Daily replenishment of the B-vitamins is essential. B-vitamins are water soluble and easily washed from the body. Plus, stress, certain medications, and alcoholic beverages can quickly deplete the body’s B-vitamin reserves.1-3

Many B-vitamins function as coenzymes to help release energy from carbohydrates, fat, and protein. A deficiency of one B-vitamin can affect optimal functioning of organ systems throughout the body.

What distinguishes Complete B-Complex is that it provides enzymatically active forms of critical nutrients like the pyridoxal-5-phosphate form of vitamin B6, a natural form of folate from lemon peel, and meaningful potencies of each B-vitamin.5,6

A daily dose of two vegetarian capsules of Complete B-Complex provides:

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiamine (B1)</td>
<td>100 mg</td>
</tr>
<tr>
<td>Riboflavin (B2)</td>
<td>100 mg</td>
</tr>
<tr>
<td>Niacin</td>
<td>100 mg</td>
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<tr>
<td>Vitamin B6</td>
<td>100 mg</td>
</tr>
<tr>
<td>Folate</td>
<td>800 mcg</td>
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<tr>
<td>Vitamin B12</td>
<td>100 mcg</td>
</tr>
<tr>
<td>Biotin</td>
<td>1000 mcg</td>
</tr>
<tr>
<td>Pantothenic acid</td>
<td>200 mg</td>
</tr>
<tr>
<td>Choline bitartrate</td>
<td>100 mg</td>
</tr>
<tr>
<td>Inositol</td>
<td>100 mg</td>
</tr>
<tr>
<td>PABA</td>
<td>100 mg</td>
</tr>
</tbody>
</table>

A bottle containing 60 vegetarian capsules of Complete B-Complex retails for $10. If a member buys four bottles, the price is reduced to $6.75 per bottle.

References
24 SAFFRON’S ANTICANCER PROPERTIES
Researchers have found that saffron, a spice of the Mediterranean diet, contains cancer-preventive properties, which include inhibiting tumor formation and preventing DNA mutations that can activate cancer genes. Additionally, saffron has been shown to help reduce the harmful effects produced by chemotherapy drugs.

36 EXTRA RELIEF FOR STUBBORN PROSTATE SYMPTOMS
Up to 80% of men will suffer from symptoms of prostate enlargement, resulting in frequent urination and possible bladder infections. Studies have shown that a new flower pollen extract can help shrink overgrown prostate tissue and relieve lower urinary tract symptoms.

56 WORLD CONGRESS ON EXERCISE IS MEDICINE® REPORT
The World Congress on Exercise Is Medicine® featured new research on the link between physical inactivity and premature death. The 2014 conference also reported on beneficial effects of exercise on fatigue, the immune system, and age-related disability.

64 REVERSE MILD COGNITIVE IMPAIRMENT
Scientists are recognizing mild cognitive impairment as an early indicator of potential cognitive problems, including Alzheimer’s. About 34% of victims progress to a total loss of cognitive faculties. Find out how to recognize the symptoms and reverse the trend with diet, lifestyle, and nutrient therapies.

7 BEST DRUG TO LOWER BLOOD PRESSURE
One in three adults has high blood pressure, yet only 45% have it controlled. Recently, the FDA approved the sale of generic telmisartan. This drug offers blood pressure control, improves insulin sensitivity, boosts mitochondrial activity, and enhances endothelial function.

17 IN THE NEWS
Calorie restriction inhibits “genetic aging;” gout drug benefits pericarditis; human brain cells replicated; CoQ10 improves Gulf War Illness; antibacterial soap linked to liver cancer; arthritis drugs may boost stroke risk; and much more.

79 ASK THE DENTIST: Dr. Sandra Moldovan
Periodontist and nutritionist Dr. Sandra Moldovan explains the critical importance of maintaining optimal oral health for well-being and longevity.

85 AUTHOR INTERVIEW: Dr. Martin J. Blaser
Dr. Martin J. Blaser, author of Missing Microbes: How the Overuse of Antibiotics Is Fueling Our Modern Plagues, believes the overabundance of antibiotics has resulted in today’s health epidemics.

91 SUPER FOODS: Parsley
Parsley is now recognized as a superfood with an array of potent nutrition dividends. The volatile oils and flavonoids in parsley deliver potent antimicrobial and anticancer benefits, act as a diuretic, and even protect against vision loss.

95 ASK THE DOCTOR: Ron Hunninghake, MD
Environmental toxins and antibiotics contribute to chronic sinusitis. Ron Hunninghake, MD, chief medical officer of the Riordan Clinic, explains how his research showed that a novel nasal irrigation solution reduces sinusitis symptoms for weeks.
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FOR WINTER SEASON SUPPORT

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Taking the best zinc lozenge is important for maintaining the body’s natural defense system during the cold season—and throughout the year.

Enhanced Zinc Lozenges is a special “ionic formula” that delivers on the original promise of seasonal immune support.

IMMUNE SUPPORT FOR SEASONAL CHANGES
Scientific evidence is accumulating that zinc acetate is the preferred zinc compound to provide enhanced seasonal immune support.

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Life Extension® Enhanced Zinc Lozenges provide zinc acetate with no other ingredients that could reduce the delivery of these immune-supportive, positively charged zinc ions. Enhanced Zinc Lozenges come in a naturally flavored peppermint lozenge.

The suggested serving size of one vegetarian lozenge of Life Extension® Enhanced Zinc Lozenges provides:

ZINC (as zinc acetate) 18.75 mg

A bottle of 30 vegetarian lozenges of Life Extension® Enhanced Zinc Lozenges retails for $12. If a member buys two bottles, the price is reduced to $6 per bottle.
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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

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.5,13,14

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.

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Medicine often progresses at a dreadfully slow pace.

The first direct measurement of arterial pressure occurred in 1733 in a horse. 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.”

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.”

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.”

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.

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. 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. 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, the first drug in the class of angiotensin II receptor blockers was approved. 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, the drug Benicar® was approved, and an advantage was that it required only once-a-day dosing. 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. 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.

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### 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.

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.
As humans age, mitochondrial dysfunction becomes a deadly factor in the development of obesity, insulin resistance, endothelial breakdown, and type II diabetes. 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-γ coactivator 1 alpha (PGC-1α), which stimulates the burning of excess calories. This can be a crucial factor in weight management. Studies indicate that telmisartan directly stimulates PPAR-γ (peroxisome proliferator-activated receptor gamma), a key inducer of beneficial metabolic effects. Of all the drugs in this class, telmisartan stands out as superior for potential longevity enhancement.

Telmisartan (trade name Micardis®) was first approved in 1998. 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.”

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.

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. Of all the drugs in this class, telmisartan stands out as superior for potential longevity enhancement.

Who Should Keep Blood Pressure Levels Higher?

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

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. The pathological result of this cerebral blood flow deficit is sharply higher risks of dementia, stroke, and cognitive impairment.

Hypertension is a leading risk factor for leukoaraiosis, as is elevated homocysteine, endothelial dysfunction, inflammation, abnormal platelet aggregation, and other common vascular toxins.

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.
PPAR-gamma activating properties have also been reported for other angiotensin II receptor blocker drugs, but telmisartan is at least 10 times more powerful.\textsuperscript{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\textsuperscript{®}).\textsuperscript{7,13,39,115-117}

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

Lastly, telmisartan appears to promote biochemical, biological, and metabolic effects that some researchers have suggested could boost athletic performance.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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).\textsuperscript{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.\textsuperscript{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.\textsuperscript{99}
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 benefits (such as telmisartan, ramipril, and their combination improve endothelial function in different tissues in a murine model of cholesterol-atherosclerosis. Br J Pharmacol. 2011 Jun;163(4):804-14).


References
19. Effects of treatment on morbidity in hypertension. II. Results in patients with diastolic blood pressure averaging 90 through 114 mm Hg. JAMA. 1970 Aug 17;213(7):1143-52.
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
- Storage of your 90 most recent measurements
- Large, easy-to-read, digital readout
- Large adult cuff to fit most arms
- The required four AA batteries
- Measures heart pulse rate in addition to blood pressure.


To order the
Medline Elite Automatic Digital Blood Pressure Monitor, call 1-800-544-4440 or visit www.LifeExtension.com


110. AS WE SEE IT


124. MARCH 2015 | LIFE EXTENSION | 15
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.

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

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<th>Ingredient</th>
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<td>POMELLA® Pomegranate</td>
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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.

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

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References

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


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.

**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.


**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.”


**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.”

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.

* *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.


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.”

* *Neurology.* 2014 Nov 5.

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.
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.


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.

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.

References
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% salidrosides—matching the concentrations of active “adaptogens” used in clinical trials.

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

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

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

References

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

NAD+ Cell Regenerator

If you are experiencing fatigue and lack of motivation, it may be due to the age-related decline in NAD+ levels and subsequent impairment of healthy cellular metabolism. NAD+ (nicotinamide adenine dinucleotide) promotes systemic youthful functions and is found in every cell in the body. In addition, NAD+ plays an essential role in regulating genes that control aging.

How To Boost NAD+ Levels Within Your Cells

Newly patented nicotinamide riboside increases cellular levels of NAD+ in the body.

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,
• Enhance growth and efficiency of mitochondria—supporting energy levels and physical performance,
• Favorably modulate metabolism,
• Contribute to neuronal health—supporting cognitive function during aging,
• Promote insulin activity—supporting healthy blood sugar in those within the normal range.

Life Extension® NAD+ Cell Regenerator™ contains the patented ingredient NIAGEN®, the first commercially available form of nicotinamide riboside.

The suggested daily dose of one NAD+ Cell Regenerator™ vegetarian capsule provides:

NIAGEN® Nicotinamide Riboside 100 mg

Advanced NAD+ Technology
At A Low Price

A bottle of 30 vegetarian capsules of NAD+ Cell Regenerator™ retails for $34. If a Life Extension member buys four bottles, the price is reduced to $19.50 per bottle. The suggested dose is just one small capsule daily.

NIAGEN® is a registered trademark of ChromaDex, Inc. Patents see: www.ChromaDexPatents.com.

References

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
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.* 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 safranal, 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 diglucosyloxcrocin 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
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...
to invade otherwise-healthy tissue. This is how cancers spread locally, and it is also a major mechanism in metastasis, the spread of malignant cells throughout the body. The saffron constituent crocetin has now been shown to downregulate production of one such protein-degradation molecular type, known as matrix metalloproteinase. 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.

**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.

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.

**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.

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. Submicroscopic 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. 

**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.

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. In one study, a water extract of saffron produced similar effects in an animal model of stomach cancer.

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. Saffron has an impressive safety profile, with no evidence of toxic effects on healthy tissues or harmful effects on blood coagulation.
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. Some studies have demonstrated significant improvements in lipid profiles as well, with reductions in cholesterol and triglycerides.

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. A study of human brain cells in culture showed that saffron extract markedly decreases the sugar toxicity that causes the damage.

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.

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.

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

### 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.

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.
- It reduces snacking and increases the sense of fullness after a meal (satiety).
- It can prevent metabolic syndrome development in patients taking olanzapine, a common drug used in psychiatry.

### 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. 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. Crocin markedly decreases blood concentrations of triglycerides and total and low-density (“bad”) cholesterol, while raising levels of high-density (“good”) cholesterol. In some animal studies, blood cholesterol was reduced by as much as 50%. A recent study published in Phytotherapy Research demonstrated for the first time that crocetin could also significantly reduce mean blood pressure in hypertensive rats.

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
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. Research has found that the abundant carotenoids in saffron may offer direct protection against chemotherapy-induced DNA damage.

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.

Laboratory studies have also shown that the saffron constituent crocetin enhances the effects of common chemotherapy drugs such as vincristine and cisplatin.

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.

In heart muscle tissue, a process known to constrict arteries and raise blood pressure, 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. Remarkably similar effects have been demonstrated using both crocetin and saffron itself to protect heart tissue from damaging low blood flow.

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.

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”).

Saffron Protects Against The Dangers Of Chemotherapy

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.

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.

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.
**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. 

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

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.
- 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.
- Saffron (30 mg per day) reduced erectile dysfunction, a common side effect produced by treatment with the antidepressant drug fluoxetine.
- Saffron (30 mg per day) was more effective than placebo in relieving symptoms of premenstrual syndrome when used over two menstrual cycles.

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.

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. And animal studies have shown that saffron supplementation can antagonize the cognitive effects of Alzheimer's disease induced by chemical treatments.

**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.

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.

**References**


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!  

2. **Celery seed extract** contains 3-n-butylphthalide (3nB), which supports a healthy inflammatory response that is critical to maintaining a healthy circulatory system. 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.  

   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!  

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 sedanenolide (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.
People who struggle with weight loss often point to several “Achilles’ heels” that sabotager 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 fantastick 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 results1,2:

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

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

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

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

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. Treating chronic prostatitis has been medically challenging.
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.\(^1,20,26\)

### 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...
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. 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. 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, while others were completely cured of their symptoms.

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. 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. In addition, the

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

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.

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. 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. In addition, the

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**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.
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.
Basic lab studies show that pollen extracts inhibit enzymes that produce pro-inflammatory signaling molecules such as cyclooxygenase (COX) and 5-lipoxygenase (5-LOX). In tests, the pollen extracts performed as well as mainstream nonsteroidal anti-inflammatory drugs (NSAIDS) such as diclofenac. 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. Pollen extracts inhibit the enzyme 5-alpha-reductase that converts testosterone to DHT, which in turn promotes prostate cell proliferation. 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.

Studies of rats with experimentally induced non-bacterial prostatitis (similar to chronic prostatitis) 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. 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.

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.

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.

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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Are You Obtaining Enough TAURINE?

Taurine is so vital that scientists have described it as “one of the most essential substances in the body.” Food sources provide relatively little taurine, and as we age, synthesis of taurine in our bodies (from cysteine) markedly declines.

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. Extensive studies have demonstrated the ability of taurine to support:

- Insulin sensitivity and glucose utilization
- Proper utilization of minerals such as calcium
- Eye health
- Regulation of the central nervous system
- Cell membrane stability and balanced water content
- Immune system modulation
- Bile salt formation
- Neuron integrity and cognitive function
- Liver function
- Cardiovascular health

To promote system-wide health, the body requires adequate levels of this essential nutrient.

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.

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

References:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
The majority of men find that their prostate gland undergoes significant changes as they age. 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!

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:

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<tr>
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<td>G60™ (water-soluble fraction)</td>
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<td>NAX™ (lipid-soluble fraction)</td>
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**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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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.\textsuperscript{1}

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

Scientists have developed a novel technology to overcome silybin’s poor bioavailability. The solution is to mix \textit{silybin} with a nutrient called \textit{phosphatidylcholine}.

\textit{Phosphatidylcholine} facilitates transport across the intestinal lining into the bloodstream, making it an ideal “carrier molecule” for \textit{silybin}.\textsuperscript{5,6} Scientists believe that phosphatidylcholine molecularly bonds to silybin, ushering it through the membranes of cells in the intestinal tract.\textsuperscript{4}

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

The suggested twice daily dosage of one softgel provides:

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<td>Milk Thistle Extract (seed)</td>
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<td>[providing silymarin (480 mg), Silybin (180 mg), and Isosilybin A and Isosilybin B (48 mg)], Phospholipids</td>
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<th>SILIPHOS® Phytosome Milk Thistle Extract</th>
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<tr>
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<tr>
<td>[providing 47.52 mg silybin]</td>
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A bottle containing 60 softgels of the \textit{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 \textit{silybin} and \textit{isosilybin A} and \textit{B} not found in other milk thistle extracts! Compare the price of \textit{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 \textit{European Milk Thistle with Advanced Phospholipid Delivery} call 1-800-544-4440 or visit www.LifeExtension.com
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)

References

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.
“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
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
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.”

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, licium 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.
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.
SWIVEL offers a $50 discount for WOMEN.

**WHY A DISCOUNT FOR WOMEN?**

SWIVEL would like to reach out to those women who share a serious interest in the science of extending life at any level.

Our detailed flyer is being sent to relevant organizations. It is our hope that one or two women from each will say, “Yes, that’s me.”

All women receive a $50 discount. The regular price has been reduced to just $450 - $400 for women. A 3 day pass is available at half price.

**WHAT ARE THESE LEVELS OF LIFE EXTENSION?**

1) **Squared the Curve.** The standard path is to be born, enjoy a vigorous, healthy period and then start to deteriorate until death. Those seeking to square the curve wish to take advantage of evidence based medical and technological science to stay healthy and vigorous right up until the end. It’s called “Health Extension.” This is the largest level.

2) **Extend the Maximum Lifespan.** Currently, the maximum human life-span is about 120 years. Some individuals are going further and looking to evidence based science and technology to extend this period to 150 years or 200 years or...... Their goals vary. This is the next largest level.

3) **Indefinite Lifespan.** The smallest group seeks an indefinite life-span. Some call themselves immortalists. They also look to evidence based science to conquer all diseases of aging. Some have made arrangements to be cryo-preserved should they deanimate (legal death) before mankind conquers death.

**PROGRAM**

Our program will run from 10 am to 6 pm each day and will break for a healthy buffet lunch from 1pm - 2 pm. This is Vegas and we know that you just might be up late.

Unstructured events alone do not actually lead to everyone getting to meet those with whom they might have a shared interest. Therefore, several getting acquainted exercises, introductions and breakout groups have been designed to maximize your chance of meeting the “right” date, friends and colleagues. Evenings are unstructured. We will provide announcements for those who wish to organize specific evening events. “Everyone who wants to........meet here......at .......pm.”

SWIVEL

a device joining two parts so that one, or both, can pivot freely

Come look around.

**WHY A FULL 8 DAYS?**

SWIVEL’s goal is very specific. We want to reach those individuals who identify with maximizing their healthy life-span at any level and then help them to meet each other. Community support follows.

SWIVEL wants more than brief introductions. We want enough time for you to ask YOUR questions in a no pressure environment. We want YOU to have enough time to actually get to know each other - enough time to decide if you wish to spend more time getting to know someone. We want to be effective.

For those unable to take 8 days, we do offer a 3 day pass for half price.

Healthy life-span enthusiasts generally want to find a like-minded partner.

**WHY VEGAS?**

Easy to reach. Lodging to fit every budget.

** LODGING **

Our event site, The Orleans, is offering these attractive rates for single or double occupancy until 6-24-15. Resort Fee = $12.99. Taxes = 12%.

Sunday through Thursday. .................. $41 Friday and Saturday. ....................... $95

Search “Vegas lodging” for additional sites as low as $29.

*To request your Registration Form, along with more detailed information, please e-mail us at: SWIVELclub@aol.com*
Nearly 6,000 studies have been published on the broad-spectrum health benefits of green tea. Research shows that green tea favorably influences cardiovascular health, lipid clearance, glucose tolerance, healthy body weight, DNA repair, prostate and breast health, and healthy cell division. Scientists have identified the polyphenol EGCG as the key compound for green tea's multimodal health benefits.

Life Extension® has created a standardized 98% polyphenol green tea extract. These highly concentrated Mega Green Tea Extract Capsules contain 725 mg of either lightly caffeinated or decaffeinated 98% standardized green tea extracts.

The retail price for 100 vegetarian capsules of Mega Green Tea Extract is $30. If a member buys four bottles of 725 mg Mega Green Tea Extract capsules, the price is reduced to $18 per bottle. Each bottle will last over three months at the typical dose of one capsule daily.

References
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. 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. Exercise to prevent cardiovascular disease or type II diabetes has a benefit that is comparable to the use of prescription drugs. Aside from a general improvement in health, exercise can reduce premature deaths due to breast cancer, colon cancer, type II diabetes, and other diseases.

Higher levels of physical activity are associated with longer life expectancy more than moderate levels of activity. 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.

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

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.

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.

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. 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.

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.

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. Adherence to HIIT exercise programs is reportedly better than adherence to continuous moderate exercise programs. HIIT before a meal is more effective at lowering mealtime high blood sugar than regular moderate exercise.
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 hospitalization 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.
The biological basis of muscular fatigue is well-understood, the biological mechanism of feeling general fatigue is not. Studies have reported reduced fatigue in persons who had been sedentary, and then adopted programs of regular aerobic or resistance exercise. Nonetheless, designing effective placebo conditions for such studies can be challenging.

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.

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. Inflammation is also a feature of both physical inactivity and aging. Exercise has been shown to reduce inflammation and to increase insulin sensitivity in both human and rodent experiments. Mouse experiments indicate that exercise can also reduce inflammation due to a high-fat diet.

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

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.

References

Eliminating stubborn abdominal fat can lead to a healthier you. Abdominal fat tissue is a source of pro-inflammatory signaling molecules known as cytokines.¹

New research has found a specialized peptide complex isolated through a natural fermentation process can reduce calorie intake and lessen abdominal fat accumulation.²

Waist-Line Control™ contains peptides derived from Saccharomyces cerevisiae, a natural component used in food and beverage applications, which provide dual-action protection from excess abdominal fat.

1. Saccharomyces cerevisiae-derived peptides are thought to modulate appetite-regulating hormones in the brain via their effect on neuropeptide Y (NPY).²

2. Saccharomyces cerevisiae-derived peptides reduce the activity of enzymes responsible for the manufacture of fat from excess energy in foods, particularly glucose-6-phosphate dehydrogenase (G6PD) and malic enzyme (ME).³,⁴

The result is a reduction in food intake and added support for the reduction of abdominal fat.

In a recent human trial, young-to-middle-aged male and female participants took 500 mg of the Saccharomyces cerevisiae-derived peptides or placebo before breakfast and dinner. The supplemented subjects reduced their daily calorie intake by 25.3% and lost nearly two full inches of waist circumference, or about two belt sizes.²

Life Extension’s Waist-Line Control™ contains the identical peptide complex used in this study and at the same dosage administered to these subjects. This product is great for those trying to lose excess abdominal fat. Plus it’s stimulant-free and without side effects. Take two capsules twice daily before breakfast and dinner, or as recommended by a health care practitioner.

The suggested dose of two vegetarian capsules of Waist-Line Control™ provides:

Eatless™ peptide complex (S. cerevisiae) 500 mg

A bottle of 120 vegetarian capsules of Life Extension® Waist-Line Control™ retails for $42. If a member buys four bottles, the price is reduced to $28.50 per bottle.

Effective weight loss requires reduced caloric intake and increased exercise. Individual results may vary. Consult your physician or health care professional if you are nursing, pregnant, or trying to become pregnant.

To order Life Extension® Waist-Line Control™, call 1-800-544-4440 or visit www.LifeExtension.com

Eatless™ is a trademark of Neo Cremar Co., LTD.

References
Ceramides are essential for preserving healthy-looking skin. They play an important role in maintaining the skin’s moisture balance and protecting the skin’s surface.

Unfortunately, your body’s production of ceramides declines with age. Many anti-aging face creams include ceramides. The problem is that topical application cannot penetrate deeply enough into the skin to have a long-term impact on your skin’s appearance.

Researchers have discovered that the ceramides naturally produced by young skin are identical to those present in wheat—and that these wheat-derived oils can be taken orally.

Life Extension® has brought together these skin-nourishing oils in a concentrated oral formula called Skin Restoring Phytoceramides with Lipowheat®.

Skin Restoring Phytoceramides with Lipowheat® can reach the deepest layers of skin all over the body—not just where creams are applied—where it can offset the visible impact of the body’s gradual decline in ceramides. The hydrating action of Lipowheat® ceramides has proved effective in clinical trials.

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

Gluten-free.

References

Lipowheat® is a registered trademark of LAVIPHARM Group of Companies.
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. 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.3 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.

What You Need To Know

• 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.

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
“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.
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. The 3.0 Tesla MRI produces high-resolution images. 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.
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.
3. **Ischemia**, the restriction of blood flow, and
4. **Calcification**, the hardening of tissue resulting from calcium deposits.

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’s or the presence of the ApoE4 gene that has been linked to it, concussions and other trauma, and drug abuse all play a role in MCI, as do numerous health issues.

Research is also linking vitamin deficiencies with MCI, which will be discussed in Table 4.

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**Table 2: Neuropsychometric Tests to Detect Mild Cognitive Impairment**

<table>
<thead>
<tr>
<th>MCI Symptoms</th>
<th>Assessment(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tests of Variables of Attention (TOVA)</td>
</tr>
<tr>
<td>2</td>
<td>Central Nervous System Vital Signs (CNSVS), TOVA</td>
</tr>
<tr>
<td>3</td>
<td>CNSVS, TOVA</td>
</tr>
<tr>
<td>4</td>
<td>Wechsler Memory Scale (WMS), CNSVS, Wechsler Adult Memory Scale (WAIS)</td>
</tr>
<tr>
<td>5</td>
<td>WMS, CNSVS</td>
</tr>
<tr>
<td>6</td>
<td>Mini-Mental State Examination (MMSE)</td>
</tr>
<tr>
<td>7</td>
<td>WAIS</td>
</tr>
<tr>
<td>8</td>
<td>Wechsler Memory Scale II (WMS II)</td>
</tr>
<tr>
<td>9</td>
<td>General Ability Measure for Adults (GAMA)</td>
</tr>
<tr>
<td>10</td>
<td>CNSVS, P300—Brainwave that reveals brain speed and brain voltage (power)</td>
</tr>
<tr>
<td>11</td>
<td>WMS, MMSE, RANDT (Memory test designed by CT Randt, MD, and ER Brown, PhD)</td>
</tr>
<tr>
<td>12</td>
<td>CNSVS</td>
</tr>
</tbody>
</table>
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. Specifically, fin fish, such as salmon, sardines, and mackerel that are chockfull of omega-3 fatty acids. Other excellent food sources of fatty acids are walnuts, pecans, Brazil nuts, and sunflower seeds.

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

When it comes to brain function, the good news about dietary supplements is running neck-and-neck with that related to exercise. 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. 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.

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.
- **Gastrodin**, extracted from the root of an exotic orchid, plays a role in neurogenesis, rhythm, blood circulation, and neural plasticity.
- **Uridine-5’-monophosphate**, a nucleotide (organic molecule) or sub-unit of RNA, also contributes to neurogenesis.
- **Alpha-glyceryl phosphoryl choline**, a natural B-vitamin, improves brain speed, as do **magnesium L-threonate** (a magnesium salt) and **methylcobalamin** (a form of B12).
- **Ashwagandha** (a plant in the nightshade family, known as Indian ginseng, gooseberry, or winter cherry) contributes to a stable brain rhythm.
- **Pregnenolone**, a steroid hormone manufactured in the body via conversion of cholesterol, has positive effects on mood.
- **Vinpocetine**, derived from the *Vinca minor* (or lesser periwinkle) plant, increases blood circulation to the brain.
- **Blueberry extract** and **magnesium L-threonate** have a positive effect on the brain’s plasticity.

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. Aerobic exercise fires up primary neurotransmitters—dopamine, GABA, and serotonin—and anaerobic exercise builds brainpower as it builds muscle.

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.
**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 supplements, 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**

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

Eric R. Braverman, MD, is the Founder and Medical Director of The Place for Achieving Total Health (PATH Medical) in New York City and of the PATH Foundation, a nonprofit research organization dedicated to brain science. Dr. Braverman is the author of more than a dozen books, including The Edge Effect and Younger Brain, Sharper Mind, which present his brain-based medicine. He has published over 90 research papers presented to the medical community and is a recipient of the American Medical Association’s Physician’s Recognition Award.

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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How Does Your Fish Oil Compare?

There are hundreds of fish oil brands on the commercial marketplace.

Only one brand incorporates lifesaving findings to provide optimal omega-3 and olive oil benefits in one formula.

Studies published in 2014 confirm what Life Extension® espoused a decade ago when it introduced purified fish oil fortified with olive polyphenols.

Research clearly shows that a combination of fish and olive oil provides better effects than fish oil alone. Yet most people today take only low-potency fish oil.

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When sesame lignans are supplemented with fish oil, the omega-3 benefits are augmented. Sesame lignans help guard against lipid peroxidation, thereby extending the stability of DHA in the body. Sesame also directs fatty acids toward pathways that can help with inflammatory reactions.

**Super Omega-3** contains purified fish oil and olive fruit polyphenols plus standardized sesame lignans.

**5-Star Rated Purity, Potency, And Stability**

To ensure the purest, most stable, and easy-to-tolerate fish oil, **Super Omega-3** is **molecularly distilled**. It enjoys the highest 5-star rating for purity, quality, and concentration from the renowned International Fish Oil Standards (IFOS) program.

**Obtain Super Omega-3 At Below Wholesale Prices**

A bottle containing 120 capsules of **Super Omega-3** retails for $32. The regular member price for a single bottle is $24.

If a member buys four bottles of **Super Omega-3**, the cost per bottle drops to $21.

When a member buys 10 bottles, the cost per bottle is reduced to $17.05.

**Note:** While the health benefits of omega-3s from fish oil are universally recognized, the critical importance of olive oil in maintaining healthy vascular function remains largely overlooked.

**Super Omega-3** provide the equivalent polyphenol content of 4 to 6 tablespoons of extra virgin olive oil.

**The daily dose (four regular size softgels) of Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract provides:**

- **EPA** (eicosapentaenoic acid) **1,400 mg**
- **DHA** (docosahexaenoic acid) **1,000 mg**
- **Typical DPA** (docosapentaenoic acid) **156 mg**
- **Olive Extract** (fruit and leaf) **600 mg**
- **Sesame Seed Lignan Extract** **20 mg**

References


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

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All brains decline with age, but numerous studies show that the proper nutrients can promote more youthful cognition and enhanced memory.

Only Cognitex® combines 11 essential ingredients in one cost-effective formula. Sold separately, these components sell for a small fortune in Europe, where they are commonly prescribed for optimal brain health. The following is a sample of what you’ll find in each softgel:

- **Alpha-Glyceryl Phosphoryl Choline**: boosts levels of acetylcholine, which enables brain cells to communicate.
- **Gastrodin**: a brain shield that supports healthy levels of blood flow.
- **Grape Seed Extract**: boosts brain oxygen flow.
- **Vinpocetine**: increases circulation and brain cell conductivity.
- **Phosphatidylserine**: encourages improved concentration.
- **Pregnenolone**: a vital hormone that promotes mental energy.

Cognitex® with Pregnenolone & Brain Shield® is the most advanced neuro-enhancing formula on the market.

The retail price for 90 softgels of Cognitex® with Pregnenolone & Brain Shield® is $56. If a member buys four bottles, the price is reduced to $39.75 per bottle. If eight bottles are purchased, the price is reduced to $37.50.

Cognitex® is also available without pregnenolone at a slightly lower cost. Item # 01896

To order Cognitex® with Pregnenolone & Brain Shield®, call 1-800-544-4440 or visit www.LifeExtension.com

Just three softgels of Cognitex® provide the following nutrients:

- **Alpha-Glycerol Phosphoryl Choline (A-GPC)**: 600 mg
- **Phosphatidylserine (from Sharp-PS®)**: 100 mg
- **Brain Shield® (Gastrodin)**: 50 mg
- **Vinpocetine**: 20 mg
- **Leucoselect® Grape Extract (seed)**: 150 mg
- **BlueActiv™ Sensoril® Ashwagandha Extract**: 125 mg
- **Wild Blueberry Extract**: 150 mg
- **Uridine-5’-Monophosphate (disodium)**: 50 mg
- **Proprietary NeuroProtection Complex Blend**
  - Perluxan® Hops Extract
  - Rosemary Extract
  : 125 mg
- **Pregnenolone**: 50 mg

Contains soybeans.

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Now, pick the right melatonin for your needs with doses ranging from **300 mcg** to **10 mg**. For optimal results, melatonin should be taken within 30-60 minutes of going to sleep.

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<th>Melatonin 300 mcg</th>
<th>Melatonin 3 mg</th>
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<table>
<thead>
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<th>Melatonin 10 mg</th>
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</table>

**Caution:** Consult your healthcare provider before taking this product if you are being treated for a medical condition (especially autoimmune or depressive disorders). Use caution if combining with alcohol. This product is not intended for children, pregnant or lactating women, or women trying to become pregnant. Do not attempt to drive or operate heavy machinery after taking this product.

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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,
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.

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

**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.**
A high percentage of men will endure some form of prostate-induced discomfort over the course of their lifetimes.\(^1\)

A placebo-controlled, double-blind trial presented September 2013 reported that a specific blend of **pomegranate, green tea, turmeric, and broccoli**—formulated together in a capsule called **Pomi-T\(^{®}\)**—powerfully maintained healthy levels of prostate specific antigen (PSA).\(^2\)

Life Extension\(^{®}\) offers this same capsule for men who are serious about supporting and protecting their prostate as they age—by targeting PSA. The four foods in Pomi-T\(^{®}\) have healthful benefits for your entire body. But their constituent molecules, naturally present in food, have now been shown to concentrate within prostate tissue and provide a rich array of complementary, prostate-supporting, **PSA-modulating** mechanisms.\(^3\)-\(^{19}\)

### POMEGRANATE
- Specifically concentrates in prostate tissue\(^3\)
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- Promotes healthy levels of inflammatory response, inhibits androgen receptor expression, and inhibits abnormal cell migration.\(^5\),\(^7\),\(^8\)

### GREEN TEA
- **EGCG**, a green tea catechin, specifically concentrates in prostate tissue where it regulates PSA (prostate specific antigen) production to maintain healthy PSA levels\(^8\),\(^9\)
- Helps modulate genetic expression and activity of androgen receptors\(^10\)
- Supports body's natural defenses against oxidation.\(^11\)

### TURMERIC
- Promotes a healthy level of inflammatory response, chiefly due to its main component, *curcumin*\(^12\)
- Helps modulate cell signaling mechanisms, inhibiting abnormal cell adhesion and migration.\(^13\)
- Promotes healthy cell proliferation and apoptosis.\(^14\)

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- Helps regulate enzymes (phase II detoxifying enzymes) in gut and liver tissue that help render harmful dietary molecules harmless\(^15\)
- Helps promote healthy PSA levels\(^16\)
- Supports regulation of cell growth and transcription factors and normal production of apoptosis-inducing proteins.\(^17\),\(^18\)

The novel and scientifically validated blend of food in Pomi-T\(^{®}\) represents the next generation of targeted support for the aging prostate!

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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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**To order Pomi-T\(^{®}\), call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)**

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**References**

Recent evidence shows that regular brushing and flossing contribute towards ensuring good oral health and hygiene.1,2 Fluoride-free Life Extension® Toothpaste contains innovative ingredients that promote healthy teeth and gums, including:

- **Coenzyme Q10**—for protection against harmful molecules
- **Green Tea**—rich in protective catechins
- **Hydrogen Peroxide**—to thoroughly clean teeth and gums
- **Aloe Vera**—to facilitate natural healing3,4
- **Xylitol**—a natural sweetener that won’t decay teeth5
- **Folic Acid**—for healthier and more resilient gums6
- **Lactoferrin**—support healthy oral hygiene7
- **Squalane**—derived from olives and rich in vitamin E

A 4-ounce tube of Life Extension® Toothpaste retails for $9.50. If a member buys four tubes, the cost is only $6.50 per tube.

References
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 microorganisms 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 pneumonia, 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. 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

MARCH 2015 | LIFE EXTENSION | 87
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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References

Researchers are discovering how important probiotics are to overall health. Beyond improving digestive health, probiotics provide a broad spectrum of benefits throughout the body. FlorAssist® Heart Health Probiotic contains a novel probiotic—Lactobacillus reuteri 30242—that has been shown in clinical trials to safely support healthy cholesterol in adults already within the normal range.1,2 Additionally, L. reuteri 30242 has been shown to support healthy CRP (a marker for inflammation), fibrinogen (involved in clot formation), apoB-100 (a marker for LDL particle size, a known cardiovascular risk factor), and vitamin D levels (important for cardiovascular health) for those within normal range.3 FlorAssist® Heart Health Probiotic has been carefully formulated for convenient use as a safe, easy-to-swallow capsule with no unpleasant aftertaste. One capsule with food twice daily is the perfect addition to a heart-healthy lifestyle.

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The anatomy of the female urinary tract differs greatly from men, resulting in the need for additional nutritional support for women.

A wealth of published studies indicates that cranberry polyphenols may help to support a healthy urinary tract.15

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

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

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

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

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

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

**References**


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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.
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 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.  

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.

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 neapolitanum), 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.
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 $16.50. 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 $22 per 60-capsule bottle. If a member buys four bottles, the price is reduced to $22.20 per bottle. (Item# 01469)

**References**

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 variations 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 (ostomeatal 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.
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.

References

To order N-Acetyl-L-Cysteine, call 1-800-544-4440 or visit www.LifeExtension.com

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Nearly 40 million Americans suffer from persistent sinus issues, 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.

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.

**References**

To order **Sinus Cleanser™**, call 1-800-544-4440 or visit www.LifeExtension.com.

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#### Male Life Extension Panel
- **CBC/Chemistry Profile** includes glucose, cholesterol, LDL, HDL, triglycerides, liver and kidney function tests PLUS 20 additional tests. CBC includes immune (white) cell count, red blood cell count and platelet count. Also includes: **C-Reactive Protein**, **DHEA-S** Homocysteine, **TSH for thyroid function** Free Testosterone Estradiol Total Testosterone Vitamin D 25-hydroxy PSA (prostate-specific antigen) Hemoglobin A1c

- **FEMALE LIFE EXTENSION PANEL**
  - **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.

#### Weight Loss Panel—Comprehensive
- **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.

#### Weight Loss Panel—Basic
- **CBC/Chemistry profile** (see description above right), DHEA-S, free and total Testosterone, Estradiol, Progesterone, Cortisol, TSH, Free T3, Insulin and Hemoglobin A1c.

#### Male Hormone Add-on Panel
- 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.

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- 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.

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

#### Female Comprehensive Hormone Panel
- **CBC/Chemistry profile** (see description above right), DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.

#### Comprehensive Thyroid Panel
- **CBC/Chemistry profile** (see description above), DHEA-S, Estradiol, Progesterone, Cortisol, TSH, Free T3, Free T4, Reverse T3, Insulin, Hemoglobin A1c, Vitamin D 25-hydroxy, C-reactive protein (high sensitivity), and Ferritin.

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

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#### Liver Function Panel
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#### Blood Count/Red and White Blood Cell Profile
- **Red Blood Cell Count**
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#### VAP® Test** (LC804500)

**Note:** 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.

**VAP® PLUS** (LC100009)
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ANEMIA PANEL* (LC100006)
CBC/Chemistry Profile (see previous page), Ferritin, Total Iron Binding Capacity (TIBC), Vitamin B12, Folate, Reticulocyte Count.

INFLAMMATION PANEL (LC100007)
CBC/Chemistry Profile (see previous page), C-Reactive Protein (high sensitivity), Sedimentation Rate, Rheumatoid (RA) Factor, Antinuclear Antibodies (ANA) Screen.

THYROID ANTIBODY PROFILE (LC100004)
Thyroid Antibody (TPO), Thyroid Antibody (Tg), Antithyroglobulin Antibody.

CARDIO PLUS* (LC100008) $145
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Bromelain (Specially-coated)
Cytokine Suppressor™ with EGCG
DHA (Vegetarian Sourced)
Fast Acting Joint Formula
Ginger Force
Krill Healthy Joint Formula
5-LOX Inhibitor w/Proflex®
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Nervia®
Organic Golden Flax Seed
Serrafflazyme
SODzyme™ with GliSODin® and Wolfberry
Super Omega-3 EPA/DHA with Sesame Lignanes & 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®
Boron Capsules
Calcium Citrate with D3
Chromium Ultra
Copper
Iron Protein Plus
Magnesium
Magnesium Citrate
Only Trace Minerals
Optimized Chromium w/Crominex® 3+
OptiZinc
Se-Methyl L-Selenocysteine
Selenium
Vanadyl Sulfate
Zinc Lozenges

MISCELLANEOUS
Blood Pressure Monitor Arm Cuff
CR Way Edition Advanced Dietary Software

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

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
Xylitol™ 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/Copper Capsules
Life Extension Mix™ w/o Copper Tablets
Life Extension Mix™ w/Extra Nicin
Life Extension Mix™ w/Extra Nicin 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 UTI-Rose™
5-LOXIN®
PalmettoGuard® Saw Palmetto w/Beta-Sitosterol
PalmettoGuard® Saw Palmetto/Nettle Root Formula w/Beta-Sitosterol
Pomi-T™
ProstaPollen™

Ultrapro 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
Ambre 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®
Bioflavonavored 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
Hydrotex®
Lifting & Tightening Complex
Lycopen Cream
Melatonin Cream
Mild Facial Cleanser
Neck Rejuvenating Antioxidant Cream
Pigment Correcting Cream
(Ultra) Rejuvenex™
Rejuvey® Body Lotion
RejuveyX® Factor Firming Serum
Rejuvenating Serum
Renewing Eye Cream
Resveratrol Ant-Oxidant Serum
Skin Lightening Serum
Skin Restoring Phytoceramides w/Lipowheat®
Skin Stem Cell Serum
Stem Cell Cream w/Alpine Rose
Ultra Rejuvenex™
Ultra RejuveyNight™ w/o Progesterone
Ultra Lip Plumper
Ultra Wrinkle Reliever
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
Ultrapro 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
Chlorcola
Chlorophyllin
Green Coffee Extract CoffeeGenic®
Coriolus Super Strength
CR Mimetic Longevity Formula
Cinsulin® w/InSea2™ and Crominex® 3+
European Leg Solution Diosmin 95
Fern Dophilus
Femmesence MacaPause®
GlycemicPro™ Transglucosidase
Migra-eze®
NAD+ Cell Regenerator™
Nicotinamide Riboside
Natural Female Support
Optimized Resveratrol w/NAD+ Cell Regenerator™
Pecta-Sol®
Potassium Iodide
POQ Caps with BioPOQ®
Pteropure®
Prelox® Natural Sex for Men®
Pyridoxol 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
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
CellReduce Selective Fat Binder
CoffeeGenic® Green Coffee Extract
7-KETO DHEA®
DHEA® Complete
Fucosanthen Slim®
Garcinia HCA
HCActive
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
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Included Quantity</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01206</td>
<td>BERRY COMPLETE - 30 veg. caps</td>
<td>4 bottles each</td>
<td>$21.00</td>
<td>$15.75</td>
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</tr>
<tr>
<td>01496</td>
<td>BERRY COMPLETE w/Acai (ENHANCED) - 60 veg. caps</td>
<td>4 bottles each</td>
<td>29.00</td>
<td>21.75</td>
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<td></td>
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<tr>
<td>00664</td>
<td>BETA-CAROTENE - 25,000 IU, 100 softgels</td>
<td></td>
<td>11.25</td>
<td>8.44</td>
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<tr>
<td>01622</td>
<td>BIFIDO GI BALANCE - 60 veg. caps</td>
<td>4 bottles each</td>
<td>20.00</td>
<td>15.00</td>
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<tr>
<td>01073</td>
<td>BILBERRY EXTRACT - 100 mg, 100 veg. caps</td>
<td>4 bottles each</td>
<td>42.00</td>
<td>31.50</td>
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<tr>
<td>01512</td>
<td>BIODATIVE MILK PEPTIDES - 30 caps</td>
<td>4 bottles each</td>
<td>18.00</td>
<td>13.50</td>
<td></td>
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<tr>
<td>01631</td>
<td>BLOOD-COLLAGEN w/PATENTED UC-II- 40 mg, 60 small caps</td>
<td>4 bottles each</td>
<td>36.00</td>
<td>27.00</td>
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<td></td>
</tr>
<tr>
<td>01006</td>
<td>BIOIL® - 5 mg, 30 veg. caps</td>
<td></td>
<td>18.96</td>
<td>15.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0007</td>
<td>BIOIL® - 1 fl oz</td>
<td></td>
<td>31.99</td>
<td>25.59</td>
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<tr>
<td>00102</td>
<td>BIOTIN - 600 mcg, 100 caps</td>
<td>4 bottles each</td>
<td>7.50</td>
<td>5.63</td>
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</tr>
<tr>
<td>01709</td>
<td>BLACK CUMIN SEED OIL - 60 softgels</td>
<td>4 bottles each</td>
<td>16.00</td>
<td>12.00</td>
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</tr>
<tr>
<td>01710</td>
<td>BLACK CUMIN SEED OIL w/BIO-CURCUMIN® - 60 softgels</td>
<td>4 bottles each</td>
<td>32.00</td>
<td>24.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01008</td>
<td>BLAST™ - 600 grams of powder</td>
<td></td>
<td>26.95</td>
<td>20.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00331</td>
<td>BONE-UP® - 240 caps</td>
<td></td>
<td>28.95</td>
<td>21.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01727</td>
<td>BONE RESTORE w/VITAMIN K2 - 120 caps</td>
<td>4 bottles each</td>
<td>24.00</td>
<td>18.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01725</td>
<td>BONE STRENGTH FORMULA w/KOACT® - 120 caps</td>
<td>4 bottles each</td>
<td>45.00</td>
<td>33.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00137</td>
<td>BOOSTER - 60 softgels</td>
<td>4 bottles each</td>
<td>48.00</td>
<td>36.00</td>
<td></td>
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<tr>
<td>01800</td>
<td>BOOSTER w/MACUGUARD® OCULAR SUPPORT (SUPER) - 60 softgels</td>
<td>4 bottles each</td>
<td>52.00</td>
<td>39.00</td>
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<td></td>
</tr>
<tr>
<td>01651</td>
<td>BORON - 3 mg, 100 veg. caps</td>
<td>4 bottles each</td>
<td>5.95</td>
<td>4.46</td>
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<td></td>
</tr>
<tr>
<td>00202</td>
<td>BOSWELLIA - 100 caps</td>
<td></td>
<td>38.00</td>
<td>28.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01802</td>
<td>BRAIN SHIELD® GASTRODIN - 60 veg. caps</td>
<td>4 bottles each</td>
<td>33.00</td>
<td>24.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01253</td>
<td>BRANCHED CHAIN AMINO ACIDS - 90 veg. caps</td>
<td>4 bottles each</td>
<td>19.50</td>
<td>14.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01690</td>
<td>BREAST HEALTH FORMULA - 60 caps</td>
<td>4 bottles each</td>
<td>34.00</td>
<td>25.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00893</td>
<td>BMTE EYES III - 2 vials, 5 ml each</td>
<td>4 bottles, price each</td>
<td>34.00</td>
<td>25.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 1**

---

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Included Quantity</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00920</td>
<td>BENEFOTIAMINE w/ THIAMINE - 100 mg, 120 veg. caps</td>
<td>4 bottles each</td>
<td>$19.95</td>
<td>$14.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>00925</td>
<td>BENEFOTIAMINE (Mega) - 250 mg, 120 veg. caps</td>
<td>4 bottles, price each</td>
<td>18.60</td>
<td>13.95</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUB-TOTAL OF COLUMN 2**

---

**MARCH 2015**

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

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To order call: 1.954.766.8433 or 1.800.544.4440
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Each Quantity</th>
<th>Each Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01203</td>
<td>BRONOMELAIN (SPECIALY-COATED) - 500 mg, 60 enteric coated tablets</td>
<td>4 bottles, price each</td>
<td>$12.00</td>
<td>300</td>
<td>$21.00</td>
</tr>
<tr>
<td>00884</td>
<td>BUTTERBUR EXTRACT w/STANDARDIZED ROSMARINIC ACID - 60 softgels</td>
<td>4 bottles, price each</td>
<td>$15.00</td>
<td>300</td>
<td>$24.00</td>
</tr>
<tr>
<td>01653</td>
<td>CALCIUM CITRATE w/VITAMIN D - 300 caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01561</td>
<td>CALCIUM D-GLUCARATE - 200 mg, 60 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.15</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01528</td>
<td>CARNOSOOTH w/PICROPOLITECT-® - 60 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01700</td>
<td>CARDIO PEAK™ w/STANDARDIZED HAWTHORN &amp; ARALUNA - 120 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>00916</td>
<td>CARNITINE w/GLYCOCARN™® (OPTIMIZED) - 60 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01532</td>
<td>L-CARNITINE - 500 mg, 30 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.15</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01503</td>
<td>CAT MIX - 100 grams powder</td>
<td>4 jars, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01891</td>
<td>CHILDREN'S FORMULA LIFE EXTENSION MITX™ - 100 chewable tablets</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>00550</td>
<td>CHOLERA - 500 mg, 200 tablets</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01571</td>
<td>CHLOROPHYLLIN - 100 mg, 100 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.15</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01359</td>
<td>CHOLE-LESS™ - 90 capsules</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01477</td>
<td>CHROMIUM ULTRA - 100 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01504</td>
<td>CHROMIUM W/CHRONEXIM® 3+ (OPTIMIZED) - 500 mcg, 60 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01503</td>
<td>CINSULIN® W/INSA® and CHROMINEX® 3+ - 90 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
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<tr>
<td>01906</td>
<td>CITRACTHANE (STANDARDIZED) - 30 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01818</td>
<td>CITRIMAX® (SUPER) - 180 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>00618</td>
<td>CLA BLEND W/SESAME LIGNANS (SUPER) - 1,000 mg, 120 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>00819</td>
<td>CLA BLEND w/ GUARANA &amp; SESAME (SUPER) - 1,000 mg, 120 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01896</td>
<td>COGNITEX® w/BRAN SHIELD® - 90 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01897</td>
<td>COGNITEX® w/PREGNENOLONE &amp; BRAN SHIELD® - 90 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
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<tr>
<td>01421</td>
<td>COGNITEX® BASICS - 60 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
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</tbody>
</table>

**SUB-TOTAL OF COLUMN 3**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Each Quantity</th>
<th>Each Price</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>01659</td>
<td>COGNIZIN® CPD CHOLINE CAPS - 250 mg, 60 veg. caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01735</td>
<td>COMPREHENSIVE NUTRIENT PACKS ADVANCED - 30 packs</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01999</td>
<td>COMPREHENSIVE NUTRIENT PACKS ADVANCED - 30 packs</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>00119</td>
<td>COPPER CAPSULES - 2 mg, 100 caps</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>00949</td>
<td>COO10 w/LIMONENE (SUPER-ABSORBABLE) - 50 mg, 60 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
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<tr>
<td>00950</td>
<td>COO10 w/LIMONENE (SUPER-ABSORBABLE) - 100 mg, 100 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01226</td>
<td>COQ10 (SUPER-UBIQUINOL) - 100 mg, 60 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01733</td>
<td>COQ10 w/DIPOQQ™ (SUPER-UBIQUINOL) - 100 mg, 30 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01426</td>
<td>COQ10 w/TNH MITOHONDRAL SUPPORT™ (SUPER-UBIQUINOL) - 50 mg, 60 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
</tr>
<tr>
<td>01425</td>
<td>COQ10 w/TNH MITOHONDRAL SUPPORT™ (SUPER-UBIQUINOL) - 50 mg, 100 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
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<tr>
<td>01427</td>
<td>COQ10 w/TNH MITOHONDRAL SUPPORT™ (SUPER-UBIQUINOL) - 50 mg, 30 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
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<tr>
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<td>COQ10 w/TNH MITOHONDRAL SUPPORT™ (SUPER-UBIQUINOL) - 50 mg, 100 softgels</td>
<td>4 bottles, price each</td>
<td>$0.25</td>
<td>100</td>
<td>$24.00</td>
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<td>80154</td>
<td>COSMESIS ADVANCED LIGHTENING CREAM - 1 oz jar</td>
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<td>COSMESIS ADVANCED PEPTIDE HAND THERAPY - 4 oz bottle</td>
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**SUB-TOTAL OF COLUMN 4**
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<td>COSMESIS RESVERATROL ANTI-OXIDANT SERUM - 1 oz</td>
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**SUB-TOTAL OF COLUMN 5**

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<td>COSMESIS SKIN STEM CELL SERUM - 1 oz</td>
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<td>80116</td>
<td>COSMESIS ULTRA LIP PLUMPER - 1/3 oz</td>
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<td>COSMESIS VITAMIN C SERUM - 1 oz</td>
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<td>COSMESIS VITAMIN E-ESSENTIAL CREAM - 1 oz</td>
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<td>COSMESIS YOUTH SERUM - 1 oz</td>
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<td>CR-MAX- with UTI-ROSE® (OPTIMIZED) - 60 veg. caps</td>
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<td>CREATINE WHEY GLUTAMINE POWDER - 454 grams (vanilla)</td>
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**SUB-TOTAL OF COLUMN 6**

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**SUB-TOTAL OF COLUMN 5**

**SUB-TOTAL OF COLUMN 6**

To order call: 1.954.766.8433 or 1.800.544.4440

**To order call: 1.954.766.8433 or 1.800.544.4440**
**LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS**

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**SUB-TOTAL OF COLUMN 7**

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**SUB-TOTAL OF COLUMN 8**

To order online visit: www.LifeExtension.com
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**SUB-TOTAL OF COLUMN 11**

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**SUB-TOTAL OF COLUMN 12**

**LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS**
Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

<table>
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<td>Buy 4 jars, price each</td>
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<td>01770</td>
<td>PROTEIN CONCENTRATE (New Zealand Whey) Vanilla - 520-gr</td>
<td>30.00</td>
<td>22.50</td>
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<td>Buy 4 bottles, price each</td>
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<td>01771</td>
<td>PROTEIN CONCENTRATE (New Zealand Whey) Chocolate - 660-gr</td>
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<td>PROVINAL® - PURIFIED OMEGA-7 - 30 softgels</td>
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<td>01508</td>
<td>PTEROPURE® - 50 mg Pterostilbene 60 veg. caps</td>
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<td>01209</td>
<td>PUMPKIN SEED EXTRACT (WATER-SOLUBLE) - 60 veg. caps</td>
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<td>01587</td>
<td>PURE PLANT PROTEIN - Veg. Vanilla 540 grams powder</td>
<td>38.00</td>
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<td>01637</td>
<td>PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT - 100 mg, 60 veg. caps</td>
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<td>PYRIDOXAL 5'-PHOSPHATE - 100 mg, 60 veg. caps</td>
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<td>Buy 4 bottles, price each</td>
<td>19.80</td>
<td>14.85</td>
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<th>Qty</th>
<th>Total</th>
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<td>QUERCETIN (OPTIMIZED) - 250 mg, 60 veg. caps</td>
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<td>RED YEAST RICE (Bluebonnet) - 600 mg, 60 veg. caps</td>
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<td>00605</td>
<td>REGIMINT - 60 enteric-coated caps</td>
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<td>01708</td>
<td>REISHI EXTRACT MUSHROOM COMPLEX - 60 veg. caps</td>
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<td>Buy 4 bottles, price each</td>
<td>27.00</td>
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<td>01448</td>
<td>REJUVENEX® BODY LOTION - 6 oz</td>
<td>24.00</td>
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<td>Buy 4 tubes, price each</td>
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<td>Buy 8 tubes, price each</td>
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<td>12.75</td>
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<td>01621</td>
<td>REJUVENEX® FACTOR FIRMING SERUM - 1.7 oz</td>
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<td>Buy 2 bottles, price each</td>
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<td>Buy 6 bottles, price each</td>
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<td>REJUVENEX® (ULTRA) - 2 oz</td>
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<td>Buy 2 jars, price each</td>
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<td>Buy 4 jars, price each</td>
<td>44.00</td>
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<td>Buy 8 jars, price each</td>
<td>39.93</td>
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<td>REJUVENIGHT® (ULTRA) - 2 oz</td>
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<td>01410</td>
<td>RESVERATROL w/PTEROSTILBENE - 100 mg, 60 veg. caps</td>
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<td>Buy 4 bottles, price each</td>
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<td>01930</td>
<td>RESVERATROL w/NAD+ CELL REGENERATOR® (OPTIMIZED) - 30 veg. caps</td>
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<td>Buy 4 bottles, price each</td>
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<tr>
<td>01430</td>
<td>RESVERATROL w/SYNERGISTIC GRAPE-BERRY ACTIVES (OPTIMIZED) - 250 mg, 60 veg. caps</td>
<td>46.00</td>
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<td>00889</td>
<td>RHODIOLA EXTRACT - 250 mg, 60 veg. caps</td>
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<td>01900</td>
<td>RIBGEN® FRENCH OAK WOOD EXTRACT - 200 mg, 30 veg. caps</td>
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<td>00972</td>
<td>(D) RIBOSE POWDER - 150 grams</td>
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<td>Buy 4 jars, price each</td>
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<td>01473</td>
<td>(D) RIBOSE TABLETS - 100 veg. tabs</td>
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<td>Buy 4 bottles, price each</td>
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**NOTE: STYLE AND COLOR MAY VARY**

SUB-TOTAL OF COLUMN 13

SUB-TOTAL OF COLUMN 14

MARCH 2015

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS
### Buyers Club Order Form

**SUB-TOTAL OF COLUMN 15**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Retail Each</th>
<th>Member Each</th>
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<th>Total</th>
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<tr>
<td>01530</td>
<td>RICH REWARDS® CRUCIFEROUS VEGETABLE SOUP - 32 oz. bottle</td>
<td>11.95</td>
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<td>01531</td>
<td>RICH REWARDS® SPICY CRUCIFEROUS VEGETABLE SOUP - 32 oz. bottle</td>
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<td>01705</td>
<td>RICH REWARDS® LENTIL VEGETABLE SOUP - 32 oz. bottle</td>
<td>13.00</td>
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<tr>
<td>01810</td>
<td>RICH REWARDS® MUNG BEAN SOUP W/TURMERIC - 32 oz. bottle</td>
<td>13.00</td>
<td>9.75</td>
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<tr>
<td>01208</td>
<td>L-ARGININE (SUPER) - 240 mg, 60 veg. caps</td>
<td>49.00</td>
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<td>00070</td>
<td>RNA CAPSULES - 500 mg, 100 caps</td>
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<tr>
<td>01432</td>
<td>SAFFRON w/SATIERAL® (OPTIMIZED) - 60 veg. caps</td>
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<td>SAME (S-ADENOSYL-METHIONINE) - 200 mg, 20 enteric coated tablets</td>
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<td>00453</td>
<td>SAME (S-ADENOSYL-METHIONINE) - 200 mg, 50 enteric coated tablets</td>
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<td>00557</td>
<td>SAME (S-ADENOSYL-METHIONINE) - 400 mg, 20 enteric coated tablets</td>
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<td>01055</td>
<td>SAME (S-ADENOSYL-METHIONINE) - 400 mg, 50 enteric coated tablets</td>
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<td>01740</td>
<td>SEA-ODINE® - 1,000 mcg, 60 veg. caps</td>
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<td>SELENIUM - 2 oz dropper bottle</td>
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<td>SE-METHYL L-SELENOCYSTINE - 200 mcg, 100 veg. caps</td>
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<td>SERRAFLAVME - 100 tablets</td>
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<td>00284</td>
<td>SHARK LIVER OIL (NORWEGIAN) - 1,000 mg, 30 softgels</td>
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<td>01684</td>
<td>SILIMIN® - 100 mg, 50 veg. caps</td>
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<td>SINSI CLEANSER - 4 oz. bottle</td>
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<td>01596</td>
<td>SKIN RESTORING PHYTOCEMAMIDES w/LIPOWHEAT® - 30 veg. liquid caps</td>
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<td>00961</td>
<td>SODZYM® w/GLUSIDON® and WOLFBERRY - 90 veg. caps</td>
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<td>00657</td>
<td>SOLARSHIELD SUNGLASSES - 1 pair smoke color</td>
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<td>01097</td>
<td>SOY EXTRACT (ULTRA) - 150 veg. caps</td>
<td>87.00</td>
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**SUB-TOTAL OF COLUMN 16**

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<td>00432</td>
<td>STEVIA® EXTRACT (BETTER) - 100 packets, 1 gram each</td>
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<td>STEVIA® ORGANIC LIQUID EXTRACT (BETTER) - 2 oz liquid</td>
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<td>STRONIUM - 750 mg, 90 veg. caps</td>
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<td>SUPER ABSORBABLE SOY ISOFLAVONES - 60 veg. caps</td>
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<td>SUPER SELENIUM COMPLEX - 200 mcg, 100 veg. caps</td>
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<td>TART CHERRY EXTRACT w/STANDARDIZED CHERRYPURE® - 60 veg. caps</td>
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<td>TAURINE - 1,000 mg, 50 caps</td>
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<td>00133</td>
<td>TAURINE POWDER - 300 grams</td>
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<td>01304</td>
<td>THEAFLAVIN STANDARDIZED EXTRACT - 30 veg. caps</td>
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<td>(L) THEANINE - 100 mg, 60 veg. caps</td>
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<td>00668</td>
<td>THYROID FORMULA® (METABOLIC ADVANTAGE) - 100 caps</td>
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<td>01859</td>
<td>TGM - 500 mg, 60 veg. liquid caps</td>
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<td>TOCOTRIENOLS WITH SESAME LIGNANS - 60 softgels</td>
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<td>TOCOTRIENOLS (SUPER-ABSORBABLE) - 60 softgels</td>
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<td>TOTHIPASTE - 4 oz (Mint)</td>
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<tr>
<td>01468</td>
<td>TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT - 60 veg. caps</td>
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<td>01469</td>
<td>TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT W/RESVERATROL - 60 caps</td>
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<td>TNI SUGAR SHIELD™ - 60 veg. caps</td>
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<td>TRIFIBER® - 180 caps</td>
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<td>TRIFIBER® PROBIOTICS - 32 veg. caps</td>
<td>42.95</td>
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<td>01722</td>
<td>L-TRYTOPHAN - 500 mg, 90 veg. caps</td>
<td>33.00</td>
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<td>L-TRYTOPHAN PLUS (OPTIMIZED) - 90 veg. caps</td>
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<td>TWO-PER-DAY - 120 tablets</td>
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<td>TWO-PER-DAY - 120 caps</td>
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<td>L-TYROSINE - 500 mg, 100 tablets</td>
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</table>

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Retail Each</th>
<th>Member Each</th>
<th>Qty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>00213</td>
<td>VANADYL SULFATE  - 7.5 mg, 100 veg. tablets</td>
<td>$15.00</td>
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<td>Buy 4 bottles, price each</td>
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<td>00408</td>
<td>VENOTONE  - 60 caps</td>
<td>18.95</td>
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**ORDER SUBTOTALS**

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**ORDER TOTALS**

- **Sub-Total A (Sub-total of Columns 1 through 18)**
- **Postage and Handling (Any size order, continental U.S.)** $5.50
- **C.O.D.s (Add $7 for C.O.D. orders)**
- **Shipping**
- **GRAND TOTAL** (Must be in U.S. dollars)

**BILL TO ADDRESS**

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**SHIP TO ADDRESS**

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**Prices subject to change without notice. Please notify the Life Extension Foundation® of any address change.**

**NOTE:** Check here for C.O.D. orders, UPS Blue Label (2nd Day), UPS Red Label (Overnight).

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**LIFE EXTENSION MEDIA**

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**OFFER ENDS FEBRUARY 2, 2015**

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**NAME**

**E-MAIL**

**ADDRESS**

**CITY/STATE/ZIP-POSTAL CODE**

**COUNTRY**

**PHONE**

**FAX**

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

**EXP. DATE**

**SIGNATURE**

- COD
- UPS RED LABEL
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**Sub-Total (U.S. Dollars):**

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

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

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 on the immune system.

Fortunately, a unique processing technique preserves the correct molecular shape of the collagen—and preserves its bioactivity—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. 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!

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 InterHealth 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.

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7 THE BEST DRUG TO LOWER BLOOD PRESSURE
One in three adults has high blood pressure, yet only 45% have it controlled. Find out what the best antihypertensive drug is to provide 24-hour blood pressure control, improve insulin sensitivity, boost mitochondrial activity, and enhance endothelial function.

36 EXTRA RELIEF FOR STUBBORN PROSTATE SYMPTOMS
In clinical studies, a new flower pollen extract has been shown to shrink overgrown prostate tissue and relieve lower urinary tract symptoms.

56 WORLD CONGRESS ON EXERCISE IS MEDICINE®
The World Congress on Exercise Is Medicine® featured new research on the correlation between physical inactivity and premature death, resistance exercise and improved insulin sensitivity, and aerobic exercise and reduced brain atrophy.

24 SAFFRON’S ANTICANCER PROPERTIES
A popular Mediterranean spice, saffron has been shown to inhibit tumor formation and prevent DNA mutations while reducing the harmful side effects of chemotherapy drugs.

48 LINDA GRAY’S LONGEVITY REGIMEN
At age 74, actress Linda Gray looks and acts decades younger. Inside, she reveals her lifelong longevity program.

64 REVERSE MILD COGNITIVE IMPAIRMENT
Scientists are recognizing mild cognitive impairment as an early indicator of potential cognitive problems, including Alzheimer’s. Find out if you have MCI and what steps you can take to reverse the trend with diet, lifestyle, and nutrient therapies.