Peptide Serum
 Advanced Under Eye Serum with Stem Cells
 Amber Self MicroDermAbrasion
 Anti-Aging Face Oil
 Anti-Aging Mask
 Anti-Aging Rejuvenating Face Cream
 Anti-Glycation Serum with
 Blueberry & Pomegranate Extracts
 Antioxidant Facial Mist
 Anti-Oxidant Rejuvenating Foot Cream
 Anti-Oxidant Rejuvenating Foot Scrub
 Anti-Oxidant Rejuvenating Hand Cream
 Anti-Redness & Adult Blemish Lotion
 Bioflavonoid Cream
 Broccoli Sprout Cream
 Collagen Boosting Peptide Serum
 Corrective Clearing Mask
 DNA Repair Cream
 Dual-Action MicroDermAbrasion
 Enhanced FernBlock® with
 Red Orange Complex
 Essential Plant Lipids Reparative Serum
 Face Rejuvenating Anti-Oxidant Cream
 Fine Line-Less
 Healing Formula
 Healing Mask
 Healing Vitamin K Cream
 Hyaluronic Facial Moisturizer
 Hyaluronic Oil-Free Facial Moisturizer
 Hydrating Anti-Oxidant Facial Mist
 Hydroderm
 Lifting & Tightening Complex
 Lycopene Cream
 Melatonin Cream
 Mild Facial Cleanser
 Multi Stem Cell Skin Tightening Complex
 Neck Rejuvenating Anti-Oxidant Cream
 Pigment Correcting Cream
 Rejuvenating Serum
 Rejuvenex® Body Lotion
 RejuvenerX® Factor Firming Serum
 Renewing Eye Cream
 Resveratrol Anti-Oxidant Serum
 Skin Lightening Serum
 Skin Restoring Phytoceramides with Lipowheat®
 Skin Stem Cell Serum
 Stem Cell Cream with Alpine Rose
 Tightening & Firming Neck Cream
 Ultra Lip Plumper
 Ultra Rejuvenex®
 Ultra RejuveNight®
 Ultra Wrinkle Relaxed
 Under Eye Refining Serum
 Under Eye Rescue Cream
 Vitamin C Serum
 Vitamin D Lotion
 Vitamin E-ssential Cream
 Youth Serum

Sleep

Bioactive Milk Peptides
 Enhanced Natural Sleep® with Melatonin
 Enhanced Natural Sleep® without Melatonin
 Fast-Acting Liquid Melatonin
 Glycine
 L-Tryptophan
 Melatonin
 Optimized Tryptophan Plus

Sports Performance

Creatine Capsules
 Creatine Whey Glutamine Powder
 (Vanilla Flavor)
 DMG (N, N-dimethylglycine)
 New Zealand Whey Protein Concentrate,
 (Natural Chocolate and Vanilla Flavor)
 Pure Plant Protein
 Tart Cherry Extract
 Whey Protein Isolate
 (Chocolate and Vanilla Flavor)

Vitamins

Ascorbyl Palmitate
 Benfotiamine with Thiamine
 Beta-Carotene
 BioActive Complete B-Complex
 Biotin
 Buffered Vitamin C Powder
 Daily C+
 Fast-C® with Dihydroquercetin
 Gamma E Tocopherol with Sesame Lignans
 Gamma E Tocopherol/Tocotrienols
 High Potency Optimized Folate
 Inositol Caps
 Liquid Emulsified Vitamin D3
 Liquid Vitamin D3
 Low-Dose Vitamin K2
 Methylcobalamin
 MK-7
 Natural Vitamin E
 No Flush Niacin
 Optimized Folate (L-Methylfolate)
 Pantothenic Acid (Vitamin B-5)
 Pyridoxal 5'-Phosphate Caps
 Super Absorbable Tocotrienols
 Super Ascorbate C Capsules
 Super Ascorbate C Powder
 Super K with Advanced K2 Complex
 Vitamin B12
 Vitamin B6
 Vitamin C with Dihydroquercetin
 Vitamin D3 with Sea-Iodine™
 Vitamin D3
 Vitamins D and K with Sea-Iodine™

Weight Management

7-Keto® DHEA Metabolite
 Advanced Anti-Adipocyte Formula
 Advanced Natural Appetite Suppress
 CalReduce Selective Fat Binder
 DHEA Complete
 Garcinia HCA
 HCActive™ Garcinia Cambogia Extract
 Integra-Lean®
 Mediterranean Trim with Sinetrol™-XPur
 Optimized Irvingia with Phase 3™ Calorie
 Control Complex
 Optimized Saffron with Satiereal®
 Super Citrimax®
 Super CLA Blend with Guarana and
 Sesame Lignans
 Super CLA Blend with Sesame Lignans
 Waist-Line Control™

Women's Health

Advanced Natural Sex for Women® 50+
 Breast Health Formula
 Femmenessence MacaPause®
 Natural Estrogen without Soy Isoflavones
 Natural Estrogen
 ProgestaCare® for Women
 Super-Absorbable Soy Isoflavones
 Ultra Soy Extract

SUPER SALE SAVINGS ON ALL PRODUCTS

TO ORDER CALL: 1.954.766.8433 or 1.800.544.4440 ■ TO ORDER ONLINE VISIT: www.LifeExtension.com/SuperSale

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE				QTY Total
			1 Unit Each	4 Unit Each	10 Unit Each	QTY Total	
A							
01524	ACETYL-L-CARNITINE • 500 mg, 100 veg. caps	34.00	25.50	22.50			
01525	ACETYL-L-CARNITINE ARGINATE • 100 veg. caps	59.00	44.25	38.24			
01628	ADRENAL ENERGY FORMULA • 60 veg. caps	24.00	18.00	16.50			
01630	ADRENAL ENERGY FORMULA • 120 veg. caps	46.00	34.50	31.50			
01828	ADVANCED LIPID CONTROL • 60 veg. caps	30.00	22.50	20.25			
00681	AHCC® • 500 mg, 30 caps	59.98	44.99				
29727	AHCC® (KINOKO® GOLD) • 500 mg, 60 veg. caps	74.95	52.47				
00457	ALPHA-LIPOIC ACID W/BIOTIN (Super) • 250 mg, 60 caps	37.00	27.75	24.00			
01907	AMPK ACTIVATOR • 90 veg. caps	48.00	36.00	33.00			
01440	ANTI-ALCOHOL ANTIOXIDANTS W/HEPATOPRO • 100 caps	26.00	19.50	17.25			
01509	ANTI-ADIPOCYTE FORMULA W/MERATRIM® & INTEGRA LEAN® (Advanced) • 60 veg. caps	39.00	29.25	27.00			
01625	APPLEWISE POLYPHENOL EXTRACT 600 mg, 30 veg. caps	21.00	15.75	14.25			
01039	ARGININE/ORNITHINE • 500/250, 100 caps	17.99	13.49				
00038	ARGININE/ORNITHINE POWDER • 150 grams	22.95	17.21	14.25			
01624	(L)-ARGININE CAPS • 700 mg, 200 veg. caps	26.50	19.88	17.44			
02004	ARTERIAL PROTECT • 30 veg. caps	48.00	36.00	33.00			
01617	ARTHROMAX® W/THEAFLAVINS & APRÉSFLEX® 120 veg. caps	44.00	33.00	30.00			
01618	ARTHROMAX® ADVANCED W/UC-II® & APRÉSFLEX® 60 caps	36.00	27.00	24.00			
01404	ARTHRO-IMMUNE JOINT SUPPORT • 60 veg. caps	32.00	24.00	21.00			
00919	ARTICHOKE LEAF EXTRACT • 500 mg, 180 veg. caps	30.00	22.50	21.00			
01533	ASCORBYL PALMITATE • 500 mg, 100 veg. caps	22.50	16.88	15.00			
00888	ASHWAGANDHA EXTRACT (Optimized) • 60 veg. caps	10.00	7.50	6.75			
01805	ASIAN ENERGY BOOST • 90 veg. caps	24.00	18.00	16.50			
01066	ASPIRIN • 81 mg, 300 enteric coated tablets	6.00	4.50	4.00			
01923	ASTAXANTHIN WITH PHOSPHOLIPIDS • 4 mg, 30 softgels	16.00	12.00	10.50			
B							
00920	BENFOTIAMINE W/ THIAMINE • 100 mg, 120 veg. caps	19.95	14.96	13.95			
00925	BENFOTIAMINE (Mega) • 250 mg, 120 veg. caps	30.00	22.50	20.25			
01206	BERRY COMPLETE • 30 veg. caps	21.00	15.75	14.00			
01496	BERRY COMPLETE W/AÇAI (Enhanced) • 60 veg. caps	29.00	21.75	19.50			
00664	BETA-CAROTENE • 25,000 IU, 100 softgels	11.25	8.44				
01622	BIFFO GI BALANCE • 60 veg. caps	20.00	15.00	13.50			
01073	BILBERRY EXTRACT • 100 mg, 100 veg. caps	42.00	31.50	28.50			
01512	BIOACTIVE MILK PEPTIDES • 30 caps	18.00	13.50	12.00			
01631	BIO-COLLAGEN W/PATENTED UC-II® • 40 mg, 60 small caps	36.00	27.00	24.00			
*01006	BIOSIL™ • 5 mg, 30 veg. caps	18.95	15.16				
*01007	BIOSIL™ • 1 fl oz	31.99	25.59				
00102	BIOTIN • 600 mcg, 100 caps	7.50	5.63	4.88			
01709	BLACK CUMIN SEED OIL • 60 softgels	16.00	12.00	10.50			
01710	BLACK CUMIN SEED OIL W/BIO-CURCUMIN® • 60 softgels	32.00	24.00	22.50			
01008	BLAST™ • 600 grams of powder	26.95	20.21				
70000	BLOOD PRESSURE MONITOR (ACCUFIT™) • med/lg cuff	79.99	49.99				
70004	BLOOD PRESSURE MONITOR • Digital wrist cuff	69.95	52.46				

SUBTOTAL OF COLUMN 1

FEBRUARY 2016

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE				QTY Total
			1 Unit Each	4 Unit Each	10 Unit Each	QTY Total	
01214	BLUEBERRY EXTRACT • 60 veg. caps	22.50	16.88	15.00			
01438	BLUEBERRY EXTRACT W/ POMEGRANATE • 60 veg. caps	30.00	22.50	20.25			
01506	BONE FORMULA (DR. STRUM'S INTENSIVE) • 300 caps	56.00	42.00	37.50			
01726	BONE RESTORE • 120 caps	22.00	16.50	14.25			
01727	BONE RESTORE W/VITAMIN K2 • 120 caps	24.00	18.00	16.50			
01725	BONE STRENGTH FORMULA W/KOACT® • 120 caps	45.00	33.75	30.00			
00313	BONE-UP® • 240 caps	28.95	21.71	20.41			
01661	BORON • 3 mg, 100 veg. caps	5.95	4.46	3.94			
00202	BOSWELLA • 100 caps	38.00	28.50	22.50			
01802	BRAIN SHIELD® GASTRODIN • 300 mg, 60 veg. caps	33.00	24.75	22.50			
01253	BRANCHED CHAIN AMINO ACIDS • 90 caps	19.50	14.63	12.75			
01699	BREAST HEALTH FORMULA • 60 caps	34.00	25.50	22.50			
00893	BRITE EYES III • 2 vials, 5 ml each	34.00	25.50	24.00			
26576	BROCCO MAX® • 60 veg. caps	26.95	20.21				
01203	BROMELAIN (Specially-coated) 500 mg, 60 enteric coated tablets	21.00	15.75	14.25			
C							
01653	CALCIUM CITRATE W/VITAMIN D • 300 caps	24.00	18.00	15.94			
01651	CALCIUM D-GLUCARATE • 200 mg, 60 veg. caps	18.00	13.50	11.25			
*01823	CALREDUCE SELECTIVE FAT BINDER 120 mint chewable tablets	45.00	33.75	28.50			
01700	CARDIO PEAK™ w/STANDARDIZED HAWTHORN & ARJUNA 120 veg. caps	36.00	27.00	24.00			
00916	CARNITINE W/GLYCOCARN® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
01532	L-CARNITINE • 500 mg, 30 veg. caps	15.00	11.25	9.90			
01258	CARNOSONTHE W/PICROPROTECT™ • 60 veg. caps	29.95	22.46	20.25			
01829	CARNOSENINE • 500 mg, 60 veg. caps	36.00	27.00	24.00			
01687	CARNOSENINE (Super) • 500 mg, 90 veg. caps	66.00	49.50	45.00			
01932	CAT MIX • 100 grams powder	14.00	10.50	8.25			
01899	CHILDREN'S FORMULA LIFE EXTENSION MIX™ 100 chewable tablets	20.00	15.00	13.50			
00550	CHLORELLA • 500 mg, 200 tablets	23.50	17.63				
01571	CHLOROPHYLLIN • 100 mg, 100 veg. caps	24.00	18.00	15.00			
01359	CHO-LESS™ • 90 capsules	35.00	26.25				
01910	CHOL-SUPPORT™ • 60 liquid veg. caps	48.00	36.00	32.00			
01477	CHROMIUM ULTRA • 100 veg. caps	24.00	18.00	15.75			
01504	CHROMIUM W/CROMINEX® 3+ (Optimized) 500 mcg, 60 veg. caps	9.00	6.75	6.00			
01503	CINSULIN® W/INSEAZ® AND CROMINEX® 3+ • 90 veg. caps	38.00	28.50	25.50			
01906	CISTANCHE (Standardized) • 30 veg. caps	20.00	15.00	12.00			
01818	CITRIMAX® (Super)- 180 veg. caps	40.00	30.00	28.50			
00818	CLA BLEND W/SESAME LIGNANS (Super) 1,000 mg, 120 softgels	36.00	27.00	24.75	19.75		
00819	CLA BLEND W/GUARANA & SESAME (Super) 1,000 mg, 120 softgels	42.00	31.50	28.75			
01896	COGNITEX® W/BRAIN SHIELD® • 90 softgels	60.00	45.00	39.00	36.00		
01897	COGNITEX® W/PREGNENOLONE & BRAIN SHIELD® 90 softgels	62.00	46.50	39.75	37.50		
01421	COGNITEX® BASICS • 60 softgels	38.00	28.50	26.25	24.00		
01659	COGNIZIN® CDP CHOLINE CAPS • 250 mg, 60 veg. caps	36.00	27.00	25.50			

SUBTOTAL OF COLUMN 2

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

OFFER ENDS FEBRUARY 1, 2016

TO ORDER CALL: 1.954.766.8433 or 1.800.544.4440 ■ TO ORDER ONLINE VISIT: www.LifeExtension.com/SuperSale

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY Total
			1 Unit Each	4 Unit Each	10 Unit Each	
01945	COMPLETE B-COMPLEX (BioActive) • 60 veg. caps	12.00	9.00	8.00		
01999	COMPREHENSIVE NUTRIENT PACKS ADVANCED • 30 packs	90.00	67.50	61.50		
00119	COPPER CAPSULES • 2 mg, 100 caps	9.91	7.43			
00949	COQ10 w/d-LIMONENE (Super-absorbable) 50 mg, 60 softgels	25.00	18.75	16.50	15.00	
00950	COQ10 w/d-LIMONENE (Super-absorbable) 100 mg, 100 softgels	46.00	34.50	28.00	26.25	
01929	COQ10 (Super ubiquinol) • 100 mg, 60 softgels	56.00	42.00	36.00	33.00	
01733	COQ10 w/BIOPQQ® (Super ubiquinol) • 100 mg, 30 softgels	54.00	40.50	33.00	30.00	
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super ubiquinol) 100 mg, 60 softgels	62.00	46.50	39.00	36.00	
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super ubiquinol) - 50 mg, 100 softgels	58.00	43.50	34.50	31.50	
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super ubiquinol) - 50 mg, 30 softgels	20.00	15.00	12.00		
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super ubiquinol) - 200 mg, 30 softgels	62.00	46.50	39.00	36.00	
00862	CRAN-MAX® • 500 mg, 60 veg. caps	17.50	13.13	11.25		
01424	CRAN-MAX® WITH ELLIROSE™ (Optimized) • 60 veg. caps	18.00	13.50	12.00		
01529	CREATINE CAPSULES • 120 veg. caps	10.95	8.21	6.94		
01746	CREATINE WHEY GLUTAMINE POWDER • 454 grams (vanilla)	30.00	22.50	20.25		
01429	CR MIMETIC LONGEVITY FORMULA • 60 veg. caps	39.00	29.25	27.00		
00407	CURCUMIN® (Super Bio) • 400 mg, 60 veg. caps	38.00	28.50	26.25		
01924	CURCUMIN® W/GINGER & TURMERONES (Advanced bio) 30 softgels	30.00	22.50	20.25		
01804	CYTOKINE SUPPRESS™ W/EGCG • 30 veg. caps	30.00	22.50	20.25		
COSMESIS						
80157	ADVANCED ANTI-GLYCATION PEPTIDE SERUM • 1 oz	53.00	39.75	34.50		
80154	ADVANCED LIGHTENING CREAM • 1 oz	65.00	48.75	42.75		
80155	ADVANCED PEPTIDE HAND THERAPY • 4 oz	46.00	34.50	29.25		
80152	ADVANCED TRIPLE PEPTIDE SERUM • 1 oz	65.00	48.75	42.75		
80140	ADVANCED UNDER EYE SERUM W/STEM CELLS • .33 oz	49.00	36.75	31.50		
80139	AMBER SELF MICRODERMABRASION • 2 oz	49.00	36.75	31.50		
80158	ANTI-AGING FACE OIL • 1 oz	59.00	44.25	39.00		
80118	ANTI-AGING MASK • 2 oz	72.00	54.00	47.52		
80151	ANTI-AGING REJUVENATING FACE CREAM • 2 oz	65.00	48.75	42.75		
80153	ANTI-AGING REJUVENATING SCALP SERUM • 2 oz	46.00	34.50	29.25		
80134	ANTI-GLYCATION SERUM W/BLUEBERRY & POMEGRANATE EXTRACTS • 1 oz	33.00	24.75	23.51		
80133	ANTIOXIDANT FACIAL MIST • 2 oz	32.00	24.00	22.80		
80127	ANTIOXIDANT REJUVENATING FOOT CREAM • 2 oz	45.00	33.75	32.10		
80128	ANTIOXIDANT REJUVENATING FOOT SCRUB • 2 oz	59.00	44.25	38.94		
80117	ANTIOXIDANT REJUVENATING HAND CREAM • 2 oz	64.00	48.00	43.12		
80105	ANTI-REDNESS & ADULT BLEMISH LOTION • 1 oz	74.50	55.88	49.17		
80147	BIOFLAVONOID CREAM • 1 oz	46.00	34.50	29.25		
80144	BROCCOLI SPROUT CREAM • 1 oz	46.00	34.50	29.25		
80156	COLLAGEN BOOSTING PEPTIDE SERUM • 1 oz	59.00	44.25	39.00		
80120	CORRECTIVE CLEARING MASK • 2 oz	64.50	48.38	42.57		
80141	DNA REPAIR CREAM • 1 oz	49.00	36.75	31.50		
80108	ESSENTIAL PLANT LIPIDS REPARATIVE SERUM • 1 oz	74.95	56.21	49.46		
SUBTOTAL OF COLUMN 3						

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY Total
			1 Unit Each	4 Unit Each	10 Unit Each	
80123	FACE REJUVENATING ANTIOXIDANT CREAM • 2 oz	69.50	52.13	45.87		
80107	FINE LINE-LESS • 1 oz	74.50	55.88	49.17		
80131	HAIR SUPPRESS FORMULA • 4 oz	59.00	44.25	38.94		
80137	HEALING FORMULA ALL-IN-ONE CREAM • 1 oz	53.00	39.75	34.07		
80115	HEALING MASK • 2 oz	64.50	48.38	42.57		
80102	HEALING VITAMIN K CREAM • 1 oz	79.50	59.63	52.47		
80109	HYALURONIC FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28		
80110	HYALURONIC OIL-FREE FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28		
80138	HYDRATING ANTIOXIDANT FACE MIST • 4 oz	39.95	29.96	28.50		
80103	LIFTING & TIGHTENING COMPLEX • 1 oz	74.50	55.88	49.17		
80146	LYCOPENE CREAM • 1 oz	28.00	21.00	19.05		
80135	MELATONIN CREAM • 1 oz	33.00	24.75	20.33		
80114	MILD FACIAL CLEANSER • 8 oz	59.00	44.25	38.94		
80159	MULTI STEM CELL SKIN TIGHTENING COMPLEX • 1 oz	59.00	44.25	39.00		
80122	NECK REJUVENATING ANTIOXIDANT CREAM • 2 oz	64.00	48.00	42.24		
80111	PIGMENT CORRECTING CREAM • 1/2 oz	74.00	55.50	48.84		
80106	REJUVENATING SERUM • 1 oz	74.50	55.88	49.17		
80150	RENEWING EYE CREAM • 1/2 oz	65.00	48.75	42.75		
80142	RESVERATROL ANTI-OXIDANT SERUM • 1 oz	46.00	34.50	29.25		
80112	SKIN LIGHTENING SERUM • 1/2 oz	85.00	63.75	56.10		
80130	SKIN STEM CELL SERUM • 1 oz	74.00	55.50	51.75		
80143	STEM CELL CREAM W/ALPINE ROSE • 1 oz	66.00	49.50	43.50		
80148	TIGHTENING & FIRMING NECK CREAM • 2 oz	39.00	29.25	26.25		
80116	ULTRA LIP PLUMPER • 1/3 oz	64.00	48.00	42.24		
80101	ULTRA WRINKLE RELAXER • 1 oz	89.95	67.46	59.82		
80113	UNDER EYE REFINING SERUM • 1/2 oz	74.50	55.88	49.17		
80104	UNDER EYE RESCUE CREAM • 1/2 oz	74.50	55.88	49.17		
80129	VITAMIN C SERUM • 1 oz	85.00	63.75	56.10		
80136	VITAMIN D LOTION • 4 oz	36.00	27.00	25.25		
80145	VITAMIN E-ESSENTIAL CREAM • 1 oz	28.00	21.00	19.50		
80149	YOUTH SERUM • 1 oz	65.00	48.75	42.75		
D						
01912	DAILY C+ CITRUS FLAVOR • 30 stick packs	21.00	15.75	14.25		
00658	7-KETO® DHEA METABOLITE • 25 mg, 100 caps	28.00	21.00	18.00		
01479	7-KETO® DHEA METABOLITE • 100 mg, 60 veg. caps	40.00	30.00	27.00		
01640	DHA (Vegetarian sourced) • 30 veg. softgels	20.00	15.00	13.50		
00607	DHEA • 25 mg, 100 tablets (Dissolve in mouth)	14.00	10.50	8.81		
01478	DHEA COMPLETE • 60 veg. caps	48.00	36.00	32.40		
00335	DHEA • 25 mg, 100 caps	16.00	12.00	11.00		
00454	DHEA • 15 mg, 100 caps	14.00	10.50	9.00		
00882	DHEA • 50 mg, 60 caps	19.00	14.25	12.75		
01689	DHEA • 100 mg, 60 veg. caps	24.00	18.00	16.50		
01358	DIGEST RC® • 30 tablets	19.95	14.96	12.75		
02021	DIGESTIVE ENZYMES (Enhanced Super) • 60 veg. caps	22.00	16.50	15.00		
02022	DIGESTIVE ENZYMES w/PROBIOTICS (Enhanced Super) • 60 veg. caps	28.00	21.00	18.00		
01671	D, L-PHENYLALANINE • 500 mg, 100 veg. caps	18.75	14.06	12.00		
SUBTOTAL OF COLUMN 4						

FEBRUARY 2016

SUPER SALE SAVINGS ON ALL PRODUCTS

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ITEM No.	PRODUCT	YOUR PRICE				
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	QTY Total
01540	DMAE BITARTRATE • 150 mg, 200 veg. caps	18.00	13.50	11.25		
00059	DMG • 125 mg, 60 tablets	24.80	18.60	17.02		
01570	DNA PROTECTION FORMULA • 60 veg. caps	34.00	25.50	24.00		
01931	DOG MIX • 100 grams powder	18.00	13.50	11.25		
02006	DOPA-MIND™ • 60 veg. tabs	48.00	36.00	32.00		
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA • 2 oz	39.95	29.96	24.00		
00320	DR. PROCTOR'S HAIR SHAMPOO • 8 oz	24.95	18.71	16.50		
00899	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE • 2.4 oz	39.95	29.96	29.21		
E						
01528	ECHINACEA EXTRACT • 250 mg, 60 veg. caps	14.35	10.76	9.38		
01997	ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™ AND CORDIART™ • 60 softgels	68.00	51.00	46.50		
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® • 60 veg. caps	54.00	40.50	36.00		
00625	EPA/DHA (Mega) • 120 softgels	19.95	14.96	13.50		
01737	ESOPHAGEAL GUARDIAN (Berry flavor) • 60 chewable tablets	36.00	27.00	24.00		
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 600 mg, 30 veg. tabs	20.00	15.00	13.50		
01706	EXTRAORDINARY ENZYMES • 60 caps	26.00	19.50	18.00		
01514	EYE PRESSURE SUPPORT W/MIRTGENOL® • 30 veg. caps	38.00	28.50	25.50		
F						
*01054	FACE MASTER® PLATINUM • Facial Toning System	199.00	199.00			
00965	FAST-ACTING JOINT FORMULA • 30 caps	39.00	29.25	27.00		
01717	FAST-C® W/DIHYDROQUERCETIN • 120 veg. tabs	26.00	19.50	18.00		
20053	FEM DOPHILUS® • 30 caps	25.95	19.46			
20055	FEM DOPHILUS® • 60 caps	39.95	29.96			
01064	FEMMENESSENCE MACAPAUSE® • 120 veg. caps	34.99	26.24			
01728	FERNBLOCK® W/RED ORANGE COMPLEX (Enhanced) 30 veg. caps	42.00	31.50	28.50		
00718	FIBRINOGEN RESIST™ • 30 veg. caps	49.00	36.75	33.00		
01749	FLAX SEED (Organic golden) • 14 oz	11.67	8.75			
01821	FLORASSIST® HEART HEALTH PROBIOTIC • 60 veg. caps	32.00	24.00	21.00		
02011	FLORASSIST® ORAL HYGIENE • 30 lozenges	20.00	15.00	13.50		
01825	FLORASSIST® BALANCE • 30 liquid veg. caps	32.00	24.00	21.00		
01920	FLORASSIST® THROAT HEALTH • 30 lozenges	20.00	15.00	13.50		
01913	FOLATE (Optimized) • 5,000 mcg, 30 veg. tablets	25.00	18.75	16.50		
01939	FOLATE (Optimized) • 1,000 mcg, 100 veg. tablets	19.00	14.25	12.75		
01842	FOLATE + VITAMIN B12 (Bio Active) • 90 veg. caps	12.00	9.00	8.00		
01544	FORSKOLIN • 10 mg, 60 veg. caps	16.00	12.00	10.50		
01513	FUCOIDAN W/MARITECH® 926 (Optimized) • 60 veg. caps	36.00	27.00	24.75		
G						
00559	GAMMA E TOCOPHEROL/TOCOTRIENOLS • 60 softgels	42.00	31.50	27.75		
00759	GAMMA E TOCOPHEROL W/SESAME LIGNANS • 60 softgels	32.00	24.00	21.75		
01394	GARLIC (Optimized) • 200 veg. caps	24.95	18.71	15.75		
**01122	GINGER FORCE® • 60 liquid caps	34.95	26.21			
01658	GINKGO BILOBA CERTIFIED EXTRACT™ 120 mg, 365 veg. caps	46.00	34.50	31.50		
01648	GINKGO EXTRACT 28/7 (Super) • 120 mg, 100 veg. caps	29.00	21.75	19.88		
00756	GLA WITH SESAME LIGNANS (Mega) • 60 softgels	19.50	14.63	13.50		
SUBTOTAL OF COLUMN 5						

ITEM No.	PRODUCT	YOUR PRICE				
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	QTY Total
00345	(L-) GLUTAMINE CAPSULES • 500 mg, 100 caps	14.95	11.21	10.13		
00141	(L-) GLUTAMINE POWDER • 100 grams	22.00	16.50	15.00		
00522	GLUCOSAMINE/CHONDROITIN CAPSULES • 100 caps	38.00	28.50	24.00		
01541	GLUTATHIONE, CYSTEINE & C • 100 veg. caps	20.00	15.00	13.50		
00314	L-GLUTATHIONE (Mega) • 250 mg, 60 caps	39.64	29.73			
01669	GLYCINE • 1,000 mg, 100 veg. caps	12.00	9.00	8.10		
01411	GRAPE SEED EXTRACT W/RESVERATROL & PTEROSTILBENE 100 mg, 60 veg. caps	36.00	27.00	25.50		
01604	GREEN COFFEE EXTRACT COFFEEGENIC® 200 mg, 90 veg. caps	22.00	16.50	15.00		
01620	GREEN COFFEE EXTRACT COFFEEGENIC® 400 mg, 90 veg. caps	32.00	24.00	21.00		
00953	GREEN TEA EXTRACT (Mega) • lightly caffeinated, 100 veg. caps	30.00	22.50	18.00		
00954	GREEN TEA EXTRACT (Mega) • decaffeinated, 100 veg. caps	30.00	22.50	18.00		
H						
01074	5 HTP • 100 mg, 60 caps	27.95	20.96			
**02002	HAIR, SKIN & NAIL REJUVENATION FORM W/VERISON® 90 tabs	32.00	24.00	22.00		
01738	HCA (Garnicia) • 90 veg. caps	17.00	12.75	11.25		
29754	HCACTIVE™ GARCINIA CAMBOGIA EXTRACT • 90 caps	30.00	22.50			
01393	HEPATOPRO • 900 mg, 60 softgels	50.00	37.50	34.50		
01527	HUPERZINE A • 200 mcg, 60 veg. caps	40.00	30.00	27.00		
00661	HYDRODERM® • 1 oz	79.95	59.96	49.00		
I						
*01060	I26 HYPERIMMUNE EGG • 140 grams powder	54.99	46.75			
01704	IMMUNE MODULATOR W/TINOFEND® • 60 veg. caps	17.00	12.75	11.25		
00955	IMMUNE PROTECT W/PARACTIN® • 30 veg. caps	29.50	22.13	19.91		
02005	IMMUNE SENESCENCE PROTECTION FORMULA™ • 60 veg. tabs	40.00	30.00	27.00		
01049	INNERPOWER™ • 530 grams powder	42.00	31.50			
01674	INOSITOL CAPSULES • 1,000 mg, 360 veg. caps	62.00	46.50	43.50		
01292	INTEGRA-LEAN® AFRICAN MANGO IRVINGIA 150 mg, 60 veg. caps	28.00	21.00	18.00		
01248	IODINE COMPLETE (Advanced) • 12.5 mg, 180 tablets	46.00	36.50			
01677	IRON PROTEIN PLUS • 300 mg, 100 caps	28.00	21.00	19.50		
01492	IRVINGIA W/PHASE 3™ CALORIE CONTROL COMPLEX (Optimized African Mango) • 120 veg. caps	56.00	42.00	36.00		
J, K, L						
00056	JARRO-DOPHILUS EPS® • 60 veg. caps	22.95	17.21			
01759	JARRO-DOPHILUS EPS® • 30 caps	39.95	29.96			
01834	K W/ADVANCED K2 COMPLEX (Super) • 90 softgels	30.00	22.50	20.25		
01600	KRILL HEALTHY JOINT FORMULA • 30 softgels	32.00	24.00	21.75		
01050	KRILL OIL • 60 softgels	33.95	25.46			
00316	KYOLIC® GARLIC FORMULA 102 • 200 veg. caps	26.45	19.84			
00214	KYOLIC® GARLIC FORMULA 105 • 200 caps	27.45	20.59			
00789	KYOLIC® RESERVE • 600 mg, 120 caps	27.95	20.96			
01681	LACTOFERRIN • 60 caps	52.00	39.00	36.00		
00020	LECITHIN • 16 oz granules	18.00	13.50	12.00		
02055	LIFE EXTENSION MIX™ • 315 tablets	80.00	60.00	52.00	43.75	
02057	LIFE EXTENSION MIX™ W/EXTRA NIACIN • 315 tablets	80.00	60.00	52.00	43.75	
SUBTOTAL OF COLUMN 6						

OFFER ENDS FEBRUARY 1, 2016

TO ORDER CALL: 1.954.766.8433 or 1.800.544.4440 ■ TO ORDER ONLINE VISIT: www.LifeExtension.com/SuperSale

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY Total
			1 Unit Each	4 Unit Each	10 Unit Each	
02054	LIFE EXTENSION MIX™ • 490 caps	90.00	67.50	58.00	47.50	
02056	LIFE EXTENSION MIX™ POWDER • 14.81 oz	80.00	60.00	52.00	43.75	
02065	LIFE EXTENSION MIX™ • 315 tablets w/o copper	80.00	60.00	52.00	43.75	
02064	LIFE EXTENSION MIX™ • 490 caps w/o copper	90.00	67.50	58.00	47.50	
02066	LIFE EXTENSION MIX™ POWDER • 14.81 oz w/o copper	80.00	60.00	52.00	43.75	
01608	LIVER EFFICIENCY FORMULA • 30 veg. caps	18.00	13.50	12.00		
01639	5-LOX INHIBITOR W/APRÈSFLEX® • 100 mg, 60 veg. caps	22.00	16.50	15.00		
01678	L-LYSINE • 620 mg, 100 veg. caps	9.00	6.75	6.00		
00455	LYCOPENE (Mega) • 15 mg, 90 softgels	35.00	26.25	22.50		
M						
01926	MACUGUARD® OCULAR SUPPORT • 60 softgels	22.00	16.50	14.85		
01927	MACUGUARD® OCULAR SUPPORT w/ASTAXANTHIN 60 softgels	42.00	31.50	28.50		
01459	MAGNESIUM CAPS • 500 mg, 100 veg. caps	12.00	9.00	7.50		
01682	MAGNESIUM (CITRATE) • 160 mg, 100 veg. caps	9.00	6.75	5.63		
01908	MEDITERRANEAN TRIM WITH SINETROL™-XPUR 60 veg. caps	18.00	13.50	12.00		
01668	MELATONIN • 300 mcg, 100 veg. caps	5.75	4.31	3.75		
01083	MELATONIN • 500 mcg, 200 veg. caps	18.00	13.50	12.00		
00329	MELATONIN • 1 mg, 60 caps	5.00	3.75	3.47		
00330	MELATONIN • 3 mg, 60 caps	8.00	6.00	5.16		
00331	MELATONIN • 10 mg, 60 caps	28.00	21.00	18.00		
00332	MELATONIN • 3 mg, 60 veg. lozenges	8.00	6.00	5.16		
01734	MELATONIN (Fast-Acting Liquid) • 2 oz (Citrus-Vanilla)	12.00	9.00	8.25		
01787	MELATONIN TIMED RELEASE • 300 mcg, 100 veg. tabs	12.00	9.00	8.25		
01788	MELATONIN TIMED RELEASE • 750 mcg, 60 veg. tablets	8.00	6.00	5.25		
01786	MELATONIN TIMED RELEASE • 3 mg, 60 veg. tabs	12.00	9.00	8.25		
01536	METHYLCOBALAMIN • 1 mg, 60 veg. lozenges (vanilla)	9.95	7.46	6.00		
01537	METHYLCOBALAMIN • 5 mg, 60 veg. lozenges (vanilla)	32.00	24.00	18.75	17.25	
00709	MIGRA-EEZE™ (Butterbur) • 60 softgels	29.50	22.13	19.75		
01522	MILK THISTLE (European) • 60 veg. caps	34.00	25.50	22.50		
01922	MILK THISTLE (European) • 60 softgels	28.00	21.00	18.75		
01925	MILK THISTLE (European) • 120 softgels	44.00	33.00	30.00		
01698	MIRAFORTE w/STANDARDIZED LIGNANS (Super) • 120 caps	62.00	46.50	42.00		
01869	MITOCHONDRIAL BASICS W/BIOPQQ® • 30 caps	44.00	33.00	30.00		
01868	MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ® • 120 caps	72.00	54.00	48.00		
00065	MK-7 • 90 mcg, 60 softgels	28.00	21.00	18.75		
00451	MSM (Methylsulfonylmethane) • 1,000 mg, 100 caps	14.00	10.50	8.96		
N						
01534	N-ACETYL-L-CYSTEINE • 600 mg, 60 veg. caps	14.00	10.50	10.13		
01904	NAD+ CELL REGENERATOR™ • 100 mg, 30 veg. caps	34.00	25.50	19.50		
00066	NATTOKINASE • 60 softgels	25.50	19.13			
01807	NATURAL APPETITE SUPPRESS (Advanced) • 60 veg. caps	38.00	28.50	25.50		
00984	NATURAL BP MANAGEMENT • 60 tablets	44.00	33.00	30.00		
01892	NATURAL ESTROGEN • 60 veg. tabs	38.00	28.50	25.50		
01893	NATURAL ESTROGEN W/O SOY ISOFLAVONES • 30 veg. caps	32.00	24.00	21.00		
01626	NATURAL SEX FOR WOMEN® 50+ (Advanced) • 90 veg. caps	59.00	44.25	34.00		

SUBTOTAL OF COLUMN 7

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY Total
			1 Unit Each	4 Unit Each	10 Unit Each	
01444	NATURAL SLEEP® • 60 veg. caps	13.00	9.75	7.50		
01551	NATURAL SLEEP® w/ MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00		
01511	NATURAL SLEEP® W/O MELATONIN (Enhanced) • 30 caps	20.00	15.00	13.50		
01445	NATURAL SLEEP® MELATONIN • 5 mg, 60 veg. caps	18.00	13.50	12.00		
00987	NATURAL STRESS RELIEF • 30 veg. caps	28.00	21.00	18.00		
01121	NERVIA® • 60 softgels	49.95	37.46			
01603	NEURO-MAG® MAGNESIUM L-THREONATE • 90 veg. caps	40.00	30.00	27.00		
01602	NEURO-MAG® L-THREONATE W/CALCIUM & VITAMIN D3 225 grams • Lemon flavor	40.00	30.00	27.00		
01990	NITROVASC w/CORDIART™ • 30 veg. caps	18.00	13.50	12.00		
01903	NK CELL ACTIVATOR™ • 30 veg. tablets	45.00	33.75	31.50		
00373	NO-FLUSH NIACIN • 800 mg, 100 caps	19.00	14.25	12.75		
O						
01824	OLIVE LEAF VASCULAR SUPPORT w/CELERY SEED EXTRACT (Advanced) • 60 veg. caps	36.00	27.00	24.00		
01988	OMEGA-3 PLUS EPA/DHA w/SESAME LIGNANS, OLIVE EXTRACT, KRILL & ASTAXANTHIN • 120 softgels	45.00	33.75	31.50	24.75	
01983	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 60 softgels	18.00	13.50	12.00	9.38	
01982	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 120 softgels	32.00	24.00	21.00	17.05	
01984	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 120 enteric coated softgels	34.00	25.50	23.25	18.00	
01985	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 60 enteric coated softgels	20.00	15.00	13.50	10.50	
01986	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 240 small softgels	32.00	24.00	21.00	17.25	
01989	ONCE-DAILY HEALTH BOOSTER • 60 softgels	52.00	39.00	36.00		
02001	ONE-PER-DAY • 60 tablets	22.00	16.50	15.00		
01328	ONLY TRACE MINERALS • 90 veg. caps	15.00	11.25	9.38		
P						
01789	PALMETTOGUARD® SAW PALMETTO W/BETA-SITOSTEROL 30 softgels	15.00	11.25	10.50	9.00	
01790	PALMETTOGUARD® SUPER SAW PALMETTO/ NETTLE ROOT W/BETA-SITOSTEROL • 60 softgels	28.00	21.00	19.50	18.00	
01323	PEAK ATP® WITH GLYCOCARN® • 60 veg. caps	54.00	40.50	37.50		
00342	PECTA SOL-C® MODIFIED CITRUS PECTIN • 454 grams powder	109.95	82.46			
01080	PECTA SOL-C® MODIFIED CITRUS PECTIN • 270 veg. caps	79.95	59.96			
01811	PEONY IMMUNE • 60 veg. caps	36.00	27.00	24.00		
00673	PGX® PLUS MULBERRY (WellBetX®) • 180 veg. caps	34.95	26.21			
01676	PHOSPHATIDYLSERINE CAPS • 100 mg, 100 veg. caps	54.00	40.50	36.00		
01436	POLICOSANOL • 10 mg, 60 veg. caps	20.00	15.00	11.25		
01953	POMEGRANATE COMPLETE • 30 softgels	24.00	18.00	15.75		
00956	POMEGRANATE EXTRACT • 30 veg. caps	19.50	14.63	13.16		
01797	POMI-T® • 60 veg. caps	33.33	25.00	22.50		
01500	PQQ CAPS W/BIOPQQ® • 10 mg, 30 veg. caps	24.00	18.00	13.50	12.00	
01647	PQQ CAPS W/BIOPQQ® • 20 mg, 30 veg. caps	40.00	30.00	24.00	21.00	
00302	PREGNENOLONE • 50 mg, 100 caps	26.00	19.50	16.50		
00700	PREGNENOLONE • 100 mg, 100 caps	30.00	22.50	20.25		
*01373	PRELOX® NATURAL SEX FOR MEN® • 60 tablets	52.00	39.00	36.00		
SUBTOTAL OF COLUMN 8						

SUBTOTAL OF COLUMN 8

FEBRUARY 2016

SUPER SALE SAVINGS ON ALL PRODUCTS

TO ORDER CALL: 1.954.766.8433 or 1.800.544.4440 ■ TO ORDER ONLINE VISIT: www.LifeExtension.com/SuperSale

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE				QTY Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01576	PREVAGEN® • 30 caps	60.00	45.00				
*01577	PREVAGEN® ES • 30 caps	70.00	60.00				
00525	PROBOOST™ THYMIC PROTEIN A • 30 packets	59.95	44.96				
01441	PROGESTACARE® FOR WOMEN • 4 oz cream	35.50	26.63	24.38			
01928	PROSTATE FORMULA (Ultra NAT) • 60 softgels	38.00	28.50	26.25	24.00		
01909	PROSTAPOLLEN™ (Triple strength) • 30 softgels	28.00	21.00	18.75			
01742	PROTEIN-ISOLATE (Whey) Vanilla • 1 lb. powder	30.00	22.50	20.25			
01743	PROTEIN-ISOLATE (Whey) Chocolate • 1 lb. powder	30.00	22.50	20.25			
01770	PROTEIN CONCENTRATE (New Zealand Whey) Vanilla 520 grams	30.00	22.50	19.95			
01771	PROTEIN CONCENTRATE (New Zealand Whey) Chocolate 660 grams	30.00	22.50	19.95			
01812	PROVINAL® PURIFIED OMEGA-7 • 30 softgels	27.00	20.25	18.00			
01508	PTERO PURE® Pterostilbene • 50 mg, 60 veg. caps	32.00	24.00	22.50			
01209	PUMPKIN SEED EXTRACT (Water-soluble) • 60 veg. caps	20.00	15.00	13.50			
01587	PURE PLANT PROTEIN • Vanilla 540 grams powder	38.00	28.50	26.25			
01637	PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT 100 mg, 60 veg. caps	64.00	48.00	45.00			
01217	PYRIDOXAL 5'-PHOSPHATE • 100 mg, 60 veg. caps	22.00	16.50	14.85			
Q, R							
01309	QUERCETIN (Optimized) • 250 mg, 60 veg. caps	22.00	16.50	15.00			
01030	RED YEAST RICE (Bluebonnet) • 600 mg, 60 veg. caps	16.95	13.56				
00605	REGIMENT • 60 enteric-coated caps	19.95	14.96	14.00			
01708	REISHI EXTRACT MUSHROOM COMPLEX • 60 veg. caps	30.00	22.50	20.25			
01448	REJUVENEX® BODY LOTION • 6 oz	24.00	18.00	14.85	12.75		
01621	REJUVENEX® FACTOR FIRMING SERUM • 1.7 oz	65.00	48.75	37.50			
01220	REJUVENEX® (Ultra) • 2 oz	52.00	39.00	33.00	29.25		
00676	REJUVENIGHT® (Ultra) • 2 oz	39.95	29.96	27.00			
01410	RESVERATROL W/PTEROSTILBENE • 100 mg, 60 veg. caps	36.00	27.00	24.00			
02031	RESVERATROL W/NICOTINAMIDE RIBOSIDE (Optimized) • 30 veg. caps	42.00	31.50	27.00			
02030	RESVERATROL (Optimized) • 60 veg. caps	46.00	34.50	31.00			
00889	RHODIOLA EXTRACT • 250 mg, 60 veg. caps	14.00	10.50	9.00			
01900	RIBOGEN™ FRENCH OAK WOOD EXTRACT 200 mg, 30 veg. caps	36.00	27.00	24.75			
00972	(D) RIBOSE POWDER • 150 grams	27.50	20.63	18.56			
01473	(D) RIBOSE TABLETS • 100 veg. tabs	32.00	24.00	21.00			
01609	RICH REWARDS® BREAKFAST GROUND COFFEE • 12 oz. bag	13.00	9.75				
01730	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE Natural Mocha • 12 oz. bag	15.00	11.25	10.50			
01729	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE Natural Vanilla • 12 oz. bag	15.00	11.25	10.50			
01612	RICH REWARDS® BREAKFAST BLEND WHOLE BEAN COFFEE 12 oz. bag	13.00	9.75				
01610	RICH REWARDST® DECAFFEINATED ROAST GROUND COFFEE 12 oz. bag	14.00	10.50				
01208	R-LIPOIC ACID (Super) • 240 mg, 60 veg. caps	49.00	36.75	33.75			
00070	RNA CAPSULES • 500 mg, 100 caps	17.95	13.46	12.12			

SUBTOTAL OF COLUMN 9

FEBRUARY 2016

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE				QTY Total
			1 Unit Each	4 Unit Each	10 Unit Each		
	S						
01432	SAFFRON W/SATIEREAL® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
01935	SAME (S-ADENOSYL-METHIONINE) 200 mg, 30 enteric coated tablets	25.00	18.75	16.50			
01933	SAME (S-ADENOSYL-METHIONINE) 400 mg, 30 enteric coated tablets	36.00	27.00	24.00			
01934	SAME (S-ADENOSYL-METHIONINE) 400 mg, 60 enteric coated tablets	66.00	49.50	45.00			
01740	SEA-IODINE™ • 1,000 mcg, 60 veg. caps	8.00	6.00	5.40			
00046	SELENIUM • 2 fl. oz dropper	11.95	8.96				
01679	SE-METHYL L-SELENOCYSTEINE • 200 mcg, 100 veg. caps	12.00	9.00	8.25			
00318	SERRAFLAZYME • 100 tablets	18.00	13.50	12.00			
01684	SILYMARIN • 100 mg, 50 veg. caps	9.25	6.94	6.19			
01249	SINUS CLEANSER • 4 oz. bottle	25.00	18.75				
01596	SKIN RESTORING PHYTOCERAMIDES w/LIPOWHEAT® 30 liquid veg. caps	25.00	18.75	17.25			
00961	SODZYME® w/GLISODIN® & WOLFBERRY • 90 veg. caps	28.00	21.00	18.00			
00657	SOLARSHIELD® SUNGLASSES • Smoke color	12.99	9.74	8.63			
01097	SOY EXTRACT (Ultra) • 150 veg. caps	87.00	65.25	58.50			
00432	STEVIA™ (Better) • 100 packets, 1 gram each	9.95	7.46				
00438	STEVIA™ ORGANIC LIQUID SWEETENER (Better) • 2 oz	11.00	8.25				
01476	STRONTIUM • 750 mg, 90 veg. caps	20.00	15.00	13.50			
01649	SUPER ABSORBABLE SOY ISOFLAVONES • 60 veg. caps	28.00	21.00	18.75			
01778	SUPER SELENIUM COMPLEX • 200 mcg, 100 veg. caps	14.00	10.50	9.00	8.25		
	T						
01723	TART CHERRY EXTRACT W/STANDARDIZED CHERRYPURE® 60 veg. caps	22.00	16.50	15.00			
01827	TAURINE • 1,000 mg, 90 veg. caps	13.00	9.75	9.00			
01918	TEAR SUPPORT w/MAQUIBRIGHT® • 60 mg, 30 veg. caps	18.00	13.50	12.00			
00133	L-TAURINE POWDER • 300 grams	20.00	15.00	12.66			
13685	TEN MUSHROOM FORMULA® • 120 veg. caps	39.95	29.96				
01304	THEAFLAVIN STANDARDIZED EXTRACT • 30 veg. caps	18.00	13.50	12.00			
01683	(L) THEANINE • 100 mg, 60 veg. caps	24.00	18.00	15.38			
***01038	TERALAC® PROBIOTICS • 30 caps	47.95	35.96				
00668	THYROID FORMULA (Metabolic Advantage™) • 100 caps	21.95	16.46				
00349	TMG POWDER • 50 grams	14.00	10.50	8.25			
01859	TMG • 500 mg, 60 liquid veg. caps	13.00	9.75	9.00			
01400	TOCOTRIENOLS (Super-absorbable) • 60 softgels	30.00	22.50	21.00			
01278	TOOTHPASTE • 4 oz (Mint) tube	9.50	7.13	6.50			
01917	TRANQUIL TRACT™ • 60 veg. caps	52.00	39.00	34.50			
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT 60 veg. caps	24.00	18.00	16.50			
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL • 60 veg. caps	32.00	24.00	22.20			
02003	TRIPLE ACTION THYROID • 60 veg. caps	36.00	27.00	24.00			
01803	TRI SUGAR SHIELD® • 60 veg. caps	36.00	27.00	24.00			
01386	TRUFIBER™ • 180 grams	32.95	24.71				
01389	TRUFLORA® PROBIOTICS • 32 veg. caps	42.95	32.21				
01722	L-TRYPTOPHAN • 500 mg, 90 veg. caps	33.00	24.75	22.50			
01721	TRYPTOPHAN PLUS (Optimized) • 90 veg. caps	32.00	24.00	21.75			
	SUBTOTAL OF COLUMN 10						

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		YOUR PRICE					
ITEM No.	PRODUCT	Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	QTY Total	
02016	TWO-PER-DAY • 60 tablets	10.50	7.88	7.13			
02015	TWO-PER-DAY • 120 tablets	20.00	15.00	13.50			
02014	TWO-PER-DAY • 120 caps	22.00	16.50	15.00			
00326	L-TYROSINE • 500 mg, 100 tablets	12.98	9.74				
V							
00213	VANADYL SULFATE • 7.5 mg, 100 veg. tablets	15.00	11.25	9.38			
00408	VENOTONE • 60 caps	18.95	14.21	12.00			
01327	VINPOCETINE • 10 mg, 100 veg. tablets	18.00	13.50	10.50			
00372	VITAMIN B3 NIACIN • 500 mg, 100 caps	7.65	5.74	4.99			
00098	VITAMIN B5 • 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88	7.04			
01535	VITAMIN B6 • 250 mg, 100 veg. caps	12.50	9.38	8.25			
00361	VITAMIN B12 • 500 mcg, 100 lozenges	8.75	6.56	5.44			
01634	VITAMIN C w/DIHYDROQUERCETIN 1,000 mg, 60 veg. tablets	10.00	7.50	6.75			
00927	VITAMIN C w/DIHYDROQUERCETIN 1,000 mg, 250 veg. tablets	25.50	19.13	17.44			
00084	VITAMIN C POWDER (BUFFERED) • 454 grams	23.95	17.96	16.50			
01736	VITAMIN C-MAGNESIUM CRYSTALS (EFFERVESCENT) 180 grams	20.00	15.00	13.50			
01732	VITAMIN D3 • 2,000 IU, 1 fl oz, Mint flavor	28.00	21.00	18.75			
01753	VITAMIN D3 • 1,000 IU, 90 softgels	7.00	5.25	4.50			
01751	VITAMIN D3 • 1,000 IU, 250 softgels	12.50	9.38	8.44			
01713	VITAMIN D3 • 5,000 IU, 60 softgels	10.00	7.50	6.50			
01718	VITAMIN D3 • 7,000 IU, 60 softgels	14.00	10.50	9.45			
01758	VITAMIN D3 W/SEA-IODINE™ • 5,000 IU, 60 caps	14.00	10.50	9.38			
00864	VITAMIN D3 LIQUID EMULSION • 2,000 IU, 1 oz.	28.00	21.00	18.75			
01840	VITAMINS D AND K W/SEA-IODINE™ • 60 caps	24.00	18.00	16.50			
01763	VITAMIN E (Natural) • 400 IU, 100 softgels	30.00	22.50	21.00	19.50		
01225	VITAMIN K2 (Low-dose) • 45 mcg, 90 softgels	18.00	13.50	12.00			
W							
01902	WAIST-LINE CONTROL™ • 120 veg. caps	42.00	31.50	28.50			
X, Y							
01919	X-R SHIELD • 90 veg. caps	15.00	11.25	9.75			
00409	XYLIWHITE™ MOUTHWASH • 16 oz	10.00	7.50				
Z							
01813	ZINC HIGH POTENCY • 50 mg, 90 veg. caps	7.95	5.96	5.25			
01561	ZINC LOZENGES • 60 veg. lozenges	9.00	6.75	6.00			
01961	ZINC LOZENGES (Enhanced) • 30 veg. lozenges	12.00	9.00	6.00			
**01051	ZYFLAMEND® WHOLE BODY • 120 liquid veg. caps	72.95	54.71				
BOOKS							
33885	THE BLUE ZONES SOLUTION by Dan Buettner • 2015	34.95	26.21				
33880	OUTSTANDING HEALTH: THE 6 ESSENTIAL KEYS TO MAXIMIZE YOUR ENERGY AND WELL BEING by Michael Galitzer, MD & Larry Trivieri Jr. • 2015	24.95	18.71				
33878	TESTOSTERONE REPLACEMENT THERAPY by Dr. John Crisler • 2015	19.99	14.99				
33877	THE TRUTH ABOUT MEN AND SEX by Abraham Morgentaler, MD, FACS • 2015	16.99	12.74				
33876	TOX-SICK • by Suzanne Somers • 2015	26.00	19.50				
SUBTOTAL OF COLUMN 11							

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		YOUR PRICE					
ITEM No.	PRODUCT	Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	QTY Total	
33875	DOCTORED: THE DISILLUSIONMENT OF AN AMERICAN PHYSICIAN • by Sandeep Jauhar • 2015	26.00	19.50				
33874	MISSING MICROBES • by Martin J. Blaser, MD • 2014	28.00	21.00				
33873	EATING ON THE WILD SIDE • by Jo Robinson • 2014	16.00	12.00				
33872	GET SERIOUS • by Brett Osborn, MD • 2014	24.95	18.71				
33868	TOXIN TOXOUT: GETTING HARMFUL CHEMICALS OUT OF OUR BODIES AND OUR WORLD • by Bruce Lourie and Rick Smith • 2014	25.99	19.49				
33867	THE COMPLETE MEDITERRANEAN DIET by Michael Ozner, MD • 2014	19.95	14.96				
33869	UNLEASH THE POWER OF THE FEMALE BRAIN by Daniel Amen, MD • 2014	16.00	12.00				
33870	MAGNIFICENT MAGNESIUM by Dennis Goodman, MD • 2014	14.95	11.21				
DPT05	DISEASE PREVENTION AND TREATMENT, EXPANDED FIFTH EDITION (Hardcover) • 2014	69.95	39.95	36.00			
33865	THE RESTORATION OF THE HUMAN BODY [IN 7 PARTS] by Sergey A. Dzigan, MD, PhD • 2014	29.95	22.46				
33862	I'M TOO YOUNG FOR THIS • by Suzanne Somers • 2013	26.00	19.50				
33835	PHARMOCRACY • by William Faloon • 2011	24.00	9.60	8.00			
33854	THE GREAT CHOLESTEROL MYTH • by Jonny Bowden, PhD, CNS and Stephen Sinatra, MD • 2012	19.99	14.99				
33958	THE VITAMIN D SOLUTION by Michael F. Holick, PhD, MD (Paperback) • 2013	16.00	12.00				
33838	YOUR GUIDE TO HEALTHY SKIN THE NATURAL WAY by Gary Goldfaden, MD • 2012	26.00	15.00				
33815	KNOCKOUT • by Suzanne Somers • 2009	25.99	17.00				
33809	TESTOSTERONE FOR LIFE by Abraham Morgentaler, MD • 2008	16.95	11.87				
33696	LIFE EXTENSION REVOLUTION by Philip Lee Miller, MD (Paperback)	16.00	12.00				
33805	MIAMI MEDITERRANEAN DIET WITH 300 RECIPES by Michael D. Ozner, MD, FACC, FAHA (Hardcover) • 2008	24.95	16.25				
33906	THE MIGRAINE CURE • by Sergey Dzigan, MD, PhD • 2006	24.00	15.60				
33803	WHAT YOUR DOCTOR MAY NOT TELL YOU ABOUT DIABETES by Steven V. Joyal, MD • 2008	14.99	10.49				

SUBTOTAL OF COLUMN 12

- * These products are not 25% off retail price.
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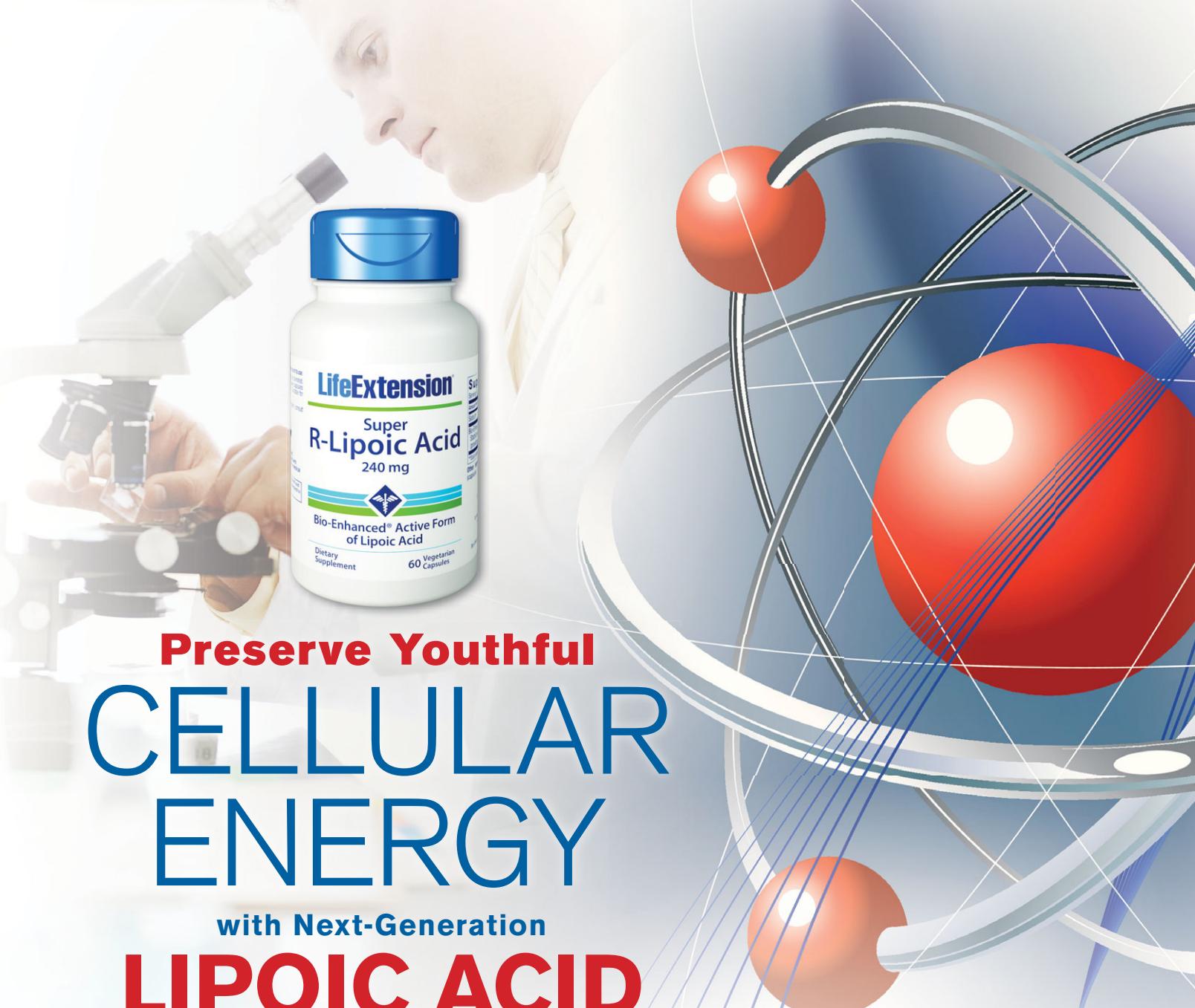
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Preserve Youthful CELLULAR ENERGY with Next-Generation **LIPOIC ACID**

Published studies have shown the critical importance of **lipoic acid** in supporting healthy mitochondrial function.

Unlike other forms of lipoic acid, **Super R-Lipoic Acid** is more bioavailable, stable, and potent, achieving **10-30 times** higher peak blood levels than pure R-lipoic acid.¹ This unique **sodium-R-lipoate** can help you reach peak plasma concentrations within just 10-20 minutes² of supplementation.

Super R-Lipoic Acid provides more of the active "R" form of lipoic acid than any other supplement.

To order **Super R-Lipoic Acid**,
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or visit **www.LifeExtension.com**

Super R-Lipoic Acid

Item# 01208 • 60 vegetarian capsules

Retail Price	Super Sale Price
1 bottle	\$49
4 bottles	\$30.38 each

Suggested dose is one to two capsules daily.

Non-GMO

References

1. Carlson DA, Young KL, Fischer SJ, Ulrich H. In: Packer L, Patel M. eds. *Lipoic Acid: Energy Production, Antioxidant Activity and Health Effects*. London: Taylor & Francis Publishers; 2008:235-70.
 2. Carlson DA, Smith AR, Fischer SJ, Young KL, Packer L. *Altern Med Rev*. 2007 Dec;12(4):343-51.
- CAUTION: If you are taking glucose-lowering medication, consult your health care provider before taking this product.
- Bio-Enhanced® is a registered trademark of Geronova Research, Inc.

Promote Oral Health with Targeted Probiotic Blend

Regular brushing and flossing are often not enough to achieve optimal oral health. Since the mouth is the major gateway to the body, maintaining good oral hygiene is important for overall health.¹

Researchers have developed an innovative approach to achieving maximum oral health. The beneficial bacteria in **FLORASSIST® Oral Hygiene** helps inhibit harmful bacteria that develop in the mouth and can affect the health of your teeth and gums. **FLORASSIST® Oral Hygiene** complements any oral care program.

FLORASSIST® Oral Hygiene contains a unique blend of two powerful oral probiotics:

- The beneficial probiotic strain—*S. salivarius* BLIS M18™
- An additional healthy probiotic—*B. coagulans* GanedenBC^{30®}

FLORASSIST® Oral Hygiene provides healthy bacteria that colonize the mouth and inhibit the growth of problematic mouth bacteria.²⁻⁴ This helps create a healthy environment in the oral cavity.

Because **FLORASSIST® Oral Hygiene** comes in lozenge form, it quickly provides healthy, targeted probiotics to the oral cavity.

Dissolving one lozenge of **FLORASSIST® Oral Hygiene** in your mouth daily can maximize your oral health by optimizing oral pH, easing inflammation, and supporting healthy bacterial colonization throughout the mouth.⁴⁻⁶

To order **FLORASSIST® Oral Hygiene**, call 1-800-544-4440 or visit www.LifeExtension.com



FLORASSIST® Oral Hygiene

Item #02011 • 30 lozenges

	Retail Price	Super Sale Price
1 bottle	\$20	\$13.50
4 bottles		\$12.15 each

References

1. *Nat Rev Immunol.* 2015 Jan;15(1):30-44.
2. *Oral Microbiol Immunol.* 2009 Apr;24(2):152-61.
3. Ganeden. Data on file. 2009.
4. *J Med Microbiol.* 2013 Jun;62(Pt 6):875-84.
5. *Benef Microbes.* 2011 Jun;2(2):93-101.
6. IADR/AADR/CADR 89th General Session and Exhibition, 16-19 March 2011, San Diego, CA, USA. Paper no. 150126.

Contains milk.

BLIS M18™ (*S. salivarius*) is the trademark of BLIS Technologies Limited.

GanedenBC^{30®} is a registered trademark of Ganeden Biotech, Inc.



European Milk Thistle Provides The *Ultimate* Protection For Your **LIVER**

Milk thistle extract—rich in **silymarin**—is one of nature's most powerful weapons to support liver health. Numerous scientific studies have demonstrated silymarin's ability to provide potent protection for your liver.^{1,2}

Life Extension®'s European Milk Thistle contains standardized, top-grade potencies of **silymarin**, **silybin**, **isosilybin A**, and **isosilybin B**, providing a full spectrum of liver-supportive compounds.

This unique formula includes **phosphatidylcholine**, a nutrient that promotes better absorption of all the health-providing benefits of milk thistle extract.³

European Milk Thistle, containing **480 mg** of silymarin, is a unique complex that is absorbed nearly **5 times** better than silymarin alone, and its concentration in the liver is **10 times** better.

References

1. *Mol Nutr Food Res.* 2009 Apr;53(4):460-6.
2. *Environ Toxicol.* 2007 Oct;22(5):472-9.
3. *Altern Med Rev.* 2009;14(3):226-46.

SILIPHOS® is a registered trademark of Indena S.p.A., Italy.



European Milk Thistle

Item #01922 • 60 Softgels

	Retail Price	Super Sale Price
1 bottle	\$28	\$18.90
4 bottles		\$16.88 each



To order **European Milk Thistle**
call **1-800-544-4440** or
visit **www.LifeExtension.com**

SUPPORT THROAT HEALTH WITH NOVEL PROBIOTIC LOZENGE

FLORASSIST® Throat Health is an oral probiotic that provides novel beneficial bacteria to colonize the throat and is clinically shown to support throat health.¹⁻³

Just one lozenge of **FLORASSIST® Throat Health** contains **20 mg** of BLIS K12®, a proprietary oral probiotic known as *S. salivarius* K12, which delivers **2 billion** colony-forming units. These organisms survive naturally in the throat, maximizing their potential to promote throat health by helping to regulate inflammation and reduce the damage caused by unfavorable organisms that originate there.

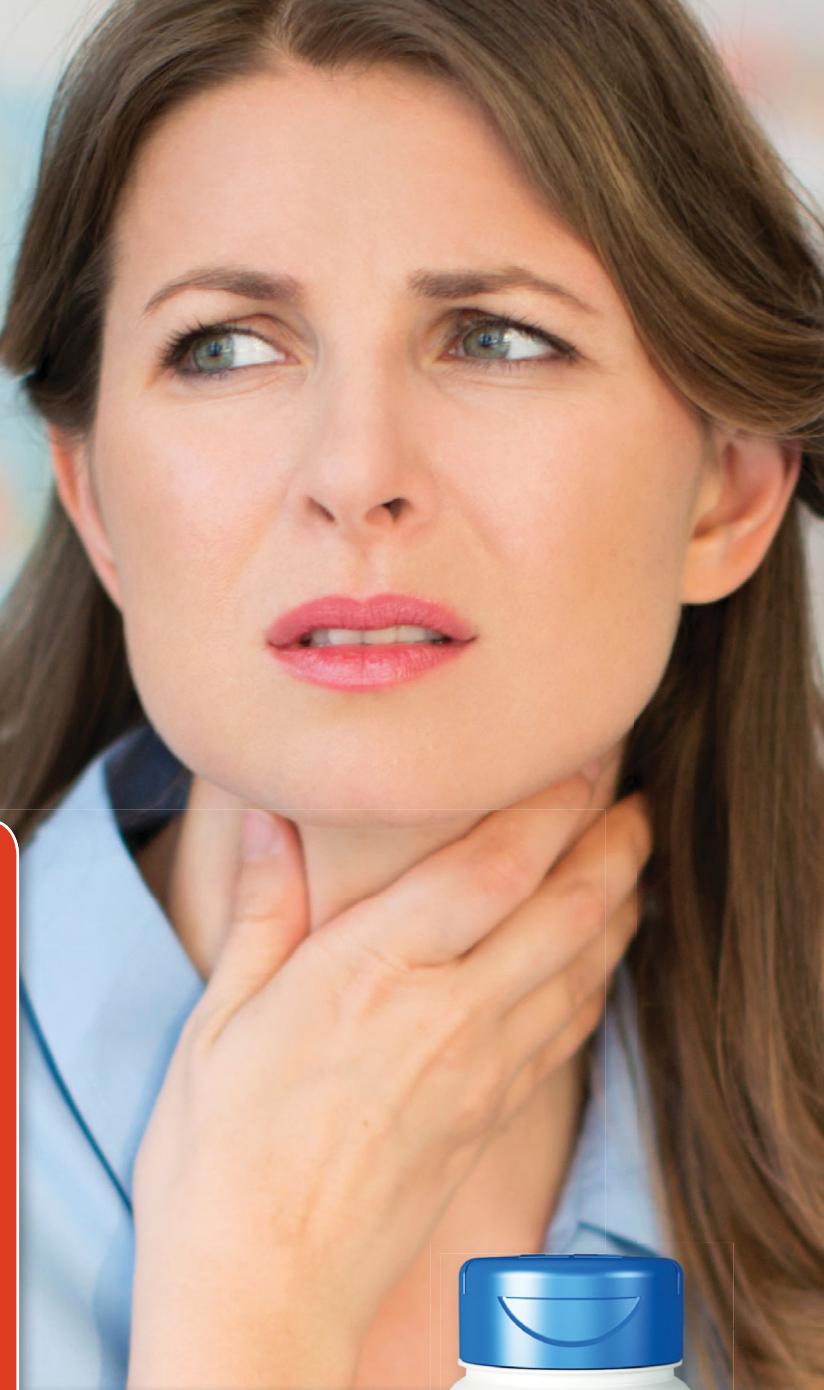
FLORASSIST® Throat Health—naturally flavored with spearmint and cherry—can significantly maintain throat health,¹⁻³ support healthy inflammatory response, and help maintain good health.⁴ And because these unique compounds act locally in the throat, clinical study participants supplementing with *S. salivarius* K12 have reported excellent tolerability without systemic side effects.⁵

Contains milk.

BLIS K12® is the registered trademark of BLIS Technologies Limited.

References

1. *Oral Microbiol Immunol.* 2009 Apr;24(2):152-61.
2. *Appl Environ Microbiol.* 2006 Feb;72(2):1459-66.
3. *Revista de Microbiología.* 1999;22(30):332-4.
4. *Drug Healthc Patient Saf.* 2014;6:15-20.
5. *Microbiol Mol Biol Rev.* 2015 Jun;79(2):171-91.



FLORASSIST® Throat Health

Item #01920 • 30 lozenges

	Retail Price	Super Sale Price
1 bottle	\$20	\$13.50
4 bottles		\$12.15 each



To order **FLORASSIST® Throat Health**,
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Highly Absorbable **CURCUMIN**

Used medicinally for over 4,000 years, **curcumin** benefits almost every organ in the body.^{1,3} The challenge is that most curcumin supplements are poorly **absorbed** into the bloodstream and are not well retained in the body.

Life Extension offers two curcumin supplements that utilize a patented, bio-enhanced preparation that can reach up to **7 times** higher concentrations in the blood than standard curcumin.⁴

Studies comparing standard curcumin to **Super Bio-Curcumin®** and **Advanced Bio-Curcumin® with Ginger & Turmerones** found:^{5,6}

- Nearly **2 times** the support for **immune health**,
- Nearly **twice** the support for **healthy inflammatory** response, and
- Approximately **double** the **free-radical fighting** support.

Life Extension® offers the choice of two super-absorbing curcumin formulas that require only once daily dosing:

Super Bio-Curcumin® provides optimal potency of highly absorbable curcumin.

OR

Advanced Bio-Curcumin® with Ginger & Turmerones

provides the following additional nutrients for those seeking more comprehensive support for prolonged functional inflammatory responses:

- ∞ **Ginger** to complement curcumin's health benefits,⁷
- ∞ **Turmerones** to increase the amount of curcumin inside cells, and
- ∞ **Phospholipids** to further enhance absorption.⁸

Super Bio-Curcumin®

Item #00407 • 60 vegetarian capsules

Retail Price	Super Sale Price
1 bottle	\$38
4 bottles	\$23.63 each

Non-GMO



Bio-Curcumin® and BCM-95® are registered trademarks of Dolcas-Biotech, LLC. U.S. Patent Nos. 7,883,728, 7,736,679 and 7,879,373.

References

1. *Br J Nutr.* 2010 Jun;103(11):1545-57.
2. *Nat Sci Biol Med.* Jan-Jun;4(1):3-7.
3. *Biofactors.* 2013 Jan-Feb;39(1):2-13.

Advanced Bio-Curcumin® with Ginger & Turmerones

Item #01924 • 30 softgels

Retail Price	Super Sale Price
1 bottle	\$30
4 bottles	\$18.23 each

Non-GMO



4. *Indian J Pharm Sci.* 2008 Jul-Aug; 70(4):445-9.

5. *Int J Pharmacol.* 2009;5(6):333-45.

6. *Food Nutr Res.* 2009;48(3):148-52.

7. *J Med Food.* 2012 Mar;15(3):242-52.

8. *Cancer Chemother Pharmacol.* 2007;60:171-7.

To order **Super Bio-Curcumin®** or **Advanced Bio-Curcumin® with Ginger & Turmerones**, call **1-800-544-4440** or visit www.LifeExtension.com





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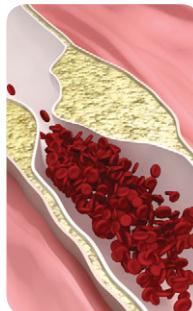
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LifeExtension® Magazine



36 BEAUTY FROM WITHIN

Bioavailable **keratin**, **collagen**, and other micronutrients have been shown in clinical studies to revitalize skin, hair, and nails from the inside out. The result is a reduction in the appearance of dry hair, brittle nails, and wrinkled skin.



46 SLOW THE DEVELOPMENT OF ATHEROSCLEROSIS

A natural approach has been shown to slow the **worsening** of **atherosclerotic** plaque (by **95%**), reduce **unstable** plaque, and improve **endothelial function** (by **66%**).



24 ENHANCE COQ10 PERFORMANCE

Shilajit plus CoQ10 synergistically boosts cellular **energy** while improving **mitochondrial function** for safeguarding one's health.



7 MOST SOUGHT-AFTER ANTI-AGING DRUG

For those unable to obtain the longevity drug deprenyl, compelling research shows that a novel **green oat extract** similarly preserves dopamine levels. In clinical trials, green oat extract improves cerebral circulation and cognitive function.



70 PROTECTION FROM ENVIRONMENTAL TOXINS

Find out how to protect yourself from **environmental toxins** that lead to DNA damage and cancer.



60 GUARD AGAINST AGE-RELATED VISION LOSS

New evidence corroborates that **lutein** and **zeaxanthin** strongly maintain the eye's macula, enabling aging adults to reduce the risk of *macular degeneration* by **40%**.