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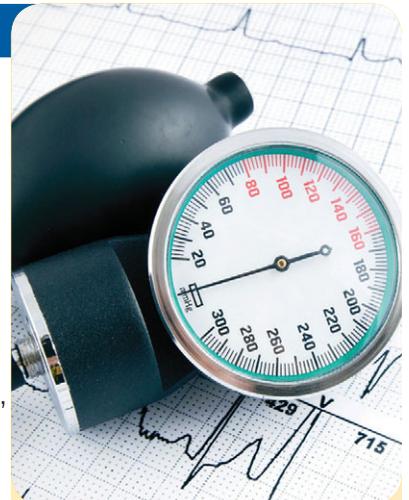
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A recent study published in the *New England Journal of Medicine* further validates **Life Extension**[®]'s long-held position that most people should keep their **blood pressure below 120/80 mmHg**. In this landmark study, those whose blood pressure was aggressively reduced had a **43% lower** risk of **cardiovascular death**. It's unfortunate that the medical profession has taken over 30 years to recognize that **lower** blood pressure enables humans to live longer!

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Attn: Letters to the Editor, PO Box 407198, Fort Lauderdale, FL 33340
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LIFE EXTENSION (ISSN 1524-198X) Vol. 22, No. 11 ©2016 is published monthly except bi-monthly in April by LE Publications, Inc. at 3600 West Commercial Blvd., Fort Lauderdale, FL 33309-3338. **LE Publications, Inc. All rights reserved.** Published 13 times a year. Subscription rate: \$40 per year in the United States. US \$47 in Canada. US \$60 in other countries. Mail subscriptions or address changes to: LE Publications, Inc., P.O. Box 407198, Fort Lauderdale, FL 33340-7198, USA. Or phone us toll-free at: 1-800-841-5433. Canada Subscriptions: Publications mail agreement number 40028967. Return undeliverable Canadian addresses to PO Box 503, RPO West Beaver Creek, Richmond Hill, ON L4B4R6. You will be sent your first issue within six weeks after LE Publications, Inc. receives your subscription fee. Periodicals Postage paid at Fort Lauderdale, FL and at additional mailing offices. **POSTMASTER:** Send address changes to Life Extension, P.O. Box 407198, Ft. Lauderdale, Florida 33340-7198, USA. Printed in USA. The articles in this magazine are intended for informational purposes only. They are not intended to replace the attention or advice of a physician or other health-care professional. Anyone who wishes to embark on any dietary, drug, exercise, or other lifestyle change intended to prevent or treat a specific disease or condition should first consult with and seek clearance from a qualified health-care professional. **LEGAL NOTICE:** Health claims contained in articles and advertisements in this publication have not been approved by the FDA with the exception of FDA approved qualified health claims for calcium, antioxidant vitamins, folic acid and EPA and DHA omega-3 fatty acids, and selenium as noted where applicable. Life Extension[®] does not endorse any of the businesses or the products and/or services that may appear in advertisements for non-Life Extension branded products or services contained in Life Extension magazine[®] except to state that they are advertisers who may have paid Life Extension for placement of an advertisement in this publication. Life Extension disclaims any and all responsibilities or warranties as to the accuracy of information contained in advertisements for non-Life Extension branded products or services. For Canadian customers send change of address information and blocks of undeliverable copies to P.O. Box 1051, Fort Erie, ON L2A 6C7.



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Magazine

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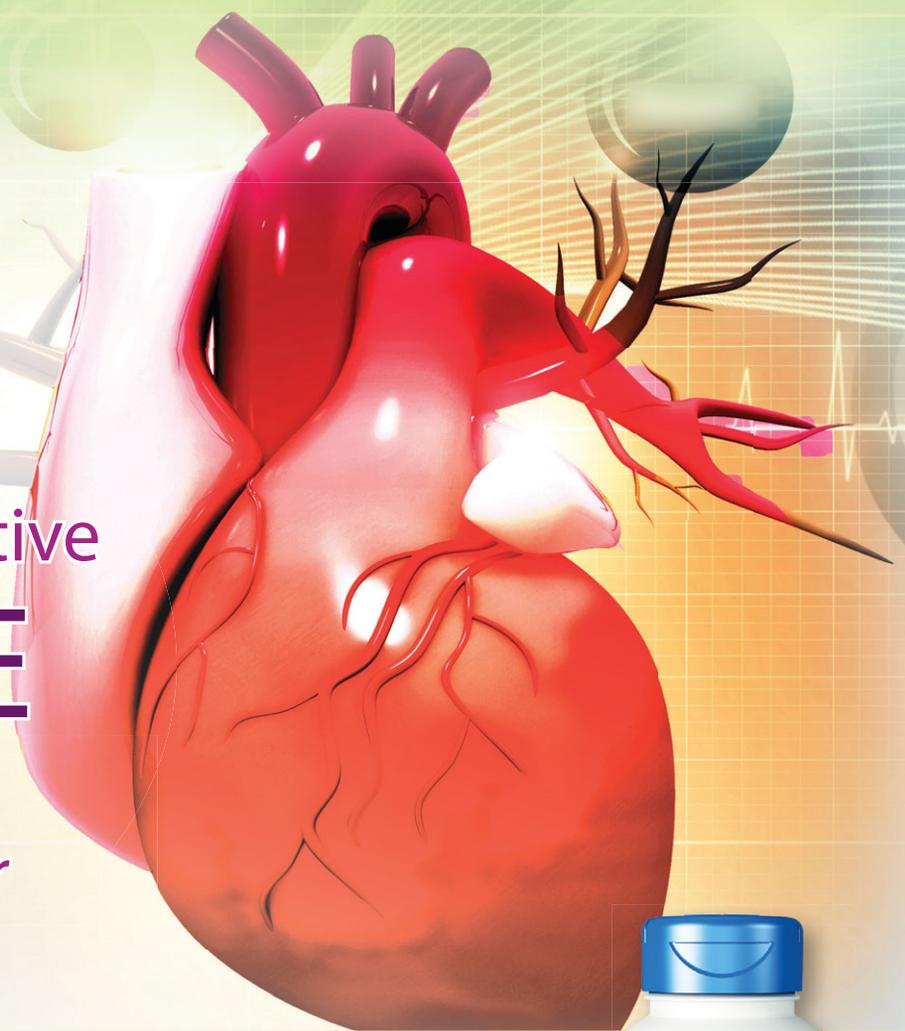
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Lower Blood Pressure *Empowers* Longer Life



BY WILLIAM FALOON

A lot of people ask how **Life Extension**[®] is able to be consistently ahead of the curve when it comes to identifying modifiable **disease risk** factors.

I initially found it hard to answer this since our recommendations are based on the identical peer-reviewed literature that is often published by the **medical establishment** itself.

The reply to this question I now give relates to **motivation** and **interpretation**.

We at **Life Extension** don't want ill health to befall our supporters...ever! We therefore **interpret** statistical data with the **motivation** to thwart degenerative disease for an **indefinite** time period.

So it was not hard for us to notice long ago that people with lower **blood pressure** lived considerably longer. Our recommendation relating to blood pressure therefore has always been to keep readings below **120/80 mmHg**, with an ideal number for most individuals being **115/75 mmHg**.

The medical establishment disagreed and said that blood pressure up to **139/89 mmHg** was not a problem. A huge study released in **2015** exposed the lethality of this position. In the group whose target goal systolic blood pressure was below **120** there was a:¹

- **38% lower relative risk of heart failure;**
- **43% lower relative risk of cardiovascular death;**
- **27% lower relative risk of mortality overall.**

This article will review the establishment's multi-decade failure to recognize the dangers of **higher** blood pressure. More important, we will reveal how you can **safely** lower blood pressure to what most all parties now concur are **optimal** ranges.



Hypertension is the term used to define **high blood pressure**.

A simple dictionary definition of hypertension is “**abnormally high blood pressure.**”

A medical definition of hypertension is “**blood pressure high enough that it may eventually cause health problems, such as heart disease.**”²

The problem over the past **49 years** is that the medical establishment has mostly relied on the **dictionary** definition to diagnose **hypertension**. Since most aging people have blood pressure over 120/80 mmHg, physicians viewed this as “*normal*” and did nothing until levels exceeded **139/89 mmHg**.

To understand the magnitude of this, **one** of every **three** adults in the United States has blood pressure readings over 139/89 mmHg.³ When you include those with readings over 120/80 mmHg, it's easy to see why so many people suffer disorders related to **hypertension**.

Stated simply, the vast majority of adults have blood pressure **high** enough to cause heart disease and other health issues.

How Life Extension Realized This So Early

The gold standard for identifying beneficial **longevity** factors has long been to look at **biomarkers** in people that practice **calorie restriction**.

Calorie restrictors don't behave like most of us, especially when viewing the toxic high-calorie foods that are endlessly advertised on television. As a result of their reduced food intake, calorie restrictors' **glucose, insulin, and lipid** blood levels are remarkably low. So is their **blood pressure**.

Without taking medications, calorie restrictors over age 50 often have blood pressure readings around **90/60 mmHg** and they are in remarkably good health.

We at **Life Extension** recognized this phenomenon in the **1980s** and recommended most people strive to maintain blood pressure readings below 120/80 mmHg to emulate this longevity benefit observed in people practicing calorie restriction.

New Study Wakes Up Medical Establishment!

A large human study was initiated in year **2010** whose purpose was to assess whether targeting a reduction of **systolic** blood pressure below 120 mmHg was superior to the current standard of reducing it to below 140 mmHg.

The doctors focused on the **systolic** (top) number because it is a better predictor of heart attack and stroke. The “*systolic*” reading reflects the amount of **pressure** placed on the arterial system with each heartbeat.

The name of this study is **Systolic Blood Pressure Intervention Trial**, also known as **SPRINT**.¹

It was published in the *New England Journal of Medicine* in **2015** and garnered huge media coverage.

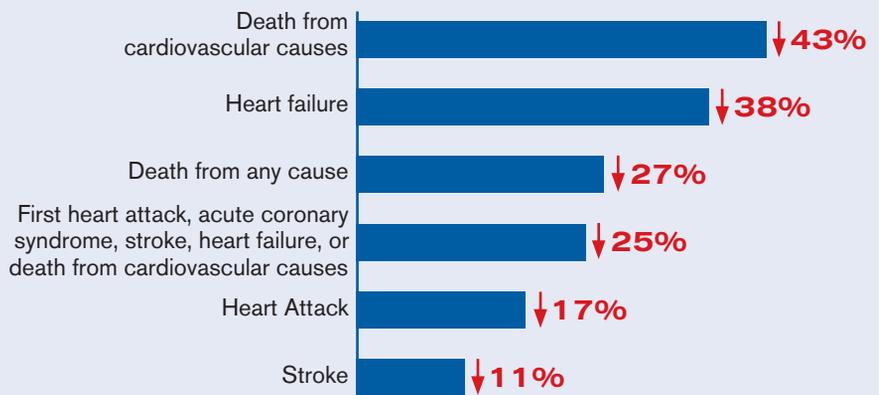
The **SPRINT** study was supposed to last **5 years**, but was stopped after **3.26 years** because it was abundantly clear that the group whose blood pressure was reduced to a target systolic range under 120 mmHg were dying **26% less** frequently.

What impressed the study's researchers the most was a striking **43% lower** relative risk of **cardiovascular death** in those whose blood pressure was aggressively reduced.

The **SPRINT** study also found that **heart failure** rates plummeted by **38%** in patients whose target blood pressure aimed below 120 mmHg. Heart failure occurs when the heart cannot pump enough blood and oxygen to support other organs in one's body. It is a leading cause of hospitalizations and costs this nation an estimated **\$32 billion** each year.⁴

Heart disease happens to be the number one cause of death in the United States, killing about **610,000** Americans each year.⁵ The dramatic (**43%**) drop in **cardiovascular deaths** shown in the **SPRINT** study

Risk Reduction of Intensive Treatment (Below 120) Compared to Standard Treatment (Below 140)



This chart shows reductions in death and disease when systolic blood pressure target is below **120** compared to below **140**.



motivated mainstream cardiologists to question their long-standing practice of largely ignoring their patient's blood pressure until readings exceeded **139/89 mmHg**.

Based on widespread media coverage and physician concurrence, it appears the medical establishment has finally woken up to what readers of this publication were told to do in the **1980s**.

Historic Failures to Recognize Disease Causation

It is regrettable that practicing clinicians did not bother to observe that patients with blood pressure readings over **120/80 mmHg** had elevated rates of cardiac death. But then again, it took decades of research to raise suspicion of a causative role of **cigarette smoking** in the development of **lung cancer**.

Physicians in the **1930s** were certainly aware that respiratory illnesses happened with greater frequency in **smokers**. Yet it took decades of published research for the tobacco-disease causation issue to be raised, and it wasn't until 1964 that the **Surgeon General** stated that smoking increases risk for a host of deadly illnesses.⁶

A similar scenario has occurred with the debate as to what the safe upper limit for **blood pressure**

should be. Persuasive evidence and common sense long ago indicated that **Life Extension's** recommendation of **115/75 mmHg** would spare many lives compared to the establishment's position that blood pressure readings up to **139/89 mmHg** were alright.

How Many Preventable Deaths?

Each year about **2.5 million** Americans die.⁷ This number is expected to steadily rise as the aging population increases. **Life Extension's** fundamental mission is to reverse this upward mortality trend in aging humans.

We wanted to glean some idea as to how many needless deaths occurred because it took the medical establishment so long to recognize the lifesaving benefits of lower blood pressure ranges. So we took the most conservative percentage of death reduction found in the **SPRINT** study, which was a **27% reduction** in overall **mortality** in people age 50 and older. We then did a calculation using the approximate 2 million total deaths that have occurred each year in the United States in people age 50 and older dating back to year 1985.

Based on this **27% reduction** in all-cause mortality, about **540,000** American lives could have been spared each year had the medical establishment adopted **Life Extension's** recommendation to keep blood pressure levels below **120/80 mmHg**.

This number of **540,000** annual deaths that could have been prevented is of course an exaggeration. It assumes that everyone ages 50 and older would have had their blood pressure checked and followed an aggressive program to reduce it to safe ranges. The reality is that hypertension is a "silent

Similar to Controversy about Glucose

You may recall that in the **1980s**, fasting blood **glucose** levels up to **139 mg/dL** were considered "normal" by the establishment. Conventional doctors today consider a glucose level over **125 mg/dL** indicative of **type II diabetes**. A glucose level over **99 mg/dL** can diagnose **prediabetes**.

Based on blood results obtained from **calorie restrictors** in the **1980s**, we at **Life Extension** knew that conventional medicine's upper limit for glucose was dangerously high. We advised back then that people strive to keep their glucose levels below **100 mg/dL**. Since then, we advised that optimal **fasting glucose** levels are below **86 mg/dL**, which is not always possibly to attain.

Reducing **blood pressure** is simpler (than glucose) for most individuals to achieve using a combination of lifestyle changes, nutrients, and the appropriate antihypertensive medications when necessary.

AS WE SEE IT

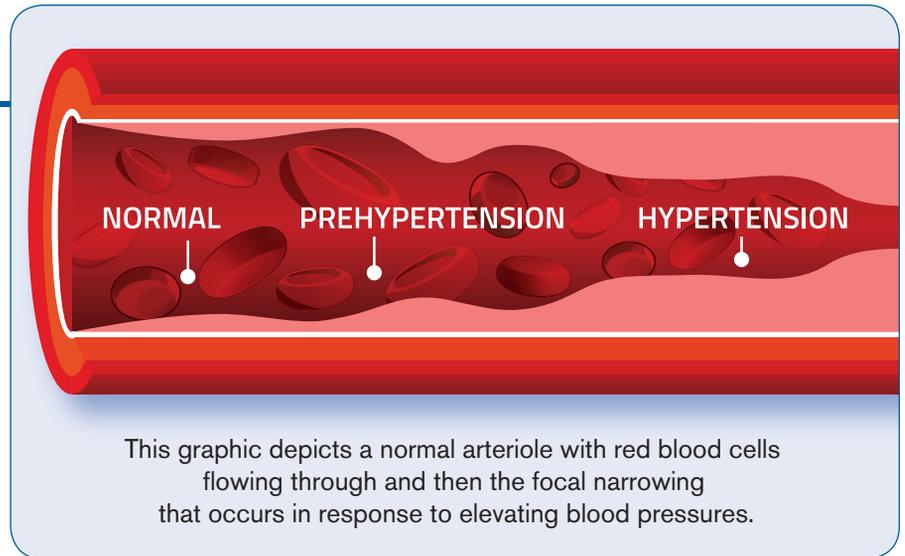
killer” and many people don’t know they have it. Patients prescribed antihypertensive drugs and lifestyle changes often don’t comply.

There were nonetheless **tens of millions** of Americans treated for hypertension since **1985**, with the physician’s goal being to reduce it only to under **140/90 mmHg**. This is where the needless carnage arose and where mainstream medicine needs to look at this failure as an example of the cost in human lives that occurs when published studies and common sense are discarded.

Our Delicate Vasculature

The extremely **fragile** nature of our vascular system remains an unappreciated phenomenon.

In youth, our arteries are flexible and readily expand and contract with each heartbeat as do our delicate **capillary** beds. As you can see by the illustration on this page, **arteries** narrow into smaller **arterioles** that eventually thin further down to microscopic **capillaries**. These capillaries are so **tiny** that red blood cells often have to bend their shape just to squeeze



through and be returned to the venous system.

With each heart beat there is **blood pressure** exerted on arteries, arterioles, and delicate capillary beds. When blood pressure is in a perfect range, oxygen/nutrient enriched blood is delivered to all the body’s cells and returned to the heart with minimal damage to the vascular system.

Any increase in the **pressure** beyond what is needed to push blood through the vascular network causes additional stress and **endothelial** damage. This can manifest acutely in the form of a **cerebral hemorrhage**, where an arteriole in the brain ruptures and may quickly lead to death.

In most cases of higher-than-needed blood pressure, however, silent damage is constantly inflicted on the inner arterial lining (the endothelium) including the delicate capillaries.⁸ The result is a progressive loss of blood flow and cellular functionality that can manifest as ischemic heart disease,⁹⁻¹¹ ischemic stroke,¹²⁻¹⁴ renal failure,^{15,16} and/or dementia.¹⁷⁻²¹

It was this fundamental understanding of the delicate structure of the vascular system that prompted **Life Extension** to recommend lower blood pressure ranges in the **1980s**.

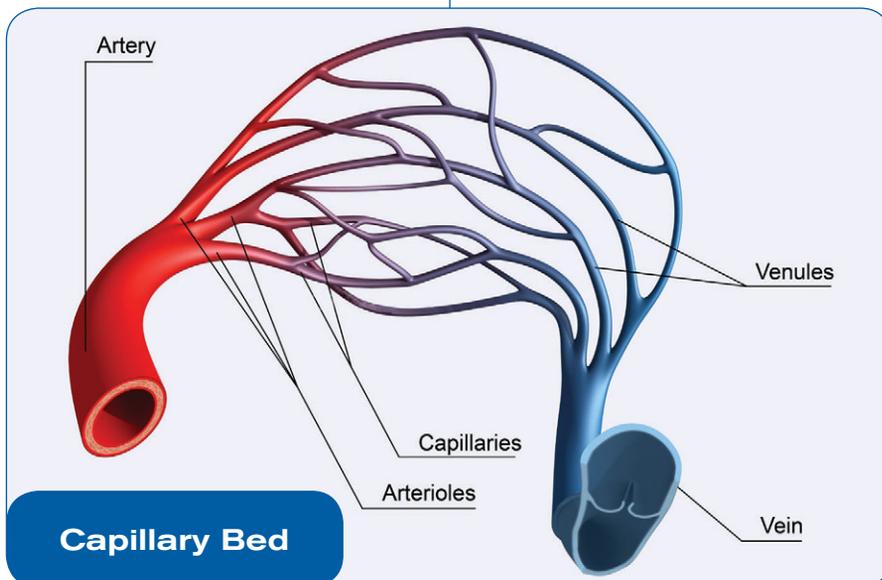
Fallacy of “Prehypertension”

Not all physicians have been oblivious to the increased vascular risks in people with higher systolic blood pressure.

The term “prehypertension” was introduced to alert people that systolic pressure between **120** and **139 mmHg** was reason to initiate lifestyle changes or modest drug therapy.

The problem with using the term prehypertension is that it caused patients and physicians to not take seriously the dangers it represents.

A systematic review on the clinical relevance of prehypertension was published in **2013** and



revealed more increases in vascular risk than the carefully controlled **SPRINT** study.

The authors of this **2013** review performed an analysis of 18 previous studies that included a whopping **468,561** patients. They found that patients with **prehypertension** had a:²²

- **55%** increased risk of cardiovascular disease,
- **50%** increased risk of coronary heart disease,
- **71%** increased stroke risk.

The authors went a step further and looked at people in the low prehypertension range, defined by systolic blood pressure of just **120** to **129 mmHg**. Risk of cardiovascular disease in this prehypertension group was **46%** higher than for individuals with systolic blood pressure levels below **120 mmHg**.

According to this very large analysis, even lower-range **prehypertension** has a significant impact on morbidity and mortality, which is why **Life Extension** has urged for so long that *optimal* blood pressure readings are **115/75 mmHg**.

Based on the totality of the evidence, the term “prehypertension” should be **discarded** and most adults with systolic blood pressure over **119 mmHg** should face the reality that they are **hypertensive** from a medical definition standpoint, i.e., they are at an increased risk of health problems.

This is analogous to the term **prediabetes**, which is used today to describe people with **fasting glucose** between **100-125 mg/dL**. These individuals should instead be diagnosed as “**diabetic**” and treated accordingly. This includes lifestyle modifications that safely reduce blood glucose levels to optimal ranges.

Please know that upper-level acceptable systolic blood pressure readings at one time were considered a startling high of **160 mmHg**. They were later reduced to **150 mmHg**, then to **140 mmHg**, and mercifully now down to **120 mmHg**.

Do Not Rush to Lower Blood Pressure

The **SPRINT** study was released in **2015** and is likely to be a game-changer as it relates to better guidelines for blood pressure control. There were, however, limitations that cause us to urge caution before initiating steps to drastically lower your blood pressure.

The **SPRINT** study was of relatively short duration and longer term side effects from the aggressive **drug therapies** may not be fully understood.

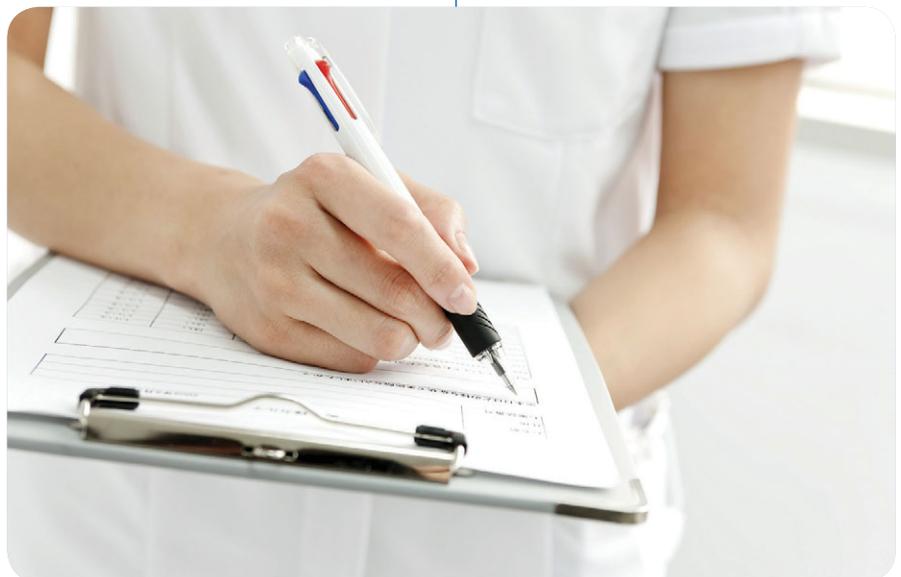
Type II diabetics were excluded from **SPRINT** because a previous trial on diabetics called **ACCORD** failed to show a benefit in aggressively reducing their blood pressure.²³ This failure may reflect the devastating impact on the vascular

system inflicted by the elevated **glucose** levels seen in diabetics. Said differently, the severity of the **endothelial** damage that diabetics sustain might overwhelm the beneficial effects of aggressively lowering their systolic blood pressure.

Those who have had chronic higher blood pressure levels often suffer considerable damage to their delicate **endothelial** linings.^{8,24} An unfortunate consequence for some individuals is that they need to maintain somewhat **higher** blood pressure levels to provide adequate blood flow to the capillaries in their brain, kidneys and other tissues.

We have discussed this problem in previous issues of this publication, whereby those with severely damaged capillary beds require higher blood pressure to sustain organ/tissue function, even though over the longer term this higher pressure on the arterial system inflicts additional damage to the **endothelium**.²⁵

The sad case for some individuals is that taking overly aggressive steps to push down blood pressure levels could create side effects such as hypotension, which causes one to faint.



A more serious effect observed in the SPRINT study was that there was almost a **3.5-fold increased** risk of **kidney damage** in those aggressively treated for hypertension using multiple drugs. It is not known if it was the multiple drugs or overly aggressive lowering of the blood pressure that caused this kidney damage.

The authors of the SPRINT study were quick to point out that the huge reductions in **morbidity** and **mortality** in the aggressively-treated hypertensive group far outweighed the side effect risks observed. As one outside doctor who critiqued the study stated, *“If there is a problem with an individual patient, you can always back off.”*²⁶

Providing You with Real World Guidance

The encouraging news about all this is that if one intelligently embarks on a program to reduce their blood pressure to more optimal ranges, there are simple **blood tests** available that can identify if adverse effects are occurring in response to overly aggressive drug treatment.

These and other commonsense approaches to achieving optimal blood pressure levels are described in articles contained in this month’s issue. Readers should understand that the more one is willing to make healthier **lifestyle changes**, the less in the way of antihypertensive

drugs they are likely to need, which should translate into a lower side effect risk profile.

We published an article 1.7 years ago that describes the ideal antihypertensive drug to begin with. This drug (**telmisartan**) not only lowers blood pressure in what we consider the most efficient manner, but has side benefits that include improvements in endothelial function and survival not seen with other antihypertensive medications.

Challenges in Persuading Our Supporters

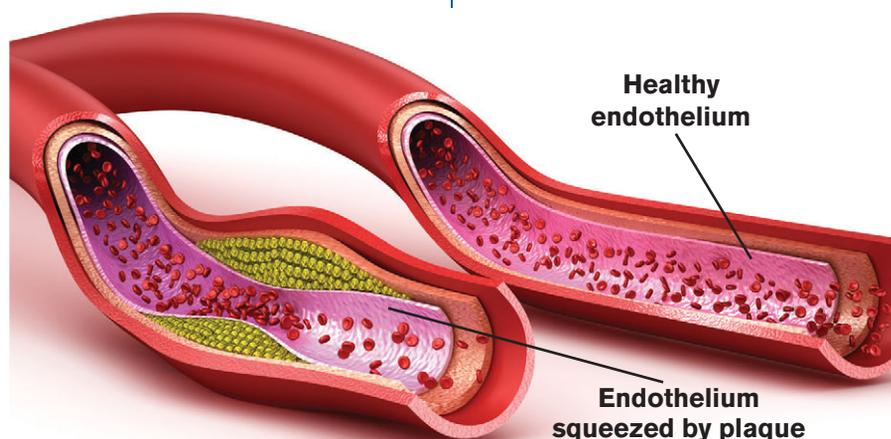
I’ve been involved in helping people avoid degenerative illness since the 1970s.

One of my greatest challenges has been to persuade health-conscious individuals that they may need a **prescription medication** to optimize their blood pressure.

An argument I’ve encountered from people who eat properly, exercise, and take dietary supplements is that they don’t think they have to worry about slightly elevated blood pressure. While all these healthy practices can help protect against **endothelial dysfunction**, one cannot overlook the structural damage inflicted to our vasculature by higher-than-optimal **blood pressure**.

I also have run into resistance by people who think a blood pressure check several times a year at their doctor’s office is sufficient.

Based on my personal experience with my **at-home** blood pressure monitor, I know that my **systolic** pressure can range from a low of **95 mmHg** to a high of **140 mmHg** under stressful circumstances. When I see my blood pressure any level above **115/75 mmHg**, I take an extra **40 mg** dose of the drug **telmisartan** to reduce it.



Our Precious Endothelium

Our **inner arterial lining** is called the **endothelium**.

The **endothelium** is an ultra-thin, one-cell-thick layer of cells. It loses youthful function in response to normal aging.

An underappreciated factor in the development of cardiovascular disease is **endothelial dysfunction**. The consequences of **endothelial dysfunction** are diminished circulation, high blood pressure, thrombosis, and atherosclerosis, all of which are major causes of **stroke** and **heart attack**.²⁷⁻³¹

Fortunately, astute scientists have discovered potent natural methods to tackle the underlying causes of **endothelial dysfunction**.

In addition to nutritional/lifestyle interventions, maintaining optimal **blood pressure** readings is essential to protect against loss of **endothelial function**.

If I did not have an at-home blood pressure monitor, I would never have known my blood pressure spiked this high.

To make matters worse, your **endothelium** does not give you credit for the period of the day when your blood pressure is lower. It is during periods when blood pressure spikes up that massive vascular damage occurs. So I hope

every one of you has an **at-home blood pressure monitor** based on our previous recommendations. As you can see on page 14, the price has come down considerably from what they cost just a few years ago.

To learn more about the blood pressure lowering drugs we favor, you can log on at no cost to:

LifeExtension.com/hypertension

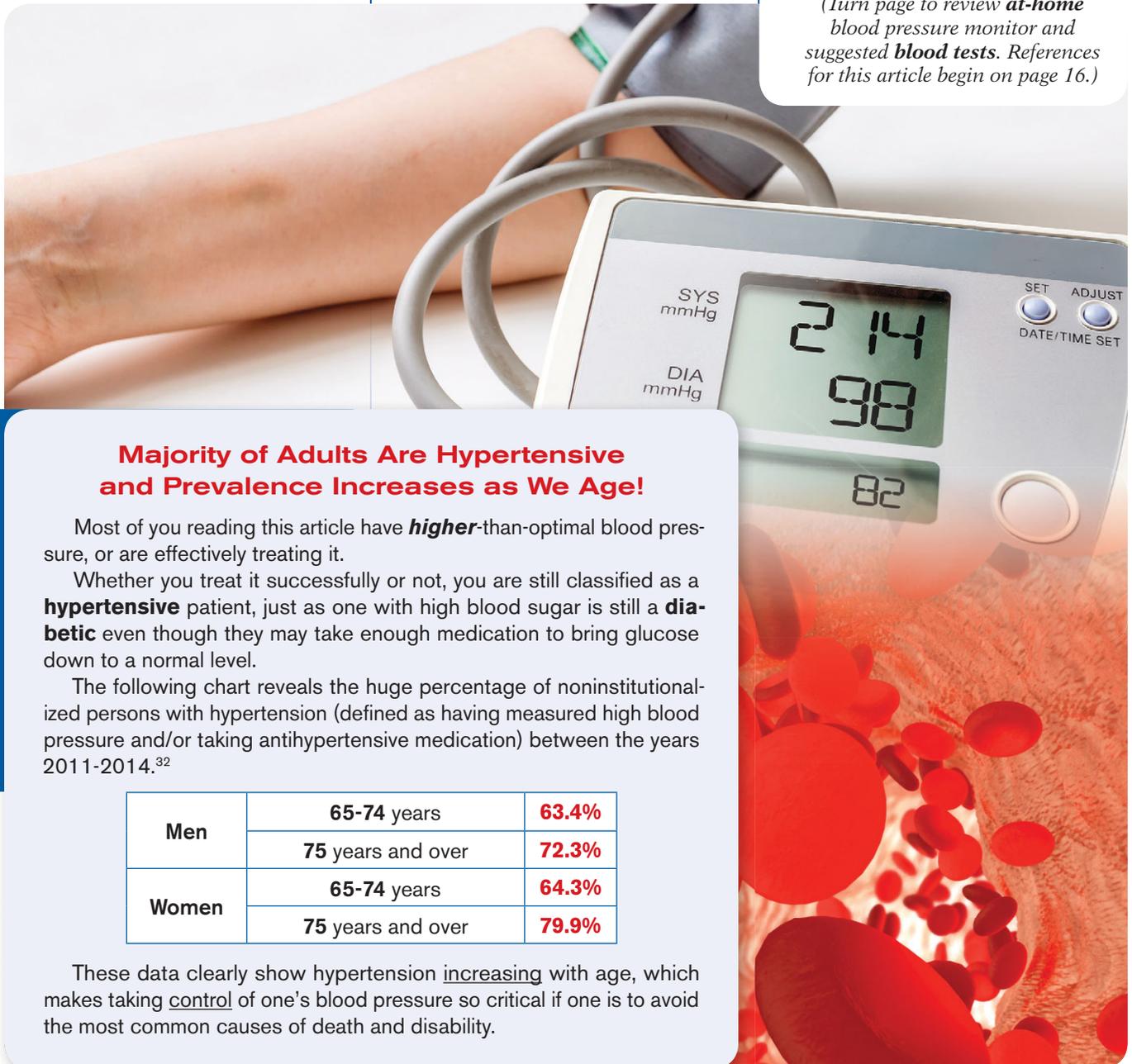
These drug recommendations are not based on commercial interests, just our sincere desire to keep you alive and healthy for decades to come.

For longer life,



William Faloon

*(Turn page to review **at-home** blood pressure monitor and suggested **blood tests**. References for this article begin on page 16.)*



Majority of Adults Are Hypertensive and Prevalence Increases as We Age!

Most of you reading this article have **higher**-than-optimal blood pressure, or are effectively treating it.

Whether you treat it successfully or not, you are still classified as a **hypertensive** patient, just as one with high blood sugar is still a **diabetic** even though they may take enough medication to bring glucose down to a normal level.

The following chart reveals the huge percentage of noninstitutionalized persons with hypertension (defined as having measured high blood pressure and/or taking antihypertensive medication) between the years 2011-2014.³²

Men	65-74 years	63.4%
	75 years and over	72.3%
Women	65-74 years	64.3%
	75 years and over	79.9%

These data clearly show hypertension increasing with age, which makes taking control of one's blood pressure so critical if one is to avoid the most common causes of death and disability.

Is Your Blood Pressure in Check?



Take Charge of Hypertension!

Many physicians recommend that patients check their blood pressure at home on a regular basis. Now you can do so with the easy-to-use **AccuFit™ Plus Cuff Multi-User Blood Pressure Monitor**. It provides:

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

Blood Sugar:

- Fasting glucose

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 Differentiation Count
- Platelet count

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Tart Cherry Supplementation Benefits Athletic Performance

A study published in the *Journal of the International Society of Sports Nutrition* found that short-term supplementation with **powdered cherries** boosted athletic performance in test subjects.*

Researchers were curious to determine whether use of a tart cherry supplement prior to and following strenuous endurance exercise would affect markers of oxidative stress, muscle damage, inflammation, and muscle soreness.

In a double-blind study, eighteen men and nine women, all endurance-trained runners or triathletes, were randomly assigned to ingest capsules containing **480 mg** of either a placebo or the powdered cherries and then asked to complete a half-marathon run. Fasting blood samples and quadriceps muscle-soreness ratings were taken before the run and later at one, 24 and 48 hours post-run. Subjects who took the cherry powder averaged **13% faster** half-marathon finish times compared to the placebo group. They also had inflammatory markers that were **47% lower**. Additionally, the cherry group's post-run muscle pain faded faster compared to the placebo group.

Editor's Note: In addition, the study's results revealed that aerobically trained individuals using supplementation of powdered tart cherries prior to an endurance challenge had reduced immune and inflammatory stress, attenuated markers of muscle catabolism, better maintained redox balance, and increased performance.

**J Int Soc Sports Nutr.* 2016 May 26.

Nicotinamide Riboside Shows Promise in Regenerative Medicine

An article published in the journal *Science* reveals more positive findings for **nicotinamide riboside**, a natural compound that is a precursor of nicotinamide adenine dinucleotide (NAD+), found in all living cells.*

A team from École Polytechnique Fédérale de Lausanne, along with researchers from Zurich, Canada and Brazil, found that treatment with **nicotinamide riboside** rejuvenated muscle stem cells in aged mice and prevented muscle stem cell senescence in a mouse model of muscular dystrophy. They also determined that the compound delayed the senescence of neural and melanocyte stem cells in addition to increasing lifespan in mice.

The team identified the molecular chain that regulates the function of mitochondria (the cells' energy-producing organelles) and how mitochondria change during aging. **"We were able to show for the first time that their ability to function properly was important for stem cells,"** announced lead researcher Johan Auwerx.

Editor's Note: "We gave nicotinamide riboside to two-year-old mice, which is an advanced age for them," explained first author and PhD student Hongbo Zhang. "This substance, which is close to vitamin B3, is a precursor of NAD+, a molecule that plays a key role in mitochondrial activity. And our results are extremely promising: muscular regeneration is much better in mice that received nicotinamide riboside, and they lived longer than the mice that didn't get it."

* *Science.* 2016 Apr 28.



Treatment of TIA with Aspirin Could Help Prevent Stroke

An article in *The Lancet* suggests that the use of **aspirin** by individuals experiencing transient ischemic attack (TIA) could reduce the risk of a major stroke during the days following the event.*

“The risk of a major stroke is very high immediately after a TIA or a minor stroke, but only for a few days,” explained researcher Peter Rothwell from Nuffield Department of Clinical Neurosciences, John Radcliffe Hospital, Oxford, UK. He added, “We showed previously...that urgent medical treatment with a ‘cocktail’ of different drugs could reduce the one-week risk of stroke from about **10%** to about **2%**, but we didn’t know which component of the ‘cocktail’ was most important.”

It was discovered that aspirin’s benefit primarily occurred during the weeks following a TIA and that it was associated with a **70% to 80%** reduction in the early risk of fatal or disabling stroke in contrast with the **15%** reduction in long term stroke risk uncovered by previous research.

Editor’s Note: Dr. Rothwell elaborated, “Our findings confirm the effectiveness of urgent treatment after TIA and minor stroke, and show that aspirin is the most important component.”

**The Lancet*. 2016 May 18.



Testosterone Treatment Does Not Increase Prostate Cancer Risk

The risk of prostate cancer is not higher for men who have received **testosterone replacement** therapy compared to those who have not, according to a study that analyzed Swedish medical data on over a quarter of a million patients. The research was presented at the annual meeting of the American Urological Association in San Diego, California.*

The study, conducted by New York University Langone Medical Center, was aimed at helping settle the debate over the supposed link between testosterone replacement therapy and prostate cancer risk. Researchers found that not only was there no increase in risk, but men who received testosterone replacement therapy for more than a year had a **50% lower** chance of developing an aggressive form of prostate cancer in comparison with their non-treated counterparts.

Up to now, there had been concern that testosterone replacement therapy might be linked to prostate cancer, because the disease is often treated with drugs that radically lower levels of male sex hormones.

Life Extension® refuted this false notion **19 years** ago by pointing out numerous studies showing higher levels of testosterone are **NOT** associated with increased prostate cancer risk.

Editor’s Note: Lead investigator Stacy Loeb, assistant professor of urology and population health at New York University and a specialist in prostate cancer, said, “Based on our findings, physicians should still be watching for prostate cancer risk factors—such as being over the age of 40, having African American ancestry, or having a family history of the disease—in men taking testosterone therapy, but should not hesitate to prescribe it to appropriate patients for fear of increasing prostate risk.”

*American Urological Association in San Diego, California, May 6-10, 2016.



Lack of Vitamin D Prevalent among Type I Diabetic Youths

A recent article appearing in *Diabetes Research and Clinical Practice* revealed a high risk of deficient **vitamin D** levels in type I diabetic adolescents and children.*

Terri Lipman, PhD, CRNP, FAAN, and colleagues at the School of Nursing, University of Pennsylvania, evaluated the 25-hydroxyvitamin D and glucose levels of 197 diabetic children and adolescents who were seen by the Diabetes Center for Children at the Children’s Hospital of Philadelphia. Levels of hemoglobin A1c (a measure of diabetes control), and other factors were ascertained from patient records.

Deficient vitamin D levels of less than **20 ng/mL** were present in **40.6%** of the diabetic subjects and **49.2%** had insufficient levels ranging from **20 ng/mL to 30 ng/mL**. Only **10.2%** had levels higher than **30 ng/mL**.

Editor’s Note: According to the authors, the data suggest the need for monitoring of vitamin D levels in all young type I diabetics.

**Diabetes Res Clin Pract*. 2016 Mar 12.





Meta-Analysis Finds Calcium Protects Against Adenoma

The *World Journal of Gastroenterology* published the results of a systematic review and meta-analysis of randomized trials that indicate a protective effect for **calcium** supplementation against the risk of colorectal adenoma, a precursor of colorectal cancer.*

European researchers from Humanitas Clinical and Research Center, Milan, Italy, selected four trials that compared the effects of **1,200 mg** to **2,000 mg** of elemental calcium per day to a placebo against the risk of colorectal adenoma during up to 60 months of treatment and follow-up. Subjects included men and women with resected colorectal cancer or those who had colorectal adenomas surgically removed prior to enrollment. Colonoscopic examinations conducted over the follow-up periods ascertained colorectal adenoma recurrence.

All of the trials reported a lower incidence of colorectal adenomas in the calcium group. The meta-analysis determined that subjects who received calcium experienced a **10% to 15%** lower risk of adenoma recurrence compared with those who received the placebo.

Editor's Note: The authors note that calcium may protect against colorectal neoplasia by binding bile and fatty acids, which reduces their carcinogenic effects on colon epithelial cells. Additionally, the mineral has a direct antiproliferative effect on cells and promotes cellular differentiation and apoptosis (programmed cell death). The dose used, however, is higher than what most people should take in supplement form. For bone health, most women should take about **700 mg** of elemental calcium a day, whereas men should take about **500 mg** daily.

**World J Gastroenterol.* 2016 May 14.

Inflammation is Likely Culprit in GERD-Related Esophagitis

Research published in the *Journal of the American Medical Association* implicates an inflammatory reaction triggered by the presence of stomach acid in the esophagus, rather than burns caused by the acid itself, as the damaging factor in patients with gastrointestinal reflux disease (GERD).*

The study included 12 patients being treated for GERD with proton pump inhibitors (PPIs) who were asked to discontinue their medication. Participants underwent esophageal biopsies at the beginning of the study and one and two weeks after stopping the drugs.

At one and two weeks, biopsies showed signs of T-lymphocyte-predominant inflammation. All subjects had evidence of esophageal acid exposure and esophagitis at two weeks, which is consistent with the time needed for damage caused by inflammation to develop. "These findings suggest that the pathogenesis of reflux esophagitis may be cytokine-mediated rather than the result of chemical injury," the authors conclude.

Editor's Note: Co-senior author Dr. Rhonda Souza from Veterans Affairs North Texas Health Care System, University of Texas, predicted that "Someday we might treat GERD with medications that target the cytokines or inflammatory cells that really cause the damage to the esophagus."

**JAMA.* 2016 May 17.

Phenotypes Help Assess Cardiometabolic Risk in Prediabetes Patients

Prediabetes is associated with increased risk of diabetes, cancer, cardiovascular disease, and dementia, but that risk varies widely among individuals. Now, a new study published in *The Lancet Diabetes & Endocrinology* has found a method to more accurately assess that risk.*

Scientists from the German Center for Diabetes analyzed data from a study involving 1,003 subjects and found that determining the status in patients of four major phenotypes—fatty liver, visceral obesity, the action of insulin and the production of insulin—can help explain the variability of risk in individuals as well as enhance the prediction and prevention of their cardiometabolic risk.

Scientists studied the prevalence of the four at-risk phenotypes in people with prediabetes who were in different body mass index categories. They found that insulin secretion failure is the biggest at-risk phenotype for people of normal weight, while fatty liver and visceral obesity were strongly associated with overweight and obese prediabetes patients.

Editor's Note: "If proven to be effective, this strategy could be included in guidelines about the prevention and treatment of diabetes and associated diseases," said first author of the article Norbert Stefan. A co-author, Hans Häring, adds, "The application of precise phenotyping strategies in clinical trials will also help to improve understanding of the pathophysiology of cardiometabolic diseases."

**Lancet Diabetes Endocrinol.* 2016 May 13.





Vitamin D Reduces Body Fat in Toddlers

A new study in the journal *Pediatric Obesity* shows that **vitamin D** given to babies seems to lead to less body fat and more muscle mass when they become toddlers.*

This is the first time a connection has been found between healthy vitamin D levels in a baby's first year and development of muscle mass. Researchers made the discovery when they followed up on a 2013 study in which 132 babies in Montreal, Canada, were given vitamin D3 in varying dosages. The 2013 study was only designed to confirm the importance of vitamin D for bone density, but the follow-up revealed that infants with vitamin D stores higher than recommended by the Canadian Paediatric Society averaged about **450 grams** less body fat at age 3.

Both studies agree that a vitamin D supplement of **400 IU** a day in an infant's first year aids in the growth of strong bones.

Editor's Note: "We were very intrigued by the higher lean mass, the possibility that vitamin D can help infants to not only grow healthy skeletons but also healthy amounts of muscle and less fat," said Hope Weller, one of the authors of the study and director of the Mary Emily Clinical Nutrition Research Unit at McGill University.

**Pediatr Obes.* 2016 Feb.

Healthy Lifestyle Could Prevent Half of Cancer Deaths

An estimated tens of thousands of US cancer deaths could be **prevented** through the adoption of a healthy lifestyle, according to a study published in the *Journal of the American Medical Association*.*

Researchers from Massachusetts General Hospital and Harvard Medical School analyzed data from 89,571 Caucasian women and 46,399 Caucasian men who were enrolled in two ongoing cohorts. 16,531 of the women and 11,731 of the men maintained patterns of healthy lifestyles, including no current smoking, moderate or no alcohol consumption, a BMI between 18.5 and 27.5, and at least 150 minutes of moderate exercise or 75 minutes of intense exercise weekly. After comparing cancer rates between the healthy-lifestyle group and the remaining subjects, researchers concluded that **20% to 40%** of common cancer cases and about half of deaths could be prevented by adopting a healthy lifestyle.

The authors say that more study is needed to see if their findings hold true among other ethnic groups.

Editor's Note: The authors of the study concluded, "These findings reinforce the predominate importance of lifestyle factors in determining cancer risk. Therefore, primary prevention should remain a priority for cancer control."

**JAMA Oncol.* 2016 May 19.



Limitless Potential Found in New Cancer-Predicting Software

In a recent study published in the journal *Scientific Reports*, the newly invented technology called **Wregex 2.0** was implemented to analyze mutations within proteins.* The new software is capable of scanning and analyzing up to **40,000 proteins** in just **one minute**.

According to the study, the technology has demonstrated itself capable of identifying mutations that might be associated with or induce the development of many diseases, including cancer. Further, the technology is capable of giving researchers data about the specific mutations of proteins, which could yield a blueprint of the manner in which a cancer may progress.

Potentially, this software and the information it provides may prove useful in innumerable ways. Among other possible uses, it could, if explored further, be used to guide doctors in making optimal treatment decisions about a multitude of diseases. And it would do so with extreme reliability, given the immense amount of data these analytics could provide.

Editor's Note: Currently, the software uses only the mutations already identified in the "Catalogue of Somatic Mutations in Cancer" list. But the study reveals that this technology has the potential to operate in conjunction with a database of mutations several orders of magnitude larger.

**Sci Rep.* 2016 May 12.

—Chase R. Falcon

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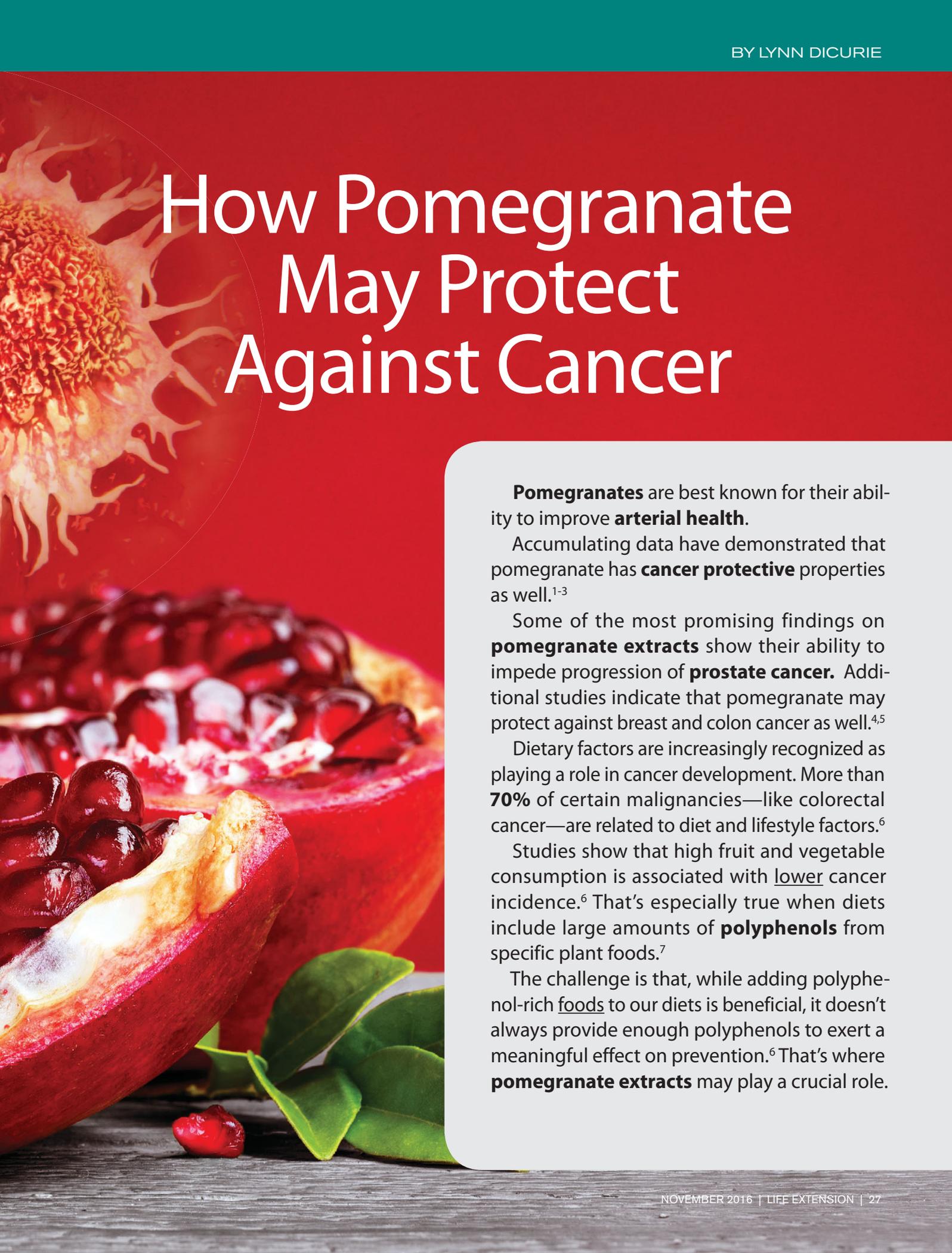
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How Pomegranate May Protect Against Cancer

Pomegranates are best known for their ability to improve **arterial health**.

Accumulating data have demonstrated that pomegranate has **cancer protective** properties as well.¹⁻³

Some of the most promising findings on **pomegranate extracts** show their ability to impede progression of **prostate cancer**. Additional studies indicate that pomegranate may protect against breast and colon cancer as well.^{4,5}

Dietary factors are increasingly recognized as playing a role in cancer development. More than **70%** of certain malignancies—like colorectal cancer—are related to diet and lifestyle factors.⁶

Studies show that high fruit and vegetable consumption is associated with lower cancer incidence.⁶ That's especially true when diets include large amounts of **polyphenols** from specific plant foods.⁷

The challenge is that, while adding polyphenol-rich foods to our diets is beneficial, it doesn't always provide enough polyphenols to exert a meaningful effect on prevention.⁶ That's where **pomegranate extracts** may play a crucial role.

Pomegranate Slows Prostate Cancer Progression

The most promising studies on pomegranate's anticancer actions are on its ability to slow the progression of prostate cancer.

In prostate-cancer patients, serum **PSA levels** are the most commonly used marker to assess disease status. One standard for evaluating cancer progression is to measure the time it takes for PSA levels to double from a baseline value. The longer it takes for PSA to double, the slower the cancer is progressing.⁸

Studies show that supplementation with pomegranate juice or extracts can significantly increase the time it takes for PSA to double in men with prostate cancer. In one study, men received 8 ounces of pomegranate juice daily following surgery or radiotherapy for prostate cancer. Prior to treatment, the subjects' PSA doubled in an average of **15 months**, indicating quite rapid disease progression. But after treatment with pomegranate juice, PSA took an average of **54 months** to double its value, which is a clinically and statistically significant difference.⁹

Another study evaluated men with *recurrent* prostate cancer (which is cancer that comes back after treatment such as surgery). In this study, taking pomegranate extract daily for up to 18 months increased the time it took for PSA to double from **11.9 months** at baseline to **18.5 months**.¹⁰

These studies offer evidence of pomegranate's ability to slow down the progression of prostate cancer.



Pomegranate's Targeted Effect

While most of the clinical studies on pomegranate's anticancer benefits have been conducted in men with prostate cancer, the encouraging results can be expected to translate to other malignancies as well. In fact, numerous animal and basic lab studies have now added to our understanding of pomegranate's promise in cancer prevention.

One of the first questions about any natural compound (or drug, for that matter) is how well it is *absorbed* after oral intake. It is also important to determine how much of the compound ultimately reaches its target tissues (glands, organs, etc.).

Studies show that the pomegranate components *ellagitannins* (which are the most abundant polyphenol found in pomegranate juice) are not only extremely **well-absorbed**, but also get delivered to many of the tissues where human cancers arise—especially prostate, colon, and intestinal tissues.¹¹ This important finding was confirmed in a human study of colorectal cancer patients. When the patients supplemented with **900 mg** of pomegranate extracts for 15 days prior to surgery, it resulted in significant accumulation of the extracts and their active breakdown products in colon tissue, indicating a targeted effect.²

Once they get to their target tissues, pomegranate compounds exert numerous effects that can help prevent tumors from developing and spreading. This has been demonstrated in animal studies of *xenografts*, which are implants of human cancer cells that are surgically grafted into host animals. Xenograft studies now demonstrate that not only can pomegranate extracts *delay* the development of a tumor after it has been implanted, but they can also decrease the size and blood supply of those tumors that do develop.¹²⁻¹⁴

Supplementation with three specific compounds found in pomegranate—*luteolin*, *ellagic acid*, and *punicic acid*—has also been shown to inhibit the progression and spread of prostate cancer in animals injected with human tumor cells.¹⁴ In this study, pomegranate supplementation inhibited the growth of the primary tumor, and also shut down biochemical signaling pathways required for metastasis. As a result, none of the implanted tumors metastasized. This is a tremendously important finding, especially considering the terrible prognosis in humans when metastasis occurs.



Actions Against Colon and Breast Cancer

Many fast-growing tumors can be induced in small animal models by treating them with known cancer-causing chemicals. This is a technique that is commonly used in studying cancers of the colon and digestive tract.

Such cancer-inducing treatment leads to the development of early precancerous lesions known as *aberrant crypt foci* in colon tissue, which represent areas of abnormal cell replication and growth in the folds of tissue that line the intestine.¹⁵ If left untreated, aberrant crypt foci have a high likelihood of progressing to intestinal **polyps**, and then to fully-developed cancers.

But that story changes when animals are given pomegranate extracts **prior** to exposure to the toxic cancer-causing compound. In these scenarios, aberrant crypt foci occurred significantly less frequently in the animals supplemented with pomegranate extracts, compared to the unsupplemented animals.¹⁵⁻¹⁷

These studies show pomegranate's ability to help prevent the precancerous changes that can lead to

What You Need to Know

Pomegranate's Chemopreventive Effects

- Cancer remains the number 2 killer of Americans, particularly those of advanced age.
- Pomegranate extracts, long known for their contributions to heart health, are now emerging as potentially major players in the field of cancer chemoprevention.
- Lab studies reveal at least seven major targets by which pomegranate extracts work to fight malignant transformation of cells.
- Animal studies demonstrate that pomegranate supplementation leads to reductions in tumor incidence, size, and number.
- Human studies show that pomegranate extracts can slow the progression of prostate cancer. Pomegranate extracts have positive effects in breast and colon cancer as well.
- Given pomegranate's multiple mechanisms of action against cancer, coupled with its known cardioprotective effects, supplementation with pomegranate extracts offers a well-rounded approach to preventing some of today's deadliest diseases.

the development of tumors. Other studies go a step further, and demonstrate pomegranate's ability to improve **survival rates** in animals with colon cancer.¹⁸

A study published earlier this year showed that pomegranate extracts have protective effects in chemically-induced **breast cancer**. When pomegranate extracts were given to rats before and after they were exposed to a chemical that caused breast cancer, the extract was found to reduce the incidence, number, and size of breast tumors. This led the researchers to conclude that pomegranate's compounds "*could be developed as a chemopreventive drug to reduce the risk of breast cancer.*"¹⁹

Studies have also indicated pomegranate's protective effect against cancer in patients with inflammatory bowel diseases. Chronic intestinal inflammation is a known precursor of intestinal malignancies, which is why inflammatory bowel diseases such as ulcerative colitis and Crohn's disease substantially increase the risk of such cancers.

The good news is that in studies of animals with experimentally-induced colitis, the pomegranate constituent **ellagic acid** has been found to inhibit the progression of colitis, and to downregulate many of the molecular signaling pathways that get switched on and promote cancer in colitis patients.²⁰

Seven Ways Pomegranate Attacks Cancer

One reason why pomegranate extracts have demonstrated potent effects against a variety of different types of malignancies is because they mount a **multitargeted** attack against cancer cells. Cancer is a complicated, multifactorial disease, with no single cause and no likely single cure. Because of that, cancer prevention strategies are most effective when they simultaneously address the many underlying causes of cancer in a **multitargeted** fashion.

This is what makes natural compounds such as pomegranate so appealing for cancer prevention. Unlike synthetic molecules, natural compounds—especially **polyphenols**—are capable of a multitargeted effect because they operate within the same complicated set of rules and events that cancer itself plays by.

Studies show that pomegranate extracts and polyphenols exert seven different mechanisms of action on developing cancer cells. Let's take a look at pomegranate's wide ranging effects:



- **DNA damage** is considered the initiating phase for cancer development. Mutations in DNA genes can arise from exposure to radiation (including ultraviolet light), to toxins, and even to byproducts of normal metabolism, such as oxidative stress. Laboratory studies demonstrate that pomegranate extracts, including **punicalagin** and **ellagic acid**, can prevent DNA damage from many different sources.²¹⁻²³
- **Out-of-control proliferation** of cells is the hallmark of cancer. Such proliferation occurs as a result of changes in specific genes that normally maintain regulation over the cell proliferation. When DNA regulatory genes are suppressed, endless cellular replication contributes to more rapid cancer progression. Pomegranate extracts are capable of interfering with abnormal cell-proliferation cycles, thereby impeding aberrant replication.²⁴⁻²⁷
- **Low-grade inflammation** is a well-known promoter of cancer cell growth and survival.²⁸ Pomegranate extracts and polyphenols shut down certain inflammatory signals (such as **NFkappaB**) and suppress the production of other pro-inflammatory molecules.^{12,20,29-31}
- **Loss of apoptosis** is another change that occurs as cells undergo malignant transformation. Normally dividing cells receive many signals to stop replicating, and in many cases, to take themselves out of the picture so that normal tissue can form. The problem is that malignant cells suppress genes that trigger apoptosis. Pomegranate extracts can restore apoptosis to cancer cells, helping to halt continued expansion and if caught early enough may prevent a tumor from forming.^{7,19,24,25,32,33}

- **Forming new blood vessels (angiogenesis)** is a necessity for burgeoning tumor cells, as they need to nourish themselves during their rapid growth spurt. Pomegranate constituents have shown the ability to inhibit angiogenesis in laboratory and animal studies.^{13,34}
- **Invasion of local tissue and spread to distant tissue** (called metastasis) heralds the advance of cancer to a much higher grade and raises the risk of death. In order to invade tissues, cancer cells produce “protein-melting” enzymes that allow them to squeeze into tiny spaces between healthy cells, while metastasis requires a host of molecular signals that allow bits of tumor to set up shop in new environments in the body. Pomegranate extracts combat both of these actions by suppressing the production of such tissue-destroying enzymes and signaling molecules, thereby helping prevent cancer cells from spreading.^{14,27,35}
- **Growth stimulation by sex hormones** is a feature of some of the most common human cancers, including those of the breast and prostate, which have cell-surface receptors for those hormones. Pomegranate extracts slow the growth of many hormone-dependent cancers.³⁶⁻³⁹

Summary

Pomegranates contain a host of protective molecules that benefit not only the plant, but those who consume it. While these constituents are best-known for reducing the risk of heart disease, they are now also being explored for their ability to help prevent cancer.

Because cancer is a multifactorial disease, any compound aimed at preventing it should have multitargeted effects. This is a virtue of the active constituents of pomegranate fruit, skin, and even leaves. Lab studies show that **pomegranate extracts** exert at least seven distinct beneficial effects that confer protection to cells against malignant changes, while making those that do mutate less likely to progress.

Animal studies help corroborate that pomegranate supplementation can reduce the incidence of cancers, slow their growth, and reduce the size and number of cancers that develop. Human studies indicate that pomegranate extracts are capable of slowing the progression of prostate cancer. Additional research findings indicate pomegranate’s potential benefits in breast and colon cancer as well.

Pomegranate’s multitargeted properties make it an ideal chemoprevention supplement, one that is widely available and potent in its effects. Given its cardioprotective effects, **pomegranate extracts** offer a well-rounded approach to protecting against some of today’s deadliest diseases. ●

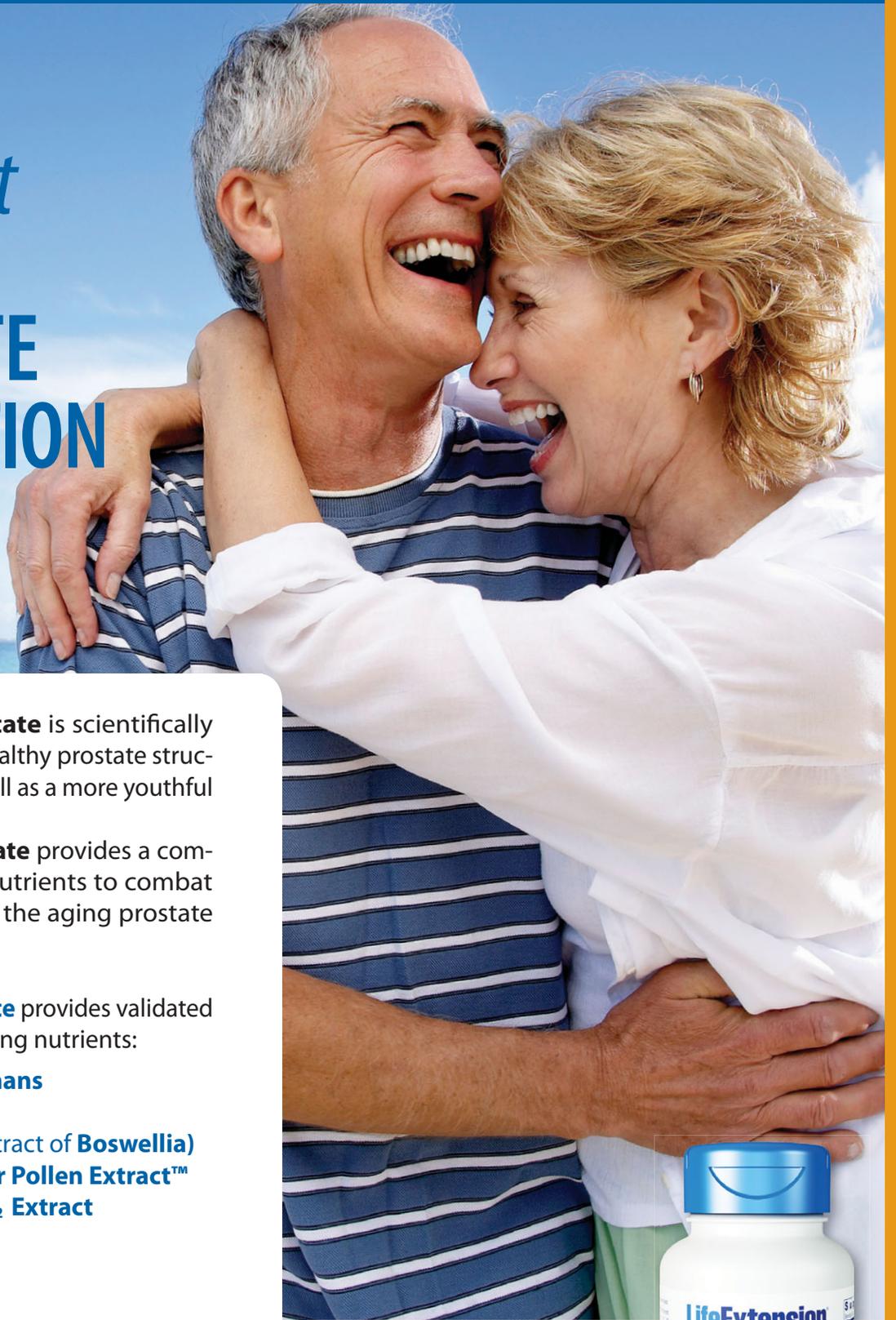


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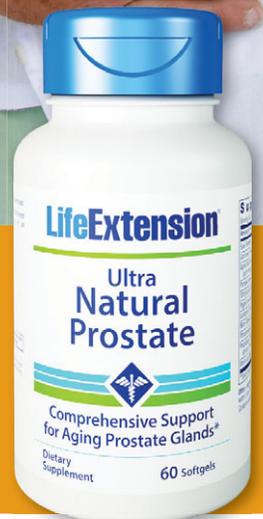
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Why 24-Hour Blood Pressure Control Matters

Getting blood pressure under control is essential, but it is only part of the solution.

Over the past decade, it has become clear that daily variations in blood-pressure patterns are also tremendously important, especially in older adults.^{1,2}

In healthy people, blood pressure dips somewhat at night, providing at least temporary relief to the pounding damage being done to blood vessels.³ But in those whose pressure does not fall at night (so-called “non-dippers”), the damage to blood vessels continues around the clock.³

As a result, non-dippers have a significantly higher risk of cardiovascular disease and death compared to normal dippers, even when both have the same blood pressure during the day.³

About **35%** of adults with hypertension are “non-dippers,” meaning that they are at ***constantly elevated risk*** for bad outcomes.³

The implications of these findings—coupled with a recent study² showing optimal systolic target levels—are clear. Most people need to establish more ambitious blood pressure targets—ideally **120 mmHg** or lower for the **systolic** reading. And many people who need to lower their blood pressure also need to find both a daytime and a nighttime solution.¹

Fortunately, natural compounds are available that not only help lower blood pressure, but can provide around-the-clock management. These natural compounds have blood pressure-lowering properties that are akin to those of many prescription drugs.

Life Extension® has long maintained that the recommended target for *systolic* blood pressure should be closer to **115 mmHg** (as opposed to **140 mmHg**). A recent study in the *New England Journal of Medicine*⁴ supports **Life Extension**'s recommended blood pressure targets.

This study revealed that millions of people have been lulled into a false sense of security by current recommended blood-pressure parameters. In fact, they are at significantly increased risk of cardiovascular disease and death, and should be taking active measures to lower their blood pressure into a safer range.

Making matters worse, natural fluctuations in blood pressure can cause readings to vary widely, making blood pressure difficult to manage successfully. Blood pressure control works best by utilizing different drug classes of medications at relatively reduced doses rather than using one drug at a maximal dose. This strategy also helps reduce the risk of side effects associated with the maximal tolerated dosing of a single drug.

Blood Pressure Basics

When it comes to lowering blood pressure, **at-home monitoring** is essential to ensure that optimal **24-hour** protection is achieved. The availability of low-cost and reliable at-home **blood pressure monitors** makes this easy.

Lifestyle changes such as losing weight and increasing cardiovascular fitness through exercise can help support healthy blood-pressure levels.

The older drug classes of medication often have side effects that patients find frustrating and bothersome. Side effects can include nighttime urinary frequency with the use of diuretics, or cold hands/feet and sexual

dysfunction with the use of beta-blockers. However, some of the newer classes of antihypertensive drugs like **angiotensin II receptor blockers** generally are better tolerated by patients in comparison with older medications like diuretics and beta-blockers. In fact, some people may only need to take one angiotensin II receptor blocker like **telmisartan (40 to 80 mg a day)** to achieve good results. This drug also has additional, potential benefits for vascular health.⁵⁻¹⁰

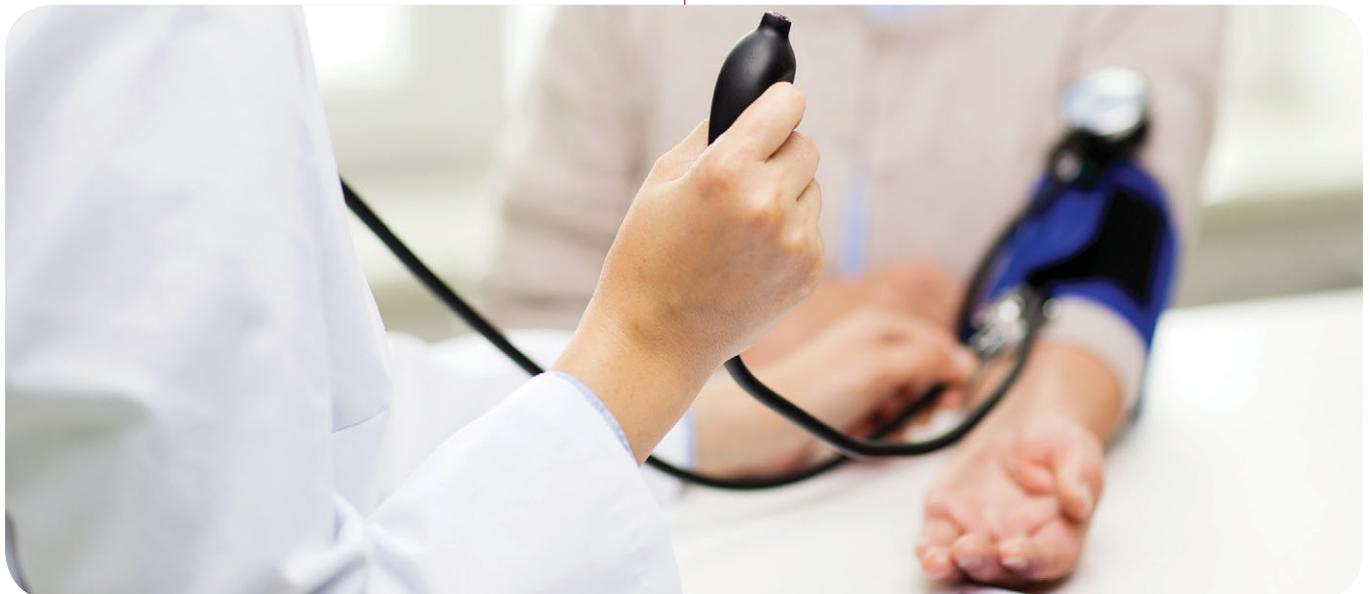
However, in general the best strategy for control of hypertension is the use of low doses of several different classes (different mechanisms of action) of medications.

Natural Approaches to Blood Pressure Control

In addition to, or in lieu of prescription drugs, several natural compounds are available that not only help lower blood pressure but help keep it down around the clock. Each compound has a different but complementary mechanism of action:

- **Flavonoids** block a receptor for the angiotensin hormone that can elevate blood pressure.
- **Stevioside** slows calcium signaling in order to relax blood vessels.
- **Time-release melatonin** provides control over nighttime blood pressure elevations.

These compounds work by multiple, clinically validated mechanisms to control blood pressure both day and night to maximally lower the risks of blood pressure-related health problems. Let's look at each individually.





What You Need to Know

The Truth About Blood Pressure

- High blood pressure is a “silent killer” that results in long-term organ damage, cardiovascular disease, and death.
- A recent *New England Journal of Medicine* study supports Life Extension’s longstanding recommendation that target systolic blood pressure should be below 120 mmHg.
- This study showed that people whose systolic pressures remained near 120 mmHg had significantly better health outcomes than those in the 140 mmHg range.
- While prescription drugs remain the mainstay of antihypertensive therapy, natural products offer significant support in the struggle to control blood pressure.
- The flavonoids *quercetin*, *myricitrin*, and *myricetin* have molecular properties similar to angiotensin-blocking drugs and have been scientifically proven to be effective at lowering systolic blood pressure.
- *Stevioside* blocks calcium channels in vascular smooth muscle cells, emulating the actions of prescription calcium channel-blocking drugs and effectively lowering blood pressure.
- *Melatonin* provides superior nocturnal blood pressure control when used in its time-release formulation, helping provide around-the-clock protection.

Blocking Angiotensin II

Quercetin, **myricitrin**, and **myricetin** are *flavonoid* molecules found in small amounts in a variety of plant foods.^{11,12} These flavonoids have been shown to help block the receptor for **angiotensin II**,¹³ which is a hormone that triggers the constriction (narrowing) of arteries.¹⁴

Much like a finger over a garden hose, the narrowing of arteries raises pressure within them. Thus, blocking the angiotensin receptors is an effective way of bringing down blood pressure by helping to relax the arteries.

In addition to controlling high blood pressure, angiotensin receptor blockers have numerous other benefits, including enhancing insulin sensitivity, increasing the utilization of fat as energy, and improving mitochondrial function.¹⁵⁻¹⁷

Experimental studies using assessment of receptor docking (i.e. the ability of a molecule to bind to a receptor) suggest that **both quercetin and myricetin** are effective at blocking angiotensin II receptors.¹³ **Life Extension** has recommended a class of drugs called *angiotensin receptor II blockers* for antihypertensive management over the past several years given the typically good tolerability and efficacy of this drug class.

A lab study demonstrated that myricetin inhibited the arterial contracting response to angiotensin by **43%** compared with the natural condition—an effect that significantly reduced systolic blood pressure in hypertensive rats.¹⁸

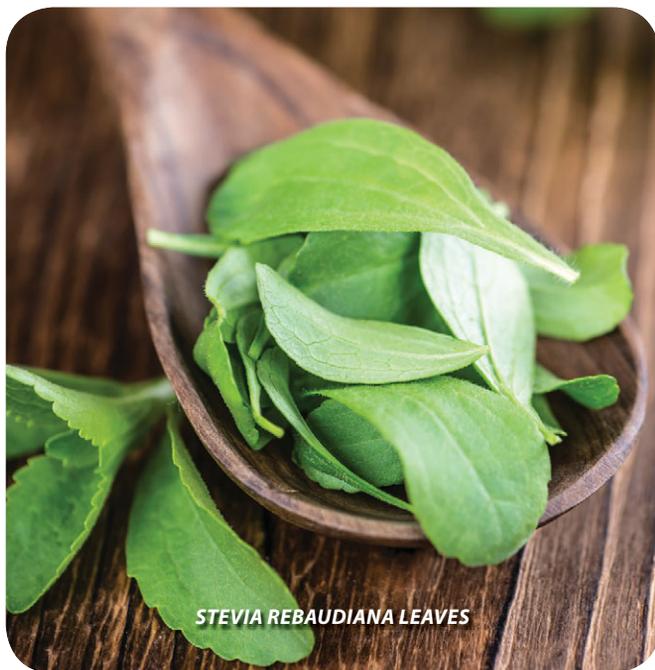
Multiple clinical studies have demonstrated quercetin's and myricitrin's blood pressure-lowering effects in humans as well. In both healthy adults and in those who were overweight or obese, **150 mg** a day of quercetin significantly reduced systolic blood pressure compared with subjects' baseline values or with placebo.^{19,20}

And in those with "prehypertension" and early hypertension (both conditions should be treated, according to the latest *New England Journal of Medicine* results), one study found that **162 mg** a day of quercetin reduced systolic blood pressure by **3.9 mmHg** compared to a placebo,²¹ and a second study showed that **730 mg** a day of quercetin reduced systolic and diastolic blood pressure by **7 mmHg** and **5 mmHg** respectively compared with baseline values.²²

Quercetin and myricitrin have also been found to lower blood pressure in type II diabetics, a population that is at an especially high risk for hypertension, as a result of complications from the disease. In women with type II diabetes, **500 mg** a day of quercetin lowered systolic pressure by **5.3 mmHg** compared with a placebo.²³ And **600 mg** a day of leaf powder from myricitrin-containing extract produced an **11 mmHg** decrease in systolic blood pressure compared with baseline!²⁴

Natural Calcium-Channel Blocker

Stevioside is a molecule derived from the leaves of *Stevia rebaudiana*, a plant that has gained popularity in recent years because its sweet-tasting leaves are often used as non-caloric sweeteners.^{25,26}



STEVIA REBAUDIANA LEAVES

Studies reveal that the stevia plant has an even sweeter benefit: it naturally lowers blood pressure. Stevioside **blocks calcium channels** in the smooth muscle cells of the arteries.²⁷⁻²⁹ When intracellular calcium levels rise, it causes the cells to constrict, which narrows arteries and increases blood pressure. Thus, blocking calcium channels is a distinct—and extremely effective—means of reducing blood pressure.

Calcium channel-blocking medications are a reliable means of lowering blood pressure, and are often used in combination with angiotensin II receptor blockers (ARBs). In the same way, combining **stevioside** with **flavonoids** such as *quercetin*, *myricitrin*, and *myricetin* provides a similar dual mechanism of action.

Numerous studies demonstrate stevioside's blood pressure-lowering effects. A meta-analysis published in **2015** included data from 788 patients taking doses of stevioside ranging from **750** to **1,500 mg** a day.³⁰ Individuals supplementing with stevioside demonstrated a decrease in systolic blood pressure of **4.5 mmHg** in all studies. And, among studies in which supplementation was continued for a year or longer, the mean reduction was an impressive **11.9 mmHg**.

Nighttime Blood Pressure Control

Lowering high blood pressure is critical, but providing an around-the-clock blood pressure-lowering effect is equally important.

Melatonin is a hormone intimately involved with regulating the human circadian rhythm, or day/night cycle. It has multiple effects both in the brain and in the body as a whole that include reduction of nighttime blood pressure.³¹⁻³³ This is an essential feature for the **35%** of "non-dippers" with hypertension.

Melatonin receptors lower blood pressure by dilating (opening) blood vessels³⁴ and by inhibiting signals from the *sympathetic nervous system* (the "Fight or Flight" reflex).^{34,35} Animal studies show that melatonin can reverse the elevated blood pressure induced by high-fat and high-salt diets, while also reducing other manifestations of metabolic syndrome. It also protects the kidneys and other organs from the long-term consequences of elevated blood pressure.³⁶⁻³⁸

But not all melatonin is equally effective in its blood pressure benefits. A meta-analysis report on 7 studies involving 211 total subjects evaluated the difference between **immediate-release** melatonin formulations (**5 mg** a day) and **controlled-release** melatonin formulations (ranging from **2-3 mg** a day).³²

What these studies found was that **controlled-release melatonin** in particular was most effective at controlling nighttime blood pressure. Only controlled-release melatonin had significant effects on systolic



blood pressure, reducing it by an average of **6.1 mmHg**, while immediate-release melatonin produced only an insignificant **0.3 mmHg** reduction.³²

Controlled-release melatonin also lowered **diastolic blood pressure** significantly by an average of **3.5 mmHg**, while the immediate-release formulation lowered diastolic pressures by just **0.2 mmHg**.³²

Summary

High blood pressure is a “silent killer,” producing no symptoms in most victims, while causing severe and often *irreversible* damage to blood vessels and the major organs they serve.³⁹

A recent study supports what **Life Extension** has been saying for decades: that ideal systolic blood pressure targets should be under **120 mmHg**—far below the **140 mmHg** target maintained by mainstream medicine.

Natural compounds have been identified that work in similar ways as two classes of antihypertensive drugs—while also providing nighttime blood pressure relief.

The flavonoids quercetin, myricitrin, and myricetin bind to angiotensin receptors, preventing a rise in blood pressure. Stevioside blocks calcium channels in arterial wall smooth muscle, allowing vessels to relax and reducing blood pressure. And melatonin, only in time-release form, eases nighttime blood pressure to complete the cycle of protection.

These natural compounds can form part of the plan for everyone with systolic blood pressure readings of **120 mmHg** or higher. ●

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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Blood Pressure Recommendations

For most aging individuals, **Life Extension** recommends an optimal blood pressure goal of **115/75 mmHg**. However, those aging individuals with long-standing hypertension and/or coronary artery disease, individuals with kidney disease, and those over 80 years of age should be aware that a rapid, overly-aggressive reduction of blood pressure should be avoided. Signs of overly aggressive blood pressure reduction may include worsening cognitive function, dizziness and/or lightheadedness when standing quickly from a sitting position, and worsening biomarkers of kidney function.

Regrettably, some older, fragile patients may simply not tolerate a target blood pressure of **115/75 mm Hg** due to long standing damage to the vascular system, thus requiring a higher perfusion pressure to meet physiologic demands. In these fragile patients, maintaining the lowest blood pressure tolerated is reasonable.

Life Extension recommends frequent blood testing of kidney function biomarkers like BUN and creatinine when embarking on an aggressive blood pressure control program. Also, Life Extension strongly recommends that all people purchase a low-cost at-home blood pressure monitor so they can check themselves when trying new medications or nutrients.

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Facts about Hypertension

Elevated blood pressure (hypertension) has long been known as the “silent killer,” because it produces no symptoms at all in the vast majority of victims, while causing severe and often irreversible damage to blood vessels and the major organs they serve.

About **70 million** Americans have blood pressure of **140/90 mmHg** or above, which defines **hypertension** according to mainstream medicine.^{40,41}

Even more American adults, about 1 in 3, have so-called “prehypertension,” which is clinically defined as blood pressure between **120/80 mmHg** and **139/89 mmHg**.⁴⁰⁻⁴²

Sadly, despite the known risks, only about half of those with high blood pressure have their condition under control even by the standard definitions of hypertension.³⁹ Given that estimates of “prehypertension” range from **25% to 50%** of the population,⁴³ the real number of people with dangerously high blood pressure is probably much higher.

All of this means two things: In addition to getting regular blood pressure measurements, it is critical to get systolic blood pressure down to less than **120 mmHg**, optimally at **115/75 mmHg**.

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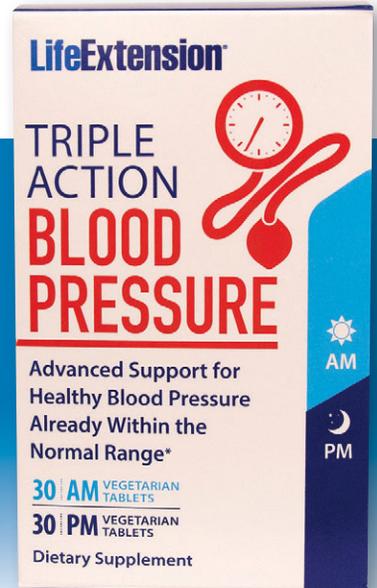
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Achieving Restorative Sleep

If you're having trouble falling asleep, you're not alone. An estimated **50 to 70 million** American adults suffer from chronic sleep deprivation—a problem that only worsens with advancing age.¹⁻³

The situation is so significant that the Institute of Medicine referred to insufficient sleep as "*an unmet public health problem.*"¹ That was a decade ago. With current estimates claiming that **half** the US population will suffer from a sleep disorder during their lifetime,⁴ the situation isn't much better today.

*Research shows that insufficient sleep increases the risk for numerous deadly conditions—such as heart attack, stroke, diabetes, and hypertension—and can even lead to **shorter lifespans.***^{1,2,5}

There is a high demand for drugs that provide relief. But while prescription sleep aids can work for a while, they come with a long list of side effects that impact quality of life—and many are highly addictive.⁶ Adding to the list of concerns are the findings of a recent study on the increased risk of premature mortality associated with use of these drugs.⁷

There are natural compounds that have been shown to help enhance sleep and alleviate the anxiety that can be an underlying cause.

Causes and Impact of Poor Sleep

Poor sleep quality has a far greater impact on our bodies than simply making us feel fatigued. It can affect endurance,⁸ contribute to weight gain,⁹ and lead to an increase in fine lines and wrinkles.¹⁰ Sleep disorders also have profound physiological consequences that contribute to long-term health risks, and even to shorter lifespans.

And sleep deprivation has been associated with **accelerated aging**. This was seen in a study showing that middle-aged men that sleep 5 hours or less had on average **6%** shorter **telomeres** compared to those sleeping more than 7 hours.¹¹ Telomeres are the “caps” on chromosomes that gradually shorten with time, and may represent a kind of “fuse” that indicates biological aging.

Stress, anxiety, and depression are common symptoms present in individuals experiencing **chronic insomnia**, because they negatively affect circadian rhythms and modify both sleep duration and sleep quality.¹²⁻¹⁷ Virtually everyone who suffers from sleep disorders reports increased stress and anxiety in their lives.^{18,19} Stress can set in motion a host of biochemical changes that culminate in a vicious cycle which leads to poor sleep, which leads to greater stress.²⁰

Because of the tremendous impact stress has on sleep, any remedy for poor sleep should include components that also help to lower anxiety and relieve stress. There are non-drug approaches that have been found to promote sleep, while helping alleviate anxiety and stress. Let's examine each compound individually.

Bioactive Milk Peptides

Nutrients found in milk called **bioactive milk peptides** (chains of amino acids) have been found to enhance sleep quality, shorten the time to get to sleep, and reduce daytime dysfunction.²¹ Importantly, they have also been shown to simultaneously produce a calming, sedative effect that helps combat anxiety. Researchers discovered that bioactive milk peptides **activate** brain cell receptors for neurotransmitters that reduce anxiety, such as GABA, serotonin, and dopamine.^{22,23}

The ability to activate GABA receptors in the brain is one reason the anti-anxiety drugs in the **benzodiazepine** class (think Valium, Ativan, and others) are so effective.²² The advantage of milk peptides is that unlike benzodiazepine drugs, which

can become habit forming, bioactive milk peptides induce relaxation and sleep *without the side effects*.²⁴ Animal studies show that, while bioactive milk peptides produce the same anti-anxiety effects as Valium, they don't produce the “disinhibition” that can lead to risk-taking behavior associated with such drugs.²⁴

These encouraging results have been seen in human studies as well. For example, a group of women experiencing stress-related symptoms such as anxiety, sleep problems, and general fatigue were given bioactive milk peptides (**150 mg** a day) or a placebo.²⁵ After 30 days, the supplemented women experienced significant improvements compared to the placebo in symptoms related to **digestion (65.6%** improvement), cardiovascular function (**48.9%** improvement), cognitive function (**62.5%** improvement), and social difficulty (**40.2%** improvement).

In addition to improving sleep and reducing stress, bioactive milk peptides reduce many of the underlying biomarkers associated with the stress response, including elevated blood pressure, heart rate, and cortisol.^{26,27}

Ashwagandha

Anxiety is a common cause of insomnia, and insomnia can lead to further anxiety. **Ashwagandha** (*Withania somnifera*), a medicinal herb with long-standing, widespread use in ancient medical systems, can play an important role in breaking up this vicious cycle.



ASHWAGANDHA



Ashwagandha is an *adaptogen*, a compound that induces physiological balance in the body and reduces the impacts of stress. Its uses have included targets such as cancer, infection, immunomodulation, and neurodegenerative disorders.^{28,29} Studies also show that it has a beneficial impact on anxiety, stress, and insomnia.²⁹⁻³² In fact, “*somnifera*” from its scientific name in Latin means “sleep-inducer.”³³

Ashwagandha has numerous constituents that are showing anti-anxiety properties.^{28,29} In a human study of adults with a history of chronic stress, taking **300 mg** of ashwagandha twice daily for 60 days led to a significant reduction in scores on stress-assessment scales. Impressively, those taking ashwagandha also had a highly significant reduction in blood levels of the stress hormone cortisol during the treatment period.³²

In addition to combating chronic stress itself, ashwagandha combats some of its side effects. In a study of people facing chronic stress, supplementation with ashwagandha led to significant improvements in perceived stress, food cravings, and happiness. The subjects also experienced significant reductions in serum cortisol, body weight, and body mass index.³⁰ These findings are especially important in light of the known weight-gain effects of stress and anxiety—particularly in those who use food to “self-medicate.”

As an added benefit, animal studies show that ashwagandha protects the brain from some of the harmful behavioral and biochemical effects of sleep deprivation, such as impaired locomotor activity, and impaired learning and memory.³⁴⁻³⁶

What You Need to Know

Restoring Youthful Sleep

- Chronic poor sleep affects more than 70 million Americans.
- Stress is both a cause and a consequence of poor sleep, and is a major long-term health threat.
- Mainstream medicine’s anti-stress and sleep-inducing drugs are effective but carry an appalling array of side effects.
- The natural substances **melatonin, bio-active milk peptides, and ashwagandha** extracts all contribute in different ways to enhancing sleep and relieving stress.
- Together, these nutrients work to normalize disrupted day/night cycles, relieve anxiety, and help our bodies cope with stress.
- Those with sleep difficulties should add these soothing, anxiety-relieving, and sleep-promoting nutrients to their bedtime regimens.

A key reason why ashwagandha has such a powerful impact on stress is because it activates nerve cell receptors for the calming neurotransmitter **GABA**.³¹ These are the same receptors that are the target for the *benzodiazepine* drugs, which are used to treat anxiety and sleep problems.

As a result, numerous animal studies have suggested that extracts from ashwagandha have **anxiety-reducing** effects comparable to those produced by such common prescription drugs as *diazepam* (Valium) and *lorazepam* (Ativan). They also have **antidepressant** effects comparable to those produced by *imipramine* (Tofranil) and *fluoxetine* (Prozac).³⁷⁻⁴¹

By combating anxiety, stress, and even depression, ashwagandha addresses some of the primary causes of chronic insomnia.

Individual Responses to Melatonin

Life Extension® was the first to introduce **melatonin** back in **1992**. While it has helped numerous people improve their overall sleep, its efficacy varies significantly based on individual variability.

Melatonin is produced by the pineal gland in response to darkness and it helps control the body's sleep/wake cycles.⁴²

Melatonin levels fall with age, which results in impaired sleep and also contributes to some of the consequences associated with disordered sleep, such as accelerated cognitive decline, cardiovascular disease, and metabolic disorders.⁴³ Many of these effects are now thought to be related to melatonin's impact on specific brain cells and regions of the brain involved in controlling our day/night cycles.⁴⁴ Some chronic conditions, such as elevated blood sugar, can suppress normal melatonin production, perhaps accounting for poor sleep in diabetics.⁴⁵

Replacing or boosting deficient melatonin has been shown to help normalize sleep/wake patterns and enhance good sleep.^{44,46} Studies show that raising melatonin levels can counteract the impaired activity/rest cycles common in older animals.⁴⁷ And a *human* study has now shown that raising melatonin levels can improve **sleep patterns, quality, and duration**.⁴⁸

Melatonin and Prescription Drugs

There's no doubt that melatonin is effective in helping otherwise healthy people fall asleep, sleep better, and awake refreshed.^{49,50} But the real test of melatonin's sleep-improving properties is to determine its effectiveness in people who have chronic sleep-impairing conditions, or in those taking drugs that impair sleep. Melatonin has passed that test.

For example, drugs known as **beta blockers** are used for cardiovascular disease by more than **22 million** people in the US. One of the problems with these drugs is that they suppress natural nighttime melatonin secretion, which produces the common side effect of insomnia.⁵¹ Researchers decided to put supplemental melatonin to the test in this challenging group of subjects.

For the study, middle-aged men and women taking beta blockers received either **2.5 mg** of melatonin or a placebo nightly for three weeks. Researchers found that the supplemented subjects had significantly greater total sleep time (+36 minutes), a shorter time to fall asleep (-14 minutes), and they increased their sleep efficiency by **7.6%**, compared with placebo recipients.⁵¹

Similarly, people who have survived cancer or other potentially fatal disorders often have sleep disturbances that last for years. Melatonin has been found to be useful in this group of people as well. In a study of postmenopausal breast cancer survivors, **52%** reported poor sleep in the month before the study. But those





taking **3 mg** of melatonin daily had significant improvements in overall sleep quality and daytime dysfunction, compared with placebo recipients.⁵²

Melatonin is also beneficial in postmenopausal women, a group known for suffering from sleep problems. A study showed that a daily **5 mg** dose of melatonin significantly improved sleep quality in healthy menopausal women, and produced significant reductions in body weight, which is an important contributor not only to insomnia, but to other health risks as well.⁵³

For many people who rely on anti-anxiety medication such as Valium or Xanax to fall asleep, it is important to note that the use of these medications can suppress melatonin levels.⁵⁴ According to one study, a single dose of *alprazolam* (Xanax) dramatically suppressed the body's natural nocturnal melatonin rise, thereby making it more difficult to achieve natural sleep and making individuals more dependent on the medication for sleep.⁵⁵

Recently, scientists have begun studying the use of melatonin as a way to reduce dependence on benzodiazepine drugs by people suffering from insomnia.⁵⁶ This points up the importance of avoiding the use of commonly available, highly addictive sleep medications in favor of melatonin for preserving our natural sleep cycles.

Summary

Stress leads to insomnia, and poor sleep induces yet more stress in a vicious circle of misery. Sleep problems worsen as we age, are exacerbated by many chronic and acute diseases, and raise our risk for long-term serious illness. There's even evidence that poor sleep has an effect on our chromosomal telomeres, shortening them (and thus our lives) prematurely.

Prescription and over-the-counter sleep aids can be effective, but the majority of them have side effects, including the potential for dependence and tolerance (where they stop working).

Fortunately, long-revered natural products continue to demonstrate the ability to enhance sleep and alleviate stress, while also protecting against the harmful effects of stress and sleep deprivation.

Melatonin helps reset our sleep-wake cycles and promotes better, more effective sleep. **Bioactive milk peptides** and **ashwagandha** both help relieve the stress that can impair sleep, and they also contribute directly to sleep quality and quantity. ●

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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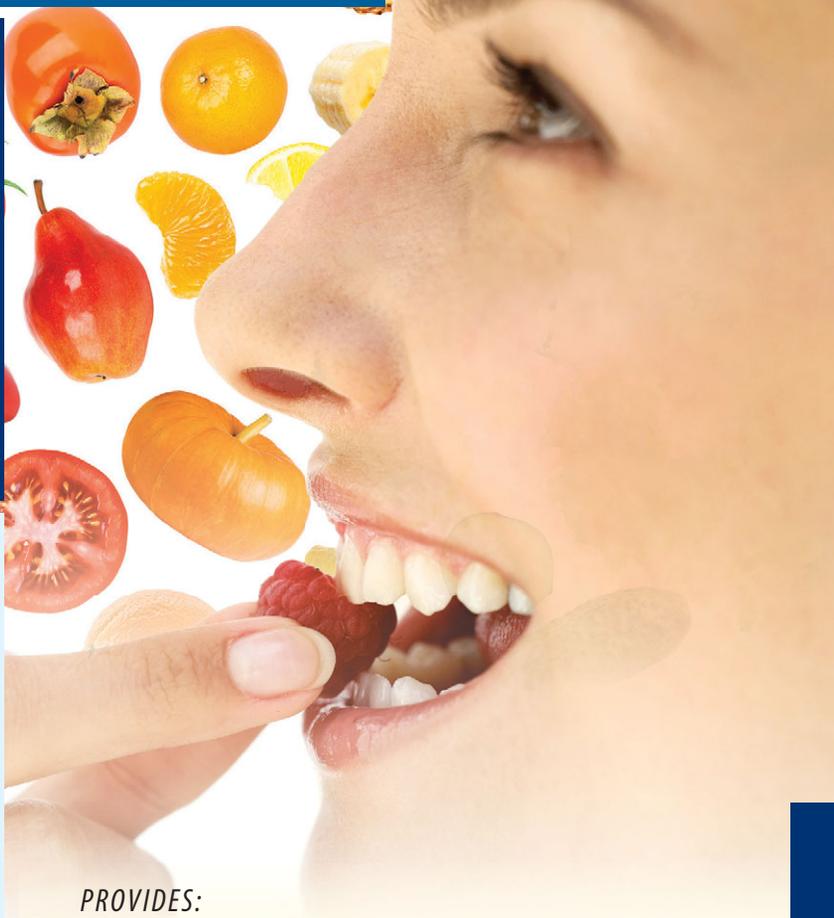
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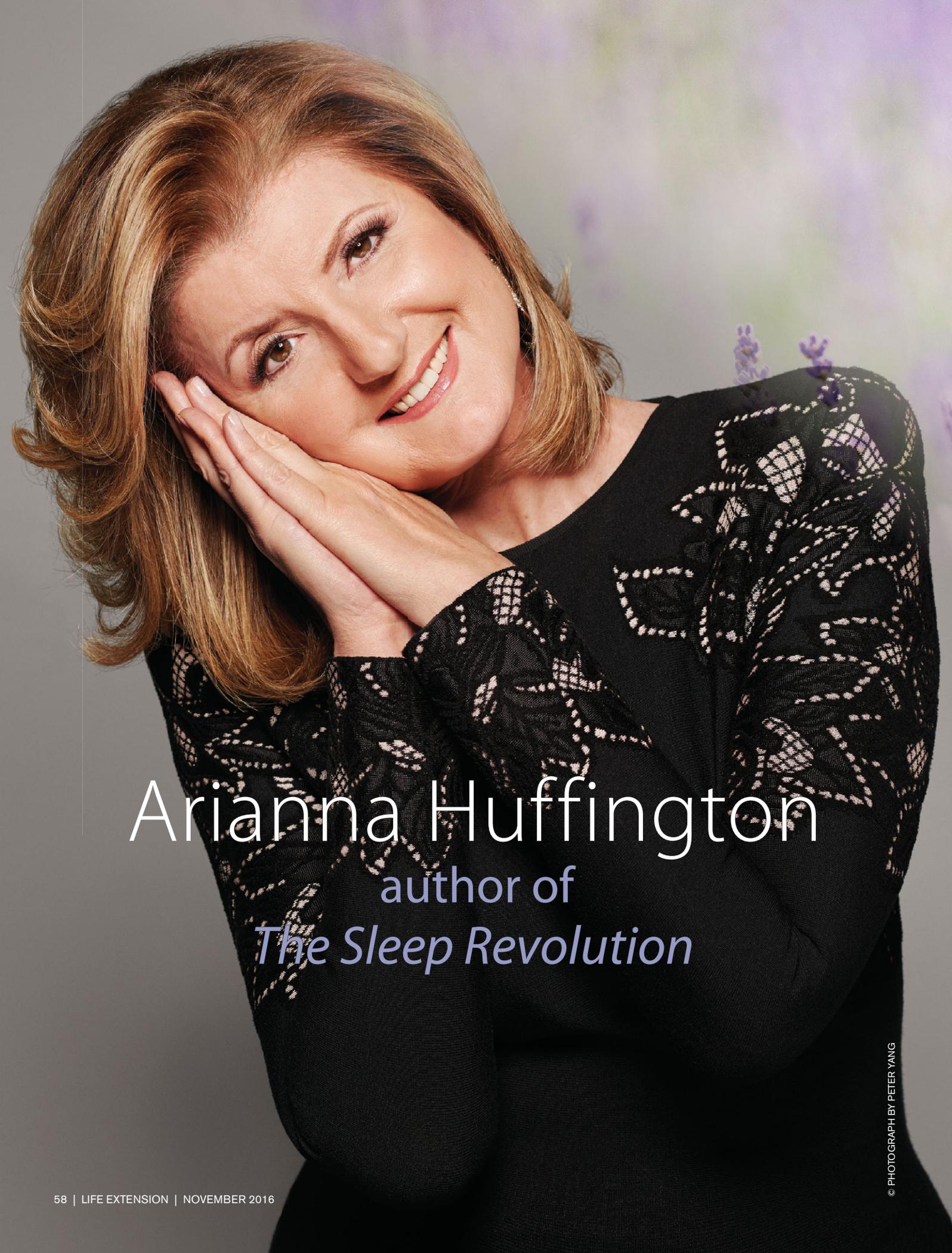
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Arianna Huffington
author of
The Sleep Revolution

“Other studies have found sleep quality improved in a room scented with lavender.”

Doctors say getting a solid night’s sleep is an important component of maintaining good health. Your body restores its immune system during sleep, and insufficient sleep has been linked to a number of serious health woes, including heart disease, diabetes, being overweight, problems with memory and fuzzy thinking as well as lower levels of testosterone in men.

Writer Arianna Huffington, the co-founder and former editor-in-chief of the popular news website *The Huffington Post*, believes we’re in the midst of a sleep-deficit crisis, something she knows about from personal experience. Beginning in her years as a college student, Arianna says she bought into “the prevalent cultural norm of sleep deprivation as essential to achievement and success.” She continued on this dangerous path for years, pushing herself to get by on just three or four hours of sleep a night, until eventually, in April 2007, she collapsed from “sleep deprivation, exhaustion, and burnout.”



BY GARRY MESSICK

After learning her lesson, and seeing that too many people suffer from lack of sleep in today’s fast-paced, stress-filled world, Arianna felt moved to write *The Sleep Revolution: Transforming Your Life, One Night at a Time*.

In this interview with **Life Extension**[®], Huffington discusses the importance of getting quality sleep, as well as the detrimental effects of sleeping pills.



LE: Just how dangerous is lack of sleep?

AH: The incidence of death from all causes goes up by **15%** when we sleep five hours or less per night. A 2015 CNN.com article based on the latest findings by the American Academy of Sleep Medicine, provocatively titled “Sleep or Die,” discussed the connection between lack of sleep and an increased risk of heart attack, stroke, diabetes, and obesity. In other words, getting enough sleep really is a matter of life and death.

LE: What about the effects of lack of sleep on behavior and mental ability?

AH: Researchers from Harvard Medical School and Brigham and Women’s Hospital examined the effects of sleep deprivation on nearly 3,000 first-year (medical school) residents. The number of hours an intern may work per week is capped at 80 hours, but individual shifts can run more than 24 hours. They found that in months when interns worked five or more shifts longer than 24 hours,

“fatigue-related adverse events” increased by **700%** and “fatigue-related adverse events” resulting in patient death increased by **300%**. An Australian study found that after being awake for 17 to 19 hours (a normal day for many of us!), we can experience levels of cognitive impairment equal to having a blood alcohol level of **.05%** (just under the legal limit in many US states). And if we’re awake just a few hours more, we’re up to the equivalent of **0.1%**—legally drunk.

LE: How common is the use of prescription sleeping pills?

AH: In the United States, more than 55 million prescriptions for sleeping pills were written just in 2014, with sales topping \$1 billion. A 2013 Centers for Disease Control (CDC) report stated that 9 million Americans—**4%** of all adults—use prescription sleeping pills. I asked several sleep experts what they thought of the **4%** number from the CDC, and the general conclusion was that the survey number involved significant underreporting. A National Sleep Foundation poll found startlingly high rates

of sleep-aid usage among women, with **29%** reporting that they use a sleep aid of some kind at least a few nights a week. A survey by *Parade* magazine of more than 15,000 people found that **23%** of respondents took sleeping pills once a week and **14%** took them every night.

LE: What are the most popular sleeping pills used today?

AH: The most common pharmaceutical weapon we use to knock ourselves out is the drug *zolpidem*, which you probably know as Ambien. It accounts for more than two-thirds of the sleeping pills sold in the United States. Zolpidem is part of a class of drugs known as hypnotics, which work to induce and lengthen the duration of sleep. Lunesta, another hypnotic, marketed with a seductive green butterfly logo, had more than \$350 million in sales in the United States in 2014, and that figure does not include the generic version, *eszopiclone*, which generated another \$43 million.

LE: How effective are these drugs? Are they actually helpful?

AH: When you hear the stories of people who have become dependent on sleeping pills, you realize they shouldn't be called sleeping pills at all. Because we now know that simply not being awake doesn't necessarily mean you're actually asleep.

Harvard Medical School professor Patrick Fuller explained to me the difference between natural sleep and drug-induced sleep. Sleeping pills typically target only one of the many different chemical systems used by the brain as part of the sleep process, which "necessarily produces an imbalance in the chemical signaling by which the brain achieves normal sleep and may limit restorative slow-wave sleep. The newer drugs like Ambien produce more naturalistic sleep but can have side effects, albeit rarely, like sleep eating and sleepwalking, which by definition are not part of normal sleep behavior."

This limbo state, when we are not really awake but not really asleep, can result in behaviors ranging from the harmless and humorous to the disturbing and dangerous. And part of the danger is that you will more than likely have no memory of whatever you do.

LE: Are there any long-term hazards involved with sleeping pills?

AH: Researchers from the University of Montreal and the University of Bordeaux discovered that the use of *benzodiazepines* such as Xanax and Restoril, usually taken for anxiety or as a sleep aid, increases the risk of developing Alzheimer's by **32%** after

being used for three to six months. Taking these drugs for more than six months raises the risk by **84%**.

LE: What about people who are just occasional users?

AH: One study from the Scripps Research Institute led by Dr. Daniel Kripke compared data from a sample group of more than 10,000 people taking sleeping pills, including *zolpidem* (Ambien) and *temazepam* (Restoril), with a control group of more than 23,000 not taking sleeping pills. Researchers found that those prescribed as few as 18 doses of sleeping pills a year had a three-times-higher risk of death during the study's two-and-a-half-year follow-up period than their counterparts in the control group, "with greater mortality associated with greater dosage prescribed." Furthermore, those taking the highest dosage of sleeping pills (more than 132 doses per year) had a **35%** increased risk of cancer—including lung, lymphoma, prostate, and colon cancers.

LE: Can you discuss some natural sleep-aid supplements that you would recommend?

AH: Those who want to explore herbal sleep aids—and especially those who want to wean themselves off sleeping pills—have many options to consider. **Valerian root**, for example, is a natural sedative whose use dates back to ancient Greece, where Hippocrates prescribed it in the fourth century B.C. In recent years, its effectiveness has been supported by research. In addition to valerian root, Dr. Frank Lipman, founder of the Eleven Eleven Wellness Center in New York, also recommends other nutrients that can improve sleep, including **gamma-aminobutyric acid**, or **GABA** (a naturally occurring chemical that dampens brain activity), and **L-theanine** (an amino acid found in green tea leaves that induces brain waves connected to relaxation).





LE: What is the most widely-used natural sleep aid today?

AH: One of the most popular herbs for sleep is **lavender**, which has been used throughout history for healing and relaxation. The Greek physician Dioscorides wrote about lavender's many medicinal benefits as early as the first century. The herb was a staple of Greek and Roman baths, and in ancient Egypt it was frequently used for incense. And again, there is scientific evidence to support what the ancients knew. A Thai study found that smelling lavender helps us relax by slowing down our heart rate, decreasing our blood pressure, and lowering skin temperature. Other studies have found sleep quality improved in a room scented with lavender or when lavender oil was sprinkled on pajamas or pillows. And in Germany, lavender tea has been approved by their equivalent of the FDA as a treatment for insomnia.

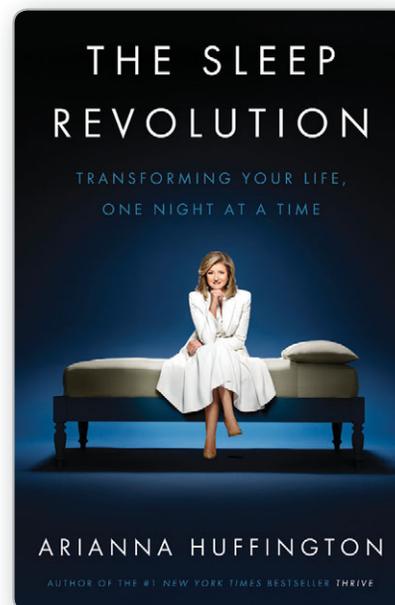
LE: Lastly, do you have a bedtime routine that helps you get a good night's sleep?

AH: I treat my transition to sleep as a sacrosanct ritual. Before bed, I take a hot bath with Epsom salts and a candle flickering nearby—a bath that I prolong if I'm feeling anxious or worried about something. I don't sleep in my workout clothes as I used to (think of the mixed message that sends to our brains) but have pajamas, nightdresses, even T-shirts dedicated to sleep. Sometimes I have a cup of chamomile or lavender tea if I want something warm and comforting before going to bed. Think of each stage as designed to help you shed more of your daytime worries. ●

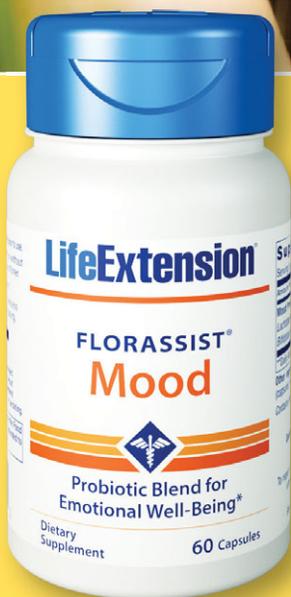
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References

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1. *Int Angiol.* 2014 Feb;33(1):20-6.

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Natural Plant Extracts Combat Aging, Drooping Eyelids

The thin skin of the eyelids is highly sensitive to external stressors like sun exposure and environmental pollutants.¹⁻³

Internal changes such as the formation of **advanced glycation end products** further accelerate aging of functional skin proteins in collagen and elastin.^{4,5} The resulting formation of cross-links in elastin and collagen reduces their flexibility and elasticity, and increases tissue stiffening.^{6,7}

This compromised collagen and elastin structural network produces a tired and worn out appearance—often accompanied by unsightly drooping eyelids, dark circles, and bags that make one look older.

Fortunately, **natural plant extracts** have been identified that offer a unique advantage by boosting the formation of collagen and elastin, while protecting existing skin proteins from glycation and enzymatic degradation.

Albizia julibrissin Extract

Albizia julibrissin, also known as Persian silk tree, is a plant indigenous to southwestern and eastern Asia. Its cluster of pink flowers has been historically used to treat anxiety and depression in Chinese traditional medicine due to its ability to elevate mood and restore calm in the face of stress.^{8,9}

There has been a great deal of cosmetic interest in *Albizia julibrissin* extract, and for good reason. Its free-radical scavenging power—**six-fold** greater than vitamin C—thwarts free-radical assaults that result in damaged and aging eyelids.^{10,11}

Siegesbeckia orientalis Extract

For centuries, natives of India have used *Siegesbeckia orientalis* to treat and reduce the risk of inflammatory diseases. Now research is catching up to this traditional wisdom as one of this plant's main constituents—*kire-nol*—has been shown to quell local and systemic inflammation through suppression of **nuclear factor-kappaB** activation, which in turn blocks the production of pro-inflammatory mediators.^{12,13}

A Powerful Combination

In vitro studies combining both *Albizia julibrissin* and *Siegesbeckia orientalis* extracts have been shown to inhibit free-radical production by **37%** and reduce lipid peroxidation by **81%** in human skin fibroblasts.¹⁴

Additionally, the combination of the extracts decreased elastin **glycation** by **21%** after 9 days in human fibroblasts exposed to fructose. This combination of nutrients was shown to protect against **advanced glycation end products**, prevent the formation of damaging **glycotoxins** that contribute to dark circles, and reduce the accumulation of the pigment **lipofuscin** responsible for light brown, yellowish age spots.¹⁴

There is also evidence that the two plant extracts, when exposed to human fibroblast cells of connective tissue, may strengthen the dermis by an impressive **229%**, and increase elastin and collagen synthesis by **256%**.¹⁴

Human Studies

In human studies, extracts of *Albizia julibrissin* and *Siegesbeckia orientalis* improve characteristics of aging around the eyes, including crow's feet, drooping eyelids, and dark circles.

Scientists applied a cream containing either both plant extracts or a placebo twice daily to the crow's feet of 24 volunteers aged 40-79. After two months,

the volume and depth of wrinkles diminished by an average of **14.1%** and **9.5%**, respectively. They also observed an **11.2%** increase in the opening of the wrinkles, thereby making them less pronounced.¹⁴

Next, scientists retained 18 volunteers with drooping upper eyelids from this study and applied the same protocol. Participants experienced a **20.4%** decrease in height of the fold of the eyes, and a **13.7%** reduction in drooping surface area. At the end of two months, **94%** of participants demonstrated a visible lifting effect on the upper eyelid.¹⁴

In another controlled clinical study with 24 participants (mean age 42), twice daily application for two months of a cream containing both plant extracts was shown to reduce dark circles under the eyes by **7.5%**, whereas a placebo cream increased them by an approximate **2.8%**.¹⁴

Researchers evaluated the self-assessment scores of 105 volunteers reporting a tired look characterized by dark circles, wrinkles, and puffiness. Compared to a placebo, participants applying a cream containing both plant extracts reported the following significant improvements after 28 days:¹⁴

- **44%** reduction in the fatigue appearance of the eye area
- Approximate **42%** reduction in wrinkles and puffiness
- Close to a **46%** reduction in dark circles





Plant Extracts Revitalize Aging Eyelids

- The thin and delicate skin of the eyelids is sensitive to both external and internal stressors such as ultraviolet radiation, environmental pollutants, and advanced glycation end products (AGEs).
- As a result, the skin's structural network of collagen and elastin becomes compromised—leading to drooping eyelids, dark circles, and bags that make you look much older than you really are.
- *Albizia julibrissin* and *Siegesbeckia orientalis* extracts have been shown to protect against destructive glycation and stimulate collagen and elastin production.
- Human studies have demonstrated that both plant extracts reduce drooping upper eyelids, dark circles, and crow's feet.
- Seaweed and olive oil extracts provide remarkable moisturizing and nourishing properties to keep eyelid skin firm and supple.
- Together, these natural plant extracts offer a potent formula for rejuvenating aging, drooping eyelids.

Olive Oil Extract

The benefits of olive oil for skin health have been seen after both local (topical) and systemic (oral) administration. Olive oil is a well-known component of the Mediterranean diet that safeguards against numerous age-related diseases.^{15,16} As a rich source of *monounsaturated fatty acids*, olive oil reduces the risk of photoaged skin characterized by saggy and droopy eyelids, wrinkles, and undesirable pigmentation.¹⁷ Furthermore, olive oil's main phenolic compound—*oleuropein*—supports the skin's healing mechanisms, especially in the delicate area of the eyelids.¹⁸

Seaweed Extract

Chondrus crispus—a species of red seaweed found along the rocky coasts of the Atlantic—has unique properties that can bind and trap water molecules,¹⁹ thereby effectively rehydrating different layers of eyelid skin. It's chock full of vitamins, minerals, and phytonutrients that help repair sun-damaged skin to leave it smoother and more radiant.²⁰

Summary

The daily assault of external and internal factors such as ultraviolet radiation and formation of advanced glycation end products takes a heavy toll on the thin skin of the eyelids. This weakens the skin's structural network of collagen and elastin—paving the way for the development of dark circles and bags under the eyes, as well as drooping eyelids that can add years to your perceived age.

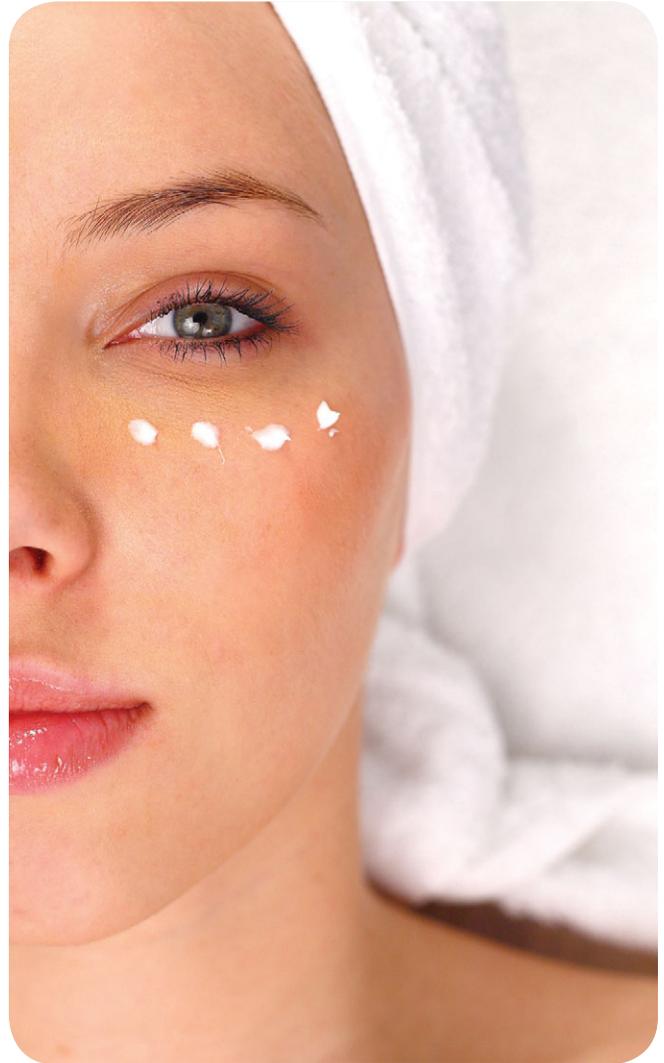
Scientists have identified natural plant extracts—including *Albizia julibrissin* and *Siegesbeckia orientalis*—that work together to stimulate collagen and elastin synthesis. These topical compounds, combined with the moisturizing and nourishing properties of seaweed and olive oil extracts, offer a potent formula for rejuvenating aging eyelids. ●

Gary Goldfaden, MD, is a clinical dermatologist and lifetime member of the American Academy of Dermatology. He is the founder of Academy Dermatology in Hollywood, FL, and Cosmesis Skin Care. Dr. Goldfaden is a member of **Life Extension**®'s Medical Advisory Board. All Cosmesis products are available online.

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Note: Those taking anticoagulant drug Coumadin® (warfarin) should use Bone Restore without K2.

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2016

Stem Cell Conferences

Stem cells continuously replenish and repair many body tissues.

Red blood cells are replenished about every four months, skin cells are replenished in less than a month, and cells lining the small intestine are replaced every few days. The stem cells performing this function are called **somatic** stem cells. Somatic stem cells are important contributors to wound healing.¹ The decline in somatic cell function with age might be one of the reasons why wounds heal more slowly, and with more scarring, as people grow older.²

Somatic stem cells usually are only capable of becoming the type of cell found in the tissue where they reside. Some stem cells are **multipotent**, capable of differentiating into many types of cells. Notable examples include **hematopoietic stem cells (HSCs)** which can become any type of blood cell (red blood cells, white blood cells, or other immune-system cells) and **mesenchymal stem cells (MSCs)**, which can differentiate into bone cells, fat cells, muscle cells, or cartilage cells.^{3,4}

Stem Cell Transplants

HSC transplantation has been performed for decades, but only for life-threatening conditions. Chemotherapy or radiation therapy against cancer can destroy bone marrow immune cells. So HSCs can be extracted from a patient before therapy and replaced after therapy. Often, however, it is necessary to use stem cells from another person, matched as closely as possible with compatible **human leukocyte antigens (HLAs)**. Many different HLA proteins occur on the surface of cells, which vary considerably from person to person, and which are the major cause of immune system rejection associated with organs or tissues transplanted from one person to another. Even when well-HLA-matched sibling tissues are used, drugs to suppress the immune system are required.⁵

Regenerative Medicine

A dream of stem cell therapy is to only use stem cells that are HLA-compatible with the body tissue of the patient to prevent immune rejection, and to avoid the need to use drugs to suppress the immune system. Only stem cells that originate from the body of the patient receiving the treatment would fulfill that requirement. Such stem cells would be essential for **regenerative medicine**, allowing for the replacement or repair of any defective tissue or organ.

Embryonic stem cells (ESCs) isolated from a patient can differentiate into any type of cell needed by the patient (**pluripotent**). In 1998, human ESCs were first derived from human embryos only a few days old, but only by destroying the embryo.⁶ In 2006, however, a method was found to remove an ESC from an embryo without destroying the embryo.⁷ But that same year, Japanese researcher Shinya Yamanaka discovered a way of inducing mouse skin cells to become pluripotent as ESCs.⁸ The following year he was able to create similar **induced pluripotent stem cells (iPSCs)** from human skin cells.⁹ For these achievements, Dr. Yamanaka together with Sir John B. Gurdon won a Nobel Prize in 2012.

Much work remains to be done, however, to fulfill the hope that iPSCs represent. Human iPSCs take weeks to derive, efficiency is often as low as 0.1% and quality is often poor.¹⁰⁻¹² Differentiating somatic cells from iPSCs is far from an exact science. Despite being derived from the patient for whom they are to be used, iPSCs can often produce an immune response due to poor quality.¹³ iPSCs become cancerous much more often than ESCs.¹⁴



Yamanaka



Urgent Need to Accelerate Stem Cell Research

Although many scientists believe pluripotent stem cells (ESCs and iPSCs) hold great potential for regenerative medicine, it will probably be at least a decade before technologies are developed to safely and effectively expand and differentiate them.

iPSCs are the most promising source of patient-specific pluripotent stem cells, yet iPSCs have many more genetic abnormalities than ESCs, and about ten times more mutations than the cells from which they were derived.^{15,16}

It is essential to expand the number of stem cells in order to have sufficient quantity of those cells for therapy, but iPSCs are far more difficult than ESCs to expand without defects.¹⁶ It is likely that technologies developed in the coming decade will help overcome these limitations.

Fetal tissue is rich in stem cells, and those stem cells have a low risk of immune system rejection because HLA immaturity protects the fetus from immune rejection by the mother. Although fetal tissue has been used to treat a wide variety of diseases, low availability and ethical concerns constrain its use.¹⁷ Stem cells from umbilical cord blood have similar advantages, but also have limited availability.¹⁸

Hematopoietic Stem Cells (HSCs) are the most commonly used curative stem cell therapy in modern medicine,¹⁹ but MSCs are by far the most common type being tested in clinical trials.²⁰ MSCs can be used without HLA matching because MSCs do not express a broad class of HLA antigens.²¹ Moreover, MSCs possess many anti-inflammatory properties, so MSCs have often been used to suppress the immune system after organ transplantation.²² Although MSCs were originally derived from bone marrow, MSCs can

now be derived from a wide variety of tissues and body fluids.²³ The main benefit of MSCs is their ability to enhance the repair capabilities of tissues, rather than their ability to engraft (which is poor).²⁴ A major challenge with MSCs is their wide cell-to-cell variability.²⁵

Parabiosis experiments which connect the circulatory systems of genetically matched young and old mice have been shown to restore somatic stem cell function in the old mice.²⁶ The **Life Extension Foundation**[®] is seeking to raise funds for clinical trials with the hope of reversing frailty in elderly humans who are given extracts of young blood. ●

Technical Report Available On-line

I've written a technical report describing presentations made at recent stem cell conferences I've attended on behalf of **Life Extension Foundation**.

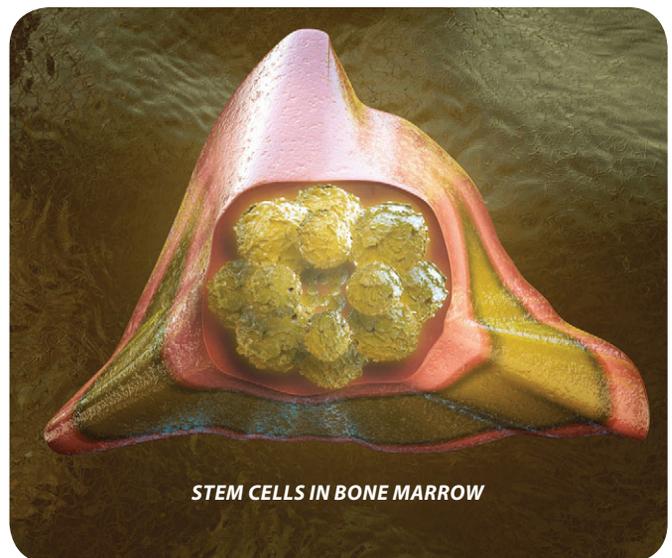
Most notable were data presented at a conference organized by Nobel Laureate Shinya Yamanaka at Kyoto University in Kyoto, Japan, held **March 22-24, 2016**.

To access this report in full, log on to LifeExtension.com/stemcell

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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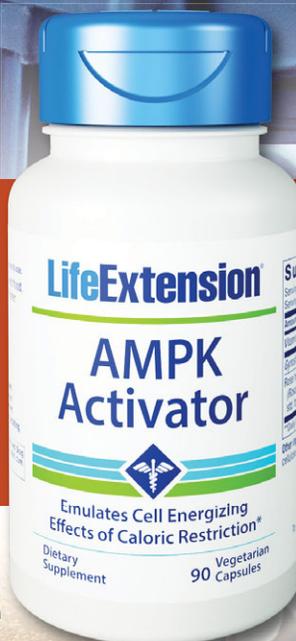
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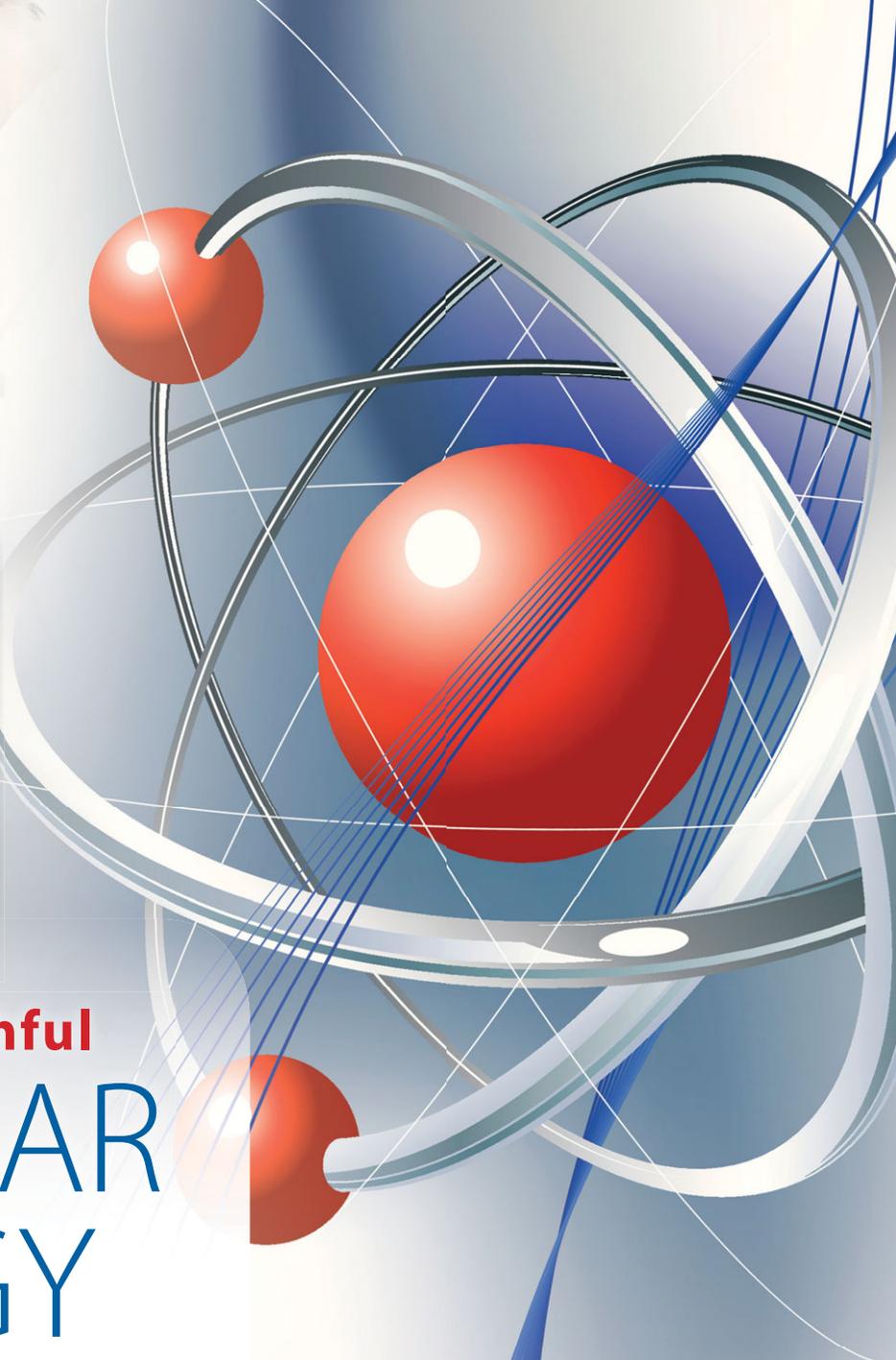
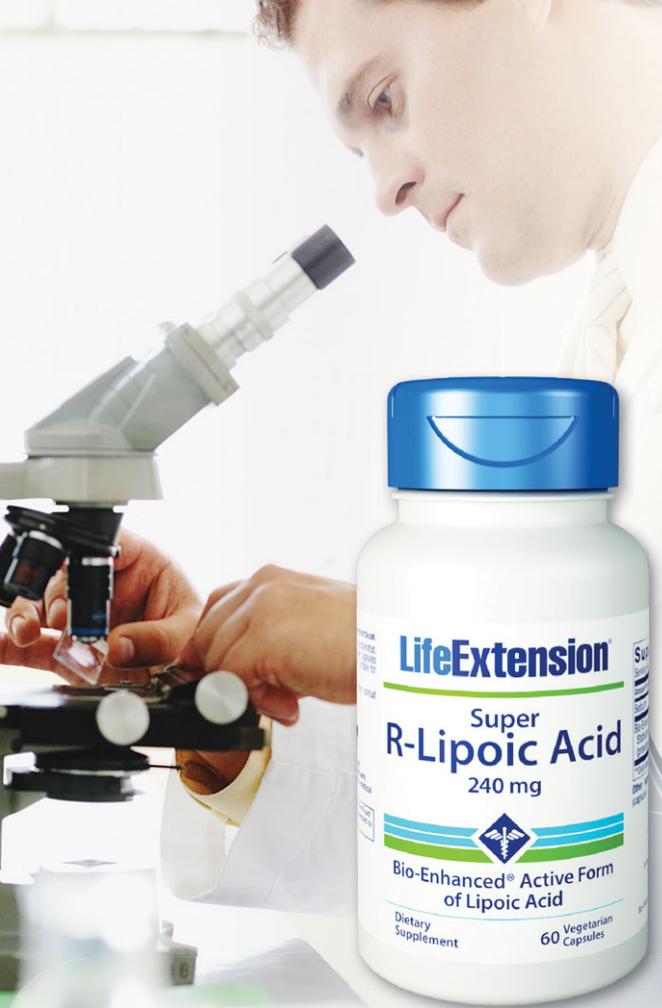
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Boron

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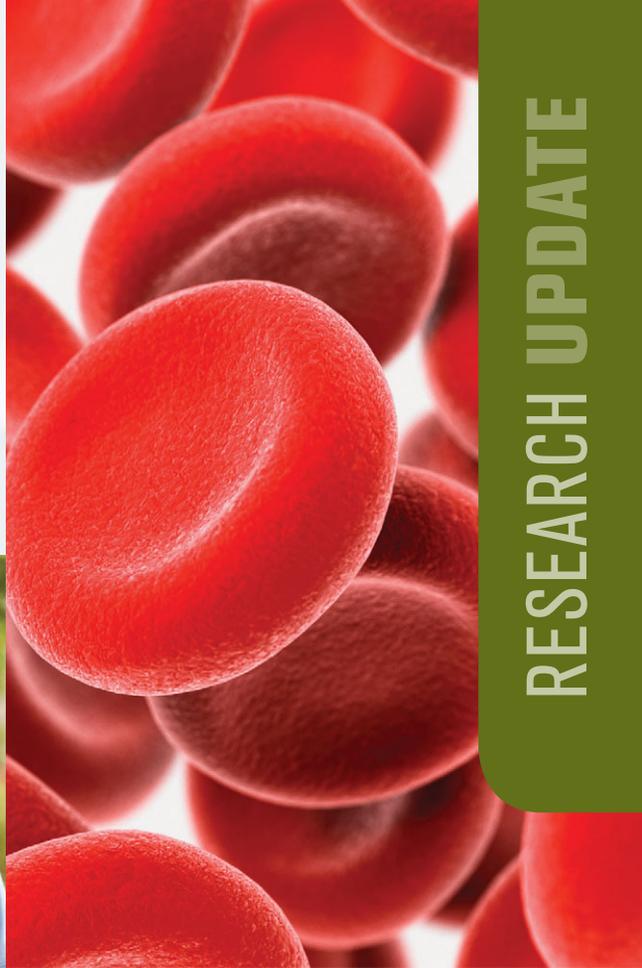
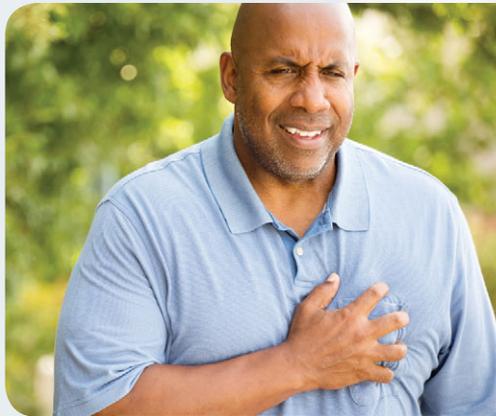


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Vitamin K2 Reduces Atherosclerosis



RESEARCH UPDATE

BY JENNIFER MING

In a new study, scientists have presented powerful evidence that **vitamin K2** can reduce the progression of **atherosclerosis**, the “blockage” of the arteries that can lead to heart attacks and strokes.

This is tremendous news for the millions of Americans who are at risk for cardiovascular disease, which remains the number one killer in the US.¹

Scientists long ago learned that vitamin K2 plays a crucial role in activating proteins that help keep calcium where it belongs, in the bones, and out of blood vessels where it can cause problems.

Published data show that people with higher intake of vitamin K2 have a **57%** reduction in the risk of dying from cardiovascular disease, and as much as an **81%** reduction in non-vertebral fractures.^{2,3}

Here, we’ll review the important new study on atherosclerosis, and then examine previous findings that explain how vitamin K2 contributes so importantly to both cardiovascular and bone health in aging adults.

Vitamin K2 Reduces the Progression of Arterial Thickening

Numerous studies have demonstrated that people with higher intakes of vitamin K2 have a reduced risk for cardiovascular disease.³⁻⁵ Intrigued by this connection, Polish researchers from the Medical University at Lodz teamed up with researchers from Maastricht University in the Netherlands and Poland's International Science and Health Foundation to determine if vitamin K2 supplementation could reduce the progression of existing atherosclerosis.⁶

The scientists evaluated the progression of atherosclerosis in a group of 42 patients with chronic kidney disease.⁶ These patients were ideal for this type of study because they are known to experience a rapid reduction in bone mineral density (a measure of bone strength) as a result of calcium losses from bone.^{7,8} They are also subject to equally excessive deposits of calcium in tissues where it



doesn't belong—particularly in the walls of major arteries.⁹

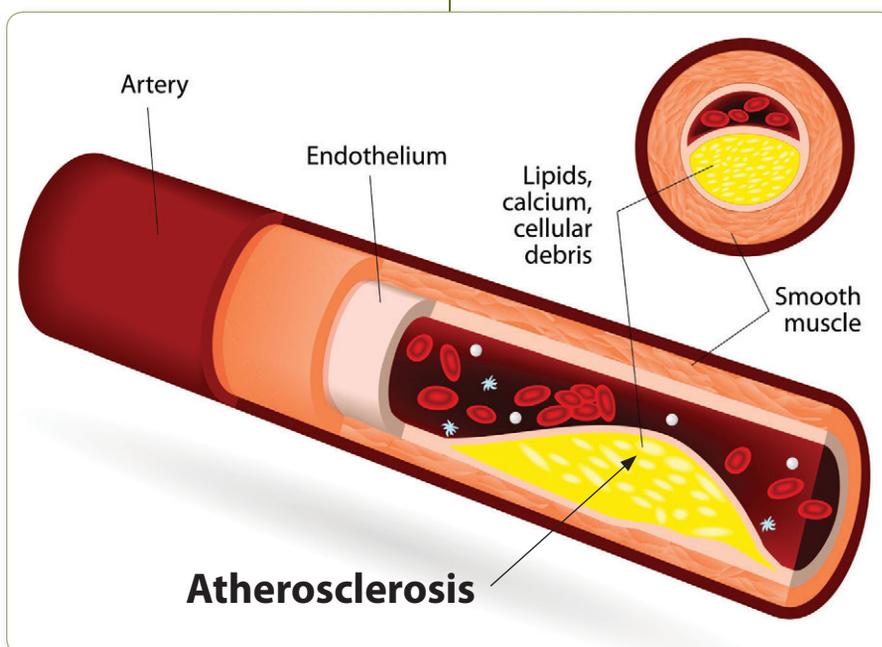
For the study, the subjects were divided into two groups. One group received vitamin K2 (90 mcg per day) plus vitamin D3 (400 IU per day). The second group received only vitamin D3 (400 IU per day).⁶

After nine months, it was already evident that the subjects taking the combination of vita-

mins K2 and D3 experienced a slower progression of the **Common Carotid Intima Media Thickness**, which is a good indicator of atherosclerosis, as well as a predictor of cardiovascular episodes and death. Specifically, the thickness of the carotid (major neck) arteries increased by **13.73%** in the group taking vitamin D3, but in the group taking both vitamins, it only increased by **6.32%**.⁶ Remember that the group of subjects in this study have a tendency for an increased carotid intima media thickness as a result of calcium losses from bone.

In addition, subjects taking the combination of vitamins K2 and D3 showed a reduction in **carotid artery calcification score** in all patients except those with the highest scores at baseline.⁶ This indicates that calcium was staying in the bones, where it belongs, and out of the arteries.

These results clearly indicated that **vitamin K2 does indeed reduce the progression of atherosclerosis**.⁶



How It Works

The impact of vitamin K2 on atherosclerosis is due to its role in activating a group of proteins whose job it is to keep calcium in the bones and out of the arteries.^{3,5,9}

In bones, vitamin K2 activates a specific protein called **osteocalcin**. When osteocalcin is activated by vitamin K2, it binds calcium tightly to bone minerals to create strong bones. In arteries, vitamin K2 activates a protein called **matrix Gla protein**. When matrix Gla protein is activated by vitamin K2, it prevents calcium from being deposited in arteries.^{9,10}

When vitamin K2 is not present in sufficient enough quantities to activate these two proteins, the result is an increased risk for developing osteoporosis and atherosclerosis because of calcium loss from the bones.¹¹⁻¹³

High Praise

The findings from this recent Polish study were significant enough to merit published comments by other experts in the field.

The experts observed that patients in the combined vitamins K2 plus D3 arm of the study already had more severe kidney disease, despite being randomly assigned to the treatment groups. This means that the group taking vitamin K2 along with D3 succeeded *despite* a less favorable starting point compared with the group taking only vitamin D3.¹⁴

Of course, while chronic kidney disease is common and deadly, patients with the disease are far from the only ones at risk for cardiovascular disease and bone loss arising from insufficient vitamin K2 intake. But given their extreme

risk for those conditions, this patient population made an ideal test group to demonstrate the value of supplementation with both vitamin K2 and D3.

Vitamin K2's Dual Benefits

The recent Polish study further validated previous studies demonstrating vitamin K2's heart- and bone-health benefits.

Numerous studies have shown that populations with higher daily vitamin K2 intake (more than **32 mcg**) have a **50%** reduction in the risk of death from cardiovascular disease compared to those with low intake.^{3,9} Calculated another way, for every **10-mcg** per day-increase in vitamin K2 intake, the risk of coronary heart disease falls by **9%**.^{4,9} In another study, women

with the highest intake of vitamin K2 were found to be at a **20%** lower risk for coronary artery calcification compared with women who had the lowest intake levels.⁵

These benefits have been found to extend to bone health as well. Postmenopausal women taking **1,500 mg** of calcium along with **45 mg** of vitamin K2 daily experienced an increase in bone mineral density and a **55.9%** reduction in *inactive* osteocalcin levels,¹⁵ a marker reported to be elevated in osteoporotic patients and related to an increased hip fracture risk.^{16,17} Another study showed that when **180 mcg** of vitamin K2 daily was given for 3 years, it increased the amount of *activated* osteocalcin, produced significant improvements in bone mineral content and density, and increased bone strength.¹⁸



Western Diet is Deficient in Vitamin K2

The average American diet lacks enough vitamin K2—which is found primarily in organ meats, egg yolks, cheese, and in a Japanese staple dish of fermented soybean called natto—to properly activate those vitamin K-dependent proteins.^{9,19} Compounding the problem, vitamin K2 deficiency worsens with advancing age.¹⁹

Fortunately, studies have shown that sustained vitamin K2 supplementation produces significant improvements in bone mineralization and strength and also in standard measurements of cardiovascular health.^{9,20}

The take-home message is that supplementing with vitamin K2 is practically mandatory for the average American desiring both healthy bones and a healthy cardiovascular system.

Summary

Vitamin K2 has the unique ability to activate proteins that send calcium to its proper destination, into bone, while simultaneously preventing calcium from being deposited in blood vessel walls.

A new study has shown that supplemental vitamin K2 can reduce the progression of arterial thickening and stiffening in a population of kidney disease patients, a group that notoriously has cardiovascular complications arising from excessive calcium deposition.

Thus, supplementation with vitamin K2 should be part of a daily longevity program for any aging adult interested in preserving both heart and bone health. ●

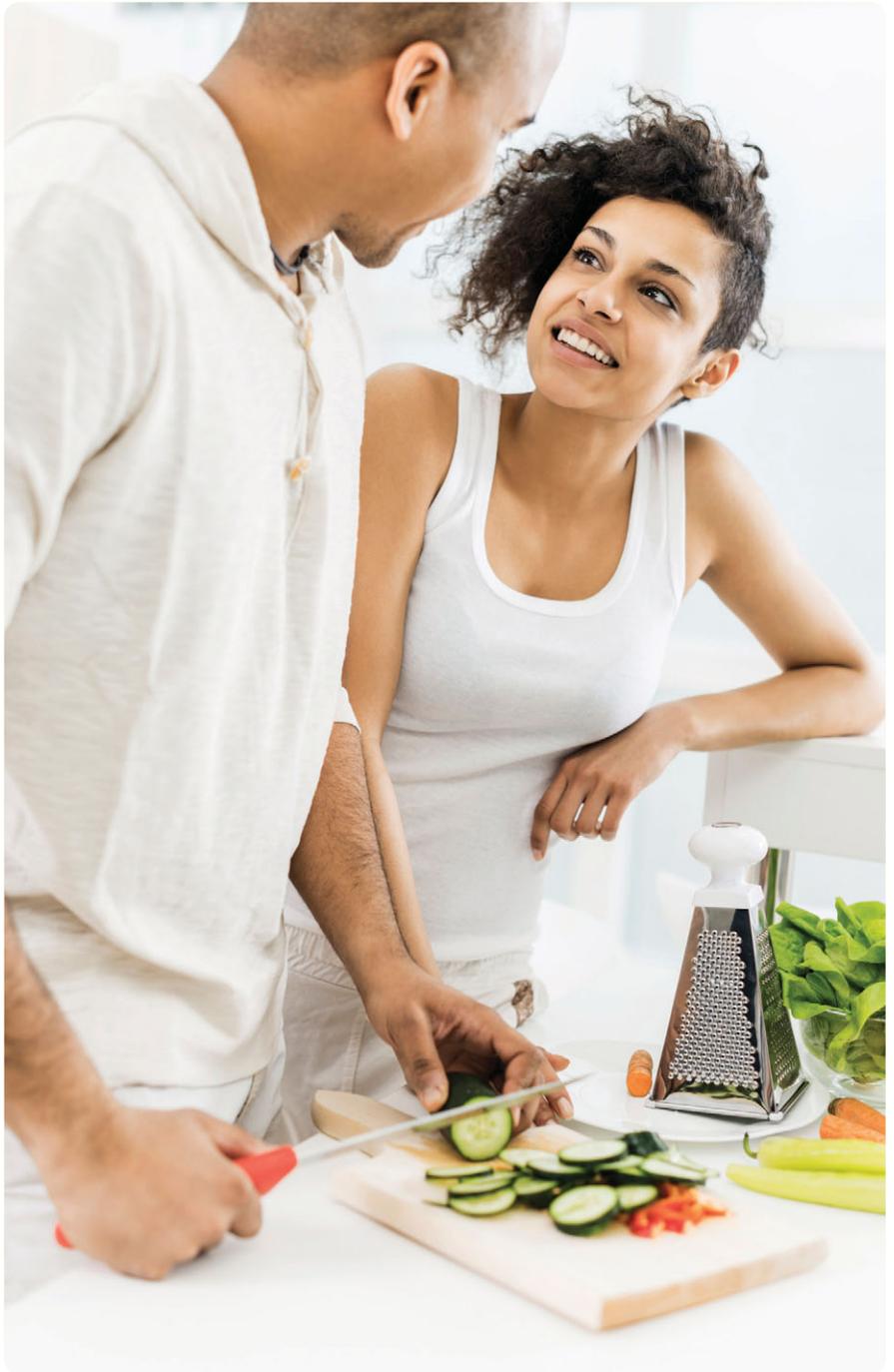
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MAGNESIUM

CRITICAL FOR WHOLE-BODY HEALTH

Magnesium is the **most important** mineral in the body, yet most Americans do not obtain sufficient magnesium from their diet.

Magnesium is required for more than **300 biochemical reactions** and many of the body's critical functions are dependent upon it. Magnesium helps:^{1,2}

- Maintain normal **muscle** and **nerve function**.
- Keep **heart rhythm** steady.
- Support a healthy **immune system**.
- Keep **bones strong**.
- Maintain **blood sugar levels** already within normal range.
- Promote normal **blood pressure**. Magnesium is also...
- Involved in **energy metabolism** and **protein synthesis**.

The recommended intake of magnesium to maintain vascular health is **500 mg** or more a day. With **Life Extension® Magnesium Caps**, you can easily obtain **500 mg** of elemental magnesium for less than **7 cents a day!**

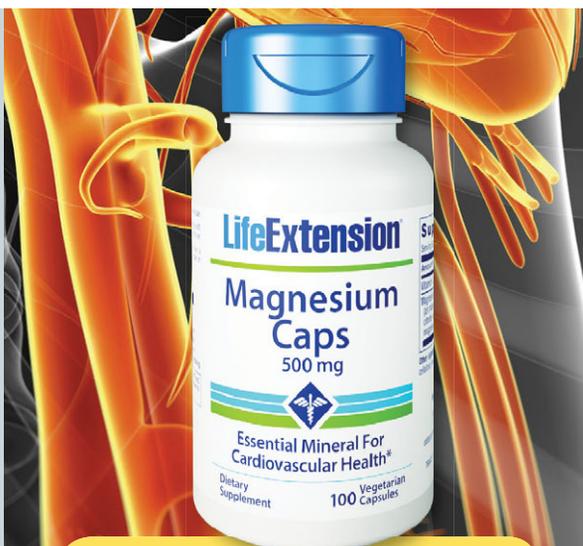
Non-GMO

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

References

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



Magnesium Caps
Item #01459 • 100 vegetarian capsules

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Warning to Coumadin® (warfarin) Drug Users: Patients prescribed vitamin K-antagonist anticoagulant prescription drugs like warfarin should consult their physician before taking vitamin K supplements like Super K and Super Booster. There is evidence, however, that users of drugs like warfarin could benefit from a consistent low dose of supplemental K. Ask your doctor if you can take a low dose (**45 mcg** a day) of vitamin K2 in the long-acting MK-7 form for the purpose of stabilizing your INR levels and also protecting your body against long-term vitamin K deficit. Do not initiate any form of vitamin K supplementation without full cooperation of your treating doctor, as your doctor may need to increase your dose of warfarin to compensate for your vitamin K supplement. Life Extension® provides several forms of low-dose vitamin K for physician consideration.

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Managing Blood Sugar

Numerous studies have shown that pistachios have a beneficial effect on blood sugar. A 2011 paper found that pistachios eaten with a meal high in carbohydrates lowered blood glucose response.¹

Weight Management

There's evidence that pistachio consumption correlates with better weight control. A meta-analysis of 33 studies reported in 2013 compared weight outcomes of a diet including pistachios—among other nuts—against control diets. They concluded that diets enriched with nuts did not increase weight, body mass index, or waist circumference.²

Cardiovascular Health

Studies suggest that pistachios have anti-inflammatory benefits and may help lower LDL (“bad”) cholesterol when eaten as part of an overall healthy diet.³ Additionally, a 2010 study showed significantly lower triglyceride levels in subjects who ate pistachios.⁴

Nutritional Value

Pistachios contain a broad-spectrum of essential vitamins and minerals as well as protein, fiber, and an array of phytochemicals.⁵

References

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References

1. *Hum Psychopharmacol.* 2011;26(7):470-6.
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| ○ MALE LIFE EXTENSION PANEL (LC322582) | \$269 | |
| CBC/Chemistry Profile (See description) | | |
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| Estradiol | PSA (prostate-specific antigen) | |
| Vitamin D 25- hydroxy | Hemoglobin A1c | |
| ○ FEMALE LIFE EXTENSION PANEL (LC322535) | \$269 | |
| CBC/Chemistry Profile (See description) | | |
| C-Reactive Protein | Homocysteine | |
| DHEA-S | Free Testosterone | |
| TSH for thyroid function | Total Testosterone | |
| Estradiol | Vitamin D 25-hydroxy | |
| Progesterone | Hemoglobin A1c | |
| ○ FEMALE HORMONE REPLACEMENT PANEL (LC100023) | \$189 | |
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| ○ MALE ELITE PANEL* (LC100016) | \$575 | |
| CBC/Chemistry Profile (See description), Free and Total Testosterone, Total Estrogens, Estradiol, DHEA-S, Progesterone, Pregnenolone, DHT, FSH, LH, TSH, Free T3, Free T4, Reverse T3, Free and Total PSA, IGF-1, SHBG, Vitamin D 25-OH, hs-CRP, Ferritin, Homocysteine | | |
| ○ FEMALE ELITE PANEL* (LC100017) | \$575 | |
| CBC/Chemistry Profile (See description), Free and Total Testosterone, Total Estrogens, Estradiol, Estrone, DHEA-S, Progesterone, Pregnenolone, DHT, FSH, LH, TSH, Free T3, Free T4, Reverse T3, IGF-1, SHBG, Vitamin D 25-OH, hs-CRP, Ferritin, Homocysteine | | |
| ○ MALE HORMONE ADD-ON PANEL (LCADDM)* Pregnenolone and Dihydrotestosterone (DHT) | \$120 | |
| To provide an even more in-depth analysis of a man's hormone status, Life Extension has created this panel as an addition to the Male Life Extension Panel. | | |
| ○ FEMALE HORMONE ADD-ON PANEL (LCADDF)* Pregnenolone and Total Estrogens | \$125 | |
| To provide an even more in-depth analysis of a woman's hormone status, Life Extension has created this panel as an addition to the Female Life Extension Panel. | | |
| ○ COMPREHENSIVE THYROID PANEL (LC100018) | \$199 | |
| TSH, T4, Free T4, Free T3, Reverse T3, TPO, ATA | | |
| ○ LIFE EXTENSION THYROID PANEL (LC304131) | \$75 | |
| TSH, T4, Free T3, Free T4. | | |
| ○ THYROID PANEL WITH REVERSE T3 (LC100044) | \$120 | |
| TSH, T4, Free T3, Free T4, Reverse T3 | | |
| ○ THE CBC/CHEMISTRY PROFILE (LC381822) | \$35 | |
| Note: This CBC/Chemistry Profile is included in many Life Extension panels. Please check panel descriptions. | | |
| CARDIOVASCULAR RISK PROFILE | | |
| Total Cholesterol | Cholesterol/HDL Ratio | |
| HDL Cholesterol | Estimated CHD Risk | |
| LDL Cholesterol | Glucose | |
| Triglycerides | Iron | |
| LIVER FUNCTION PANEL | | |
| AST (SGOT) | Total Bilirubin | |
| ALT (SGPT) | Alkaline Phosphatase | |
| LDH | | |
| KIDNEY FUNCTION PANEL | | |
| BUN | BUN/Creatinine Ratio | |
| Creatinine | Uric Acid | |
| BLOOD PROTEIN LEVELS | | |
| Total Protein | Globulin | |
| Albumin | Albumin/Globulin Ratio | |
| BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE | | |
| Red Blood Cell Count | Monocytes | |
| White Blood Cell Count | Lymphocytes | |
| Eosinophils | Platelet Count | |
| Basophils | Hemoglobin | |
| Polys (Absolute) | Hematocrit | |
| Lymphs (Absolute) | MCV | |
| Monocytes (Absolute) | MCH | |
| Eos (Absolute) | MCHC | |
| Baso (Absolute) | Polynucleated Cells | |
| RDW | | |
| BLOOD MINERAL PANEL | | |
| Calcium | Sodium | |
| Potassium | Chloride | |
| Phosphorus | Iron | |
| ○ MALE COMPREHENSIVE HORMONE PANEL* (LC100010) | \$299 | |
| CBC/Chemistry Profile, DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3, Free T4, Cortisol. | | |
| ○ FEMALE COMPREHENSIVE HORMONE PANEL* (LC100011) | \$299 | |
| CBC/Chemistry Profile, DHEA-S, Estradiol, Total Estrogens, Progesterone, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3, Free T4, Cortisol. | | |
| ○ FOOD SAFE ALLERGY TEST** (LCM73001) | \$198 | |
| This test measures delayed (IgG) food allergies for 95 common foods. | | |
| ○ STRESS MANAGEMENT PROFILE (LC100043) | \$125 | |
| Cortisol AM/PM, DHEA-S, Glucose, Insulin, Progesterone, Free T3, Lipid Panel. | | |
| ○ ADRENAL STRESS PROFILE-SALIVA** (LC100046) | \$175 | |
| Cortisol X4, DHEA-S, Cortisol AM/DHEA-S ratio, Secretory IgA. | | |
| ○ BASIC CORTISOL PROFILE-SALIVA** (LC100047) | \$129 | |
| Cortisol X4 to measure cortisol rhythm over time. | | |
| ○ SLEEP HORMONES PROFILE-SALIVA** (LC100048) | \$175 | |
| Cortisol and Melatonin plus ratio. | | |
| ○ MTHFR/COMT GENETIC METHYLATION PROFILE** (LC100045) | \$149 | |
| Tests for genetic mutations in MTHFR and COMT. | | |



Other Popular Tests and Panels

- | | |
|--|--|
| <p><input type="radio"/> HEALTHY AGING PANEL-COMPREHENSIVE* (LC100026) \$249
CBC/Chemistry profile, C-Reactive Protein (high sensitivity), Vitamin B12, Folate, Homocysteine, Vitamin D 25-hydroxy, Hemoglobin A1c, TSH, Free T3, Free T4, Ferritin, Urinalysis, Fibrinogen, and Insulin.</p> <p><input type="radio"/> HEALTHY AGING PANEL-BASIC* (LC100025) \$149
CBC/Chemistry profile, C-Reactive Protein (high sensitivity), Vitamin B12, Folate, Vitamin D 25-hydroxy, Hemoglobin A1c, TSH, Ferritin, and Insulin.</p> <p><input type="radio"/> NMR LIPOPROFILE® (LC123810) \$99
The NMR LipoProfile® directly measures LDL particle size and number as well as HDL particle number, total cholesterol, and triglycerides. It also provides a calculation of one's risk of insulin resistance by assessing abnormalities in lipoprotein markers.</p> <p><input type="radio"/> ANEMIA PANEL* (LC100006) \$79
CBC/Chemistry Profile, Ferritin, Total Iron Binding Capacity (TIBC), Vitamin B12, Folate</p> <p><input type="radio"/> AUTOIMMUNE DISEASE SCREEN* (L100041) \$199
ANA screen, hs-CRP, TNF-alpha, Immunoglobulins, IgA, IgG, IgM</p> <p><input type="radio"/> DIABETES MANAGEMENT PROFILE – COMPREHENSIVE (LC100040) \$129
Hemoglobin A1C, Glucose, Insulin, Lipid Panel, Glycomark</p> <p><input type="radio"/> DIABETES MANAGEMENT PROFILE – BASIC (LC100039) \$39
Hemoglobin A1C, Glucose, Insulin</p> <p><input type="radio"/> ADVANCED CARDIAC BIOMARKERS
ADVANCED OXIDIZED LDL PANEL* (LC100035) \$285
This panel looks at vascular inflammatory biomarkers, beginning with lifestyle choices to the development of metabolic as well as cardiovascular disease and the formation of vulnerable plaque. The panel contains the following tests: F2-Isoprostanes, Myeloperoxidase, and Oxidized LDL.</p> <p><input type="radio"/> OXIDIZED LDL PANEL* (LC100034) \$175
This panel looks at vascular inflammatory biomarkers, beginning with the development of metabolic as well as cardiovascular disease and the formation of vulnerable plaque. The panel contains the following tests: Myeloperoxidase and Oxidized LDL.</p> <p><input type="radio"/> OMEGA CHECK™ (LCOMEGA) \$131.25
Provides valuable information on your risk of developing heart disease, sudden heart attack and cardiac death. The Omega Check™ also includes your AA:EPA ration allowing you to determine and track a major factor in total body inflammation.</p> | <p><input type="radio"/> HORMONES
DHEA-SULFATE (LC004020) \$61
This test shows if you are taking the proper amount of DHEA.</p> <p><input type="radio"/> MALE BASIC HORMONE PANEL (LC100012) \$75
DHEA-S, Estradiol, Free and Total Testosterone, PSA</p> <p><input type="radio"/> FEMALE BASIC HORMONE PANEL (LC100013) \$75
DHEA-S, Estradiol, Free and Total Testosterone, Progesterone</p> <p><input type="radio"/> DIHYDROTESTOSTERONE (DHT)* (LC500142) \$50
Measures serum concentrations of DHT.</p> <p><input type="radio"/> ESTRADIOL (LC004515) \$33
For men and women. Determines the proper amount in the body.</p> <p><input type="radio"/> INSULIN FASTING (LC004333) \$29.90
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Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.</p> <p><input type="radio"/> PROGESTERONE (LC004317) \$55
Primarily for women. Determines the proper amount in the body.</p> <p><input type="radio"/> SEX HORMONE BINDING GLOBULIN (SHBG) (LC082016) \$33
This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens.</p> <p><input type="radio"/> GENERAL HEALTH
VITAMIN D (25OH) (LC081950) \$47
This test is used to rule out vitamin D deficiency.</p> <p><input type="radio"/> FERRITIN (LC004598) \$28
Ferritin levels reflect your body's iron stores and is also a biomarker for insulin resistance.</p> <p><input type="radio"/> PSA (PROSTATE SPECIFIC ANTIGEN) (LC010322) \$31
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* This test requires samples to be shipped to the lab on dry ice for customers using a Blood Draw Kit and will incur an additional \$35 charge. If the customer is having blood drawn at a LabCorp facility, this extra charge does not apply.

** This test is packaged as a kit.

Amino Acids

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

Blood Pressure & Vascular Support

Advanced Olive Leaf Vascular Support with Celery Seed Extract
 Arterial Protect
 Blood Pressure Monitor Arm Cuff
 Dual Action Blood Pressure
 Endothelial Defense™ with Pomegranate Complete and CORDIART™
 Endothelial Defense™ with GliSODin®
 Natural BP Management
 NitroVasc with CORDIART™
 Pomegranate Complete
 Pomegranate Fruit Extract
 Triple Action Blood Pressure AM/PM

Bone Health

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

Brain Health

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

Cholesterol Management

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

Digestion Support

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

Fem Dophilus
 Fiber-Immune Support
 Ginger Force®
 Organic Golden Flax Seed
 Pancreatrin
 Regimint
 Tranquil Tract™
 TruFiber™
 WellBetX PGX plus Mulberry

Energy Management

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

Eye Health

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

Fish Oil & Omegas

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

Food

California Estate Extra Virgin Olive Oil
 Rich Rewards® Breakfast Blend
 Rich Rewards® Breakfast Blend Natural Mocha Flavor
 Rich Rewards® Breakfast Blend Natural Vanilla Flavor
 Rich Rewards® Breakfast Blend Whole Bean Coffee
 Rich Rewards® Decaf Roast
 Stevia Sweetener

Glucose Management

CinSulin® with InSea2® and Crominex® 3+
 Mega Benfotiamine
 Natural Glucose Absorption Control
 Tri Sugar Shield®

Heart Health

Aspirin (Enteric Coated)
 BioActive Folate & Vitamin B12 Caps
 Cardio Peak™ with Standardized Hawthorn and Arjuna
 Fibrinogen Resist™ with Nattokinase
 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

Hormone Balance

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

Immune Support

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

Inflammation Management

5-LOX Inhibitor with AprèsFlex®
 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®
 Bio-Collagen with Patented UC-II®
 Fast-Acting Joint Formula
 Glucosamine/Chondroitin Capsules
 Krill Healthy Joint Formula
 MSM (Methylsulfonylethylmethane)

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 Antioxidants 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

Men's Health

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

Minerals

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

Miscellaneous

Solarshield® Sunglasses

Mood & Stress Management

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

Multivitamins

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

Personal Care

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

Sinus Cleanser
 Venotone
 Xylwhite Mouthwash

Pet Care

Cat Mix
 Dog Mix

Probiotics

Bifido GI Balance
 BroccoMax®
 FLORASSIST® Balance
 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 Foot Scrub
 Anti-Oxidant Rejuvenating Hand Cream
 Anti-Redness & Adult Blemish Lotion
 Bioflavonoid Cream
 Broccoli Sprout Cream
 Collagen Boosting Peptide Serum
 Corrective Clearing Mask
 DNA Repair Cream
 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
 RejuvenexX® 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 Tocopherol with Sesame Lignans
 Gamma E Tocopherol/Tocotrienols
 High Potency Optimized Folate
 Inositol Caps
 Liquid Emulsified Vitamin D3
 Liquid Vitamin D3
 Low-Dose Vitamin K2
 Methylcobalamin
 MK-7
 Natural Vitamin E
 No Flush Niacin
 Optimized Folate (L-Methylfolate)
 Pantothenic Acid (Vitamin B-5)
 Pyridoxal 5'-Phosphate Caps
 Super Absorbable Tocotrienols
 Super Ascorbate C Capsules
 Super Ascorbate C Powder
 Super K with Advanced K2 Complex
 Vitamin B12
 Vitamin B6
 Vitamin C with Dihydroquercetin
 Vitamin D3 with Sea-Iodine™
 Vitamin D3
 Vitamins D and K with Sea-Iodine™

Weight Management

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

Women's Health

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

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	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			
01440	ANTI-ALCOHOL ANTIOXIDANTS W/HEPATOPRO • 100 caps	26.00	19.50	17.25			
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			
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	11.25	8.44				
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	18.95	15.16				
*01007	BIOSIL™ • 1 fl oz	31.99	25.59				
00102	BIOTIN • 600 mcg, 100 caps	7.50	5.63	4.88			
01709	BLACK CUMIN SEED OIL • 60 softgels	16.00	12.00	10.50			
01710	BLACK CUMIN SEED OIL W/BIO-CURCUMIN® • 60 softgels	32.00	24.00	22.50			
01008	BLAST™ • 600 grams of powder	26.95	20.21				
02025	BLOOD PRESSURE (DUAL ACTION) • 60 veg. tabs	44.00	33.00	28.00			
70000	BLOOD PRESSURE MONITOR (ACCUFIT™) • med/lg cuff	79.99	49.99				
SUBTOTAL OF COLUMN 1							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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			
01258	CARNOSOOthe W/PICROPROTECT™ • 60 veg. caps	30.00	22.50	20.25			
01829	CARNOSINE • 500 mg, 60 veg. caps	36.00	27.00	24.00			
01687	CARNOSINE (Super) • 500 mg, 90 veg. caps	66.00	49.50	45.00			
01932	CAT MIX • 100 grams powder	14.00	10.50	8.25			
01899	CHILDREN'S FORMULA LIFE EXTENSION MIX™ 100 chewable tablets	20.00	15.00	13.50			
00550	CHLORELLA • 500 mg, 200 tablets	23.98	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/INSEAZ® AND CROMINEX® 3+ • 90 veg. caps	38.00	28.50	25.50			
01906	CISTANCHE (Standardized) • 30 veg. caps	20.00	15.00	12.00			
01818	CITRIMAX® (Super) • 180 veg. caps	40.00	30.00	28.50			
00818	CLA BLEND W/SESAME LIGNANS (Super) 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		
SUBTOTAL OF COLUMN 2							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01421	COGNITEX® BASICS • 60 softgels	38.00	28.50	26.25	24.00		
01659	COGNIZIN® CDP CHOLINE CAPS • 250 mg, 60 veg. caps	36.00	27.00	25.50			
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/BLEUBERRY & POMEGRANATE EXTRACTS • 1 oz	33.00	24.75	23.51			
80133	ANTIOXIDANT FACIAL MIST • 2 oz	32.00	24.00	22.80			
80127	ANTIOXIDANT REJUVENATING FOOT CREAM • 2 oz	45.00	33.75	32.10			
80128	ANTIOXIDANT REJUVENATING FOOT SCRUB • 2 oz	59.00	44.25	38.94			
80117	ANTIOXIDANT REJUVENATING HAND CREAM • 2 oz	64.00	48.00	43.12			
80105	ANTI-REDNESS & ADULT BLEMISH LOTION • 1 oz	74.50	55.88	49.17			
80147	BIOFLAVONOID CREAM • 1 oz	46.00	34.50	29.25			
80144	BROCCOLI SPROUT CREAM • 1 oz	46.00	34.50	29.25			
80156	COLLAGEN BOOSTING PEPTIDE SERUM • 1 oz	59.00	44.25	39.00			
80120	CORRECTIVE CLEARING MASK • 2 oz	64.50	48.38	42.57			
80141	DNA REPAIR CREAM • 1 oz	49.00	36.75	31.50			

SUBTOTAL OF COLUMN 3

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
80108	ESSENTIAL PLANT LIPIDS REPARATIVE SERUM • 1 oz	74.95	56.21	49.46			
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			

SUBTOTAL OF COLUMN 4

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
01358	DIGEST RC® • 30 tablets	19.95	14.96	12.75			
02021	DIGESTIVE ENZYMES (Enhanced Super) • 60 veg. caps	22.00	16.50	15.00			
02022	DIGESTIVE ENZYMES w/PROBIOTICS (Enhanced Super) • 60 veg. caps	28.00	21.00	18.00			
01671	D, L-PHENYLALANINE • 500 mg, 100 veg. caps	18.75	14.06	12.00			
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			
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 MACAPOUSE® • 120 veg. caps	34.99	26.24				
02007	FIBER-IMMUNE SUPPORT (Apple Cinnamon) • 235 grams	34.00	25.50	23.50			
00718	FIBRINOGEN RESIST™ • 30 veg. caps	49.00	36.75	33.00			
01749	FLAX SEED (Organic golden) • 14 oz	11.67	8.75				
01821	FLORASSIST® HEART HEALTH • 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 TOCOPHEROL/TOCOTRIENOLS • 60 softgels	40.00	30.00	27.00			
00759	GAMMA E TOCOPHEROL W/SESAME LIGNANS • 60 softgels	32.00	24.00	21.75			
01394	GARLIC (Optimized) • 200 veg. caps	24.95	18.71	15.75			
**01122	GINGER FORCE® • 60 liquid caps	34.95	26.21				
SUBTOTAL OF COLUMN 5							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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			
02055	LIFE EXTENSION MIX™ • 315 tablets	80.00	60.00	52.00	43.75		
02057	LIFE EXTENSION MIX™ W/EXTRA NIACIN • 315 tablets	80.00	60.00	52.00	43.75		
02054	LIFE EXTENSION MIX™ • 490 caps	90.00	67.50	58.00	47.50		
02056	LIFE EXTENSION MIX™ POWDER • 14.81 oz	80.00	60.00	52.00	43.75		
SUBTOTAL OF COLUMN 6							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
02065	LIFE EXTENSION MIX™ • 315 tablets w/o copper	80.00	60.00	52.00	43.75		
02064	LIFE EXTENSION MIX™ • 490 caps w/o copper	90.00	67.50	58.00	47.50		
02066	LIFE EXTENSION MIX™ POWDER • 14.81 oz w/o copper	80.00	60.00	52.00	43.75		
01608	LIVER EFFICIENCY FORMULA • 30 veg. caps	18.00	13.50	12.00			
01639	5-LOX INHIBITOR W/APRÉS-FLEX® • 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			
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			
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/BIO-PQQ® • 30 caps	44.00	33.00	30.00			
01868	MITOCHONDRIAL ENERGY OPTIMIZER w/BIO-PQQ® • 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	NATOKINASE • 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			
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			

SUBTOTAL OF COLUMN 7

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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			
02001	ONE-PER-DAY • 60 tablets	22.00	16.50	15.00			
01328	ONLY TRACE MINERALS • 90 veg. caps	15.00	11.25	9.38			
P							
01789	PALMETTOGUARD® SAW PALMETTO W/BETA-SITOSTEROL 30 softgels	15.00	11.25	10.50	9.00		
01790	PALMETTOGUARD® SUPER SAW PALMETTO/ NETTLE ROOT W/BETA-SITOSTEROL • 60 softgels	28.00	21.00	19.50	18.00		
01323	PEAK ATP® WITH GLYCOCARN® • 60 veg. caps	54.00	40.50	37.50			
*00342	PECTA SOL-C® MODIFIED CITRUS PECTIN • 454 grams powder	109.95	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				
01676	PHOSPHATIDYLSERINE CAPS • 100 mg, 100 veg. caps	54.00	40.50	36.00			
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/BIO-PQQ® • 10 mg, 30 veg. caps	24.00	18.00	13.50	12.00		
01647	PQQ CAPS W/BIO-PQQ® • 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				
01441	PROGESTA-CARE® • 4 oz cream	36.39	27.29	25.72			

SUBTOTAL OF COLUMN 8

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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			
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/SATIREAL® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
01935	SAMe (S-ADENOSYL-METHIONINE) 200 mg, 30 enteric coated tablets	25.00	18.75	16.50			
01933	SAMe (S-ADENOSYL-METHIONINE) 400 mg, 30 enteric coated tablets	36.00	27.00	24.00			
01934	SAMe (S-ADENOSYL-METHIONINE) 400 mg, 60 enteric coated tablets	66.00	49.50	45.00			

SUBTOTAL OF COLUMN 9

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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 PHYTCERAMIDES w/LIPOWHEAT® 30 liquid veg. caps	25.00	18.75	17.25			
00961	SODZYME® w/GLISODIN® & WOLFBERRY • 90 veg. caps	28.00	21.00	18.00			
00657	SOLARSHIELD® SUNGLASSES • Smoke color	12.99	9.74	8.63			
01097	SOY EXTRACT (Ultra) • 150 veg. caps	87.00	65.25	58.50			
00432	STEVIA™ (Better) • 100 packets, 1 gram each	9.95	7.46				
00438	STEVIA™ ORGANIC LIQUID SWEETENER (Better) • 2 oz	11.00	8.25				
01476	STRONTIUM • 750 mg, 90 veg. caps	20.00	15.00	13.50			
01649	SUPER ABSORBABLE SOY ISOFLAVONES • 60 veg. caps	28.00	21.00	18.75			
01778	SUPER SELENIUM COMPLEX • 200 mcg, 100 veg. caps	14.00	10.50	9.00	8.25		
T							
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	TOOTHPASTE • 4 oz (Mint) tube	9.50	7.13	6.50			
01917	TRANQUIL TRACT™ • 60 veg. caps	52.00	39.00	34.50			
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT 60 veg. caps	24.00	18.00	16.50			
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL • 60 veg. caps	32.00	24.00	22.20			
02003	TRIPLE ACTION THYROID • 60 veg. caps	36.00	27.00	24.00			
01803	TRI SUGAR SHIELD® • 60 veg. caps	36.00	27.00	24.00			
01386	TRUFIBER™ • 180 grams	32.95	24.71				
01389	TRUFLOA® 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			
02016	TWO-PER-DAY • 60 tablets	10.50	7.88	7.13			
02015	TWO-PER-DAY • 120 tablets	20.00	15.00	13.50			
02014	TWO-PER-DAY • 120 caps	22.00	16.50	15.00			
00326	L-TYROSINE • 500 mg, 100 tablets	12.98	9.74				

SUBTOTAL OF COLUMN 10

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			
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 Dzugan, 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				
33880	OUTSTANDING HEALTH: THE 6 ESSENTIAL KEYS TO MAXIMIZE YOUR ENERGY AND WELL BEING by Michael Galitzer, MD & Larry Trivieri Jr. • 2015	24.95	18.71				
SUBTOTAL OF COLUMN 11							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
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. Dzugan, 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				
33906	THE MIGRAINE CURE • by Sergey Dzugan, MD, PhD • 2006	24.00	15.60				
33803	WHAT YOUR DOCTOR MAY NOT TELL YOU ABOUT DIABETES by Steven V. Joyal, MD • 2008	14.99	10.49				
SUBTOTAL OF COLUMN 12							

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