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March 2015

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Urinary Problems**

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Mild Cognitive
Impairment?**

**Anticancer
Properties Of
Saffron Spice**



Linda GRAY

Describes Healthy Aging

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REPORTS



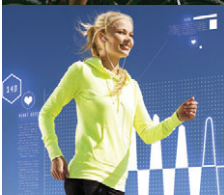
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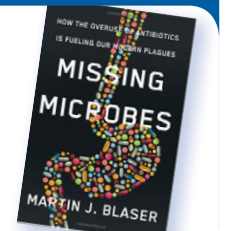


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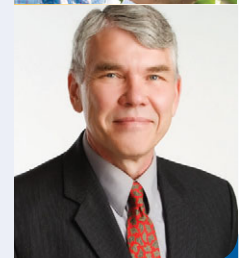
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Editorial offices: 954-766-8433 • fax: 954-491-5306

Customer Service: 800-678-8989

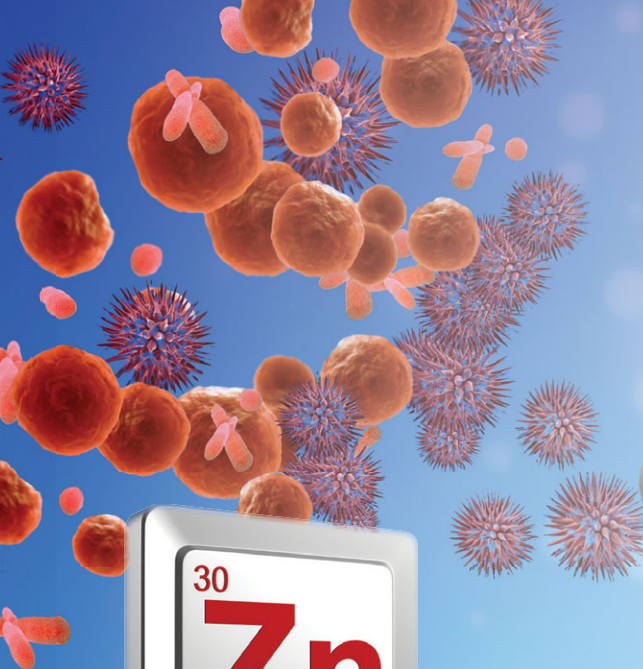
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LIFE EXTENSION (ISSN 1524-198X) Vol. 21, No.3 ©2015 is published monthly except bi-monthly in April by LE Publications, Inc. at 3600 West Commercial Blvd., Fort Lauderdale, FL 33309-3338. **LE Publications, Inc. All rights reserved.** Published 13 times a year. Subscription rate: \$40 per year in the United States. US \$47 in Canada. US \$60 in other countries. Subscription included as part of Life Extension Foundation membership. Mail subscriptions or address changes to: LE Publications, Inc., P.O. Box 407198, Fort Lauderdale, FL 33340-7198, USA. Or phone us toll-free at: 1-800-841-5433. Canada Subscriptions: Publications mail agreement number 40028967. Return undeliverable Canadian addresses to PO Box 503, RPO West Beaver Creek, Richmond Hill, ON L4B4R6. You will be sent your first issue within six weeks after LE Publications, Inc. receives your subscription fee. Periodicals Postage paid at Fort Lauderdale, FL and at additional mailing offices. **POSTMASTER:** Send address changes to Life Extension, P.O. Box 407198, Ft. Lauderdale, Florida 33340-7198, USA. Printed in USA. The articles in this magazine are intended for informational purposes only. They are not intended to replace the attention or advice of a physician or other health-care professional. Anyone who wishes to embark on any dietary, drug, exercise, or other lifestyle change intended to prevent or treat a specific disease or condition should first consult with and seek clearance from a qualified health-care professional. **LEGAL NOTICE:** Health claims contained in articles and advertisements in this publication have not been approved by the FDA with the exception of FDA approved qualified health claims for calcium, antioxidant vitamins, folic acid and EPA and DHA omega-3 fatty acids, and selenium as noted where applicable. Life Extension[®] does not endorse any of the businesses or the products and/or services that may appear in advertisements for non-Life Extension branded products or services contained in Life Extension magazine[®] except to state that they are advertisers who may have paid Life Extension for placement of an advertisement in this publication. Life Extension disclaims any and all responsibilities or warranties as to the accuracy of information contained in advertisements for non-Life Extension branded products or services. For Canadian customers send change of address information and blocks of undeliverable copies to P.O. Box 1051, Fort Erie, ON L2A 6C7.



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IMMUNE SUPPORT FOR SEASONAL CHANGES

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Magazine

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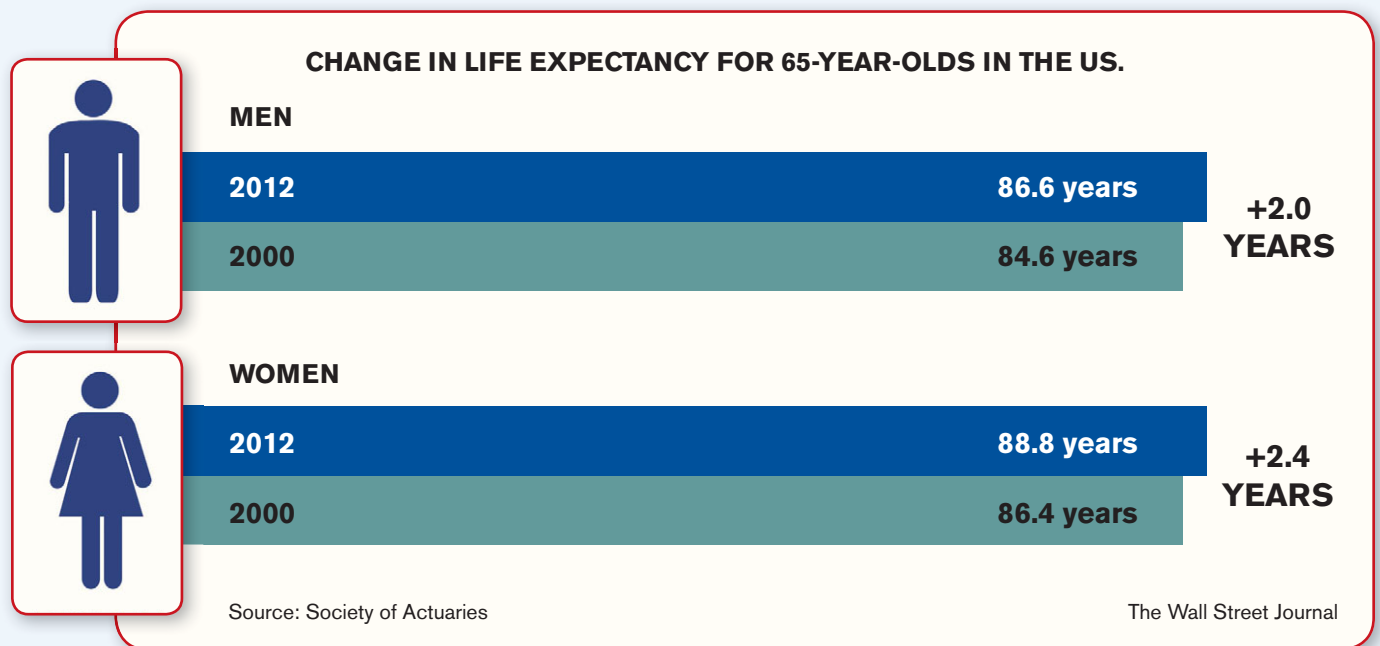


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Startling Increase In Life Expectancy

The year **2000** doesn't seem so long ago. Yet without a single major medical advance occurring between **2000** and **2012**, life expectancy for Americans who've already reached age 65 leaped **two years** for men and **even more** for women!

This data on the chart below came from the prestigious **Society of Actuaries** and was calculated for the purpose of determining life insurance premiums and pension payout projections.



We at **Life Extension®** define a medical breakthrough along the lines of the drug Sovaldi®, launched in **2014**, which cures **90%** of **hepatitis C** patients. Just imagine when new therapies come on board that cure anywhere near this high percentage of more common and fatal diseases like **cancer**.

The real breakthrough in human longevity will occur when we gain control over the **aging** process itself. That's where **Life Extension** has been focusing research dollars in an effort to accelerate the efforts of avant-garde scientists seeking to slow and reverse degenerative aging processes.

You support this pioneering research every time you purchase supplements from the **Life Extension Buyers Club**.

Best Drug To Treat Hypertension



BY WILLIAM FALOON

As I was finishing this article, two people I personally know suffered **strokes** that were most likely caused by their **high blood pressure**. One of them is paralyzed on one side and will likely be confined to a nursing home for their remaining years. Both knew they had **hypertension**, but like so many individuals today, they dealt with this deadly disorder as if it were a trivial matter. No medical authority discounts the dangers posed by hypertension. Yet a stupendous number of aging people are failing to maintain their blood pressure in **optimal** ranges.

In the United States, **1** out of every **3** adults has high blood pressure.¹

Only **45%** have it controlled. To make matters worse, this **45%** statistic is based on higher-than-optimal blood pressure ranges, meaning most adults today endure chronic hypertensive damage to their tissues.²

Conventional doctors diagnose **hypertension** when a patient's readings exceed **140/90**. The scientific literature, however, indicates that the ideal range should be around **115/75**.³ When blood pressure exceeds **115/75**, there is an increased risk of heart attack and stroke, which are the leading causes of disability and death in modern societies.⁴

The market for antihypertensive drugs is huge. Virtually every pharmaceutical company at one time or another has aggressively promoted their patented product to physicians. Once a doctor gets into the routine of prescribing an antihypertensive drug, they often continue prescribing the same drug even when newer and better ones are approved.

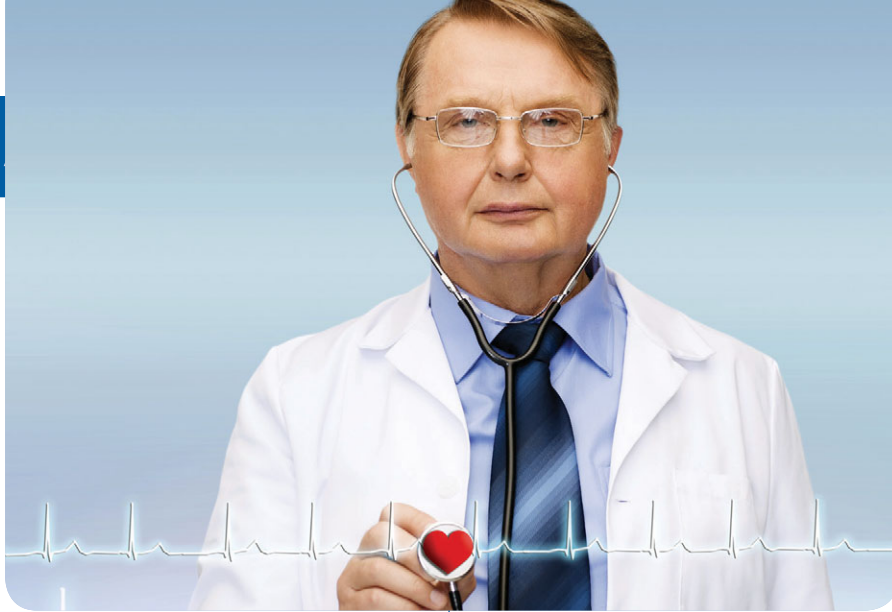
Insurance companies are increasingly refusing to pay for newer and better drugs because **generics** cost less.

For those with blood pressure readings significantly over **115/75**, I have some great news. In **2014**, the **FDA** approved a **generic** version of an antihypertensive drug that lowers blood pressure more consistently than other classes of medications and has ancillary **longevity** benefits.

The side benefits of this drug include improved **insulin sensitivity**, enhanced **mitochondrial** activity, and better **endothelial** function.⁵⁻¹² Preclinical research indicates that it may also help control **body weight**.^{6,13,14}

This article reviews conventional protocols that are failing to maintain **optimal** blood pressure levels throughout the day. The reader will then be enlightened to what we believe is the best drug for most people with elevated blood pressure that cannot be controlled with lifestyle changes.





Medicine often progresses at a dreadfully slow pace.

The first direct measurement of arterial pressure occurred in **1733** in a horse.¹⁵ It took almost **100 years** before a primitive device was developed to measure blood pressure non-invasively in humans.

Around **1900**, some physicians started testing their patients' blood pressure. Skeptics criticized that reliance on a mechanical device would *"weaken clinical acuity."*¹⁶

The impetus for widespread blood pressure testing did not emanate in the medical community. It was **life insurance** companies who spearheaded it because early mortality was so clearly evident in those with higher blood pressure readings. Credit the **Northwestern Mutual Life Insurance Company** for stating in **1911** that blood pressure testing devices are *"indispensable in life-insurance examinations."*¹⁷

Conventional doctors were not persuaded by insurance company actuaries. In **1931**, an article published in the *British Medical Journal* stated that, *"The greatest danger to a man with high blood pressure lies in its discovery because then some fool is certain to try and reduce it."*¹⁵

This misguided thought process persisted for decades, despite a growing body of published studies linking hypertension with sharply higher rates of stroke, heart disease, and kidney failure.^{15,18-27}

I relate this brief history to demonstrate how far behind medical authorities have been in recognizing this leading killer. The problem is that most conventional doctors still are not *optimally* diagnosing and treating hypertension.

Overworked Doctors And Under-Motivated Patients

I am more sympathetic to practicing physicians than ever before. The volume of published medical studies has exponentially increased, record numbers of different antihypertensive drugs are available, and doctors face humongous patient loads.

So a typical person today will be diagnosed as having hypertension when readings exceed **140/90**. They will usually be prescribed a drug that the physician has long used. Another appointment will be made to see if the drug is working. This is all wrong!

For example, a **2002** meta-analysis of 61 prospective studies showed that blood pressure readings over **115/75** increase mortality from stroke and heart attack.⁴ This means a huge number of people today are being told their blood pressure is "normal," when it may be dangerously high, i.e. over 115/75.

No one should think "normal" connotes safety. There's nothing "normal" when an aging person suffers a stroke, heart attack, or

kidney failure. You don't want to be "normal" when it comes to the diseases of aging...you must seek "optimization."

Secondly, most drugs don't keep blood pressure low over a 24-hour time period.²⁸ One might wrongly assume that lowering blood pressure most of the day is sufficient. The reality is that damage to blood vessels occurs whenever blood pressure is elevated.

By relying solely on doctor's visits to measure blood pressure, patients taking their antihypertensive drug in the morning may show perfect readings at the doctor's office that day, but their blood pressure could spike dangerously high in the evening and throughout the night. Anyone with a hint of hypertension should have an **at-home monitoring device** to ensure that whatever drug they are prescribed is working **24 hours a day** and that their blood pressure readings do not significantly exceed **115/75**.

I am often surprised when someone is prescribed an old-line antihypertensive drug (like a calcium channel blocker or beta blocker) when more effective medications with fewer side effects were long ago approved.



The good news is that a motivated patient today can work with their physician to achieve **optimal** blood pressure readings **24 hours** a day, every day.

Low-Cost Antihypertensive Drug With Side Benefits

In 1995,³⁰ the first drug in the class of **angiotensin II receptor blockers** was approved.^{31,32} Two trade names for this class of drug are **Cozaar**® (losartan) and **Hyzaar**® (losartan plus a diuretic). This class of drug had many advantages over previously used drugs for hypertension, yet it never gained the widespread acceptance it deserved. One reason was an overwhelming amount of medical journal advertising for older-line antihypertensive drugs, and the aversion doctors have to “changing” their prescribing habits.

In 2002,³³ the drug **Benicar**® was approved, and an advantage was that it required only once-a-day dosing.³⁴ Losartan often failed to control blood pressure all day, but this information was not widely known. I recommended to members that they check their blood pressure 12 to 15 hours after taking losartan and many reported back that they needed to take it twice daily (and thanked me for possibly saving their lives).

Benicar® has recently and uncommonly been associated in some sensitive patients with chronic diarrhea, weight loss, and other digestive problems caused by shrinkage of the villi in their small intestine.³⁵ It is the only blood pressure drug in this class linked to this condition. Fortunately, there is a superior antihypertensive drug called **telmisartan**, in the same drug class as **Benicar**®. A number of studies suggest that **telmisartan** provides multiple disease-preventing effects.



Is Lower Always Better In Terms Of Blood Pressure?

The concept that “lower is always better” can be a recipe for disaster in terms of blood pressure reduction, in particular for elderly, frail patients.

Often told is the story of the young intern fresh from medical school graduation starting ward duties. The intern aggressively treats his older patients to achieve rapid blood pressure reduction, yet is dismayed when their kidney function and cognitive abilities deteriorate rapidly.

Wiser, experienced physicians know that older patients with significant pre-existing vascular disease and other medical problems often require higher blood pressure than optimal levels to perfuse critical organs like the kidneys and brain. These patients require a higher *perfusion pressure* to allow blood to reach critical organs and tissues throughout the body.²⁹

Some patients simply do not tolerate aggressive blood pressure reduction to a predefined value, and careful monitoring of kidney function with simple, cost-effective blood tests for BUN (blood urea nitrogen), creatinine, and electrolytes like potassium and sodium, as well as assessment of cognitive function, allows for appropriate titration of antihypertensive medication to a tolerated blood pressure best for these types of patients.

For those with systemic circulatory problems, blood pressure readings over **115/75** may be needed despite the increased damage this may inflict over the longer term. This adds to the critical importance of protecting one’s inner arterial lining (**endothelium**) throughout life.

Telmisartan (trade name **Micardis®**) was first approved in 1998.³⁶ In 2009, following the results of the ONTARGET trial, it was the first drug in its class that the FDA allowed a claim that it *“reduces the risk of heart attack, stroke, or death from cardiovascular disease in patients at high cardiovascular risk who are unable to take ACE inhibitors.”*³⁷

What should pleasantly surprise members taking antihypertensive drugs now is that **telmisartan** has displayed longevity benefits above and beyond its ability to control blood pressure 24 hours a day—and it recently became available in **generic** form, making it more eligible for **health insurance** coverage.^{38,39}

Insurance coverage is important for most people because even **generic telmisartan** can cost about **\$145 per month**.

Longevity Benefits Of Telmisartan

Typical prescription drugs have unpleasant or lethal side effects that cause health-conscious people to want to avoid them wherever possible. There are exceptions, such as the antidiabetic drug **metformin**, which for most people provides far more benefits than risks.

A little known side benefit to the class of antihypertensive drugs known as **angiotensin II receptor blockers** is that they enhance insulin sensitivity, increase utilization of fat as energy, and improve mitochondrial function.^{5,7,13,38,39,100} Of all the drugs in this class, **telmisartan** stands out as superior for potential longevity enhancement.¹⁰¹⁻¹⁰³

As humans age, **mitochondrial dysfunction** becomes a deadly factor in the development of obesity, insulin resistance, endothelial breakdown, and type II diabetes.¹⁰⁴⁻¹⁰⁹ Telmisartan helps correct these underlying mechanisms of aging and death (as do many of the nutrients Life Extension® members already take).

Telmisartan activates a regulator of cellular energy called **PPAR-gamma coactivator 1 alpha** (PGC-1α), which stimulates the burning of excess calories.^{110,111} This can be a crucial factor in weight management.

Studies indicate that **telmisartan** directly stimulates **PPAR-gamma** (peroxisome proliferator-activated receptor gamma), a key inducer of beneficial metabolic effects.¹¹²⁻¹¹⁴

Who Should Keep Blood Pressure Levels Higher?

Elevated blood pressure at young ages inflicts damage to capillaries⁴⁰ and small arteries⁴¹ that may result in stroke (ischemic and hemorrhagic), coronary artery disease, renal failure, and dementia later in life.⁴²⁻⁵³

In the **March 2014** issue of this publication, we featured an article on a small artery disease (leukoaraiosis) in which tiny areas of the brain become oxygen deprived.⁵⁴ The pathological result of this cerebral blood flow deficit is **sharply** higher risks of dementia,⁵⁵ stroke, and cognitive impairment.⁵⁶⁻⁶⁸

Hypertension is a leading risk factor for leukoaraiosis,^{56,57,69} as is elevated homocysteine,⁷⁰⁻⁷⁴ endothelial dysfunction,⁷⁵⁻⁷⁷ inflammation,⁷⁸ abnormal platelet aggregation,⁷⁹ and other common vascular toxins.⁸⁰⁻⁸⁷

The problem with some elderly individuals who have had chronic high blood pressure is that they need to maintain a higher-than-optimal blood pressure to literally squeeze oxygenated blood through damaged capillaries in their brain and other organs. Until their endothelial damage can be **reversed**, these individuals need to maintain higher-than-optimal blood pressure readings to adequately perfuse certain organs.

This is regrettable since the short-term fix for diminished capillary blood flow, i.e. *higher blood pressure levels*, causes even more capillary and small artery damage. Validated ways to markedly **reverse** endothelial dysfunction are urgently needed.

Pomegranate is one of the better documented nutrients one can take today to help restore **endothelial function**.⁸⁸⁻⁹²





PPAR-gamma activating properties have also been reported for other **angiotensin II receptor blocker** drugs, but **telmisartan** is **at least 10 times more powerful**.¹¹²

Telmisartan has been shown in preclinical models to reduce weight gain, increase total energy expenditure, and increase expression of key mitochondrial enzymes in skeletal muscle *better* than a more popular drug in this class (Diovan®).^{7,13,39,115-117}

Atherosclerosis remains a leading killer of Americans.¹¹⁸ Telmisartan functions by multiple mechanisms to protect against arterial occlusion,¹¹⁹⁻¹²¹ including increasing beneficial endothelial **nitric oxide**.^{39,122,123}

Lastly, **telmisartan** appears to promote biochemical, biological, and metabolic effects that some researchers have suggested could **boost athletic performance**.¹¹²

How To Take Telmisartan

Those with elevated blood pressure (levels exceeding **115/75** based on our findings) can be prescribed telmisartan in one-a-day doses of **20 mg, 40 mg, or 80 mg**.

Even in generic form, the cost is currently around \$145 for a 30-day supply of *any* dose. Drug companies for years have charged the same price for **“any dose”** of their drugs, which reveals that the active ingredient costs virtually nothing.

As more generic competitors emerge, prices may come down, but as we’ve exposed in past issues of this magazine, many generic prices remain stubbornly high.

Consumers of higher-priced branded antihypertensive drugs may save considerable dollars by switching to **telmisartan**, and derive potentially lifesaving side benefits. Some insurers virtually give away generic drugs, but charge patients a fortune for name brand versions.

A Lung Cancer Controversy For Telmisartan... Or A Statistical Fluke?

A highly controversial 2010 meta-analysis suggested that patients taking **angiotensin-receptor blockers** (ARBs) for hypertension, including telmisartan, experienced an increased risk for lung cancer, but no link to breast or prostate cancer.⁹³

This finding is quite strange, and inconsistent with other research, since telmisartan has been shown to exert antitumor effects in human lung cancer (adenocarcinoma) cells.⁹⁴

In 2010, the manufacturer of telmisartan (Boehringer Ingelheim) conducted a rigorous assessment involving 50,000 patients treated with telmisartan, which including data from the ONTARGET, PROFESS, and TRANSCEND studies. The results showed no increased risk of cancer in the telmisartan treatment groups. *“In preclinical trials, clinical trials, and day-to-day patient exposure with telmisartan, we have not seen any significant finding related to malignancies,”* said Senior Vice President of Medicine, Dr. Klaus Dugi at Boehringer Ingelheim, in a company statement.⁹⁵

Subsequent peer-reviewed publications have failed to show a cancer increase in patients using telmisartan.

For example, a subsequent 2011 analysis using data from 31 trials and 156,000 patients compared patients randomized to an ARB or “non-ARB treatment.” Overall incidence of cancer events in the ARB group were 1.82 per 100 patient-years, compared with 1.84 per 100 patient-years in the non-ARB group. This meta-analysis found no evidence of an increased risk of cancer-related death, breast cancer, lung cancer, or prostate cancer in patients receiving ARBs, and no difference between the two groups was found regardless of statistical method or comparator group (placebo or another drug).⁹⁶

As another example, in 2013, published research from the US Department of Veterans Affairs of over 1,000,000 veterans did not show any evidence of risk for either lung cancer or prostate cancer.^{97,98} In fact, using a double-robust statistical regression, the researchers found a **26% reduced risk** of lung cancer with ARB use. These researchers indicated: *“In this large nationwide cohort of US Veterans, we found no evidence to support any concern of increased risk of lung cancer among new users of ARBs compared with non-users. Our findings were consistent with a protective effect of ARBs.”*

At the present time, the weight of the evidence does not suggest ARBs, or telmisartan in particular, increase lung cancer risk.⁹⁹

Our Mission Is To Keep Our Members Alive!

We offer a number of **dietary supplements** that have been shown to lower blood pressure. If these supplements fail to keep blood readings consistently around **115/75**, and other lifestyle modifications like **weight loss** are unsuccessful, we suggest that you ask your doctor to consider prescribing **telmisartan**.

We have no financial interest in **telmisartan** or other prescription drugs we have recommended for their ancillary disease-preventing benefits (such as **metformin**). Our interests lie purely in keeping our members alive and healthy for as long as possible.

If one needs to take an antihypertensive drug, it makes sense to take one that provides the best longevity side benefits, which **telmisartan** appears to do.

I am grateful to report that the cost of quality **at-home blood pressure monitors** keeps dropping. A new model has features that enable precise data about one's blood pressure fluctuations to be stored and calculated over an extended time. You can read about this new at-home monitor on the next page.

For longer life,



William Faloon

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The Most Advanced Blood Pressure Monitor at the Best Price!

TAKE CONTROL OF YOUR BLOOD PRESSURE

Blood pressure can fluctuate widely over a 24-hour period. Tissue damage occurs whenever arterial pressure is elevated.

People who maintain lower blood pressure only part of the day are not securing adequate protection against **hypertensive** disorders.

That's why Life Extension® recommends every home should be equipped with a blood pressure monitor in order to maintain optimal all-day blood pressure readings.

IMPROVE BLOOD PRESSURE CONTROL

Testing your own blood pressure puts you in control of lifestyle decisions and nutrient interventions, enabling you to achieve optimal blood pressure—with or without medication.

Accurate home testing several times a day allows you to keep your doctor informed in case you need a different dose or need to take your medication more often.

THE BEST BLOOD PRESSURE MONITOR ON THE MARKET

Life Extension has identified the very best, fully automatic home monitor: the **Medline Elite Automatic Digital Blood Pressure Monitor** that incorporates the latest technology for accurate measurements combined with state-of-the-art features. We are offering this monitor to members at a substantial discount compared to pharmacies, in order for you to maintain optimal blood pressure control.

SOME OF THESE FEATURES INCLUDE:

- Easy-to-use, one-push button design
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- Large, easy-to-read, digital readout
- Large adult cuff to fit most arms
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The **Medline Elite Automatic Digital Blood Pressure Monitor** retails for \$50. Life Extension members pay **\$37.50**.



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Protection!**

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

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

The Next-Generation Pomegranate Formula

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

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

These little-known nutrients include: **punicanolic acid** that provides cellular support to help with inflammation,⁵ and **pomegranate**, to combat age-related metabolic changes.⁶

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

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



One softgel of Full-Spectrum Pomegranate™ contains:

POMELLA® Pomegranate	400 mg
Extract (fruit) providing 120 mg punicalagins	
Proprietary Pomegranate	137.5 mg
Blend [flower extract and seed oil providing 30 mg punic acid]	

Full-Spectrum Pomegranate™

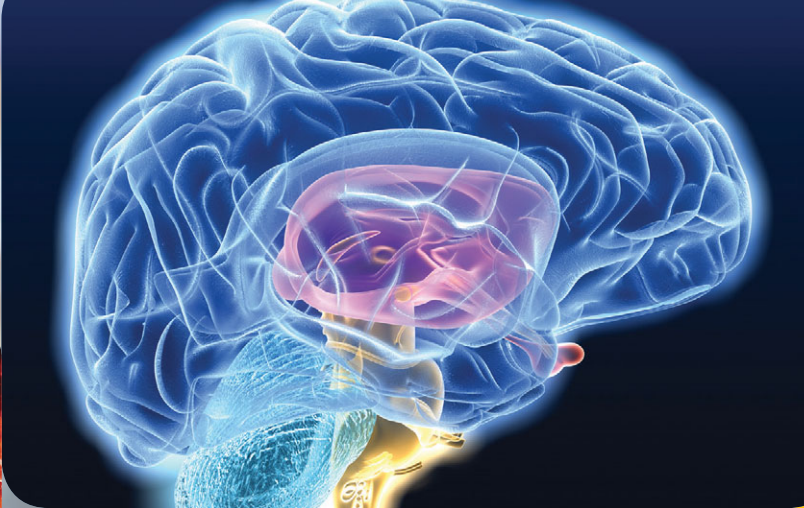
A bottle containing 30 softgels of **Full-Spectrum Pomegranate™** retails for \$24. If a member buys four bottles, the price is reduced to **\$15.75** per bottle.
Contains soybeans.

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IN THE NEWS

New Study Finds Calorie Restriction Slows Aging

Yet another study confirms what Life Extension® has long asserted—**calorie restriction** can help slow down the aging process and prevent chronic disease.

The current study, performed by scientists at the NYU Langone Medical Center, has found that cutting calories—especially carbohydrates—by **30%** could beneficially halt the activity of nearly **900**

different genes related to aging and memory formation in the brain.*

Lead researcher Stephen D. Ginsberg, PhD, and colleagues fed food pellets containing fewer calories to female mice than those fed to other mice. They then analyzed tissue from the hippocampal region of the brain, an area that is affected earliest in Alzheimer's disease.

"Our study shows how calorie restriction practically arrests gene expression levels

involved in the aging phenotype; how some genes determine the behavior of mice, people, and other mammals as they get old," said Dr. Ginsberg.

Editor's Note: While Ginsberg cautions that the study doesn't call calorie restriction a "fountain of youth," he does remark that it "adds evidence for the role of diet in delaying the effects of aging and age-related disease."

* Presented at the Society for Neuroscience annual meeting in Washington, D.C., Nov. 17, 2014.



Colchicine Treats Acute Pericarditis

According to a randomized trial published in the *New England Journal of Medicine*, patients with recurring **pericarditis** (swelling of the pericardium, the thin membrane surrounding the heart) who are treated with colchicine, a common gout medication, in combination with conventional anti-inflammatory therapy, experienced a significantly reduced rate of incessant or recurrent pericarditis.*

In the study, half the patients were randomly assigned to receive three months of traditional anti-inflammatory therapy plus either colchicine (**0.5 mg** once or twice daily depending upon weight) or placebo. Most study participants were also given aspirin, while a small percentage received ibuprofen.

Massimo Imazio, MD, of Maria Vittoria Hospital in Turin, Italy, and colleagues followed the patients for an average of 22 months. They found that **16.7%** of patients given colchicine were diagnosed with incessant or recurrent pericarditis, while **37.5%** of patients in the control group were diagnosed. This study showed that this old line gout drug (colchicine) can cut the incessant or recurrence rate of pericarditis by around **50%**.

Editor's Note: The study confirms current European guidelines, which give a class IIa indication for the use of colchicine in acute pericarditis.

* *N Engl J Medicine*. 2013, Sep 1.



Scientists Replicate Human Brain Cells In Petri Dish

Researchers have successfully grown neurons in a lab that duplicate the course of Alzheimer's disease. This will enable the rapid testing of many new drugs that could lead to an Alzheimer's cure. The current mouse model of Alzheimer's has several limitations that impede research initiatives.

In the journal *Nature*, lead researcher Rudolph Tanzi of Massachusetts General Hospital in Boston said the key to success happened after colleague Doo Yeon Kim suggested growing human brain cells in a gel, which allowed them to form networks similar to an actual brain.* Within weeks, cells developed hard clumps known as plaques and coils known as tangles—both features of Alzheimer's that disrupt normal brain activity.

This new technique, say researchers, makes testing Alzheimer's drugs faster, cheaper, and more relevant and can be used to test drugs within a few months, rather than the year it takes to test on mice.

Editor's Note: Dr. Tanzi is beginning an ambitious project to test 1,200 drugs on the market and 5,000 experimental ones that have finished the first phase of clinical testing—a project that is impossible with mice, for which each drug test takes a year. With their petri dish system, Dr. Tanzi said, “we can test hundreds of thousands of drugs in a matter of months.”

* *Nature*. 2014, Oct 12.



Multinutrient Plus Calcium Associated With Lower Colon Cancer Risk

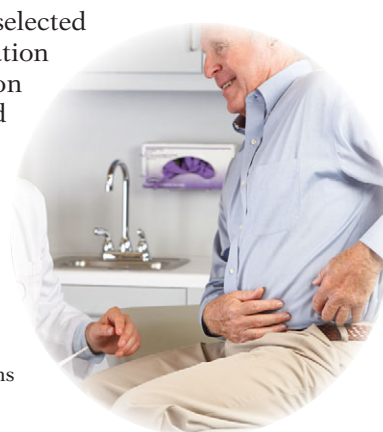
The results of a meta-analysis published online on October 21, 2014, in the *International Journal of Cancer* add to the evidence that dietary supplementation provides protection against the risk of colorectal cancer.*

“To the best of our knowledge, no systematic review and meta-analyses of prospective cohort studies have been conducted that focus on colorectal cancer risk and use of dietary supplements specifically,” write authors Renate C. Heine-Bröring and colleagues in their introduction to the article.

Dr. Heine-Bröring and associates selected 24 studies that examined the association between supplement use and colon cancer for their analysis. Compared to no use, the use of multivitamin supplements was associated with a **7% lower risk** of colorectal cancer. For users of calcium supplements, a **14% lower risk** of the disease was uncovered.

Editor's Note: The authors recommend further substantiation of the findings by randomized controlled trials involving large populations and long follow-up periods.

* *Int J Cancer*. 2014 Oct 21.



CoQ10 Can Reduce Symptoms Of Gulf War Illness

Veterans who fought to free Kuwait from an Iraqi invasion in 1990 to 1991 may find relief from their symptoms following supplementation with CoQ10, according to a study published in *Neural Computation*.* The chronic health problems dubbed Gulf War Illness include fatigue, headaches, muscle pain and weakness, skin issues, and decreased cognitive function.

Researchers at the University of California, San Diego School of Medicine, recruited 46 Gulf War veterans for a randomized, double-blind, placebo-controlled study. For 3.5 months, the participants received either **100 mg CoQ10** or placebo daily. General health and illness-related symptoms were rated before and after treatment.

Among participants who received **100 mg CoQ10**, **80%** experienced improvement in physical function that was associated with increasing blood levels of the coenzyme. Headache, fatigue with exertion, irritability, memory, and muscle pain also improved among those who received CoQ10. The researchers plan to test a “mitochondrial cocktail” containing CoQ10 and other nutrients in a future study.

Editor's Note: “Gulf War Illness is not the same as post-traumatic stress disorder or traumatic brain injury, signature illnesses of later deployments, which are caused by psychological and mechanical injury, respectively,” said study leader Dr. Beatrice Golomb. “Evidence instead links Gulf War Illness to chemical exposures, such as pesticides or pills given to soldiers to protect them from possible nerve agents. These chemicals can damage mitochondria, which generate the energy our cells need to do their jobs. When these powerhouses of the cells are disrupted, it can produce symptoms compatible with those seen in Gulf War Illness.”

* *Neural Comput*. 2014 Nov;26(11):2594-651.



Arthritis Drugs May Increase Stroke Risk Mortality

The journal *Neurology*^{*} published a study that found commonly prescribed arthritis medications may increase one's risk of dying from a stroke. The drugs evaluated by researchers were COX-2 inhibitors, which include celecoxib, rofecoxib, diclofenac, meloxicam, and etodolac, among others.*

Researchers at Aarhus University Hospital in Aarhus, Denmark, analyzed the medical records of over 100,000 people hospitalized for a first stroke between 2004 and 2012. The results showed that of those currently using a COX-2 inhibitor, **19%** were more likely to die after a stroke than those who didn't take the drug and new users of the medicines had a **42%** increase in risk mortality from stroke compared to non-users. Those taking a specific COX-2 called etodolac were **53%** more likely to die from stroke compared to non-users.

"While newer versions of COX-2 drugs have been pulled from shelves, older ones are still frequently prescribed," said study author Dr. Morten Schmidt. "Our study provides further evidence solidifying the risks of certain arthritic pain relievers and death from stroke."

Editor's Note: "We found 30-day mortality from stroke increased by around **20%** if patients were taking a COX-2 inhibitor before admission," said study co-author Christian Christiansen, PhD, of Aarhus University Hospital. "No such effect was seen with regular NSAIDs [nonsteroidal anti-inflammatory drugs]."

* *Neurology*.[®] 2014 Nov 5.

Soap Ingredient Linked To Liver Disease

A new study published in *Proceedings of the National Academy of Sciences* found that regular exposure to triclosan, an antimicrobial ingredient in antibacterial hand soaps, can cause liver cancer in laboratory mice.*

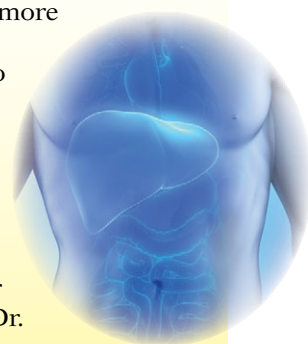
Researchers from the University of California, San Diego School of Medicine, say the chemical disrupted liver integrity and compromised liver function in mice models that were given a procarcinogen to promote liver cancer. Mice exposed to triclosan for six months (equivalent to approximately 18 human years) formed more tumors than the control group, and the tumors proved to be larger and more frequent than in mice not exposed to triclosan.

The researchers say triclosan may cause liver cells to multiply and turn fibrotic. In the long run, continued liver fibrosis encourages tumor formation.

"Triclosan's increasing detection in environmental samples and its increasingly broad use in consumer products may overcome its moderate benefit and present a very real risk of liver toxicity for people, as it does in mice, particularly when combined with other compounds with similar action," said study leader Dr. Robert Tukey.

Editor's Note: According to Dr. Colleen Rogers, a lead microbiologist at the Food and Drug Administration, washing with antibacterial soaps doesn't prevent illness any better than regular soaps. "New data suggest that the risks associated with long-term, daily use of antibacterial soaps may outweigh the benefits," she said.

* *Proc Natl Acad Sci*. 2014 Nov 16.



Supplementing With CoQ10 Reduces Statin-Related Muscle Pain

A double-blinded trial reported in *Medical Science Monitor* found a reduction in mild-to-moderate muscle pain related to the use of statin drugs.*

In the randomized study, 50 middle-aged statin users who reported muscle ache and pain for at least six months received **50 mg** CoQ10 or placebo twice daily for 30 days. Before and after treatment, researchers from the University of Ljubljana Medical Center in Slovenia provided questionnaires concerning pain severity and how often it interfered with daily activities. Blood samples were analyzed for lipid, liver enzyme, and muscle enzyme levels at the start of the study and 30 days afterward.

By the end of the study, muscle pain intensity had decreased by **33%** and pain interference by **40%** among those who received CoQ10. It remained unchanged in the placebo group. Seventy-five percent of the CoQ10 group experienced a decrease in statin-related muscle symptoms, with no change in lipids, liver enzymes, or muscle enzymes.

Editor's Note: Myalgia is the most common adverse effect associated with the use of statins, which renders those who are intolerant of the symptoms unable to avail themselves of the drugs' potential benefits.

* *Med Sci Monit*. 2014 Nov 6;20:2183-8.



Common Compound Found In Fruit May Promote Weight Loss

A compound similar to resveratrol can reduce fat accumulation and battle obesity, according to new research published in the *Journal of Agriculture and Food Chemistry*.*

The study, conducted by lead researcher Saioa Gomez-Zorita of the University of the Basque Country in Spain, tested the effects of pterostilbene—a phenolic compound found in a variety of foods and beverages, including blueberries and red wine—on six-week-old rats that were fed a high-fat, high-sucrose diet. One-third of the animals were given a low dose of pterostilbene (**15 mg/kg** body weight), while another third were given a high dose (**30 mg/kg** body weight), and the remaining rats served as controls.

After six weeks, the rats fed a low dose of pterostilbene reduced adipose tissue mass by an average of **15.1%**, while the high-dose animals lost **22%** adipose tissue mass.

Editor's Note: Tissue fatty acid synthase was reduced in both groups that received pterostilbene, and AMPK, an enzyme involved in cellular energy regulation, was increased in the group that received the higher dose. In the liver, pterostilbene was associated with an increase in enzymes associated with fatty acid oxidation.

* *J Agric Food Chem.* 2014 Aug 20;62(33):8371-8.



Selenium Reduces Chemo Side Effects In Pediatric Cancer Patients

The results of a crossover trial reported in the *Journal of Medicinal Food* revealed that supplementing with selenium can reduce chemotherapy side effects, including nausea and fatigue.*

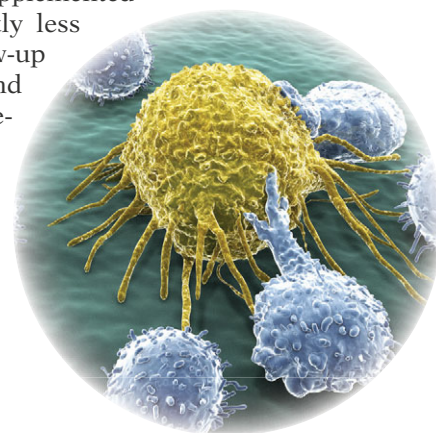
Researchers randomized 39 children and adolescents to receive a placebo or an age-appropriate daily dose of selenium, ranging from **27** to **100 micrograms** of selenium. Both groups underwent a washout phase at the end of the 30-day treatment period, followed by another 30 days in which the treatment protocol was reversed.

In addition, eight patients from each group were followed for one year during which they received the age-appropriate dose of selenium.

Patients with solid tumors who supplemented with selenium reported significantly less fatigue and nausea during the follow-up phase. Participants with leukemia and lymphoma experienced an improvement in physical function, which was evident after the first 30 days of supplementation as well as at the end of one year among those in the follow-up group.

Editor's Note: Kidney and liver function were also improved in the supplemented subjects in comparison with those who received a placebo.

* *J Med Food.* 2014 Nov 7.



Drinking Sugar-Sweetened Soda Makes Cells Age Faster

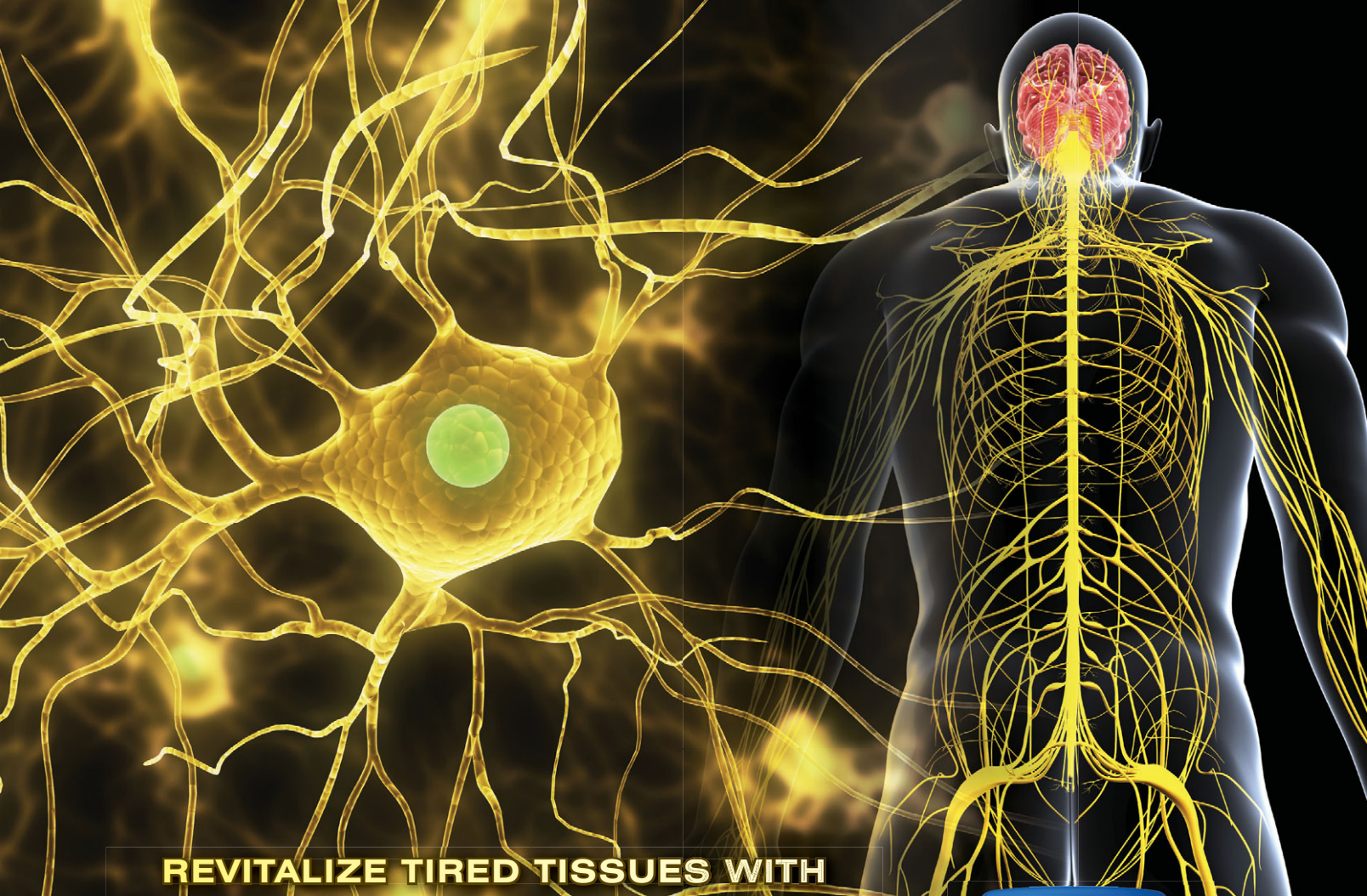
An article published in the *American Journal of Public Health* revealed an association between drinking sugar-sweetened sodas and shorter telomeres—the caps at the ends of chromosomes that naturally shorten with each cell cycle.*

The study included 5,309 participants between 20 and 65 years of age enrolled in the 1999-2002 National Health and Nutrition Examination Survey (NHANES). Twenty-four hour dietary questionnaire responses were analyzed for sugar-sweetened soda, diet soda, noncarbonated sugar-sweetened beverages, and fruit juice intake. White blood cell telomere length was measured in the University of California, San Francisco, laboratory of study co-author and Nobel Prize winner Elizabeth Blackburn, PhD.

After adjustment for several factors, increased sugar-sweetened soda intake was associated with a reduction in telomere length. No association was found between diet sodas or noncarbonated sugar-sweetened beverages and telomere length.

Editor's Note: Increased telomere shortening has been associated with oxidative damage, inflammation, and chronic diseases, including diabetes.

* *Am J Pub Health.* 2014 Oct 16.



REVITALIZE TIRED TISSUES WITH OPTIMIZED QUERCETIN

Scientists have discovered that **quercetin**, a compound found in onions, apples, and buckwheat, can revitalize tired tissues, including skeletal muscle, heart muscle, and brain tissue. In further studies, **quercetin** was shown to increase endurance and vital oxygen consumption.¹

To promote heart health, **quercetin** preserves endothelial integrity and supports blood glucose levels for those within normal range.²

Optimized Quercetin contains **250 mg** of quercetin plus **250 mg** of super food extracts that provide an array of added health benefits. A bottle of 60 vegetarian capsules of **Optimized Quercetin** retails for \$22. If a member buys four bottles, the price is reduced to **\$15** per bottle.



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To order **Optimized Quercetin**,
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RHODIOLA EXTRACT

Supports Cellular Energy Metabolism!

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

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

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

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

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

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

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



Item # 00889

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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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Anticancer Properties Of **SAFFRON**



As more positive data accumulates about the health benefits of the **Mediterranean diet**, researchers are uncovering new applications for the spice **saffron**, which is a Mediterranean diet constituent.

In multiple studies, scientists are finding that saffron has the unique ability to both *slow and reverse cancer growth!*¹

Saffron's cancer-preventive properties include inhibiting the promotion of tumors and preventing chemical modifications to DNA that can activate cancer genes or induce new cancer-causing mutations.²⁻⁴

Additionally, saffron has been shown to help reduce the harmful effects produced by chemotherapy drugs.

Chemo drugs can induce genetic damage that may lead to new cancers, making standard chemotherapy a double-edged sword and limiting its effectiveness.⁵ Research has found that the abundant carotenoids in saffron offer direct protection against chemotherapy-induced DNA damage.⁵

Along with its chemoprevention abilities, saffron contains a host of beneficial, biologically active compounds that have been shown to protect heart and blood vessel tissue,⁶ ease the impact of diabetes and other metabolic disorders,⁷ and slow or even reverse cognitive and mood disorders associated with aging.⁸

This spice with ancient origins is finding new use in the battle against the onslaughts of aging.

Saffron consists of the dried dark red or yellow “stigmas” of the crocus flower, *Crocus sativus*.⁹ In addition to its culinary uses, saffron has a long history as a potent component of traditional medical systems.^{2,5,10-13}

Like most plant derivatives, saffron contains a multitude of bioactive molecules, many of which have been shown to have specific benefits in the body. Chief among these molecules are *crocin*, *crocetin*, and *saffranal*, members of the carotenoid family of molecules that also includes forms of vitamin A.^{4,14}

These compounds have been shown to exert multiple favorable effects in laboratory studies, including improved oxygen diffusion (which enhances lung performance and brain oxygenation), improved treatment of atherosclerosis and arthritis, protection of liver tissue against damage by chemical toxins, and protection of bladder tissue against chemical damage.³

Let’s now take a closer look at how saffron and its constituents beneficially effect cancer, heart disease, metabolic disorders, and cognitive disorders.

Comprehensive Cancer Chemoprevention

Cancer is one of the world’s leading causes of death, killing about **8 million** people each year.^{2,10,14} While the bulk of mainstream medical research has been aimed at treating cancers once they appear,¹² wiser researchers search for natural molecules that might derail the development of cancer very early in its development.

This admirable goal is known as *chemoprevention*, as opposed to *chemotherapy*.

In this search, saffron has emerged as a contender for effective chemoprevention because it acts at **multiple stages** in the complex set of events that lead to a full-blown tumor.^{10,15,16} Let’s look at how saffron works as a chemopreventive agent one stage at a time:

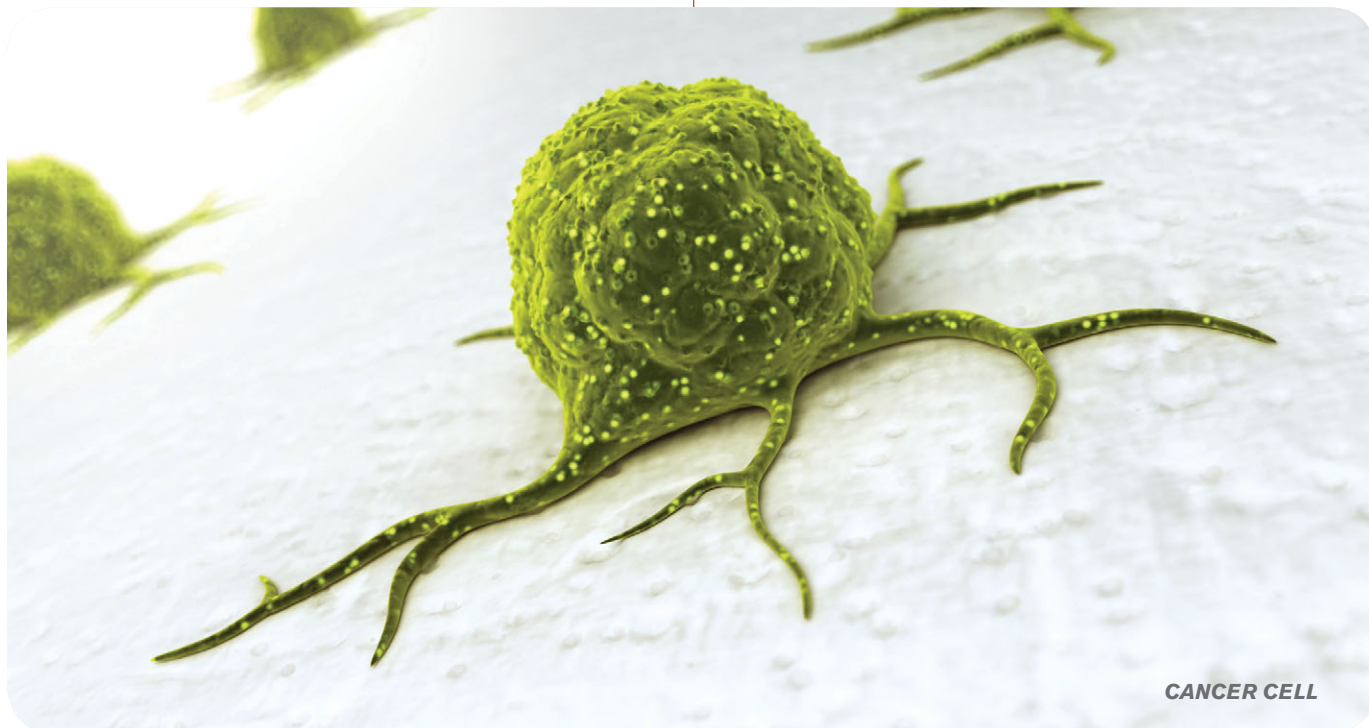
Prevents Carcinogenesis

Saffron and its constituents start working long before a cell undergoes transformation into a malignant cancer cell.

The first step in cancer development, or *carcinogenesis*, is some kind of trigger that initiates malignant transformation. This may be an environmental toxin, a stray oxygen radical, or invasion with certain viruses. Saffron components have been shown to help prevent carcinogenesis caused by each of these triggers.

In one study, the saffron derivatives *crocin* and *diglycosylcrocetin* were shown to inhibit tumor cell markers emerging on the surface of virally infected cells in laboratory experiments.¹⁷ In another study, when hamsters were orally treated with saffron prior to administration of a powerful chemical carcinogen, tumor formation was completely prevented, demonstrating its ability to prevent the initial stage of cancer.¹⁸

Saffron extracts and specific components have also been shown to potently prevent DNA damage caused by free radicals, radiation, and inflammation, thereby reducing the risk of new cancer formation.^{5,19}



CANCER CELL

Inhibits The Rapid Spread Of Cancer Cells

Once a cell has been triggered to become malignant, it then proliferates, or reproduces rapidly and without normal controls, to produce a developing tumor. Studies show that saffron is able to suppress—and in some cases reverse—the proliferation of certain human cancer cells in culture.

For example, one compelling study found that **colon cancer** cells that were treated with either saffron extract—or its major component, crocin—displayed sharp and significant reductions in proliferation, to as low as **2.8%** of the rate seen in untreated cells.⁴ A similar reduction in proliferation was demonstrated in non-small cell **lung cancer** and **breast cancer** cells in culture.^{4,9} It is important to note that in none of these studies did saffron or its constituents display damage to healthy, normal cells.^{4,9}

Crocetin, another major saffron constituent, has been found to inhibit proliferation of **pancreatic cells** in culture as well.²⁰ And in live animal studies, crocetin produced marked regression of pancreatic tumors that were induced when aggressive pancreatic cancer cells were directly injected into mice. Importantly, in this study, the crocetin was given orally, and only after the tumors were already detectable, demonstrating crocetin's potent ability not only to slow, but to *reverse cancer growth*.²⁰

Triggers Programmed Cell Death

Another important way in which developing cancer cells can be stopped in their tracks is through the mechanism known as **apoptosis**, or programmed cell death. All normal body cells contain a genetic program that induces the cell to die under specific conditions. This is a vital means of removing damaged cells and preventing overgrowth of normal tissues. Cancer cells, however, typically lose their responsiveness to the apoptosis signal, effectively becoming “immortal,” and hence, deadly.

Saffron has been shown to trigger apoptosis in a variety of cancer cell lines, which is seen as an essential component of any cancer-control or cancer-prevention method.^{11,19-21} In fact, all three major components of saffron—crocin, crocetin, and safranal—have shown powerful apoptosis-inducing properties.^{2,22,23}

Prevents Metastasis

If a cancer cell survives attempts to quash it by blocking proliferation or apoptosis, it may go on to produce specialized molecules that help it degrade the protein matrix between healthy cells, allowing it



What You Need To Know

Saffron: Systemic Protection For Your Body

- Saffron, the ancient spice from the Middle East and Asia, contains a host of beneficial, biologically active compounds.
- In particular, saffron and its extracts demonstrate anticancer effects, making saffron a promising cancer chemopreventive agent.
- In addition to preventing and mitigating cancer development and progression, saffron provides protection for heart and blood vessel tissue, eases the impact of diabetes and other metabolic disorders, and slows or reverses cognitive and mood disorders associated with aging.
- Saffron's multiple beneficial effects act at levels fundamental to the proper function of all body cells, making it a true “whole-body” supplement and validating its centuries-old use as a protector of human health.

to invade otherwise-healthy tissue.²⁴ This is how cancers spread locally, and it is also a major mechanism in **metastasis**, the spread of malignant cells throughout the body.²⁵⁻²⁷

The saffron constituent crocetin has now been shown to downregulate production of one such protein-degradation molecular type, known as **matrix metalloproteinase**.²⁴ This action has been shown to prevent breast cancer cells from penetrating and invading both local tissues and those in other parts of the body by metastasis.²⁴

Blocks Angiogenesis

Still another means by which growing tumors are able to thrive is through the induction of new blood vessel growth, a process known as **angiogenesis**. Considerable scientific effort has been devoted to developing drugs that can block angiogenesis, thereby starving a developing tumor of the nutrients and oxygen it needs to sustain growth.²⁸

Recent studies support the use of saffron extracts in reducing levels of a vital signaling molecule called **vascular endothelial growth factor** (VEGF), which markedly reduces new blood vessel formation in the tumor mass.²⁹

Studies Show Saffron Prevents The Deadliest Human Cancers

As you just read, extensive data has provided persuasive evidence that saffron can prevent, mitigate, and even reverse many of the changes that lead a healthy cell to turn cancerous. As a result, a growing body of literature now supports the use of saffron for the prevention of several of the most aggressive and deadly human cancers, including liver, lung, and stomach cancers.

Liver cancer is an increasing public health threat, partly the result of the growing number of toxins in our environment and partly the result of increasing prevalence of the hepatitis C virus, especially in people born in the Baby Boom generation.³⁰

In rats given a powerful chemical that produces liver cancer, a two-week *pretreatment* course of saffron significantly reduced the number and size of cancerous nodules developing in the animals' livers.¹⁵ Sub-microscopic study of the affected cells showed that saffron achieved this effect by sharply reducing the levels of oxidant and inflammatory signaling that contributes to malignant cell growth and also by inducing apoptosis, which helped to stop tumors from growing.¹⁵

Lung cancer is another major cancer that continues to be a leading cause of death, even as rates of

smoking decline. Saffron extracts have now been used to reduce the viability of lung cancer cells in culture, inducing cell death by apoptosis.³¹

In studies of **stomach cancer**, another rapidly increasing cancer worldwide, crocetin enhanced apoptosis and slowed tumor progression, while boosting blood levels of protective compounds that further suppress cancer development.³² In one study, a water extract of saffron produced similar effects in an animal model of stomach cancer.³³

To date, saffron, its extracts, and its individual components crocin, crocetin, and safranal have demonstrated compelling preventive effects against cancers of the lung, liver, colon, breast, pancreas, stomach, bone, and blood.^{9,32,34-39} Saffron has an impressive safety profile, with no evidence of toxic effects on healthy tissues or harmful effects on blood coagulation.^{5,40}

Saffron And Metabolic Disorders

Saffron has been shown to have powerful effects against diabetes and its side effects. High blood sugar levels are dangerous because they increase glycation, which results in the oxidation and inflammation that damages body tissues.⁴¹⁻⁴³ Saffron extracts help bring blood sugar levels under control by enhancing glucose uptake and improving insulin sensitivity in muscle tissue.⁴⁴ This is vital because muscle cells are the largest users of glucose in the body.





The benefits of this effect have been validated in numerous animal studies. When diabetic rats were fed saffron or its components safranal or crocin, they experienced significant reductions in fasting blood sugar levels.⁴⁵⁻⁴⁷ Some studies have demonstrated significant improvements in lipid profiles as well, with reductions in cholesterol and triglycerides.⁴⁸

As a result of saffron's effect on glucose-induced oxidant damage, saffron has shown great promise for preventing the debilitating effects associated with diabetes, including diabetic neuropathy, diabetic encephalopathy, and diabetic nephropathy.

Although the mechanism behind **diabetic neuropathy** (damage to nerve fibers) is unclear, it appears to involve sugar-induced oxidant damage to nerve cells.⁴⁹ A study of human brain cells in culture showed that saffron extract markedly decreases the sugar toxicity that causes the damage.⁴⁹

In extreme cases, diabetics may develop a brain condition called **diabetic encephalopathy**, which is thought to arise from the same causes as diabetic neuropathy. In an animal study, saffron supplementation (the human equivalent dose of **448 to 896 mg** per day) not only improved cellular antioxidant systems, but more importantly, decreased cognitive deficits associated with the condition.⁵⁰

Diabetics also develop substantial risk for kidney disease, or **diabetic nephropathy**, again in part a result of glucose-induced oxidant damage. One study demonstrated that when diabetic rats were pretreated with the saffron constituent crocin, they experienced improvement in kidney function.⁵¹

And, in a startling study, supplementation with the saffron constituent *safranal* reduced oxidative lung damage in diabetic rats, helping to reduce lung distress.⁵²

Metabolic Syndrome

Underlying the development of diabetes often is **metabolic syndrome**, which is a common result of Western dietary and lifestyle habits. Metabolic syndrome (the combination of obesity, high blood sugar, lipid abnormalities, and hypertension) is an important risk factor for cardiovascular diseases, and hence represents an important point for interventions to reduce cardiovascular death.⁵³

Numerous studies have demonstrated that saffron supplementation in humans with metabolic syndrome has many beneficial effects:

- It reduces levels of “heat shock proteins,” which are markers of cellular stress,⁵³
- It reduces snacking and increases the sense of fullness after a meal (satiety),⁵⁴
- It can prevent metabolic syndrome development in patients taking *olanzapine*, a common drug used in psychiatry.⁵⁵

Saffron And Cardiovascular Disease

Saffron, a major component of the Mediterranean diet, has been linked with some of the beneficial effects associated with the diet—including lower rates of cardiovascular disease.⁶ In fact, saffron offers **dual protection** for your heart: It helps to protect against cardiovascular disease and it helps reduce the damage that occurs if a heart attack does happen.

Scientists are now uncovering some of the major mechanisms by which saffron protects cardiovascular tissue. Cardiovascular disease results in part from multiple factors that lead to inflammation, oxidant damage, and loss of tissue and organ function. As you've read, saffron is able to potently reduce oxidant stress and inflammation. But its cardiovascular benefits don't stop there.

Recent studies have demonstrated saffron's potential for protecting against heart attacks and strokes by reducing blood pressure and improving blood lipid profiles.^{56,57} Crocin markedly decreases blood concentrations of triglycerides and total and low-density (“bad”) cholesterol, while raising levels of high-density (“good”) cholesterol.⁵⁷ In some animal studies, blood cholesterol was reduced by as much as **50%**.⁶ A recent study published in *Phytotherapy Research* demonstrated for the first time that crocetin could also significantly reduce mean blood pressure in hypertensive rats.⁵⁸

In a mechanism similar to the common calcium channel blocking drugs, saffron inhibits the inflow of calcium into smooth muscle cells in artery walls and

Saffron Protects Against The Dangers Of Chemotherapy

While saffron offers strong cancer-preventing properties and has been found to be a promising chemopreventive agent, an additional benefit is saffron's ability to help reduce the harm produced by modern chemotherapy drugs.

A major problem with existing chemotherapy medications is that they are often capable of inducing precisely the kind of genetic damage that can lead to new cancers, making standard chemotherapy a double-edged sword and limiting its effectiveness.⁵ Research has found that the abundant carotenoids in saffron may offer **direct protection** against chemotherapy-induced DNA damage.⁵

In one study, when mice were pretreated with saffron at doses equivalent to **224 to 896 mg** per day in humans, it significantly inhibited DNA

damage caused by the chemotherapy drugs *cisplatin*, *cyclophosphamide*, and *mitomycin-C*. This prevented the breaks in DNA strands that can lead to fresh, cancer-causing mutations.⁵

Laboratory studies have also shown that the saffron constituent *crocin* enhances the effects of common chemotherapy drugs such as *vincristine* and *cisplatin*.^{35,93}

And in an exciting new development, it now appears that saffron-derived constituents can substantially enhance the effectiveness of **protein-based vaccines**, which are being developed to treat specific kinds of cancers. Used in this way as “adjuvants,” saffron-derived saponin molecules increase both blood-based and cellular responses to anticancer vaccines.⁹⁴

in heart muscle tissue, a process known to constrict arteries and raise blood pressure.⁵⁹⁻⁶²

In addition, studies have shown that crocin can reduce both visible and molecular evidence of heart attack in laboratory rats by rebalancing the oxygen status of individual heart muscle cells.^{63,64} Remarkably similar effects have been demonstrated using both crocin and saffron itself to protect heart tissue from damaging low blood flow.^{65,66}

And in experimentally induced heart attacks, saffron supplementation in animals was shown to significantly reduce the size of the *infarction*, or area of dying tissue that occurs during a heart attack.⁶⁷

It is common for people to experience heart rhythm disturbances (*arrhythmias*) following a heart attack. Saffron extracts have been shown to reduce susceptibility to life-threatening arrhythmias by remodeling the structure of the heart's normal pacemaker (the atrioventricular node, or “AV node”).⁶⁸

Saffron And Strokes

Saffron has also been demonstrated to have beneficial effects in stroke victims. The most common form of stroke is an **ischemic stroke**, which can be thought of as a heart attack of the brain, because like a heart attack, it is also caused by a sharp reduction or interruption of blood flow.^{69,70}

When blood flow is restored to the brain, it unfortunately leads to something called “reperfusion injury,” which is tissue damage that occurs when the blood



supply returns to the area as a result of oxidative damage and inflammation. This is the main factor in brain damage following an ischemic stroke.

A study done on rat models of ischemic stroke demonstrated that crocin reduced the damaging effects of oxidant molecules produced when blood flow was restored, which can ultimately help to limit the negative effects of the stroke.⁷¹

In a compelling validation of the benefits of this effect, another study published in *Phytotherapy Research* demonstrated that both the herb itself and its constituent crocin improved spatial cognitive performance in rats following an experimental stroke.⁷²

Saffron And Your Brain

Because oxidation, inflammation, and glucose damage are harmful to brain health, scientists are turning to saffron as a potential neuroprotective agent against both neurodegenerative diseases and mood disorders such as depression, which affects upwards of one-fifth of the US population.⁷³⁻⁷⁶

Animal studies reveal antidepressant effects of saffron extracts on performance in behavioral models of depression,⁷⁷ and for symptoms of obsessive-compulsive disorder (OCD).⁸⁴

Human studies using low doses of saffron have produced even more impressive results as follows:

- Saffron (**30 mg** per day) significantly reduced depression scores on a standard rating scale when compared to placebo,^{73,78,79}
- Saffron (**30 mg** per day) was found to be similar in effectiveness to the standard antidepressant drugs *imipramine* and *fluoxetine* in the treatment of mild to moderate depression,^{80,81}
- Saffron (**30 mg** per day) reduced erectile dysfunction, a common side effect produced by treatment with the antidepressant drug *fluoxetine*,⁸²
- Saffron (**30 mg** per day) was more effective than placebo in relieving symptoms of premenstrual syndrome when used over two menstrual cycles.⁸³

Loss of cognitive function is one of the most common, most feared consequences of aging. Studies show that saffron has promise in preventing or ameliorating some of those effects. A 16-week trial of saffron (**30 mg** per day) showed that the supplement was superior to placebo in patients with early, probable Alzheimer's disease. The same dose, for 22 weeks, proved similar in effect to the prescription drugs *memantine* and *donepezil* in a comparable population.^{85,86}

In laboratory models of neurodegenerative diseases such as Alzheimer's, saffron and its extracts demonstrate protection against *excitotoxicity*, the overactivity of certain kinds of nerve cells that produces long-term degeneration of brain tissue.⁸⁷ And animal studies have shown that saffron supplementation can antagonize the cognitive effects of Alzheimer's disease induced by chemical treatments.^{88,89}

Summary

The ancient spice saffron has been used for millennia as a treatment and preventive agent against cancer, heart disease, metabolic conditions, and other conditions we now recognize as symptoms of aging.^{12,90-92}

Modern science is vindicating these uses, demonstrating that saffron and its constituent molecules protect a myriad of body tissues and organs against the fundamental processes that induce aging, such as oxidant damage, inflammation, toxic exposures, and high glucose.

In particular, saffron is showing promising *chemopreventive* properties against many different forms of cancer. Many of the same mechanisms that make it so potent against cancer also make it a powerful tool in reducing the impact of diabetes and the metabolic syndrome, of cardiovascular disease and stroke, and of depression and neurodegenerative disorders. ●

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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Olive Leaf

WITH CELERY SEED EXTRACT

Advanced Vascular Support Formula

Advanced Olive Leaf Vascular Support with Celery Seed Extract is a unique, *dual-action* formulation containing two *bioactive compounds* that support optimal cardiovascular health.

1. **Olive Leaf extract** contains **oleuropein**, a natural compound that supports healthy blood pressure already within the normal range.

Researchers using **1,000 mg** per day of **olive leaf extract** in a controlled clinical trial documented an average **11 mm Hg** decline in systolic readings and a **4.8 mm Hg** drop in diastolic readings within eight weeks!¹

2. **Celery seed extract** contains **3-n-butylphthalide (3nB)**, which supports a healthy inflammatory response that is critical to maintaining a healthy circulatory system.² **Celery seed** also helps minimize the flow of calcium into the muscle cells lining blood vessels, promoting healthy blood pressure already within the normal range.^{3,4}

In a controlled clinical trial, researchers using an equivalent amount of active compounds as found in this **celery seed extract** documented an average **8.2 mm Hg** decline in systolic readings and **8.5 mm Hg** drop in diastolic readings—in just six weeks!⁵

While **olive leaf** and **celery seed extracts** show impressive support individually, **Advanced Olive Leaf Vascular Support with Celery Seed Extract** combines two bioactive compounds to provide **dual-action** vascular support.



The suggested daily dose of **two vegetarian capsules** of **Advanced Olive Leaf Vascular Support with Celery Seed Extract** provides:

Benolea® Olive extract (leaf)	1,000 mg
[standardized to 16% oleuropein (160 mg)]	
Celery3nB™ Celery seed extract	300 mg
[standardized to 42.5% phthalides (butylphthalide and sedanolide (127.5 mg)]	

A bottle of 60 vegetarian capsules of **Advanced Olive Leaf Vascular Support with Celery Seed Extract** retails for \$36. If a member buys four bottles, the price is reduced to **\$24** per bottle.

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Benolea® is a registered trademark of Frutarom Netherlands B.V.
Celery3nB™ is a trademark of Anderson Global Group, LLC.

To order **Advanced Olive Leaf Vascular Support with Celery Seed Extract**, call 1-800-544-4440 or visit www.LifeExtension.com

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



TAKE A BITE OUT OF YOUR Appetite

People who struggle with weight loss often point to several “Achilles’ heels” that **sabotage their efforts** to keep off the pounds: *eating between meals*, *grazing at night*, and a *constant desire to snack* are among the most common.

The *fantastic news* is that a proprietary extract of **saffron**, called **Satiereal®**, is *clinically proven* to deal with nearly all of the above issues. In fact, women involved in **Satiereal®** studies experienced the following **amazing results**^{1,2}:

- **100% reduction in the desire to snack**
- **55% fewer instances of eating between meals**
- **Less hunger**
- **Moderate weight loss**
- **More energy**
- **Better mood**

Satiereal® is a registered trademark of INORÉAL. International patents pending. The fact that Satiereal® induced significant reductions (100%) in the desire to snack, but with only moderate weight loss, is further support for the multipronged approach needed to effectively manage weight that has long been espoused by Life Extension®.

Say goodbye to “kitchen raids” and say hello to **Optimized Saffron with Satiereal®**.

A bottle containing 60 vegetarian capsules of **Optimized Saffron with Satiereal®** retails for \$36. If a member buys four bottles, the cost is **\$24** per bottle.

References

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



Item #01432

To order **Optimized Saffron with Satiereal®**, call 1-800-544-4440 or visit www.LifeExtension.com

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





Safely Reduce Annoying PROSTATE Symptoms

For most aging men, it's not a matter of *if* prostate problems will manifest, but *when*.

Between the ages of 40 to 49, about **25%** of men will suffer from lower urinary tract symptoms caused by progressive prostate enlargement. At 70 to 79 years of age, more than **80%** of men suffer these symptoms.¹⁻³

Enlargement of the prostate can lead to **lower urinary tract symptoms**, such as urinary frequency, urgency, and dribbling—and may progress to produce kidney damage and bladder infections.⁴ An enlarged prostate is also often associated with **erectile dysfunction**.⁵

The most common cause of lower urinary tract symptoms in men is **benign prostatic hyperplasia (BPH)**.⁶

A series of impressive laboratory and clinical studies have shown that a **flower pollen extract** can help shrink overgrown prostate tissues and relieve lower urinary tract symptoms.

Most male **Life Extension®** members already take a multi-ingredient prostate formula that contains a **flower pollen extract**. The clinical data presented in this article provides an enlightened understanding of how **pollen extracts** beneficially function in the body.

Men who continue to experience urinary discomforts may consider adding an additional dose of **pollen extract**, as will be discussed.

Lower Urinary Tract Symptoms

Weighing less than an ounce,⁷ a healthy prostate is a small gland situated in the male urinary-genital tract just behind the pubic bone. It surrounds the urethra, which is the outflow tract that carries urine from the bladder, through the penis, and out for excretion.

Because of its location, even a relatively small amount of swelling of the prostate will lead to substantial blockage of the urethra, resulting in decreased urine flow and the potential for incomplete bladder emptying. This can eventually lead to bladder and kidney infections,⁸ bladder stones,⁹ and other serious long-term problems.

The prostate can become enlarged for several reasons, the most dangerous of which is prostate cancer.

Fortunately, the majority of men with prostate enlargement don't have cancer. Instead, their enlarged prostate is likely due to one of the two following non-malignant conditions:^{10,11}

1. **Benign prostate hyperplasia (BPH)** occurs when cells in the prostate increase in number, causing the prostate to swell. BPH is the most common cause of urinary difficulties afflicting men over age 40.
2. **Prostatitis**, another cause of prostate enlargement, is a condition that is characterized by inflammation and/or infection of the prostate. Prostatitis has a number of categories: acute and chronic bacterial prostatitis, chronic nonbacterial prostatitis, inflammatory and noninflammatory prostatodynia (prostate pain), and asymptomatic inflammatory prostatitis.¹²⁻¹⁴ Treating **chronic prostatitis** has been medically challenging.¹⁵⁻¹⁸



Regardless of the cause, when the prostate becomes enlarged, it typically leads to **lower urinary tract symptoms (LUTS)**, which include symptoms such as urinary urgency, weak stream, urinary hesitation, incontinence, bladder pain, and more.^{4,19}

BPH with resulting LUTS becomes quite prevalent in men in their early to mid-50s.²⁰⁻²² Up to **42%** of men in their 50s or older have BPH; estimates of men aged 70-79 with BPH who have discernible lower urinary tract symptoms are *greater than 80%*.¹⁻³

BPH with lower urinary tract symptoms is a progressive condition that may worsen over time, depending to some extent on age, symptom severity, the volume of the prostate gland, and the degree of urinary tract obstruction.^{3,23}

To make matters worse, BPH with resulting LUTS is often accompanied by **erectile dysfunction (ED)**.²⁰⁻²² There is now increasing evidence that BPH/LUTS and ED have common features and may be related problems.^{20,24,25} Indeed, epidemiological studies suggest that BPH/LUTS is a risk factor for developing erectile dysfunction, (about **70%** of men with BPH/LUTS have erectile dysfunction), lending urgency to the need to treat and slow the progress of BPH.^{1,20,26}

What You Need To Know

Pollen Extracts Support Prostate Health

- Lower urinary tract symptoms caused by progressive prostate enlargement plague millions of men, with about **25%** suffering some symptoms between the ages of 40 to 49 and more than **80%** suffering after age 70.
- Leading causes of such symptoms are benign prostatic hyperplasia (BPH) and chronic prostatitis with chronic pelvic pain.
- Obstruction to the urinary outflow tract from the bladder by an enlarged prostate can produce not only uncomfortable and embarrassing signs and symptoms (such as urgency, frequency, and dribbling) but also dangerous consequences (such as bladder and kidney infections).
- Mainstream medicine offers several drugs with limited effectiveness against BPH, but effective treatments for chronic prostatitis are lacking.
- An ancient remedy, extracts from plant pollen, is emerging as a major challenger to mainstream drugs and their host of side effects.
- Studies reveal that men treated with pollen extracts have significant reductions in their lower urinary tract symptoms, whether caused by BPH or by chronic prostatitis.
- Pollen extracts work by mechanisms similar to prescription drugs, but have several additional beneficial properties of their own.

Pollen Extracts Help BPH

There is now an abundance of evidence that pollen extracts are effective at shrinking prostates enlarged by BPH and chronic prostatitis, helping to reduce annoying and ultimately dangerous lower urinary tract symptoms that occur as a result. Laboratory studies show that pollen extracts act uniquely on prostate cells by selectively inhibiting their growth.²⁷

In fact, one study showed that pollen extracts are almost equally as effective as the prescription drug *finasteride* and the standard natural treatment saw palmetto at reducing prostate size. For the study, when rats with experimentally induced BPH were treated with either finasteride, saw palmetto, pollen extract, or a combination of saw palmetto and pollen extract, all prostate glands decreased to roughly the same size as control animals.²⁸

Initial human studies showed that **80%** of patients with BPH who took pollen extracts for four to 12 weeks experienced improvements in subjective symptoms (such as a sense of residual urine in bladder, frequency, hesitancy, straining, or weak urine stream), while up to **66%** of patients experienced improvements in





objective signs (such as urinary volume and urinary flow rate). No significant side effects were detected.²⁹⁻³²

Similarly, in studies of pollen extracts versus a proprietary, standardized mixture of amino acids called *Paraprost*, the pollen supplement was significantly better at improving objective measures, such as residual urinary volume after voiding, average urine flow rate, maximum urine flow rate, and prostate weight.³³

In one large study of men with BPH who were an average of 68 years old, researchers found that taking **126 mg of pollen extract** three times daily for 12 or more weeks was effective at reducing symptom scores on a widely used scale.³⁴ Maximum urine flow rates increased significantly by approximately **18%**, and average urine flow rates increased by nearly **18%**, while residual urine volume (the amount of urine left in the bladder) after voiding significantly decreased by approximately **45%**. In patients who remained on the supplement for more than one year, there was also a **20%** decrease in mean prostate volume.

In a study of men with BPH severe enough to cause obstruction to urine flow, **69%** of those treated with a **pollen extract** had significant improvement in symptoms compared to only **30%** of those who took a placebo.³⁵ In addition, the

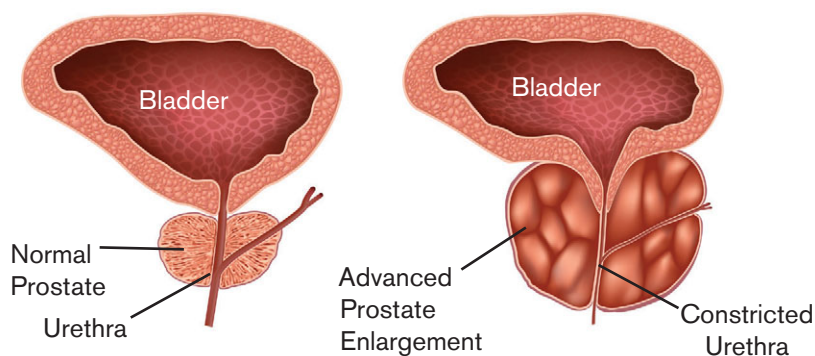
supplemented patients had significantly less residual urine in their bladders after voiding and in the measured diameter of their prostate glands by ultrasound. These latter findings are extremely important because residual, post-void urine in the bladder can be a set-up for serious bladder infections.

A systematic review of studies on **pollen extracts** in men with BPH concluded that those treated with the pollen extract were **2.4 times** more likely to experience improvement compared with those receiving placebo.^{19,36} In the same analysis, men who supplemented with the pollen extract were more than **two times** as likely to reduce their need to urinate at night, compared with placebo. Adverse events were considered rare and mild.

Pollen Extracts Help Prostatitis

Treating chronic nonbacterial prostatitis and chronic prostatitis/chronic pelvic pain syndrome is widely regarded as a major challenge, and consistently effective drug treatments are lacking.³⁷ That's what makes pollen extracts so exciting. Multiple studies on humans have shown that prostatitis patients respond so positively to pollen extracts that some experienced complete relief,³⁷ while others were completely cured of their symptoms.³⁸

First, an open trial of 15 patients with chronic prostatitis showed that a pollen extract produced either complete and lasting relief, or marked improvement in symptoms in 13 patients (**87%**), while two patients failed to respond.³⁷



How An Enlarged Prostate Slows Flow And Traps Urine

At left, a normal-sized prostate gland surrounds, but does not obstruct, the urinary outflow tube known as the urethra. At right, a very enlarged prostate squeezes the urethra closed, which blocks the outflow of urine in the bladder and raises the risk of infection.

Lower Urinary Tract Symptoms Of Benign Prostatic Hyperplasia (BPH) And Chronic Prostatitis/Chronic Pelvic Pain Syndrome (CP/CPPS)

Symptoms	Benign Prostatic Hyperplasia (BPH)	Chronic Prostatitis
Weak urinary stream	X	X
Delayed, prolonged, or incomplete bladder emptying	X	
Hesitation (a pause before urine begins to flow), straining to urinate	X	X
Nighttime urination (nocturia)	X	
Frequent urination	X	X
Urgent urination	X	X
Dribbling after urination	X	X
Urinary leakage or incontinence	X	
Painful urination	X	X
Ejaculatory problems	X	X
Pelvic pain (pain in the lower abdomen)		X
Pain in the penis, testicles, or pubic area		X
Joint or muscle pain		X
Unexplained fatigue		X
Ejaculatory or post-ejaculatory pain ^{50,51}		X
Low libido, sexual dysfunction, erectile difficulties		X

In a second, later study, 90 patients took pollen extract tablets three times daily for six months.³⁸ The patients were divided into two groups: one without associated complicating factors and one with complications (such as urethral strictures, prostate stones, or bladder neck narrowing). In the group without complicating factors, **78%** had a favorable response in their symptoms, while **36%** experienced a complete disappearance of their symptoms and detectable signs of prostatitis. In addition, **42%** of patients had some degree of improvement, including an increase in urine flow rate and a reduction in white blood cells (markers of inflammation) in the post-prostate massage urine. However, the researchers found that patients with complications did not respond nearly as well, suggesting that the pollen extract is most useful in patients who lack such complications.

A landmark study published in 2009 on chronic prostatitis/chronic pelvic pain syndrome found that after

12 weeks of treatment with pollen extracts, patients experienced significant improvements in pain scores and quality of life, as well as improvements on the total score on the NIH Chronic Prostatitis Symptom Index (NIH-CPSI), compared with men receiving placebo.¹⁸ More than **70%** of patients in the supplemented group had a detectable response, defined as a decrease in the NIH score by at least **25%**, while only **50%** of placebo recipients had such a response.

How Pollen Extracts Reduce Prostate Size

A number of published studies demonstrate that pollen extracts are powerful allies in the fight against an enlarged prostate due to BPH or prostatitis.

Pollen extracts offer powerful anti-inflammatory properties. This is important because of evidence suggesting that inflammation and an excessive response to the hormone DHT are heavily involved in BPH.



Summary

Most men suffer lower urinary tract symptoms as they age. These symptoms can range from the mildly disturbing to outright dangerous, posing the threat of bladder and kidney infections.

Benign prostatic hyperplasia (BPH) and chronic prostatitis are leading causes of lower urinary tract symptoms in men. Studies show that **pollen extracts** can shrink overgrown prostate glands and relieve lower urinary tract symptoms, without significant side effects. These extracts have been shown to be effective in both BPH and chronic prostatitis.

There is every reason for men with lower urinary tract symptoms, who have been screened by a physician to rule out prostate cancer, to include **pollen extract** in their daily program.

Male **Life Extension** members have long used a multi-ingredient formula of nutrients that has been shown to promote prostate health. This formula contains a potent **252 mg** dose of **standardized pollen extract**.

For men who continue to encounter urinary discomforts, the addition of **378 mg** of pollen extract daily may provide a resolution for this all-too-common male problem. ●

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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Basic lab studies show that pollen extracts inhibit enzymes that produce pro-inflammatory signaling molecules such as *cyclooxygenase* (COX) and *5-lipoxygenase* (5-LOX).³⁹ In tests, the pollen extracts performed as well as mainstream nonsteroidal anti-inflammatory drugs (NSAIDS) such as *diclofenac*.³⁹ These features may help in the observed shrinkage of prostate glands when treated with pollen extracts.

In men, **pollen extracts** appear to have similar effects on hormone (androgen) metabolism as prescription drugs such as *finasteride*.⁸ Pollen extracts inhibit the enzyme *5-alpha-reductase*⁴⁰ that converts testosterone to DHT, which in turn promotes prostate cell proliferation.^{28,41,42} And, in another mechanism similar to how a popular prescription drug works, pollen extracts have shown the ability to influence the *alpha-1 adrenergic receptors* that keep smooth muscle tone elevated in the prostate and bladder, thereby reducing the pain and discomfort those receptors produce when activated.⁴¹

Studies of rats with experimentally induced non-bacterial prostatitis (similar to chronic prostatitis/chronic pelvic pain syndrome in humans) show that pollen extracts diminish the changes to the glandular tissue of the prostate and enlargement of the stroma (structural cells), which contributes to symptoms.⁴³ These beneficial changes may be related to the effects pollen extracts have on smooth muscle in the bladder and urethra, as well as their potent anti-inflammatory effects and their ability to slow cellular proliferation.¹⁵

Pollen extracts have also been shown to induce apoptosis (programmed cell death) in prostate cancer cells, where they produce a decrease in the marker called **prostate-specific antigen**, or PSA.⁴⁴⁻⁴⁷

Based on current data, **pollen extract** is a useful strategy to complement and boost a daily regimen to reduce prostate symptoms and maintain prostate health.

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Are You Obtaining Enough TAURINE?

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

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

SYSTEM-WIDE HEALTH BENEFITS

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

- Insulin sensitivity and glucose utilization,^{7,8}
- Proper utilization of minerals such as calcium,¹
- Eye health,^{1,9,10}
- Regulation of the central nervous system,⁶
- Cell membrane stability⁶ and balanced water content (*osmoregulation*),^{11,12}
- Immune system modulation,^{11,13}
- Bile salt formation,¹¹
- Neuron integrity^{6,11} and cognitive function,¹⁴
- Liver function,¹⁵ and
- Cardiovascular health.^{12,16,17}

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

ULTRA-LOW COST

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

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



Item# 00199

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To order Life Extension® Taurine, call 1-800-544-4440
or visit www.LifeExtension.com

COMPLEMENTARY PROSTATE SUPPORT

In A Once-Daily Softgel



The majority of men find that their **prostate gland** undergoes significant changes as they age.¹ **ProstaPollen™** supports healthy urination patterns and prostate function.

Triple Strength ProstaPollen™ contains concentrated pollen extracts specifically selected for effective **prostate** support.²⁻⁴

Clinical studies have demonstrated that the flower pollen extracts in **Triple Strength ProstaPollen™** provide healthy support for aging **prostate glands**.²⁻⁴

Two fractions in **Triple Strength ProstaPollen™**—**G60™** (water-soluble) and **NAX™** (lipid-soluble)—support prostate health by helping to maintain smooth muscle tone in the prostate, bladder, and urethra.⁵

Life Extension® has long offered **pollen extracts** in the comprehensive **Ultra Natural Prostate** formula for maintaining healthy prostate function. For the first time, this new **Triple Strength ProstaPollen™** European extract is available to Americans, providing a more potent dose⁶ in a convenient once-daily softgel!

To order **Life Extension® Triple Strength ProstaPollen™**, call 1-800-544-4440 or visit www.LifeExtension.com

For men using Life Extension's **Ultra Natural Prostate** formula, additional prostate support benefits can be found by adding just one **Triple Strength ProstaPollen™** softgel daily.*

A bottle of 30 softgels of **Triple Strength ProstaPollen™** retails for \$28. If a member buys four bottles, the price is reduced to **\$18.75** per bottle.

The suggested dosage of one softgel of **Triple Strength ProstaPollen™** provides:

Graminex® Flower Pollen Extract™** (from rye)
triple strength concentrated blend **378 mg**
providing:
Graminex® G60™ (water-soluble fraction) (360 mg)
Graminex® NAX™ (lipid-soluble fraction) (18 mg)

** Graminex® is a registered trademark of Graminex LLC.

***Ultra Natural Prostate** contain 252 mg of original Graminex extract providing 60 mg of **G60™** water-soluble fraction and 3 mg of **NAX™** lipid-soluble fraction in 2 softgels. Men completely satisfied with the effects of the **Ultra Natural Prostate** formula may not need this new **Triple Strength ProstaPollen**.

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Item # 01909

Absorption-Enhanced MILK THISTLE

Now With
Advanced Phospholipid Delivery

Milk thistle extract is one of nature's most potent weapons to support liver health. Until recently, however, the technology hasn't been available to fully harness this plant's full benefits.¹

The problem has been that the star component of milk thistle, **silybin**, does not dissolve well in water.^{2,3} This makes it difficult for your body to absorb all of it.^{2,4,5}

Scientists have developed a novel technology to overcome silybin's poor bioavailability. The solution is to mix **silybin** with a nutrient called **phosphatidylcholine**.

Phosphatidylcholine facilitates transport across the intestinal lining into the bloodstream, making it an ideal "carrier molecule" for **silybin**.^{4,5} Scientists believe that phosphatidylcholine molecularly bonds to silybin, ushering it through the membranes of cells in the intestinal tract.⁴

This unique **silybin-phosphatidylcholine** complex is absorbed nearly **5 times better** than silymarin alone, and its concentration in the liver, its target organ, is **10-fold greater** than silymarin alone.⁶⁻⁸

The suggested twice daily dosage of one softgel provides:

Milk Thistle Phospholipid Proprietary Blend	760 mg
Milk Thistle Extract (seed) [providing silymarin (480 mg), Silybin (180 mg), and Isosilybin A and Isosilybin B (48 mg)], Phospholipids	
SILIPHOS® Phytosome Milk Thistle Extract (seed)	160 mg
[providing 47.52 mg silybin]	

A bottle containing 60 softgels of the **absorption-enhanced Milk Thistle** retails for **\$28**. If a member buys four bottles, the cost is reduced to **\$18.75** per bottle.

This novel milk thistle extract with phosphatidylcholine contains standardized concentrations of **silybin** and **isosilybin A** and **B** not found in other milk thistle extracts! Compare the price of **Milk Thistle** to commercial silymarin supplements, and members will see that this formula is available at one of the lowest costs per milligram.

Contains soybeans.

SILIPHOS® is a registered trademark of Indena S.p.A., Italy.

To order **European Milk Thistle with Advanced Phospholipid Delivery**
call 1-800-544-4440 or visit www.LifeExtension.com



Item# 01822

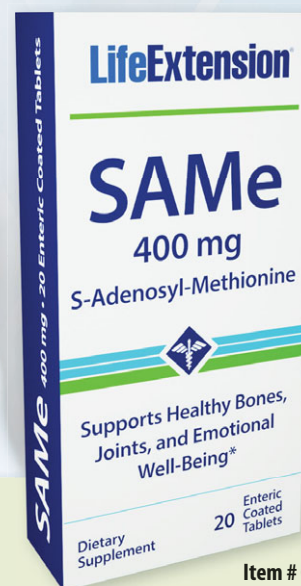
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These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

SAMe

FOR BRAIN HEALTH



Item # 00557

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

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

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

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

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

Compared to when SAMe was first introduced to the United States in 1997, Life Extension members can obtain it for **78% less**. On an inflation-adjusted basis, the savings are even greater.

A box of 20 **400 mg** SAMe tablets retails for \$28. When a member buys six boxes, the price is reduced to only **\$18** a box—a **savings of 35%!**

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

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

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

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

Linda GRAY





"WATCH ME!"

When you think of Linda Gray, you probably imagine her as Sue Ellen Ewing, the alcoholic wife of evil oil baron J.R. Ewing on the 1978-1991 TV blockbuster "Dallas." It's easy to believe you know her.

But the real Linda Gray is a constant surprise. At age 74, this happy, dynamic woman appears to be at least 20 to 25 years younger and overflows with energy. She believes that her lifelong interest in diet, supplements, exercise, and positive thinking are at the root of her healthy, fulfilling life today. In an exclusive interview with *Life Extension*® magazine, Gray talks about her background, acting career, health regimen, goals, and what she does every day to remain young and vibrant.

Early Life And Career

Born in 1940, Linda Gray grew up in California in a strict Catholic household where she was expected to eventually assume the role of an obedient wife and mother. But Gray had her own ideas.

"I've had an innate curiosity all my life and it started early on with my wonderful grandmother," the actress explains. "There was a wanderlust about her. She had traveled and was very worldly, and I had a connection with her that I didn't have with my mother." In fact, Gray's mother had been a ballerina and a fashion illustrator who, Gray feels, was frustrated by her inability as a married woman to fully pursue her own career. Gray soon began to have her own goals and

developed an inner strength that propelled her out of her expected role into a world where she managed to attain the freedom to make her own dreams come true.

Gray began a modeling career in her teens, although even then, her goal was to act. "I remember telling my parents that I wanted to be an actor," she says, "and I thought their heads would spin off. So I started modeling." She quietly began to look for ways to act, which finally happened once she got into television commercials. From the first moment she was given lines to read and recite, Gray immediately wanted more.

Married at 21 to freelance art director Jeff Thrasher, the couple had two children and Gray became a stay-at-home mother. "Back then," she explains, "when women had children, they would just remain at home and raise them, and it must have been frustrating for these women to stifle their creativity."

The young family soon moved to the country. As a way to afford a pool and tennis court, Gray's husband encouraged her to do a few commercials.

"One night I said to my husband, 'I want to become an actor,'" she recalls. Although he asked her to wait until the children were grown, by then Gray was already in her 30s and didn't want to lose any more time. She enrolled in an acting workshop and began getting small parts in films.

"I loved it," she says. "I loved the creative process and knew that was what I wanted to do. It was absolutely wonderful."

Watch Me!

Before feminism, before "women's lib," Gray was a very strong woman who defied the social strictures of her time. Somehow, she found the inner strength and confidence to fight for—and finally attain—her dream of being a working actress.

"I was cast in a commercial," she explains, "and I loved it, but I couldn't speak because I was 'a model' and models don't act. And so I had these two very interesting



LINDA GRAY'S SUPPLEMENTS



Multivitamin
Vitamin B complex
Omega-3 fatty acids
Digestive enzymes
Vitamin D
L-lysine
Ginseng root
CoQ10
Colostrum
Reishi mushroom
Green tea catechins
Quercetin
Probiotics

words that have stayed with me all of my life: 'Watch me.' But 'watch me' with a smile on my face. You're telling me I can't do something? Watch me! The feisty little girl inside me was saying, 'You may think you can tell me what I can't do, but watch me! I'm going to do this.'

"Whenever they told me I couldn't do something or I was too old for something, I was so nice and said 'okay,' but underneath, I'd be saying 'watch me.'"

It was a very simple technique and it worked wonders for Gray and her career.

Achieving Her Goals

Over her long career, Gray has not only acted in "Dallas" and many Hollywood movies and TV films, she has also starred in plays on Broadway and in London, directed TV shows and live theater productions, and has been honored with Emmy Award and Golden Globe nominations. In 1982, she was elected Woman of the Year award from the Hollywood Radio & Television Society.

Additionally, Gray has devoted time to a variety of charitable causes, including Meals on Wheels and AIDS fund raisers. She went to Malawi to help distribute food to needy children and was named a Goodwill Ambassador for the United Nations from 1997 to 2007, traveling on behalf of the organization to address women and children's health concerns.

Food As A Key To Health And Longevity

Gray was fortunate to be raised in a home where natural, healthy food was the norm. "My parents didn't have a lot of money," she recalls, "but my mother made sure we had good food. We even had wheat germ and who had wheat germ at that time? I remember going to a friend's house and they had bologna and cheese on white bread. I didn't even know what that was!"

Gray remembers going to her future in-laws' home, where "they had a proper sit-down dinner with a stack of white bread, biscuits, gravy, and that kind of food. So when we got married and my husband expected a stack of white bread and all the rest, I said, 'What is it? I can't make food like that.'"

But as a young bride, she tried her best and attempted to make gravy for her husband one evening. "The spoon literally stood up straight, it stuck like it was in glue," she laughs. After a teary reaction when her husband came home, Gray vowed never to make gravy again—and to this date, she never has.

Instead, she began to study the work of nutritionist gurus Adelle Davis and Paavo Airola, placing herself on a lifelong road of fascination with good nutrition. When her husband was diagnosed with "a nervous stomach" early in their marriage, his doctor said he would be on antacids for the rest of his life. As he gobbled them up like jelly beans, Gray says she became determined to cure him with healthy food. She fed him a fresh, nutritious diet filled with salads, vegetables, and fruit. When her husband later returned to his doctor, the astonished physician told him his symptoms had disappeared and he didn't need the pills any more.

Gray also made her own baby food. "I was grinding up carrots and other vegetables and putting wheat germ in," she recalls. It was the 1960s with very few health food stores, but Gray found one in Los Angeles and went there regularly. It was there that she met a charming woman who introduced her to her husband, Dennis Weaver, of "Gunsmoke" fame. "That was the beginning," Gray says. "It was Adelle Davis, Paavo Airola, and Dennis Weaver," and it was Weaver's recommendations and guidance that launched Gray's acting career.

Today, Gray is well known among her peers for her extensive knowledge of nutrition. "People always ask me what I'm eating," Gray explains. "What is that? What is your secret?" I don't feel there is a secret. I feel there is a wealth of knowledge and if you avail yourself of it, then it works for you."

Gray mentions that her younger sister died of breast cancer in 1989 at the age of 43, calling it a "wake up call" to make the most of her life and to continuously look for ways to remain as strong and healthy as

possible. "To me," she adds, "it isn't about living to be 120, but it's about living consciously every day of your life. Bless every single day you're on this planet, because you don't know how long you will be here. Learn to be the best of who you are."

Food And Supplements: A Work In Progress

There is nothing static about Linda Gray. Where others form their personality and lifestyle early and remain pretty much the same for life, Gray is the total opposite, a woman who is constantly working on her evolution and growth. She has a palpable drive to learn more, to do more, to try more, and to continuously refine and reshape her life, her body, herself. It's a quality that consistently draws others to her and makes her acting performances magnetic.

Gray is, and has been, a dedicated student of health and nutrition for almost her entire life. While she does consult experts from time to time, most of her personal health regimen consists of foods and supplements that she has personally researched, tried out, observed in herself in terms of their effects, and determined whether or not to continue and in what amount. The result is a constantly evolving list of what she consumes, and so far, it appears to be highly effective.

One of Gray's key beliefs is that it's best to vary your intake: She never consumes the exact same things every day. "In the morning I do a combination," she says, mentioning possible ingredients, including chard, kale, baby spinach, and arugula with scrambled eggs and a bit of goat cheese for breakfast. Or she may decide to make a smoothie, which she prefers to juice because she wants the fiber. Gray may include handfuls of baby spinach, cacao powder, maca, a few drops of folic acid, a little camu camu, some hoodia, schisandra powder, lycium powder, vitamin C, chia seeds, and a handful of goji berries, which she says are great for energy and the brain.

"When I'm working," Gray says, "the brain needs some help and I notice especially that when I'm memorizing my lines, all this helps, especially the cacao, hoodia, maca, and the berries." Gray notes that her breakfast combination has evolved over the years, along with her knowledge of what to put in her body for all-day energy.

She also has a small NutriBullet® blender/food extractor that she takes with her when she's on the set all day. Gray brings along foods like almond butter and an apple, so she can create a nutritional boost when she needs it. "I don't have a nutritionist," she explains. "I do a lot of research, go online a lot, find things, and try them out when they sound good. I



observe the effects on my body and any changes I feel and if they seem to work, I'll continue with them."

Another serious concern for Gray is the proper pH balance between acidic and alkaline foods, something she pays close attention to. "We're more acidic than we need to be," she comments, "so I try to eat a very alkaline diet to keep my pH in the normal range. I often refer to a list of acid-forming foods to help me. If you keep your diet more alkaline than acidic, your internal system gets a better chance to work properly. For example, I eat more almonds as opposed to cashews."

How strictly does Gray follow her rules? "I don't beat myself up if I go to a birthday party and eat some sweets I don't normally eat. Women especially think they've failed if they go off [track] a little," but Gray says she sticks to her goals about **90%** of the time and she's happy with that.

The Varieties Of Exercise

"I do a lot of different things," Gray says when asked about her exercise program. "I get bored. I have a hard time in the gym because sometimes the music is weird or too loud. I'm an outside person and I love to be outdoors."

As a result, Gray walks almost every day, often in the early mornings. "I love just trotting around, exploring, doing things," she says of these walks. "At this stage in my life, I like things that don't involve a lot of equipment, I don't want all that stuff, so I walk every day I can."

But Gray does use a few devices. "I just love my little rebounder," she says of the small trampoline that she often takes with her to the set. "Women need exercise to clean out and stimulate the lymphatic system," she explains, "and for me, nothing works better." She adds that during the 20 minutes that she exercises with her rebounder, she watches television or listens to the radio news. "I think anything over 20 minutes is boring," she adds.

When Gray travels, she always brings along good walking shoes and a small jump rope to get her heart rate up. She jokes that some people who are very advanced can jump rope on the rebounder, "but I haven't done that because I'm afraid I will just fly out a window somewhere."

Staying Healthy Mentally And Emotionally

Obviously, Gray has found that the proper diet and supplements have a clear and positive effect on her mental and emotional health, as well as her body. But she also believes that it's necessary to make a conscious effort to continually monitor and assess your current state.

"I try to keep everything as positive as I can without being in Lalaland," Gray explains. "One of the things I do is accept my emotions. 'If you're sad, all right, you're sad. Accept those emotions, because if you suppress them, that's when disease occurs. I feel if you push them down—if you're angry, for example—that's bad. Let yourself be angry, feel whatever you feel, get it out.'"

Good health, Gray believes, starts with a healthy attitude. "I bless my curiosity, my need to know. Be curious about who you are. The energy will come when you drop the negative attitudes, the negative food, the negative people. When all of that is dropped, you will find this wonderful being that you are.

"So when you drop the judgment, the criticism of yourself and everyone else, you will suddenly shift to becoming the person you were put on Earth to be—and that is energy and that is life extending." ●

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



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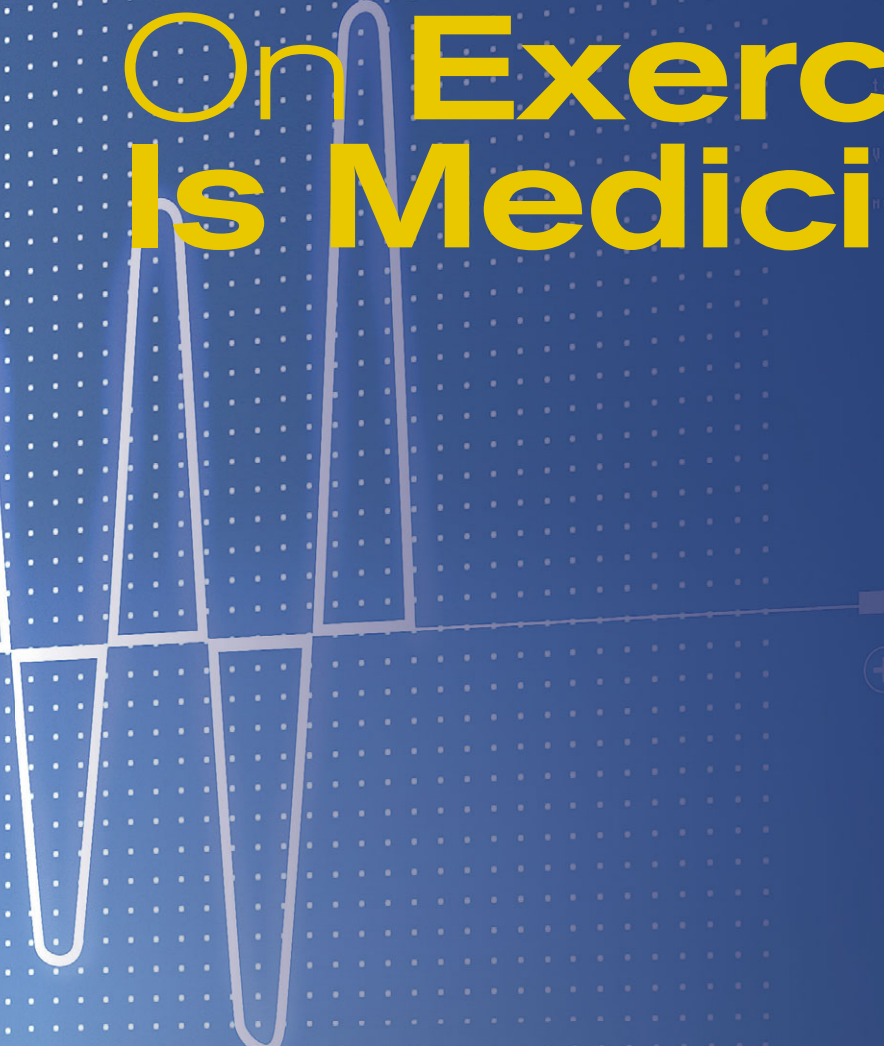
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The **2014** World Congress On **Exercise** Is **Medicine®**



In the last week of May 2014, thousands of exercise scientists gathered at the Orlando, Florida, convention center for the fifth World Congress on Exercise is Medicine®, the world's largest and most prestigious conference about medical issues related to exercise. The conference is sponsored by the American College of Sports Medicine.

Health Hazards Of Physical Inactivity

I-Min Lee, MD, ScD, (Professor, Harvard Medical School) opened the conference with a lecture on the health hazards of physical inactivity. Physical inactivity is believed to lead to about as many premature deaths worldwide as smoking.¹ Although most people are aware that physical inactivity is a health hazard, Dr. Lee said that the foremost question asked about exercise and health is: “How little physical activity can I get away with?”



One study she cited estimated that two-and-a-half hours of brisk walking per week would reduce the risk of heart disease **14%**, whereas five hours per week would result in a **20%** reduction.² Exercise to prevent cardiovascular disease or type II diabetes has a benefit that is comparable to the use of prescription drugs.³ Aside from a general improvement in health, exercise can reduce premature deaths due to breast cancer,^{4,5} colon cancer,⁵ type II diabetes,⁵ and other diseases.⁵

Higher levels of physical activity are associated with longer life expectancy more than moderate levels of activity.⁶ Driving or doing office work is physically sedentary, but watching television is associated with more eating and drinking of unhealthy foods and beverages. Prolonged television viewing is associated with increased risk of type II diabetes, cardiovascular disease, and all-cause mortality.⁷

As people become older, they become increasingly sedentary,⁸ only partly because of an increase in disabilities.⁹

Exercise For Type II Diabetes

Luc van Loon, PhD, (Professor, Maastricht University, the Netherlands) has studied the effects of exercise, particularly on patients with type II diabetes. He has studied both **endurance exercise** (aerobic exercise, sustained activity) and **resistance exercise** (muscle building by lifting weights). He showed that a single session of resistance exercise improves insulin sensitivity in healthy subjects for at least 24 hours, an effect that had previously been shown for endurance exercise.¹⁰



Glycated hemoglobin (*hemoglobin A1c*) measures the amount of damage blood sugar causes to blood hemoglobin over extended time periods. High levels

of glycated hemoglobin indicate that blood sugar is too high too much of the time. A study of type II diabetics found that glycated hemoglobin could not be reduced by either endurance or resistance exercise alone, but could only be reduced by a combination of both endurance and resistance exercise.¹¹

Dr. van Loon uses continuous glucose monitoring systems to study the blood sugar levels of type II diabetics throughout the day. By this means he has determined, despite using medications intended to control blood sugar, that diabetes patients experienced excessive blood sugar after meals. For almost **40%** of the day, every day, blood sugar was elevated in the diabetic patients he studied.¹² He showed that a single session of endurance or resistance exercise reduces the excess blood sugar in type II diabetics by about a third for a 24-hour period.¹³

Dr. van Loon cites the recommendations of the American Diabetes Association that type II diabetics should engage in 150 minutes per week of moderate intensity aerobic exercise as well as engage in resistance exercise.¹⁴

Jonathan Little, PhD, (Assistant Professor, University of British Columbia, Canada) has also studied the effects of exercise for type II diabetes. But Dr. Little has been interested in the effects of **High-Intensity Interval Training (HIIT)**, which involves repeated bursts of vigorous exercise interspersed with periods of rest. He has shown that 75 minutes of HIIT per week is an attractive option and takes less time than the 150 minutes weekly

of moderate intensity exercise recommended by the American Diabetes Association.¹⁵ Adherence to HIIT exercise programs is reportedly better than adherence to continuous moderate exercise programs.¹⁶ HIIT before a meal is more effective at lowering mealtime high blood sugar than regular moderate exercise.¹⁷





Exercise For The Elderly

Maria Singh, MD, (Professor, University of Sydney, Australia) is interested in the effects of exercise and the elderly. In an eight-week study of elderly people who were depressed, she was able to show a dose-response relationship. Specifically, higher intensity of resistance training was associated with a greater reduction in depression.¹⁸ She said that depressed persons have reduced amounts of the brain growth factor **brain-derived neurotrophic factor (BDNF)**. While aerobic exercise reduces depression, it increases the amount of BDNF in the brain, and thereby reduces the brain atrophy that normally results from the decline of BDNF that occurs with aging.¹⁹

Although exercise does not extend maximum life span, exercise improves health and thus extends the average duration of life.²⁰

Exercise For Frailty And Disability

Carol Garber, PhD, (Associate Professor, Columbia University) is interested in the relationship between frailty, heart failure, and exercise. She cited a study concluding that physical inactivity among the elderly doubles the risk of subsequent disability.²¹ Slow walking speed (an indicator of frailty) is associated with a high risk of cardiovascular disease.²²

Dr. Garber is particularly interested in congestive heart failure, the condition in which the heart is unable to pump adequate amounts of blood to meet the needs of the body.²³ Heart failure is characterized by greatly reduced exercise capacity and shortness of breath. Heart failure is the leading cause of hospital-

ization for persons over age 65.²⁴ As recently as 30 years ago, bed rest was the recommended treatment for heart failure. Now exercise is recommended, even if the exercise must begin at a very slow and modest level.²⁵ A study of heart failure patients found that they have high levels of fat within their muscles, which contributes to muscle weakness.²⁶

Daniel Forman, MD, (Associate Professor, Harvard Medical School) is also interested in heart failure. He cited a study showing that extensive bed rest worsens many of the health deficits associated with aging, and in particular, detrimental changes to the heart.²⁴ He also cited results from the Baltimore Longitudinal Study of Aging, which showed that **aerobic capacity** (peak oxygen consumption in exercise) declines at an increasing rate with age, even in exercisers, although the exercisers will nonetheless have higher aerobic capacity than nonexercisers.²⁷

Fasting And Athletic Performance

Nancy Rodriguez, PhD, (Professor, University of Connecticut) is interested in the effects of fasting on athletic performance, especially on the performance of elite Muslim athletes competing in major events such as the Olympics during the religious fasting at Ramadan.²⁸

Although fasting does not inhibit exercise-induced muscle damage in human subjects,²⁹ experiments with rats show that fasting improves the ability to cope with stress.³⁰ A similar benefit was seen in rats that were fed every other day. The rats were not calorie restricted because they ate double the amount of food on the days they were fed.³¹ At least one experiment demonstrates a difference between rats and humans in this regard. Humans fed every other day for 12 weeks reduced their total food intake, losing an average of **6%** body weight.³²

Exercise For Fatigue

Timothy Puetz, PhD, (Presidential Management Fellow, US National Institutes of Health) reported on his efforts to study the effects of exercise on fatigue. Only about **1%** of the population suffers from chronic fatigue syndrome, but roughly one in five people report persistent feelings of fatigue.^{33,34} Feelings of fatigue are defined as a reduced capacity to complete mental or physical tasks.



Singh



Rodriguez



Puetz

Although the biological basis of muscular fatigue is well-understood, the biological mechanism of feeling general fatigue is not.³⁴ Studies have reported reduced fatigue in persons who had been sedentary, and then adopted programs of regular aerobic or resistance exercise.³³ Nonetheless, designing effective placebo conditions for such studies can be challenging.³⁵

Less controversial is the fact that exercise has been shown to reduce the fatigue that the majority of cancer victims experience when undergoing chemotherapy or radiation therapy.³⁶

Exercise For The Immune System

Michael Gleeson, PhD, (Professor, Loughborough University, England) is an expert in the effects of exercise on the immune system. He is the lead editor of the book *Exercise Immunology*, which was created to be the first university textbook on the subject.



Cardiovascular disease and type II diabetes are associated with inflammatory blood proteins (*cytokines*) that are present in quantities **two or three times** greater than normal.³⁷ Inflammation is also a feature of both physical inactivity and aging.³⁸ Exercise has been shown to reduce inflammation and to increase insulin sensitivity in both human and rodent experiments.³⁹⁻⁴² Mouse experiments indicate that exercise can also reduce inflammation due to a high-fat diet.⁴³

Although regular moderate exercise reduces the rate of upper respiratory tract infections, prolonged and strenuous bouts of exercise increase the rates of those infections.^{44,45} Ingestion of certain nutrients can reduce the cortisol and inflammation response to highly strenuous exercise.^{46,47} **DHEA** (*dehydroepiandrosterone*) can also oppose depression of the immune system by cortisol (which normally occurs with aging).⁴⁸⁻⁵⁰

Summary

The fifth World Congress on Exercise is Medicine® took place in May 2014. Dr. I-Min Lee opened with a lecture on the danger of physical inactivity, which may cause as many premature deaths worldwide as smoking. Dr. Luc van Loon showed that a single session of resistance training improved insulin sensitivity for 24 hours in healthy subjects, while Dr. Maria Singh discussed how resistance training is associated with a greater reduction in depression.



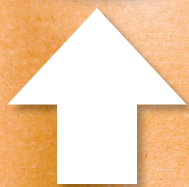
Exercise for frailty and disability were topics discussed by Drs. Carol Garber and Daniel Forman. Nancy Rodriguez, PhD, talked about fasting and athletic performance, and Dr. Timothy Puetz reported on fatigue and exercise. Exercise and the immune system expert Dr. Michael Gleeson led a symposium titled “Regulation of Inflammation in Skeletal Muscle with Exercise.” ●

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

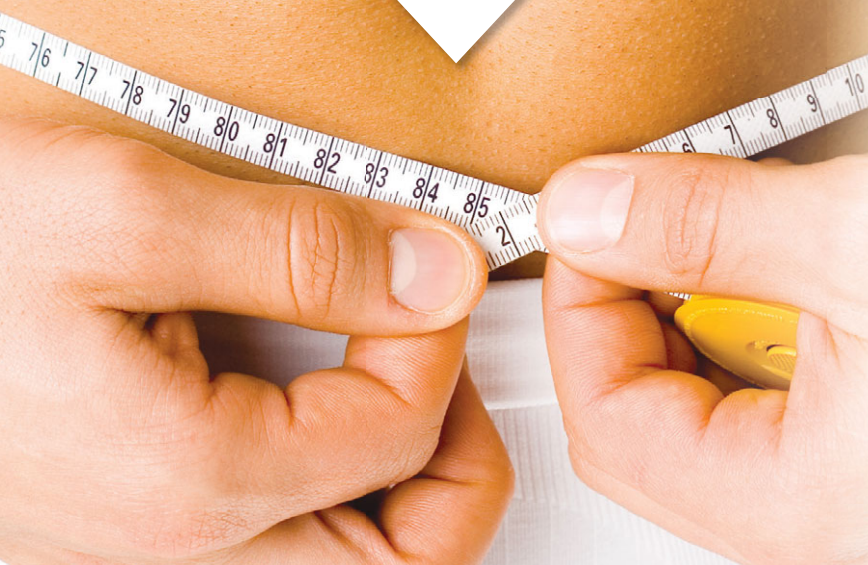
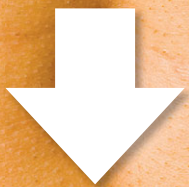
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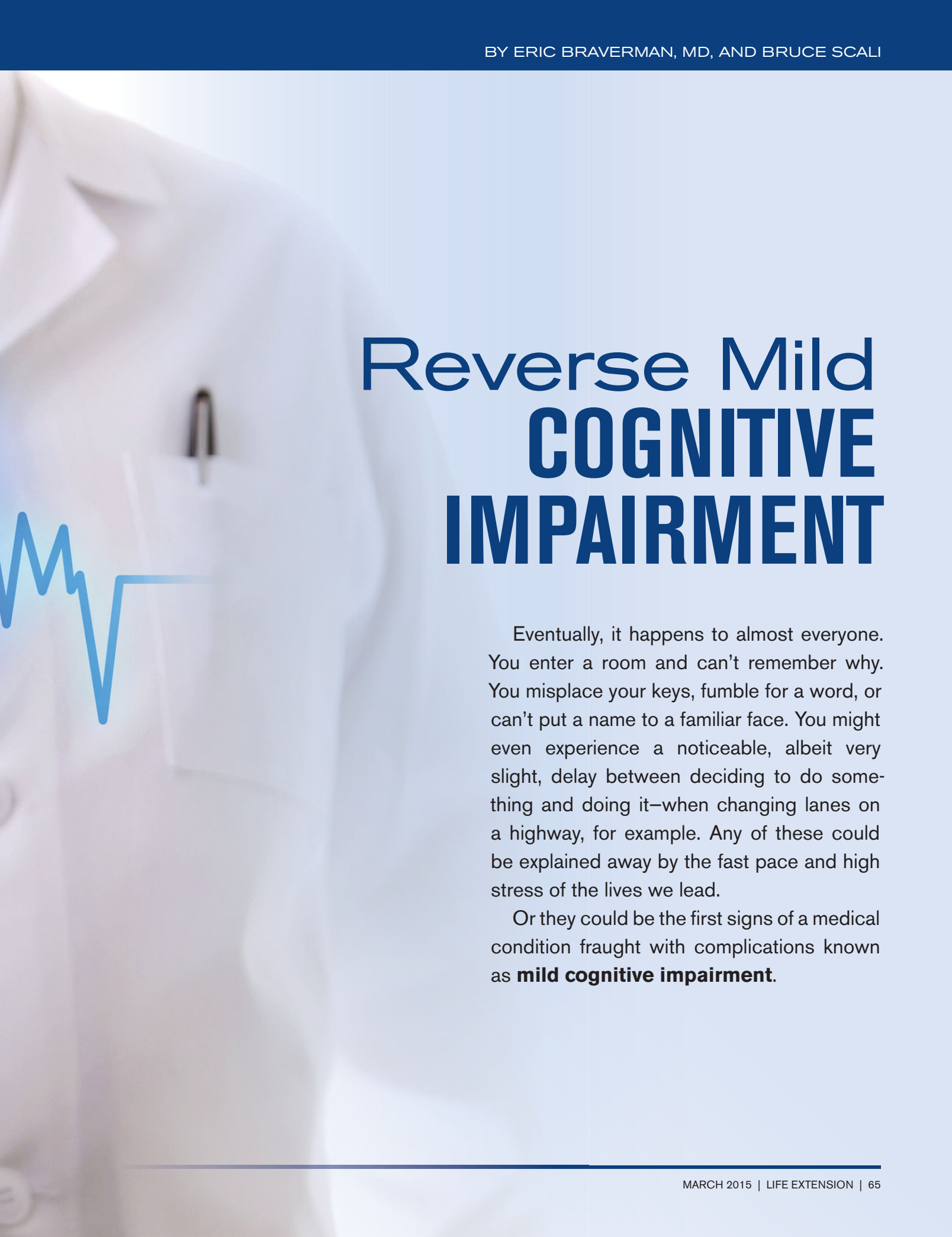


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Reverse Mild **COGNITIVE IMPAIRMENT**

Eventually, it happens to almost everyone. You enter a room and can't remember why. You misplace your keys, fumble for a word, or can't put a name to a familiar face. You might even experience a noticeable, albeit very slight, delay between deciding to do something and doing it—when changing lanes on a highway, for example. Any of these could be explained away by the fast pace and high stress of the lives we lead.

Or they could be the first signs of a medical condition fraught with complications known as **mild cognitive impairment**.

A major consequence of the intensive focus on Alzheimer's disease has been the identification of its early stage, otherwise known as **mild cognitive impairment (MCI)**.

Experts are increasingly viewing MCI as the “gray area” between normal cognitive decline attributed to aging and the onset of dementia.¹ Interest in classifying, predicting, diagnosing, and treating MCI has been building since the turn of the century, and is heating up as alarming statistics are being published and confirmed. Estimates on the prevalence of mild cognitive impairment worldwide are as high as **29%** with an annual risk of progression to dementia in affected individuals as high as **15%**, compared to **2.5%** in cognitively healthy adults.²

The progression from MCI to full-blown Alzheimer's and other forms of dementia is a steady, but slow process that may extend over decades.³ The good news is that total loss of cognitive faculties isn't a certainty for all of those who have MCI; the bad news is that, on average, approximately **34%** will end up that way.⁴ The worst news of all applies to those who are diagnosed with MCI at 70 years of age or older: These individuals have a **126%** increased risk of dying compared to those without MCI.⁵

Why does all of this matter? Because a lot of people have MCI or will experience it down the road; because the vast majority of us will have to watch or care for someone who loses any semblance of quality of life, and because *everyone* will have to bear the societal cost of dementia. Dementia has been growing steadily for years, and the 2010 figure for dementia was pegged between \$157 and \$215 billion.⁶ Whatever the number is today, it's about to explode because the Baby Boomers are entering their sunset years.

Sooner or later, one way or another, MCI will likely come your way. No worries, however. There are some things you can do about MCI *now*—such as determine *if* you have it, discover *why* you have it, and decide *what* you will do about it.

Got MCI?

The first course of action item is differentiating between the harmless “senior moments” that can be laughed off and something much more serious that demands attention. Table 1 presents the 12 domains of MCI—the ways in which the brain misfires—and a simple Yes/No self-assessment. If you check “Yes” fewer than three times, MCI probably isn't an issue for you right now. (But saving the quiz and repeating it annually is a good idea.) Three or more checks in the

What You Need To Know

Recognize And Reverse MCI

- Sooner or later, it's bound to happen—you misplace your car keys or forget why you entered the room. It may simply be stress, or it could be the first signs of mild cognitive impairment, or MCI.
- There are 12 domains of MCI—ranging from delayed recall to a drifting mind to unclear communication—and recognition of symptoms is key.
- There are a variety of neuropsychometric tests that will provide your physician with a wealth of information that can help determine the nature and severity of MCI.
- If diagnosed at an early stage, MCI can be treated with lifestyle and dietary changes, as well as numerous natural supplements.
- Medical intervention from doctors with extensive experience with hormone therapy may be necessary to treat advanced stages of MCI.





Table 1: MCI Symptom Assessment

Symptom	Yes	No	Symptom	Yes	No
1. ATTENTION Do you often miss stop signs or jump the gun? Does your mind drift all of a sudden during tasks or conversations?			8. VISUAL IQ Have you noticed a change in any of these abilities: following maps, understanding diagrams, putting picture or board puzzles together, or building a structure out of blocks?		
2. REACTION TIME Do you respond slowly to thoughts or directions, or alternate between fast and slow responses?			9. ABSTRACT IQ Is problem solving using theories, complex analogies, and metaphors more difficult than it used to be? Is it harder now to form ideas about the nature of objects, concepts, and processes?		
3. JUDGMENT Are your decisions less than satisfactory recently? Are you often confused about what you should do?			10. PROCESSING SPEED Is it taking longer for you to think things through or to learn something new?		
4. LEARNING ABILITY Do you have unusual difficulty understanding concepts, instructions, or directions?			11. IMMEDIATE MEMORY Do you stumble or draw a blank reciting the details of a recent event or when asked to repeat a short list of items?		
5. DELAYED RECALL Do you struggle with words or facts that are “on the tip of your tongue” more than usual? Do you hesitate when asked to repeat something you just learned?			12. GENERAL COGNITIVE FUNCTIONING Do you have unusual difficulty assembling the “big picture” using multiple facts and observations?		
6. LINGUISTIC FUNCTION Is your verbal communication becoming unclear to others?					
7. VERBAL IQ Do you have difficulty with language-based problems, coming up with analogies, or comparing different words?					

“Yes” column doesn’t mean you should hit the panic button, but it does mean you should enlist the help of medical professionals to investigate your cognitive status further.

Neurologists, neuropsychologists, neuropsychiatrists, gerontologists, and some primary care physicians qualify cognitive issues using the noninvasive neuropsychometric assessments named in Table 2, which are administered via booklets or digital screens. Your history and symptoms determine which ones are appropriate in your case.

Neuropsychometric assessments provide a wealth of information about the nature and severity of MCI. If the condition is at the earliest stages, it can be treated with lifestyle and dietary changes, plus natural supplements. In advanced cases of MCI, those that have progressed to intermediary stages or have butted up against the boundary of dementia, doctors will want to know more about its nature, so more powerful interventions can be prescribed.

That’s where the 3.0 Tesla MRI (3T MRI) scanner, a diagnostic tool, comes in.



Table 2: Neuropsychometric Tests to Detect Mild Cognitive Impairment

MCI Symptoms	Assessment(s)
1	Tests of Variables of Attention (TOVA)
2	Central Nervous System Vital Signs (CNSVS), TOVA
3	CNSVS, TOVA
4	Wechsler Memory Scale (WMS), CNSVS, Wechsler Adult Memory Scale (WAIS)
5	WMS, CNSVS
6	Mini-Mental State Examination (MMSE)
7	WAIS
8	Wechsler Memory Scale II (WMS II)
9	General Ability Measure For Adults (GAMA)
10	CNSVS, P300—Brainwave that reveals brain speed and brain voltage (power)
11	WMS, MMSE, RANDT (Memory test designed by CT Randt, MD, and ER Brown, PhD)
12	CNSVS

The 3.0 Tesla MRI has **two times** the field strength of the 1.5T scanner, and **10 to 15 times** the field strength of low field or open MRI scanners that are used in hospitals and medical offices.⁷ The 3.0 Tesla MRI produces high-resolution images.⁸ That means doctors get more detailed and much clearer pictures of brain anatomy and vascular status. (The pictures are so good in the latter case, they often eliminate the need for more invasive, and therefore more risky, catheter insertions.)

Mild cognitive impairment means your brain is short-circuiting. Electrical messages aren't getting through fast enough, or at all. For a treatment plan to be effective, the cause of MCI must be explored.

Why MCI?

A 3T MRI reveals four conditions that result in a diagnosis of MCI:

1. **Atrophy**, or shrinkage, resulting from the loss of cells in the brain,^{9,10}
2. **Demyelination**, the loss of the sheathing that surrounds neurons, which protects them as insulation does copper wiring. Myelination, or the development of the sheath around neurons, continues until age 30; thereafter, demyelination, or deterioration of the sheathing occurs,¹¹
3. **Ischemia**, the restriction of blood flow,¹² and
4. **Calcification**, the hardening of tissue resulting from calcium deposits.¹³

The PATH Foundation NY, with support from the Life Extension Foundation®, conducted a review of 3T MRIs administered to 116 PATH Medical patients, aged 30 to 80, whose domain assessments pointed toward cognitive impairment. Its findings are summarized in Table 3.

In addition to the definitive anatomical explanations for MCI, several contributing factors have been associated with cognitive decline. Aging alone is sufficient cause, which likely doesn't come as a surprise to anyone. Without direct interventions, there's no getting around that we burn up, swell up, dry up, and turn to stone—in the brain and everywhere else.

A family history of Alzheimer's¹⁴ or the presence of the *ApoE4* gene^{15,16} that has been linked to it, concussions and other trauma, and drug abuse all play a role in MCI, as do numerous health issues.¹⁷⁻²⁰

Research is also linking vitamin deficiencies with MCI, which will be discussed in Table 4.^{21,22}

No matter which path MCI has taken to your door, there are approaches that can halt it in its tracks, and even turn it around.

What You Can Do About MCI

The prevention and treatment of MCI is a multi-pronged approach that includes behavior modification, aggressive management of medical conditions, and, when cognitive loss is in its advanced stages, enlisting the support of doctors who are up to speed.

Change Your Life, Change Your Mind

If there is one characteristic of health and wellness (or the lack thereof) that is universal, it's lifestyle. The choices we make every day about what we eat, whether we exercise, and how we support our brains and bodies have a direct bearing on how long we live and on our quality of life.

The best way to handle any health complaint, including MCI, is to avoid it in the first place. A diet rich in foods that represent every color of the rainbow, regular exercise, and nutritional supplements are the first line of defense that can forestall breakdowns. Healthy living can also reduce the severity of medical issues, and it can be instrumental in reversing them too.

Diet

Research on the impact of diet on *neurogenesis*, or the formation of new brain cells, is one breakthrough that will allow treatment and reversal of MCI. Neurogenesis in the hippocampus, a small seahorse-shaped structure in the middle of the brain that plays

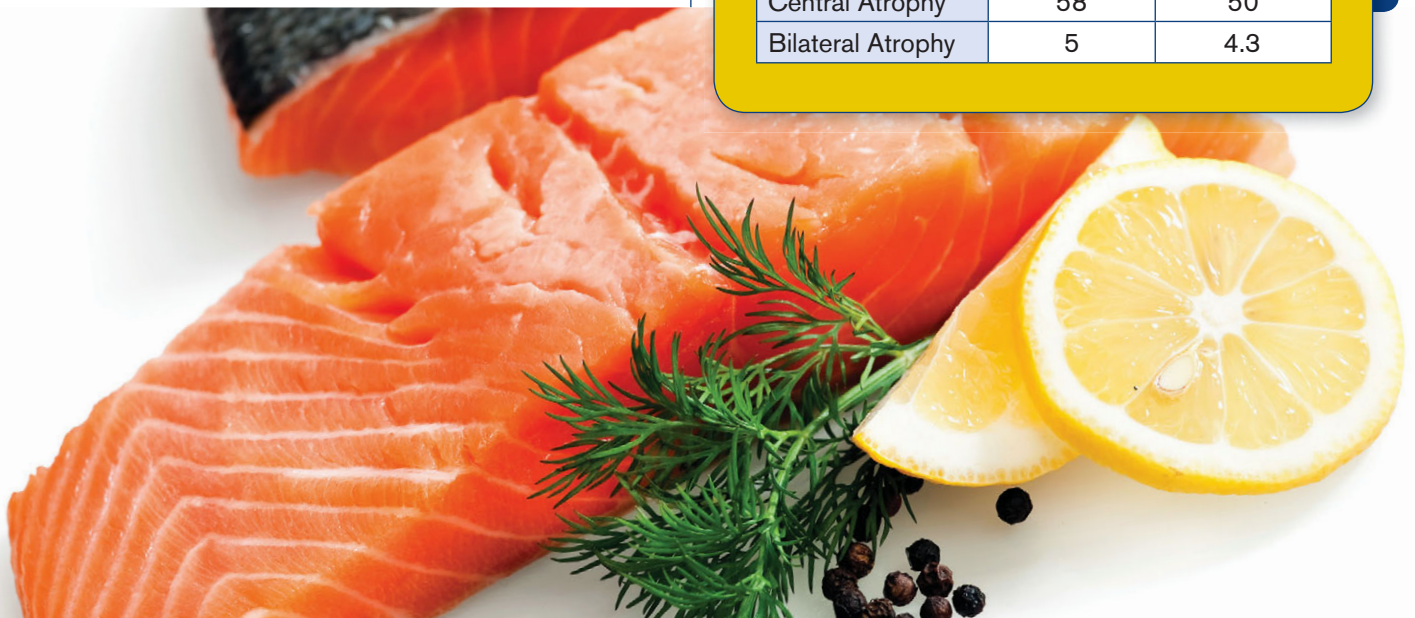
a crucial role in memory, is the most studied in this regard.

It probably also comes as no surprise that fish is brain food.³⁸ Specifically, fin fish, such as salmon, sardines, and mackerel that are chockfull of omega-3 fatty acids.³⁹ Other excellent food sources of fatty acids are walnuts,⁴⁰ pecans,⁴¹ Brazil nuts,⁴² and sunflower seeds.⁴³

Nature is also an abundant supplier of flavonoids, which have been shown to effectively support brain function.⁴⁴ You can find flavonoids in berries, especially dark ones, fruits and vegetables, dark beans,⁴⁵ and spices, including dill, parsley, and thyme.^{46,47} You can even get some flavonoids from a glass of red wine.

**Table 3: PATH Foundation
3T MRI Study**

Conditions Contributing to MCI	Number of Patients Affected (n=116)	Percentage of Patients Affected
Calcification	1	0.8
Small Vessel Ischemia	55	47
Demyelination	47	40
Empty Sella (Pituitary Gland Atrophy)	11	9.5
Hippocampal Atrophy	30	26
Temporal Atrophy	56	48
Central Atrophy	58	50
Bilateral Atrophy	5	4.3



Common Medical Problems That Accelerate Development Of MCI²³⁻³⁷

Obesity
Excessive alcohol consumption
Diabetes
Elevated homocysteine
Sleep disorders
Hypertension
Renal failure
Stroke
High cortisol
Depression
Vascular constriction
Low testosterone
Hypothyroidism
Low estrogen
Prescription drugs
Osteoporosis
Toxins
Psychological stress



Nutritional Supplements

When it comes to brain function, the good news about dietary supplements is running neck-and-neck with that related to exercise.⁶³⁻⁶⁶ In Table 4, you'll note how vital fish consumption is, as fish oil (EPA/DHA) impacts at least three categories, starting with brain power.⁶⁷ Vitamin D is also critical. According to a recent major study, low levels of vitamin D result in a **53%** increased risk for dementia, and those with a serious deficiency have a **125%** higher risk.⁶⁸

The most recent research reveals how these natural supplements are revolutionizing brain health support:

- **Acetyl-L-carnitine arginate** is a patented form of carnitine, an amino acid, which improves brain power and contributes to neurogenesis,^{69,70}
- **Gastrodin**, extracted from the root of an exotic orchid, plays a role in neurogenesis,^{71,72} rhythm,^{73,74} blood circulation,⁷⁵ and neural plasticity,⁷²
- **Uridine-5'-monophosphate**, a nucleotide (organic molecule) or sub-unit of RNA, also contributes to neurogenesis,⁷⁶
- **Alpha-glycerol phosphoryl choline**, a natural B-vitamin, improves brain speed,^{77,78} as do **magnesium L-threonate** (a magnesium salt)⁷⁹ and **methycobalamin** (a form of B12),⁸⁰
- **Ashwagandha** (a plant in the nightshade family, known as Indian ginseng, gooseberry, or winter cherry) contributes to a stable brain rhythm,⁸¹
- **Pregnenolone**, a steroid hormone manufactured in the body via conversion of cholesterol, has positive effects on mood,⁸²
- **Vinpocetine**, derived from the *Vinca minor* (or lesser periwinkle) plant, increases blood circulation to the brain,⁸³
- **Blueberry extract**⁸⁴ and **magnesium L-threonate**^{85,86} have a positive effect on the brain's plasticity.

While we're on beverages, one to three cups of coffee improves brain power.⁴⁸ Caffeine binds to adenosine receptors and in doing so, enhances neuron function, synaptic transmission, and neurotransmitter release in the hippocampus.⁴⁹

Last but not least, there have been numerous studies on the anti-aging benefits of calorie restriction.⁵⁰⁻⁵² Putting down your utensils and avoiding empty calories also helps those electrical messages get through.⁵³

Exercise

You also do not need yet another reminder about the salutary effects of getting off the couch, walking instead of driving, taking the stairs instead of the elevator, and resistance training. We're giving it to you anyway.

Working out your body also gives your brain a workout.^{54,55} Aerobic exercise fires up primary neurotransmitters—dopamine,⁵⁶ GABA,⁵⁷ and serotonin⁵⁵—and anaerobic exercise builds brainpower as it builds muscle.⁵⁸

Get going to keep going. Medical schools used to say that we cannot replace neurons once they are lost. We know now that is not the case, as recent studies are showing that exercise boosts *brain-derived neurotrophic factor* (BDNF), which is critical for neurogenesis.⁵⁹⁻⁶²

Electrical Therapy

Noninvasive cranial electrical stimulation (CES), which administers gentle current via electrodes attached to the forehead and left wrist, has been studied for decades. It accelerates the conversion of amino acids into neurotransmitters, increasing the impact of nutrients and nutritional supplements, and it is proving efficacious in reducing anxiety, depression, and insomnia, and for increasing blood flow to the brain and improving attention span.¹⁰⁴⁻¹⁰⁷

Relationships

If you want to nurture your brain, nurture your social interaction skills. Research is proving that connection to others can generate new brain cells, can improve cognition, and can help in the avoidance of harmful addictions.¹⁰⁸⁻¹¹⁰

Manage Your Recovery

It stands to reason that if you overcome medical conditions, or reduce their negative effects, you break their connection to cognitive decline. Although we cannot address all of the conditions that accelerate MCI within the scope of this article, there are some conditions that stand out when it comes to aggressive self-management.

Caloric restriction can have a major impact on obesity and diabetes, and blood sugar level can be brought under control with fiber¹¹¹ and other supple-

ments, especially chromium,¹¹² DHEA,^{113,114} lipoic acid,¹¹⁵ EPA/DHA,¹¹⁶ bilberry,¹¹⁷ and liberal use of cinnamon.^{118,119} Stress and other psychological issues, osteoporosis, and insomnia respond to the supplements listed in Table 4. Toxins can be removed from the body via chelation.

The last point to be made concerns prescription drugs. They are powerful and can be wonderful treatments, but they also have a downside—side effects, which include MCI. If you are taking any, do your homework and discuss each and every one with your doctor with an eye toward reducing a dosage or eliminating one entirely. After all, nature provides a substitute for just about every pharmaceutical.



Table 4: Brain Support Nutrients^{84,87-103}

Brain Mechanism	Cognitive Impact	Supplement Therapies
Power	Fatigue/Addiction	L-Tyrosine, Folic Acid, Acetyl-L-Carnitine Arginate, EPA/DHA
Neurogenesis	Atrophy	Phosphatidylserine, Resveratrol, Tea Polyphenols, Berry Extracts, Quercetin, Curcumin, Gastrodin, Uridine-5'-Monophosphate
Speed	Demyelination/Memory Loss	Alpha-Glycerol Phosphoryl Choline, Huperzine A, EPA/DHA, Tocotrienols (vitamin E), Magnesium L-Threonate, Methylcobalamin
Rhythm	Anxiety/Stress	GABA, B-Vitamins, Inositol, Gastrodin, Ashwagandha
Mood	Depression/Insomnia	Tryptophan, 5-Hydroxytryptophan (5-HTP), Melatonin, Pregnenolone
Blood Circulation	Ischemia	EPA/DHA, Acetyl-L-Carnitine, CoQ10, Gastrodin, Vinpocetine
Plasticity	Calcification	Vitamin K, Tocotrienols, Magnesium L-Threonate, Blueberry Extract



Get Professional Help

If MCI is more advanced, enlist the support of doctors who have extensive experience with hormone therapies that improve cognitive function. Growth hormone, testosterone, pregnenolone, and thyroid hormone all support neurogenesis; bioidentical estrogen improves brain speed in menopausal women; pregnenolone and progesterone can reduce anxiety, depression, and insomnia; parathyroid hormone impacts osteoporosis; and we now know that the hormone leptin plays a key role in obesity.¹²⁰⁻¹²⁶

Prescription drugs, such as donepezil (Aricept®), can have impacts similar to that of the above hormones, and are indeed effective in the battle against cognitive decline. However, with all of the other weapons at your disposal, they should be your last line of defense.

Summary

Mild cognitive impairment is an ever-growing concern that affects many individuals and all of society. It can be recognized, and it can be prevented. MCI can be reversed in its earliest stages by using proactive lifestyle measures, and its advanced affects can be reduced with effective medical treatment.

Our lives *can* be extended, and we *can* take our brains along for the ride. Going forward, clinical experience and brain research reveal the path that should be taken: A comprehensive brain health checkup assessing anatomy and function is critical for total health and it should be implemented in primary care. Growing older *can* mean growing smarter. ●

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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Bruce Scali has made several contributions to *Life Extension* magazine and has written or edited numerous books across multiple genres. He has broad expertise with cutting-edge healthcare topics, transforming complex subject matter in a manner that makes it accessible to every reader.

More information about Dr. Braverman is available at www.pathmed.com and www.pathfoundationny.org.

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Sesame Seed Lignan Extract	20 mg



Item # 01482

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Wild Blueberry Extract	150 mg
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Dr. Sanda Moldovan Discusses The Overlooked Importance Of **ORAL HEALTH**

Dr. Sanda Moldovan

BY DONNA CARUSO



Dr. Sanda Moldovan, a periodontist/nutritionist who practices in Beverly Hills, California, and New York City, sees a direct link between nutritional intake and oral health. A specialist in dental implants, Dr. Moldovan came to the US from Romania at age 14 and holds degrees in dentistry, including periodontics and oral biology. In addition, she holds a CNS degree (Certified Nutrition Specialist). Dr. Moldovan recently spoke exclusively with *Life Extension* about the critical importance of maintaining optimal oral health for well-being and longevity.

LE: For most people, oral health is an afterthought. If they have a cavity, they get it filled...end of story. But oral health plays an essential daily role in our overall health and well-being.

SM: Yes. The mouth tells us a story, not just about disease, but also about people's habits and their past. The mouth is a gateway into one's health. For example, I may see somebody with teeth that are really worn out. What does this tell me? Chances are, this patient may be bulimic and the acid erosion behind the teeth gives us a snapshot about their daily health.

LE: What is the impact of poor oral care on the body?

SM: Periodontitis has been linked with a higher risk of heart attacks, strokes, and lung infections (especially in nursing homes), pregnancy that leads to low-weight babies, erectile dysfunction, and a few forms of cancer, including pancreatic cancer.

LE: What diseases elsewhere in the body can be detected in the mouth?

SM: Today we have saliva testing for diabetes, cancer, hepatitis B, hepatitis C, and HIV, and some of them are already commercially available. Twenty percent more people go to a dentist than a doctor, so saliva tests at the dentist's office can often alert us to a nascent problem before the person sees their doctor. We can diagnose diabetes, which may show up as bleeding gums; HIV, which shows as a bluish lesion on the roof of the mouth; hyperparathyroidism, which shows up on x-rays as bone irregularity and teeth moving from their positions; hormonal issues, which may cause gingival growths and/or tumors (often in people who don't brush their teeth); menopause (through a burning mouth), and in the case of leukemia, we see people who have good oral hygiene who suddenly get bleeding gums; changes in gum color may indicate sickle cell anemia; and a coated tongue, bluish gums, and increased salivation may be caused by metal intoxication, possibly from mercury or lead.

LE: Which nutrients are the most important for oral health?

SM: Many nutrients are essential for good oral health. Keeping bone and soft tissue healthy may require different nutrients. Bone requires more minerals than just calcium. When I tell some patients that the bone in their jaw is not solid enough, they say, "Oh, I should take more calcium," but it's much more than that. It's the vitamin D level [which is necessary] for the calcium to be absorbed and it's magnesium, boron, silicon, zinc, manganese,

and a lot of trace minerals that are vital for bone formation and mineralization.

Oral soft tissues such as the gums are exposed every day to many different foods that are actually causing injuries. We injure our mouths daily with hot foods or crunchy foods, and we often don't even feel these minor injuries. So we need to repair them with vitamins A, C, and E, which aid in regeneration of the gums and soft tissues.

We are entering the age of personalized medicine and nutrition and should realize that not everyone should take the same supplements. I often have patients keep a four-day diary of everything they eat, so I can gauge what is going on. But the best approach is by doing a nutrition analysis, either via urine or blood, to see exactly where each specific person is deficient and discover what they need. Then they should only supplement with what they're missing to bring levels up to optimal status.

LE: Are these tests and changes all done prior to the surgery so a patient's nutrition level will be conducive to rapid healing?

SM: Usually, unless someone has an emergency and there's no time.

LE: After testing your patients' nutrient levels, do you recommend how much of each supplement they should take?

SM: Yes. Typically, when somebody's healing, they require a little bit more than normal. So for a period of one month after oral surgery, we boost those levels even higher to be sure they get adequate amounts.

LE: How do you advise patients to care for the teeth and mouth?

SM: I recommend brushing two minutes twice a day and water flossing. Most people do better with an electric brush because it does the work for you, but not just any electric brush. I recommend one with a sonic motion, such as the Waterpik Sensonic®. The ones with rotating heads can be very abrasive. I don't like plastic picks that go in between the teeth, because they go only in one direction. The newest Waterpik Water Flosser® does a much better job than manual flossing because the water flows under the gums and all the way around the tooth. And there is impressive data to back it up. For example, when researchers did the first clinical study comparing the Waterpik Water Flosser to string floss they found that water flossing removed more plaque and was up to **50%** more effective for improving gum health. In a later 2009 independent study at the University of Southern California Center for Dental Biofilms, using scanning electron microscopy (SEM), researchers demonstrated that the Water Flosser removed up to **99.9%** of plaque biofilm from the treated area in just three seconds.

Another 2013 independent study added to the clinical evidence. Test subjects using a Water Flosser in conjunction with a manual toothbrush had up to **29%** better reduction in plaque biofilm than people who used a manual toothbrush and string floss.

Be sure to see your dentist every six months, or more often if you have periodontal problems. Also, do a self-assessment oral test, where you look in the mirror and see what's going on in your mouth. If you notice anything unusual, make an appointment with your dentist. If you have pain somewhere, don't ignore it. Sometimes infections of the mouth affect the whole body. Bacteria circulate and

move, so don't let it go. I often see infections extending all the way up into the sinus and causing problems that can make you feel sluggish or worse. It's very important to know what's going on in your mouth.

LE: What about toothpaste and mouthwash? How can you choose from so many products?

SM: I recommend natural toothpaste without fluoride. In certain cases, I believe fluoride should be used as a treatment but only when someone is prone to cavities. If fluoride is needed, it should be placed in a tray in the mouth to prevent swallowing. I don't recommend a mouthwash with alcohol because the pH of most is too low and actually demineralizes teeth. The pH of something like Listerine® is 3.5 and at that pH, if someone swished several times

a day, it would definitely cause demineralization of the teeth. I don't recommend a mouthwash unless it's for special situations, such as dry mouth or a lesion in the mouth that requires something extra.

LE: Why do many dentists recommend fluoride products?

SM: Fluoride kills bacteria and remineralizes teeth. But today we have better ways to remineralize, including MI Paste™, an effective toothpaste containing calcium and phosphate.

LE: What about gum care? What do bleeding gums mean and how can they be reversed?

SM: Bleeding gums can indicate nutritional deficiencies, perhaps of vitamin C, but they also can be caused by serious systemic

problems such as leukemia. They may result from gingivitis, a local infection where bacteria are getting inside the gum, or a step above that, periodontitis, or gum disease, which affects bone surrounding the teeth and is a slow, chronic low-grade infection that needs treatment. The best way to prevent or treat gum disease is by brushing twice a day, water flossing daily, and seeing your dentist or periodontist every six months.

LE: Bisphosphonates, a class of drugs found in Boniva® and other medications for osteoporosis have been linked to cancer of the jaw. What should we know about them?

SM: The latest study by Merck, the company that makes Boniva, found that after seven years of taking a medication with bisphosphonates, like Boniva, the risk of fracture increases. It does the opposite of what it's supposed to do, which is to support bone growth and prevent fractures. I always have a conversation with physicians when I see they've put patients on these drugs because these drugs can cause disturbances in bone metabolism to the point where when I do surgery, it obstructs healing. We see bone in the mouth actually dying, with no ability to heal, especially for those on high doses of bisphosphonates.

LE: How do you work with patients that are on these medications?

SM: I ask why they are taking the medication and how long they've been on it. It may be a treatment for cancer or osteoporosis. Then I talk with their physician about taking them off the medication, at least for a period of a few months until the bone can recover a little,



ASK THE DENTIST

so I can do my procedure. Most patients are unaware of this side effect.

LE: How does oral cancer develop? What are the symptoms and how can it be prevented?

SM: Oral cancer is one of the most common cancers today because of widespread infection with human papilloma virus (HPV). It used to be tobacco that caused most cancers of the mouth, but most head and neck cancers are associated with chronic HPV infection, a virus that currently may only be controlled by maintaining high levels of natural killer cell activity. We do annual cancer screenings in the dental office. The cancer often develops on the side of the tongue, usually with white patches. I recommend everyone do a self-examination at home at least every six months. Use a small flashlight and look in your mouth; look at the insides of the cheeks and check each side of the tongue by pulling it to one side and then the other. Check underneath the tongue and look for white patches that can't be rubbed off or sores that *don't* hurt. Canker sores are very painful and will usually heal within 10 days. Smokers should do these self-exams more often, since they have a higher rate of oral and throat cancer.

LE: What other oral health problems should we look for?

SM: Mouth sores [that are] related to food allergies. The mouth is the opening of the digestive tract and digestion starts in the mouth. For example, if you are gluten intolerant, you probably have sores in your intestinal tract, but they can also show up in the mouth as small, painful recurrent canker



sores. Burning mouth syndrome is another sign and can also be a sign of systemic local allergy. Sometimes it's even from cinnamon toothpaste or gum, since some people are allergic to cinnamon.

LE: What about bad breath?

SM: Bad breath can indicate gum disease, but it could go deeper, such as a problem related to overgrowth of bacteria where the stomach and esophagus meet. In such a case, we look at the teeth. If we don't see an infection, we look deeper. It shouldn't be ignored. People cover up bad breath with lozenges, sprays, and mouthwashes, but if there's something off, have it checked.

LE: What does a red tongue often indicate?

SM: People with a red, fiery tongue usually have an iron deficiency. Some also get redness at the corners of their mouth. That could mean a yeast overgrowth that extends beyond the mouth, often all the way to the intestinal tract, which requires a more systemic detoxification. Redness in the corners of the mouth could also indicate folic acid deficiency. It's not wise to use something topical to cure it because that's just masking the symptoms.

LE: How can we get rid of bad bacteria in our mouths and still maintain good bacteria?

SM: About 10 years ago, people began trying to get rid of *all* bacteria, using antibacterial soap, antibacterial rinse, antibacterial everything, but it's not a good idea. We know today that probiotics are very important for both intestinal and oral health. One of the reasons I don't recommend mouthwashes is because we don't want to get rid of all the bacteria; we want to limit their number with good oral hygiene. That's one of the reasons I love the Waterpik Water Flosser®. It uses just water and it does a great job in just 60 seconds. The other way to nourish good bacteria is to give them good food. Processed foods will grow bad bugs. Wholesome foods, such as fruits, vegetables, and [lean] protein will promote the growth of healthy bacteria.

LE: Thank you so much for the information, Dr. Moldovan. ●

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

Dr. Sanda Moldovan is an award-winning periodontist and nutritionist who is a frequent guest on the TV show "The Doctors." With a firm belief in health from the inside out, Dr. Moldovan believes health issues that manifest in the mouth are key indicators for one's overall health. To contact her, visit www.drsandamoldovan.com/contact.

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- Specifically concentrates in prostate tissue³
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- Helps modulate genetic expression and activity of *androgen receptors*¹¹
- Supports body's natural defenses against oxidation.¹²



• TURMERIC

- Promotes a healthy level of inflammatory response, chiefly due to its main component, *curcumin*¹³
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A bottle of 60 vegetarian capsules of **Pomi-T®** retails for \$33.33. Members of the Life Extension Foundation pay only **\$25** per bottle.

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BY ASTRID DERFLER KESSLER

MISSING MICROBES

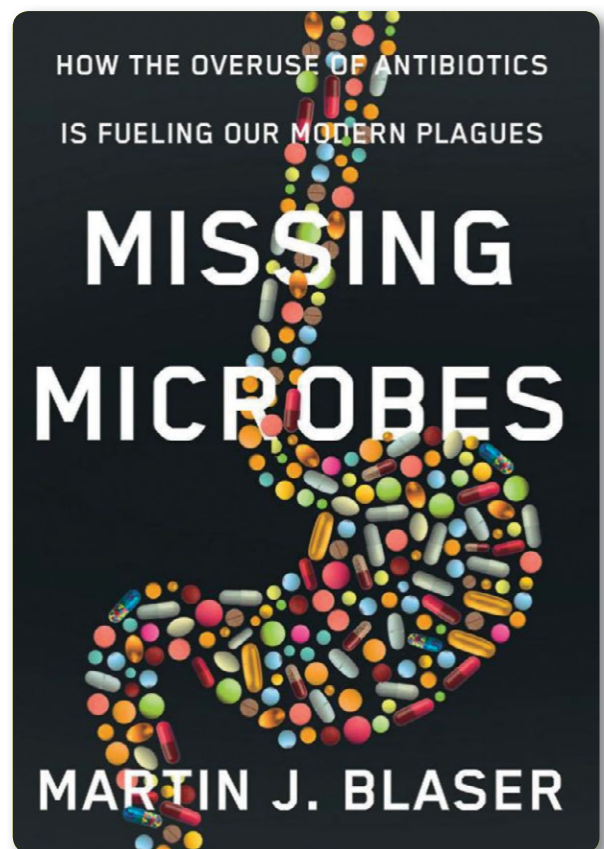
How The Overuse Of Antibiotics
Is Fueling Our Modern Plague

With Martin J. Blaser, MD

Your body is comprised of an estimated 30 trillion human cells, but it is host to more than 100 trillion bacterial and fungal cells, the friendly microbes that co-evolved with our species. In fact, **70 to 90%** of all cells in the body are nonhuman.

For hundreds of thousands of years, human cells and bacterial cells have peacefully coexisted in a symbiotic state that contributed to the health and equilibrium of the human body. But the extensive overuse of antibiotics since their discovery and subsequent production in the last century has spurred the rise of “superbugs,” which are resistant to several kinds of antibiotics. Superbugs infect over 2 million people in the US every year, and kill about 23,000, according to the Centers for Disease Control and Prevention (CDC).

Microbiologist Dr. Martin J. Blaser, Director of the Human Microbiome Program at NYU and author of *Missing Microbes: How the Overuse of Antibiotics Is Fueling Our Modern Plagues*, believes the overuse of antibiotics actually goes even further, and contributes to a host of modern maladies, including diabetes, obesity, asthma, allergies, and certain kinds of cancers.



In this exclusive interview with *Life Extension*®, Dr. Blaser discusses antibiotic overuse and what we can do to prevent and solve even more catastrophic health problems in the near future—which he refers to as an “antibiotic winter”—as well as ways to stop the destruction and decline of beneficial bacteria.

LE: Let's begin with the basics and talk about what microbiomes are and why they play such a crucial role in our health.

MB: Think about your vital organs...your heart, brain, lungs, kidneys, and liver are complex structures that carry out essential functions that keep you alive. But what if I were to tell you that you have another vital “organ” that helps keep you alive but you’ve never seen. It’s all over you, especially inside you...

Perhaps most remarkable is that it seems completely alien. It doesn’t derive from your obviously human cell line. Rather it’s composed of trillions of tiny life forms. The microbes inside you are not a random mix of all species on Earth; every creature has co-evolved with its own collection of microbes that carry out many metabolic and protective functions. In other words, they work for us.

LE: Why are these trillions of microbes so important?

MB: Probably the most important service your microbes provide is immunity. In fact, your microbes constitute an important third arm of the immune system. First, there is innate immunity, based on the fact that most of the microbes with which we’re in contact have structural patterns that are seen by proteins and cells that guard our surfaces. Then, adaptive

immunity is based on the recognition of highly specific chemical structures. Microbial immunity is based on the microbes that are already in your body—your long-term residents—inhibiting outsiders through various mechanisms.

LE: When Alexander Fleming discovered penicillin in 1928, it was called a miracle drug that would bring about a new era of medicine.

MB: Penicillin ushered in a golden age in medicine. Then came others: tetracycline, erythromycin, chloramphenicol, and isoniazid, which brought about the antibiotic era. Formerly lethal diseases could be cured. Almost all great advances in medicine from the second half of the 20th century continuing through today were catalyzed by the development of antibiotics. No harm could come from their use, or so it seemed.

The fallout only came later.

LE: You believe the overuse of antibiotics has altered the delicate balance of microbes living in all of us, and this makes us vulnerable to a wide range of diseases that you call today’s modern plagues.

MB: Since WWII, which is about when antibiotics were introduced, we’ve had the big rise in many diseases: obesity, diabetes, juvenile diabetes, inflammatory bowel disease, allergies... I believe there is one cause that is underneath it all, and that is a change in our ancient microbiome.

LE: We went from the golden age of medicine to the dramatic overuse of these drugs in a relatively short time period. What led to such a drastic overuse of antibiotics?

MB: Because they were so effective and apparently free of obvious risk, doctors and patients alike began to ask: Can’t we solve this problem with antibiotics? The answer, very often, was yes.



I'm not questioning the efficacy of antibiotics on the small minority hospitalized with pneumonias, puerperal sepsis, meningitis, and other severe infectious diseases but rather on millions of healthy people with less serious infections and minor complaints, such as runny nose and skin infections. Tens of millions are prescribed antibiotics in the US alone. The problem is particularly perilous for our children. They are vulnerable in ways we never saw.

LE: How does our overuse of antibiotics harm our children?

MB: The most obvious example of the extravagant use of antibiotics is for the common disorders known as upper respiratory infections...sore throats, runny noses, earaches, sinus pain, and misery. But they are mainly caused by viruses...and antibiotics like penicillin don't work on them.

The magnitude of antibiotic use is enormous and has crept up year after year. By 2010, health-care providers prescribed 258 million courses of antibiotics to people in the US. The highest rate was for children under the age of 2: 1,365 courses per 1,000 babies. The average American child received nearly three courses of antibiotics in his or her first two years of life. They go on to receive another eight courses over the next eight years. Young adults receive, on average, another 13 courses before the age of 40.

The first problem from the overuse of antibiotics was resistance. Simply, the more often we put antibiotics in our bodies and our children's bodies, the more likely we select for bacteria that are resistant to their action. Here's one way it works: A child receives amoxicillin. When it's swallowed, it enters

the bloodstream and travels to all organs and tissues—stomach, lungs, mouth, throat, skin, ears, and in girls, vagina—destroying bacteria. Now we are in trouble. When susceptible species are diminished or killed, population of resistant bacteria expand. With fewer competitors around, resistant bacteria flourish.

LE: This will allow disease to flourish more quickly and spread.

MB: Some infections today are untreatable with current antibiotics and more likely to evolve. A second crisis is looming: the failure of pharmaceutical firms to develop new antibiotics to keep up with the resistance.

LE: Broad-spectrum antibiotics that kill many types of microbes are not the answer. What is?

MB: Very few narrow-spectrum drugs exist. We need to create and test them. If we want an antibiotic specific for *Streptococcus pneumoniae*, we have to identify a target in that organism shared by few, if any, other bacteria. Same for *Staph aureus*. The good news is that it should be relatively simple to develop [them].

LE: Even if we decide to stop taking antibiotics for every common cold and ailment, won't we still be exposed to them in the foods we eat?

MB: Antibiotics arrive in our food, particularly in meats, milk, cheeses, and eggs. Foods are allowed maximum residue limits for antibiotics, establishing upper boundaries of what is permitted. For example, milk can legally have up to **100 micrograms** of tetracycline per kilogram. This



means a child who drinks two cups of milk a day will ingest about **50 micrograms** every day. That's not a lot, but consider that many children drink milk every day, year after year. And that's just tetracycline. A 1990 report indicated that **30 to 80%** of milk samples had detectable antibiotics, especially sulfa drugs and tetracycline. Surveys showed legal limits were exceeded **9%** of the time in meats, milk, and eggs.

LE: In what other ways are we unknowingly exposed to antibiotics?

MB: Most people who say they haven't had an antibiotic in years are mistaken. Antibiotics are found in water. Current purification treatments are excellent for removing harmful bacteria and viruses, but don't fully remove antibiotics. The amounts [are] small but it all adds up.

Densely farmed commercial fish, such as salmon, tilapia, and catfish as well as shrimp and lobster, are given relatively high



of antibiotics, not for growth [but] to combat disease associated with crowded conditions in which they're raised. As with livestock, the FDA requires a washout period, but fish raised domestically are rarely inspected. Fish and shellfish from Asia are more tainted.

LE: You are quick to stress that you are not anti-antibiotics.

MB: I'm not against antibiotics any more than I'm against ice cream—both are great at serving their purpose—but sometimes there can be too much of a good thing. We must curb our appetites for these powerful drugs. This is the biggest, simplest, and most achievable step we can take in the short term. It won't turn back the clock, cut it could help slow the daily carnage to our microbial diversity.

Each of us can take responsibility for how to deal with antibiotics. Tell your doctor you want to wait a few more days before taking amoxicillin for that cough. Or you want to wait another day before you get a prescription for your child

with a head cold. Resist pushing your physician for a quick fix to mitigate your anxiety. Without parental pressure, your doctor can make a better judgment about the need for an antibiotic.

LE: But parents will continue to worry about a sick child and want to rush to the doctor.

MB: I'm not saying wait and see in every instance. Sometimes children are quite ill and should be examined immediately. They are fussy, run high fevers, and gasp for breath. Or they're listless and don't respond normally to light or sound. Their bellies may be swollen. They may have severe diarrhea or a terrible rash. These are true emergencies. At a time like this, parents should reconstruct the events leading up to the onset of symptoms and tell the physician what they recall. After the exam, many acutely ill children will need antibiotics immediately to avoid permanent injury or save their lives. It would be a terrible mistake for a doctor to delay treatment out of concert for causing collateral damage to resident microbes.

LE: Are there any other ways we can help slow down the spread of superbugs?

MB: Inform your dentists you don't want antibiotics unless he or she can convince you the benefits outweigh the risk. Stop using so many sanitizers on yourself and your kids. While the key ingredient, triclosan, is not an antibiotic, it kills bacteria on contact. What's wrong with good old soap and water?

One thing the government can do to reduce overuse of antibiotics [is] prevent farmers from giving them to animals whose products

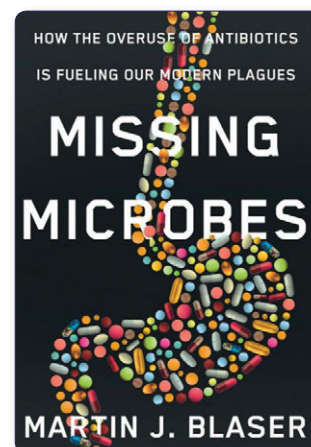
we eat. The carryover of antibiotics into our food and water is completely avoidable. ●

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

Martin J. Blaser, MD, is Past President of the Infectious Diseases Society of America and Founder of the Foundation for Bacteriology and the Virtual Museum of Bacteria. He served as Chair of the Board of Scientific Counselor of the National Cancer Institute, and of the Advisory Board for Clinical Research at the NIH. He was elected to the Institute of Medicine of the National Academy of Sciences in 2011. He is a member of the editorial boards of *Cell Host and Microbe*, *mBio*, *Helicobacter*, *Emerging Infectious Diseases*, *Gut*, and *Microbiome*.

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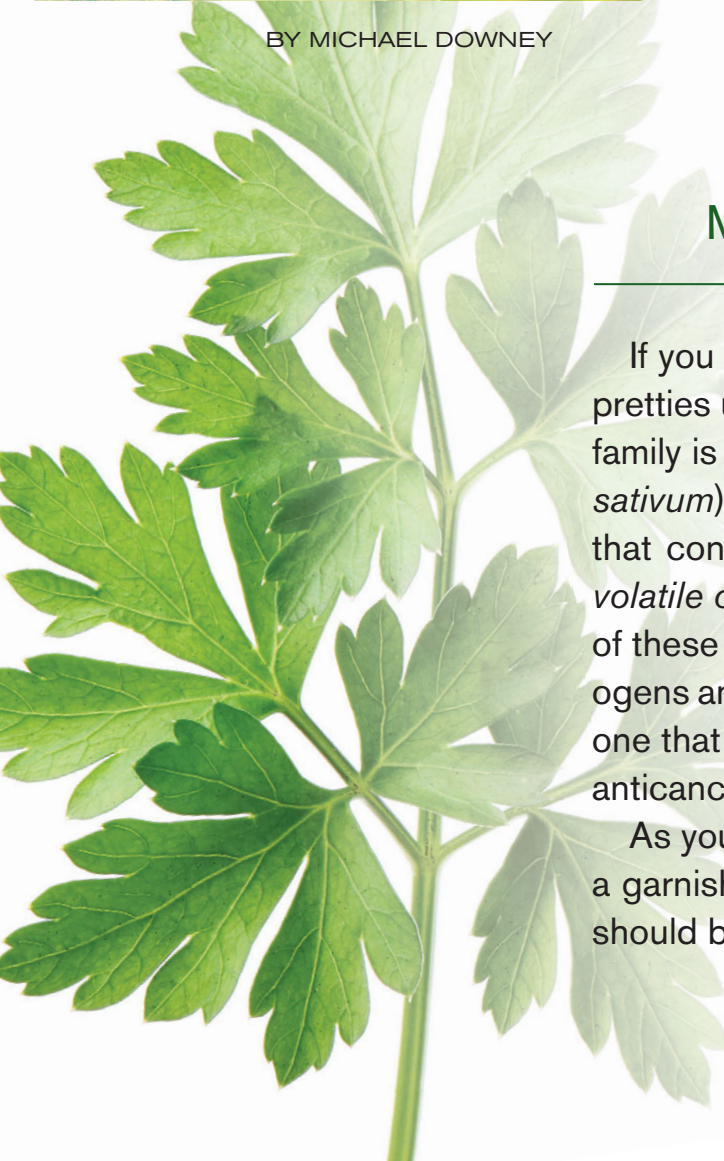
BY MICHAEL DOWNEY

Parsley

More Than A Decorative Garnish

If you think of parsley as only a decorative garnish that pretties up a plate, think again. This member of the carrot family is an undeniable superfood. Parsley (*Petroselinum sativum*)¹ is a low-sodium, low-calorie, and fat-free food that contains two different kinds of potent compounds: *volatile oil components* and *novel flavonoids*. The activity of these volatile oils neutralizes particular types of carcinogens and qualifies parsley as a “chemoprotective” food—one that protects healthy tissues from the toxic effects of anticancer drugs.¹

As you’ll learn in this article, parsley is much more than a garnish: It’s a compellingly nutritious, healing food that should become a part of your regular diet.



Powerful Compounds In Parsley

Novel substances known as volatile oils provide parsley with impressive health benefits. Volatile oils are compounds that deliver strong bioactive effects in extremely small doses. Parsley boasts highly active volatile components such as *myristicin*, *apiol*, *eugenol*, and more.

These volatile oil components, especially *myristicin*, appear to inhibit the formation of cancerous tumors, particularly lung tumors. *Myristicin* helps prevent oxidative damage by activating an enzyme called *glutathione-S-transferase* (GST). GST enables the detoxification of oxidized molecules via the body's natural production of the molecule glutathione. Studies reveal *myristicin* also provides beneficial anti-inflammatory and antibacterial properties.^{1,2}

Eugenol, another volatile oil component of parsley, is an effective antibacterial and antimicrobial agent. It may help control undesirable bacteria in the digestive system, including *Candida* overgrowth, and can be used as an anesthetic and antiseptic for tooth and gum diseases. Most exciting, eugenol has been shown to help reduce blood sugar levels and offers promise as a possible future treatment for diabetes.^{2,4}

Parsley's volatile oils can also help neutralize certain types of carcinogens, such as *benzopyrenes*, which are the toxic chemicals found in smoke from cigarettes and charcoal grilled foods.^{1,5}

Parsley provides another class of powerful compounds: flavonoids. These compounds help protect cells against damage from oxygen-free radicals. *Luteolin*, a specific flavonoid, supports the metabolism of carbohydrates and

provides anti-inflammatory activity. In animal studies, parsley extracts have been shown to raise the free-radical quenching capacity of the blood.^{1,6,7}

Parsley's Other Benefits

In addition to its volatile oils and flavonoids, parsley contains small amounts of protective compounds such as *zeaxanthin*, *lutein*, and *cryptoxanthin*.

At larger therapeutic doses, the ultraviolet light-filtering activity of zeaxanthin is known to help prevent age-related macular degeneration (AMD). Zeaxanthin and lutein protect against cataracts and promote healthy vision.^{2,3}

Chlorophyll—the green pigment found in plants that allows them to convert sunlight to energy—is extremely abundant in





parsley. Some sources suggest that chlorophyll works with the flavonoids in parsley to help enhance cellular formation of an immune-boosting molecule.⁸

It has long been reported that parsley has diuretic properties. A 2002 animal study demonstrated that parsley components raise urinary output. This diuretic activity can inhibit edema and may result in improved blood pressure and enhanced kidney function.⁹

How To Add Parsley To Your Diet

Because many people have come to view this superfood as decorative rather than edible, it is important to look at ways to incorporate parsley into your diet.

There are three parsley types: curly leaf parsley (*P. crispum crispum*), flat-leaf or Italian parsley (*P. crispum neopolitanum*), and the less familiar parsley root or Hamburg parsley (*P. crispum tuberosum*). All three pack a nutritional wallop.

While parsley may be low in sodium, calories, and fat, it's full of vibrant, fresh taste. As a result,

it can be used as a major ingredient in roasted vegetables, rice, pasta, and salad dishes. Parsley is a main constituent of tabbouleh, a Middle Eastern salad made of bulgur wheat and tomatoes.

It can also be chopped and added to hummus, ground meat, soups, omelets, and sauces. And of course, after you've learned to boost your nutrition profile by incorporating a lot more parsley into your daily diet, you can always add a sprig to the side of your plate!

Summary

While many people view parsley simply as a garnish, this low-calorie, low-sodium superfood contains two potent groups of nutrients: volatile oil components and flavonoids, both of which deliver strong health benefits. Increasingly savvy individuals are recognizing parsley as a nutrition powerhouse, and are adding it to their main dishes while reaping powerful health rewards. ●

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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TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT

FOR DNA PROTECTION

Scientists continue to discover healthful benefits—including DNA protection—in **cruciferous vegetables** such as broccoli, cauliflower, cabbage, watercress, and Brussels sprouts. Unfortunately, no matter how healthy you eat, cooking destroys many of these protective plant extracts.

Triple Action Cruciferous Vegetable Extract combines cruciferous plant extracts into a comprehensive formula for optimal DNA protection.

Protective compounds found in cruciferous vegetables like **I3C** (*indole-3-carbinol*) and **DIM** (*di-indolyl-methane*) encourage liver detoxification to help neutralize dangerous xenoestrogens (estrogen-like environmental chemicals that damage the body's hormonal system), as well as beneficially modulate estrogen metabolism.¹⁻⁴

Extracts of **broccoli**, **watercress**, and **rosemary** also provide bioactive compounds that have a multitude of favorable effects on estrogen metabolism and healthy cell division.⁵⁻⁸ **Apigenin**, a powerful plant flavonoid found in plants such as parsley and celery, boosts cell protection.⁹

For those weighing less than 160 pounds, just one capsule a day provides optimal potencies. Those weighing over 160 pounds should consider taking two capsules a day. A bottle containing 60 vegetarian capsules of **Triple Action Cruciferous Vegetable Extract** retails for **\$24**. If a member buys four bottles, the price is reduced to **\$16.50** per bottle. (Item# 01468)

Those who want the added benefits of **trans-resveratrol** can order **Triple Action Cruciferous Vegetable Extract with Resveratrol**. Each capsule provides **20 mg** of *trans-resveratrol* in addition to the vegetable extracts and retails for **\$32** per 60-capsule bottle. If a member buys four bottles, the price is reduced to **\$22.20** per bottle. (Item# 01469)

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To order Triple Action Cruciferous Vegetable Extract,
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Item # 01468

Item # 01469

Triple Action Cruciferous Vegetable Extract provides the following ingredients in just one vegetarian capsule:

Broccoli Super Concentrate Extract (plant and sprout) (providing glucosinolates)	400 mg
Watercress 4:1 extract	50 mg
Indole-3-Carbinol (I3C)	80 mg
Rosemary Extract	50 mg
Cat's Claw Extract	50 mg
Cabbage Extract	25 mg
DIM (Di-indolyl-methane)	14 mg
Apigenin	25 mg

Novel Solution Effectively Treats **CHRONIC SINUSITIS**

Ron Hunninghake, MD



BY MICHAEL DOWNEY

Ron Hunninghake, MD, chief medical officer of the Riordan Clinic in Wichita, Kansas, has devoted his career to the emerging paradigm of self-care: the patient as an informed medical partner. A family medicine physician and international lecturer, he was inducted into the Orthomolecular Medicine Hall of Fame in 2013. Hunninghake has authored or co-authored three books on inflammation, energy-boosting supplements, and how to stop prediabetes. However, it was his work on a clinical study on chronic sinusitis* that prompted us to sit down with him recently to discuss this widespread problem—and a novel solution.

LE: Sinus problems afflict 31 million Americans, who spend \$1 billion annually on over-the-counter sinus products and \$150 million on prescription sinus medications. What are the underlying causes of this condition?

RH: Have your readers examine their tongues in the mirror. There is a high probability that, like so many Americans, they will see a thick, white coating on their tongue. Coated tongues are common now. Why? Fungal yeast overgrowth. *Candida* was once upon a time just a minor player in the GI flora. Now **80 to 90%** of our population unconsciously struggle with this major gut overgrowth organism. Why? Too much sugar and refined carbs in the standard American diet. Everyone is tired and looking for a quick boost. Why? Thyroid dysfunction secondary to over-fluoridation and excessive toxic metals such as mercury in amalgams. These “whys” could go on and on. So the real answer to your question is: There just isn’t one cause. There’s a cacophony of cascading triggers and environmental dysregulators.



LE: So modern environmental factors play a role in this cascade, correct?

RH: Environmental disruptions are now common in the Western population. Overprescribed antibiotics, over-utilized antihistamines, self-prescribed stomach-acid blockers leading to nutrient malabsorption, pervasive hormonal disruption, widespread sleep deprivation, outdoor air pollution, indoor air pollution contributing to nasal allergies and swelling, refined-food allergies and cravings, obesity-triggered cytokine stimulation with the effect of increased systemic inflammation, and mold overgrowth leading to more allergies and fatigue. Endless loops of cascading effects.

LE: Can you explain how exactly these factors are increasingly turning acute sinusitis into chronic sinusitis for so many?

RH: The microbiome of the human gut gets disrupted, so significant *Candida* overgrowth occurs not only in the gut, but also in the posterior nasal pharynx. Mess up the gut and general immunity gets suppressed. Inflammation flares and

often over-responds, thus making the tendency for allergic responses more pronounced. Chronic nasopharyngeal swelling gets worse. Sinuses can't and won't drain. Then, a blocked sinus harbors *persistent* infection. Acute sinusitis becomes chronic sinusitis. Antibiotics stop working. A virtual tsunami of chronic sinus illness is invalidating the "take an antibiotic, a decongestant, and see me in a couple weeks" approach that used to work, some of the time.

LE: Antibiotics simply can't keep up with the ongoing promotion of microbial infections, right?

RH: Right. Antibiotics are commonly prescribed for acute sinusitis but with limited benefits. But without addressing the underlying issues I just mentioned, antibiotics rapidly become useless in chronic sinusitis. Modern drugs do nothing for these root causes other than to actually make these situations worse. As noted by one surgeon regarding any infection, "Given the choice between better drainage and better antibiotics, I would choose better drainage every time."

LE: Ideally, how would healthy sinuses naturally get rid of microbes and other irritants?

RH: The membrane lining of the sinuses secretes mucus and contains antimicrobial agents—such as antibodies—and is sticky in texture to capture small particles and infective microbes. Other protective mechanisms in the human sinuses include cilia, which are small, hair-like projections located in the nostril that normally beat in unison to propel mucus outward, thus expelling infective microbes and other irritant particles. While the air we breathe is filled with yeast spores, viruses, bacteria, and other irritants, a healthy human sinus passage possesses the host defense mechanisms to kill the invading microbes and wash away the irritants.

LE: But this system is sometimes overwhelmed and fails.

RH: For healthy sinuses to be present, the mucous membranes must be intact, and the sinus passages must be open to allow drainage and circulation of air through the nasal passage. But in fact, due to the inherent conditions of warmth, moisture, darkness, sugar substrate for microbes (mucus), and stagnation, the environment of the nasal passages is vulnerable to microbial infections. Sinusitis (inflammation of sinus passages), sleep apnea (cessation of breathing while sleeping), asthma (inflamed bronchial tubes leading to the lungs which causes labored breathing), otitis media (inflammation of the middle ear), headaches, snoring, and more can all be caused by infections or inflammation of the sinus passages.

What Is Sinusitis?

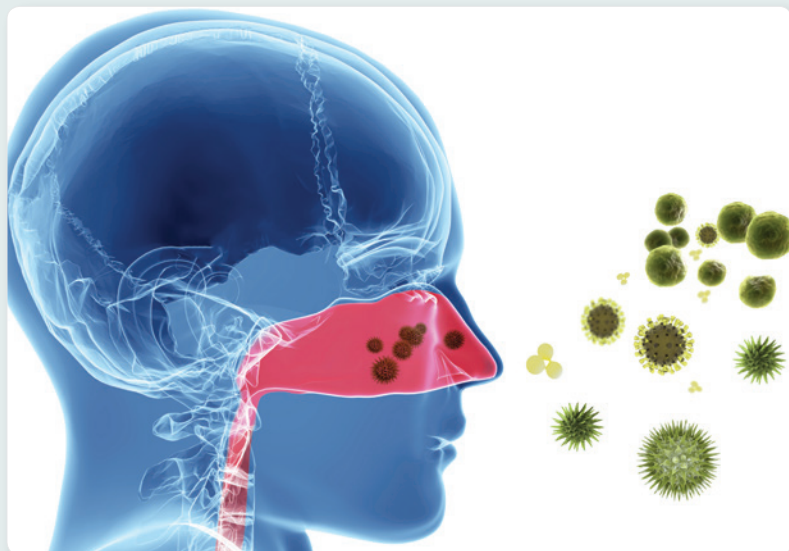
The pockets of air located within the bones of the skull and face are your sinuses. They are connected to your nasal passages by small tubes or channels (the osteomeatal complex). These passageways allow air to flow from the nose into the sinuses and allow drainage of mucus from each sinus into the nose.

The growth of each sinus varies, and therefore, each of our sinuses is different in size and shape. Individual genes determine these variances in the same way that each of us has a unique set of fingerprints. In fact, your right and left sinuses are generally different from each other in size and shape.

The sinus-nose connection (osteomeatal channel) of each individual can also vary substantially in its length or width, impacting greatly the ability of this channel to function properly. If the passageway is very narrow or tortuous, it can easily become blocked by swollen tissue, creating the condition known as sinusitis. If your sinuses are healthy, they have a constant exchange of air and a simultaneous outflow of mucus.

Respiratory tissue produces mucus all the time. Many quarts of mucus are produced in your body every day. The mucus is moved along—by small, hair-like structures called cilia inside the nose and the sinuses—to the back of the nose and down to the throat, where it is then swallowed. Generally, we remain unaware of this mucus process, because the mucus is thin and watery.

In the condition called sinusitis, however, the mucosa becomes very thick and can even form round or oval structures called polyps. This thickening can be caused by numerous factors. The mucus also can thicken and be difficult to clear from your nose and throat. This creates uncomfortable symptoms and feelings, such as “post nasal drip,” constant throat-clearing, and persistent cough—all telltale signs of sinusitis.



LE: Self-irrigation with saline solutions is frequently used for both acute and chronic sinusitis. Is this a substantially effective and safe remedy?

RH: Self-irrigation with saline promotes better drainage that is so valued by surgeons. Allergens, accumulated mucus plugs, microbes, and general stasis in the nasopharyngeal passage are cleared away with this relatively simple procedure. Then, the body's own healing mechanisms are allowed to function better so that the afflicted patient can breathe and sleep better, allowing for a renewed and invigorated immune response to the infection.

LE: You led a clinical study on the effectiveness of a commercial nasal irrigation solution.* How does this product differ from the standard 2% saline solution?

RH: The addition of several natural ingredients to the saline solution improved SNOT scores in our crossover study and...

LE: SNOT scores?

RH: Yes. SNOT stands for Sino-Nasal Outcome Test [a patient-reported measure of outcome in sino-nasal disorders]. Really. Who says ENT researchers lack a sense of humor? The added ingredients were homeopathic in dose and nonirritating to the user. Some of the ingredients included silver hydrosol [a silver colloidal suspension] and oregano for their antimicrobial and antifungal properties—benefits that persist without the development of microbial resistance. Grapefruit seed extract and *Baptisia tinctoria* [wild indigo] were included for

their anti-allergy and decongestant properties. Dosages were almost infinitesimally, thus significantly reducing any risk for the typical drying and clogging side effects found in over-the-counter antihistamine/decongestants.

LE: In this crossover study, two saline solution products were tested—only one of which contained the natural antimicrobial and decongestant ingredients you’ve described. Can you explain what results you documented?

RH: The treated group of 10 subjects was compared to an untreated control group of 18 subjects, all of whom were selected for inclusion in the study due to chronic sinusitis conditions. Two different treatments were compared to the untreated group in crossover protocol. A simple, buffered, **2%** hypertonic [containing higher concentration than found in normal cells] saline solution reduced sinus symptoms by **20%**, relative to the untreated controls. A commercially available, isotonic [containing the same concentration as normal cells] saline solution with natural antimicrobial agents, reduced sinus symptoms a statistically significant **27%**, compared to the untreated group. This product claims to have been used by over 30,000 consumers and is sold under the trade name Sinus Cleanser®.

LE: For how long after the treatment was stopped did the participants experience symptom reduction and were there any undesirable side effects?

RH: Three weeks after subjects stopped using sinus irrigation, there was no significant relapse of symptoms in the treated group.

Mild, temporary stinging and burning side effects were mentioned by some participants.

LE: Would any simple dietary or lifestyle changes provide additional support for chronic sinusitis patients?

RH: Reduce sugar and refined carbohydrates to reduce inflammation and the tendency for yeast overgrowth. A good probiotic regimen is strongly recommended.

LE: Left untreated, what sort of further health problems can sinusitis create?

RH: Progressive nasal obstruction and facial congestion is often accompanied by headache and fatigue. Lost work days, heavy use of antibiotics—with their complications and expensive. Often, ineffective sinus surgery is the long-term result.

LE: What is the best way to determine the main underlying cause of an individual’s sinusitis?

RH: See a doctor trained in Functional Medicine for a complete workup.

LE: Will Sinus Cleanser® help with seasonal allergy relief? In fact, should chronic sinus sufferers use it regularly?

RH: Yes. For long-term sinus sufferers, prophylactic daily use is recommended. Clearing the underlying root causes of chronic inflammation may [eventually] obviate the need for perpetual use of this product.

Sinusitis is more than just a nuisance and inability to get your breath. The most common avenue of fungal spores into the human

body is via the upper respiratory tract. Hence, keeping the sinuses clean and healthy is one way to reduce the risk for more serious systemic infections.

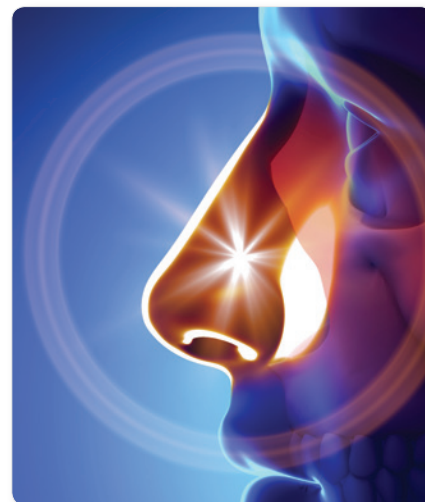
LH: Thanks for this information, Dr. Hunninghake.

RH: Thank you.

For more information on Dr. Ron Hunninghake or the Riordan Clinic in Wichita, Kansas, visit <http://www.riordanclinic.org/> or call 1-800-447-7276 for information or an appointment. Dr. Hunninghake is the author of several books including *User’s Guide to Inflammation, Arthritis, and Aging: Learn How Diet and Supplements Can Reduce Inflammation and Slow the Aging Process*, which is available at Amazon.com.

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

* Hunninghake RE, Davis DR. A comparison of two nasal irrigation solutions with no treatment in chronic sinusitis sufferers. *Townsend Letter*. Dec 2012;66-73.



TAP THE POWER OF N-Acetyl-L-Cysteine

For more than **40 years**, the antioxidant compound **N-acetyl-L-cysteine**, or NAC, has been recognized for its role in supporting bronchial and respiratory health.¹⁻¹⁰ Today, a *burst* of renewed scientific interest has yielded fresh insights into its role in supporting overall health.

At the core of N-acetyl-L-cysteine's power is its ability to support healthy cellular levels of **glutathione** (GSH), a nutrient utilized by all cells for protection against free radical damage and insults from foreign compounds.

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Over **30** placebo-controlled clinical trials involving cellular glutathione have indicated beneficial effects of oral **N-acetyl-L-cysteine** on health, quality of life, and well-being.¹¹

Aside from its role in glutathione synthesis, N-acetyl-L-cysteine serves as a highly *bioavailable* nutrient in its own right. Upon ingestion, it is readily absorbed and promotes direct cellular protection throughout the body via multiple physiological pathways.¹²⁻²¹ It provides immune support,⁵⁻⁸ helps liver cells to efficiently metabolize lipids and neutralize free radicals,²² and has been shown to supply nutritional support to neurons in the presence of oxidative stress.²³

Individuals seeking support for system-wide health with **Life Extension® N-Acetyl-L-Cysteine** may choose to ingest between **600-1,800 mg per day**.

The retail price for a bottle containing **60 600 mg** vegetarian capsules of **N-Acetyl-L-Cysteine** is \$14. If a member buys four bottles, the price is reduced to **\$10.13** per bottle.

Caution: Those who supplement with NAC should drink six to eight glasses of water daily in order to prevent cysteine renal stones. Cysteine renal stones are rare but do occur.

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Nearly 40 million Americans suffer from persistent sinus issues,¹ despite the frequent use of saline solution. The reason for these persistent problems is that regular sinus products do not get to the root of the problem.

For healthy sinuses to function as intended, mucous membranes must be intact and the sinus passages open to allow for proper drainage and circulation of air through the nasal passage.

Sinus Cleanser™ is an all-natural, patented saline nasal wash that provides homeopathic doses of wild indigo (*Baptisia tinctoria*), oregano, grapefruit seed extract, and colloidal silver—all within an isotonic solution of salt water that is buffered for proper pH balance. This synergistic solution supports natural defenses and washes away microbes, dust, debris, pollen, and other irritants. And because **Sinus Cleanser™** is non-medicated, there is no rebound effect.

This unique formula gives your sinuses a chance to adjust into an ongoing, healthier balance of normal mucus flow that allows your body to continually keep your sinuses healthy and clear. If you suffer from sinus congestion, work around dust, or fly regularly, you may find some relief in regular use of **Sinus Cleanser™**.

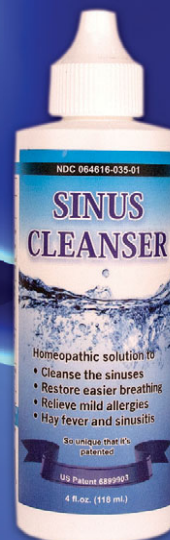
In a placebo-controlled clinical trial of people with chronic sinus concerns, use of **Sinus Cleanser™** reduced symptoms by **27%**. As a result of this rebalancing, study subjects experienced no significant relapse of symptoms—even three weeks after treatment was stopped.²

Do not use **Sinus Cleanser™** more than once daily.

A 4-ounce bottle of **Sinus Cleanser™** retails for \$25.
If a member buys a bottle, the price is reduced to **\$18.75** per bottle.

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Item # 01249

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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.

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<p>○ FEMALE LIFE EXTENSION PANEL (LC322535) \$269 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, TSH for thyroid function, Free Testosterone, Estradiol, Total Testosterone, Progesterone, Vitamin D 25- hydroxy, Hemoglobin A1c</p>	<p>KIDNEY FUNCTION PANEL BUN BUN/Creatinine Ratio Creatinine Uric Acid</p> <p>BLOOD PROTEIN LEVELS Total Protein Globulin Albumin Albumin/Globulin Ratio</p> <p>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</p>
<p>○ WEIGHT LOSS PANEL-COMPREHENSIVE (LC100028) \$275 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.</p>	<p>BLOOD MINERAL PANEL Calcium Sodium Potassium Chloride Phosphorus Iron</p>
<p>○ WEIGHT LOSS PANEL-BASIC (LC100027) \$130 CBC/Chemistry profile (see description above right), DHEA-S, free and total Testosterone, Estradiol, Progesterone, Cortisol, TSH, Free T3, Insulin and Hemoglobin A1c.</p>	<p>○ COMPREHENSIVE THYROID PANEL (LC100018) \$199 TSH, T4, Free T4, Free T3, Reverse T3, TPO, ATA</p>
<p>○ MALE HORMONE ADD-ON PANEL (LCADDM)* \$155 Pregnenolone and Dihydrotestosterone (DHT) To provide an even more in-depth analysis of a man's hormone status, Life Extension has created this panel as an addition to the Male Life Extension Panel. This panel provides valuable information about a testosterone metabolite that can affect the prostate, and the mother hormone that acts as a precursor to all other hormones.</p>	<p>○ FOOD SAFE ALLERGY TEST** (LCM73001) \$198 This test measures delayed (IgG) food allergies for 95 common foods.</p>
<p>○ FEMALE HORMONE ADD-ON PANEL (LCADDF)* \$125 Pregnenolone and Total Estrogens To provide an even more in-depth analysis of a woman's hormone status, Life Extension has created this panel as an addition to the Female Life Extension Panel. This panel provides valuable information about total estrogen status, and the mother hormone that acts as a precursor to all other hormones.</p>	<p>○ ADRENAL FUNCTION PANEL (LC100021) \$136 DHEA-S, AM/PM Cortisol, Glucose, Insulin, Lipid Panel, RBC magnesium</p>
<p>○ LIFE EXTENSION THYROID PANEL (LC304131) \$75 TSH, T4, Free T3, Free T4.</p>	<p>○ HEALTHY AGING PANEL-COMPREHENSIVE† (LC100026) \$249 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.</p>
<p>○ FEMALE COMPREHENSIVE HORMONE PANEL* (LC100011) \$299 CBC/Chemistry Profile (see description above right), DHEA-S, Estradiol, Total Estrogens, Progesterone, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.</p>	<p>○ HEALTHY AGING PANEL-BASIC† (LC100025) \$149 CBC/Chemistry profile (see description above), C-reactive protein (high sensitivity), Vitamin B12, Folate, Vitamin D 25-hydroxy, Hemoglobin A1c, TSH, Ferritin, and Insulin.</p>
<p>○ MALE COMPREHENSIVE HORMONE PANEL* (LC100010) \$299 CBC/Chemistry Profile (see description above right), DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.</p>	<p>○ VAP™ TEST* (LC804500) \$90 The VAP™ cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid profile. Direct measurements, not estimations, are provided for total cholesterol, LDL, HDL, VLDL, and cholesterol subclasses.</p> <p>○ VAP™ PLUS* (LC100009) \$330 VAP, C-Reactive Protein (high sensitivity), Homocysteine, Fibrinogen, PLAC® Test (Lp-PLA2), Vitamin D 25-hydroxy.</p>

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

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



Other Popular Tests and Panels Life Extension Member Pricing

- ☐ **NUTRIENT PANEL[†] (LC100024)** **\$349**
Vitamin B12, Folate, Vitamin D 25-hydroxy, Vitamin C, Vitamin A, Selenium, Zinc, CoQ10, and RBC magnesium.
- ☐ **ENERGY 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.
- ☐ **ANEMIA PANEL* (LC100006)** **\$86**
CBC/Chemistry Profile (see description previous page), Ferritin, Total Iron Binding Capacity (TIBC), Vitamin B12, Folate, Reticulocyte Count.
- ☐ **INFLAMMATION PANEL (LC100007)** **\$135**
CBC/Chemistry Profile (see description previous page), C-Reactive Protein (high sensitivity), Sedimentation Rate, Rheumatoid (RA) Factor, Antinuclear Antibodies (ANA) Screen.
- ☐ **THYROID ANTIBODY PROFILE (LC100004)** **\$99**
Thyroid Antithyroglobulin Antibody (ATA) and Thyroid Peroxidase Antibody (TPO).
- ☐ **CARDIAC PLUS* (LC100008) \$145**
CBC/Chemistry profile (see description previous page), Vitamin D 25-hydroxy, C-Reactive Protein (high sensitivity), Fibrinogen, Homocysteine.
- ☐ **Lp-PLA2 (PLAC[®] TEST) (LC123240)** **\$125**
This test is used to aid in predicting risk for coronary heart disease, and ischemic stroke associated with atherosclerosis. Lp-PLA2 is a cardiovascular risk factor that provides unique information about the stability of the plaque inside your arteries.
- ☐ **GLYCOMARK (LC500115)** **\$99**
This test measures your average **maximum** glucose over the past two weeks and is an effective tool in monitoring postmeal glucose control.
- CANCER RISK TESTING**
- ☐ **IGF-1 (LC010363)** **\$75**
High levels of IGF-1 (Insulin-like growth factor) are associated with breast and prostate cancer.
- ☐ **NATURAL KILLER CELL SURFACE ANTIGEN (LC505016)** **NEW \$110**
Natural Killer (NK) Cells are highly selective white blood cells found in our immune system. They patrol the body looking for cells that are infected with cancer or other viruses. This test measures the number of natural killer cells but it does not measure their activity.
- ☐ **PSA (PROSTATE SPECIFIC ANTIGEN) (LC010322)** **\$31**
Screening test for prostate disorders and possible cancer.
- ☐ **GALECTIN-3 (LC004110)** **\$90**
Increased concentrations of galectin-3 are prevalent in growing cancers such as prostate, ovarian and breast.

- HORMONES**
- ☐ **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.
- ☐ **MALE BASIC HORMONE PANEL (LC100012)** **\$75**
DHEA-S, Estradiol, Free and Total Testosterone, PSA
- ☐ **FEMALE BASIC HORMONE PANEL (LC100013)** **\$75**
DHEA-S, Estradiol, Free and Total Testosterone, Progesterone
- ☐ **DIHYDROTESTOSTERONE (DHT)* (LC500142)** **\$99**
Measures serum concentrations of DHT.
- ☐ **ESTRADIOL (LC004515)** **\$33**
For men and women. Determines the proper amount in the body.
- ☐ **INSULIN FASTING (LC004333)** **\$25**
Can predict those at risk of diabetes, obesity, heart and other diseases.
- ☐ **PREGNENOLONE* (LC140707)** **\$116**
Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.
- ☐ **PROGESTERONE (LC004317)** **\$55**
Primarily for women. Determines the proper amount in the body.
- ☐ **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**
- ☐ **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.
- ☐ **FERRITIN (LC004598)** **\$28**
Ferritin levels reflect your body's iron stores and is also a biomarker for insulin resistance.
- ☐ **VITAMIN B12/FOLATE (LC000810)** **\$33**
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.

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

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

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

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

TERMS AND CONDITIONS

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

Signature of Life Extension Member

X

Life Extension Foundation Members only

MEMBER NO.

☐ Male ☐ Female

Name

Date of Birth
(required) / /

Address

City

State

Zip

Phone

Credit Card No.

Expiration Date /

Mail your order form to:

LifeExtension[®]
National Diagnostics, Inc.

3600 West Commercial Boulevard
Fort Lauderdale, FL 33309

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

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

Certain restrictions apply for residents of MA, NY, NJ, RI, and PA. Customers in MA, NY, NJ, and RI will receive a blood draw kit, and an additional local blood draw fee may be incurred. PA customers must go to LabCorp for their blood draw; we are unable to send kits of any kind.

PRODUCTS

AMINO ACIDS

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

BONE & JOINT HEALTH

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

BRAIN HEALTH

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

DIGESTIVE

Bifido GI Balance
Carnosoothe w/PicroProtect
Digest RC™
Esophageal Guardian
Enhanced Super Digestive Enzymes
Extraordinary Enzymes
FlorAssist® Probiotic
Gutzy Chewy Digestive Tablets
Pancreatin
Regimint
Theralac Probiotics

DURK AND SANDY PRODUCTS

Blast™
Inner Power™

EYE CARE

Bilberry Extract
Brite Eyes III
Eye Pressure Support with Mirtogenol®
MacuGuard® Ocular Support
MacuGuard® Ocular Support with Astaxanthin
Solarshield Sunglasses
Super Booster w/MacuGuard® Ocular Support

FIBER

AppleWise Polyphenol
Fiber Food
TruFiber®
WellBetX PGX® plus Mulberry

FOOD

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

HAIR CARE

Dr. Proctor's Advanced Hair Formula
Dr. Proctor's Shampoo
Super-Absorbable Tocotrienols

HEART HEALTH

AppleWise Polyphenol
Advanced Lipid Control
Advance Olive Leaf Vascular Support w/Celery Seed Extract
Aspirin (Enteric Coated)
Cardio Peak™ w/Standardized Hawthorn and Arjuna Cho-Less™
D-Ribose Tablets
D-Ribose Powder
Endothelial Defense™ with Full-Spectrum Pomegranate™
Fibrinogen Resist
Forskolin
Homocysteine Resist
Natural BP Management
Peak ATP® with GlycoCarn®
PhosphoOmega®
Policosanol
PROVINAL® Purified Omega-7
Pycnogenol® French Maritime Pine Bark Extract
Red Yeast Rice
Super Absorbable CoQ10™ with d-Limonene
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Super Omega with Krill & Astaxanthin
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with BioPQQ®
Super Ubiquinol CoQ10 with Enhanced Mitochondrial™ Support
Theaflavin Standardized Extract
TMG Powder
TMG Liquid Capsules

HERBAL/PHYTO PRODUCTS

Artichoke Leaf Extract
Asian Energy Boost
Astaxanthin w/Phospholipids
Berry Complete
Blueberry Extract
Blueberry Extract w/Pomegranate
Butterbur Extract w/Standardized Rosmarinic Acid
Calcium D-Glucarate
Enhanced Berry Complete with Acai
Full-Spectrum Pomegranate™
Grapeseed Extract with Resveratrol & Pterostilbene
Huperzine A
Kyolic® Garlic Formula 102 + 105
Kyolic® Reserve
Mega Green Tea Extract
Mega Green Tea Extract (Decaffeinated)
Mega Lycopene Extract
Optimized Ashwagandha Extract
Optimized Garlic
Pomegranate Extract
Pycnogenol
Optimized Quercetin
Resveratrol with Synergistic Grape-Berry Actives

Rhodiola Extract
Silymarin
SODzyme™ with GliSODin®
Stevia Extract
Advanced Bio-Curcumin® with Ginger & Turmerones
Super Bio-Curcumin®
Super Ginkgo Extract
Triple Action Cruciferous Vegetable Extract
Venotone
Whole Grape Extract

HORMONES

Advanced Natural Sex for Women® 50+
7-KETO® DHEA
DHEA
DHEA Complete
Liquid Melatonin
Melatonin
Melatonin Timed Release
Natural Estrogen with Pomegranate Extract
Pregnenolone
ProgestaCare for Women
Super Miraforte with Standardized Lignans

IMMUNE ENHANCEMENT

AHCC® (Active Hexose Correlated Compound)
Black Cumin Seed Oil
Black Cumin Seed Oil w/Bio-Curcumin®
Buffered Vitamin C Powder
Echinacea Extract
FlorAssist™ Probiotic
i26 Hyperimmune Egg
Immune Modulator w/Tinofend®
Immune Protect with PARACTIN®
Immune Senescence Formula™
Lactoferrin
NK Cell Activator™
Norwegian Shark Liver Oil
Optimized Fucoidan w/Maritech® 926
Peony Immune
ProBoost™ Thymic Protein A
Reishi Extract Mushroom Complex
RiboGen™ French Oak Wood Extract
Standardized Cistanche
Vitamin C w/Dihydroquercetin
Zinc Lozenges

INFLAMMATORY REACTIONS

Arthro-Immune Joint Support
ArthroMax® with Theaflavins
Boswellia
Bromelain (Specially-coated)
Cytokine Suppress™ with EGCG
DHA (Vegetarian Sourced)
Fast Acting Joint Formula
Ginger Force®
Krill Healthy Joint Formula
5-LOX Inhibitor w/AprèsFlex®
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Nervia®
Organic Golden Flax Seed
Serraflazyme
SODzyme™ with GliSODin® and Wolfberry
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Tart Cherry w/Standardized CherryPURE®
Zyflamend® Whole Body

LIVER HEALTH

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

MINERALS

Advanced Iodine Complete
Biosil
Bone Restore
Bone Strength Formula w/KoAct®
Bone-Up™
Boron Capsules
Calcium Citrate with D3
Chromium Ultra
Copper
Iron Protein Plus
Magnesium
Magnesium Citrate
Only Trace Minerals
Optimized Chromium w/Crominex® 3+
OptiZinc
Sea-Iodine™
Selenium
Se-Methyl L-Selenocysteine
Strontium
Vanadyl Sulfate
Zinc Lozenges

MISCELLANEOUS

Blood Pressure Monitor Arm Cuff
CR Way Edition Advanced Dietary Software

MITOCHONDRIAL SUPPORT

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

MOOD RELIEF

Adrenal Energy Formula
Bioactive Milk Peptides
L-Theanine
5 HTP
Enhanced Natural Sleep® w/ Melatonin
Enhanced Natural Sleep® w/o Melatonin
Natural Stress Relief
SAME
L-Tryptophan
Optimized Tryptophan Plus

MOUTH CARE

Advanced Oral Hygiene
Toothpaste
Xyliwhite™ Mouthwash

MULTIVITAMIN

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

PET CARE

Cat Mix
Dog Mix

PROSTATE & URINARY HEALTH

Optimized Cran-Max® with UTIRose™
5-LOXIN®
PalmettoGuard® Saw Palmetto w/Beta Sitosterol
PalmettoGuard® Saw Palmetto/Nettle Root
Formula w/Beta-Sitosterol
Pomi-T®
ProstaPollen™

Ultra Natural Prostate Formula
Water-Soluble Pumpkin Seed Extract

SKIN CARE

Advanced Lightening Cream
Advanced Peptide Hand Therapy
Advanced Triple Peptide Serum
Advanced Under Eye Serum with Stem Cells
Amber Self MicroDermAbrasion
Anti-Aging Mask
Anti-Glycation Serum
Anti-Aging Rejuvenating Face Cream with Coffee Extracts
Anti-Aging Rejuvenating Scalp Serum
Antioxidant Rejuvenating Foot Cream
Antioxidant Rejuvenating Foot Scrub
Antioxidant Rejuvenating Hand Cream
Antioxidant Rejuvenating Hand Scrub
Anti-Redness & Blemish Lotion
Bio-Collagen w/Patented UC-II®
Bioflavonoid Cream
Broccoli Sprout
Corrective Clearing Mask
DNA Repair Cream
Dual-Action MicroDermAbrasion
Essential Plant Lipids Reparative Serum
Face Master® Platinum
Face Rejuvenating Antioxidant Cream
Enhanced FernBlock® with Red Orange Complex
Fine Line-Less
Hair Suppress Formula
Healing Formula All-in-One Cream
Healing Mask
Hyaluronic Facial Moisturizer
Hydrating Anti-oxidant Face Mist
Hydroderm®
Lifting & Tightening Complex
Lycopene Cream
Melatonin Cream
Mild Facial Cleanser
Neck Rejuvenating Antioxidant Cream
Pigment Correcting Cream
(Ultra) Rejuvenex®
Rejuvenex® Body Lotion
Rejuvenex® Factor Firming Serum
Rejuvenating Serum
Renewing Eye Cream
Resveratrol Anti-Oxidant Serum
Skin Lightening Serum
Skin Restoring Phytoceramides w/Lipowheat®
Skin Stem Cell Serum
Stem Cell Cream w/Alpine Rose
Ultra Rejuvenex®
Ultra RejuveNight® w/o Progesterone
Ultra Lip Plumper
Ultra Wrinkle Relaxer
Under Eye Refining Serum
Under Eye Rescue Cream
Vitamin C Serum
Vitamin D Lotion
Vitamin E-ssential Cream
Vitamin K Healing Cream
Youth Serum

SOY

Natural Estrogen w/Pomegranate
Super Absorbable Soy Isoflavones
Ultra Soy Extract

SPECIAL PURPOSE FORMULA

AMPK Activator
Anti-Alcohol Antioxidants w/HepatoProtection Complex
Benfotiamine w/Thiamine
Breast Health Formula
Butterbur Extract w/Standardized Rosmarinic Acid
Chlorella
Chlorophyllin
Green Coffee Extract CoffeeGenic®
Coriolus Super Strength
CR Mimetic Longevity Formula
Cinsulin® w/InSea2®
and Crominex® 3+

European Leg Solution Diosmin 95
Fem Dophilus
Femmenessence MacaPause®
GlycemicPro™ Transglucosidase
Migra-eeze™
NAD+ Cell Regenerator™
Nicotinamide Riboside
Natural Female Support
Optimized Resveratrol w/NAD+ Cell Regenerator™
Pecta-Sol®
Potassium Iodide
PQQ Caps with BioPQQ®
PteroPure®
Prelox® Natural Sex for Men®
Pyridoxal 5' - Phosphate
Sinus Cleanser
Tri Sugar Shield™

SPORTS PERFORMANCE

Creatine Capsules
DMG (N, N-dimethylglycine)
L-Glutamine Capsules
L-Glutamine Powder
Whey Protein Isolate
Whey Protein Concentrate

VITAMINS

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

WEIGHT MANAGEMENT

Advanced Anti-Adipocyte Formula w/Meratrim® & Integra Lean®
Advanced Natural Appetite Suppress
CalReduce Selective Fat Binder
CoffeeGenic® Green Coffee Extract
7-KETO DHEA
DHEA® Complete
Fucosanthin Slim™
Garcinia HCA
HCAActive
Integra-Lean® African Mango Irvingia
Optimized Irvingia w/Phase 3™ Calorie Control Complex
Optimized Saffron with Satiereal®
Natural Glucose Absorption Control
Super Citrimax®
Super CLA Blend w/Guarana and Sesame Lignans
Super CLA Blend w/Sesame Lignans
Waist-Line Control™
Weight Management Formula
WellBetX PGX® plus Mulberry

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
A					
01524	ACETYL-L-CARNITINE - 500 mg, 100 veg. caps	\$34.00	\$25.50		
	Buy 4 bottles, price each	30.00	22.50		
01525	ACETYL-L-CARNITINE ARGINATE - 100 veg. caps	59.00	44.25		
	Buy 4 bottles, price each	50.99	38.24		
01628	ADRENAL ENERGY FORMULA - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01630	ADRENAL ENERGY FORMULA - 120 veg. caps	46.00	34.50		
	Buy 4 bottles, price each	42.00	31.50		
01828	ADVANCED LIPID CONTROL - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01521	ADVANCED ORAL HYGIENE - 60 mint lozenges	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00681	AHCC - 500 mg, 30 caps	59.98	44.99		
00457	ALPHA-LIPOIC ACID w/BIOTIN (SUPER) - 250 mg, 60 caps	37.00	27.75		
	Buy 4 bottles, price each	32.00	24.00		
01907	AMPK ACTIVATOR - 90 veg. caps	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01440	ANTI-ALCOHOL ANTIOXIDANTS w/HEPATOPRO - 100 caps	26.00	19.50		
	Buy 4 bottles, price each	23.00	17.25		
01509	ANTI-ADIPOCYTE FORMULA w/MERATRIM® & INTEGRA LEAN® (ADVANCED) - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
01625	APPLEWISE POLYPHENOL EXTRACT - 600 mg, 30 veg. caps	21.00	15.75		
	Buy 4 bottles, price each	19.00	14.25		
01039	ARGININE/ORNITHINE - 500/250, 100 caps	17.99	13.49		
00038	ARGININE/ORNITHINE POWDER - 150 grams	22.95	17.21		
	Buy 4 bottles, price each	19.00	14.25		
01624	(L)-ARGININE CAPS - 700 mg, 200 veg. caps	26.50	19.88		
	Buy 4 bottles, price each	23.25	17.44		
01617	ARTHRONAX® w/THEAFLAVINS & APRESFLEX® - 120 veg. caps	44.00	33.00		
	Buy 4 bottles, price each	40.00	30.00		
01618	ARTHRONAX® ADVANCED w/UC-II® & APRESFLEX® - 60 caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01404	ARTHRO-IMMUNE JOINT SUPPORT - 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
00919	ARTICHOKE LEAF EXTRACT - 500 mg, 180 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
01533	ASCORBYL PALMITATE - 500 mg, 100 veg. caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
00888	ASHWAGANDHA EXTRACT (OPTIMIZED) - 60 veg. caps	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
01805	ASIAN ENERGY BOOST - 90 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01066	ASPIRIN - 81 mg, 300 enteric coated tablets	6.00	4.50		
	Buy 4 bottles, price each	5.33	4.00		
01720	ASTAXANTHIN WITH PHOSPHOLIPIDS - 4 mg, 30 softgels	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
B					
00920	BENFOTIAMINE w/ THIAMINE - 100 mg, 120 veg. caps	\$19.95	\$14.96		
	Buy 4 bottles, price each	18.60	13.95		
00925	BENFOTIAMINE (MEGA) - 250 mg, 120 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		

SUB-TOTAL OF COLUMN 1

No.		Retail Each	Member Each	Qty	Total
01206	BERRY COMPLETE - 30 veg. caps	\$21.00	\$15.75		
	Buy 4 bottles, price each	18.67	14.00		
01496	BERRY COMPLETE w/ACAI (ENHANCED) - 60 veg. caps	29.00	21.75		
	Buy 4 bottles, price each	26.00	19.50		
00664	BETA-CAROTENE - 25,000 IU, 100 softgels	11.25	8.44		
01622	BIFIDO GI BALANCE - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01073	BILBERRY EXTRACT - 100 mg, 100 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01512	BIOACTIVE MILK PEPTIDES - 30 caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01631	BIO-COLLAGEN w/PATENTED UC-II® - 40 mg, 60 small caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
*01006	BIOSIL™ - 5 mg, 30 veg. caps	18.95	15.16		
*01007	BIOSIL™ - 1 fl oz	31.99	25.59		
00102	BIOTIN - 600 mcg, 100 caps	7.50	5.63		
	Buy 4 bottles, price each	6.50	4.88		
01709	BLACK CUMIN SEED OIL - 60 softgels	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
01710	BLACK CUMIN SEED OIL w/BIO-CURCUMIN® - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
01008	BLAST™ - 600 grams of powder	26.95	20.21		
70005	BLOOD PRESSURE MONITOR - ARM CUFF (large)	50.00	37.50		
70004	BLOOD PRESSURE MONITOR - WRIST (cuff)	69.95	52.46		
01214	BLUEBERRY EXTRACT - 60 veg. caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
01438	BLUEBERRY EXTRACT w/ POMEGRANATE - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01506	BONE FORMULA (DR. STRUM'S INTENSIVE) - 300 caps	56.00	42.00		
	Buy 4 bottles, price each	50.00	37.50		
01726	BONE RESTORE - 120 caps	22.00	16.50		
	Buy 4 bottles, price each	19.00	14.25		
01727	BONE RESTORE w/VITAMIN K2 - 120 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01725	BONE STRENGTH FORMULA w/KOACT® - 120 caps	45.00	33.75		
	Buy 4 bottles, price each	40.00	30.00		
00313	BONE-UP® - 240 caps	28.95	21.71		
	Buy 4 bottles, price each	27.21	20.41		
01379	BOOSTER - 60 softgels	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01980	BOOSTER w/MACUGUARD® OCULAR SUPPORT (SUPER) - 60 softgels	52.00	39.00		
	Buy 4 bottles, price each	48.00	36.00		
01661	BORON - 3 mg, 100 veg. caps	5.95	4.46		
	Buy 4 bottles, price each	5.25	3.94		
00202	BOSWELLA - 100 caps	38.00	28.50		
	Buy 4 bottles, price each	30.00	22.50		
01802	BRAIN SHIELD® GASTRODIN - 60 veg. caps	33.00	24.75		
	Buy 4 bottles, price each	30.00	22.50		
01253	BRANCHED CHAIN AMINO ACIDS - 90 veg. caps	19.50	14.63		
	Buy 4 bottles, price each	17.00	12.75		
01699	BREAST HEALTH FORMULA - 60 caps	34.00	25.50		
	Buy 4 bottles, price each	30.00	22.50		
00893	BRITE EYES III - 2 vials, 5 ml each	34.00	25.50		
	Buy 4 boxes, price each	32.00	24.00		

SUB-TOTAL OF COLUMN 2

To order online visit: www.LifeExtension.com

No.		Retail Each	Member Each	Qty	Total
01203	BROMELAIN (SPECIALLY-COATED) - 500 mg, 60 enteric coated tablets	\$21.00	\$15.75		
	Buy 4 bottles, price each	19.00	14.25		
00884	BUTTERBUR EXT. w/STANDARDIZED ROSMARINIC ACID - 60 softgels	44.00	33.00		
	Buy 4 bottles, price each	39.60	29.70		
C					
01653	CALCIUM CITRATE w/VITAMIN D - 300 caps	\$24.00	\$18.00		
	Buy 4 bottles, price each	21.25	15.94		
01651	CALCIUM D-GLUCARATE - 200 mg, 60 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	15.00	11.25		
***01823	CALREDUCE SELECTIVE FAT BINDER - 120 mint chewable tablets	45.00	33.75		
	Buy 4 bottles, price each	38.00	28.50		
01700	CARDIO PEAK™ w/STANDARDIZED HAWTHORN & ARJUNA - 120 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
00916	CARNITINE w/GLYCOCARN® (OPTIMIZED) - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01532	L-CARNITINE - 500 mg, 30 veg. caps	15.00	11.25		
	Buy 4 bottles, price each	13.20	9.90		
01258	CARNOSOOTHE w/PICROPROTECT™ - 60 veg. caps	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01687	CARNOSINE (SUPER) - 500 mg, 90 veg. caps	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
01003	CAT MIX - 100 grams powder	15.00	11.25		
	Buy 4 jars, price each	12.00	9.00		
01891	CHILDREN'S FORMULA LIFE EXTENSION MIX™ - 100 chewable tablets	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00550	CHLORELLA - 500 mg, 200 tablets	23.50	17.63		
01571	CHLOROPHYLLIN - 100 mg, 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	20.00	15.00		
01359	CHO-LESS™ - 90 capsules	35.00	26.25		
01477	CHROMIUM ULTRA - 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
01504	CHROMIUM W/CROMINEX® 3+ (OPTIMIZED) - 500 mcg, 60 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
01503	CINSULIN® W/INSEA® AND CROMINEX® 3+ - 90 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
01906	CISTANCHE (STANDARDIZED) - 30 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	16.00	12.00		
01818	CITRIMAX® (SUPER) - 180 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	38.00	28.50		
00818	CLA BLEND w/SESAME LIGNANS (SUPER) - 1,000 mg, 120 softgels	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
	Buy 10 bottles, price each	26.33	19.75		
00819	CLA BLEND w/GUARANA & SESAME (SUPER) -1,000 mg, 120 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.33	28.75		
01896	COGNITEX® w/BRAIN SHIELD® - 90 softgels	60.00	45.00		
	Buy 4 bottles, price each	52.00	39.00		
	Buy 8 bottles, price each	48.00	36.00		
01897	COGNITEX® w/PREGNENOLONE & BRAIN SHIELD® - 90 softgels	62.00	46.50		
	Buy 4 bottles, price each	53.00	39.75		
	Buy 8 bottles, price each	50.00	37.50		
01421	COGNITEX® BASICS - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		

SUB-TOTAL OF COLUMN 3

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

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01659	COGNIZIN® CDP CHOLINE CAPS - 250 mg, 60 veg. caps	\$36.00	\$27.00		
	Buy 4 bottles, price each	34.00	25.50		
01735	COMPLETE B-COMPLEX - 60 veg. caps	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
01998	COMPREHENSIVE NUTRIENT PACKS ADVANCED - 30 packs	90.00	67.50		
	Buy 4 boxes, price each	82.00	61.50		
00119	COPPER CAPSULES - 2 mg, 100 caps	9.91	7.43		
00949	COQ10 w/ α-LIMONENE (SUPER-ABSORBABLE) - 50 mg, 60 softgels	25.00	18.75		
	Buy 4 bottles, price each	22.00	16.50		
	Buy 10 bottles, price each	20.00	15.00		
00950	COQ10 w/ α-LIMONENE (SUPER-ABSORBABLE) - 100 mg, 100 softgels	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
	Buy 10 bottles, price each	56.00	42.00		
01226	COQ10 (SUPER-UBIQUINOL) - 100 mg, 60 softgels	56.00	42.00		
	Buy 4 bottles, price each	48.00	36.00		
	Buy 10 bottles, price each	44.00	33.00		
01733	COQ10 w/BIOPOQ® (SUPER UBIQUINOL) - 100 mg, 30 softgels	54.00	40.50		
	Buy 4 bottles, price each	44.00	33.00		
	Buy 10 bottles, price each	40.00	30.00		
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -100 mg, 60 softgels	62.00	46.50		
	Buy 4 bottles, price each	52.00	39.00		
	Buy 10 bottles, price each	48.00	36.00		
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -50 mg, 100 softgels	58.00	43.50		
	Buy 4 bottles, price each	46.00	34.50		
	Buy 10 bottles, price each	42.00	31.50		
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -50 mg, 30 softgels	20.00	15.00		
	Buy 4 bottles, price each	16.00	12.00		
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL) -200 mg, 30 softgels	62.00	46.50		
	Buy 4 bottles, price each	52.00	39.00		
	Buy 10 bottles, price each	48.00	36.00		
80154	COSMESIS ADVANCED LIGHTENING CREAM - 1 oz jar	65.00	48.75		
	Buy 2 bottles, price each	57.00	42.75		
80155	COSMESIS ADVANCED PEPTIDE HAND THERAPY - 4 oz bottle	46.00	34.50		
	Buy 2 bottles, price each	39.00	29.25		
80152	COSMESIS ADVANCED TRIPLE PEPTIDE SERUM - 1 oz bottle	65.00	48.75		
	Buy 2 bottles, price each	57.00	42.75		
80140	COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS - .33 oz	49.00	36.75		
	Buy 2 bottles, price each	42.00	31.50		
80139	COSMESIS AMBER SELF MICRODERMABRASION - 2 oz	49.00	36.75		
	Buy 2 jars, price each	42.00	31.50		
80118	COSMESIS ANTI-AGING MASK - 2 oz	72.00	54.00		
	Buy 2 bottles, price each	63.36	47.52		
80151	COSMESIS ANTI-AGING REJUVENATING FACE CREAM - 2 oz jar	65.00	48.75		
	Buy 2 jars, price each	57.00	42.75		
80153	COSMESIS ANTI-AGING REJUVENATING SCALP SERUM - 2 oz bottle	46.00	34.50		
	Buy 2 bottles, price each	39.00	29.25		
80134	COSMESIS ANTI-GLYCATION SERUM - 1 oz w/BLUEBERRY & POMEGRANATE EXTRACTS	33.00	24.75		
	Buy 2 bottles, price each	31.35	23.51		
80133	COSMESIS ANTIOXIDANT FACIAL MIST - 2 oz	32.00	24.00		
	Buy 2 bottles, price each	30.40	22.80		
80127	COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2 oz	45.00	33.75		
	Buy 2 jars, price each	42.80	32.10		
80128	COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2 oz	59.00	44.25		
	Buy 2 jars, price each	51.92	38.94		

SUB-TOTAL OF COLUMN 4

MARCH 2015

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
C CONTINUED					
80117	COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2 oz	\$64.00	\$48.00		
	Buy 2 jars, price each	57.49	43.12		
80121	COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2 oz	58.00	43.50		
	Buy 2 jars, price each	51.04	38.28		
80105	COSMESIS ANTI-REDNESS & ADULT BLEMISH LOTION - 1 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80147	COSMESIS BIOFLAVONOID CREAM - 1 oz jar	46.00	34.50		
	Buy 2 jars, price each	39.00	29.25		
80144	COSMESIS BROCCOLI SPROUT CREAM - 1 oz	46.00	34.50		
	Buy 2 jars, price each	39.00	29.25		
80120	COSMESIS CORRECTIVE CLEARING MASK - 2 oz	64.50	48.38		
	Buy 2 jars, price each	56.76	42.57		
80141	COSMESIS DNA REPAIR CREAM - 1 oz jar	49.00	36.75		
	Buy 2 jars, price each	42.00	31.50		
80108	COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 oz	74.95	56.21		
	Buy 2 bottles, price each	65.95	49.46		
80123	COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 oz	69.50	52.13		
	Buy 2 jars, price each	61.16	45.87		
80107	COSMESIS FINE LINE-LESS - 1 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80131	COSMESIS HAIR SUPPRESS FORMULA - 4 oz	59.00	44.25		
	Buy 2 bottles, price each	51.92	38.94		
80137	COSMESIS HEALING FORMULA ALL-IN-ONE CREAM - 1 oz	53.00	39.75		
	Buy 2 jars, price each	45.43	34.07		
80115	COSMESIS HEALING MASK - 2 oz	64.50	48.38		
	Buy 2 bottles, price each	56.76	42.57		
80102	COSMESIS HEALING VITAMIN K CREAM - 1 oz	79.50	59.63		
	Buy 2 bottles, price each	69.96	52.47		
80109	COSMESIS HYALURONIC FACIAL MOISTURIZER - 1 oz	58.00	43.50		
	Buy 2 bottles, price each	51.04	38.28		
80110	COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 1 oz	58.00	43.50		
	Buy 2 bottles, price each	51.04	38.28		
80138	COSMESIS HYDRATING ANTIOXIDANT FACE MIST - 4 oz	39.95	29.96		
	Buy 2 bottles, price each	38.00	28.50		
80103	COSMESIS LIFTING & TIGHTENING COMPLEX - 1 oz	74.50	55.88		
	Buy 2 tubes, price each	65.56	49.17		
80146	COSMESIS LYCOPENE CREAM - 1 oz jar	28.00	21.00		
	Buy 2 jars, price each	25.40	19.05		
80135	COSMESIS MELATONIN CREAM - 1 oz	33.00	24.75		
	Buy 2 jars, price each	27.10	20.33		
80114	COSMESIS MILD FACIAL CLEANSER - 8 oz	59.00	44.25		
	Buy 2 bottles, price each	51.92	38.94		
80122	COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2 oz	64.00	48.00		
	Buy 2 jars, price each	56.32	42.24		
80111	COSMESIS PIGMENT CORRECTING CREAM - 1/2 oz	74.00	55.50		
	Buy 2 bottles, price each	65.12	48.84		
80106	COSMESIS REJUVENATING SERUM - 1 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80150	COSMESIS RENEWING EYE CREAM - 1/2 oz	65.00	48.75		
	Buy 2 jars, price each	57.00	42.75		
80142	COSMESIS RESVERATROL ANTI-OXIDANT SERUM - 1 oz	46.00	34.50		
	Buy 2 bottles, price each	39.00	29.25		

SUB-TOTAL OF COLUMN 5

MARCH 2015

No.		Retail Each	Member Each	Qty	Total
80112	COSMESIS SKIN LIGHTENING SERUM - 1/2 oz	\$85.00	\$63.75		
	Buy 2 bottles, price each	74.80	56.10		
80130	COSMESIS SKIN STEM CELL SERUM - 1 oz	74.00	55.50		
	Buy 2 bottles, price each	69.00	51.75		
80143	COSMESIS STEM CELL CREAM W/ALPINE ROSE - 1 oz jar	66.00	49.50		
	Buy 2 jars, price each	58.00	43.50		
80148	COSMESIS TIGHTENING & FIRMING NECK CREAM - 2 oz jar	39.00	29.25		
	Buy 2 jars, price each	35.00	26.25		
80116	COSMESIS ULTRA LIP PLUMPER - 1/3 oz	64.00	48.00		
	Buy 2 bottles, price each	56.32	42.24		
80101	COSMESIS ULTRA WRINKLE RELAXER - 1 oz	89.95	67.46		
	Buy 2 bottles, price each	79.76	59.82		
80113	COSMESIS UNDER EYE REFINING SERUM - 1/2 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80104	COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80129	COSMESIS VITAMIN C SERUM - 1 oz	85.00	63.75		
	Buy 2 bottles, price each	74.80	56.10		
80136	COSMESIS VITAMIN D LOTION - 4 oz	36.00	27.00		
	Buy 2 bottles, price each	33.66	25.25		
80145	COSMESIS VITAMIN E-ESSENTIAL CREAM - 1 oz	28.00	21.00		
	Buy 2 jars, price each	26.00	19.50		
80149	COSMESIS YOUTH SERUM - 1 oz	65.00	48.75		
	Buy 2 bottles, price each	57.00	42.75		
00862	CRAN-MAX® - 500 mg, 60 veg. caps	17.50	13.13		
	Buy 4 bottles, price each	15.00	11.25		
01424	CRAN-MAX® with UTI-ROSE™ (OPTIMIZED) - 60 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01529	CREATINE CAPSULES - 120 veg. caps	10.95	8.21		
	Buy 4 bottles, price each	9.25	6.94		
01746	CREATINE WHEY GLUTAMINE POWDER - 454 grams (vanilla)	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		
01429	CR MIMETIC LONGEVITY FORMULA - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
*33840	CRWAY GREAT GLUCOSE CONTROL CD	98.00	82.00		
**CRWAY	CR WAY OPTIMAL HEALTH PROGRAM SOFTWARE	195.00	195.00		
00407	CURCUMIN® (SUPER BIO) - 400 mg, 60 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
01808	CURCUMIN® w/GINGER & TURMERONES (ADVANCED BIO)-30 softgels	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01804	CYTOKINE SUPPRESS™ w/EGCG - 30 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
D					
00658	7-KETO® DHEA METABOLITE - 25 mg, 100 caps	\$28.00	\$21.00		
	Buy 4 bottles, price each	24.00	18.00		
01479	7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01640	DHA (VEGETARIAN SOURCED) - 30 veg. softgels	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00607	DHEA - 25 mg, 100 tablets (dissolve in mouth)	14.00	10.50		
	Buy 4 bottles, price each	11.75	8.81		
01478	DHEA COMPLETE - 60 veg. caps	48.00	36.00		
	Buy 4 bottles, price each	43.20	32.40		

SUB-TOTAL OF COLUMN 6

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

To order online visit: www.LifeExtension.com

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
00335	DHEA - 25 mg, 100 caps Buy 4 bottles, price each	\$18.00 15.00	\$13.50 11.25		
00454	DHEA - 15 mg, 100 caps Buy 4 bottles, price each	14.00 12.00	10.50 9.00		
00882	DHEA - 50 mg, 60 caps Buy 4 bottles, price each	19.00 17.00	14.25 12.75		
01689	DHEA - 100 mg, 60 veg. caps Buy 4 bottles, price each	24.00 22.00	18.00 16.50		
01358	DIGEST RC - 30 tablets Buy 4 boxes, price each	19.95 17.00	14.96 12.75		
01272	DIGESTIVE ENZYMES (ENHANCED SUPER) - 100 veg. caps Buy 4 bottles, price each	18.95 16.00	14.21 12.00		
01671	D,L-PHENYLALANINE CAPSULES - 500 mg, 100 veg. caps Buy 4 bottles, price each	18.75 16.00	14.06 12.00		
01540	DMAE BITARTRATE - 150 mg, 200 veg. caps Buy 4 bottles, price each	18.00 15.00	13.50 11.25		
00059	DMG - 125 mg, 60 tablets Buy 4 boxes, price each	24.80 22.69	18.60 17.02		
01570	DNA PROTECTION FORMULA - 60 veg. caps Buy 4 bottles, price each	34.00 32.00	25.50 24.00		
00544	DOG MIX - 100 grams powder Buy 4 jars, price each	19.50 16.00	14.63 12.00		
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA - 2 oz Buy 4 bottles, price each	39.95 32.00	29.96 24.00		
00320	DR. PROCTOR'S HAIR FORMULA SHAMPOO - 8 oz Buy 4 bottles, price each	24.95 22.00	18.71 16.50		
00899	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 2.4 oz Buy 4 jars, price each	39.95 38.95	29.96 29.21		
E					
01528	ECHINACEA EXTRACT - 250 mg, 60 veg. caps Buy 4 bottles, price each	\$14.35 12.50	\$10.76 9.38		
01498	ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™ - 60 softgels Buy 4 bottles, price each	56.00 52.00	42.00 39.00		
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® - 60 veg. caps Buy 4 bottles, price each	54.00 48.00	40.50 36.00		
00625	EPA/DHA (MEGA) - 120 softgels Buy 4 bottles, price each	19.95 18.00	14.96 13.50		
01737	ESOPHAGEAL GUARDIAN (Berry flavor) - 60 chewable tablets Buy 4 bottles, price each	36.00 32.00	27.00 24.00		
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 - 600 mg, 30 veg. tabs Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01706	EXTRAORDINARY ENZYMES - 60 caps Buy 4 bottles, price each	26.00 24.00	19.50 18.00		
01514	EYE PRESSURE SUPPORT w/MIRTOGENOL® - 30 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
F					
01054	FACE MASTER® PLATINUM	\$199.00	\$199.00		
00965	FAST-ACTING JOINT FORMULA - 30 caps Buy 4 bottles, price each	39.00 36.00	29.25 27.00		
01717	FAST-C® w/DIHYDROQUERCETIN - 120 veg. tabs Buy 4 bottles, price each	26.00 24.00	19.50 18.00		
20053	FEM DOPHILUS® - 30 caps	25.95	19.46		
20055	FEM DOPHILUS® - 60 caps	39.95	29.96		

SUB-TOTAL OF COLUMN 7

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

No.		Retail Each	Member Each	Qty	Total
01064	FEMMESENSE MACAPAUSE® - 120 veg. caps	\$34.99	\$26.24		
01728	FERNBLOCK® w/RED ORANGE COMPLEX (ENHANCED) - 30 veg. caps Buy 4 bottles, price each	42.00 38.00	31.50 28.50		
01670	FIBER FOOD CAPS - 200 veg. caps Buy 4 bottles, price each Buy 10 bottles, price each	16.00 14.00 13.00	12.00 10.50 9.75		
00718	FIBRINOGEN RESIST™ - 30 veg. caps Buy 4 bottles, price each	49.00 44.00	36.75 33.00		
01749	FLAX SEED (ORGANIC GOLDEN GROUND) - 14 oz.	11.67	8.75		
01821	FLORASSIST® HEART HEALTH PROBIOTIC - 60 caps Buy 4 bottles, price each	32.00 28.00	24.00 21.00		
01825	FLORASSIST® PROBIOTIC - 30 liquid caps Buy 4 bottles, price each	32.00 28.00	24.00 21.00		
01439	FOLATE (OPTIMIZED) (L-METHYLFOLATE) 1,000 mcg - 100 veg. caps Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01641	FOLIC ACID + B12 CAPSULES - 200 veg. caps Buy 4 bottles, price each	10.50 9.50	7.88 7.13		
01544	FORSKOLIN - 10 mg, 60 veg. caps Buy 4 bottles, price each	16.00 14.00	12.00 10.50		
01513	FUCOIDAN w/MARITECH® 926 (OPTIMIZED) - 60 veg. caps Buy 4 bottles, price each	36.00 33.00	27.00 24.75		
00993	FUCOXANTHIN-SLIM™ - 90 softgels Buy 4 bottles, price each	44.00 39.00	33.00 29.25		
G					
00559	GAMMA E TOCOPHEROL/TOCOTRIENOLS - 60 softgels Buy 4 bottles, price each	\$42.00 37.00	\$31.50 27.75		
00759	GAMMA E TOCOPHEROL w/SESAME LIGNANS - 60 softgels Buy 4 bottles, price each	32.00 29.00	24.00 21.75		
01394	(OPTIMIZED) GARLIC - 200 veg. caps Buy 4 bottles, price each	24.95 21.00	18.71 15.75		
***01228	GINGER FORCE® - 60 softgels	31.95	23.96		
01658	GINKGO BILOBA CERTIFIED EXTRACT™ - 120 mg, 365 veg. caps Buy 2 bottles, price each	46.00 43.50	34.50 32.63		
01648	GINKGO EXTRACT 28/7 (SUPER) - 120 mg, 100 veg. caps Buy 4 bottles, price each	29.00 26.50	21.75 19.88		
00756	GLA WITH SESAME LIGNANS (MEGA) - 60 softgels Buy 4 bottles, price each	19.50 18.00	14.63 13.50		
00345	(L) GLUTAMINE CAPSULES - 500 mg, 100 caps Buy 4 bottles, price each	14.95 13.50	11.21 10.13		
00141	(L)-GLUTAMINE POWDER - 100 grams Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
00522	GLUCOSAMINE/CHONDROITIN CAPSULES - 100 caps Buy 4 bottles, price each	38.00 32.00	28.50 24.00		
01541	GLUTATHIONE, CYSTEINE & C - 100 veg. caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
00314	L-GLUTATHIONE (MEGA) - 250 mg, 60 caps	39.64	29.73		
01731	GLYCEMICPRO™ TRANSGLUCOSIDASE - 60 veg. caps Buy 4 bottles, price each	48.00 42.00	36.00 31.50		
01669	GLYCINE - 1,000 mg, 100 veg. caps Buy 4 bottles, price each	12.00 10.80	9.00 8.10		
01091	GRAPE EXTRACT w/RESVERATROL (WHOLE) - 60 veg. caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		
01411	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE - 100 mg, 60 veg. caps Buy 4 bottles, price each	36.00 34.00	27.00 25.50		

SUB-TOTAL OF COLUMN 8

MARCH 2015

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
G CONTINUED					
01604	GREEN COFFEE EXTRACT COFFEENIC® - 200 mg, 90 veg. caps	\$22.00	\$16.50		
	Buy 4 bottles, price each	20.00	15.00		
01620	GREEN COFFEE EXTRACT COFFEENIC® - 400 mg, 90 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
00953	GREEN TEA EXTRACT (MEGA) - lightly caffeinated - 100 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	24.00	18.00		
00954	GREEN TEA EXTRACT (MEGA) - decaffeinated - 100 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	24.00	18.00		
01545	GUTSY CHEWY DIGESTIVE (CITRUS FLAVOR) - 8 tablets	11.50	8.63		
01546	GUTSY CHEWY DIGESTIVE (WILD BERRY FLAVOR) - 8 tablets	11.50	8.63		
H					
01074	5 HTP - 100 mg, 60 caps	\$27.95	\$20.96		
01738	HCA (GARCINIA) - 90 veg. caps	17.00	12.75		
	Buy 4 bottles, price each	15.00	11.25		
29754	HCACTIVE - 90 caps (Jarrow)	30.00	22.50		
01393	HEPATOPRO - 900 mg, 60 softgels	50.00	37.50		
	Buy 4 bottles, price each	46.00	34.50		
01435	HOMOCYSTEINE RESIST - 100 veg caps	24.00	18.00		
	Buy 4 bottles, price each	21.60	16.20		
01527	HUPERZINE A - 200 mcg, 60 veg caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
00661	HYDRODERM® - 1 oz	79.95	59.96		
	Buy 2 bottles, price each	65.33	49.00		
I					
*01060	i26® HYPERIMMUNE EGG - 140 grams powder	\$54.99	\$46.75		
01704	IMMUNE MODULATOR W/TINOFEND® - 60 veg. caps	17.00	12.75		
	Buy 4 bottles, price each	15.00	11.25		
00955	IMMUNE PROTECT W/PARACTIN® - 30 veg. caps	29.50	22.13		
	Buy 4 bottles, price each	26.55	19.91		
01905	IMMUNE SENESCENCE PROTECTION FORMULA™ - 60 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01049	INNERPOWER™ - 530 grams powder	42.00	31.50		
01674	INOSITOL CAPSULES - 1,000 mg, 360 veg. caps	62.00	46.50		
	Buy 4 bottles, price each	58.00	43.50		
01292	INTEGRA-LEAN® AFRICAN MANGO IRVINGIA - 150 mg, 60 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01248	IODINE COMPLETE (ADVANCED) - 180 tablets	46.00	36.50		
01677	IRON PROTEIN PLUS - 300 mg, 100 caps	28.00	21.00		
	Buy 4 bottles, price each	26.00	19.50		
01492	IRVINGIA W/PHASE 3™ - 120 veg. caps	56.00	42.00		
	CALORIE CONTROL COMPLEX (OPTIMIZED AFRICAN MANGO)				
	Buy 4 bottles, price each	48.00	36.00		
J, K					
00056	JARRO-DOPHILUS EPS™ - 60 veg. caps	\$22.95	\$17.21		
01759	JARRO-DOPHILUS EPS™ - 30 caps	39.95	29.96		
01724	K w/ADVANCED K2 COMPLEX (SUPER) - 90 softgels	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01600	KRILL HEALTHY JOINT FORMULA - 30 softgels	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01050	KRILL OIL PHOSPHOMEGA™ - 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		

SUB-TOTAL OF COLUMN 9

MARCH 2015

No.		Retail Each	Member Each	Qty	Total
L					
01681	LACTOFERRIN (APOLACTOFERRIN) CAPS - 60 caps	\$52.00	\$39.00		
	Buy 4 bottles, price each	48.00	36.00		
00020	LECITHIN - 16 oz. granules	15.00	11.25		
	Buy 4 jars, price each	12.50	9.38		
01955	LIFE EXTENSION MIX™ - 315 tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01957	LIFE EXTENSION MIX™ W/EXTRA NIACIN - 315 tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01954	LIFE EXTENSION MIX™ - 490 caps	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
01956	LIFE EXTENSION MIX™ POWDER - 14.81 oz	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
01965	LIFE EXTENSION MIX™ - 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01967	LIFE EXTENSION MIX™ W/EXTRA NIACIN 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01964	LIFE EXTENSION MIX™ - 490 caps w/o copper	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
01966	LIFE EXTENSION MIX™ POWDER - 14.81 oz w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
01608	LIVER EFFICIENCY FORMULA - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01639	5-LOX INHIBITOR W/APRESFLEX® - 100 mg, 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01678	L-LYSINE - 620 mg, 100 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
00455	LYCOPENE EXTRACT (MEGA) - 15 mg, 90 softgels	35.00	26.25		
	Buy 4 bottles, price each	30.00	22.50		
M					
01885	MACUGUARD® OCULAR SUPPORT - 60 softgels	\$22.00	\$16.50		
	Buy 4 bottles, price each	19.80	14.85		
01886	MACUGUARD® OCULAR SUPPORT w/ASTAXANTHIN - 60 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01459	MAGNESIUM CAPS - 500 mg, 100 veg. caps	12.00	9.00		
	Buy 4 bottles, price each	10.00	7.50		
01682	MAGNESIUM CITRATE - 160 mg, 100 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	7.50	5.63		
01668	MELATONIN - 300 mcg, 100 veg. caps	5.75	4.31		
	Buy 4 bottles, price each	5.00	3.75		
01083	MELATONIN - 500 mcg, 200 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00329	MELATONIN - 1 mg, 60 caps	5.00	3.75		
	Buy 4 bottles, price each	4.63	3.47		

SUB-TOTAL OF COLUMN 10

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

To order online visit: www.LifeExtension.com

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
00330	MELATONIN - 3 mg, 60 caps Buy 4 bottles, price each	\$8.00 6.88	\$6.00 5.16		
01786	MELATONIN TIME RELEASE - 3 mg, 60 veg. tabs Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
00331	MELATONIN - 10 mg, 60 caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
00332	MELATONIN - 3 mg, 60 veg. lozenges Buy 4 bottles, price each	8.00 6.88	6.00 5.16		
01734	MELATONIN (Fast Acting Liquid) - 3 mg (Natural Citrus-Van) Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
01787	MELATONIN TIME RELEASE - 300 mcg, 100 veg. tabs Buy 4 bottles, price each	12.00 11.00	9.00 8.25		
01788	MELATONIN TIME RELEASE - 750 mcg, 60 veg. tablets Buy 4 bottles, price each	8.00 7.00	6.00 5.25		
01536	METHYLCOBALAMIN - 1 mg, 60 veg. lozenges (vanilla) Buy 4 bottles, price each	9.95 8.00	7.46 6.00		
01537	METHYLCOBALAMIN - 5 mg, 60 veg. lozenges (vanilla) Buy 4 bottles, price each Buy 10 bottles, price each	32.00 25.00 23.00	24.00 18.75 17.25		
00709	MIGRA-EEZE™ (BUTTERBUR) - 60 softgels Buy 4 bottles, price each	29.50 26.33	22.13 19.75		
01800	MIGRA-MAG w/BRAIN SHIELD® - 90 veg. caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01522	MILK THISTLE (EUROPEAN) - 60 veg. caps Buy 4 bottles, price each	34.00 30.00	25.50 22.50		
01822	MILK THISTLE (EUROPEAN) - 60 softgels Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
01817	MILK THISTLE (EUROPEAN) - 120 softgels Buy 4 bottles, price each	44.00 40.00	33.00 30.00		
01698	MIRAFORTE w/STANDARDIZED LIGNANS (SUPER) - 120 caps Buy 4 bottles, price each	62.00 56.00	46.50 42.00		
01769	MITOCHONDRIAL BASICS w/BIOPQQ® - 30 caps Buy 4 bottles, price each	52.00 42.00	39.00 31.50		
01768	MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ® - 120 caps Buy 4 bottles, price each	94.00 78.00	70.50 58.50		
00065	MK-7 - 90 mcg, 60 softgels Buy 4 bottles, price each	28.00 25.00	21.00 18.75		
00451	MSM (METHYLSULFONYLMETHANE) - 1,000 mg, 100 caps Buy 4 bottles, price each	14.00 11.95	10.50 8.96		
N					
01534	N-ACETYL-L-CYSTEINE - 600 mg, 60 veg. caps Buy 4 bottles, price each	\$14.00 13.50	\$10.50 10.13		
01904	NAD+ CELL REGENERATOR™ - 100 mg, 30 veg. caps Buy 4 bottles, price each	34.00 26.00	25.50 19.50		
00066	NATTOKINASE - 60 softgels	25.50	19.13		
01807	NATURAL APPETITE SUPPRESS (ADVANCED) - 60 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
00984	NATURAL BP MANAGEMENT - 60 tablets Buy 4 bottles, price each	44.00 40.00	33.00 30.00		
01892	NATURAL ESTROGEN - 60 veg. tabs Buy 4 bottles, price each	38.00 34.00	28.50 25.50		
01221	NATURAL FEMALE SUPPORT - 30 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		

SUB-TOTAL OF COLUMN 11

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

No.		Retail Each	Member Each	Qty	Total
01471	NATURAL GLUCOSE ABSORPTION CONTROL - 60 veg. caps Buy 4 bottles, price each	\$39.00 36.00	\$29.25 27.00		
01626	NATURAL SEX FOR WOMEN ® 50+ (ADVANCED) - 90 veg. caps Buy 4 bottles, price each	59.00 45.33	44.25 34.00		
01444	NATURAL SLEEP® - 60 veg. caps Buy 4 bottles, price each	13.00 10.00	9.75 7.50		
01551	NATURAL SLEEP® w/ MELATONIN (ENHANCED) - 30 caps Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01511	NATURAL SLEEP® w/o MELATONIN (ENHANCED) - 30 caps Buy 4 bottles, price each	20.00 18.00	15.00 13.50		
01445	NATURAL SLEEP® MELATONIN - 5 mg, 60 veg. caps Buy 4 bottles, price each	18.00 16.00	13.50 12.00		
00987	NATURAL STRESS RELIEF - 30 veg. caps Buy 4 bottles, price each	28.00 24.00	21.00 18.00		
01121	NERVIA® - 60 softgels	49.95	37.46		
01603	NEURO-MAG™ MAGNESIUM L-THREONATE - 90 veg. caps Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
01602	NEURO-MAG™ L-THREONATE w/CALCIUM & VITAMIN D 225 grams - Lemon flavor Buy 4 bottles, price each	40.00 36.00	30.00 27.00		
01903	NK CELL ACTIVATOR™ - 30 veg. tablets Buy 4 bottles, price each	45.00 42.00	33.75 31.50		
00373	NO-FLUSH NIACIN - 800 mg, 100 caps Buy 4 bottles, price each	19.00 17.00	14.25 12.75		
O					
01824	OLIVE LEAF VASCULAR SUPPORT w/CELERY SEED EXTRAT(ADVANCED) 500 mg, 60 veg. caps • Buy 4 bottles, price each	\$36.00 32.00	\$27.00 24.00		
01819	OMEGA WITH KRILL & ASTAXANTHIN (SUPER) - 120 softgels Buy 4 bottles, price each Buy 10 bottles, price each	45.00 42.00 33.00	33.75 31.50 24.75		
01483	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 60 softgels Buy 4 bottles, price each Buy 10 bottles, price each	18.00 16.00 12.50	13.50 12.00 9.38		
01482	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 120 softgels Buy 4 bottles, price each Buy 10 bottles, price each	32.00 28.00 22.73	24.00 21.00 17.05		
01484	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) Buy 4 bottles, price each Buy 10 bottles, price each	34.00 31.00 24.00	25.50 23.25 18.00		
01485	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 60 enteric coated softgels Buy 4 bottles, price each Buy 10 bottles, price each	20.00 18.00 14.00	15.00 13.50 10.50		
01619	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) (SMALL SOFTGEL) Buy 4 bottles, price each Buy 10 bottles, price each	32.00 28.00 23.00	24.00 21.00 17.25		
01901	ONE-PER-DAY - 60 tablets Buy 4 bottles, price each	22.00 20.00	16.50 15.00		
01328	ONLY TRACE MINERALS - 90 veg. caps Buy 4 bottles, price each	15.00 12.50	11.25 9.38		

SUB-TOTAL OF COLUMN 12

MARCH 2015

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
P					
01789	PALMETTOGUARD® SAW PALMETTO w/BETA SITOSTEROL - 30 softgels	\$15.00	\$11.25		
	Buy 12 bottles, price each	12.00	9.00		
01790	PALMETTOGUARD® SUPER SAW PALMETTO/- 60 softgels NETTLE ROOT W/BETA-SITOSTEROL	28.00	21.00		
	Buy 4 bottles, price each	26.00	19.50		
	Buy 12 bottles, price each	24.00	18.00		
00073	PANCREATIN - 500 mg, 50 caps	13.22	9.92		
01323	PEAK ATP® WITH GLYCOCARN® - 60 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	50.00	37.50		
00342	PECTA SOL-C® MODIFIED CITRUS PECTIN - 454 grams powder	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		
	Buy 4 bottles, price each	32.00	24.00		
00673	PGX™ PLUS MULBERRY (WELLBETX®) -180 veg. caps	34.95	26.21		
00865	PHARMA GABA® - 60 chewable tablets	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01676	PHOSPHATIDYL SERINE CAPS - 100 mg, 100 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	48.00	36.00		
01390	PHOSPHOMEGA® - 60 softgels	39.95	26.96		
01436	POLICOSANOL - 10 mg, 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	15.00	11.25		
01423	POMEGRANATE™ (FULL-SPECTRUM) - 30 softgels	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
00956	POMEGRANATE EXTRACT - 30 veg. caps	19.50	14.63		
	Buy 4 bottles, price each	17.55	13.16		
01797	POMI-T® - 60 veg. caps	33.33	25.00		
	Buy 4 bottles, price each	30.00	22.50		
00577	POTASSIUM IODIDE - 1 box, 14 tablets	6.95	5.21		
	Buy 4 boxes, price each	5.25	3.94		
01500	PQQ CAPS W/BIO PQQ® - 10 mg, 30 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	18.00	13.50		
	Buy 10 bottles, price each	16.00	12.00		
01647	PQQ CAPS W/BIO PQQ® - 20 mg, 30 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	32.00	24.00		
	Buy 10 bottles, price each	28.00	21.00		
00302	PREGNENOLONE - 50 mg, 100 caps	26.00	19.50		
	Buy 4 bottles, price each	22.00	16.50		
00700	PREGNENOLONE - 100 mg, 100 caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
***01373	PRELOX® NATURAL SEX FOR MEN® - 60 tablets	52.00	39.00		
	Buy 4 bottles, price each	48.00	36.00		
01576	PREVAGEN® - 10 mg, 30 caps	60.00	45.00		
01577	PREVAGEN® ES - 20 mg, 30 caps	70.00	60.00		
00525	PROBOOST THYMIC PROTEIN A™ - 4 mcg, 30 packets	59.95	44.96		
01441	PROGESTACARE FOR WOMEN - 4 oz cream	35.00	26.25		
	Buy 4 bottles, price each	32.00	24.00		
01898	PROSTATE FORMULA (ULTRA NAT) - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		
01909	PROSTAPOLLEN™ (TRIPLE ACTION) - 30 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01742	PROTEIN-ISOLATE (WHEY) VANILLA - 1 lb. powder	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		

SUB-TOTAL OF COLUMN 13

MARCH 2015

No.		Retail Each	Member Each	Qty	Total
01743	PROTEIN-ISOLATE (WHEY) CHOCOLATE - 1 lb. powder	\$30.00	\$22.50		
	Buy 4 jars, price each	27.00	20.25		
01770	PROTEIN CONCENTRATE (New Zealand Whey) Vanilla - 520 gr	30.00	22.50		
	Buy 4 bottles, price each	26.60	19.95		
01771	PROTEIN CONCENTRATE (New Zealand Whey) Chocolate - 660 gr	30.00	22.50		
	Buy 4 bottles, price each	26.60	19.95		
01812	PROVINAL® PURIFIED OMEGA-7 - 30 softgels	27.00	20.25		
	Buy 4 bottles, price each	24.00	18.00		
01508	PTEROPURE® - 50 mg Pterostilbene 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
01209	PUMPKIN SEED EXTRACT (WATER-SOLUBLE) - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01587	PURE PLANT PROTEIN - Veg. Vanilla 540 grams powder	38.00	28.50		
	Buy 4 jars, price each	35.00	26.25		
01637	PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT -100 mg, 60 veg. caps	64.00	48.00		
	Buy 4 bottles, price each	60.00	45.00		
01217	PYRIDOXAL 5'-PHOSPHATE - 100 mg, 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	19.80	14.85		
Q, R					
01309	QUERCETIN (OPTIMIZED) - 250 mg, 60 veg. caps	\$22.00	\$16.50		
	Buy 4 bottles, price each	20.00	15.00		
01030	RED YEAST RICE (Bluebonnet)- 600 mg, 60 veg. caps	16.95	13.56		
00605	REGIMINT - 60 enteric-coated caps	19.95	14.96		
	Buy 4 bottles, price each	18.67	14.00		
01708	REISHI EXTRACT MUSHROOM COMPLEX - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01448	REJUVENEX® BODY LOTION - 6 oz	24.00	18.00		
	Buy 4 tubes, price each	19.80	14.85		
	Buy 8 tubes, price each	17.00	12.75		
01621	REJUVENEX® FACTOR FIRMING SERUM - 1.7 oz	65.00	48.75		
	Buy 2 bottles, price each	50.66	38.00		
	Buy 6 bottles, price each	38.52	28.89		
01220	REJUVENEX® (ULTRA) - 2 oz	52.00	39.00		
	Buy 2 jars, price each	48.00	36.00		
	Buy 4 jars, price each	44.00	33.00		
	Buy 8 jars, price each	39.93	29.95		
00676	REJUVENIGHT® (ULTRA) - 2 oz	39.95	29.96		
	Buy 4 jars, price each	36.00	27.00		
01410	RESVERATROL W/PTEROSTILBENE - 100 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01930	RESVERATROL W/NAD+ CELL REGENERATOR™ (OPTIMIZED) - 30 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	36.00	27.00		
01430	RESVERATROL w/SYNERGISTIC GRAPE-BERRY ACTIVES (OPTIMIZED) - 250 mg, 60 veg. caps	46.00	34.50		
	Buy 4 bottles, price each	41.33	31.00		
00889	RHODIOLA EXTRACT - 250 mg, 60 veg. caps	11.75	8.81		
	Buy 4 bottles, price each	10.58	7.94		
01900	RIBOGEN™ FRENCH OAK WOOD EXTRACT - 200 mg, 30 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
00972	(D) RIBOSE POWDER - 150 grams	27.50	20.63		
	Buy 4 jars, price each	24.75	18.56		
01473	(D) RIBOSE TABLETS - 100 veg. tabs	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		

SUB-TOTAL OF COLUMN 14

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

To order online visit: www.LifeExtension.com

No.		Retail Each	Member Each	Qty	Total
01609	RICH REWARDS® BREAKFAST GROUND COFFEE - 12 oz. bag	\$13.00	\$9.75		
01730	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE - 12 oz. bag	15.00	11.25		
	Natural Mocha				
01729	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE - 12 oz. bag	15.00	11.25		
	Natural Vanilla				
01612	RICH REWARDS® BREAKFAST BLEND WHOLE BEAN COFFEE -12 oz. bag	13.00	9.75		
01610	RICH REWARDS® DECAFFEINATED ROAST GROUND COFFEE -12 oz. bag	14.00	10.50		
01712	RICH REWARDS™ BLACK BEAN VEGETABLE SOUP - 32 oz. bottle	13.00	9.75		
	Buy 6 bottles, price each	12.25	9.19		
01530	RICH REWARDS™ CRUCIFEROUS VEGETABLE SOUP - 32 oz. bottle	11.95	8.96		
	Buy 6 bottles, price each	11.25	8.44		
01531	RICH REWARDS™ (SPICY) CRUCIFEROUS VEGETABLE SOUP - 32 oz. bottle	11.95	8.96		
	Buy 6 bottles, price each	11.25	8.44		
01705	RICH REWARDS™ LENTIL VEGETABLE SOUP - 32 oz. bottle	13.00	9.75		
	Buy 6 bottles, price each	12.25	9.19		
01810	RICH REWARDS™ MUNG BEAN SOUP W/TURMERIC - 32 oz. bottle	13.00	9.75		
	Buy 6 bottles, price each	12.25	9.19		
01208	R-LIPOIC ACID (SUPER) - 240 mg, 60 veg. caps	49.00	36.75		
	Buy 4 bottles, price each	45.00	33.75		
00070	RNA CAPSULES - 500 mg, 100 caps	17.95	13.46		
	Buy 4 bottles, price each	16.16	12.12		
S					
01432	SAFFRON w/SATIREAL® (OPTIMIZED) - 60 veg. caps	\$36.00	\$27.00		
	Buy 4 bottles, price each	32.00	24.00		
00358	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 20 enteric coated tablets	16.00	12.00		
	Buy 8 boxes, price each	14.00	10.50		
00453	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 50 enteric coated tablets	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
00557	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 20 enteric coated tablets	28.00	21.00		
	Buy 6 boxes, price each	24.00	18.00		
01055	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 50 enteric coated tablets	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
01740	SEA-IODINE™ - 1,000 mcg, 60 veg. caps	8.00	6.00		
	Buy 4 bottles, price each	7.20	5.40		
00046	SELENIUM - 2 oz dropper bottle	11.95	8.96		
01679	SE-METHYL L-SELENOCYSTEINE - 200 mcg, 100 veg. caps	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
00318	SERRAFLAZYME - 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00284	SHARK LIVER OIL (NORWEGIAN) - 1,000 mg, 30 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01684	SILYMARIN - 100 mg, 50 veg. caps	9.25	6.94		
	Buy 4 bottles, price each	8.25	6.19		
01249	SINUS CLEANSER - 4 oz. bottle	25.00	18.75		
01596	SKIN RESTORING PHYTCERAMIDES w/LIPOWHEAT® - 30 veg. liquid caps	25.00	18.75		
	Buy 4 bottles, price each	23.00	17.25		
00961	SODZYME® w/GLISODIN® AND WOLFBERRY - 90 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
00657	SOLARSHIELD SUNGLASSES - 1 pair smoke color	12.99	9.74		
	Buy 2 pairs, price each	11.50	8.63		
01097	SOY EXTRACT (ULTRA) - 150 veg. caps	87.00	65.25		
	Buy 4 bottles, price each	78.00	58.50		

SUB-TOTAL OF COLUMN 15

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
00432	STEVIA™ EXTRACT (BETTER) - 100 packets, 1 gram each	\$9.95	\$7.46		
00438	STEVIA™ ORGANIC LIQUID EXTRACT (BETTER) - 2 oz liquid	11.00	8.25		
01476	STRONTIUM - 750 mg, 90 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01649	SUPER ABSORBABLE SOY ISOFLAVONES - 60 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01778	SUPER SELENIUM COMPLEX - 200 mcg, 100 veg. caps	14.00	10.50		
	Buy 4 bottles, price each	12.00	9.00		
	Buy 12 bottles, price each	11.00	8.25		
T					
01723	TART CHERRY EXTRACT w/STANDARDIZED CHERRYPURE® - 60 veg. caps	\$22.00	\$16.50		
	Buy 4 bottles, price each	20.00	15.00		
00199	TAURINE - 1,000 mg, 50 caps	8.95	6.71		
	Buy 4 bottles, price each	8.00	6.00		
00133	TAURINE POWDER - 300 grams	20.00	15.00		
	Buy 4 bottles, price each	16.88	12.66		
01304	THEAFLAVIN STANDARDIZED EXTRACT - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01683	(L) THEANINE - 100 mg, 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	20.50	15.38		
**01038	THERALAC PROBIOTICS - 30 caps	47.95	35.96		
00668	THYROID FORMULA™ (METABOLIC ADVANTAGE) - 100 caps	21.95	16.46		
00349	TMG POWDER - 50 grams	14.00	10.50		
	Buy 4 bottles, price each	11.00	8.25		
01859	TMG - 500 mg, 60 veg. liquid caps	13.00	9.75		
	Buy 4 bottles, price each	12.00	9.00		
00781	TOCOTRIENOLS WITH SESAME LIGNANS - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	36.00	27.00		
01400	TOCOTRIENOLS (SUPER-ABSORBABLE) - 60 softgels	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
01278	TOOTH PASTE - 4 oz (Mint)	9.50	7.13		
	Buy 4 tubes, price each	8.67	6.50		
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT W/RESVERATROL - 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	29.60	22.20		
01803	TRI SUGAR SHIELD™ - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	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		
	Buy 4 bottles, price each	30.00	22.50		
01721	TRYPTOPHAN PLUS (OPTIMIZED) - 90 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01916	TWO-PER-DAY - 60 tablets	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		
01915	TWO-PER-DAY - 120 tablets	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01914	TWO-PER-DAY - 120 caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
00326	L-TYROSINE - 500 mg, 100 tablets	12.98	9.74		

SUB-TOTAL OF COLUMN 16

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

MARCH 2015

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail Each	Member Each	Qty	Total
V					
00213	VANADYL SULFATE - 7.5 mg, 100 veg. tablets	\$15.00	\$11.25		
	Buy 4 bottles, price each	12.50	9.38		
00408	VENOTONE - 60 caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01327	VINPOCETINE - 10 mg, 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	14.00	10.50		
00372	VITAMIN B3 NIACIN - 500 mg, 100 caps	7.65	5.74		
	Buy 4 bottles, price each	6.65	4.99		
00098	VITAMIN B5 - 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
01535	VITAMIN B6 - 250 mg, 100 veg. caps	12.50	9.38		
	Buy 4 bottles, price each	11.00	8.25		
00361	VITAMIN B12 - 500 mcg, 100 lozenges	8.75	6.56		
	Buy 4 bottles, price each	7.25	5.44		
01634	VITAMIN C w/ DIHYDROQUERCETIN - 1,000 mg, 60 veg. tablets	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
00927	VITAMIN C w/ DIHYDROQUERCETIN - 1,000 mg, 250 veg. tablets	25.50	19.13		
	Buy 4 bottles, price each	23.25	17.44		
00084	VITAMIN C (BUFFERED) POWDER - 454 grams	23.95	17.96		
	Buy 4 bottles, price each	22.00	16.50		
01736	(EFFERVESCENT) VITAMIN C-MAGNESIUM CRYSTALS - 180 grams	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01732	VITAMIN D3 - 2,000 IU, 1 fl oz, Mint flavor	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01753	VITAMIN D3 - 1,000 IU, 90 softgels	7.00	5.25		
	Buy 4 bottles, price each	6.00	4.50		
01751	VITAMIN D3 - 1,000 IU, 250 softgels	12.50	9.38		
	Buy 4 bottles, price each	11.25	8.44		
01713	VITAMIN D3 - 5,000 IU, 60 softgels	11.00	8.25		
	Buy 4 bottles, price each	9.90	7.43		
01718	VITAMIN D3 - 7,000 IU, 60 softgels	14.00	10.50		
	Buy 4 bottles, price each	12.60	9.45		
01758	VITAMIN D3 w/SEA-IODINE™ - 5,000 IU, 60 caps	14.00	10.50		
	Buy 4 bottles, price each	12.50	9.38		
00864	VITAMIN D3 Liquid Emulsion - 2,000 IU, 1 oz.	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01741	VITAMINS D AND K w/SEA-IODINE™ - 60 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01763	VITAMIN E (NATURAL) - 400 IU, 100 softgels	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	26.00	19.50		
01225	VITAMIN K2 (LOW-DOSE) - 45 mcg, 90 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
X					
00409	XYLIWHITE™ MOUTHWASH - 16 oz	\$10.00	\$7.50		
W					
01902	WAIST-LINE CONTROL™ - 120 veg. caps	\$42.00	\$31.50		
	Buy 4 bottles, price each	38.00	28.50		
01826	WEIGHT MANAGEMENT FORMULA - 60 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		

SUB-TOTAL OF COLUMN 17

No.		Retail Each	Member Each	Qty	Total
Z					
01813	ZINC HIGH POTENCY - 50 mg, 90 veg. caps	\$7.95	\$5.96		
	Buy 4 bottles, price each	7.00	5.25		
01561	ZINC GLUCONATE/OXIDE LOZENGES - 18.75 mg, 60 veg. lozenges	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
01961	ZINC ACETATE LOZENGES (ENHANCED) - 18.75 mg, 30 veg. lozenges	12.00	9.00		
	Buy 2 bottles, price each	8.00	6.00		
***01051	ZYFLAMEND® WHOLE BODY - 120 softgels	64.95	48.71		

SUB-TOTAL OF COLUMN 18

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SUB-TOTAL COLUMN 7	
SUB-TOTAL COLUMN 8	
SUB-TOTAL COLUMN 9	
SUB-TOTAL COLUMN 10	
SUB-TOTAL COLUMN 11	
SUB-TOTAL COLUMN 12	
SUB-TOTAL COLUMN 13	
SUB-TOTAL COLUMN 14	
SUB-TOTAL COLUMN 15	
SUB-TOTAL COLUMN 16	
SUB-TOTAL COLUMN 17	
SUB-TOTAL COLUMN 18	

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C.O.D.s (Add \$7 for C.O.D. orders)	
Shipping	
GRAND TOTAL (Must be in U.S. dollars)	

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33873	EATING ON THE WILD SIDE • by Jo Robinson	2014	\$27.00	\$20.25		
33872	GET SERIOUS • by Brett Osborn, MD	2014	\$24.95	\$18.71		
33868	TOXIN TOXOUT: GETTING HARMFUL CHEMICAL OUT OF OUR BODIES AND OUR WORLD • by Bruce Lourie and Rick Smith	2014	\$25.99	\$19.49		
33871	DOCTORED RESULTS: THE SUPPRESSION OF LAETRILE AT SLOAN-KETTERING INSTITUTE • by Ralph W. Moss, PhD	2014	\$19.95	\$14.96		
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		
33866	HEART, AN AMERICAN MEDICAL ODYSSEY • by Dick Cheney & Jonathan Reiner, MD	2014	\$28.00	\$21.00		
33864	THE SUPPLEMENT PYRAMID • by Michael A. Smith, MD	2014	\$24.95	\$18.71		
DPT05	DISEASE PREVENTION AND TREATMENT, EXPANDED FIFTH EDITION (hardcover) Buy 4 books, price each	2014	\$39.95 \$36.00	\$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		
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33861	THE SOUTH BEACH DIET GLUTEN SOLUTION • Dr. Arthur Agatston	2013	\$25.99	\$19.49		
33859	THE BLOOD SUGAR SOLUTION • by Mark Hyman, MD	2013	\$27.99	\$20.99		
33855	POWER FOODS FOR THE BRAIN • by Neal D. Barnard, MD	2013	\$26.99	\$20.24		
33854	THE GREAT CHOLESTEROL MYTH • by Jonny Bowden, PhD, CNS and Stephen Sinatra, MD	2012	\$19.99	\$14.99		
33852	THE MAGIC OF CHOLESTEROL NUMBERS • by Dr. Sergey Dzigan	2012	\$29.95	\$22.46		
33848	YOUR BEST INVESTMENT SECRETS TO A HEALTHY BODY AND MIND • by Edwin Lee, MD	2012	\$24.95	\$18.71		
33847	THE FATIGUE SOLUTION • by Dr. Eva Cwynar	2012	\$24.95	\$18.71		
33844	ABUNDANCE: THE FUTURE IS BETTER THAN YOU THINK • by Steven Kotler and Petere Diamandis	2012	\$26.99	\$20.24		
33843	BOMBSHELL • by Suzanne Somers	2012	\$26.00	\$19.50		
33845	DRUG MUGGERS • by R.Ph. Susy Cohen	2012	\$21.99	\$16.49		
33842	HEART ATTACK PROOF • by Michael Ozner, MD	2012	\$19.95	\$14.96		
33838	YOUR GUIDE TO HEALTHY SKIN THE NATURAL WAY • by Gary Goldfaden, MD	2012	\$26.00	\$15.00		
33833	THE LIFE PLAN • by Jeffrey S. Life, MD, PhD	2011	\$26.00	\$19.50		
33822	BREAKTHROUGH: EIGHT STEPS TO WELLNESS • by Suzanne Somers (paperback)	2010	\$15.00	\$10.50		
33816	FDA: FAILURE, DECEPTION, ABUSE • by Life Extension Foundation	2010	\$20.00	\$15.00		
33815	KNOCKOUT • by Suzanne Somers	2009	\$25.99	\$17.00		
33812	LIFE OVER CANCER • by Keith Block, MD (hardcover)	2009	\$25.00	\$18.75		
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		
33670	A PRIMER ON PROSTATE CANCER (2nd edition) • by Stephen B. Strum, MD, and Donna Pogliano	2005	\$28.95	\$21.71		
33806	THE CR WAY • by Paul McGlothlin and Meredith Averill		\$15.95	\$11.25		
33828	THE SEXY YEARS • by Suzanne Somers (paperback)	2004	\$15.00	\$10.50		
33803	WHAT YOUR DOCTOR MAY NOT TELL YOU ABOUT DIABETES • by Steven V. Joyal, MD	2008	\$14.99	\$10.49		
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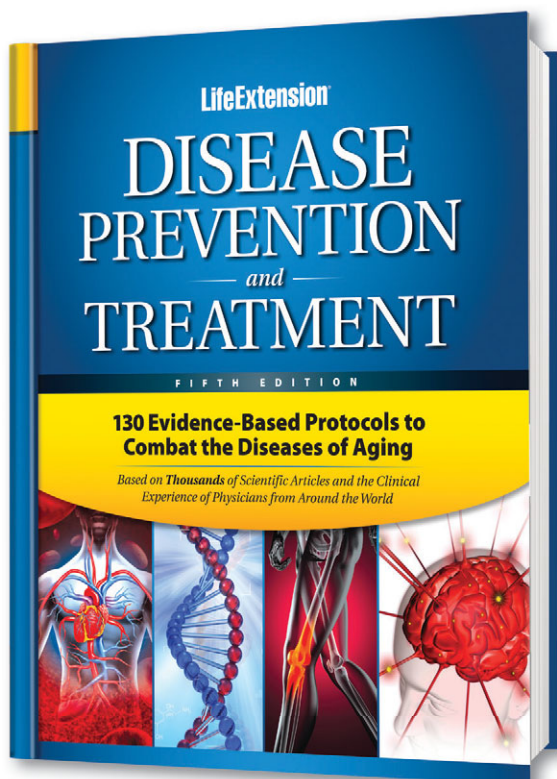
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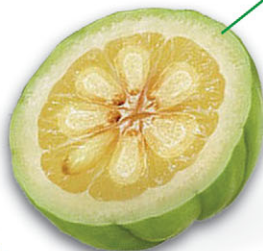
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HCActive™ is protected by nine US Patents 6,207,714;
6,441,041; 6,447,807; 6,476,071; 6,482,858; 7,015,250;
7,189,416; 8,394,856; 8,367,864.

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Can a protein originally derived from a jellyfish improve your memory? Scientists say, “Yes”!

Can a simple protein hold the key to improving your memory?

Researchers have discovered a protein that actually supports healthy brain function.*

For many years, researchers have known that the human brain loses cells throughout our lives, part of the natural process of aging. In fact, we lose about 85,000 brain cells per day, that is one per second, over 31 million brain cells every year! This impacts every aspect of your life...how you think and how you feel.

Recently, scientists made a significant breakthrough in brain health with the discovery that apoaeguorin can support healthy brain function, help you have a sharper mind and think clearer.*

Supports Healthy Brain Function*

Apoaequorin is in the same family of proteins as those found in humans, but it was originally discovered in one of nature's simplest organisms — the jellyfish.

Supports a Sharper Mind*

Now produced in a scientific process, researchers formulated this vital protein into a product called Prevagen®. Prevagen is clinically shown to help with mild memory problems associated with aging.*

Improves Memory*

This type of protein is vital and found naturally in the human brain and nervous system. As we age we

can't make enough of them to keep up with the brain's demands. Prevagen supplements these proteins during the natural process of aging to keep your brain healthy. Prevagen comes in an easy to swallow capsule. It has no known side effects and will not interact with your current medication.

Supports Clearer Thinking*

Just how well does Prevagen work? In a computer assessed, double-blinded, placebo controlled study, Prevagen improved memory for most subjects within 90 days.*

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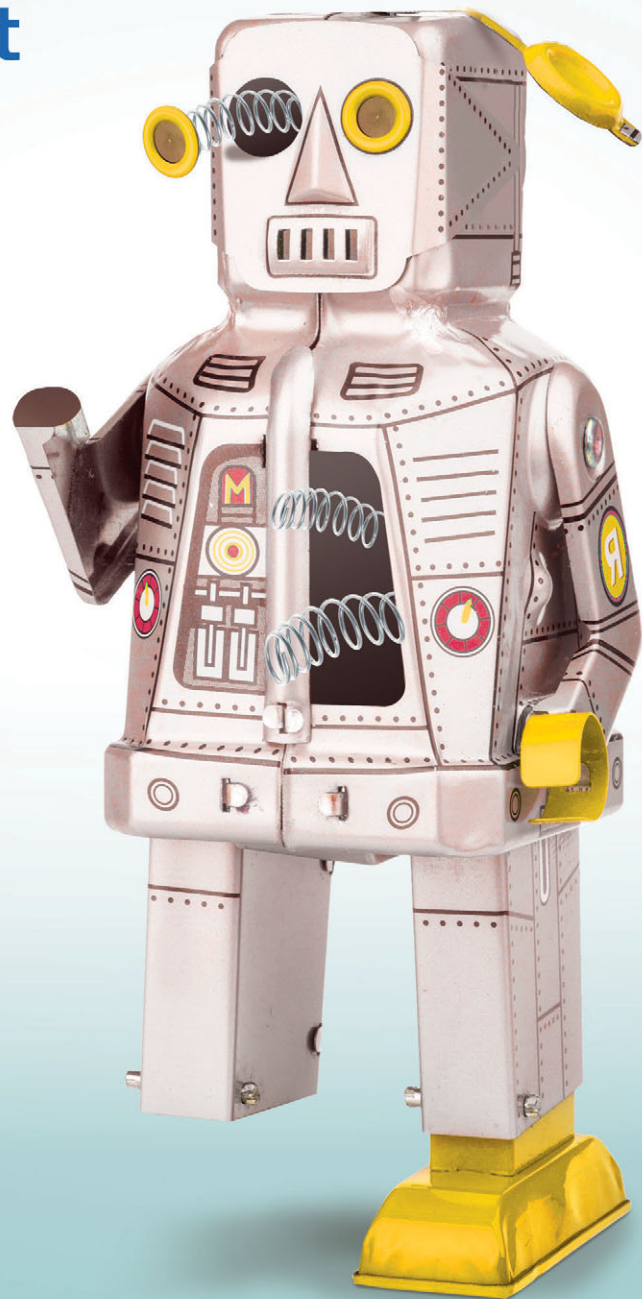
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Introducing the first softgel formulated to support healthy peripheral nerves in multiple ways, simultaneously.

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BIO-COLLAGEN WITH PATENTED UC-II®

CONCENTRATED SUPPORT FOR JOINT COMFORT!

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

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

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

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

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

ADVANCED MOLECULAR STRUCTURE

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

Fortunately, a **unique processing technique preserves the correct molecular shape** of the collagen^{3,4}—*and preserves its bioactivity*⁵—producing a form known as **undenatured collagen**.

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

SCIENTIFICALLY VALIDATED

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

CONVENIENT ONE-PER-DAY DOSE

The suggested daily serving of one capsule of **Bio-Collagen** with **Patented UC-II®** supplies **40 mg** of UC-II® standardized chicken cartilage.

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

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

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



Item # 01631

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UC-II® is a registered trademark of InterHealth Nutraceuticals, Inc. US Patent Nos. 5,645,851, 5,637,821, 5,529,786; 5,750,144, 7,083,829, 7,846,487, EP1435906 81 and worldwide patents pending.

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Magazine



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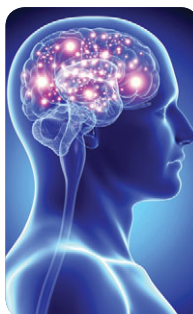
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