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February 2017

Heartburn Relief Without Drugs

Hidden Factor
Behind Kidney
Failure Epidemic

Protect Eyesight
From Computer
Screen Emission

How Proton Pump
Inhibitor Drugs
Destroy Brain Cells



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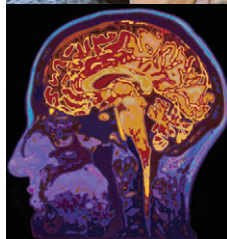
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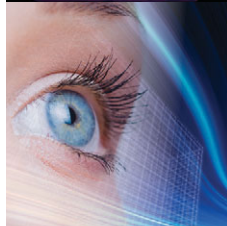
28 PROTECT AGAINST WINTER COLDS AND FLU

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50 HEARTBURN DRUGS / INCREASE DEMENTIA RISK

Recent studies have shown that the popular acid-reducing drugs known as **proton pump inhibitors** increase the risk of **dementia**. Most alarming is the finding that proton pump inhibitors prevent the removal of **beta-amyloid** plaques that are involved in the pathology of Alzheimer's. Fortunately, there are newly discovered natural alternatives to these harmful drugs.



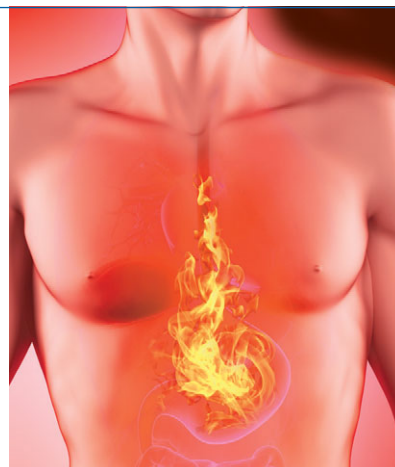
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As the use of smart phones and computers skyrockets, scientists are warning about the dangers of **blue light** these devices emit. Chronic **blue light** exposure can lead to blindness. Studies show that nutrients **lutein**, **zeaxanthin**, and **meso-zeaxanthin** that protect against solar ultraviolet rays can also guard your **retina** against electronic screen-emitting **blue light**.



74 COMBAT HIGH URIC ACID

More than **20%** of Americans have excess **uric acid** levels, increasing their risk of painful gout, as well as coronary artery disease and early death. A tree fruit extract has been studied for its ability to safely inhibit **uric acid** production without the use of side effect-prone medications.



40 HEARTBURN RELIEF WITHOUT DRUGS

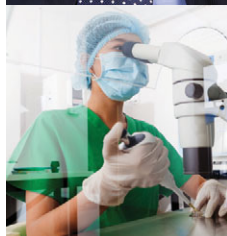
About **40%** of adult Americans suffer from **heartburn**, which is often treated by **proton pump inhibitor** drugs such as Nexium[®] and Prilosec[®]. Long-term use of these **stomach acid-blocking** drugs can result in serious consequences. A healthier way has been developed to reduce acid reflux and heartburn symptoms.

DEPARTMENTS



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In a new study from **Johns Hopkins University**, people who use **proton pump inhibitor** drugs are at increased risk of **kidney disease**. Further studies show these heartburn drugs can increase risk of bone fractures and heart disease. Natural approaches to relieve heartburn are discussed.



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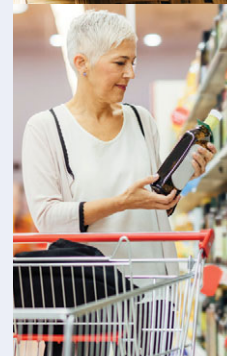
Three new studies document the value of anthocyanins in preventing neurodegeneration, heart disease, and diabetes.

94 SUPER FOODS: SAGE

Sage, a common herb in the Mediterranean diet, is known for a wide range of benefits, from lowering blood sugar levels to inhibiting cognitive impairment.

95 AUTHOR INTERVIEW: REAL FOOD/FAKE FOOD

In his book, *Real Food/Fake Food*, Larry Olmsted exposes the shocking facts behind a variety of fraudulent foods claiming to be authentic. These include olive oil, Kobe beef and specialty cheeses. Much of the blame is due to incompetent FDA oversight, which fails to protect us from these fake foods.



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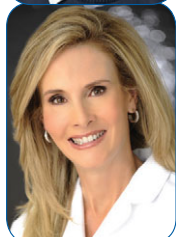
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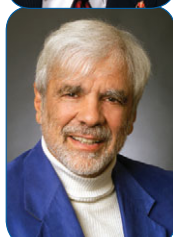
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1. *Regul Toxicol Pharmacol.* 2007;47(1):19-28.
2. *Exp Neurol.* 2004;188(2):491-4.
3. *Pharmacologyonline.* 2009;1:817-25.

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BY WILLIAM FALOON

Hidden Factor Behind Kidney Disease Epidemic

In a new report authored by researchers at **Johns Hopkins University**, people who use **proton pump inhibiting** drugs to treat heartburn (acid reflux) are at a **20% to 50% increased** risk for developing **chronic kidney disease**.¹

The prevalence of **kidney disease** is increasing in persons **60 years** and older. This has led researchers to investigate what new factor is behind this mounting kidney failure problem.

To put this in perspective, a study period ending in **1994** found chronic kidney disease present in **18.8%** of older individuals. A study period ending in **2008** found **chronic kidney disease** in this same age group (60+ years) had surged to **26%**. That's a **38% increase** over a time-frame of only **14 years**.²

More than **1 in 10** American adults now have some stage of **chronic kidney disease**.¹ Many are unaware of their kidneys failing and the increased risk for **heart disease** that this carries.³

Those afflicted with **chronic kidney disease** have higher **homocysteine**^{4,5} and **C-reactive protein**^{6,7} levels, along with reduced production of **nitric oxide**.^{8,9} So it is not surprising that kidney impairment elevates **vascular disease** risk.¹⁰

So why is **kidney disease** skyrocketing in persons over age 60?

Hypertension has long been a prime factor, but greater steps to control blood pressure have been taken in more recent years.

Diabetes is a culprit and poor glycemic control has been on the rise, as are increases in average body (fat) mass.

Overlooked is the impact that **drugs** have on the kidneys. Common pain relievers such as ibuprofen are notoriously damaging to kidneys, yet few warnings about their nephrotoxic effects are provided to consumers.^{11,12}

The new report found risk of kidney damage is dose dependent. People who took two daily doses of drugs like **Prilosec**® or **Prevacid**® had a **higher** risk compared to one daily-dose users.

One aspect of the study analysis suggests twice-daily proton pump inhibitor dosing was associated with a **46%** higher risk of chronic kidney disease than once-daily dosing, which was associated with a **15%** higher risk.¹

Fundamental changes to reverse this upward trend of **kidney disease** are urgently needed.

This article will make some suggestions about protecting renal function as we age, and what those who suffer **gastroesophageal reflux** (GERD) should change in light of the disturbing findings about **proton pump inhibitors**.



Heartburn (acid reflux) has plagued mankind throughout recorded history. Some of our founding fathers suffered horrific bouts of heartburn for which there was no effective treatment.¹³

In **1992**, I woke up to a sharp stabbing pain in my chest. A quick visit to a gastroenterologist resulted in a diagnosis of **esophagitis** (caused by reflux). A **proton pump inhibitor** drug (Prilosec®) was prescribed and my pain disappeared in a few days.

What did people do before **proton pump inhibitors** were discovered I wondered? Unlike older medications (such as Tagamet®) that only reduce stomach acid, **proton pump inhibitors** block it altogether (if used every 12 hours).

Considering that up to **30%** of Americans have symptomatic heartburn that occurs at least once weekly, and more than **40%** of Americans have it to one degree or another,¹⁴ the advent of **proton pump inhibitors** would have been a miraculous solution—if it were not for the **side effects** that occur when stomach acid is chronically blocked.

Increased Fracture Risk in Users of Proton Pump Inhibitors

Proton pump inhibiting drugs block stomach acid production, which often provides rapid relief from heartburn symptoms. Yet hydrochloric acid secreted by our stomach is needed to break down foods to facilitate **absorption** of essential nutrients.

As people age, the gradual decline in stomach acid production makes it difficult to **absorb** minerals. Chronic use of **proton pump inhibitor drugs** can severely impair absorption of **calcium, magnesium, iron** and certain vitamins.¹⁵⁻¹⁹

Proton pump inhibitors are now considered to be culprits behind higher rates of **osteoporosis**.^{20,21} Studies show that regular users of proton pump inhibitors have a **10% to 40% increased** risk of **bone fractures**.^{15,22-27}

In addition, users of these heartburn-relieving drugs suffer higher incidences of pneumonia and bacterial infection (*Clostridium difficile*).^{28,29}

Vitamin B12 Deficits

Stomach acid is part of the digestive juices needed to absorb vitamin B12. You need acid to separate vitamin B12 from food.

When stomach acid is blocked for an extended period, vitamin B12 deficiencies occur³⁰⁻³² and can manifest as neurological impairment (sometimes leading to dementia),³³ anemia,³⁴ elevated homocysteine,³⁵ and other disorders.

One study found that **vitamin B12 deficiency** was **65% more** common in long-term users of **proton pump inhibitors**.³² The degree of the B12 deficit correlated with the dose of the proton pump inhibiting drug, i.e. the higher the daily dose, the greater the B12 deficit.

Discontinuation of the proton pump inhibitor resulted in a reversal of the vitamin B12 deficit.³²

Those who need to take daily proton pump inhibitors can obtain sufficient B12 levels by taking **1,000 mcg** injections of B12 three times a week, or by taking daily sublingual B12 lozenges.





Heart Attacks in Proton Pump Inhibitor Users

Stomach acid is required for optimal absorption of nutrients like selenium and magnesium. Aging individuals who don't supplement with essential nutrients are often deficient. If they take a proton pump inhibitor and don't supplement, they are at risk for severe nutrient deficiencies.

When the body is deprived of **calcium**, it robs it from the bones, which results in release of bony constituents that contribute to coronary artery **calcification**.^{36,37}

The mineral deficit most frequently associated with **proton pump inhibitor** use is **magnesium**. Several studies show frank **magnesium deficits** in response to suppressing stomach acid with proton pump inhibitors.^{17,18,38}

So it should come as no surprise that people who regularly use proton pump inhibitors suffer heart attack rates **higher** than nonusers.³⁹⁻⁴¹ A recent study found a **1.58-fold** greater risk of heart attack amongst proton pump inhibitor users.³⁹

Users of acid-blocking drugs not only suffer **magnesium deficiency**, but a lack of **vitamin B12** causes their **homocysteine** levels to surge. These twin vascular risk factors help explain the higher risk of heart attack and stroke in long-term **proton pump inhibitor** users.

Kidney Damage

Scientists grew suspicious of **proton pump inhibitors** because they can cause acute interstitial nephritis.⁴²⁻⁴⁴ a condition in which spaces between the kidney tubules become swollen and interfere with filtration of toxins out of one's blood.⁴⁵

A large case-control study published in **2013** revealed that patients presenting with **acute kidney failure** were more than twice as likely to be using a **proton pump inhibitor drug**.⁴⁶ Typically, acute kidney-failure patients recover rapidly after they withdraw from proton pump inhibiting drugs, but it may take up to three months and in some cases require additional therapy.⁴⁷

Based on data showing proton pump inhibitors create acute kidney problems, researchers at **Johns Hopkins University** sought to evaluate the impact on a large group of people over a 6-year period.

A total of 10,482 subjects with a mean age of 63 years were selected from a study titled ***Atherosclerosis Risk in Communities***. The study used several forms of analysis to rule out confounding factors that might have caused chronic kidney disease. The findings from this study published in **2016** revealed that regular proton pump inhibitor use was associated with:¹

- **35% increased** incidence of chronic **kidney disease** (time-varying analysis)
- **45% increased** incidence of chronic **kidney disease** (unadjusted analysis)
- **50% increased** incidence of chronic **kidney disease** (adjusted analysis that took into account demographic, socioeconomic and clinical variables)

Proton pump inhibitor users were more likely obese and taking antihypertensive medications, which might have increased chronic kidney disease incidences beyond that associated with acid-blocker drugs like Nexium®, Prilosec®, and Prevacid®.

Interestingly, GERD patients who used older drugs like **Tagamet®** did not show an increase in chronic kidney disease incidence.

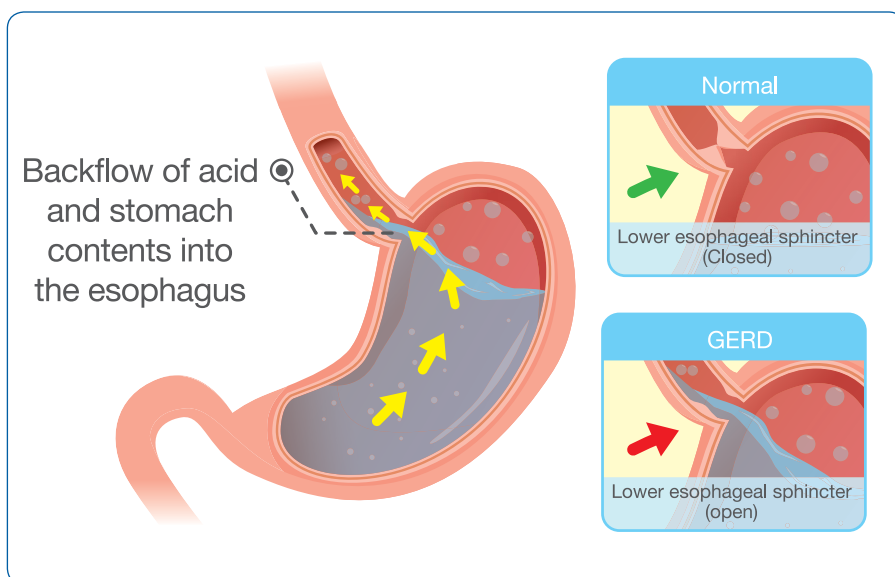
A large study published in **2016** confirmed these findings. The study's authors compared users of **proton pump inhibitors** (Nexium®, Prevacid®, et al.) to older line drugs like **Tagamet®** (cimetidine). Patients who took the **proton pump inhibitors** had a **96% increased** risk of developing **kidney failure** and a **28% increased** risk of chronic kidney disease.⁴⁸

Although we know that **hypertension, heart disease, diabetes, and family history** are risk factors for kidney disease,⁴⁹ these findings suggest that **proton pump inhibitors** are also associated with **chronic kidney disease** and **kidney failure** afflicting older individuals.

What GERD Sufferers Should Do

GERD can be a frustrating, vexing problem. It is not caused by excess stomach acid.

The underlying reason for GERD is failure of the **sphincter valve** between the stomach and esophagus to properly close. This enables stomach contents that include enzymes, food, drink, bile, and acids to reflux back up into the delicate esophageal lining. The outward symptomatic effect is **heartburn**. The long term impact can be an increased risk for Barrett's esophagus, a type of



change in the epithelium (lining) of the esophagus which may increase the risk for a type of **esophageal cancer**.⁵⁰⁻⁵² Though the increase in risk of Barrett's esophagus is not known with certainty, most medical experts suggest the long-term risk is around **15%-20%**, which necessitates an upper endoscopy to assess the esophagus lining every three to five years in chronic GERD sufferers.⁵³⁻⁵⁵

Lifestyle modifications that can mitigate or eliminate GERD include weight loss, reducing or eliminating caffeine/alcohol/nicotine, reducing meal size, not eating late in the evening, and elevating the head end of one's bed so that gravity holds down stomach contents that otherwise enter the esophagus while one sleeps.⁵⁶⁻⁶¹

While these GERD-mitigating steps work reasonably well, few people implement them consistently.

The convenience of taking a proton pump inhibitor to prevent heartburn has resulted in large swaths of the aging population taking this drug every day, but doing nothing to correct the underlying problem causing GERD.

Quote from Study Published by American Medical Association

*"Chronic kidney disease (CKD) affects approximately **13.6%** of adults in the United States, is associated with a substantially increased risk of death and cardiovascular events, and accounts for a disproportionately large burden on the financial resources of Medicare. The increasing prevalence of CKD among communities cannot be fully explained by trends in known risk factors, such as diabetes mellitus and hypertension, suggesting that other variables may contribute to the disease process. Medication use may be a potential factor, particularly given tendencies toward polypharmacy. Identifying iatrogenic risk factors for CKD may help to promote the rational use of medications and reduce the burden of CKD worldwide."*

"Proton Pump Inhibitor Use and the Risk of Chronic Kidney Disease," JAMA Internal Medicine, February, 2016.

Raft-Forming Alginates

Several years ago, *Life Extension*® introduced a chewable tablet that, when taken during a meal, forms a temporary protective barrier between the stomach and esophagus to prevent stomach contents from refluxing.

Most users found the chewing of these tablets at mealtime to be inconvenient and did not continue with them. This is somewhat understandable considering how easy it is to pop a **20 mg**

tablet of Prilosec® (omeprazole) once or twice a day to stop heartburn symptoms from manifesting.

With data mounting about the side effects of long-term use of proton pump inhibitors, those with mild to moderate GERD should consider lifestyle changes and a new approach described in this issue of *Life Extension*.

Severe GERD sufferers should strike a balance between a less frequent dose of the proton pump inhibitor, once symptoms are resolved, and “on demand” therapy if appropriate.

Lifestyle modifications and occasional use of raft-forming alginates should be considered to give the body a break from chronic proton pump inhibitor use.

Sublingual and/or vitamin B12 injections are recommended for those who continue daily use of proton pump inhibitors (hopefully no more than once a day).

New Chewable Antacid Tablets

The article on page **40** of this issue describes a novel **antacid** utilizing magnesium, calcium, and licorice extract. This unique formula is designed to neutralize **acid** in the **esophagus** and promote movement of stomach contents away from the delicate **esophageal lining**.

This antacid lozenge can help GERD sufferers reduce or eliminate reliance on **proton pump inhibitor drugs**.

Our Fragile Kidneys

Most people don't understand the delicate nature of the tiny structures that comprise their kidneys. Even fewer realize that kidney function involves more than merely removing toxic waste from the blood.

The kidneys support water/fluid balance, secrete hormones to make red blood cells, maintain electrolyte levels and regulate blood pressure. They are also involved in maintaining healthier levels of precursors to endothelial **nitric oxide**.

Every day, our two kidneys filter about **120 to 150** quarts of blood to produce about **1 to 2** quarts of urine.⁶²

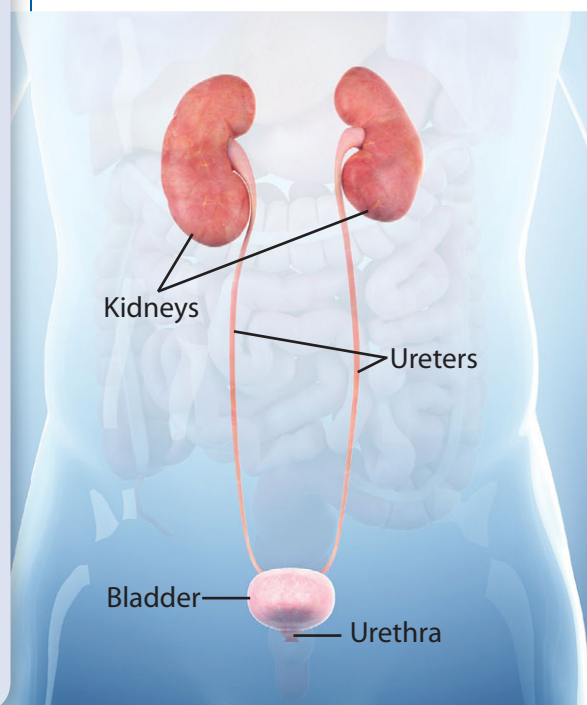
Those with chronic kidney disease often have sharply higher **homocysteine** and **C-reactive protein** levels that predispose them to a myriad of cardiovascular disorders.

Maintaining youthful kidney function is of utmost importance if one's goal is to live a long and healthy life. Yet far too little attention is paid to these critical organs. Documented chronic kidney disease risk factors are:

- Diabetes⁶³⁻⁶⁵ and metabolic syndrome⁶⁶
- High blood pressure^{64,67}
- Obesity^{64,68}
- Toxic medications^{69,70}

Overlooked is the adverse impact that poor dietary patterns and normal aging inflict on the fragile structures (glomeruli) that comprise the filtering units of our kidneys.

Supplemental nutrients that have been shown to protect and support healthy kidney function include **coenzyme Q10**,^{71,72} **omega-3s oils**,^{73,74} and **N-acetylcysteine**.^{75,76}



Importance of Blood Tests to Evaluate Kidney Health

No one should wait for kidney disease to manifest where it may progress toward end-stage renal failure. This is especially important for users of proton pump inhibitors (and pain relieving drugs).

A comprehensive **CBC/chemistry** blood test evaluates markers of kidney function such as **creatinine** and **blood urea nitrogen**.

The safe upper limit for serum **creatinine** is **1.00 (mg/dL)**. Any fractional number over this (such as **1.1**) raises concern that can signal the need for the most accurate blood test to evaluate kidney function, called **cystatin-C**.

Cystatin-C is an underutilized blood marker, which is regrettable because it provides a far more accurate indicator of kidney function than the standard kidney tests.⁷⁷ Optimal levels of **cystatin-C** are less than **0.91 mg/L**. Any result that comes back higher indicates the presence of kidney disease.

If caught in time, cystatin-C levels can be brought back to normal by discontinuing suspected drugs, such as ibuprofen and/or a proton pump inhibitor.

The only factor that impedes routine use of the cystatin-C blood test is its high cost. Commercial labs charge around \$200 for it. **Life Extension** offers the **cystatin-C** blood test to consumers for **\$99**.

A comprehensive **CBC/chemistry** blood test that includes dozens of important markers such as glucose, lipids, and blood counts, along with markers of liver and **kidney** function, can be obtained directly from **Life Extension** for only **\$35**.

Cystatin-C provides an **earlier** indicator of kidney impairment than tests like creatinine that are included in the **CBC/chemistry** panel.

In light of the new findings, long-term users of proton pump inhibitors should consider ordering the **cystatin-C** blood test as this provides the **earliest** warning to cut back or discontinue use of proton pump inhibitor

drugs. The CBC/chemistry and/or cystatin-C blood tests can be ordered by calling **1-800-208-3444** or at LifeExtension.com/CBCPlus

Try Reducing Frequency and Dose – “On Demand” Therapy

A number of published papers conclude that Americans are overusing proton pump inhibitor drugs.⁷⁸⁻⁸⁰

The medical literature reveals a dose-response relationship regarding the side effects these drugs induce.¹

As reported in the introduction to this article, a recent study has observed increased risks of **chronic kidney disease** in users of **proton pump inhibitors**, and the risk may be higher in those who take two doses a day instead of one. Most proton pump inhibitors start to wear off after 12 hours, so by taking only one of these drugs a day, there is at least some restoration of stomach acid production to help better absorb vital nutrients.



Studies dating back 25 years, however, demonstrate that proton pump inhibitors themselves can induce acute interstitial nephritis, which is a condition in which spaces between the kidney tubules become swollen and interfere with filtration of toxins out of one's blood.⁸¹⁻⁸³

These data should prompt you to consider reducing the dose frequency of your proton pump inhibitor medication to three times per week. Studies that have examined the possibility of intermittent therapy in patients with GERD, however, have been inconsistent as it relates to heartburn relief.

All things considered, an attempt to restrict intake of **proton pump inhibitors** to "on-demand" dosing, along with the regular use of a novel **antacid lozenge** described in this issue, may be an effective alternative solution to chronic use of acid-suppressing drugs.

Don't Be a Victim of Medical Ignorance

Proton pump inhibitor drugs provide almost immediate relief from heartburn symptoms and can facilitate a cure for esophagitis.

In 2013, more than 15 million Americans were prescribed proton pump inhibitors and many more bought this class of drug over the counter.^{1,84} Study findings suggest that chronic prescribing of these drugs is not medically indicated in many cases.⁸⁵ One study found that **27%** of long term **proton pump inhibitor** users could discontinue therapy without encountering symptoms.⁸⁶

Published studies show consistent associations between use of these acid-blocking drugs and higher risk of chronic kidney



disease.^{42,43,46,48} This disorder has increased in prevalence during a time period that corresponds with widespread use of proton pump inhibitors.^{1,48}

Many GERD sufferers have come to rely on proton pump inhibitors to offset the heartburn-inducing effects of eating large meals, excessive ethanol consumption and carrying too much weight.

Common-sense lifestyle changes can enable those with GERD to reduce or eliminate reliance on **proton pump inhibitors**.

A preponderance of clinical data indicates that this will beneficially result in a reduction in risks of bone fracture, heart attack, stroke,

infections, dementia, and kidney failure.

Blood tests can readily reveal if kidney damage is occurring and provide an early warning to discontinue certain drugs before permanent kidney damage manifests.

Please turn this page to see how easy it is to obtain **low-cost** blood tests that can help you maintain **optimal** health throughout the New Year.

For longer life,

William Faloan

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- HDL cholesterol
- LDL cholesterol (calc.)
- VLDL cholesterol (calc.)
- Total cholesterol/HDL ratio
- Estimated Coronary Heart Disease risk

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- Fasting glucose

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- Chloride
- Calcium
- Phosphorus
- Iron

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- LDH (lactate dehydrogenase)
- AST (aspartate aminotransferase)
- ALT (alanine transaminase)
- Total protein
- Albumin
- Globulin
- Albumin/globulin ratio
- Bilirubin

Complete Blood Count:

- Red blood cell count
- Hemoglobin
- Hematocrit
- MCV (mean corpuscular volume)
- MCH (mean corpuscular hemoglobin)
- MCHC (mean corpuscular hemoglobin concentration)
- RDW (red blood cell distribution)
- White blood cell count
- Immune Cell Differentiation Count
- Platelet count

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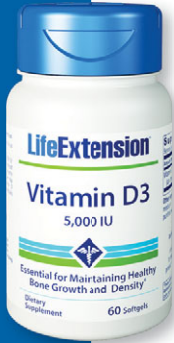


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* If you have a thyroid condition or are taking anti-thyroid medications, do not use without consulting your health care practitioner.

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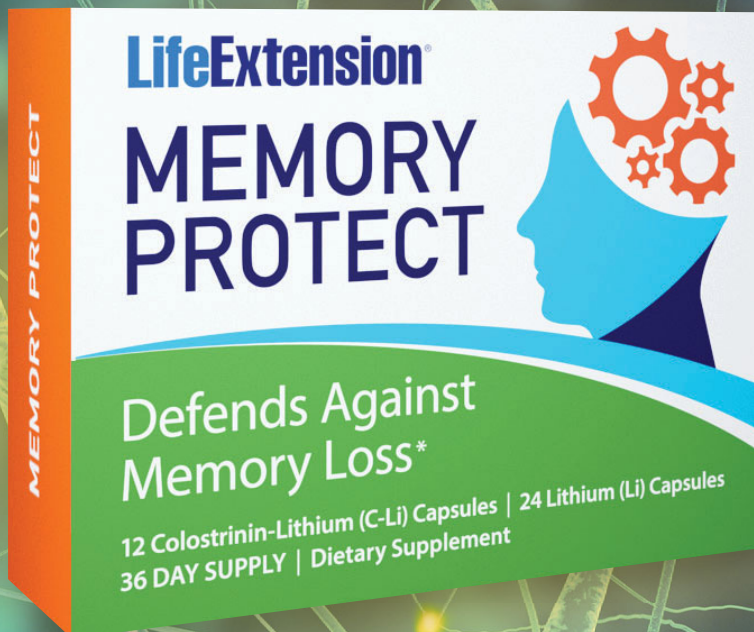
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Nicotinamide Riboside Boosts NAD⁺ Metabolism in Humans

Found in every cell in the body, **NAD⁺** is an *enzyme* that plays a critical role in maintaining youthful **energy** metabolism.

Nature Communications reported the results of the first clinical trial of **nicotinamide riboside**, a form of vitamin B3 known to boost **NAD⁺** cell levels.* Researchers determined that the compound was more effective than niacin and nicotinamide at increasing beneficial **nicotinamide adenine dinucleotide** (NAD⁺) and sirtuin enzymes associated with longevity.

In 2004, Charles Brenner, PhD, discovered that nicotinamide riboside occurs in milk and that it can convert to NAD⁺ in humans. After conducting experiments in rodents, he tested it on himself by consuming a gram daily for a week, accompanied by blood testing that revealed a **2.7 fold** increase in NAD⁺.

Acting on findings in mice, 12 human subjects were given **100 mg, 300 mg, or 1,000 mg** nicotinamide riboside in different sequences with a week between each dose. The trial revealed the superiority of **nicotinamide riboside** in boosting NAD⁺ and the activity of **sirtuin** enzymes.

Editor's Note: The health-enhancing potential of **nicotinamide riboside** has not gone unnoticed by mass marketers. Aggressive advertising in **2016** touted the ability of **nicotinamide riboside** to reverse certain aspects of aging. Commercial companies began selling **nicotinamide riboside** (under a variety of trade names) at high prices. Consumers don't need to pay these high prices if they look for formulas whose active ingredients include **nicotinamide riboside** as sold by reputable firms.

* *Nat Commun.* 2016 Oct 10;7:12948.

Melatonin Helps Lower Blood Pressure, Study Shows

A study from Thomas Jefferson University has found that **melatonin** supplements may help lower blood pressure in both younger people and older nonhypertensive individuals.*

While previous research had shown the pineal hormone melatonin to have a beneficial effect on both clinical and experimental hypertension in older subjects, this study was focused on the effect of melatonin on both younger and older people whose blood pressure is in the normal or prehypertensive range.

The pilot study of 23 subjects looked at blood pressure readings taken in the clinic as well as readings taken from ambulatory monitoring devices in order to obtain systolic and diastolic numbers over a 24-hour period. The devices took readings every 20 minutes during subjects' waking hours, and every hour overnight. All the subjects in the melatonin group had both clinical and ambulatory readings taken before and after receiving **9 mg of controlled-release melatonin** daily for six weeks. Patients in the control group did not receive melatonin, but had the same blood pressure measurements done before and after six weeks. The results showed that, on average, the office systolic reading of the entire melatonin group of subjects was a statistically significant **7.3 mmHg** lower compared to baseline; control subjects dropped **4.4 mmHg** compared to baseline (nonsignificant). In the older group, it was, on average, **13.3 mmHg** lower (significant), versus **3.3 mmHg** in controls (nonsignificant).

Editor's Note: The melatonin used for this study was donated through the **Life Extension Foundation®** Buyers Club.

* Presented at AHA Hypertension Scientific Sessions, Sept. 14-17, 2016, Orlando, FL.

Association Between Magnesium and Lower Glucose in Diabetics

A systematic review and meta-analysis appearing in the *European Journal of Clinical Nutrition* affirmed a reduction in plasma glucose in association with **magnesium** supplementation among those at risk of or diagnosed with diabetes.*

The researchers selected 12 randomized, controlled trials involving 670 diabetics who were followed for a median of 12 weeks and six trials that enrolled 453 men and women at high risk of diabetes followed for a median of 14 weeks.

Among the studies that involved diabetics, there was an association observed between reduced fasting plasma glucose and treatment with magnesium in comparison with a placebo. In studies that involved those at high risk of the disease, magnesium supplementation was associated with significantly improved plasma glucose levels compared to a placebo following a two-hour oral glucose tolerance test and a trend toward reduced insulin resistance.

Editor's Note: Magnesium supplements given in the trials included magnesium oxide, magnesium picolinate, magnesium aspartate HCl, magnesium citrate, magnesium lactate, magnesium lactate-citrate, magnesium hydroxide, magnesium chloride and magnesium sulfate.

* *Eur J Clin Nutr.* 2016 Aug 17.



Higher DHEA Levels Associated with Lower Diabetes Risk

An article in *Diabetologia* reports an association between higher levels of **DHEA** and a lower risk of type II diabetes.*

The investigation involved participants in the Rotterdam Study, which enrolled 7,983 men and women from 1990–1993 (Rotterdam Study I) and 3,011 participants in 2000 (Rotterdam study II).

Follow-up visits were conducted every three to five years.

The final study was limited to 5,189 subjects who were free of diabetes at enrollment. Over a median follow-up of 10.9 years, 643 cases of type II diabetes were diagnosed.

Among those whose serum DHEA levels were among the top third of participants, there was a **27% lower** risk of diabetes in comparison with those whose levels were among the lowest third.

Editor's Note: As possible protective mechanisms for DHEA, the authors note that the hormone is a peroxisome proliferator-activated receptor (PPAR) alpha agonist, as are fibrate drugs currently used to treat high triglyceride levels. The fibrate drug bezafibrate was found in one study to reduce the incidence and delay the onset of type II diabetes in subjects with impaired fasting glucose. DHEA has also been shown to be an insulin sensitizer and to help protect against advanced glycation end-product formation. Additionally, DHEA is associated with better endothelial function which, when impaired, has been associated with insulin resistance.

* *Diabetologia*. 2016 Oct 22.

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Reference

* Available at: https://www.ars.usda.gov/ARSEUserFiles/80400530/pdf/0506/usual_nutrient_intake_vitD_ca_phos_mg_2005-06.pdf. Accessed September 6, 2016.

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

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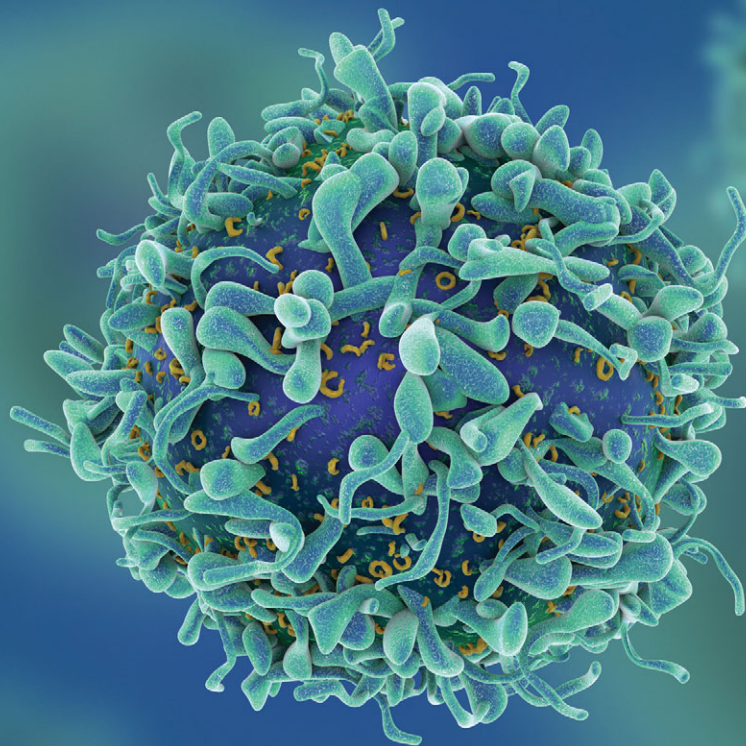
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BY MICHAEL DOWNEY





Winterize Your Immune Defenses

The **wintertime** virus season makes us all vulnerable to infections.

For some older adults, these infections are life threatening because of immune decline (immune senescence) that occurs with age.

Flu and pneumonia are responsible for 55,000 deaths every year in the US.¹ In the presence of **immune senescence**, flu vaccines may not be sufficient to fight off viral infections.²⁻⁴

In this article, we provide a **two-pronged strategy** to help remain healthy all winter.

The good news is most readers of this publication already follow many of the steps needed to enhance their protective immune function.

Bricks in the Fortress Walls

Natural compounds can help build immune-defenses and protect against wintertime risks such as influenza. While anyone can benefit, it is especially critical for elderly and immune-compromised individuals, since infections can include potentially serious—and even *fatal*—complications.

Cistanche

Cistanche is a type of desert plant whose individual components have been shown to help create more balanced, youthful immune function.

In youth, individuals enjoy abundant naïve T cell populations, which are cells that recognize new threats to the body. These **naïve T cells** stand ready to destroy new bacteria, viruses, and cancers. Once a *naïve T cell* performs its job, it then converts to a specialized *memory T cell* (a cell that can remember a previous threat) that responds **only** to the same bacteria, virus, etc.

Aging results in an accumulation of senescent T cells that emit inflammatory signals, while depriving the body of vital **naïve T cells** to fight new invaders and malignancies. This results in a weakening of protective immune function.

Cistanche plant extract stimulates development of **naïve T cells** and leads to a lower number of **memory T cells**, which creates a more balanced and healthier immune response. *Cistanche* also increases **natural killer (NK)-cell** activity (cells that seek and destroy cells infected with viruses or transformed by cancer)—an action that has been shown in animal research to result in lifespan increase.⁵

A human study found that individuals taking standardized *Cistanche* had impressive improvements in their immune profiles after 12 weeks. This included an **11.7%** increase in natural killer cell activity and a **20.2%** increase in the ratio of CD4 to CD8 cells, which is an indicator of healthier, more youthful immune function.⁶

Reishi Mushroom

Bioactive components of the **Reishi** mushroom have been shown to exert biological effects that may help reverse many of the factors of **immune senescence**. Reishi extracts boost the function of innate immune cells, the immune system's first line of defense.^{7,8}

It has long been established that Reishi's unique components (including polysaccharides, triterpenes, and others) enhance crucial immune factors in the body, including *hematopoietic* (bone marrow derived) *stem cells* and *T cells*.⁹⁻¹¹

Animal research shows Reishi supports multiple aspects of immune function and longevity.¹²

But it's in the realm of viral disease that Reishi mushrooms truly flex their muscles.¹³ In laboratory cell cultures, Reishi mushrooms stop or slow growth of influenza along with other viruses.¹³⁻¹⁵

Pu-erh Tea Extract

Studies have shown that the extract of **Pu-erh tea**—rich in polyphenols and other bioactive molecules, including a unique group of compounds known as *theabrownins*—may support healthy bone marrow function, which helps rebuild the peripheral immune cellular components.^{16,17} An animal study demonstrated that Pu-erh tea extract supports immune balance by decreasing the proinflammatory *interleukin-6* (IL-6) by a remarkable **43%**, while increasing natural killer (NK) cells by **7%** and naïve T cells by **10%**.¹⁶ This results in a positive rebalancing of the immune system, making it more resilient to fight off any type of invader.

Doses of **210 mg/day** of *Cistanche tubulosa* extract, **1,130 mg/day** of Reishi mushroom and **650 mg/day** of Pu-erh tea extract, when combined, support healthier immune function.

Cistanche stimulates development of vital naïve T cells.





What You Need to Know

Defend Against Wintertime Risks

- Winter means greater vulnerability to infections, especially for aging individuals who face immune senescence.
- Influenza and pneumonia kill more than 55,000 people in the US every year, and vaccines often confer insufficient protection for aging individuals.
- The first step is to help protect against infections in the first place by taking a number of prophylactic agents that have been proven to boost the immune system.
- The second step provides protective agents that can be taken at the very earliest symptoms of an invading infection to provide an instant emergency response.

Vitamin C

The activity of many immune cells is closely related to their vitamin C content. This is especially true of the specific cells (*phagocytes*) that engulf and destroy infecting organisms, and of other cells (*T-lymphocytes*) that recruit, organize, and direct other immune cells.¹⁸ Studies show that immune function can be improved by supplementing with vitamin C.¹⁹⁻²¹

Vitamin C deficiency has been associated with frequency and duration of colds, along with immune system defects.²⁰

For optimal immune defense, many experts recommend supplementing with **1 gram (1,000 mg)** of vitamin C daily in addition to consuming a diet rich in fruits and vegetables.²²

Keep in mind that vitamin C at doses between **5,000 mg** and **20,000 mg** daily (in divided doses to bowel tolerance) can be used when symptoms first appear.

Vitamin D

Vitamin D wards off the flu by ramping up the body's innate immune system. This is the branch that responds immediately to dangerous microbes by releasing antimicrobial peptides.²³⁻²⁵ Vitamin D activates the genes that govern antimicrobial peptide production.²⁶ Vitamin D also suppresses inflammatory cytokines, which are particularly dangerous in certain flu cases.²³

Compelling evidence supports vitamin D supplementation at much higher levels than are currently recommended by the medical establishment—especially during the winter months when sun exposure is generally inadequate.²³

The typical dose range is **5,000 to 8,000 IU** of vitamin D3 daily taken with a meal for better absorption.

Annual blood tests can enable one to know if they are taking the proper dose of vitamin D they need to achieve optimal levels of *25-hydroxyvitamin D*.



If you do not already maintain a blood level of *25-hydroxyvitamin D* over **50 ng/mL**, then take up to around **5,000-8,000 IU** of vitamin D daily. If you already take around **5,000 IU** of vitamin D daily, then you probably do not need to increase your intake.

Throat Probiotic

For those particularly susceptible to throat infections, the novel probiotic *S. salivarius* K12 produces a powerful, locally-acting class of compounds (lantibiotics), which may reduce throat-infection risk. In a 90-day, controlled clinical trial of volunteers with a history of strep throat or tonsillitis, this potent probiotic reduced the incidence of these infections by **84%** compared to the previous year.²⁷

Even during the six-month follow-up period, in which patients did not take the probiotic, they experienced a significant **62%** reduction in episodes of strep throat or tonsillitis. This demonstrated that the protection from throat infections continues long after taking the probiotic.²⁷ There were no reported treatment-related side effects or drop-outs reported.²⁷

During winter months, some people dissolve in their mouth one 2-billion CFU (colony forming unit) lozenge daily.

Enzymatically Modified Rice Bran

Aging individuals are more vulnerable to viral (and other) diseases, in part because aging diminishes the functionality of natural killer (NK) cells.²⁸

Scientists have uncovered an **enzymatically modified rice bran** that has been shown to increase **NK-cell activity** by up to **84%**.²⁹

Enzymatically modified rice bran is produced by exposing crude fiber from rice bran to enzymes isolated from the Japanese culinary mushroom shiitake (*Lentinula edodes*).³⁰

In a four-month study conducted on individuals who were initially low in NK-cell activity, supplementation with **one gram (1,000 mg)** of enzymatically modified rice bran per day led to a **four-fold increase** in NK-cell activity at two months, compared to control responses. And at the end of four months, participants showed a **seven-fold increase** in NK cell activity.³¹

Consider adding **500 mg** to **1000 mg** daily during the wintertime virus season for added protection.

Whey

Whey protein has the established capacity to broadly fortify the overall immune system, including modulating the destruction of pathogens and the elimination of toxins.^{32,33}

An array of studies showed whey to be superior to other commercially available protein sources in improving reactivity of the adaptive immune system,³⁴⁻³⁶ the system that is responsible for building up a pool of antigen-reactive antibodies.³²

Mice supplemented with whey produced higher levels of white blood cells, lymphocytes, and cytokines—resulting in greater immune responsiveness and reduced infection severity.³⁷

Adding one or two scoops daily of whey protein to a regimen provides biological components that have beneficial impacts on the immune system.

Lactoferrin

A component of mother's milk, lactoferrin has well-documented immune-potentiating effects.³⁸⁻⁴⁰

Research shows that lactoferrin may stimulate macrophages,⁴¹ which in turn may help to induce cell-mediated immunity. Although many of these studies are on animals, lactoferrin is naturally present in humans, suggesting an innate human antimicrobial function.^{42,43}

A study showed that lactoferrin inhibits viral infection by interfering with the ability of certain viruses to bind to cell receptor sites.³⁹

A dose of **300-1,200 mg** daily is suggested to provide yet another layer of protection during the wintertime virus season.

The Emergency Response Team

Prevention is always preferable. But if a microbe slips through the defenses, it is important to respond aggressively the instant that any symptoms of a cold or flu first appear. Doing so will help to stop the microbe dead in its tracks before it has a chance to gain a foothold—and will help ensure optimum health throughout the winter.

The following six components make an especially effective “emergency response protocol” and increase the body’s ability to fend off and avoid infection.

Cimetidine

You may be familiar with cimetidine (brand name, Tagamet®) as a drug sold over the counter in pharmacies to combat heartburn. But **cimetidine** has the unexpected beneficial side effect of boosting immune function. It does this by reducing the activity of T-suppressor cells, an action that prevents the immune system from prematurely shutting down a needed immune response.⁴⁴ In this way, cimetidine can be particularly effective in blocking and killing viruses. Cimetidine also has other immune-modulating effects, such as increasing NK-cell activity and boosting levels of the immune stimulants interleukin-2 and gamma interferon.⁴⁵



Cimetidine: Potentially Serious Interactions with Other Medications

Cimetidine can cause increases in plasma concentrations of certain other drugs. Some of the drugs with which cimetidine can negatively interact include:

- Warfarin (Coumadin®), an anticoagulant,
- Sildenafil (Viagra®), a PDE5 inhibitor for erectile dysfunction,
- Phenytoin (Dilantin®), an anticonvulsant,
- Propranolol (Inderal®), a beta-blocker used to reduce blood pressure and heart rate,
- Nifedipine (Procardia®), a Ca²⁺-channel blocker primarily used to lower blood pressure,
- Diazepam (Valium®), an antianxiety medication, and
- Several tricyclic antidepressant drugs, lidocaine, theophylline (anti-asthmatic), and metronidazole (an antifungal).

In patients with poor liver or kidney function, and in elderly patients at risk for neuropsychiatric illness, cimetidine dosage should be reduced to **300 mg** every 12 hours. Further reduction may be necessary depending upon patient tolerability.

Close monitoring of prothrombin time (PT) is recommended with the anticoagulant warfarin (Coumadin®), and careful adjustment of the anti-coagulant dose may be necessary with cimetidine treatment.

Aging men with pre-existing erectile dysfunction who are using sildenafil (Viagra®) should be aware that cimetidine boosts drug exposure by almost **60%**. Because of that, these men should strongly consider using a reduced dose of sildenafil (Viagra®) if also using cimetidine.

For all individuals who wish to add cimetidine to their winter-proofing protocol, this drug should only be taken for 3-5 days at the first onset of early flu-like symptoms.

Under no circumstances should cimetidine be taken for longer than 60 days.

Although taking cimetidine is a powerful way to *temporarily* turn up the immune system, it is not intended for extended use. When an emergency immune response is needed, take **800 mg** daily for 3-5 days to boost immunity during this critical window, and then discontinue its use.

Cimetidine also has powerful interactions with certain other medications. Before taking cimetidine, read the package insert in case this drug is contraindicated with your current prescriptions. For a list of known interactions, please refer to the box on cimetidine risks accompanying this article.

High-Allicin Garlic

High-allyl garlic has shown strong antiviral effects and support for healthy immune function.^{46,47} When symptoms first appear, take **9,000 mg** of high-allyl garlic once or twice a day. Be sure to take it before meals, as taking such high amounts of this highly potent form of garlic will cause painful stomach-esophageal burning if it isn't followed immediately by food.

Don't worry if it causes you to have a strong sulfur odor. Saturating the body with this pungent garlic is the antiviral objective.

Aged Garlic Extract

Aged garlic has unique, immune-boosting compounds that work differently than those found in high-allyl garlic.⁴⁸ For a more complete emergency response to wintertime symptoms, add **3,600 mg** of aged garlic extract to the protocol at the first sign of a cold.

DHEA

Dehydroepiandrosterone (DHEA) and its metabolites have demonstrated powerful immune-enhancing and antiviral effects.⁴⁹ As soon as flu-like symptoms appear, take **25-100 mg** of DHEA early in the day. DHEA helps mount an immune response while also protecting against dangerous **inflammatory** cytokine responses that sometimes occur in response to viral infections.

Zinc Lozenges

Rhinoviruses—some of the viruses that cause the common cold—attach to cell receptor sites in sinus and throat tissues and then replicate out of control.⁵⁰ **Zinc acetate** lozenges can be effective in warding off the common cold because it binds to those same cell receptor sites, helping prevent rhinoviruses from taking hold.



At the first hint of a cold symptom, completely dissolve one **18.75 mg** lozenge of **zinc acetate** every two waking hours. Do not exceed 8 lozenges daily, and do not use for more than three consecutive days. Fortunately, that should be all the time needed to block an invading cold bug from latching onto cells in your nose and throat.

It is critical to initiate **zinc lozenges** at the very first symptom of a common cold. Even if you are not sure a cold is manifesting, suck on at least one **zinc acetate lozenge** to ensure you are availing yourself of this protective effect. If you wait more than 24-48 hours after a cold manifests, zinc lozenges are of little value.

High-Dose Melatonin

Melatonin delivers broad-spectrum immune-enhancing effects and fights viral diseases.⁵¹

At the first sign of flu symptoms, start taking **3 mg-40 mg** of melatonin at bedtime. This will induce a powerful immune response, while also promoting the deep sleep needed to support the immune system's ability to fend off infection.^{52,53}

Summary

Wintertime is virus season. For older adults, these infections can be potentially life-threatening.

Between them, flu viruses and bacterial pneumonia kill 55,000 Americans annually, and vaccines provide inadequate defense for many elderly individuals.

This article has laid out a **two-pronged strategy** for remaining healthy all winter and avoiding further weakening the immune system.

The first phase of this strategy provides an array of prophylactics that serves as a fortress against infection.

For prevention, not every one of these nutrients needs to be taken. **Cistanche**, **Reishi**, and **Pu-erh tea** may be all most people need to bolster their immune defenses. They also cost relatively little.

The **throat probiotic** may only be needed to be taken 90-days each year to gain protective benefits. It is good to keep on hand in case a sore throat manifests. This is also a low-cost item.

Lactoferrin, **whhey**, and **enzymatically modified rice bran** have some overlapping immune benefits. They are more expensive than **Cistanche**, **Reishi**, and **Pu-erh tea** combination supplements. (*Cistanche* provides some similar benefits to lactoferrin-whhey-rice bran.)

Most readers of this magazine already take sufficient **vitamin C**, **DHEA**, and **vitamin D**.

The second phase provides a team of emergency responders to be taken at the very **earliest** sign of symptoms to kill off infections before they become chronic.

Employing this **two-pronged strategy** can help protect your body against winter's annoying—and even potentially deadly—infectious risks. ●

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

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'C' TO THE MAX

Humans don't manufacture **vitamin C** internally, so it must be obtained through dietary sources or supplements.

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Fortunately, a *flavonoid* known as *dihydroquercetin* functions as a **vitamin C** "supercharger" that helps maintain its concentration throughout the body.^{2,3}

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Cistanche

- Supports longer lifespan in animals.²
- Optimizes the ratio of CD4 to CD8 cells, indicative of a more youthful immune system.²

Reishi

- Helps reduce biomarkers of immune senescence.³

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BY MICHAEL DOWNEY





Stop Heartburn Fast! *Neutralize* Esophageal Acidity

Heartburn afflicts more than **40%** of adult Americans.

When someone suffers frequent or painful heartburn bouts, they are often diagnosed with **gastroesophageal reflux disease** or **GERD**.

There remain widespread misconceptions about the underlying cause of heartburn.

Mass-advertising of drugs such as Nexium®, Prilosec®, and Prevacid® has convinced GERD sufferers that to relieve symptoms, they need to block production of **acid** in the stomach.

But the human stomach must operate in acidic conditions to digest food properly. And long-term use of GERD drugs (proton pump inhibitors) involves serious health risks—ranging from kidney^{1,2} and cardiovascular disease^{3,4} to increased mortality.^{5,6}

A common cause of GERD is a weakened **sphincter** muscle at the end of the **esophagus** that functions to keep food and acid in the stomach. When the sphincter fails to close properly, stomach contents back up into the esophagus, causing heartburn and increasing **esophageal cancer** risk.^{7,8}

A new weapon has been identified that targets GERD symptoms by helping to neutralize **acid** in the **esophagus**, while leaving **stomach** pH balance intact.^{9,10}

Human studies have demonstrated that this formulation's compounds safely neutralize esophageal acidity—without disrupting **gastric acid** production. There were also clinically-measured improvements in **esophageal peristalsis**, which helps further prevent **reflux**.⁹⁻¹¹

How Acid Reflux Occurs

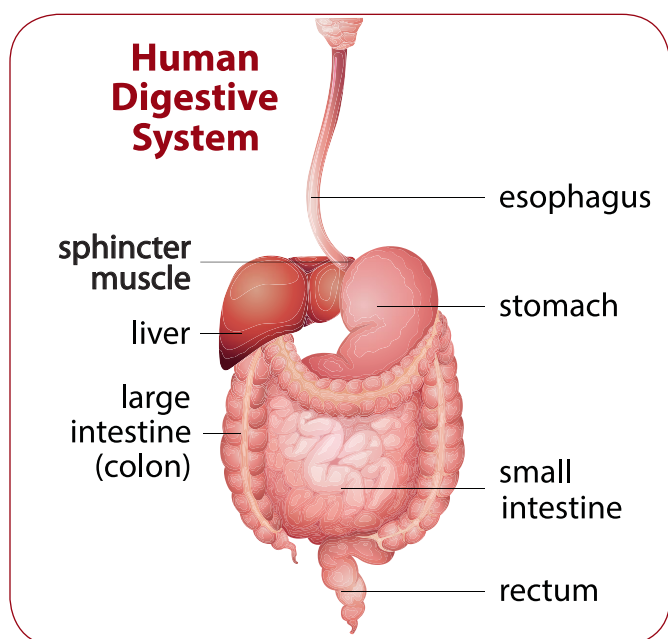
The human stomach is an extremely acidic environment, roiling with hydrochloric acid and protein-destroying enzymes—a necessary environment for the proper breakdown of large food molecules in preparation for further digestion and absorption in the small intestine. A thick lining of mucus separates the acidic stomach contents from the delicate walls of the stomach itself.

The long flexible tube known as the **esophagus** that connects the mouth to the stomach is not designed to withstand such harsh conditions. To keep the acidic stomach contents away from its delicate tissue, the esophagus relies only on gravity and a **sphincter** muscle at the lower end.

A heavy or fat-rich meal can slow stomach emptying and allow stomach pressure to overwhelm the lower esophageal sphincter, permitting highly corrosive contents to wash up, or reflux, into the esophagus. Many people suffer from transient relaxation of the sphincter muscle, triggering this problem unpredictably.

The result—whether called heartburn, acid reflux, or gastroesophageal reflux disease (GERD)—is a burning, painful, proinflammatory, and potentially dangerous condition that afflicts more than **40%** of American adults during any given 12-month period.¹²

Why “potentially dangerous”? Because the prolonged exposure of acids and protein-digesting enzymes to the delicate cells of the lower esophagus can produce precancerous changes. One result, a condition called **Barrett’s esophagus**, which refers to abnormal changes in cells, is a precursor to esophageal cancer.^{7,13} **Esophageal cancer** is increasing at an alarming rate.¹⁴



Flaws in Conventional Treatment

Mainstream medicine has long targeted the wrong body organ to prevent and treat GERD, focusing on the **stomach** and the high level of acid it produces. As a result, pharmaceutical companies have taken advantage of the huge market stemming from this perceived “need” to reduce stomach-acid production. They have flooded consumers with advertising for a wide array of drugs designed to alter the pH balance of the stomach, which can have long-term adverse impacts on one’s health.

In 2013, more than 15 million Americans were prescribed GERD-relieving medication and many more bought this class of drug over-the-counter.^{1,15} These drugs include *omeprazole*, *lansoprazole*, *pantoprazole*, *esomeprazole*, and *rabeprazole*, sold under a variety of trade names such as Nexium®, Prilosec®, and Prevacid®.

Targeting stomach-acid production with these drugs does indirectly reduce reflux symptoms in the esophagus. The hidden side effects, however, constitute massive overkill and cause serious—and potentially fatal—health consequences.

Reducing the stomach’s acidity weakens its ability to serve as a barrier to infection. It can also contribute to nutrient malabsorption. More critically, the drugs used to reduce stomach acidity—known as **proton pump inhibitors** or **PPIs**—have serious risks.

Long-term use of **proton pump inhibitors** increases the risk of kidney disease,^{1,2} blood vessel calcification,¹⁶ nutritional deficiencies,¹⁷⁻¹⁹ cardiovascular disease,^{3,4} infection (including pneumonia),²⁰⁻²⁴ diarrhea,²⁵⁻²⁷ microbial disruption (dysbiosis),²⁸⁻³⁰ and bone fracture.^{19,31-33} And taking these drugs in high doses is associated with a **2.6-fold higher** risk of death.⁵

So the challenge has been to neutralize acid and other stomach contents specifically in the **esophagus** without reducing **stomach** pH balance. This would enable GERD sufferers to reduce their dose of PPI drugs or steer clear of them altogether.

Neutralizing Acid in the Esophagus

Scientists zeroed in on **three** natural compounds that, working together, are perfectly suited for a safe, esophageal-protecting effect.

First, **calcium carbonate** has long been shown to act as an acid buffer and to promote neutralization of acid. Compared to swallowed minerals that work on the stomach, calcium carbonate in a chewable tablet form has been shown to reduce acidity in the **esophagus**.^{9,10}

Studies have found that calcium carbonate in a chewable tablet form promotes **esophageal motility**. That is, it enhances the sequential, esophageal muscle contractions that help foods and liquids travel the



What You Need to Know

Relieving Heartburn Without the Risks of PPI Drugs

- Due to the mistaken belief that excess stomach acid causes heartburn or GERD, a broad range of potentially deadly drugs are taken daily that reduce stomach acidity. However, the human stomach requires extreme acidity to work properly.
- Calcium carbonate, magnesium carbonate, and deglycyrrhized licorice extract target esophageal acid without disrupting gastric acid production.
- Human studies have shown that calcium carbonate, magnesium carbonate, and deglycyrrhized licorice extract safely neutralize esophageal acid, improve esophageal motility to prevent acid reflux, and improve protection of esophageal tissue.

distance from the mouth to the stomach. This helps block the backwards flow of stomach juices from the stomach into the esophagus and more effectively clears any acid already in the esophagus.^{9,10}

Second, **magnesium carbonate** adds protection by neutralizing acid.³⁴ It also provides supplementary magnesium—a nutrient that is frequently eliminated from the body through the use of proton pump inhibitor drugs.³⁵

Third, a flavonoid-rich extract of **licorice** (*Glycyrrhiza glabra*) has been found to inhibit GERD symptoms. Licorice has been long used in the treatment of ulcers,^{36,37} and modern biochemical studies have now recognized its potent anti-inflammatory properties.^{38,39}

The data on **calcium**, **magnesium**, and **licorice** suggest they may provide safe, protective benefits for GERD patients when taken in **chewable tablet** form. The real challenge, however, has been to determine whether these natural compounds could be proven effective in clinical trials of humans currently afflicted with **acid reflux**.

Human Trials with Calcium Carbonate

In one study, a group of 20 otherwise healthy individuals with a history of episodic heartburn were given food designed to induce that affliction—chili, cheese, raw onions, and cola.⁹

An hour after the meal, they were randomized into groups and given varying doses of calcium carbonate in chewable or swallowable tablets, an effervescent solution of bicarbonate of soda (baking soda), or a placebo. For 5.5 hours following the meal, the study team used **esophageal** and **stomach** probes to measure acid levels for all volunteers.

Within a half-hour of treatment, **acid levels** began dropping more effectively in those who had taken the chewable calcium carbonate tablets—compared to any of the swallowable tablet formulations. The chewable group's pH levels rose significantly in the **esophagus**, indicating much less acidity, compared to baseline and compared to the placebo group.⁹ The researchers were especially impressed that the chewable calcium carbonate—unlike proton pump inhibitor drugs—did not significantly decrease acid production in the **stomach**.⁹

These findings were supported by a second study that evaluated chewable calcium carbonate's effect on **esophageal motility**, meaning how well the esophagus can utilize peristalsis (wave-like motion induced by muscle activity) to move its contents from the mouth to the stomach.¹⁰ None of the other common anti-GERD medications can improve esophageal motility, and impairment of this function increases the risk of heartburn.



Licorice root

Unique Properties of Licorice Extract

Scientists determined that licorice extract without **glycyrrhizin** (a constituent in licorice known to have some adverse health effects) was the most effective and powerful form to suppress damaging **inflammatory** reactions.³⁸

Deglycyrrhized licorice extract (DGL) has been demonstrated to block **inflammation** by inhibiting *enzymes* involved in production of prostaglandins and leukotrienes, which are proinflammatory signaling molecules.³⁹ This form of licorice extract also reduces production of other inflammatory cytokines such as interleukin IL-1 beta and IL-6.³⁸

For this study, 18 heartburn sufferers were given a tablespoon of acid to swallow. Using esophageal pressure testing equipment, researchers then assessed the exact number of swallows and amount of time it took for each subject's **esophageal pH** to naturally rise to **5.0**—a much reduced **acidity** level.¹⁰

The same subjects were then given **1,500 mg** of calcium carbonate in a chewable tablet, and the test was repeated. Results showed significantly improved esophageal pressure and contractions in the correct, downward direction. **Acid** clearance in the esophagus was markedly increased 30 minutes after chewing the tablet.

This study found that it took **20 swallows** and **12 minutes** to eliminate the acid without the calcium carbonate tablets. When the same group of people were given the calcium carbonate chewable tablets, it took only **12 swallows** and **six minutes** to eliminate **esophageal acid**.¹⁰

Calcium is needed for muscle contraction; prompting the researchers to suggest that one factor in these positive results may have been the fact that the chewable calcium carbonate tablets delivered concentrated calcium **directly** to the **esophagus**, potentially triggering stronger contractions.¹⁰

Clinical Validation of Deglycyrrhized Licorice Extract

As mentioned earlier, **deglycyrrhized licorice extract** (DGL) was demonstrated to block inflammation by inhibiting certain enzymes and proinflammatory signaling molecules.^{38,39}

Scientists conducted a randomized, placebo-controlled study, specifically designed to test this licorice extract's anti-inflammatory effects on those suffering from *functional dyspepsia*—a chronic disorder of the upper digestive tract.^{11,40} The multiple symptoms can

include heartburn, bloating, nausea, belching, and burning and pain in the epigastric area (the esophagus just above the stomach). Functional dyspepsia affects one in every ten people.⁴⁰

The team enlisted 50 adult patients with functional dyspepsia. Subjects were randomly assigned either to a control arm that received a placebo or to an active arm that received **75 mg of deglycyrrhized licorice extract**. Both placebos and extract were taken with a glass of water daily after food, in the morning and again at night.¹¹ All volunteers were asked to complete a series of symptom and quality-of-life scales at baseline and after 30 days of treatment.

Patients supplemented with the **licorice extract** reported a significant **51% reduction** in their overall symptom scores, while the placebo patients experienced only a **29%** symptom decrease.¹¹

Licorice-supplemented patients were also asked to rate themselves on a **dyspepsia**-specific scale that considered 10 gastrointestinal symptoms—upper abdominal fullness, upper abdominal pain, belching, bloating, early satiety, nausea, vomiting, regurgitation, heartburn, and loss of appetite.

Results showed a **55% decrease** in these dyspepsia symptoms in the **licorice extract** group, while placebo patients showed only a **19%** reduction.¹¹ A substantial **56%** of the supplemented subjects demonstrated improvements in what is known as a global efficacy score—a special index for the overall response to 30 days of intervention—while placebo subjects showed a **0%** improvement.¹¹

The overall findings clearly demonstrate that these natural compounds provide fast heartburn relief, effective GERD prevention through improved esophageal motility, and symptom improvement in those with functional dyspepsia. No adverse events or side effects were reported in any of the studies.

Summary

The public misconception about the underlying causes of heartburn, or GERD, has resulted in widespread use of drugs that dangerously—and excessively—reduce stomach acid. But the human stomach requires acidity for proper functioning.

Proton pump inhibitor drugs have been found in observational research to seriously boost risk of illnesses ranging from kidney and cardiovascular disease to earlier mortality.

The human stomach requires acidity for proper functioning.

Human studies demonstrate that proper use of low-cost nutrients can safely neutralize esophageal acidity—without disrupting **gastric acid** production. They also improve esophageal motility, which helps prevent acid reflux and improves protection of delicate esophageal tissue.

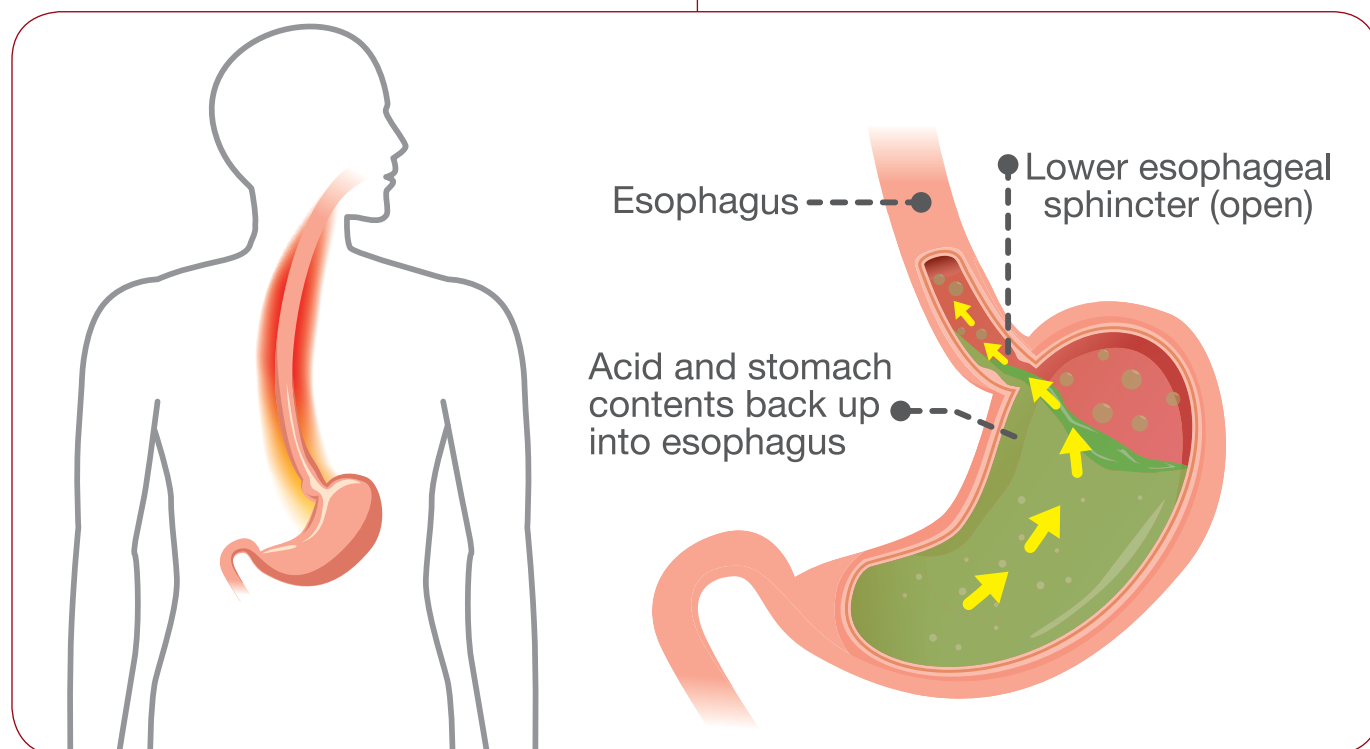
Calcium carbonate, magnesium carbonate, and deglycyrrhized licorice extract have been shown to confer *symptomatic* relief from **heartburn** and **dyspepsia**.^{9-11,34}

Those who seek to reduce or eliminate their reliance on **proton pump inhibiting** drugs should consider taking 1-2 **chewable tablets** containing these three nutrients after meals and at bedtime. ●

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

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Hidden Dangers of HEARTBURN DRUGS

In profoundly troubling studies published in **2015-2016**, acid reducing drugs called **proton pump inhibitors**, or PPIs, were associated with an increased risk of **dementia**.¹⁻³

One of these studies found **cognitive impairment** in response to **short-term** use of drugs sold under the names Prevacid®, Nexium®, Protonix®, AcipHex®, and Prilosec®.²

People age 75 and older who use **proton pump inhibitors** have a **44%** greater risk of developing **dementia**, including **Alzheimer's**.¹

As many as **70%** of people taking proton pump inhibitors don't require them.⁴ Thousands of cases of dementia may have been avoided if people weren't overusing these drugs.

In this article we will examine how **proton pump inhibitors** pose a hidden long-term threat to our brains. We'll discuss natural options that can help alleviate heartburn symptoms *without* increasing dementia and other health risks such as bone fractures, kidney failure, and stroke.⁵⁻¹⁰

Proton Pump Inhibitors Increase Dementia Risk

The recent studies showing an association between **proton pump inhibitors** and *increased* risk of dementia are frightening.¹⁻³ These drugs are some of the most widely used in America,¹¹ and their use among the elderly is on the rise.^{1,12}

Proton pump inhibitors are most often used to fight heartburn, gastroesophageal reflux (GERD), and other painful disorders of the upper digestive tract. They are available over the counter and by prescription.

The most recent of the new studies appeared online in the *Journal of the American Medical Association Neurology* in February **2016**.¹ The researchers evaluated data collected over a 7-year period on nearly **74,000** participants age 75 and older who did not have dementia at the beginning of the study.

What they found was a **strong statistical relationship** between regular use of proton pump inhibitors and the risk of developing **dementia**. Those taking **proton pump inhibitors** were **44% more** likely to develop dementia compared with those not using the drugs, even after statistical adjustments for age, sex, and the use of multiple medications.

The implications of this finding are enormous. An important editorial that appeared alongside the study's publication puts these numbers in perspective. Given the size of the population at risk, that **44% increase** could expand the overall incidence of dementia from **6%** to about **8.4%** per year. That would translate to roughly **10,000 new cases annually in this older age-group alone**.¹³

Of course, it did not take long for others in the mainstream medical community to attack these findings as an anomaly, concluding that "*you don't need to change therapies on the basis of concern about dementia.*"¹⁴ The connection between Big Pharma and physicians is as strong as ever! But this is not the only study to make this unfortunate connection. Two studies published just last year validate the findings in separate ways, and with surprising consistency.

Findings Validated in Second Study

In a second study, researchers examined data from a large, longitudinal study (called the German Study on Aging, Cognition, and Dementia) among older patients in primary care.³

More than 3,300 people age 75 or older were followed up every 18 months for 6 years. Although they began the study with no signs of dementia, by the fourth follow-up, 431 had developed dementia, including 260 specifically with **Alzheimer's disease**.

Patients who used proton pump inhibitor drugs during this time were found to have a **38% increased** risk of dementia, and a **44% increase** in the risk of Alzheimer's, compared to those with no history of proton pump inhibitor use.³

If this **44%** figure looks familiar, it's because it is the exact same percentage of increase in dementia risk the **2016** study found in proton pump inhibitor users. It seems highly unlikely that these closely-convergent findings are simply the result of coincidence.

Short-Term Proton Pump Inhibitor Impairs Cognition

A study published in **2015** examined the **cognitive effects** of short-term proton pump inhibitor use in otherwise healthy young adults.²

The rationale for this study was that, if proton pump inhibitors produce long-term mental decline, even short-term use might have a measurable effect on standard cognitive testing.

The study included 60 healthy volunteers ages 20-26 who had no signs of age-related cognitive decline, and who would be expected to perform normally on cognitive tests.² The subjects were divided into six groups. Each of five groups received a different proton pump inhibitor drug (omeprazole, lansoprazole, pantoprazole, rabeprazole, or esomeprazole) for one week, while the sixth received a placebo.

After just **7 days** of exposure to proton pump inhibitors, all of the drug recipients had a *statistically* and *clinically significant impairment* in cognitive functions.





What You Need to Know

Heartburn Drugs Increase Dementia Risk

- Stomach acid, undigested food and drink, bile, and digestive enzymes that flow into the esophagus produce painful symptoms of heartburn and reflux in millions of Americans.
- This has led to the widespread use of proton pump inhibitor drugs, which are effective at reducing stomach acid production.
- Proton pump inhibitor drugs also reduce acid production in the brain's cleanup cells, which impairs their ability to clear dangerous and toxic abnormal proteins associated with neurodegenerative diseases and dementia.
- Clinical studies now show a significantly increased risk of dementia in older patients taking proton pump inhibitor drugs.
- Even taking proton pump inhibitor drugs for just one week impairs cognitive function in healthy young adults.
- Given the high rate of overprescription of proton pump inhibitors and their risks, those taking these drugs should consider safer alternatives.

They performed more poorly than at baseline on visual memory, attention, executive function (sorting and deciding on strategies), working memory, and planning functions.² While all of the proton pump inhibitors impaired cognition, some were worse than others. Omeprazole (Prilosec®) was the worst offender, which reduced function on 7 subtests. Lansoprazole and pantoprazole influenced 5 subtests, rabeprazole, 4, and esomeprazole, 3.

These outcomes make it clear not only that proton pump inhibitors can impact brain function, but also that different drugs affect it in different ways.

These changes occurred after just one week of treatment in healthy *young* adults. What are the likely effects in older adults, who are already more prone to cognitive decline, and who may have been exposed to proton pump inhibitors for years or even decades? And what could be the impact on overall rates of dementia as rates of proton pump inhibitor use continue to skyrocket?

Clearly, it is too soon to have the answers to these questions in human populations. But a number of basic science and animal lab studies have shed some light on why proton pump inhibitors are so closely connected to cognitive decline, as we'll now see.

Proton Pump Inhibitor-Induced Brain Changes

One of the hallmarks of **Alzheimer's disease** (as well as other kinds of dementia) is the accumulation of abnormal proteins in regions of the brain that are important for memory. The best-known of these is called **beta-amyloid**. One way beta-amyloid contributes to Alzheimer's disease is by provoking **inflammation** that ultimately kills brain cells.¹⁵⁻¹⁷

Our brains have developed systems for clearing harmful **beta-amyloid** plaque from the body. Scientists believe that whether a person develops Alzheimer's or not depends ultimately on whether we can clear out **beta-amyloid** faster than we produce it.¹⁸⁻²⁰

There is now strong evidence that **proton pump inhibitors** not only promote beta-amyloid *production*, but also **impair** the body's ability to *clear* beta-amyloid plaques in the brain.¹⁸⁻²¹

Proton Pump Inhibitors Prevent Removal of Beta-Amyloid Plaque

Proton pump inhibitors act by blocking the proton pumps that secrete acid in the stomach, which reduces acid levels. The problem is that the same mechanism of action also impairs acid production in the brain's "cleanup cells," which use the acid to break down **beta-amyloid** plaque so that it can be removed from brain cells.

Much of this cleanup work is shouldered by cells called **microglia**, which are immune system cells living in the brain.^{18,20} These cells are rich in **lysosomes**, which are essentially cellular garbage collectors that accumulate "junk" proteins (like beta-amyloid) and then break them down with intense bursts of **acid**.^{22,23}

It has now been demonstrated that **proton pump inhibitor** drugs pass through the blood-brain barrier and reduce the amount of acid contained in the lysosomes.²² Additional studies have shown that the lysosomes in the brains of Alzheimer's patients are less acidic than those of healthy people, which means they are less able to clear dangerous **beta-amyloid**.^{24,25}

The bottom line is that proton pump inhibitor drugs interfere with one of the brain's most fundamental self-cleaning mechanisms: the acidic destruction of toxic **beta-amyloid** proteins that trigger the cell death, inflammation, and neuronal dysfunction typical of **Alzheimer's** disease.

While proton pump inhibitors have only been studied in this capacity in Alzheimer's disease, it's quite possible that they could have a negative impact on other neurodegenerative diseases. This is because the accumulation of abnormal proteins is also a main feature of diseases such as amyotrophic lateral sclerosis (ALS), Parkinson's disease, and Huntington's disease. And as with Alzheimer's, the poor function and acidification of lysosomes has been implicated in these disorders as well.^{26,27}

Proton Pump Inhibitors Increase Bone Fracture and Stroke Risks

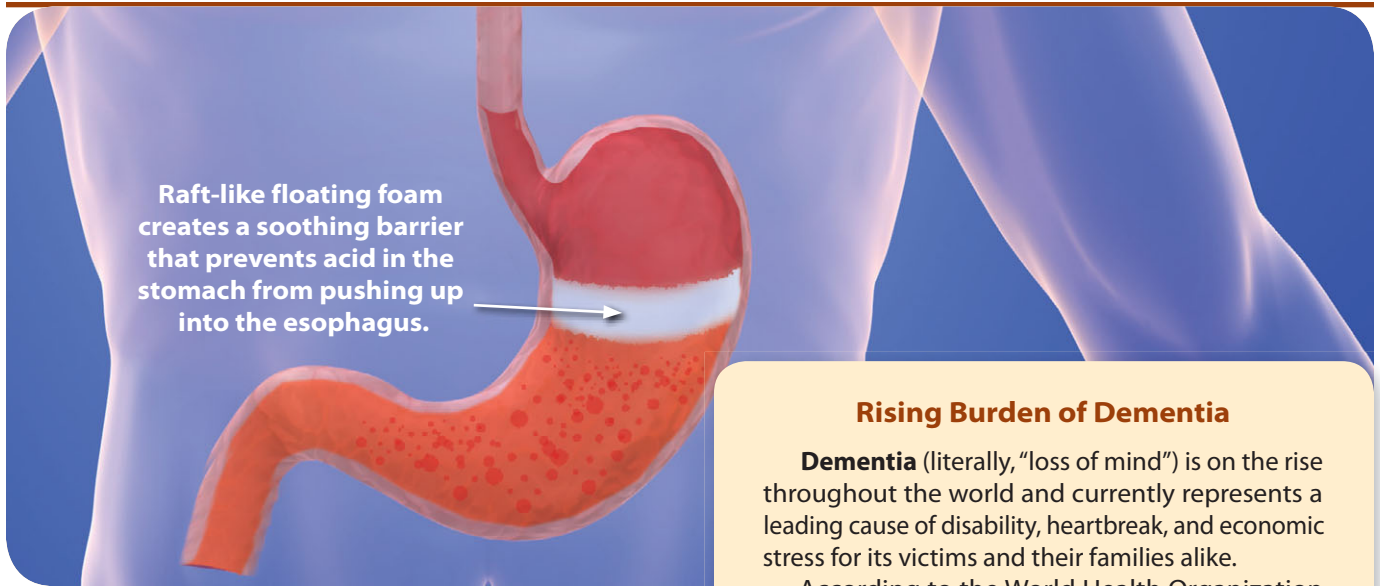
In recent years, concerns about the long-term safety profile of proton pump inhibitors have been raised, including increased risk of bone fractures and stroke.

A 2011 meta-analysis published in *The Annals of Family Medicine* reported that high doses or long-term use of proton pump inhibitors is associated with an increased risk of bone fractures.³³

Researchers confirmed these findings in a more recent and larger meta-analysis that led the authors to conclude that "...PPI [proton pump inhibitor] use modestly increased the risk of hip, spine, and any-site fracture."³⁴

In a shocking recent study, a group of researchers evaluated the use of proton pump inhibitors and the risk of first-time ischemic stroke. For the study, more than 240,000 adults (mean age 57 years) were included and an approximate **44%** of the patients had filled a prescription for a proton pump inhibitor. Overall, the researchers found that those using proton pump inhibitors had a **21%** greater risk of ischemic stroke, compared to nonusers.³⁵





Alternatives to Proton Pump Inhibitor Drugs

There's no question that proton pump inhibitor drugs are effective at reducing stomach acid and at alleviating painful heartburn and reflux symptoms.

The problem is that they also interfere with needed acid production in other parts of the body, specifically in the brain, where insufficient acid may lead to the accumulation of toxic proteins. Does this mean you have to choose between heartburn and Alzheimer's? No, there are alternatives that can safely alleviate the painful symptoms of heartburn *without* increasing the risk of Alzheimer's.

A unique combination of two well-known nutrients, **zinc** and **carnosine**, has shown excellent effectiveness in people with stomach ulcers, especially in those cases associated with the bacterium *Helicobacter pylori*.²⁸⁻³⁰ These ingredients have also been shown to work together to reduce inflammation, which is itself a risk for stomach and esophageal cancers.^{31,32}

Another approach is to use a **raft-forming alginate**. Alginates are complex carbohydrates that form a foamy gel on contact with stomach acid. They then float, like a raft, atop the stomach contents, preventing acid and other damaging gastric contents from refluxing up into the esophagus. **Raft-forming alginates** can prevent reflux symptoms such as heartburn.⁵⁻¹⁰

Raft-forming alginates have advantages over other treatments, including the fact that they do not alter the acid content in the stomach or the brain, and they act only locally in the stomach and are not absorbed into the bloodstream. And in addition to physically blocking stomach acids, they also block other erosive stomach contents such as protein-digesting enzymes, bile from the liver, and acidic foods/drinks from rising into the **esophagus**.⁸

Rising Burden of Dementia

Dementia (literally, "loss of mind") is on the rise throughout the world and currently represents a leading cause of disability, heartbreak, and economic stress for its victims and their families alike.

According to the World Health Organization (WHO), dementia is broadly defined as "...deterioration in cognitive function (i.e. the ability to process thought) beyond what might be expected from normal aging. It affects memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgement. Consciousness is not affected. The impairment in cognitive function is commonly accompanied, and occasionally preceded, by deterioration in emotional control, social [behavior], or motivation."³⁶

In other words, dementia today means precisely what the word's origins imply: loss of the human part of the mind.

Dementia is on the rise both in the United States and globally as populations live longer. Here are some of the troubling facts about the growing epidemic of dementia:³⁶⁻³⁹

- **47.5 million** people worldwide live with dementia today.
- About **7.7 million** new cases of dementia occur annually worldwide.
- The worldwide prevalence of dementia is expected to reach **75.6 million** by 2030 and to almost triple to **135.5 million** by 2050.
- People with mild cognitive impairment are up to **15 times** more likely to develop Alzheimer's disease than those with normal cognition.
- Before death, most people with Alzheimer's disease become dependent on caregivers, amplifying the number of people directly affected.

Improved Antacid Chewables

For decades, endless commercials were aired on television promoting the heartburn alleviating effects of antacid tablets like **TUMS®** and **Roloids®**.

These kinds of antacids often relied on **calcium** (and sometimes **aluminum**) to partially neutralize stomach acid. They are laden with **sugar** and artificial flavors. These antacids did nothing to improve the protective barrier in the esophagus or reduce the acid-induced **inflammation** that can lead to serious gastroesophageal health problems.

A new chewable antacid has been developed that contains equal amounts of acid-neutralizing **magnesium** and **calcium** plus a special **licorice extract** that helps protect the esophageal lining from continuous **inflammatory** damage.

These new lozenges are sweetened with **stevia** and natural flavors, so they can safely be used daily without concern about dental enamel erosion and elevated blood **glucose**.

Summary

Acid reflux is a common condition among adults.

Its prevalence has created a multibillion-dollar market for drugs to alleviate the symptoms. Proton pump inhibitors are the most popular drugs based on their effectiveness and ease of dosing.

Unfortunately, proton pump inhibitor drugs work all too well, blocking acid production not only in the stomach, but also in the brain's "cleanup" cells. These cells require **acid** for the cleanup of "junk" proteins in brain cells such as **beta-amyloid**.

Clinical studies show that people on long-term proton pump inhibitor therapy have a significantly increased chance of developing **dementia** (and other problems like **bone fractures**).

In addition, taking **proton pump inhibitors** for as little as one week measurably impairs **cognitive** performance.

Fortunately, natural approaches like **raft-forming alginates** and new chewable **antacid lozenges** offer an alternative to proton pump inhibitors for those suffering from mild-to-moderate heartburn or reflux.

Those with severe heartburn or erosive esophagitis may be able to reduce their dose of **proton pump inhibitors** by substituting these natural approaches as often as possible. ●

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

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The Overprescribing of Proton Pump Inhibitors

Proton pump inhibitors are currently the mainstay of treatment for conditions related to gastric and esophageal irritation by stomach acid, such as heartburn, gastroesophageal reflux, peptic ulcer disease, and more.² They are the third top-selling drugs in America, with annual sales approaching \$14 billion. Prescription-writing for these drugs increased more than **12%** between 2009 and 2013.²

Proton pump inhibitors effectively lower stomach acid and have relatively few short-term side effects.² But, as more and more people use these drugs for longer periods, we are now discovering the potential damage they might cause.⁴⁰

That's especially concerning in light of estimates that there is no appropriate indication for proton pump inhibitor use in **25%-70%** of patients taking those drugs.⁴ Indeed, there has been growing concern about physicians' readiness to prescribe them, particularly in older adults.^{2,41-44}

People taking proton pump inhibitor drugs should evaluate their real need for relief, discuss their situation with their physicians, and consider, when possible, alternate therapies that pose fewer risks.

Proton Pump Inhibitors and B12

Recent studies show a potential link between the use of proton pump inhibitors and dementia. One way proton pump inhibitors might affect brain function is by interfering with the absorption of vitamin B12.⁴⁵

B12 is essential for normal cognition, and low B12 levels are not uncommon in older adults even in the absence of acid-reducing therapy.⁴⁶

Because dietary B12 is tightly bound to proteins, it requires ample stomach acid to release it for absorption. This means that reducing stomach acid through the use of proton pump inhibitors may increase the risk for B12 deficiency. Experts now recommend testing B12 levels regularly for patients taking larger doses of proton pump inhibitors for long periods of time.⁴⁵

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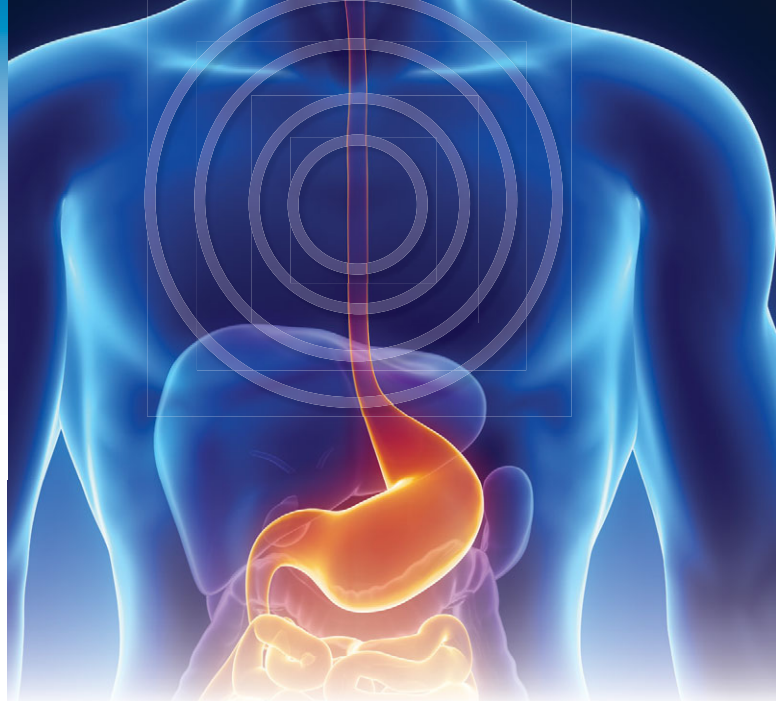
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Protect Eyes from Computer BLUE LIGHT

Exposure to ultraviolet solar rays accelerates age-related visual loss. Enlightened individuals wear UV protection sunglasses outdoors to minimize sunray-induced ocular damage.

A new vision-robbing culprit has emerged that is more prevalent than sunlight exposure. Our round-the-clock use of smartphones and computers exposes our eyes to an unnaturally high amount of **blue light**. Research shows that **blue light** is damaging to the retina and other parts of our eye.¹

Chronic exposure to blue light is associated with increased risk of developing **age-related macular degeneration**,¹⁻⁴ a leading cause of blindness in older adults.⁵

Supplementing with multivitamins and xanthophyll carotenoids that include **lutein**, **zeaxanthin**, and **meso-zeaxanthin** have demonstrated intriguing effects for preventing or mitigating macular degeneration.⁶

If you use a smartphone or a computer on a daily basis, it is important to ingest **xanthophyll carotenoids** to protect your eyes from the damaging risks of **blue light**.



The Catastrophic Consequences of Chronic Blue Light Exposure

While most of us know the dangers of ultraviolet light and take steps to avoid it, **blue light** is in some ways a more insidious problem.

Blue-violet rays that emanate from our ubiquitous screens can penetrate into the **retina**, where they induce photochemical stress that directly damages retinal cells and indirectly leads them to self-destruct.^{1,2,4,29}

Nature provided us with powerful protection against blue light, in the form of pigments in our retinas that absorb light in the blue wavelengths.

But while sunlight, to which we are directly exposed only during the day contains about **25%** blue light, our screens, particularly those powered by light-emitting diodes, or LEDs, can contain about **35%** of retina-threatening blue light.¹ And LEDs, increasingly in use for interior lighting, produce still higher proportions of blue light the “cooler” the LED’s emissions are.¹

A recent publication summed the situation up by saying that “...our exposure to blue light is everywhere and only increasing.”¹ That’s why supplementation with carotenoid nutrients like **lutein**, **zeaxanthin**, and **meso-zeaxanthin** is so essential, even for those who spend little time in the sun.

Preventing Blue Light-Associated Eye Diseases

Evidence that supplementing with **lutein** and **zeaxanthin** provides retina-protecting effects has been accumulating for years, even since *before* the explosion of **blue light** exposure now facing modern populations. As that threat has grown, however, so has the importance of knowing how best to protect our eyes against retinal damage, and particularly age-related **macular degeneration**.

Our natural protection against damaging light of all wavelengths, primarily *ultraviolet* (UV) and *blue*, comes from a layer of pigmented cells called the **retinal pigment epithelium**.^{7,8} These pigmented cells are rich in lutein, zeaxanthin, and other **carotenoids** derived from our diet.^{7,8}

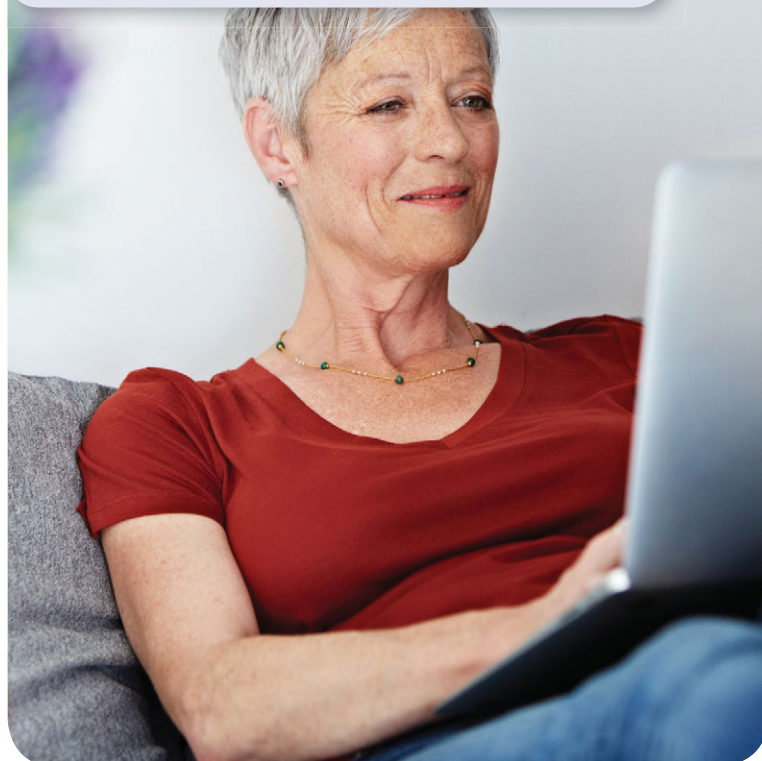
Carotenoids have a unique molecular structure that enables them to soak up intense **blue wavelengths**, thus sparing the delicate rod and cone cells in our eyes that convert light energy into electrical impulses.⁷ Once those cells burn out, they are gone for good—retinal cells cannot normally regenerate.^{9,10}

Ophthalmologists now recognize that the density of pigmented cells in the macula, or central portion of the retina, is closely associated with the degree of protection provided to retinal cells. This measure, called **macular pigment optical density**, is now considered a strong indicator of retinal health, and is therefore the main outcome measure in most studies of natural supplements with protective properties.

To date, studies reveal strong and consistent benefits of lutein, zeaxanthin, and meso-zeaxanthin on retinal health and resistance to development of age-related macular degeneration, as measured by improvements in **macular pigment optical density**. The strongest evidence, as is usually the case, comes from studies of *early* age-related macular degeneration, reinforcing the idea that early prevention is vastly superior to late attempts at cures.

Studies of early age-related macular degeneration have shown that lutein, zeaxanthin, and meso-zeaxanthin increase macular pigment optical density with continued supplementation (generally one or more years).¹¹⁻¹⁴ This increase in macular pigment optical density is presumed to account for most of the protective effect of these nutrients.

A growing body of evidence reveals that boosting one’s intake of **omega-3s** and carotenoids like **lutein** helps maintain healthy eyes.





What You Need to Know

The Importance of Retinal Protection

- Energetic wavelengths of blue light are powerfully destructive of the eye's most essential components, the vision receptors in the retina, which are most highly concentrated in the macula, or central portion.
- Human eyes contain adequate protection against natural levels of blue light, but that protection wanes with age, as the light-absorbing pigments lutein and zeaxanthin fade out of the retinal pigment layer.²⁷
- Worse, in today's technologically-oriented society, we face historically high levels of exposure to blue light from our numerous computer, phone, tablet, and television screens.¹
- Excessive blue light exposure is expected to cause increased rates of age-related macular degeneration as the baby-boom generation ages, the first in history to be bathed in such intense blue light.¹
- Replacing the carotenoid pigments in the eye's protective layer, however, is an effective means of quenching much of the photochemical damage done by blue light.
- Studies show that the progression of age-related macular degeneration can be effectively slowed with regular supplementation with lutein, zeaxanthin, and meso-zeaxanthin.²⁸
- Retinal damage is irreversible, so early and powerful protection is our only hope, and supplementation with these carotenoid nutrients is a clinically-validated means of gaining that protection.

In a 2013 study, patients with early/mild age-related macular degeneration were supplemented once- or twice-daily with lutein, zeaxanthin, low-dose omega-3s (**100 mg DHA, 30 mg EPA**), and antioxidant nutrients for one year. The result showed improved macular pigment optical density, while macular pigment optical density was reduced in unsupplemented placebo recipients.¹⁵

By **2016**, sufficient data from many studies on this subject have been published to allow for a powerful meta-analysis, in which results from multiple small studies are analyzed as one large group. This study evaluated 20 clinical trials involving 938 patients with macular degeneration and 826 control subjects.¹⁶ It showed that supplementation with the xanthophyll carotenoids, including lutein, zeaxanthin, and meso-zeaxanthin, was consistently associated with significant increases in **macular pigment optical density**. This benefit was found in patients with macular degeneration and in currently healthy subjects. This meta-analysis showed that trials using **meso-zeaxanthin** produced the *greatest* increases in **macular pigment optical density**, suggesting that this nutrient is an important addition to **lutein/zeaxanthin** supplements for eye health.

Improving Vision

Improvements in **macular pigment optical density** provide protection against **blue light** damage. But is it possible lutein, zeaxanthin, and other carotenoids can also improve vision?

Vision can be measured in a number of ways. Visual acuity is derived from some version of the familiar Snellen eye chart (the chart of letters used by doctors to test your eyes), and indicates how well a subject sees objects at fixed distances.

Visual acuity has now been shown to be increased in at least one study of lutein, zeaxanthin, and omega-3 fatty acids, along with the expected increases in protective pigment density, in those with early age-related macular degeneration.¹⁵ Indeed, a landmark **2015** meta-analysis of eight such studies reported improvements in visual acuity in response to lutein and zeaxanthin supplementation in people with age-related macular degeneration.¹⁷ This analysis also revealed a close association between supplement-induced increases in macular pigment optical density and **visual performance**.

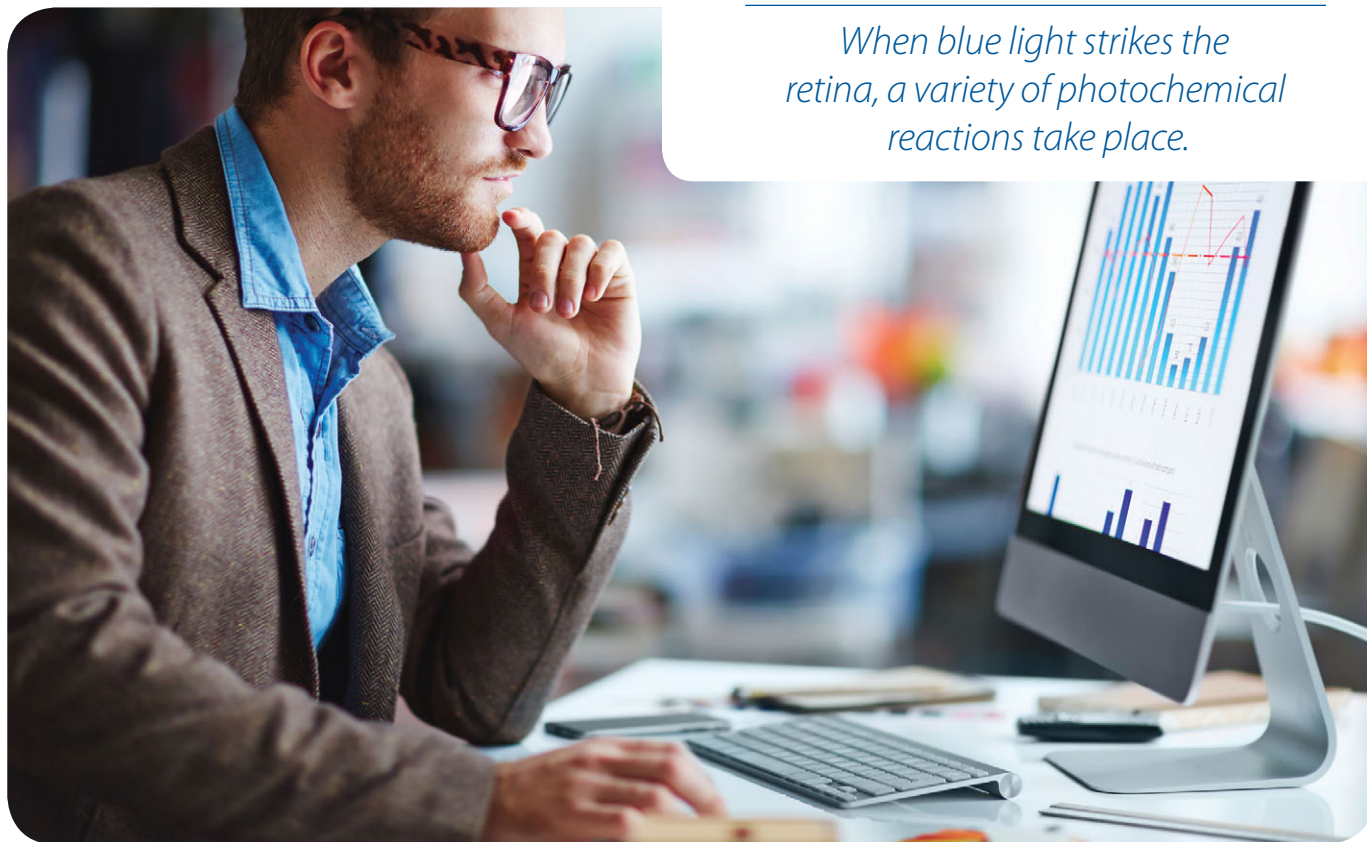
Another, higher-tech approach to determining visual responses to supplementation is to use an *electroretinogram*. This device measures the minute electrical impulses produced by retinal cells in response to light.

A **2016** study demonstrated that, in addition to significant increases in **macular pigment optical density** with **lutein** supplementation, there was also a significant increase in how quickly retinal cells responded to light stimuli, as measured by the *electroretinogram*.¹⁸

All of the data point to one conclusion—that the combination of lutein, zeaxanthin, and, ideally, meso-zeaxanthin has real effectiveness at restoring the eye's natural blue light shield, the **macular pigment epithelium**, which should protect against progression of age-related macular degeneration. Indeed, this large body of evidence has resulted in a change in ophthalmologists' recommendations about eye-protective supplements.

While the supplement formula recommended by the original **Age-Related Eye Disease Study (AREDS)** included beta carotene as the only carotenoid, subsequent studies, including the more recent AREDS-2, found that replacing beta carotene with the combination of **lutein** and **zeaxanthin** produces superior risk reduction for developing the most serious forms of macular degeneration. That replacement alone produced an **18%** reduction in the risk of developing late age-related macular degeneration, and a **22%** reduction in risk of developing the blindness-inducing “wet,” or neovascular, macular degeneration.¹⁹

When blue light strikes the retina, a variety of photochemical reactions take place.





How the Carotenoids Protect Eyes Against Blue Light Damage

When blue light strikes the retina, a variety of photochemical reactions take place.²⁰ These include intense oxidative damage, as light photons energetically interact with oxygen-rich blood, producing reactive oxygen species. These caustic compounds then attack the vital fats that form nerve and light-receptor cell membranes, impairing their function.^{21,22}

Worse, all of this chemical reactivity triggers inflammatory signals and changes in gene expression that perpetuate the retinal injury, which, in turn, triggers further oxidative stress in a vicious cycle.²¹

The carotenoids lutein and zeaxanthin are already well known for their ability to absorb energetic blue light radiation, and for preventing development, and promoting scavenging of, reactive oxygen species.^{23,24} Recent studies have found that these compounds also promote an anti-inflammatory environment in retinal cells.^{21,23}

In fact, those studies show that **retinal cells** have an active mechanism for concentrating lutein and zeaxanthin within their cytoplasm, producing up to **14-fold** higher concentrations within the cell than in the medium surrounding them.²¹

Other studies have shown that the anti-inflammatory effect of these nutrients extends beyond the local environment of the eye, producing what seem to be body-wide effects.²⁵

In the specific context of age-related macular degeneration, these same carotenoids have been shown to prevent the development of overgrown blood vessels that produce the blindness-inducing “wet” form of **macular degeneration**. This again is a consequence of the ability of these vegetable-derived carotenoids to shield eye structures from **blue light** damage.^{23,26}

Summary

Modern technology has increased the risk of retinal damage and macular degeneration with a host of electronic devices whose screens project **blue light**.

Scientists are just now beginning to recognize the threats posed by chronic blue light exposure at work, at home, and even during recreational activities throughout the day and night.

A clinically-validated means of mitigating this blue light-induced retinal damage is to supplement with carotenoid nutrients, particularly **lutein**, **zeaxanthin**, and **meso-zeaxanthin**.

As with so many nutrients, the multiple mechanisms by which carotenoids like lutein and zeaxanthin operate to protect tissue is a direct mirror of the multiple mechanisms that nature has created to protect our eyes. These nutrients provide protection from the moment a **blue light** photon enters the eye, shielding the irreplaceable light-sensing cells from photochemical damage. We now recognize that these compounds also act to slow the **inflammatory** reactions that aggravate light-induced damage, and they can prevent development of blood vessel overgrowth that produces “wet” macular degeneration, the leading cause of age-related blindness.

Those who spend a significant amount of time in front of a television, computer, tablet, or smartphone should ensure adequate intake of **lutein**, **zeaxanthin** and **meso-zeaxanthin** to reduce their risk of catastrophic vision loss.

Readers of this publication have been using lutein, zeaxanthin and meso-zeaxanthin supplements for many years to protect against solar eye damage. It’s comforting to know these same nutrients also afford protection against indoor **blue light**. ●

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

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Lactoferrin

Supports Eye Protection After Eye Surgery



Lactoferrin provides support for the body's immune system.¹⁻²

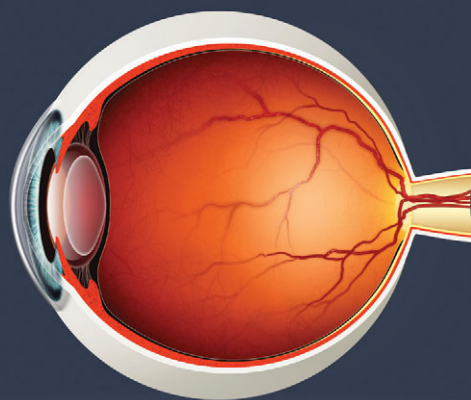
In addition, new research shows lactoferrin increases tear production following cataract surgery by **95%** and tear break-up time by **77%**, which promotes eye protection.³

Contains milk.

Bioferrin® is a registered trademark of Glanbia.

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Lactoferrin (Apolactoferrin)

Item #01681 • 60 capsules

	Retail Price	Super Sale Price
1 bottle	\$44	\$29.70
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315 TABLETS • ITEM #02155

	RETAIL PRICE EACH BOTTLE	SUPER SALE EACH BOTTLE
1 BOTTLE	\$80.00	\$54.00
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The tablet version of Life Extension Mix™ contains **70 mg** of niacin and **1 mg** of copper. There is an extra-niacin version that provides **336 mg** of niacin at no additional charge (02157). Niacin maintains healthy cholesterol, triglyceride, and fibrinogen levels in those within normal ranges. Those with underlying liver disease sometimes cannot tolerate niacin. The suggested dose is 9 tablets per day in divided doses with meals.



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To order your supply of LIFE EXTENSION MIX™, call 1-800-544-4440 or visit www.LifeExtension.com

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Contains soybeans.

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MacuGuard® Ocular Support provides **lutein**, **trans-zeaxanthin**, and **meso-zeaxanthin** to help maintain structural integrity of the macula and retina.¹⁻⁵

Alpha-carotene is included based on new evidence that it helps support the macular pigment.¹

People supplementing with **saffron** showed an improvement in **vision** as measured by them seeing an average of **two additional lines** on the eye chart commonly used by doctors to test vision.¹

This formula provides the optimal dose of **saffron** along with **cyanidin-3-glucoside** to support healthy vision.⁶⁻⁸

Just one daily softgel of the new **MacuGuard® Ocular Support** formula provides:

Lutein	10 mg
Trans-Zeaxanthin/Meso-zeaxanthin	4 mg
Saffron	20 mg
Alpha-carotene	1.24 mg
Cyanidin-3-glucoside	2.2 mg

MacuGuard® Ocular Support

Item #01992 • 60 softgels • Non-GMO

	Retail Price	Super Sale Price
1 bottle	\$25	\$16.88
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Each bottle lasts for two months.

(**MacuGuard® Ocular Support** is also available with **Astaxanthin**. Retail price is **\$44**. If you buy four bottles during Super Sale, price is reduced to **\$27** per bottle. Item #01993).

Many people already obtain **astaxanthin** by taking Astaxanthin with Phospholipids (Item #01923), Super Omega-3 Plus EPA/DHA with Sesame Lignans, Olive Extract, Krill & Astaxanthin (Item #01988), and Krill Healthy Joint Formula (Item #01600).

Avoid use during pregnancy.

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

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Vitamin D3 • 5,000 IU, 60 softgels, Item #01713 High-potency vitamin D in a softgel to provide greater absorption into the bloodstream.	\$10	\$5.85 (four-bottle purchase)
Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™ 100 mg, 60 softgels, Item #01426 The superior ubiquinol form of CoQ10 plus a natural compound (shilajit) shown to <u>double</u> mitochondrial CoQ10 levels.	\$62	\$35.10 (four-bottle purchase)
Once-Daily Health Booster • 60 softgels, Item #01991 Just <u>one</u> softgel contains a variety of valuable nutrients, including two forms of vitamin K2, blueberry extract, gamma tocopherol, sesame lignans, chlorophyllin, lycopene, and a carotenoid blend that contains <i>trans</i> -zeaxanthin, <i>meso</i> -zeaxanthin, and lutein. Taken individually these ingredients would cost 2 to 3 times more!	\$54	\$34.20 (four-bottle purchase)
MacuGuard® Ocular Support • 60 softgels, Item #01992 Offers triple eye protection with <i>meso</i> -zeaxanthin, lutein, and <i>trans</i> -zeaxanthin.	\$25	\$15.75 (four-bottle purchase)
Extend-Release Magnesium • 60 vegetarian capsules, Item #02107 Provides immediate-release magnesium citrate along with a 6-hour extended-release magnesium for optimal benefits.	\$13	\$7.88 (four-bottle purchase)

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Retail Price

SUPER SALE
Price Per Bottle

DHEA (Dehydroepiandrosterone) • 25 mg, 100 capsules, Item #00335

A hormone that protects against age-related decline, benefits overall health.

\$16

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(four-bottle purchase)

PQQ Caps with BioPQQ® • 10 mg, 30 vegetarian capsules, Item #01500

Promotes generation of new mitochondria in aging cells.

\$24

\$12.15

(four-bottle purchase)

Mitochondrial Energy Optimizer with BioPQQ® • 120 capsules, Item #01868

This **glycation-protection** formula helps maintain cellular function, protein structural integrity, and mitochondrial biogenesis. It contains high potency **carnosine** along with **R-lipoic acid**, **PQQ**, **benfotiamine**, **luteolin**, and **taurine**. These ingredients cost far more if taken separately.

\$72

\$43.20

(four-bottle purchase)

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

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

\$60

\$35.10

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Super K with Advanced K2 Complex • 90 softgels, Item #01834

Provides two forms of **vitamin K2** (**1,000 mcg** of immediate-release **MK-4** and **200 mcg** of long acting **MK-7**), along with **1,500 mcg** of **K1**.

\$30

\$18.23

(four-bottle purchase)

Memory Protect • 36-day supply, Item #02101

This new product contains microdose **lithium** and **proline-rich polypeptide**, which have been found to block and (in the case of proline-rich polypeptide) to inhibit cognitive decline.

\$24

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Super R-Lipoic Acid • 300 mg, 60 vegetarian capsules, Item #01208

Superior efficacy compared to alpha-lipoic acid—supplies **240 mg** of stabilized R-lipoic acid.

\$49

\$30.38

(four-bottle purchase)

Advanced Bio-Curcumin® with Ginger and Tumerones • 30 softgels, Item #01924

Absorbs up to **7-times** better, with added benefits of ginger and turmeric extracts.

\$30

\$18.23

(four-bottle purchase)



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Combat the *Silent Dangers of* High Uric Acid

Elevated blood levels of **uric acid** are present in about **21%** of Americans.¹

People frequently associate high uric acid levels with **gout**, yet many symptom-free individuals have elevated uric acid for years before getting their first gout attack.²

Gout is not the only manifestation of elevated uric acid blood levels. When uric acid levels are **higher** than optimal, there's also an increased risk of coronary artery disease, cerebrovascular disease, and early mortality.³⁻⁶

Excess uric acid can be caused by aging, adverse lifestyle habits, hypertension, diabetes, kidney problems, and obesity^{7,8}—which alone increases risk of elevated uric acid almost **three-fold**.⁹

While mainstream medicine offers **drugs** that reduce uric acid levels, they are primarily restricted to those who have already been diagnosed with gout.^{10,11}

Fortunately, scientists have found a **plant extract** that safely delivers uric acid-reducing effects.⁸

In this article, you will learn about a *tannin-rich* fruit that was shown in a controlled **human** trial to safely reduce uric acid to healthy target levels in **88.8%** of study subjects.⁸

How Excess Uric Acid Occurs

Excess levels of organic compounds known as **purines** break down into **uric acid**—a waste product excreted through urine. When excess levels of uric acid build up in the **blood**, a person is diagnosed with **hyperuricemia**.^{12,13}

Two factors cause **hyperuricemia**:

- A sufficient amount of purines are naturally made by the body to serve functions in DNA, RNA, and neurotransmission. When too much purine comes from **dietary** choices such as meats, poultry, seafood, and beer, just about all of these dietary purines are converted to uric acid.¹⁴
- In about **90%** of hyperuricemia cases, under urinary excretion is the primary cause, with excess uric acid production accounting for just **10%**.¹⁵

About **5% to 8%** of adult males have asymptomatic hyperuricemia.^{8,16,17} Uric acid levels above **8.6 mg/dL** in men or **7.1 mg/dL** in women are classified as hyperuricemia (although some laboratories and research groups use different limits).^{18,19}

A long-term buildup of uric acid results in solid deposits of a salt called monosodium urate monohydrate—forming needlelike crystals in the joints, soft tissue, and organs throughout the body.¹³

Affecting millions of Americans, this can lead to the arthritic inflammation behind painful attacks of **gout** and other diseases related to high uric acid.^{1,20-22} When the serum uric acid level exceeds **9.0 mg/dL**, the probability of developing clinical gout is **6 times** higher.^{8,16,17}

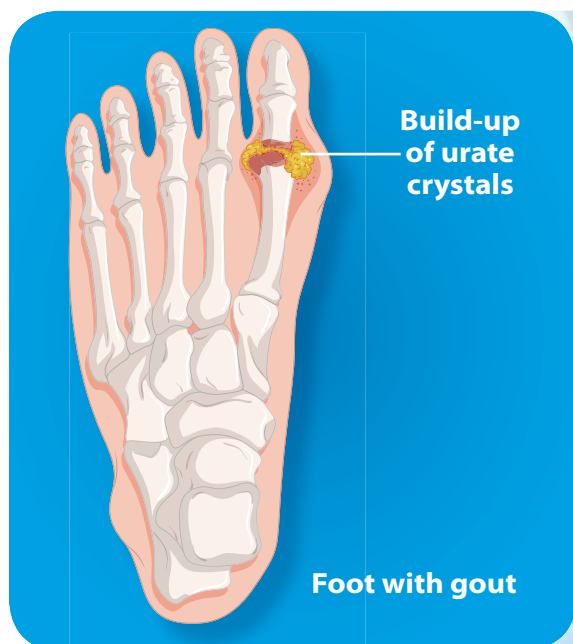
Aside from pain so excruciating that some sufferers cringe at the thought of putting a sheet over their foot at night, gout is associated with higher risks of cardiovascular disease and mortality.^{1,23,24}

Gout is best known for causing pain focused in the big toe. However, gout can also attack the:²

- | | |
|-----------|--------------------|
| • Instep, | • Achilles tendon, |
| • Ankle, | • Wrist, |
| • Heel, | • Finger, and |
| • Knee, | • Elbow. |

A recent study found that **52%** of individuals with asymptomatic hyperuricemia and **68%** of gout patients also have **knee osteoarthritis**.²⁵

A gout attack can be triggered at any time by a range of factors, including alcohol, certain medicines, other illnesses, or stress.^{1,26,27} Those whose uric acid is increasing due to age and other factors need to take action to reduce these levels long before they suffer their first gout attack—to help prevent damage to joints, soft tissue, and organs, or even the onset of cardiovascular or kidney disease.





Terminalia bellerica

What You Need to Know

Natural Treatment for Uric Acid Reduction

- Long associated only with the risk of gout, elevated uric acid levels themselves can damage cartilage and promote kidney, coronary artery, and cerebrovascular diseases.
- But drugs that reduce uric acid levels are primarily reserved for patients with full-blown gout—so hyperuricemic individuals are tragically left without options.
- Even if they were made available, these drugs themselves involve adverse effect risks that including breathing difficulties, unusual bleeding, and liver problems.
- A tannin-rich fruit extract appears to inhibit **xanthine oxidase**, an enzyme involved in uric acid synthesis. Nearly nine out of ten volunteers with elevated uric acid levels who took **500 mg** of *T. bellerica* twice-daily achieved the target level of serum uric acid of under **6 mg/dL**, without side effects.

Problems with Uric Acid-Lowering Drugs

Scientists have long sought alternative interventions that would effectively inhibit excess uric acid levels. This investigation has been driven by the fact that **drug** options that reduce those levels are primarily prescribed *only* for those whose hyperuricemia has progressed for years to eventually become diagnosed gout.¹¹

For example, the manufacturer of the uric acid-reducing drug **febuxostat** stipulates that this potentially risky drug is “...used to lower blood uric acid levels in adults with gout” and that “... it is not for the treatment of high uric acid without a history of gout.”¹⁰ Even if these drugs were freely available to hyperuricemic individuals, however, there would be a need for a safer intervention.



One of the most common side effects of the gout medication febuxostat is liver problems. But the drug's manufacturer advises that, “*A small number of heart attacks, strokes, and heart-related deaths were seen in clinical studies.*” Other common adverse effects include nausea, rash, and—ironically—joint pain and gout flares.¹⁰

Two other drug options, **allopurinol** and **probenecid**, have been linked to side effects ranging from skin rash to breathing difficulties and unusual bleeding.^{28,29} And it was recently found that allopurinol does not always decrease serum uric acid—which is the whole point of taking it and enduring adverse risks.³⁰ Incredibly, some gout medicines can precipitate gout symptoms.¹³

The drug **colchicine** is often prescribed for treatment of gout. It has been sold as a low-cost generic since the 19th century in the US—far predating the establishment of the FDA, which in 2009 granted one firm a three-year marketing monopoly on colchicine for the prevention of acute gout flares in return for the firm's agreement to conduct studies on effectiveness, safety, and dosage. As a result of the government-mandated monopoly, colchicine's price skyrocketed from nine cents a pill to almost \$5 a pill.³⁵

Aside from its cost, colchicine is associated with nausea, abdominal pain, diarrhea, generalized weakness, and even vascular and kidney damage.³⁶

A Natural Alternative for Hyperuricemic Individuals

An enzyme called **xanthine oxidase** is involved in the body's production of **uric acid**.

A natural agent with the power to safely inhibit production of **xanthine oxidase** would mark a big advance in the quest to reverse high **uric acid** levels without side effects.

A tree fruit extract has been studied for its ability to inhibit uric acid production in humans.⁸ An extract of the *Terminalia bellerica* fruit is rapidly emerging as a natural uric acid lowering nutrient.

The fruit of the *Terminalia bellerica* tree has been used in Ayurvedic medicine for many years, mainly for removal of **kidney stones** and decreasing **inflammation**. The extract being studied is derived from this edible **tree fruit** that contains **15%** tannins.

Research suggested that the bioactive compounds in this *Terminalia bellerica* fruit provide anti-inflammatory effects, possibly due to inhibition of inducible nitric oxide synthase (iNOS). Researchers have reported this extract's effectiveness against painful or burning urination, urine discharge, and bleeding in the kidney, and its ability to help remove blocked kidney and urine stones.^{8,31}

Scientists found that this extract, with its potent tannin content, also appeared to **inhibit xanthine oxidase**—which in turn should **decrease** uric acid levels.⁸ The real challenge, however, was whether *Terminalia bellerica* would prove, in a controlled setting, to be effective in humans who are already **hyperuricemic**.

Reversing Elevated Uric Acid Levels in Humans

To determine the efficacy and safety of this fruit extract in hyperuricemic humans, scientists designed the most rigorous type of study—a long-term, randomized, double-blind, placebo-controlled human clinical trial, the kind that the **FDA** mandates before it approves new drugs.

This clinical trial involved an active arm of volunteers that received different doses of the fruits of two

different species of the *Terminalia* tree, an arm that received a uric acid-lowering drug (febuxostat) and a similar group that received an inactive placebo.⁸

A total of 110 volunteers with hyperuricemia were divided into five groups and evaluated periodically over 24 weeks. Scientists assessed their uric acid levels, other health indicators, and side effects before treatment started and again at four weeks, eight weeks, 12 weeks, 16 weeks, 20 weeks, and 24 weeks of therapy.⁸ So both efficacy and safety were evaluated at six points during the 24 week-study.

Every visit, patients were questioned about possible adverse effects. At the outset and again at 24 weeks, a lab analysis assessed hematological, hepatic, and renal biochemical parameters. Each participant received a contact number to report any potentially adverse event and to access medical help.⁸

The five groups of hyperuricemia patients received treatment as follows:⁸

- Group 1: *Terminalia chebula*—one **500 mg** capsule twice daily after food,
- Group 2: *Terminalia bellerica*—one **500 mg** capsule twice daily after food,
- Group 3: *Terminalia bellerica*—one **250 mg** capsule twice daily after food,
- Group 4: *Febuxostat* (Uloric)—one **40 mg** tablet in the morning after food, plus an identical placebo capsule in the evening after food, and
- Group 5: Placebo capsules—one capsule twice daily after food.

The study team analyzed the data to directly measure the effectiveness and safety of the two *Terminalia* extracts relative to each other, the drug, and the placebo. They paid particular attention to the percentage of patients in each group whose **uric acid** levels were reduced to the healthy target of below **6.0 mg/dL**.⁸

How Uric Acid Levels Become Too High in Some Individuals

The body receives purines from two sources. First, it synthesizes its own purines, which are important for the synthesis of nucleic acids, the building blocks of DNA and RNA as well as for neurotransmission. Second, purines come from dietary choices such as meats, poultry, seafood, and beer.

Since the body produces all the purines it needs, purines from food sources result in excess amounts that are converted to uric acid.¹⁴ Lifestyle habits can play a role.

Excess uric acid is usually eliminated via urine. However, some individuals have impaired uric acid excretion, which accounts for about **90%** of all hyperuricemic cases.¹⁵



Results of Human Study

Researchers found an average reduction in **uric acid** levels at all six visits for all treatment groups except the placebo group, in which uric acid increased over 24 weeks.⁸

For the treatment groups, uric acid decreased over 24 weeks by an average of:⁸

- **16.02%** in the **500 mg** *Terminalia chebula* group,
- **27.59%** in the **500 mg** *Terminalia bellerica* group,
- **14.05%** in the **250 mg** *Terminalia bellerica* group, and
- **48.79%** in the **40 mg** *febuxostat* drug group.

And the percentage of volunteers who attained the uric acid target of **6 mg/dL** or less was:⁸

- **11.76%** in the **250 mg** *Terminalia bellerica* group,
- **22.2%** in the **500 mg** *Terminalia chebula* group,
- **88.8%** in the **500 mg** *Terminalia bellerica* group, and
- **100%** in the **40 mg** *febuxostat* drug group.

Researchers were impressed that almost nine out of ten volunteers who took **500 mg** of *T. bellerica* twice daily achieved the target level. All 10 volunteers taking febuxostat did so, but this drug has known and potentially lethal side effects that are difficult to identify in 24 weeks—yet early adverse effects were observed even in this short period.⁸

All hematological and biochemical parameters were within normal limits at the outset, but of the 18 volunteers on febuxostat, two completed the study with elevated total bilirubin and one complained of nausea and vomiting. (Bilirubin is the yellow byproduct of heme breakdown, and elevated levels can indicate certain diseases.) Also, one subject in the *T. chebula* group had mild gastrointestinal intolerance.⁸

Most significantly, not one volunteer taking *T. bellerica* had any adverse effect at all,⁸ which is in line with prior research showing no toxicity in rats given massive doses of *T. bellerica*, ranging from **300 mg** to **5,000 mg** per kilogram of body weight.^{32,33}

These findings demonstrate that **500 mg** of *Terminalia bellerica* twice daily significantly reduces **uric acid** levels without the long-term risks of febuxostat therapy.

Critically, this natural extract is available without prescription to gout sufferers and anyone wishing to lower uric acid levels before gout develops. By contrast, the febuxostat manufacturer stipulates that this risky drug “...is not for the treatment of high uric acid without a history of gout.”¹⁰



Lifestyle Factors That Affect Uric Acid Levels

A few lifestyle tips that can help prevent hyperuricemia include:

- **Avoid excessive alcohol.** Drinking too much alcohol can interfere with the removal of uric acid from the body, and underexcretion is the primary way these levels accumulate.
- **Limit dietary purines.** This includes red meats, pork, lamb, and seafood.
- **Maintain a healthy weight.** Increased adiposity is associated with increased uric acid levels and gout risk.
- **Optimize kidney health.** Since underexcretion causes **90%** of hyperuricemia cases, improving and maintaining kidney function is important.
- **Optimize thyroid function.** Hypothyroidism is associated with the excess uric acid levels that lead to gout.
- **Lower lead levels in your body.** Chronic lead exposure is linked to some cases of gout.
- **Minimize use of prescription diuretics.** Medications that increase urine flow are associated with excess uric acid and development of gout. Talk to your doctor if you're at increased risk for gout and discuss alternatives to diuretics.
- **Treat sleep apnea.** A study found that sleep apnea is an independent risk factor for high uric acid and gout.³⁴

Summary

High levels of uric acid can damage joints, soft tissue, and organs, and boost the risk of kidney, coronary artery, and cerebrovascular diseases.

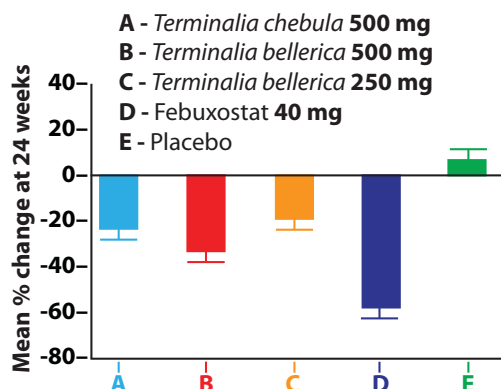
Drug options to reduce uric acid levels are primarily reserved for those with full-blown gout—leaving **hyperuricemic** individuals without easy options.

Uric acid-lowering drugs involve risks of adverse effects, including liver problems, breathing difficulties, vomiting, and unusual bleeding.

Terminalia bellerica is a tannin-rich extract that appears to **inhibit xanthine oxidase**, an enzyme involved in uric acid synthesis.

In volunteers with elevated uric acid levels, twice-daily capsules of **500 mg** of ***T. bellerica*** enabled nearly nine out of 10 people taking the extract to achieve the target level of serum uric acid of under **6 mg/dL**, with no adverse side effects.

Mean Percentage Change in Serum Uric Acid Levels by Treatment Agent



Scientists conducted a well-designed, 24-week, randomized, double blind, placebo-controlled, parallel-group study to assess the efficacy and safety profile of *Terminalia bellerica* in reducing high uric acid levels.⁸ Twice-daily dosages of **500 mg** of *T. bellerica* reduced serum uric acid levels by a mean of **27.59%**—allowing **88.8%** of those with hyperuricemia to attain the target uric acid level of **6 mg/dL**,⁸ without any of the side effects observed in gout patients taking febuxostat.¹⁰ The manufacturer of febuxostat does not endorse its use in hyperuricemia patients who have not yet progressed to having gout.¹⁰

Life Extension®'s comprehensive blood test panels include **uric acid** measurement. Feel free to call **Life Extension** at **1-800-544-4440** if you need a reminder of what your last uric acid reading was. We retain blood test results of our customers back to year **2012**, which is an important benefit to having your blood tests done utilizing our low-cost program that allows you to have blood draws performed at your convenience, with quick turnaround, wellness advisor input, and free access to **prior** results. ●

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

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Kidney Function:

Uric acid

BUN (blood urea nitrogen)
Creatinine
BUN/creatinine ratio
eGFR (estimated glomerular
filtration rate)

Electrolytes and Minerals:

Sodium
Potassium
Chloride
Calcium
Phosphorus
Iron

Liver Function:

Alkaline phosphatase
LDH (lactate dehydrogenase)
AST (aspartate aminotransferase)
ALT (alanine transaminase)
Total protein
Albumin
Globulin
Albumin/globulin ratio
Bilirubin

Complete Blood Count:

Red blood cell count
Hemoglobin
Hematocrit
MCV (mean
corpuscular volume)
MCH (mean
corpuscular hemoglobin)
MCHC (mean
corpuscular hemoglobin
concentration)
RDW (red blood
cell distribution)
White blood cell count
Immune Cell
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* Rani U, Kishan P, Chandrasekhar N. Publication pending.
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Berries

Reduce Disease Risk

BY ALMA STENTON

Researchers continue to discover a wide variety of health benefits provided by **berries**.

Berries contain bioactive natural pigments called **anthocyanins**.

Used for thousands of years in traditional medicine,¹ these water-soluble plant pigments are what give plants their wide range of colors, from blue and purple, to red and orange.²

Anthocyanins have a broad spectrum of biological effects, exerting **antimicrobial**, **cell-protective**, **antitumor**, **lipid-lowering**, and **neuroprotective** properties—all of which have implications for disease prevention and promotion of good health.^{1,3,4} Despite these impressive benefits, the therapeutic opportunities for using **anthocyanins** have been largely overlooked.¹

Three new studies provide further insight on the potential of **anthocyanins** to help reduce risks of type II diabetes, cardiovascular disease, and neurodegeneration.



Anthocyanins Lower Risk for Chronic Disease

A large proportion of deaths in the modern world are caused by type II diabetes, cardiovascular disease, and neurodegenerative disorders (such as Alzheimer's and Parkinson's).

Studies have linked the rising incidence of these conditions in large part to our access to excess calories, which disrupts natural protective processes and causes us to gain weight, increases chronic levels of inflammation, and contributes to cellular aging.⁵⁻¹⁰ Three new studies on **anthocyanins** are of particular interest to those afflicted by these degenerative illnesses.

One of these was a large meta-analysis showing that anthocyanin intake was linked to a reduced risk of **type II diabetes**. (A meta-analysis provides statistical power because it condenses data from smaller studies, and then analyzes the larger group as a whole.) This study involved a total of nearly 400,000 participants in which **anthocyanin intake**

was recorded.¹¹ It found that subjects with the **highest** anthocyanin intake were at a significant **15%** reduced risk for developing type II diabetes.¹¹

Just preventing type II diabetes alone could save nearly **250,000** lives a year, deaths caused largely from the cardiovascular and neurological consequences that occur as a result of the condition.¹² But there's evidence that anthocyanins can **directly** reduce risks for those conditions as well, as we'll now see.

Cardiovascular Disease

Regular intake of **anthocyanins** is already known to reduce the risk for cardiovascular disease in women.^{13,14}

Based on this knowledge, researchers at the **Harvard School of Public Health** set out to determine if anthocyanin intake would provide similar protection to men. To determine this, they followed 43,880 healthy men with no prior history of cardiovascular disease or cancer for 24 years in the **Health Professionals Follow-Up Study**.¹⁵

During that time, 4,046 men (**9.22%**) had a myocardial infarction (heart attack).

Men with the **highest** anthocyanin intake experienced a **14%** reduced risk of having a nonfatal heart attack. Among the subgroup of men with normal blood pressure at the beginning of the study, that protective effect rose to **19%**. These figures suggest that increased anthocyanin intake could prevent nearly **one in five** men from having a nonfatal heart attack. This is a remarkable finding, especially considering that about 735,000 people in the US have heart attacks every year.¹⁶

The researchers believe that the ability of anthocyanins to reduce cardiovascular risk might arise from the combination of reduced blood pressure, improved endothelial (blood vessel lining) function, and increased insulin sensitivity.¹⁵

This brings us to the third impressive study published in **2016**, one that showed the ability of anthocyanin **supplementation** to reduce the risk of neurodegeneration.¹⁷

Neurodegeneration

Neurodegeneration is the gradual loss of brain cells, along with the loss of body function, as seen in Alzheimer's, Parkinson's, and other age-related dementias. It is closely associated with poor insulin sensitivity, diminished endothelial function, and elevated blood pressure.¹⁸⁻²⁰ These facts suggested to alert scientists that anthocyanins might be useful in reducing the risk of neurodegeneration, perhaps by reducing the impact of at least those three factors.

To evaluate this theory, the researchers injected a group of mice with a substance known to

produce inflammatory and neurodegenerative changes in the brain similar to those seen in Alzheimer's and related disorders.¹⁷ Beginning seven days before exposure to the inflammation-generating injection, one group of mice received an injection of **anthocyanins**, while another group was left untreated. The animals treated with anthocyanins showed significantly fewer effects in their brains compared with control mice.

For example, supplemented animals had reduced levels of **oxidative stress**. They also had significant reductions in **brain inflammation**, which was shown to be directly related to the inhibition of a host of pro-inflammatory factors including IL-1beta, TNF-alpha, and NF-kappaB.

Furthermore, the anthocyanin-treated animals showed fewer activated brain inflammation-generating cells.

This study shows us that supplementation with anthocyanins could prevent the kinds of brain changes associated with Alzheimer's and Parkinson's disease.

How Do Anthocyanins Exert Their Protective Effects?

These recent studies demonstrate the protective effects of high **anthocyanin** intake against major chronic, age-related diseases. But how do they work?

Researchers are still seeking to clarify the precise mechanisms, but so far we have some good general ideas. For example, in **type II diabetes**, studies show that anthocyanins:

- Improve insulin sensitivity²¹
- Increase the activity of a group of transcription factors that regulate the expression of certain genes called PPARs, which triggers increased utilization of sugars and fats, and prevents their storage or rising levels in blood²²
- Increase secretion of the antiobesity hormone adiponectin²³

- Reduce inflammatory cell accumulations in the kidneys, a major cause of diabetic kidney disease²⁴
- Reduce intracellular fat accumulation²⁵

In **cardiovascular disease**, anthocyanins have been shown to:

- Contribute to improved endothelial function by increasing nitric oxide availability²³
- Reduce production of adhesion molecules that make inflammatory cells stick to blood vessel walls in early atherosclerosis^{26,27}
- Reduce fat production and promote clearance of fat by the liver²⁸
- Raise beneficial HDL cholesterol levels while reducing harmful LDL cholesterol^{3,4}
- Inhibit factors leading to platelet aggregation and clot formation²⁹

Finally, in **neurological disorders**, anthocyanins:

- Protect neurons from the damaging effects of the toxic Alzheimer's protein known as beta-amyloid³⁰
- Protect brain mitochondria from oxidative stress, keeping them alive to do their essential energy-producing work in the brain^{31,32}
- Prevent oxidative stress-induced brain cell death (apoptosis)³³
- Reduce the impact of **excitotoxicity**, the hyperactivity of certain brain neurotransmitters that is associated with development of Alzheimer's disease³⁴





Best Sources for Anthocyanins

Anthocyanins have tremendous potential to reduce misery and disease. The primary dietary sources of anthocyanins are dark fruits, especially **berries**.^{1,35-38}

Even if Americans increase their consumption of cherries, strawberries, blackberries, blueberries, and others, few will be able to do it consistently enough to substantially impact healthy aging. There is also an issue with the amount of **fructose** ingested if they intentionally eat lots of berries.

Fortunately, **anthocyanin extracts** can achieve similar benefits to berries themselves. Interestingly, because these highly concentrated anthocyanin extracts are inherently stable; they cost less when taken as supplements compared to buying fresh fruits that spoil rapidly.

Summary

The benefits of **anthocyanins** have been largely overlooked by the medical community. That is now changing as scientists discover their hidden potential, particularly in preventing some of the deadliest chronic, age-related diseases.

Recent studies demonstrate that high consumption of anthocyanins is associated with reduced risks of **type II diabetes** and **cardiovascular disease**. A new animal study shows that anthocyanin supplementation can protect against brain changes associated with **Alzheimer's** and **Parkinson's** diseases.

These conditions all share high levels of oxidative stress, poor glucose control/insulin resistance, and chronic inflammatory changes. Studies of **anthocyanins** show that they are able to directly combat these degenerative changes.

While berries are excellent sources of anthocyanins, it can be difficult to sustain daily high intakes of these nutrients through consumption of fresh berries alone. Anthocyanin supplements can provide protection that is available day in and day out. ●

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

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For a complete list of ingredients, dosage and use, important cautions and references, go to www.LifeExtension.com.

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Item #01214 • 60 vegetarian capsules

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Non-GMO
Contains soybeans.

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Sage

Sage, a culinary herb, originated in the Mediterranean and is related to the mint family. It can be added to almost any dish as well as to smoothies, or drunk as a tea, and is known for a wide range of beneficial health effects.

Diabetes

Sage has been shown to lower blood glucose levels.¹

Skin Care

Sclareol, a compound that is derived from sage and used as a scent oil, has been found to reduce skin wrinkles when used topically in a cream.²

Memory

Studies have shown the efficacy of sage for improving memory,³ as well as combating cognitive impairment in people both with and without dementia.⁴

Upset Stomach

Taken as an herbal tea, sage can soothe stomach distress and indigestion.⁵

Sore throat

Gargling with sage can provide relief from sore throat.⁵ To make a liquid mouthwash, add about a half-teaspoon of dried sage leaves to a half cup of water, boil it, let it cool and strain out the leaves.

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BY GARRY MESSICK

Real Food/*Fake Food*

Larry Olmsted

The secrets, lies, and outright fraud uncovered by award-winning journalist Larry Olmsted in his book *Real Food/Fake Food* are downright shocking. “We absolutely should be alarmed by the latest food scandal, but we should not be surprised,” he says.

“We have incompetent FDA oversight. We have criminal, negligent or immoral producers of wine, cheese, oil, meat, and more. But the real scandal here is that many of us have never actually tasted the real things.”

The inspiration for Olmsted’s book can be traced back to a visit he took to Japan years ago, during which he sampled that country’s world-renowned Kobe beef, with which he was much impressed with.

After returning to the US, he found that the so-called Kobe beef available here was dramatically inferior to what he’d enjoyed in Japan. A little research quickly uncovered the reason for the difference—the US Department of Agriculture (USDA) had banned the import of Kobe beef years earlier. Clearly, all of the “Kobe beef” sold in America was not what it was purported to be. Olmsted began to wonder how many other foods sold in the US might be fake. In the course of writing and researching his book, he found that “the unfortunate answer is a lot.”

Author Interview

LE: What exactly do you mean when you label much of the food in the US as “fake?”

LO: When I say fake, I mean fake, as in not what you think you are buying or eating... I’m talking about a massive industry of bait and switch, where you get something other than promised. I don’t like industrially produced supermarket beef, but it is in fact beef, and lives up to that billing. But when the same drug-laden, artificially fed beef is passed off as “natural,” “grass fed,” or “pure,” then it becomes fake—it is no longer what it claims to be.

LE: You write that many people spend hundreds of dollars on a single steak that is sold to them as Kobe beef when it isn’t. How can the government allow that kind of fraud to go unchecked?

LO: As a matter of policy, the US Food and Drug Administration (FDA) does not police most food fraud, and it hardly matters because most Kobe scams occur at restaurants, which are largely exempt from labeling laws. So they almost always get away with it.

LE: Are there other types of food that are as fraudulent?

LO: The seafood industry is far worse than beef, so rife with fakery, both legal and illegal, that it boggles the mind. Suffice it to say, if you think you are buying or eating red snapper—ever—you might want to think again. Several recent studies put the chances of your getting the white tuna you ordered in the typical New York sushi restaurant at zero—as in never. Wild-caught salmon? Wild-caught anything? Maybe not... It’s easy to take a “so what?” attitude when you order one kind of fish and get another, until you consider

that the fake is likely pumped full of drugs and antibiotics—sometimes banned and illegal—none of which would have been in the fish you actually ordered. Not all fake foods are harmless, and many are disgusting.

LE: In your book, you go into quite a bit of detail discussing olive oil.

LO: Real extra-virgin olive oil is just about the healthiest fat on the market, yet most bottles sold in this country are fake. The imposters have often been stripped of their health benefits—and some might not even be made from olives. This is one of the most pervasive fake foods in America, reaching deep into home kitchens, restaurants, and supermarkets, and not unfamiliar to the government agencies supposedly watching over the food supply.

LE: Is there a noticeable difference between the taste of fake olive oil and the real thing?

LO: When I tasted oil in Puglia (at an artisanal olive farm in Italy), it left a warm tickle in the back of my throat, a sensation I would later learn is called olive sting. It is an indicator of freshness—and largely absent in oils sold in the United States. While it has become ubiquitous for American restaurants to stuff patrons with a basket of bread and a bowl of golden-colored oil for dipping, that liquid is so far removed from the real thing as to be unrecognizable.

LE: Besides taste, what is the public being deprived of when they consume fake or inferior olive oil?

LO: Real olive oil is low in saturated fat and high in monounsaturated fatty acids that reduce the risk of heart disease. Unlike vegetable oils, such as canola, olive oil also has additional beneficial properties, such as antioxidants and polyphenols, anti-inflammatory compounds that promote a healthful cardiovascular system.





LE: Olive oil has been the subject of a large number of studies over the years. Can you expand on what those studies have discovered?

LO: Reputable claims include fighting some forms of cancer, assisting in the assimilating of vitamins, fostering good digestion, and lowering blood cholesterol. It is higher in oleic acid than any vegetable oil, and this monounsaturated acid helps reduce the risk of cardiovascular disease (oleic acid is found in the highest concentrations in real extra virgin).

Extra virgin olive oil also contains sterols and the liposoluble vitamins A, D, and E, to which have been attributed a protective and antioxidant action that may prevent artery-blocking deposits and cancer and slow the aging process. Antioxidants, including polyphenols, are also believed to act as antitumoral agents. A more recently isolated substance in olive oil, dubbed oleocanthal, was shown to reduce the adverse effects of amyloid-beta-derived diffusible ligands, suspected of

contributing to Alzheimer's disease... Unfortunately, most of the health benefits disappear in fake olive oil.

LE: How pervasive is fake olive oil?

LO: In 2010, the University of California-Davis Olive Center tested supermarket samples and concluded that more than two-thirds of imported oils (69%) labeled "extra virgin" were not.

LE: What exactly did they conclude?

LO: "These failed samples had defective flavors such as rancid, fusty and musty...Chemical testing indicated that the samples failed extra virgin standards for reasons that include adulteration with cheaper oils; poor quality oil made from damaged and overripe olives, processing flaws, and/or improper oil storage."

LE: What should consumers who want to get the real thing look for when purchasing olive oil?

LO: The most important thing you can find is the harvest date... Ignore meaningless "best by" or "bottled on" dates. "Extra virgin" is no guarantee, but its absence on a bottle is a guarantee of inferiority. Don't ever buy anything labeled "virgin," "pure," "light," "extra light," "olive oil blend," Mediterranean blend," or simply, "olive oil."

LE: You write that authentic, original Parmesan cheese—Parmigiano-Reggiano—comes from a legally designated zone in Italy around the towns of Parma and Reggio. So what are we usually getting in the US?

LO: Most "Parmesan" cheese is a blatant counterfeiting of Parma's product, best exemplified by the ubiquitous Kraft grated version that comes in green cardboard tubes and tastes like what you would get if you ground up green cardboard tubes. This may not be as far from reality as it sounds. In early 2016, the FDA showed that Parmesan fraud has become a very serious problem for American



consumers. Its tests showed that products described as “**100%** Parmesan” are routinely cut with cheaper products, and not just less expensive cheeses, but also wood pulp. Tests by *Bloomberg News* showed that Kraft Parmesan contained almost **4%** cellulose, a plant-derived polymer mainly used to make paper and paperboard. Other brands had cellulose content as high as **7.8%**.

LE: In general, what can consumers do to eat more real food and less fake food?

LO: The answer is twofold: shop better and cook more. You have more control over the final product if you make it than if you buy it made. In general, I suggest shopping at better stores, whether it is

Whole Foods, Trader Joe’s, Costco, or the local fishmonger you trust. Cooking is the easiest solution to eating more real food at home. Despite the extra labor and time, in many cases doing it yourself pays off.

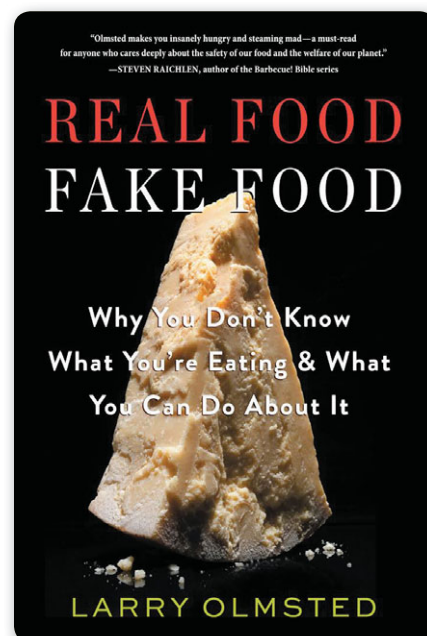
The single biggest shopping rule is to read ingredient labels carefully. The sheer number of components in heavily processed foods is a problem, as each can hide unsavory things, as well as where they came from. To me there is just something intrinsically wrong about eating a lot of unnecessary chemicals. It’s worth the time to cook real foods. It is also worth the effort to shop for them and worthwhile to support the real people who make them. Keep it real. ●

Larry Olmsted writes the “Great American Bites” column for *USA Today* and his food and travel column appears on *Forbes.com*. His expose on counterfeit Kobe beef for *Forbes.com* was widely covered by newspapers, websites, and radio shows around the world. Olmsted is the author of two books on golf and, most recently, *Getting into Guinness*, during the writing of which he set or broke three world records himself.

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

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

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Vitamin K2 (MK-4)	1,000 mcg
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Super Carnosine
Taurine

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Natural BP Management
NitroVasc with CORDIART™
Pomegranate Complete
Pomegranate Fruit Extract
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Bone Restore
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Calcium Citrate with Vitamin D
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Strontium Caps

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Acetyl-L-Carnitine Arginate
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Brain Shield® Gastrodin
Cognitex® Basics
Cognitex® with Brain Shield®
Cognitex® with Pregnenolone & Brain Shield®
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Lecithin Granules
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Migra-Eeze™
Neuro-Mag® Magnesium L-Threonate
Neuro-Mag® Magnesium L-Threonate with Calcium and Vitamin D3
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Prevagen™
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Optimized Carnitine with GlycoCam®
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with BioPQQ®
Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™
Super-Absorbable CoQ10 Ubiquinone with d-Limonene
TMG Powder
TMG Liquid Capsules

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Inner Power
Pregnenolone
Triple Action Cruciferous Vegetable Extract with Resveratrol
Triple Action Cruciferous Vegetable Extract

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Enhanced Zinc Lozenges
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Immune Protect with PARACTIN®
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Kinoko® Gold AHCC
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Kyolic® Garlic Formula 105
Kyolic® Reserve
Lactoferrin (apolactoferrin) Caps
NK Cell Activator™
Optimized Garlic
Optimized Quercetin
Peony Immune
ProBoost Thymic Protein A
Reishi Extract Mushroom Complex
Standardized *Cistanche*
Ten Mushroom Formula®
Zinc Lozenges

Inflammation Management

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

Joint Support

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

Kidney & Bladder Support

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

Liver Health & Detoxification

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

Longevity & Wellness

Alpha-Lipoic Acid
AMPK Activator
AppleWise Polyphenol Extract
Berry Complete
Blueberry Extract
Blueberry Extract with Pomegranate

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

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PalmettoGuard® Saw Palmetto/Nettle Root
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Super MiraForte with Standardized Lignans
Triple Strength ProstaPollen™
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L-Theanine
Natural Stress Relief
SAME (S-Adenosyl-Methionine)

Multivitamins

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

Personal Care

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

Life Extension Toothpaste
Sinus Cleanser
Venotone
Xyliwhite Mouthwash

Pet Care

Cat Mix
Dog Mix

Probiotics

Bifido GI Balance
BroccoMax®
FLORASSIST® Balance
FLORASSIST® GI with Phage Technology
FLORASSIST® Heart Health
FLORASSIST® Mood
FLORASSIST® Oral Hygiene
FLORASSIST® Throat Health
Theralac® Probiotics
TruFlora® Probiotics

Skin Care

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

Sleep

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

Sports Performance

Creatine Capsules
Creatine Whey Glutamine Powder
(Vanilla Flavor)
New Zealand Whey Protein Concentrate
(Natural Chocolate and Vanilla Flavor)
Tart Cherry with CherryPure®
Whey Protein Isolate
(Chocolate and Vanilla Flavor)

Vitamins

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

Weight Management

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

Women's Health

Advanced Natural Sex for Women® 50+
Breast Health Formula
Femmenessence MacaPause®
Natural Estrogen
Progesta-Care®
Super-Absorbable Soy Isoflavones
Ultra Soy Extract

SUPER SALE SAVINGS ON ALL PRODUCTS

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ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
A							
01524	ACETYL-L-CARNITINE • 500 mg, 100 veg. caps	34.00	25.50	22.50			
01874	ACETYL-L-CARNITINE ARGINATE • 90 veg. caps	52.00	39.00	35.00			
01628	ADRENAL ENERGY FORMULA • 60 veg. caps	24.00	18.00	16.50			
01630	ADRENAL ENERGY FORMULA • 120 veg. caps	46.00	34.50	31.50			
01828	ADVANCED LIPID CONTROL • 60 veg. caps	30.00	22.50	20.25			
00681	AHCC® • 500 mg, 30 caps	59.98	44.99				
29727	AHCC® (KINOKO® GOLD) • 500 mg, 60 veg. caps	74.95	52.47				
00457	ALPHA-LIPOIC ACID W/Biotin • 250 mg, 60 caps	37.00	27.75	24.00			
01907	AMPK ACTIVATOR • 90 veg. caps	48.00	36.00	33.00			
01509	ANTI-ADIPOCYTE FORMULA W/MERATRIM® & INTEGRA LEAN® (Advanced) • 60 veg. caps	39.00	29.25	27.00			
02140	ANTI-ALCOHOL w/HEPATOPRO COMPLEX • 60 caps	22.00	16.50	15.00			
01625	APPLEWISE POLYPHENOL EXTRACT 600 mg, 30 veg. caps	21.00	15.75	14.25			
01039	ARGININE/ORNITHINE • 500/250, 100 caps	17.99	13.49				
00038	ARGININE/ORNITHINE POWDER • 150 grams	22.95	17.21	14.25			
01624	(L)-ARGININE CAPS • 700 mg, 200 veg. caps	26.50	19.88	17.44			
02004	ARTERIAL PROTECT • 30 veg. caps	48.00	36.00	33.00			
01617	ARTHROMAX® W/THEAFLAVINS & APRÈSFLEX® 120 veg. caps	44.00	33.00	30.00			
01618	ARTHROMAX® ADVANCED W/UC-II® & APRÈSFLEX® 60 caps	36.00	27.00	24.00			
02108	ARTHROMAX® HERBAL JOINT FORMULA • 60 veg. caps	40.00	30.00	27.00			
01404	ARTHRO-IMMUNE JOINT SUPPORT • 60 veg. caps	32.00	24.00	21.00			
00919	ARTICHOKE LEAF EXTRACT • 500 mg, 180 veg. caps	30.00	22.50	21.00			
01533	ASCORBYL PALMITATE • 500 mg, 100 veg. caps	22.50	16.88	15.00			
00888	ASHWAGANDHA EXTRACT (Optimized) • 60 veg. caps	10.00	7.50	6.75			
01805	ASIAN ENERGY BOOST • 90 veg. caps	24.00	18.00	16.50			
01066	ASPIRIN • 81 mg, 300 enteric coated tablets	6.00	4.50	4.00			
01923	ASTAXANTHIN WITH PHOSPHOLIPIDS • 4 mg, 30 softgels	16.00	12.00	10.50			
B							
00920	BENFOTIAMINE W/ THIAMINE • 100 mg, 120 veg. caps	19.95	14.96	13.95			
00925	BENFOTIAMINE (Mega) • 250 mg, 120 veg. caps	30.00	22.50	20.25			
01206	BERRY COMPLETE • 30 veg. caps	21.00	15.75	14.00			
01496	BERRY COMPLETE W/ACAI (Enhanced) • 60 veg. caps	29.00	21.75	19.50			
00664	BETA-CAROTENE • 25,000 IU, 100 softgels	11.50	8.63				
01622	BIFIDO GI BALANCE • 60 veg. caps	20.00	15.00	13.50			
01873	BILBERRY EXTRACT • 100 mg, 90 veg. caps	36.00	27.00	24.00			
01512	BIOACTIVE MILK PEPTIDES • 30 caps	18.00	13.50	12.00			
01631	BIO-COLLAGEN W/PATENTED UC-II® • 40 mg, 60 small caps	36.00	27.00	24.00			
*01006	BIOSIL™ • 5 mg, 30 veg. caps	19.99	15.99				
*01007	BIOSIL™ • 1 fl oz	31.99	25.59				
00102	BIOTIN • 600 mcg, 100 caps	7.50	5.63	4.88			
01709	BLACK CUMIN SEED OIL • 60 softgels	16.00	12.00	10.50			
01710	BLACK CUMIN SEED OIL W/BIO-CURCUMIN® • 60 softgels	32.00	24.00	22.50			
01008	BLAST™ • 600 grams of powder	26.95	20.21				
02025	BLOOD PRESSURE (Dual Action) • 60 veg. tabs	44.00	33.00	28.00			
SUBTOTAL OF COLUMN 1							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
70000	BLOOD PRESSURE MONITOR (ACCUFIT™) • med/lg cuff	79.99	49.99				
70004	BLOOD PRESSURE MONITOR • Digital wrist cuff	69.95	52.46				
02024	BLOOD PRESSURE (Triple Action AM/PM) • 60 veg. tabs	44.00	33.00	28.00			
01214	BLUEBERRY EXTRACT • 60 veg. caps	22.50	16.88	15.00			
01438	BLUEBERRY EXTRACT W/ POMEGRANATE • 60 veg. caps	30.00	22.50	20.25			
01506	BONE FORMULA (DR. STRUM'S INTENSIVE) • 300 caps	56.00	42.00	37.50			
01726	BONE RESTORE • 120 caps	22.00	16.50	14.25			
01727	BONE RESTORE W/VITAMIN K2 • 120 caps	24.00	18.00	16.50			
01725	BONE STRENGTH FORMULA W/KOACT® • 120 caps	45.00	33.75	30.00			
00313	BONE-UP® • 240 caps	28.95	21.71	20.41			
01661	BORON • 3 mg, 100 veg. caps	5.95	4.46	3.94			
00202	BOSWELLA • 100 caps	38.00	28.50	22.50			
01802	BRAIN SHIELD® GASTRODIN • 300 mg, 60 veg. caps	33.00	24.75	22.50			
01253	BRANCHED CHAIN AMINO ACIDS • 90 caps	19.50	14.63	12.75			
01942	BREAST HEALTH FORMULA • 60 caps	34.00	25.50	22.50			
00893	BRITE EYES III • 2 vials, 5 ml each	34.00	25.50	24.00			
26576	BROCCO MAX® • 60 veg. caps	26.95	20.21				
01203	BROMELAIN (Specially-coated) 500 mg, 60 enteric coated tablets	21.00	15.75	14.25			
C							
01653	CALCIUM CITRATE W/VITAMIN D • 300 caps	24.00	18.00	15.94			
01651	CALCIUM D-GLUCARATE • 200 mg, 60 veg. caps	18.00	13.50	11.25			
*01823	CALREDUCE SELECTIVE FAT BINDER 120 mint chewable tablets	45.00	33.75	28.50			
01700	CARDIO PEAK™ w/STANDARDIZED HAWTHORN & ARJUNA 120 veg. caps	36.00	27.00	24.00			
00916	CARNITINE W/GLYCOCARN® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
01532	L-CARNITINE • 500 mg, 30 veg. caps	15.00	11.25	9.90			
01829	CARNOSINE • 500 mg, 60 veg. caps	36.00	27.00	24.00			
02020	CARNOSINE (Super) • 500 mg, 60 veg. caps	40.00	30.00	27.00			
01932	CAT MIX • 100 grams powder	14.00	10.50	8.25			
01899	CHILDREN'S FORMULA LIFE EXTENSION MIX™ 100 chewable tablets	20.00	15.00	13.50			
00550	CHLORELLA • 500 mg, 200 tablets	23.98	17.99				
01571	CHLOROPHYLLIN • 100 mg, 100 veg. caps	24.00	18.00	15.00			
01359	CHO-LESS™ • 90 capsules	35.00	26.25				
01910	CHOL-SUPPORT™ • 60 liquid veg. caps	48.00	36.00	32.00			
01504	CHROMIUM W/CROMINEX® 3+ (Optimized) 500 mcg, 60 veg. caps	9.00	6.75	6.00			
01503	CINSULIN® W/INSEAL2® AND CROMINEX® 3+ • 90 veg. caps	38.00	28.50	25.50			
01906	CISTANCHE (Standardized) • 30 veg. caps	20.00	15.00	12.00			
01818	CITRIMAX® (Super) • 180 veg. caps	40.00	30.00	28.50			
00818	CLA BLEND W/SESAME LIGNANS (Super) 120 softgels	36.00	27.00	24.75	19.75		
00819	CLA BLEND W/GUARANA & SESAME LIGNANS (Super) 120 softgels	42.00	31.50	28.75			
01896	COGNITEX® W/BRAIN SHIELD® • 90 softgels	60.00	45.00	39.00	36.00		
01897	COGNITEX® W/PREGNENOLONE & BRAIN SHIELD® 90 softgels	62.00	46.50	39.75	37.50		
01421	COGNITEX® BASICS • 60 softgels	38.00	28.50	26.25	24.00		
SUBTOTAL OF COLUMN 2							

FEBRUARY 2017

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

OFFER ENDS JANUARY 31, 2017

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ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01659	COGNIZIN® CDP CHOLINE CAPS • 250 mg, 60 veg. caps	36.00	27.00	25.50			
01945	COMPLETE B-COMPLEX (BioActive) • 60 veg. caps	12.00	9.00	8.00			
02098	COMPREHENSIVE NUTRIENT PACKS ADVANCED • 30 packs	90.00	67.50	61.50			
01949	COQ10 w/d-LIMONENE (Super-Absorbable) 50 mg, 60 softgels	25.00	18.75	16.50	15.00		
01948	COQ10 w/d-LIMONENE (Super-Absorbable) 100 mg, 100 softgels	46.00	34.50	28.00	26.25		
01929	COQ10 (Super Ubiquinol) • 100 mg, 60 softgels	56.00	42.00	36.00	33.00		
01733	COQ10 w/BIOPQQ® (Super Ubiquinol) • 100 mg, 30 softgels	54.00	40.50	33.00	30.00		
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 100 mg, 60 softgels	62.00	46.50	39.00	36.00		
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 50 mg, 100 softgels	58.00	43.50	34.50	31.50		
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 50 mg, 30 softgels	20.00	15.00	12.00			
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 200 mg, 30 softgels	62.00	46.50	39.00	36.00		
00862	CRAN-MAX® • 500 mg, 60 veg. caps	17.50	13.13	11.25			
01424	CRAN-MAX® WITH ELLIROSE™ (Optimized) • 60 veg. caps	18.00	13.50	12.00			
01529	CREATINE CAPSULES • 120 veg. caps	10.95	8.21	6.94			
01746	CREATINE WHEY GLUTAMINE POWDER • 454 grams (vanilla)	30.00	22.50	19.50			
01429	CR MIMETIC LONGEVITY FORMULA • 60 veg. caps	39.00	29.25	27.00			
00407	CURCUMIN® (Super Bio) • 400 mg, 60 veg. caps	38.00	28.50	26.25			
01924	CURCUMIN® W/GINGER & TURMERONES (Advanced Bio) 30 softgels	30.00	22.50	20.25			
01804	CYTOKINE SUPPRESS™ W/EGCG • 30 veg. caps	30.00	22.50	20.25			
COSMESIS							
80157	ADVANCED ANTI-GLYCATION PEPTIDE SERUM • 1 oz	53.00	39.75	34.50			
80154	ADVANCED LIGHTENING CREAM • 1 oz	65.00	48.75	42.75			
80155	ADVANCED PEPTIDE HAND THERAPY • 4 oz	46.00	34.50	29.25			
80152	ADVANCED TRIPLE PEPTIDE SERUM • 1 oz	65.00	48.75	42.75			
80140	ADVANCED UNDER EYE SERUM W/STEM CELLS • .33 oz	49.00	36.75	31.50			
80139	AMBER SELF MICRODERMABRASION • 2 oz	49.00	36.75	31.50			
80158	ANTI-AGING FACE OIL • 1 oz	59.00	44.25	39.00			
80118	ANTI-AGING MASK • 2 oz	72.00	54.00	47.52			
80151	ANTI-AGING REJUVENATING FACE CREAM • 2 oz	65.00	48.75	42.75			
80153	ANTI-AGING REJUVENATING SCALP SERUM • 2 oz	46.00	34.50	29.25			
80134	ANTI-GLYCATION SERUM W/BLEBERRY & POMEGRANATE EXTRACTS • 1 oz	33.00	24.75	23.51			
80133	ANTIOXIDANT FACIAL MIST • 2 oz	32.00	24.00	22.80			
80127	ANTIOXIDANT REJUVENATING FOOT CREAM • 2 oz	45.00	33.75	32.10			
80117	ANTIOXIDANT REJUVENATING HAND CREAM • 2 oz	64.00	48.00	43.12			
80105	ANTI-REDNESS & ADULT BLEMISH LOTION • 1 oz	74.50	55.88	49.17			
80147	BIOFLAVONOID CREAM • 1 oz	46.00	34.50	29.25			
80144	BROCCOLI SPROUT CREAM • 1 oz	46.00	34.50	29.25			
80156	COLLAGEN BOOSTING PEPTIDE SERUM • 1 oz	59.00	44.25	39.00			
80120	CORRECTIVE CLEARING MASK • 2 oz	64.50	48.38	42.57			
80141	DNA REPAIR CREAM • 1 oz	49.00	36.75	31.50			
80108	ESSENTIAL PLANT LIPIDS REPARATIVE SERUM • 1 oz	74.95	56.21	49.46			
SUBTOTAL OF COLUMN 3							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
80163	EYE LIFT CREAM • 0.5 fl oz	59.00	44.25	39.00			
80123	FACE REJUVENATING ANTIOXIDANT CREAM • 2 oz	69.50	52.13	45.87			
80107	FINE LINE-LESS • 1 oz	74.50	55.88	49.17			
80131	HAIR SUPPRESS FORMULA • 4 oz	59.00	44.25	38.94			
80137	HEALING FORMULA ALL-IN-ONE CREAM • 1 oz	53.00	39.75	34.07			
80115	HEALING MASK • 2 oz	64.50	48.38	42.57			
80102	HEALING VITAMIN K CREAM • 1 oz	79.50	59.63	52.47			
80109	HYALURONIC FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28			
80110	HYALURONIC OIL-FREE FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28			
80138	HYDRATING ANTIOXIDANT FACE MIST • 4 oz	39.95	29.96	28.50			
80103	LIFTING & TIGHTENING COMPLEX • 1 oz	74.50	55.88	49.17			
80146	LYCOPENE CREAM • 1 oz	28.00	21.00	19.05			
80135	MELATONIN CREAM • 1 oz	33.00	24.75	20.33			
80114	MILD FACIAL CLEANSER • 8 fl. oz	59.00	44.25	38.94			
80159	MULTI STEM CELL SKIN TIGHTENING COMPLEX • 1 oz	59.00	44.25	39.00			
80122	NECK REJUVENATING ANTIOXIDANT CREAM • 2 oz	64.00	48.00	42.24			
80111	PIGMENT CORRECTING CREAM • 1/2 oz	74.00	55.50	48.84			
80106	REJUVENATING SERUM • 1 oz	74.50	55.88	49.17			
80150	RENEWING EYE CREAM • 1/2 oz	65.00	48.75	42.75			
80142	RESVERATROL ANTI-OXIDANT SERUM • 1 oz	46.00	34.50	29.25			
80112	SKIN LIGHTENING SERUM • 1/2 oz	85.00	63.75	56.10			
80130	SKIN STEM CELL SERUM • 1 oz	74.00	55.50	51.75			
80143	STEM CELL CREAM W/ALPINE ROSE • 1 oz	66.00	49.50	43.50			
80148	TIGHTENING & FIRMING NECK CREAM • 2 oz	39.00	29.25	26.25			
80161	TRIPLE ACTION VITAMIN C CREAM • 1 oz jar	59.00	44.25	39.00			
80162	ULTIMATE MICRODERMABRASION • 8 fl. oz	39.00	29.25	26.25			
80160	ULTRA EYELASH BOOSTER • 0.25 oz (2 units \$39)	59.00	44.25				
80116	ULTRA LIP PLUMPER • 1/3 oz	64.00	48.00	42.24			
80101	ULTRA WRINKLE RELAXER • 1 oz	89.95	67.46	59.82			
80113	UNDER EYE REFINING SERUM • 1/2 oz	74.50	55.88	49.17			
80104	UNDER EYE RESCUE CREAM • 1/2 oz	74.50	55.88	49.17			
80129	VITAMIN C SERUM • 1 oz	85.00	63.75	56.10			
80136	VITAMIN D LOTION • 4 oz	36.00	27.00	25.25			
80145	VITAMIN E-ESSENTIAL CREAM • 1 oz	28.00	21.00	19.50			
80149	YOUTH SERUM • 1 oz	65.00	48.75	42.75			
D							
00658	7-KETO® DHEA METABOLITE • 25 mg, 100 caps	28.00	21.00	18.00			
01479	7-KETO® DHEA METABOLITE • 100 mg, 60 veg. caps	40.00	30.00	27.00			
01640	DHA (Vegetarian) • 30 veg. softgels	20.00	15.00	13.50			
00607	DHEA • 25 mg, 100 tablets (Dissolve in mouth)	14.00	10.50	8.81			
01478	DHEA COMPLETE • 60 veg. caps	48.00	36.00	32.40			
00335	DHEA • 25 mg, 100 caps	16.00	12.00	11.00			
00454	DHEA • 15 mg, 100 caps	14.00	10.50	9.00			
00882	DHEA • 50 mg, 60 caps	19.00	14.25	12.75			
01689	DHEA • 100 mg, 60 veg. caps	24.00	18.00	16.50			
01358	DIGEST RC® • 30 tablets	19.95	14.96	12.75			
SUBTOTAL OF COLUMN 4							

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FEBRUARY 2017

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SUPER SALE SAVINGS ON ALL PRODUCTS

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ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE				QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each	I		
02021	DIGESTIVE ENZYMES (Enhanced Super) • 60 veg. caps	22.00	16.50	15.00				
02022	DIGESTIVE ENZYMES w/PROBIOTICS (Enhanced Super) • 60 veg. caps	28.00	21.00	18.00				
01671	D, L-PHENYLALANINE • 500 mg, 100 veg. caps	18.75	14.06	12.00				
01540	DMAE BITARTRATE • 150 mg, 200 veg. caps	18.00	13.50	11.25				
01570	DNA PROTECTION FORMULA • 60 veg. caps	34.00	25.50	24.00				
01931	DOG MIX • 100 grams powder	18.00	13.50	11.25				
02006	DOPA-MIND™ • 60 veg. tabs	48.00	36.00	32.00				
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA • 2 oz	39.95	29.96	24.00				
00320	DR. PROCTOR'S HAIR SHAMPOO • 8 oz	24.95	18.71	16.50				
E								
01528	ECHINACEA EXTRACT • 250 mg, 60 veg. caps	14.35	10.76	9.38				
01997	ENDOTHELIAL DEFENSE™ w/POMEGRANATE COMPLETE AND CORDIART™ • 60 softgels	68.00	51.00	46.50				
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® • 60 veg. caps	54.00	40.50	36.00				
01937	EPA/DHA (Mega) • 120 softgels	20.00	15.00	13.50				
02009	ESOPHACOL • 120 chewable tablets	20.00	15.00	13.50				
01737	ESOPHAGEAL GUARDIAN (Berry flavor) • 60 chewable tablets	36.00	27.00	24.00				
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 600 mg, 30 veg. tabs	20.00	15.00	13.50				
01706	EXTRAORDINARY ENZYMES • 60 caps	26.00	19.50	18.00				
02008	(CALIFORNIA ESTATE) EXTRA VIRGIN OLIVE OIL • 500 ml (16.9 fl. oz)	33.00	24.75	22.50				
01514	EYE PRESSURE SUPPORT W/MIRTOGENOL® • 30 veg. caps	38.00	28.50	25.50				
F								
*01054	FACE MASTER® PLATINUM • Facial Toning System	199.00	199.00					
00965	FAST-ACTING JOINT FORMULA • 30 caps	39.00	29.25	27.00				
01717	FAST-C® W/DIHYDROQUERCETIN • 120 veg. tabs	26.00	19.50	18.00				
20053	FEM DOPHILUS® • 30 caps	25.95	19.46					
20055	FEM DOPHILUS® • 60 caps	39.95	29.96					
01064	FEMMENESSENCE MACAPAUSE® • 120 veg. caps	34.99	26.24					
02007	FIBER-IMMUNE SUPPORT (Apple Cinnamon) • 235 grams	34.00	25.50	23.50				
01749	FLAX SEED (Organic golden) • 14 oz	11.67	8.75					
02125	FLORASSIST® GI w/PHAGE TECHNOLOGY • 30 liquid veg. caps	33.00	24.75	22.50				
01821	FLORASSIST® HEART HEALTH • 60 veg. caps	32.00	24.00	21.00				
02019	FLORASSIST® ORAL HYGIENE • 30 lozenges	18.00	13.50	12.75				
01825	FLORASSIST® BALANCE • 30 liquid veg. caps	32.00	24.00	21.00				
02000	FLORASSIST® MOOD • 60 caps	33.00	24.75	22.50				
01920	FLORASSIST® THROAT HEALTH • 30 lozenges	20.00	15.00	13.50				
01913	FOLATE HIGH POTENCY (Optimized) • 5,000 mcg, 30 veg. tablets	25.00	18.75	16.50				
01939	FOLATE (Optimized) • 1,000 mcg, 100 veg. tablets	19.00	14.25	12.75				
01842	FOLATE + VITAMIN B12 (BioActive) • 90 veg. caps	12.00	9.00	8.00				
01544	FORSKOLIN • 10 mg, 60 veg. caps	16.00	12.00	10.50				
01513	FUCOIDAN W/MARITECH® 926 (Optimized) • 60 veg. caps	36.00	27.00	24.75				
G								
02070	GAMMA E MIXED TOCOPHEROL/TOCOTRIENOLS • 60 softgels	40.00	30.00	27.00				
02075	GAMMA E MIXED TOCOPHEROL w/ENHANCED SESAME LIGNANS • 60 softgels	32.00	24.00	21.75				
01394	GARLIC (Optimized) • 200 veg. caps	24.95	18.71	15.75				
02100	GASTRO-EASE • 60 veg. caps	44.00	33.00	30.00				
SUBTOTAL OF COLUMN 5								

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE				QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each	I		
*01122	GINGER FORCE® • 60 liquid caps	34.95	26.21					
01658	GINKGO BILOBA CERTIFIED EXTRACT™ 120 mg, 365 veg. caps	46.00	34.50	31.50				
00756	GLA WITH SESAME LIGNANS (Mega) • 60 softgels	19.50	14.63	13.50				
00345	(L-) GLUTAMINE CAPSULES • 500 mg, 100 veg. caps	14.95	11.21	10.13				
00141	(L-) GLUTAMINE POWDER • 100 grams	22.00	16.50	15.00				
00522	GLUCOSAMINE/CHONDROITIN CAPSULES • 100 caps	38.00	28.50	24.00				
01541	GLUTATHIONE, CYSTEINE & C • 100 veg. caps	20.00	15.00	13.50				
01669	GLYCINE • 1,000 mg, 100 veg. caps	12.00	9.00	8.10				
01411	GRAPE SEED EXTRACT W/RESVERATROL & PTEROSTILBENE 100 mg, 60 veg. caps	36.00	27.00	25.50				
01620	GREEN COFFEE EXTRACT COFFEEGENIC® 400 mg, 90 veg. caps	32.00	24.00	21.00				
00953	GREEN TEA EXTRACT (Mega) • lightly caffeinated, 100 veg. caps	30.00	22.50	18.00				
00954	GREEN TEA EXTRACT (Mega) • decaffeinated, 100 veg. caps	30.00	22.50	18.00				
H								
01074	5 HTP • 100 mg, 60 caps	27.95	20.96					
*02002	HAIR, SKIN & NAIL REJUVENATION FORM W/VERISOL® 90 tabs	32.00	24.00	22.00				
01738	HCA (Garnicia) • 90 veg. caps	17.00	12.75	11.25				
29754	HCACTIVE™ GARCINIA CAMBOGIA EXTRACT • 90 caps	30.00	22.50					
01393	HEPATOPRO • 900 mg, 60 softgels	50.00	37.50	34.50				
01527	HUPERZINE A • 200 mcg, 60 veg. caps	40.00	30.00	27.00				
00661	HYDRODERM® • 1 oz	79.95	59.96	49.00				
I								
01704	IMMUNE MODULATOR W/TINOFEND® • 60 veg. caps	17.00	12.75	11.25				
00955	IMMUNE PROTECT W/PARACTIN® • 30 veg. caps	29.50	22.13	19.91				
02005	IMMUNE SENESCENCE PROTECTION FORMULA™ • 60 veg. tabs	40.00	30.00	27.00				
01049	INNERPOWER™ • 530 grams powder	42.00	31.50					
01674	INOSITOL CAPSULES • 1,000 mg, 360 veg. caps	62.00	46.50	43.50				
01292	INTEGRA-LEAN® AFRICAN MANGO IRVINGIA 150 mg, 60 veg. caps	28.00	21.00	18.00				
01677	IRON PROTEIN PLUS • 300 mg, 100 caps	28.00	21.00	19.50				
01492	IRVINGIA W/PHASE 3™ CALORIE CONTROL COMPLEX (Optimized African Mango) • 120 veg. caps	56.00	42.00	36.00				
J, K, L								
00056	JARRO-DOPHILUS EPS® • 60 veg. caps	22.95	17.21					
01834	K W/ADVANCED K2 COMPLEX (Super) • 90 softgels	30.00	22.50	20.25				
01600	KRILL HEALTHY JOINT FORMULA • 30 softgels	32.00	24.00	21.75				
01050	KRILL OIL • 60 softgels	33.95	25.46					
00316	KYOLIC® GARLIC FORMULA 102 • 200 veg. caps	27.45	20.59					
00214	KYOLIC® GARLIC FORMULA 105 • 200 caps	28.45	21.34					
00789	KYOLIC® RESERVE • 600 mg, 120 caps	28.95	21.71					
01681	LACTOFERRIN • 60 caps	44.00	33.00	30.00				
00020	LECITHIN • 16 oz granules	18.00	13.50	12.00				
02155	LIFE EXTENSION MIX™ • 315 tablets	80.00	60.00	52.00	43.75			
02157	LIFE EXTENSION MIX™ W/EXTRA NIACIN • 315 tablets	80.00	60.00	52.00	43.75			
02154	LIFE EXTENSION MIX™ • 490 caps	90.00	67.50	58.00	47.50			
02156	LIFE EXTENSION MIX™ POWDER • 14.81 oz	80.00	60.00	52.00	43.75			
SUBTOTAL OF COLUMN 6								

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

OFFER ENDS JANUARY 31, 2017

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

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
02165	LIFE EXTENSION MIX™ • 315 tablets w/o copper	80.00	60.00	52.00	43.75		
02164	LIFE EXTENSION MIX™ • 490 caps w/o copper	90.00	67.50	58.00	47.50		
02166	LIFE EXTENSION MIX™ POWDER • 14.81 oz w/o copper	80.00	60.00	52.00	43.75		
01608	LIVER EFFICIENCY FORMULA • 30 veg. caps	18.00	13.50	12.00			
01639	5-LOX INHIBITOR W/APRÈSFLEX® • 100 mg, 60 veg. caps	22.00	16.50	15.00			
01678	L-LYSINE • 620 mg, 100 veg. caps	9.00	6.75	6.00			
00455	LYCOPENE (Mega) • 15 mg, 90 softgels	35.00	26.25	22.50			
M							
01992	MACUGUARD® OCULAR SUPPORT • 60 softgels	25.00	18.75	17.50			
01993	MACUGUARD® OCULAR SUPPORT w/ASTAXANTHIN 60 softgels	44.00	33.00	30.00			
01459	MAGNESIUM CAPS • 500 mg, 100 veg. caps	12.00	9.00	7.50			
01682	MAGNESIUM (CITRATE) • 160 mg, 100 veg. caps	12.00	9.00	7.50			
02107	(EXTEND-RELEASE) MAGNESIUM • 60 veg. caps	13.00	9.75	8.75			
01908	MEDITERRANEAN TRIM WITH SINETROL™-XPUR 60 veg. caps	18.00	13.50	12.00			
01668	MELATONIN • 300 mcg, 100 veg. caps	5.75	4.31	3.75			
01083	MELATONIN • 500 mcg, 200 veg. caps	18.00	13.50	12.00			
00329	MELATONIN • 1 mg, 60 caps	5.00	3.75	3.47			
00330	MELATONIN • 3 mg, 60 veg. caps	8.00	6.00	5.16			
00331	MELATONIN • 10 mg, 60 veg. caps	28.00	21.00	18.00			
00332	MELATONIN • 3 mg, 60 veg. lozenges	8.00	6.00	5.16			
01734	MELATONIN (Fast-Acting Liquid) • 2 fl. oz (Citrus-Vanilla)	12.00	9.00	8.25			
01787	MELATONIN TIMED RELEASE • 300 mcg, 100 veg. tabs	12.00	9.00	8.25			
01788	MELATONIN TIMED RELEASE • 750 mcg, 60 veg. tablets	8.00	6.00	5.25			
01786	MELATONIN TIMED RELEASE • 3 mg, 60 veg. tabs	12.00	9.00	8.25			
02101	MEMORY PROTECT • 36 day supply	24.00	18.00	16.00			
01536	METHYLCOBALAMIN • 1 mg, 60 veg. lozenges (vanilla)	9.95	7.46	6.00			
01537	METHYLCOBALAMIN • 5 mg, 60 veg. lozenges (vanilla)	32.00	24.00	18.75	17.25		
00709	MIGRA-EEZE™ (Butterbur) • 60 softgels	33.00	24.75	22.00			
01522	MILK THISTLE (European) • 60 veg. caps	34.00	25.50	22.50			
01922	MILK THISTLE (European) • 60 softgels	28.00	21.00	18.75			
01925	MILK THISTLE (European) • 120 softgels	44.00	33.00	30.00			
01940	MIRAFORTE w/STANDARDIZED LIGNANS (Super) • 120 veg caps	62.00	46.50	42.00			
01869	MITOCHONDRIAL BASICS W/BIOPQQ® • 30 caps	44.00	33.00	30.00			
01868	MITOCHONDRIAL ENERGY OPTIMIZER W/BIOPQQ® • 120 caps	72.00	54.00	48.00			
00065	MK-7 • 90 mcg, 60 softgels	28.00	21.00	18.75			
00451	MSM (Methylsulfonylmethane) • 1,000 mg, 100 caps	14.00	10.50	8.96			
N							
01534	N-ACETYL-L-CYSTEINE • 600 mg, 60 veg. caps	14.00	10.50	9.25			
01904	NAD+ CELL REGENERATOR™ • 100 mg, 30 veg. caps	34.00	25.50	19.50			
00066	NATTOKINASE • 60 softgels	25.50	19.13				
01807	NATURAL APPETITE SUPPRESS (Advanced) • 60 veg. caps	38.00	28.50	25.50			
00984	NATURAL BP MANAGEMENT • 60 tablets	44.00	33.00	30.00			
01892	NATURAL ESTROGEN • 60 veg. tabs	38.00	28.50	25.50			
01626	NATURAL SEX FOR WOMEN® 50+ (Advanced) • 90 veg. caps	59.00	44.25	34.00			
01444	NATURAL SLEEP® • 60 veg. caps	13.00	9.75	7.50			
SUBTOTAL OF COLUMN 7							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
01551	NATURAL SLEEP® w/ MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00			
01511	NATURAL SLEEP® W/O MELATONIN (Enhanced) • 30 caps	20.00	15.00	13.50			
01445	NATURAL SLEEP® MELATONIN • 5 mg, 60 veg. caps	18.00	13.50	12.00			
00987	NATURAL STRESS RELIEF • 30 veg. caps	28.00	21.00	18.00			
30741	NERVIA® • 90 softgels	53.95	40.46				
01603	NEURO-MAG® MAGNESIUM L-THREONATE • 90 veg. caps	40.00	30.00	27.00			
01602	NEURO-MAG® MAGNESIUM L-THREONATE w/CALCIUM & VITAMIN D3 • 25 grams • Lemon flavor	40.00	30.00	27.00			
01990	NITROVASC w/CORDIART™ • 30 veg. caps	18.00	13.50	12.00			
01903	NK CELL ACTIVATOR™ • 30 veg. tablets	45.00	33.75	31.50			
00373	NO FLUSH NIACIN • 800 mg, 100 caps	19.00	14.25	12.75			
O							
01824	OLIVE LEAF VASCULAR SUPPORT w/CELERY SEED EXTRACT (Advanced) • 60 veg. caps	36.00	27.00	24.00			
01988	OMEGA-3 PLUS EPA/DHA w/SESAME LIGNANS, OLIVE EXTRACT, KRILL & ASTAXANTHIN (SUPER) • 120 softgels	45.00	33.75	31.50	24.75		
01983	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 60 softgels	18.00	13.50	12.00	9.38		
01982	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 120 softgels	32.00	24.00	21.00	17.05		
01984	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 120 enteric coated softgels	34.00	25.50	23.25	18.00		
01985	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 60 enteric coated softgels	20.00	15.00	13.50	10.50		
01986	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 240 small softgels	32.00	24.00	21.00	17.25		
01991	ONCE-DAILY HEALTH BOOSTER • 60 softgels	54.00	40.50	38.00			
02113	ONE-PER-DAY • 60 tablets	22.00	16.50	15.00			
01328	ONLY TRACE MINERALS • 90 veg. caps	15.00	11.25	9.38			
P							
01789	PALMETTOGUARD® SAW PALMETTO W/BETA-SITOSTEROL 30 softgels	15.00	11.25	10.50	9.00		
01790	PALMETTOGUARD® SAW PALMETTO/ NETTLE ROOT W/BETA-SITOSTEROL • 60 softgels	28.00	21.00	19.50	18.00		
01323	PEAK ATP® WITH GLYCOCAPN® • 60 veg. caps	54.00	40.50	37.50			
*00342	PECTA SOL-C® MODIFIED CITRUS PECTIN • 454 grams powder	109.95	93.46				
*01080	PECTA SOL-C® MODIFIED CITRUS PECTIN • 270 veg. caps	79.95	67.96				
01811	PEONY IMMUNE • 60 veg. caps	36.00	27.00	24.00			
00673	PGX® PLUS MULBERRY (WellBetX®) • 180 veg. caps	34.95	26.21				
01953	POMEGRANATE COMPLETE • 30 softgels	24.00	18.00	15.75			
00956	POMEGRANATE FRUIT EXTRACT • 30 veg. caps	19.50	14.63	13.16			
**01837	POMI-T® • 60 veg. caps	35.00	26.25	24.00			
01500	PQQ CAPS W/BIOPQQ® • 10 mg, 30 veg. caps	24.00	18.00	13.50	12.00		
01647	PQQ CAPS W/BIOPQQ® • 20 mg, 30 veg. caps	40.00	30.00	24.00	21.00		
00302	PREGNENOLONE • 50 mg, 100 caps	26.00	19.50	16.50			
00700	PREGNENOLONE • 100 mg, 100 caps	30.00	22.50	20.25			
**01373	PRELOX® NATURAL SEX FOR MEN® • 60 tablets	52.00	39.00	36.00			
01576	PREVAGEN® • 30 caps	60.00	45.00				
*01577	PREVAGEN® ES • 30 caps	70.00	60.00				
00525	PROBOOST™ THYMIC PROTEIN A • 30 packets	66.60	49.95				
SUBTOTAL OF COLUMN 8							

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

FEBRUARY 2017

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

SUPER SALE SAVINGS ON ALL PRODUCTS

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

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01441	PROGESTA-CARE® • 4 oz cream	36.39	27.29	25.72			
01928	PROSTATE FORMULA (Ultra NAT) • 60 softgels	38.00	28.50	26.25	24.00		
01909	PROSTAPOLLEN™ (Triple strength) • 30 softgels	28.00	21.00	18.75			
01742	PROTEIN-ISOLATE (Whey) Vanilla • 403 grams	30.00	22.50	19.50			
01743	PROTEIN-ISOLATE (Whey) Chocolate • 437 grams	30.00	22.50	19.50			
01770	PROTEIN CONCENTRATE (New Zealand Whey) Vanilla 500 grams	30.00	22.50	19.95			
01771	PROTEIN CONCENTRATE (New Zealand Whey) Chocolate 640 grams	30.00	22.50	19.95			
01812	PROVINAL® PURIFIED OMEGA-7 • 30 softgels	27.00	20.25	18.00			
01676	PS CAPS (Phosphatidylserine) • 100 mg, 100 veg. caps	54.00	40.50	36.00			
01508	PTEROPURE® Pterostilbene • 50 mg, 60 veg. caps	32.00	24.00	22.50			
01209	PUMPKIN SEED EXTRACT (Water-soluble) • 60 veg. caps	20.00	15.00	13.50			
01637	PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT 100 mg, 60 veg. caps	64.00	48.00	45.00			
01217	PYRIDOXAL 5'-PHOSPHATE • 100 mg, 60 veg. caps	22.00	16.50	14.85			
Q, R							
01309	QUERCETIN (Optimized) • 250 mg, 60 veg. caps	22.00	16.50	15.00			
01030	RED YEAST RICE (Bluebonnet) • 600 mg, 60 veg. caps	17.60	13.20				
00605	REGIMINT • 60 enteric-coated caps	19.95	14.96	14.00			
01708	REISHI EXTRACT MUSHROOM COMPLEX • 60 veg. caps	30.00	22.50	20.25			
01448	REJUVENEX® BODY LOTION • 6 oz	24.00	18.00	14.85	12.75		
01621	REJUVENEX® FACTOR FIRING SERUM • 1.7 oz	65.00	48.75	37.50			
01220	REJUVENEX® (Ultra) • 2 oz	52.00	39.00	33.00	29.25		
00676	REJUVENIGHT® (Ultra) • 2 oz	39.95	29.96	27.00			
01410	RESVERATROL W/PTEROSTILBENE • 100 mg, 60 veg. caps	36.00	27.00	24.00			
02031	RESVERATROL W/NICOTINAMIDE RIBOSIDE (Optimized) • 30 veg. caps	42.00	31.50	27.00			
02030	RESVERATROL (Optimized) • 60 veg. caps	46.00	34.50	31.00			
00889	RHODIOLA EXTRACT • 250 mg, 60 veg. caps	14.00	10.50	9.00			
01900	RIBOGEN™ FRENCH OAK WOOD EXTRACT 200 mg, 30 veg. caps	36.00	27.00	24.75			
00972	(D) RIBOSE POWDER • 150 grams	27.50	20.63	18.56			
01473	(D) RIBOSE TABLETS • 100 veg. tabs	32.00	24.00	21.00			
01609	RICH REWARDS® BREAKFAST GROUND COFFEE • 12 oz. bag	13.00	9.75				
01730	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE Natural Mocha • 12 oz. bag	15.00	11.25	10.50			
01729	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE Natural Vanilla • 12 oz. bag	15.00	11.25	10.50			
01612	RICH REWARDS® BREAKFAST BLEND WHOLE BEAN COFFEE 12 oz. bag	13.00	9.75				
01610	RICH REWARDS® DECAFFEINATED ROAST GROUND COFFEE 12 oz. bag	14.00	10.50				
01208	R-LIPOIC ACID (Super) • 240 mg, 60 veg. caps	49.00	36.75	33.75			
00070	RNA CAPSULES • 500 mg, 100 caps	17.95	13.46	12.12			
S							
01432	SAFFRON W/SATIEREAL® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
01935	SAME (S-ADENOSYL-METHIONINE) 200 mg, 30 enteric coated tablets	25.00	18.75	16.50			
01933	SAME (S-ADENOSYL-METHIONINE) 400 mg, 30 enteric coated tablets	36.00	27.00	24.00			
SUBTOTAL OF COLUMN 9							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01934	SAME (S-ADENOSYL-METHIONINE) 400 mg, 60 enteric coated tablets	66.00	49.50	45.00			
01740	SEA-IODINE™ • 1,000 mcg, 60 veg. caps	8.00	6.00	5.40			
00046	SELENIUM • 2 fl. oz dropper	11.95	8.96				
01879	SE-METHYL L-SELENOCYSTEINE • 200 mcg, 90 veg. caps	11.00	8.25	7.50			
00318	SERRAFLAZYME • 100 tablets	18.00	13.50	12.00			
01938	SHADE FACTOR • 120 veg. caps	44.00	33.00	30.00			
01884	SILYMARIN • 100 mg, 90 veg. caps	14.00	10.50	9.50			
01249	SINUS CLEANSER • 4 oz. bottle	25.00	18.75				
01596	SKIN RESTORING PHYTOCERAMIDES w/LIPOWHEAT® 30 liquid veg. caps	25.00	18.75	17.25			
00961	SODZYME® w/GLISODIN® & WOLFBERRY • 90 veg. caps	28.00	21.00	18.00			
00657	SOLARSHIELD® SUNGLASSES • Smoke color	12.99	9.74	8.63			
00432	STEVIA™ (Better) • 100 packets, 1 gram each	9.95	7.46				
00438	STEVIA™ ORGANIC LIQUID SWEETENER (Better) • 2 oz	11.00	8.25				
01476	STRONTIUM • 750 mg, 90 veg. caps	20.00	15.00	13.50			
01649	SUPER ABSORBABLE SOY ISOFLAVONES • 60 veg. caps	28.00	21.00	18.75			
01778	SUPER SELENIUM COMPLEX • 200 mcg, 100 veg. caps	14.00	10.50	9.00	8.25		
T							
02023	TART CHERRY W/CHERRYPURE® 60 veg. caps	20.00	15.00	14.00			
01827	TAURINE • 1,000 mg, 90 veg. caps	13.00	9.75	9.00			
01918	TEAR SUPPORT w/MAQUIBRIGHT® • 60 mg, 30 veg. caps	18.00	13.50	12.00			
00133	L-TAURINE POWDER • 300 grams	20.00	15.00	12.66			
*13685	TEN MUSHROOM FORMULA® • 120 veg. caps	39.95	33.96				
01304	THEAFLAVIN STANDARDIZED EXTRACT • 30 veg. caps	18.00	13.50	12.00			
01683	(L) THEANINE • 100 mg, 60 veg. caps	24.00	18.00	15.38			
**01038	THERALAC® PROBIOTICS • 30 caps	47.95	35.96				
00668	THYROID FORMULA (Metabolic Advantage™) • 100 caps	21.95	16.46				
00349	TMG POWDER • 50 grams	14.00	10.50	8.25			
01859	TMG • 500 mg, 60 liquid veg. caps	13.00	9.75	9.00			
01400	TOCOTRIENOLS (Super-absorbable) • 60 softgels	30.00	22.50	21.00			
01278	TOOTH PASTE • 4 oz (Mint) tube	9.50	7.13	6.50			
01917	TRANQUIL TRACT™ • 60 veg. caps	52.00	39.00	34.50			
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT 60 veg. caps	24.00	18.00	16.50			
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL • 60 veg. caps	32.00	24.00	22.20			
02003	TRIPLE ACTION THYROID • 60 veg. caps	36.00	27.00	24.00			
01803	TRI SUGAR SHIELD® • 60 veg. caps	36.00	27.00	24.00			
01386	TRUFIBER™ • 180 grams	32.95	24.71				
01389	TRUFLORA® PROBIOTICS • 32 veg. caps	42.95	32.21				
01722	L-TRYPTOPHAN • 500 mg, 90 veg. caps	33.00	24.75	22.50			
01721	TRYPTOPHAN PLUS (Optimized) • 90 veg. caps	32.00	24.00	21.75			
02116	TWO-PER-DAY • 60 tablets	10.50	7.88	7.13			
02115	TWO-PER-DAY • 120 tablets	20.00	15.00	13.50			
02114	TWO-PER-DAY • 120 caps	22.00	16.50	15.00			
00326	L-TYROSINE • 500 mg, 100 tablets	13.50	10.13				
SUBTOTAL OF COLUMN 10							

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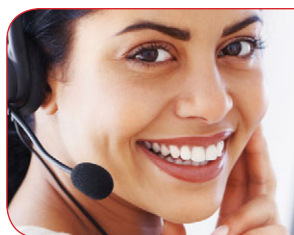
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ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
U, V							
01921	URIC ACID CONTROL • 60 veg. caps	24.00	18.00	16.50			
00213	VANADYL SULFATE • 7.5 mg, 100 veg. tablets	15.00	11.25	9.38			
02102	VENOFLOW • 30 veg. caps	52.00	39.00	36.00			
00408	VENOTONE • 60 caps	18.95	14.21	12.00			
01327	VINPOCETINE • 10 mg, 100 veg. tablets	18.00	13.50	10.50			
00372	VITAMIN B3 NIACIN • 500 mg, 100 caps	7.65	5.74	4.99			
00098	VITAMIN B5 • 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88	7.04			
01535	VITAMIN B6 • 250 mg, 100 veg. caps	12.50	9.38	8.25			
00361	VITAMIN B12 • 500 mcg, 100 lozenges	8.75	6.56	5.44			
01634	VITAMIN C w/DIHYDROQUERCETIN 1,000 mg, 60 veg. tablets	10.00	7.50	6.75			
00927	VITAMIN C w/DIHYDROQUERCETIN 1,000 mg, 250 veg. tablets	25.50	19.13	17.44			
00084	VITAMIN C POWDER (BUFFERED) • 454 grams	23.95	17.96	16.50			
01736	VITAMIN C-MAGNESIUM CRYSTALS (EFFERVESCENT) 180 grams	20.00	15.00	13.50			
01732	VITAMIN D3 • 2,000 IU, 1 fl. oz, Mint flavor	28.00	21.00	18.75			
01753	VITAMIN D3 • 1,000 IU, 90 softgels	7.00	5.25	4.50			
01751	VITAMIN D3 • 1,000 IU, 250 softgels	12.50	9.38	8.44			
01713	VITAMIN D3 • 5,000 IU, 60 softgels	10.00	7.50	6.50			
01718	VITAMIN D3 • 7,000 IU, 60 softgels	14.00	10.50	9.45			
01758	VITAMIN D3 W/SEA-IODINE™ • 5,000 IU, 60 caps	14.00	10.50	9.38			
00864	VITAMIN D3 LIQUID • 2,000 IU, 1 fl. oz	28.00	21.00	18.75			
01840	VITAMINS D AND K W/SEA-IODINE™ • 60 caps	24.00	18.00	16.50			
01863	VITAMIN E (Natural) • 400 IU, 90 softgels	28.00	21.00	19.50	18.00		
01936	VITAMIN K2 (Low dose) • 45 mcg, 90 softgels	18.00	13.50	12.00			
W							
01902	WAIST-LINE CONTROL™ • 120 veg. caps	42.00	31.50	28.50			
X, Y							
01919	X-R SHIELD • 90 veg. caps	15.00	11.25	9.75			
00409	XYLIWHITE™ MOUTHWASH • 16 oz	10.00	7.50				
Z							
01813	ZINC HIGH POTENCY • 50 mg, 90 veg. caps	7.95	5.96	5.25			
01561	ZINC LOZENGES • 60 veg. lozenges	9.00	6.75	6.00			
01961	ZINC LOZENGES (Enhanced) • 30 veg. lozenges	12.00	9.00	6.00			
**01051	ZYFLAMEND® WHOLE BODY • 120 liquid veg. caps	72.95	54.71				
BOOKS							
34002	THE 30-DAY HEART TUNE-UP by Steven Masley, MD • 2016	17.59	13.19				
33999	THE MENOPAUSE CURE by Jill D. Davey & Sergey Dzigan, MD • 2016	17.32	12.99				
33998	THE RIGHT TO TRY by Darcy Olsen • 2016	26.99	20.24				
33840	THE CRWAY® TO GREAT GLUCOSE CONTROL CD by Paul McGlothlin and Meredith Averill • 2016	189.00	189.00				
33890	FORTIFY YOUR LIFE by Tieraona Low Dog, MD • 2016	28.89	21.67				
33885	THE BLUE ZONES SOLUTION by Dan Buettner • 2015	26.00	19.50				
SUBTOTAL OF COLUMN 11							

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			1 Unit Each	4 Unit Each	10 Unit Each		
33880	OUTSTANDING HEALTH: THE 6 ESSENTIAL KEYS TO MAXIMIZE YOUR ENERGY AND WELL BEING by Michael Galtzer, MD & Larry Trivieri Jr. • 2015	24.95	18.71				
33878	TESTOSTERONE REPLACEMENT THERAPY by Dr. John Crisler • 2015	19.99	14.99				
33877	THE TRUTH ABOUT MEN AND SEX by Abraham Morgentaler, MD, FACS • 2015	16.99	12.74				
33876	TOX-SICK • by Suzanne Somers • 2015	26.00	19.50				
33875	DOCTORED: THE DISILLUSIONMENT OF AN AMERICAN PHYSICIAN • by Sandeep Jauhar • 2015	26.00	19.50				
33874	MISSING MICROBES • by Martin J. Blaser, MD • 2014	28.00	21.00				
33873	EATING ON THE WILD SIDE • by Jo Robinson • 2014	16.00	12.00				
33872	GET SERIOUS • by Brett Osborn, MD • 2014	24.95	18.71				
33868	TOXIN TOXOUT: GETTING HARMFUL CHEMICALS OUT OF OUR BODIES AND OUR WORLD • by Bruce Lourie and Rick Smith • 2014	25.99	19.49				
33867	THE COMPLETE MEDITERRANEAN DIET by Michael Ozner, MD • 2014	19.95	14.96				
33869	UNLEASH THE POWER OF THE FEMALE BRAIN by Daniel Amen, MD • 2014	16.00	12.00				
33870	MAGNIFICENT MAGNESIUM by Dennis Goodman, MD • 2014	14.95	11.21				
DPT05	DISEASE PREVENTION AND TREATMENT, EXPANDED FIFTH EDITION (Hardcover) • 2014	69.95	39.95	36.00			
33865	THE RESTORATION OF THE HUMAN BODY [IN 7 PARTS] by Sergey A. Dzigan, MD, PhD • 2014	29.95	22.46				
33862	I'M TOO YOUNG FOR THIS • by Suzanne Somers • 2013	26.00	19.50				
33835	PHARMOCRACY • by William Faloon • 2011	24.00	9.60	8.00			
33958	THE VITAMIN D SOLUTION by Michael F. Holick, PhD, MD (Paperback) • 2013	16.00	12.00				
33838	YOUR GUIDE TO HEALTHY SKIN THE NATURAL WAY by Gary Goldfaden, MD • 2012	26.00	15.00				
33815	KNOCKOUT • by Suzanne Somers • 2009	25.99	17.00				
33809	TESTOSTERONE FOR LIFE by Abraham Morgentaler, MD • 2008	16.95	11.87				
33696	LIFE EXTENSION REVOLUTION by Philip Lee Miller, MD (Paperback)	16.00	12.00				
33805	MIAMI MEDITERRANEAN DIET WITH 300 RECIPES by Michael D. Ozner, MD, FACC, FAHA (Hardcover) • 2008	24.95	16.25				
33803	WHAT YOUR DOCTOR MAY NOT TELL YOU ABOUT DIABETES by Steven V. Joyal, MD • 2008	14.99	10.49				
SUBTOTAL OF COLUMN 12							

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1. *Age (Dordt)*. 2014 Apr;36(2):641-63.
2. *Clin Sci (Lond)*. 2013 Apr;124(8):491-507.
3. *J Mol Med (Berl)*. 2011 Jul;89(7):667-76.
4. *Biotechnol Lett*. 2012 Sep;34(9):1607-16.
5. *Obesity (Silver Spring)*. 2014 Jan;22(1):63-71.



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Magazine



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