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52 A BREAKTHROUGH STROKE TREATMENT CAN SAVE LIVES—IF IT'S AVAILABLE

Thrombectomy can pull clots from stroke victims' brains and enable many to leave the hospital in a functional condition. More hospitals and doctors need to urgently acquire this training. This *Wall Street Journal* reprint reveals case reports of ischemic stroke patients who were saved before permanent paralysis set in.

58 DANGERS OF SITTING TOO LONG

Deep vein thrombosis, caused by sitting too long, kills over **100,000** Americans each year. A human study shows that **nattokinase** and **French maritime pine bark** improve circulation in the lower legs, lessen leg swelling, and reduce thrombosis (abnormal clot) formation.

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Leading preventive cardiologist Michael Ozner, M.D., believes we can now tame killer heart disease through healthy lifestyle, targeted blood testing and innovative medications.

77 FIGHT CHRONIC STRESS AT THE BIOLOGICAL LEVEL

Approximately **75%-90%** of primary-care physician visits may be related to stress. **Ashwagandha**, a plant adaptogen, works at a biological level to reduce stress by rebalancing our neurotransmitters.

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7 NEW GUIDELINES TO REVERSE ACUTE STROKE

Three years ago, **Life Extension®** advocated for widespread use of **thrombectomy** to spare stroke victims paralysis and death. Now, mainstream medicine has announced new guidelines that incorporate this technique. Recent data reveal **thrombectomy** can be effective up to **24 hours after** onset of stroke symptoms.

17 IN THE NEWS

Half of cancer deaths are lifestyle-related; higher omega-3 linked to low mortality risk; multivitamins improve neuropathy; astaxanthin inhibits fatigue.

85 AUTHOR INTERVIEW: FRED BARTLIT, STEVEN DROULLARD, AND DR. MARNI BOPPART

Drawing on their book, *Choosing the StrongPath: Reversing the Downward Spiral of Aging*, these three authors explain how to avoid the death spiral of strength-sapping sarcopenia.

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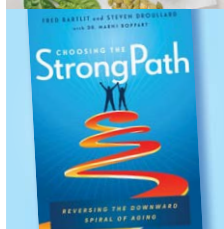
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SPEARMINT TEA BOOSTS MENTAL FOCUS

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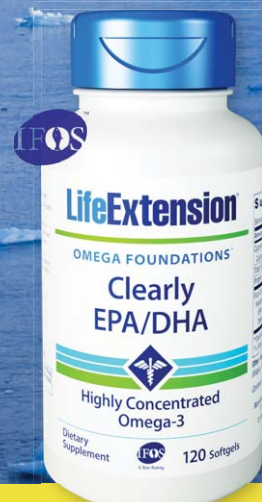
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BY WILLIAM FALOON

How to Reverse Acute Ischemic Stroke

In **2018**, the American Heart Association and the American Stroke Association released new guidelines that radically change the landscape of acute ischemic **stroke** treatment.¹

The magnitude of this advance cannot be overstated. Instead of suffering lifelong disability, **one** out of **three** stroke patients can now fully recover.²

We at **Life Extension**® applaud recognition of this game-changing technology. It will spare millions from permanent paralysis, nursing homes, and death.

Our issue with these “new” stroke-treatment guidelines is they could have been adopted **sooner**.

The technique announced this year involves threading a catheter into a blocked cerebral artery and **mechanically removing** the **clot** that is occluding blood flow. The medical term for this is:

“Endovascular Thrombectomy”

If this sounds familiar, it’s because we described it **three years** ago in this magazine and passionately argued for widespread use.³

The ***New England Journal of Medicine*** concurred with our position and criticized the lag in implementing this **stroke-reversal** treatment.^{4,5}

My overriding concern is other effective therapies that people remain largely unaware of.

This means only scant fractions of the public gain access to lifesaving techniques.

The mission of **Life Extension**® is to keep our readers informed about novel approaches to disease prevention and treatment.

This article describes simple ways to reduce your risk of stroke and what to do if **stroke symptoms** manifest.



More than **2,000** Americans suffer a **stroke** on an average day.⁶

Some will recover with minor outward effects, while others endure paralysis and prolonged nursing-home confinement.

Most strokes happen when a **blood clot** blocks an artery that feeds a portion of the brain.⁷ As neurons die, the result can be paralysis, blindness, and cognitive dysfunction.^{8,9}

Stroke is a leading cause of long-term **disability** in the United States. It's the fifth leading cause of death.⁶

The tragedy is that many acute ischemic **strokes** can be reversed if **thrombectomy** intervention is delivered in a timely manner.¹⁰ This treatment should have become routine emergency room practice several years ago.

Evolving at a Snail's Pace

The box on this page provides a succinct timeline of medical advances that enable doctors to **dissolve** or **mechanically remove** blood clots that occlude arteries in the heart and brain.

One of these involves a drug called **tPA** (tissue plasminogen activator) that can dissolve clots blocking arteries in the heart and brain.

The **FDA** approved **tPA** in **1987**, but it could have been made available earlier.

Former talk-show host **Larry King** was saved from sudden death by **tPA** because he was fortunate to be taken to a hospital that was a clinical study center. After recovery, King asked why everyone was not given access to the tPA drug that saved his life.

When **King** learned the **FDA** was delaying approval of **tPA**, he launched a public relations campaign that, along with **Life Extension**, was harshly critical of the **FDA** holding back approval of this **clot-dissolving** drug.

Within six months, the **FDA** approved tPA to treat acute **coronary artery** occlusion.

It took another **nine years** before the **FDA** approved **tPA** to reverse **cerebral artery** blockage (ischemic stroke).

Delay Extends Beyond FDA

I've authored numerous articles critical of **FDA impediments** that preclude timely introduction of lifesaving therapies.

The delay in bringing forth the clot-busting drug **tPA** and



Stroke-Reversal Timeline

- 1987** – Clot-dissolving drug (**tPA**) approved to reverse **heart attack**
- 1996** – **tPA** approved to reverse acute ischemic **stroke** (three hours).
- 1999** – **Thrombectomy** first shown to reverse acute stroke.
- 2004** – **FDA** approves first thrombectomy device for stroke.
- 2006** – **Thrombectomy** demonstrates partial safety and efficacy.
- 2010** – Only **7%** of acute stroke victims receiving **tPA**.
- 2012** – **tPA** shown effective up to **4.5 hours** after stroke onset.
- 2015** – **Thrombectomy** effective up to **six hours** after stroke onset.
- 2015** – **New England Journal of Medicine** advocates thrombectomy.
- 2017** – Thrombectomy effective up to **24 hours** after stroke onset.
- 2018** – “New” guidelines urge thrombectomy up to **24 hours** after.

Note the delay in incorporating **tPA** into standard practice whereby **14 years** after **FDA** approval, less than **7%** of stroke patients received this clot-dissolving drug in community hospitals. The safety and efficacy of **thrombectomy** was not fully demonstrated until **2015**.¹¹ Earlier studies with thrombectomy were not consistent, which is common with a medical device of this nature employed in emergency clinical settings.

American Stroke Victims *Needlessly* Confined to Nursing Homes

- An American experiences a stroke every 40 seconds.
- Every four minutes an American dies of a stroke.
- Stroke costs the United States \$34 billion each year.
- About 200,000 ischemic-stroke victims per year confined to nursing homes or rehabilitation facilities.

Three-year delay for the “new” stroke guidelines caused many Americans to suffer paralysis and nursing home confinement!

References:

Available at: <https://www.cdc.gov/stroke/facts.htm>. Accessed May 24, 2018.

Available at: <https://www.hcup-us.ahrq.gov/reports/statbriefs/sb51.pdf>. Accessed May 30, 2018



mechanical clot-retrieving **thrombectomy**, however, lies more with an apathetic (and overworked) medical establishment that is too **slow** in adopting better treatment methods.

Long after the FDA's belated approval of **tPA** in **1996** to reverse ischemic stroke, less than **7%** of potential stroke victims were administered the drug (as of year **2010**).¹²

The lag time in implementing widespread use of **mechanical clot retrieval** (thrombectomy) is also troubling.

Despite inconsistent findings from initial **thrombectomy** trials using primitive techniques, by **2015** the evidence clearly demonstrated significant benefit over risk.¹¹ Yet **three years** went by before conventional medicine formally adopted the procedure.

Every year, about **200,000** Americans are confined to **nursing homes** or **rehabilitation facilities** due to **stroke-inflicted** brain damage.¹³

A significant percentage of these miseries would have been avoided if **tPA** and **thrombectomy** had been instituted sooner by ER departments...long after the FDA's belated approvals.

Huge Advance Announced in 2017

In findings presented at the **European Stroke Organization Conference** on May 16, 2017, researchers showed that **thrombectomy** (mechanical retrieval of cerebral blood clots) was effective up to **24 hours** after stroke symptom onset.¹⁴⁻¹⁶

A scientist from the **University of Pittsburgh Medical Center Stroke Center** stated:

“This is the largest treatment effect we have seen (in stroke).”¹⁷

While this was hot news for the media, it was not to us at **Life Extension**.

That's because we had made phone calls to **Comprehensive Stroke Centers** several years ago and were informed of successful acute stroke reversals long after conventional guidelines of **six hours**.

A list of comprehensive stroke centers and the names of hospitals offering these acute stroke reversal therapies may be found at: www.LifeExtension.com/stroke

A reason some stroke victims benefit from **thrombectomy** as long as **24 hours** after acute arterial occlusion is a phenomenon known as “**collateral circulation**.” This enables a portion of the brain to be fed by multiple smaller blood vessels, even though a major cerebral artery is acutely blocked.

Research long ago demonstrated that brain cells survive far longer than what conventional medicine realizes, especially in the presence of lowered body temperature (hypothermia). But even warm ischemia research shows impressive findings.

Victims of Delay

The new **2018** guidelines from the **American Heart Association/American Stroke Association** are welcome news to humanity and medical science.¹

What they starkly reveal, however, is that large numbers of people have been permanently paralyzed (or have died) who could have been saved utilizing existing technologies (**thrombectomy** and/or **tPA**).

In other words, many stroke victims who were rushed to hospital emergency rooms were given up on too soon by medical personnel, who failed to realize the life-saving advantages of aggressive use of tPA and/or thrombectomy.

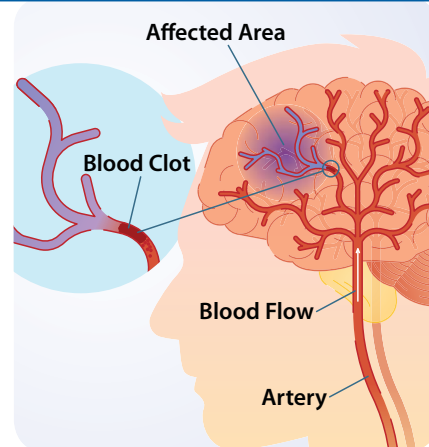
For people in otherwise decent health, failure of hurried doctors to more aggressively attempt to remove (or dissolve) cerebral blood clots could result in years of paralysis in institutional confinement (or cemeteries).

A founding tenet of **Life Extension** is that humans in need are too often denied access to experimental and proven therapies. Our most powerful weapon to mitigate this crisis is to convey real-world solutions in the pages of this magazine.

Improved Standards for Acute Stroke Reversal

About 300 hospitals around the country now use new automated brain imaging software (called **RAPID**) to identify patients who may be candidates for **thrombectomy** after their **six-hour** window has expired.²

The new **RAPID** software analyzes CT or MRI scan results to look at blood-flow levels in the brain. This allows doctors to determine if **thrombectomy** can help those who have blood-flow occlusion caused by acute clot.



The new guidelines recommend an increased treatment window for clot removal from **six hours** to **24 hours** based on brain imaging in select patients. This enables expanded eligibility for clot-busting drugs and mechanical procedures like thrombectomy.

Dr. Walter Koroshetz, director of the **National Institute of Neurological Disorders and Stroke**, commented on the new guidelines for expanding the window for **thrombectomy** use:





*"I really cannot overstate the size of this effect. The study shows that one out of three patients are saved from the devastation of a stroke, and can walk out of the hospital, completely recovered...The results of the trial were astounding and will have an immediate impact in the clinic and will help us save many lives."*²

What Took So Long?

We at **Life Extension** cannot express enough gratitude to the scientific community for these life-sparing medical advances.

Our ongoing concern, however, is the sluggish pace at which **innovation** translates into **clinical practice**.

From what the medical establishment now acknowledges, over **two million** American lives could have been spared the disabling miseries of stroke-induced paralysis (and death) if **tPA** and **enhanced-thrombectomy** interventions had been advanced sooner.

These kinds of delays impacting the health and longevity of Americans today are not unique to stroke. I am currently investigating numerous interventions to delay if not reverse biological **aging**. Yet obstacles to moving discoveries into the clinical setting remain daunting.

The excuses I hear for foot dragging are eerily reminiscent of what caused so few ER physicians (less than **7%** by year **2010**) to utilize **tPA**, and even fewer to

attempt **thrombectomy**. Recall the FDA approved tPA for acute **stroke** in **1996**.

We acknowledge side-effect concerns with **tPA** such as excessive bleeding. But when a stroke patient lies in an emergency room, and the treating physician does nothing but watch the patient slowly undergo permanent paralysis, we think the risk-to-benefit ratio should be revised.

Stroke Prevention Far More Effective

While treatment advances that have occurred since **1987** in reversing occlusive arterial disease are impressive, it is far more efficient to protect against it.

Ischemic strokes are caused by **blood clots** that form in an artery feeding the brain (thrombotic stroke) OR when a blood clot forms elsewhere in the body and travels to a cerebral artery (embolic stroke).²⁶

Narrowing of arteries feeding the brain can create acute or chronic blockages of blood flow.

Atrial fibrillation is a common cause of embolic strokes, which is why powerful anticoagulant drugs are prescribed to people with certain heartbeat irregularities. These drugs have side effects, but the data show the antithrombotic benefits outweigh the increased bleeding risks.

When one realizes that formation of abnormal blood clots (thrombosis) in arteries and veins

represents a major health threat, one can understand the importance of proactively maintaining healthy circulatory function.

On page 52, you can read a reprint from a front-page article on **stroke reversal** published this year in the *Wall Street Journal*.

The first article in this month's issue describes a new **spear-mint tea** that has been shown to provide an immediate boost in mental focus, attention, and concentration.²⁷

For longer life,



William Faloon, Co-Founder
Life Extension Buyers Club

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Economic Consequences

Published studies have attempted to look at the **cost effectiveness** of administering **tPA** clot-dissolving drug therapy within **3 to 4.5 hours** after stroke symptom onset.

Most of this data has been rendered **obsolete** by virtue of the expanded criteria for **tPA** efficacy and **thrombectomy** shown to be effective up to **24 hours** after stroke symptom onset.¹⁸

One of these studies states that an estimated **\$74 billion** was spent in year **2010** on stroke-related medical and disability costs. This same study points to the fact that **tPA** was approved in **1996**, but is **underutilized** in the emergency room setting.¹⁹

In analyzing the clinically demonstrated benefits of **tPA** clot-dissolving therapy, the authors conclude that timely administration would result in more lives being saved, more quality-adjusted life years added, and some modest cost savings.

The burden to the healthcare system of crippling diseases caused by **stroke** is expected to increase over the coming decades due to the aging of the population and the underutilization of proven stroke-risk reduction factors (like keeping **blood pressure** in **Life Extension's** recommended range).

As I and others have written, this nation has an **unfunded liability** for future sick-care costs that could

render **Medicare** and other insurance programs financially **insolvent**.

When adding up the number of paralyzed stroke victims confined to nursing homes today, the **savings per year** should equal many **\$billions** with widespread use of **tPA/thrombectomy**.

But there is an important **caveat** to potential cost savings that should be of particular interest to readers of this magazine.

Most severe strokes occur in elderly persons who suffer comorbidities and whose cardiovascular systems are already severely compromised. Attempting to calculate how many added healthy life years can be attained via increased use of **tPA/thrombectomy** is challenging because so many elderly stroke victims do not have long to live in the first place.

The bottom line for each of you is to proactively control your **vascular risk factors** by adhering as closely as possible to **Life Extension's** optimal ranges for blood pressure, glucose, LDL, homocysteine, C-reactive protein, etc.²⁰⁻²²

As it relates to **cost savings** of enhanced **tPA/thrombectomy** treatments, data from healthier population groups (such as most readers of this magazine) are more compelling.²³⁻²⁵



Succinct Review of New Guidelines

Medical practice has grown so sophisticated that the new **American Heart Association** stroke treatment guidelines stretch for 65 pages.

These kinds of complexities are why we try not to blame practicing physicians for their delays in implementing novel treatments.

What is needed is more doctors who highly specialize in single areas. As it relates to this topic, we need more specialists (vascular interventionists) capable of rescuing victims of acute ischemic stroke.

While the number of Comprehensive Stroke Centers has increased significantly over the past three years, there still are not enough masters of this emerging field of brain rescue.

Here is a succinct review of the new acute ischemic stroke guidelines:

Extending Time Window for Thrombectomy

The previous upper limit for thrombectomy intervention was only **six hours**, though more progressive stroke centers were going up to **12 hours** based on what **Life Extension's** investigators were told **three years ago** by practicing physicians.

The new (2018) guidelines increase the time from onset of acute ischemic stroke symptoms for mechanical thrombectomy from **six hours** to up to **24 hours**.¹⁸

In the past, physicians recommended mechanical clot removal only for patients with large vessel strokes. This recommendation holds in **2018**, but a team of experts that analyzed more than 400 published papers found that large vessel clots can be removed safely via mechanical **thrombectomy** for up to **16 hours** after a stroke. In certain cases, this window of time extended up to **24 hours**.²⁸

According to William J. Power, M.D., who led a team of experts that authored these new guidelines:²⁸

"The expanded time window for mechanical thrombectomy for appropriate patients will allow us to help more

patients lower their risk of disability from stroke...That's a big deal. That's potentially a lot more people who could benefit, and it has completely changed the landscape of acute stroke treatment."

Expanding Eligibility for tPA (clot-dissolving) Drug Therapy

The drug **tissue plasminogen activator** (tPA) was approved to treat acute ischemic stroke in **1996**.²⁹

Yet a study published in **2011** revealed that only **1%-3%** of acute stroke patients were receiving tPA in community hospitals.³⁰ (Slightly more stroke victims received tPA at major medical institutions.)

Previously, physicians avoided administering tPA to mild stroke patients. The **2018** guidelines reveal **tPA** to be helpful in a fraction of mild stroke victims, especially in reducing **disability** rates post-stroke.

The 2018 guidelines continue to recommend tPA for major stroke patients and suggest it also be administered to certain minor stroke patients within a three to 4.5-hour window of the stroke event.

According to Dr. Powers, these new **tPA** guidelines "**potentially increase the number of people getting intravenous clot-busting treatment**."²⁸

The 65 pages of new guidelines also advocate for better **certification** of stroke centers, something that **Life Extension** also advocated for years, but without a high degree of confidence due to the limited number of physicians trained in this (thrombectomy) procedure.³¹

Interestingly, the **American Heart Association** has allied with other conventional authorities to create a new level of hospital certification titled **Thrombectomy-Capable Stroke Centers**.

This takes the place of "Comprehensive Stroke Center" and seeks to identify hospitals that meet rigorous standards for performing mechanical **endovascular thrombectomy**.

We applaud this enhanced certification program.

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Stroke

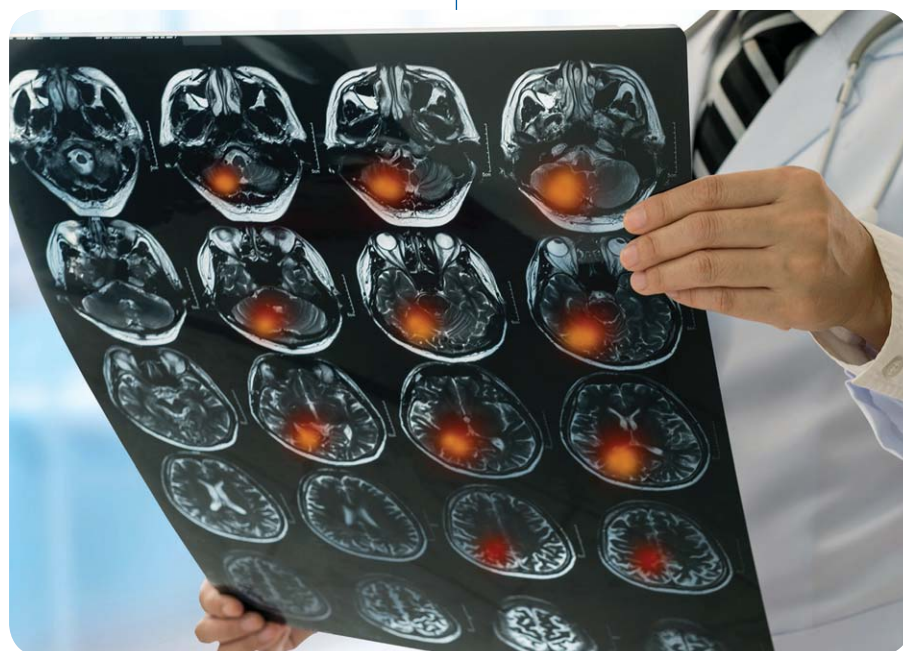
In the United States, a person has a stroke every 40 seconds and **87% of them—roughly 700,000 cases per year—are ischemic**, which refers to a blockage within an artery supplying blood to the brain.³²

The remaining **13%** of strokes occur when a blood vessel in the brain ruptures and blood accumulates in the brain.

One out of three ischemic strokes can be effectively treated with **thrombectomy or tPA drug therapy**.²

There are other endovascular procedures that can save victims of certain forms of hemorrhagic (bleeding) strokes.

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Higher Omega-3 Linked to Lower Mortality Risk

Recent research has revealed a lower risk of mortality in association with having a higher level of **omega-3** fatty acids.*

William S. Harris and colleagues examined data from 2,500 men and women enrolled in the Framingham Heart Study Offspring cohort. Omega-3 levels were determined from blood samples collected when the participants were 66 years of age. The subjects, who were free of cardiovascular disease at the beginning of the study, were followed for up to 11.2 years, during which 350 deaths occurred.

In comparison with subjects whose omega-3 values were among the lowest **20%** of participants, those whose values were among the top **20%** had a **34% lower** risk of death from any cause, a **39% lower** risk of cardiovascular disease, a **42% lower** risk of coronary heart disease and a **55% lower** risk of stroke.

Editor's Note: It's important to know your omega-3 levels to make sure you are not deficient. **Life Extension®** offers Omega-3 Index kits that test for a range of fatty acids in your bloodstream. For more information, log on to: <http://www.lifeextension.com/Vitamins-Supplements/itemLC100066/Omega-3-Index-Complete>

* *J Clin Lipidol*. 2018 Feb 24.

Multivitamins Lead to Fewer Neuropathy Symptoms

There's evidence that consumption of **multivitamins** is linked to fewer symptoms of chemotherapy-induced peripheral neuropathy in breast cancer patients.*

"Chemotherapy-induced peripheral neuropathy (CIPN) can interfere with daily function and quality of life, and there are no known preventive approaches," observed Gary R. Zirpoli and colleagues in their recent study.

The study included 1,225 subjects enrolled in a clinical trial in which they received the drug paclitaxel. Questionnaire responses provided information concerning the use of supplements before and at diagnosis. A second questionnaire administered at six months provided information regarding supplement use during treatment.

Multivitamin use prior to breast cancer diagnosis was associated with significantly lower CIPN symptoms, while the use of multivitamin supplements during treatment was associated with a marginal decrease. The researchers recommend prospective randomized trials of vitamin supplementation to confirm their findings.

Editor's Note: "Multiple studies demonstrate that the majority of cancer patients and survivors use multivitamins and other dietary supplements," noted Jennifer A. Ligibel, M.D., of Dana-Farber Cancer Institute in an accompanying editorial. "A review of 32 studies demonstrated that **64% to 81%** of cancer patients and survivors overall, and **67% to 87%** of breast cancer patients specifically, used dietary supplements after cancer diagnosis."

* *J Natl Cancer Inst.* 2017 Dec 1;109(12).

Nearly Half of Cancer Deaths Caused by Bad Lifestyle Choices

A study conducted by the American Cancer Society has found that **45%** of cancer deaths and **42%** of cancer cases in general can be attributed to modifiable risk factors—voluntary behavior such as smoking, excessive sun exposure, poor diet, and alcohol consumption.*

The top three behavioral cancer-death causes break down as follows: Smoking at **29%**, overweight and obesity at **6.5%**, and alcohol at **4%**.

In terms of specific forms of the disease, smoking was to blame for **82%** of lung cancers, excess body weight accounted for **60%** of uterine cancers and roughly one-third of liver cancers, and alcohol intake led to **25%** of liver cancers in men and **12%** in women, **17%** of colorectal cancers in men and **8%** in women, and **16%** of breast cancers in women.

Ultraviolet light exposure from either the sun or tanning beds was linked to a whopping **96%** of skin cancers in men and **94%** in women.

Editor's Note: Richard Clapp, professor emeritus of environmental health at Boston University, believes this new analysis will be used as a basis to decide how money should be allocated for cancer prevention efforts. He points out, however, that the study does not address the ways in which multiple behaviors, such as smoking and poor diet, might work in combination in cancer cases.

* *CA Cancer J Clin.* 2018 Jan;68(1):31-54.

Astaxanthin Helps Relieve Fatigue

A randomized, double-blind crossover study reported in *Nutrients* found an improvement in the ability to recover from mental fatigue among participants who received the carotenoid **astaxanthin** plus sesamin, an antioxidant-reducing lignan found in sesame seeds.*

The trial included 24 healthy volunteers between the ages of 30 and 60 who received capsules containing a placebo or **3 mg** of astaxanthin plus **5 mg** of sesamin.

Subjects were instructed to take two capsules daily for four weeks, after which they were assigned to tasks that induced mental and physical fatigue. After a month during which no treatments were administered, the treatments were then switched for a subsequent four-week period.

Better ability to recovery from video monitor-induced mental fatigue was reported by the astaxanthin- and sesamin-supplemented group as compared to the placebo. No adverse effects were observed in association with the treatment.

Editor's Note: Plasma phosphatidylcholine hydroperoxide, a marker of oxidative stress, which was measured before and after mental and physical tasks, rose in both groups after fatigue-inducing tasks. However, the rate of change was significantly lower among those who received astaxanthin plus sesamin.

* *Nutrients*. 2018 Feb 28;10(3).

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Reference
* Br J Pharmacol. 2004 Mar;141(5):825-30.





Spearmint Tea

Quickly Boosts Mental Focus

Many people turn to coffee every day for a quick boost in **mental focus** and working memory.¹⁻³

Yet some find this leads to a later “crash” or interferes with sleep. Others don’t like coffee because of stomach acidity and other issues.

As an alternative, scientists have developed an instant **spearmint herbal tea** that targets **working memory** and is stimulant-free.

Recent human evidence demonstrates that this tea quickly and sustainably boosts **mental focus**, **attention**, and **concentration**—while supporting restful **sleep** at night.⁴

Lab and animal data suggest that **spearmint polyphenols** may promote **neurogenesis**—the growth of **new** brain cells—while protecting existing neurons and boosting neurotransmitter levels.^{5,6}

A Coffee Alternative for Mental Focus

A key reason that **64%** of Americans—and **74%** of Americans over 55—drink coffee daily¹ is that they seek a short-term boost in overall focus. While these effects are associated with caffeine, **spearmint** has been shown to provide the same immediate cognitive enhancement.⁴

This is great news for a public that—according to surveys by the AARP (American Association of Retired Persons)—has become increasingly concerned about retaining mental sharpness.

In fact, **92%** of the association's over-age-50 members rate “*staying mentally sharp*” as their number-one topic of interest,⁷ and **98%** of adults over 40 believe “*it is important to maintain or improve brain health*.”⁸

This concern is not restricted to the older population. Another survey found that **59%** of individuals aged 18-29 were “very/extremely concerned” about staying mentally sharp, as were **55%** of those aged 20-39, and **61%** of those aged 40-49.⁹

Critical to the daily jolt in focus that most people seek is an effective **working memory**. Working memory is a part of your short-term memory that allows you to store information and manipulate it while working on another mental task. Controlled by the prefrontal cortex and hippocampus, working memory helps maintain attention, focus, and concentration and may enhance movement and reaction times.¹⁰

One report found that working memory decreases roughly **10% per decade** after age **40**.¹¹ So any nutrient

that can support working memory plays a crucial role in delivering that daily boost of focus and concentration—especially with increasing age.

Also important to cognitive function is **spatial working memory**. This is the ability to know where items are arranged in space, such as the layout of your house or how to get around town. Both working memory and spatial working memory are necessary for fully functioning cognitive ability.

Scientists have identified a **spearmint extract** that contains higher levels of **phenolic compounds** such as **rosmarinic acid**. This extract serves as an excellent, stimulant-free alternative to coffee, because it essentially helps the brain **focus** but will not interfere with sleep the way caffeine does. Research demonstrates that **spearmint extract**:

- Improves working memory and spatial working memory,⁴
- Boosts attention, concentration, and brain function,⁴
- Shortens the time it takes to fall asleep at night,⁴ and
- Promotes the generation and protection of brain cells.^{5,6}

Let's examine the evidence.



Spearmint Boosts Attention and Concentration

The first study was a small, pilot, open-label study—meaning there was no placebo group. It consisted of 11 healthy adults experiencing typical age-related problems with memory.¹²

The patients underwent a battery of computerized cognition tests one hour before taking the first dose to establish a baseline of cognitive function. Then they took **900 mg** of **spearmint extract** once a day with breakfast for 30 days.

The volunteers demonstrated significant **improvements in attention and concentration** as early as **2.25 hours** after a **single** dose of spearmint extract—demonstrating just how quickly the cognitive effects start taking place. By **four hours** after the initial dose, average scores showed:¹²

- **46%** improvement on a task requiring attention and concentration,
- **121%** improvement on a second task requiring attention and concentration, and
- **39%** boost in planning ability.

Benefits continued to improve over the next 30 days, with the participants demonstrating:¹²

- **35%** improvement on a test of reasoning,
- **125%** improvement on a test of attention and concentration, and
- **48%** boost in planning ability.

This study showed both the *immediate* and *longer-term* benefits of supplementation with **spearmint extract** on important aspects of brain function.

Clinically Shown to Support Cognition and Working Memory

Encouraged by these initial findings, scientists subjected the **spearmint extract** to the most rigorous type of clinical study: a randomized, double-blind, placebo-controlled study.

Investigators enlisted 90 volunteers averaging **59.4 years** of age who had age-associated **memory impairment**.⁴ This is not a memory disorder but is simply a general, age-related decline in memory.¹³

This study evaluated the effect of the spearmint extract on alertness, mood, and sleep, as well as working memory and spatial working memory.



For this study, subjects took either **900 mg** or **600 mg** of the spearmint extract or a placebo every day at breakfast for 90 days. The extract was standardized to contain **24% total phenolics** and **14.5% rosmarinic acid**, one of spearmint's brain-protective components.⁴

After 90 days, the subjects taking the **spearmint extract** showed an approximate **15%** improvement of their **working memory** and a **9%** improvement in **spatial working memory** compared to placebo. These were statistically significant differences that indicated enhanced alertness of brain function. Furthermore, the study author wrote that:

“These data suggest that this extract could improve working memory equivalent to that which may have diminished over a decade of life.”⁴

As an added benefit, those in the spearmint group reported **improvement** in the time it took to fall **asleep**—and on awakening, they were more **alert**.

Improved mood was also observed by using a standard psychological-rating scale. These treatment effects alone could make a big difference in how well we are able to function on any given day.⁴

Together, these studies make it clear that this novel **spearmint extract** significantly helps aging individuals to stay focused and on-task, through both enhanced cognition and working memory—and via improved sleep.

As the author of the recent clinical study wrote, spearmint ***“may be a beneficial nutritional intervention for cognitive health in older subjects with age-associated mental impairment.”⁴***



Mechanisms may Include the Generation of New Brain Cells

Medical science once believed that humans stop growing new brain cells after adolescence. However, a **2018** Columbia University study published in *Cell Stem Cell* shows this to be untrue.¹⁴

Postmortem examination of the brains of humans who died at *various* ages revealed that—unlike mice—healthy older humans without cognitive impairment or neuropsychiatric disease maintain **neurogenesis** in the critical hippocampus region of the brain well into old age. Immature neuron pools remain stable throughout life.¹⁴

This changes medicine's entire picture of brain aging, because if new brain cells are being formed, then the brain *can* renew itself.

The focus now shifts to how *quickly* each individual produces new brain cells—and there are large differences in this neurogenic rate. In fact, your rate of neurogenesis may be the single most important factor for a high quality of life.

This new finding has made it even more imperative, with advancing age, to continue to provide the brain with maximum support in order to optimize its potential for the creation of new neurons. This neurogenic support may be especially critical for those at risk of age-associated memory impairment.

The incredible news is that as scientists look into the effects of **spearmint**, early lab and animal data suggest that it delivers significant support for **neurogenesis**.^{5,6}

Improved Sleep

In a **2018** published study, **spearmint**-treated subjects—who were aged between 50 and 70—reported improvements in the time it took to get to **sleep**.

The improvements were “*consistent with effects reported after administration of commonly used sleep aids typically administered before bed.*”⁴

This in turn can produce further improvements in cognitive focus, because the reduced sleep efficiency that often occurs with age has been associated with cognitive decline.

Protecting Existing Neurons

The compounds in **spearmint** protect existing brain cells and positively impact the blood vessels that support and nourish them.

Phenolics present in spearmint inhibit **acetylcholinesterase**, an enzyme that breaks down the vital memory-associated neurotransmitter **acetylcholine**.¹⁵⁻¹⁷

These phenolic compounds also inhibit oxidative stress.^{5,6} A mouse study showed that one specific phenolic compound—**rosmarinic acid**—provided continued protection for key memory centers of the brain (such as the hippocampus and cortex) against cellular damage from oxidative stress.⁶

As previously mentioned, phenolics present in spearmint have been shown in preliminary lab and animal studies to promote the formation of **new brain cells**.^{5,6} In particular, rosmarinic acid significantly enhanced new cell growth in cultures of cells from the hippocampus, the brain center of working memory.⁵

A Convenient Format for Quick Mental Productivity

The **spearmint extract** used in these studies has a high concentration of **rosmarinic acid**—in a convenient tea drink.

There are over 50 phenolic compounds in this **spearmint extract** that have been **standardized** to **24%** total phenolics and **14.5%** rosmarinic acid.

This is achieved by using a gentle water extraction process and an innovative drying technology that preserve the native profile of the **phenolic complex**. This can be seen in the **rosmarinic acid** component, which is more fully expressed compared to typical steam extraction methods.

A new instant **spearmint herbal tea** delivers **900 mg** of **spearmint extract**, the same dose used in the human studies.

This spearmint extract has been shown to be safe in animal toxicity and genotoxicity studies (studies that test for damage to genetic information). In

human trials, it was found to have no adverse side effects.^{4,12}

And its unique format means people don't need to be at home to enjoy a cup. This new spearmint herbal tea comes in one-cup, grab-and-go packets that can make tea in just seconds. Just tear open the packet, pour the contents into a cup, add hot water, and stir—**no steeping needed**.

Spearmint itself has a natural, almost sweet flavor. But this tea is sugar-free and can always be sweetened as desired.

It offers instant, on-the-go refreshment that can provide an immediate boost in mental focus without the potential for a later “crash.” For many people, the improvement in the time it takes to get to sleep at night and longer-range improvement in working memory and cognitive ability are more important benefits.^{4,12}

Summary

Some people seek an alternative to coffee for a quick boost in levels of attention, concentration, and focus.

The good news is that scientists have shown in **human studies** that the phenolic compounds in **spearmint** enhance performance on tests of working memory, focus, attention, and concentration—while allowing volunteers to get to sleep faster at night.

Preliminary lab data show that **spearmint polyphenols** may promote the growth of new brain neurons, protect existing neurons, and boost levels of neurotransmitters.

Instant spearmint herbal tea is available in one-cup, grab-and-go packets that provide a high concentration of phenolic compounds, especially potent **rosmarinic acid**—providing an ideal, caffeine-free way to improve mental focus. ●

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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Boost Mental Focus with Spearmint Herbal Tea

- While coffee may enhance mental sharpness, focus, and attention—abilities that tend to fade with age—many individuals may wish to avoid caffeine let-down or may simply not like coffee.
- In human studies, the phenolic compounds in spearmint have been shown to boost working memory, focus, attention, and concentration—and to allow volunteers to get to sleep faster at night.
- Compelling preliminary data suggest that spearmint polyphenols may work by promoting neurogenesis—the growth of new brain neurons—and protecting existing neurons.
- A spearmint extract standardized to provide higher levels of phenolic compounds, especially potent rosmarinic acid, is now available in an instant, spearmint herbal tea that, uniquely, comes in one-cup, grab-and-go packets—for a quick, caffeine-free boost in cognitive performance.



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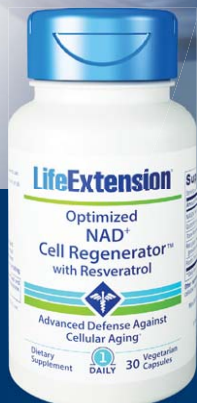
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BY MICHAEL DOWNEY





Plant Ceramides Clinically Reduce Wrinkles

In youth, abundant amounts of biologically active moisturizing oils known as **ceramides** are integrated into the skin's surface layer to maintain skin moisture and a youthful appearance.

However, your body's ability to synthesize ceramides declines over time, contributing to dry, aging skin.^{1,2}

Seeking a way to revitalize aging skin, scientists have found skin rejuvenating benefits in **ceramides** from **plant extracts**.

These findings have been confirmed in a recent **clinical trial**, in which **88%** of the participants experienced **visible reduction** of **wrinkles** and **90%** experienced greater skin **hydration**.³

This unique oral intervention is producing younger looking skin in clinical trials.

Skin Regenerative Effects

A new, soon-to-be-published study demonstrates that a **plant ceramide extract** delivers a visible reduction of **wrinkles**, as well as a very high level of skin **hydration**.³

In order to appreciate the landmark nature of this new finding, it is important to understand skin ceramides and some past findings for this novel plant extract.

The age-related decline of internal **ceramide** production has a huge impact on one's outer appearance. That's because these compounds are essentially the mortar that holds the skin-cell bricks together.

Without ceramide replenishment, the skin moisture barrier becomes greatly compromised.^{1,2,4,5} This in turn results in thinning of skin with noticeable wrinkles, dryness, roughness, and even infection.^{1,6,7}

Ceramides are present in food—including rice and wheat—but they do not occur in sufficient quantities to rejuvenate aging skin.⁸ Ceramide supplementation is a low-cost method to slow and reverse the effect of aging on skin appearance.

How Ceramides Function

Researchers working with ceramide-rich plant compounds were able to develop a potent, proprietary extract that can be taken orally.

The plant ceramide compounds in this oral extract are known as **phytoceramides**. This wheat lipid extract provides potent *glycolipids*, *phytoceramides* and *glycosylceramides*.

Once ingested, this extract can reach the skin's outer layer. It is delivered by the bloodstream to the deepest skin-cell layers and then gently nudged into the extracellular matrix as nature intended.⁹ There, it restores the *barrier function*.¹

Research validates the effectiveness of this unique phytoceramide. For example, a lab study demonstrated that this plant-**ceramide** extract **hydrated** human skin and restored its youthful **structure** after the skin cells' protective barrier function had been disrupted.¹⁰

Another study found that these plant ceramides reduced levels of free radicals in the skin and inhibited **elastase**¹¹—an enzyme that ordinarily destroys **elastin** and contributes to loss of skin flexibility and increased wrinkling.¹²

Prior to a **new** study demonstrating compelling **wrinkle-reducing** effects described later in this article, clinical (human) trials showed that this oral **phytoceramide** extract provides beneficial effects on aging skin.

Skin Rejuvenation via Oral Supplementation: Clinical Proof

In **2005**, a placebo-controlled, clinical study was published, in which women with dry to very dry skin received either a placebo or a powdered form of the **ceramide extract**.

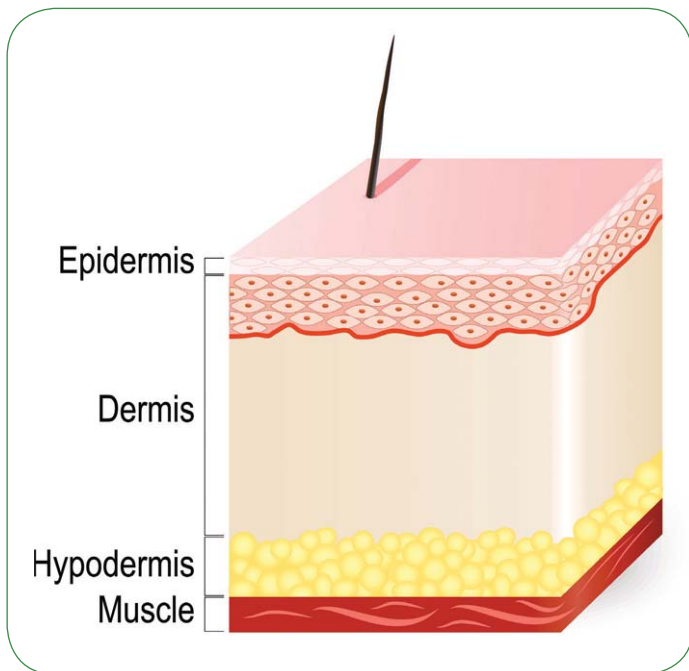
After three months of treatment, researchers evaluated changes in **skin hydration** in three different ways—via machine, dermatologist examination, and the patients' own subjective assessment scores.¹³ There was a significant **improvement** in skin hydration.

Furthermore, women in the plant ceramide extract group, but not the **placebo** group, experienced a significant reduction in dry patches, roughness, and itching.¹³

These improvements were what scientists would expect to see if the ceramides successfully make their way through the bloodstream to the skin.

For further proof, researchers designed a larger, randomized, double-blind study to assess the wheat ceramide extract in its oil form. In this **2011** trial, women with dry to very dry skin took either **350 mg** each day of the plant **ceramide oil**—providing glycolipids, phytoceramides and glycosylceramides—or a **placebo**.⁹

After three months, skin hydration was objectively measured by a technique known as corneometry. By this measure, the supplement—but not the placebo—significantly increased skin **hydration** of the arms, legs, and overall. The greatest improvement was observed on the arms, where skin hydration increased by more than **35%**, compared to less than **1%** in the placebo group.⁹





What You Need to Know

Rejuvenate Your Skin From the Inside Out

Participants were also asked to rate their own perceptions of the treatment effects (whether they had received the supplement or the placebo). The **ceramide extract** scored better at all measurement points in the following aspects:⁹

- Roughness
- Uniformity of complexion
- Facial skin hydration
- Leg skin hydration
- Suppleness
- Itchiness
- Overall state of the skin

Based on these clinical results showing skin-rejuvenating effects, this oral phytoceramide extract was brought to market. Now, however, stronger **new** data show that this extract delivers powerful **wrinkle-reducing** effects!³

- **Ceramides** are natural lipid molecules with the critical capacity to preserve youthful-looking skin by maintaining the skin's water-retaining properties.
- Unfortunately, the skin content of ceramides substantially decreases with age.
- Natural plant ceramides can be taken *orally*, allowing them to enter the blood-stream where they are naturally transported through all layers of the skin, working from the inside out.
- Over the years, placebo-controlled, clinical studies have shown that a unique plant-ceramide extract, taken orally, boosts skin hydration, suppleness, smoothness, and other measures of youthful skin.
- A remarkable new study now demonstrates that these strong anti-aging effects can also result in significant fine line- and wrinkle-reduction.

The Latest Clinical Findings

In a **2017** study, 64 women aged 42 to 66 were randomized into two groups of equal size. The women took either **350 mg** of this plant ceramide extract, or one identical placebo, daily for 12 weeks. A variety of scientific measures were taken.³

The results of this study showed the oral **ceramide** supplement:³

- Increased skin **hydration** for **75%** of the women after four weeks,
- Increased skin hydration for **90%** of the women after 12 weeks,
- Visibly reduced **wrinkles** around the eyes (crows' feet) for **88%** of the participants after 12 weeks,
- Improved radiance and reduced dullness around the eye area after eight weeks and
- Visibly reduced wrinkles through week 20 (even after discontinuation of ceramide supplementation), *showing long-term benefits.*

This new study demonstrated how plant ceramides can **reduce fine lines** and **wrinkles**. It also showed improvements in features of the skin's barrier function that are typically lost to aging and environmental exposure.

Stated differently, individuals who supplemented with this product experienced measurable improvements in "beauty from within."

Summary

Natural lipid molecules known as **ceramides** play an essential role in the maintenance of water-retaining properties of the skin—critical to preserving skin's youthful appearance and texture.

Over time, levels of ceramides in the skin decrease, producing visible signs of aging.

Several studies have indicated that, when taken **orally**, plant ceramides are transported deep into the cells at the skin surface, working from the inside out. The results are improved skin hydration, smoothness, suppleness, and other youthful measures.

A compelling new study demonstrates that plant ceramides deliver **wrinkle-reducing** benefits. ●



Beyond a Youthful Appearance: Ceramides Support the Skin's Antimicrobial Defenses

The age-related decline of skin **ceramides** represents more than a mere cosmetic problem—the loss of these bioactive lipids may constitute a health risk.

Declining ceramide levels and the resulting loss of skin moisture are associated with greater susceptibility to contact dermatitis^{1,14,15} and reduced structural integrity,^{5,6,16} which in turn increases the threat to the skin from environmental assaults, such as low humidity, solvents, and detergents.¹⁷

To inhibit the loss of ceramides and the multiple health risks that can result, it is important to boost ceramide levels not just on the upper surface where lotions sit, but deep inside the skin cells beneath the stratum corneum.

So maintaining youthful levels of ceramides in the critical barrier layer of the skin achieves more than promoting a better appearance and feel—it powerfully blocks skin infections¹⁴ and other skin diseases.^{1,17}

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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BY ROBERT GOLDFADEN AND GARY GOLDFADEN, MD

Rehydrating Properties of **Hyaluronic Acid**



Cosmetic procedures like topical fillers and laser resurfacing are established interventions for smoothing out wrinkles and fine lines.

But they can also have side effects that include pigmentation changes, infections, red patches, and bruising.¹⁻³

Hyaluronic acid protects and regenerates the skin's underlying architecture by increasing moisture,⁴ stimulating collagen and elastin synthesis,^{5,6} promoting tissue repair,⁷⁻¹⁰ and combating ultraviolet radiation.¹¹

Replenishing depleted hyaluronic acid levels can help facilitate a more youthful appearance.

Clinical data show that a topical blend of high and low molecular weight **hyaluronic acid** rehydrates, smoothes, and rejuvenates aged skin.

Hyaluronic Acid: The Skin's Internal Moisturizer

Hyaluronic acid is found throughout most tissues in the body, with the greatest concentration in the skin.¹²

It has an unmatched capacity to attract and retain up to 1,000 times its weight in water.

Hyaluronic acid forms the extracellular matrix, a loose hydrated network that provides structural integrity and cohesion to skin.^{13,14}

Hyaluronic acid has been a mainstay ingredient of skin care products for decades, and for good reason. It bathes structural proteins collagen and elastin, allowing them to impart mechanical strength and elasticity that keeps skin firm and flexible.

By providing moisture between cells, hyaluronic acid increases volume and fullness that diminishes the appearance of wrinkles and fine lines.

While historically viewed as simply a “space filler,” accumulating research indicates that hyaluronic acid plays a greater role in fighting skin aging than previously thought.

Additional Effects of Hyaluronic Acid

Scientists have discovered that hyaluronic acid triggers a number of dynamic processes in the skin through its interaction with receptor CD44. After binding to the receptor, **hyaluronic acid** has been shown to:

- **Promote cell growth and proliferation** to produce new skin cells that have a fresh, more radiant appearance.^{15,16}

- **Enhance the formation of new blood vessels (angiogenesis)** to transport essential nutrients to skin cells from the bloodstream, thereby providing an ideal environment for tissue repair, healing, and growth.^{16,17}
- **Modulate the inflammatory and immune response** to ultraviolet radiation, which reduces free radicals that lead to DNA damage and lipid peroxidation.^{11,18}
- **Stimulate fibroblasts to produce new collagen** by causing mechanical stretching of the dermis.^{19,20}

So, by stimulating cells to protect and remodel the extracellular matrix from external factors—like ultraviolet radiation—hyaluronic acid is one of the most potent weapons for preserving youthful skin.

Skin-Aging Effects of Declining Hyaluronic Acid Levels

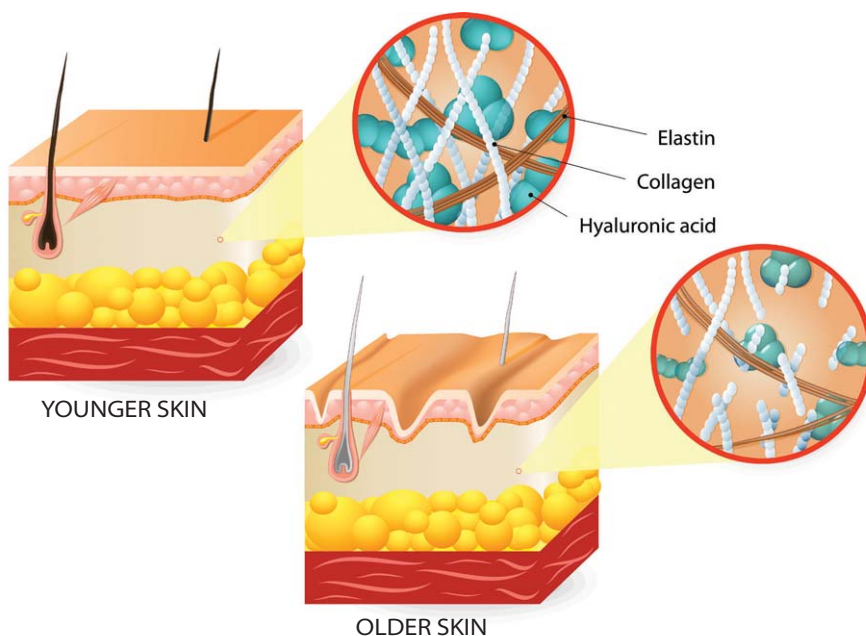
The natural decline in hyaluronic acid production as we age is exacerbated by environmental stress, particularly chronic sun exposure.²¹⁻²⁴ The fallout is a loss of moisture, abnormal structural changes to collagen and elastin, slowed cell turnover, impaired tissue healing, and compromised photoprotection—all of which lead to skin wrinkling, dryness, and sagging characteristic of premature aging.

Different Molecular Weights of Hyaluronic Acid

The effects of topical hyaluronic acid depend upon its size or molecular weight. **High molecular weight** hyaluronic acid has been shown to exhibit **anti-inflammatory** activity on the skin's surface,^{25,26} while **low molecular weight** hyaluronic acid penetrates more deeply into the skin where it boosts hydration and tissue repair.²⁷

Thus, topical preparations containing **both** are ideal to achieve the complete anti-aging effects of hyaluronic acid.

Let's now examine research that implemented both forms of hyaluronic acid to safely rehydrate and rejuvenate aged skin.





Effectiveness of Topical Hyaluronic Acid

In a double-blind, randomized, placebo-controlled study, 76 participants between the ages 30 and 60 with crow's feet applied either a topical cream with a mixture of high and low molecular weights hyaluronic acid or a placebo twice daily to the target area for two months.

Compared to the **placebo** group, participants treated with **hyaluronic** acid experienced significant reductions in **wrinkle** depth and roughness while improving skin hydration and elasticity.²⁸

In another randomized trial, scientists studied 40 healthy subjects with mild-to-moderate clinical signs of facial aging. Participants applied a topical preparation containing a mixture of high and low molecular weight hyaluronic acid or a placebo to the target region for 30 days.

The **hyaluronic acid** treatment group showed greater reductions in **wrinkle** depth and volume accompanied by less skin sagginess and more cheekbone volume compared to the placebo group.²⁹

Summary

Hyaluronic acid protects, nourishes, and rebuilds the extracellular matrix responsible for skin cohesion, firmness, and elasticity.

Replenishing depleted levels of hyaluronic acid as we age helps restore healthy, vibrant, and youthful-looking skin.

Research shows that when applied topically, the combination of high and low molecular weight hyaluronic acid is a safer, more affordable alternative to topical fillers and laser resurfacing with similar skin rejuvenation effects. ●

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.

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

What You Need to Know

Topical Hyaluronic Acid Restores Youthful Skin

- Hyaluronic acid is one of the main components of the extracellular matrix that provides structural support and cohesion to skin.
- Well-known for its hydrating properties, hyaluronic acid also instructs cell behavior to protect and rebuild the extracellular matrix.
- The natural decline in hyaluronic acid as we age is exacerbated by its increased loss from external factors, particularly ultraviolet radiation, leading to wrinkles and fine lines accompanied by dry and saggy skin.
- Fortunately, topical preparations containing both high and low molecular weight hyaluronic acid have been shown to restore healthy texture and hydration to aging skin, while reducing wrinkles and fine lines, to provide a more youthful appearance.
- Topical hyaluronic acid provides the same skin rejuvenation benefits as established topical fillers and laser resurfacing but without the potential pitfalls.

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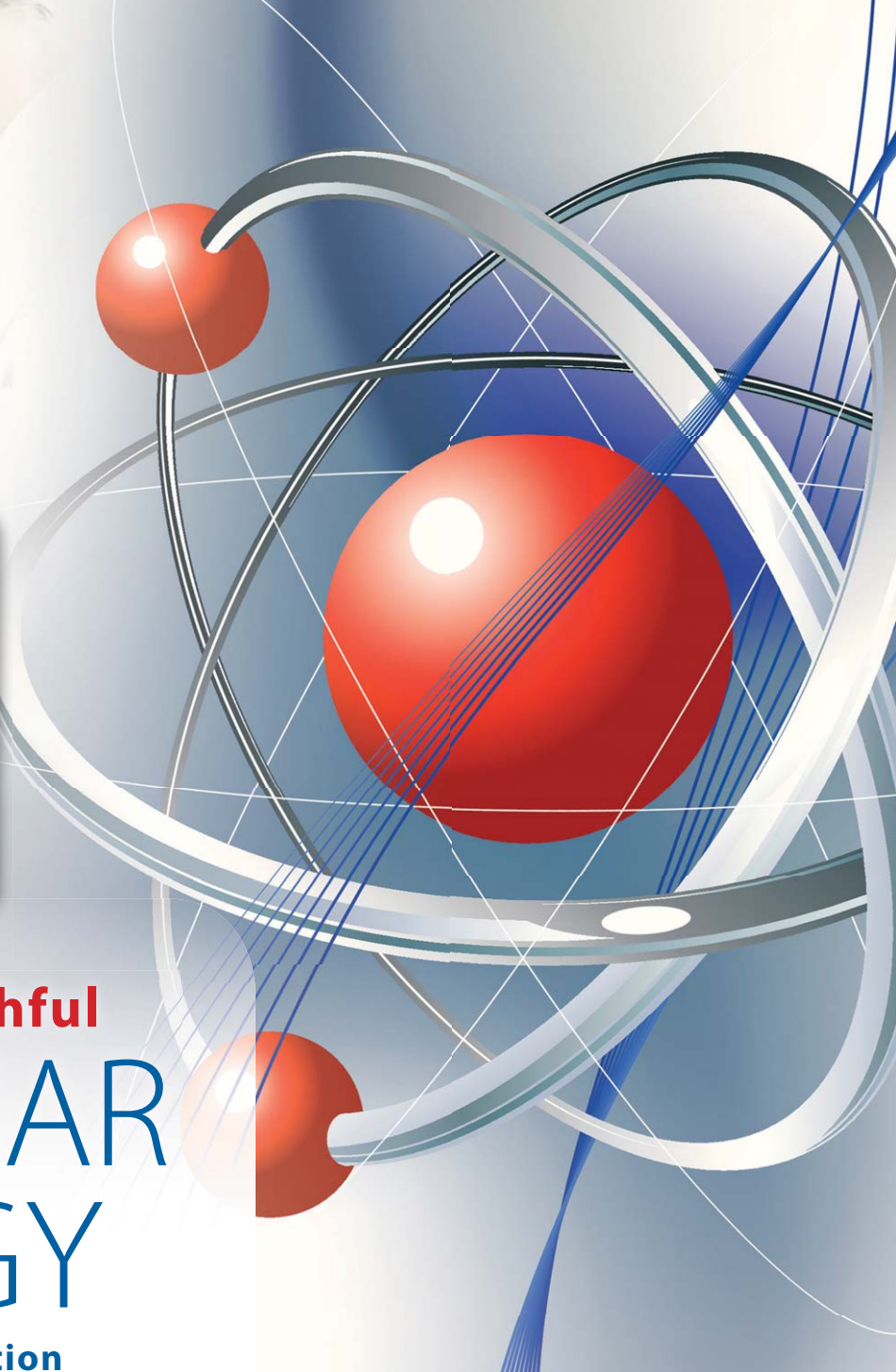
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A Breakthrough Stroke Treatment Can Save Lives—If It's Available

Access to a 'thrombectomy,' which can forestall damage, depends where patients live

By THOMAS M. BURTON

Minutes mattered to two Atlanta-area residents who showed severe-stroke symptoms last autumn. The right treatment done quickly can help prevent brain damage.

An ambulance raced a 74-year-old man to a hospital nearby that wasn't an institution capable of offering the most-advanced procedure. He arrived Oct. 30 at 9:30 a.m. with right-side weakness, unable to speak.

Those symptoms should have been enough for personnel to immediately

transfer him to Grady Memorial Hospital, says Raul G. Nogueira, Grady's chief of stroke endovascular therapy, who treated him and recounted the case. Grady can perform a procedure called "thrombectomy" that is gaining favor for its ability to pre-empt brain damage in many patients.

Instead, the man got two scans. By the time a helicopter transferred him to Grady at around 2 p.m., a "good outcome was nearly impossible," says Dr. Nogueira. The patient "is expected to have lifelong severe disabilities and not be able to care for himself."

On Nov. 1, a 77-year-old woman was discovered on her bedroom floor with similar symptoms at 9:30 a.m. She arrived by ambulance directly at Grady and underwent a thrombectomy around noon, says Dr. Nogueira, and is "back to normal."

The thrombectomy is beginning to transform stroke treatment. Using it, a doctor pulls clots from the brain. Leading stroke doctors concluded in a February 2016 analysis in the medical journal *The Lancet* that 2015 stroke studies showed 38 out of 100 patients treated

Please see *STROKE* page A8

A Breakthrough Stroke Treatment Can Save Lives—If It's Available

The "thrombectomy" is transforming stroke care, pre-empting brain damage in many patients, but the medical establishment is far from making it standard practice

It is abundantly clear that many **stroke** victims can be spared paralysis and death.

The following article is a reprint from the front page of the **Wall Street Journal** published earlier this year. It describes obstacles that delayed more rapid deployment of a mechanical **clot-retrieving** therapy known as **endovascular thrombectomy**.

We at **Life Extension**® argued in **2015** that **thrombectomy** should have been used to save more stroke victims.

As you'll read, there are still **delays** in training doctors to perform this clot-retrieving procedure and many hospitals have to acquire the equipment needed to perform this stroke reversal-treatment.

If acute stroke symptoms ever manifest, we urge you to have an ambulance transport you to the nearest **thrombectomy-capable** stroke center, even if it is not the closest emergency room.

Minutes mattered to two Atlanta-area residents who showed severe-stroke symptoms last autumn. The right treatment done quickly can help prevent brain damage.

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with thrombectomy "will have a less disabled outcome" than with standard care, and that "20 more will achieve functional independence."

The procedure, says Denver-area stroke specialist Dr. Donald F. Frei, "has the same transformative effect on treating stroke as penicillin did for infections."

The contrasting experiences among patients such as the two in the Atlanta area show how far the U.S. medical establishment is from making the thrombectomy standard practice since it gained significant credibility from large clinical trials in 2014 and 2015.

A severe-stroke victim must get a thrombectomy before damage sets in. For every minute with blood flow blocked, by many estimates, two million brain cells die.

Ambulance crews' protocols, though, often don't specify driving a severe-stroke patient directly to a thrombectomy-capable hospital, many stroke specialists say, so a patient often lands first in a hospital that can't do the procedure.

In those hospitals, some medical research shows, there are often delays in getting patients who need a thrombectomy to the right hospital. Many patients with severe strokes aren't helped by conventional treatment with drugs, many stroke specialists say.

And a thrombectomy isn't an option at all in many regions. Many hospitals don't offer them, because it is hard to build thrombectomy teams of specialist doctors and assistants who can be on call 24 hours a day for the quick response such patients need. The procedure is new enough that there aren't enough specialists to hire, and doctors often must spend years learning it on the job.

The U.S. system that creates low thrombectomy rates is "almost at the point of being unethical," says stroke neurologist S. Claiborne Johnston, dean of the University of Texas Dell Medical School.

Stroke experts estimate that, as a general rule, thrombectomies should be going to **20%** or more of patients with clot-caused strokes. This subset of patients have "large-vessel occlusion," large clots in large vessels that often trigger the worst disabilities or death. Thrombectomies don't apply to a brain hemorrhage, another major type of stroke.

Washington, D.C., metro-area hospitals—including those in Virginia and Maryland suburbs—did thrombectomies in **2%** of Medicare clot-caused-stroke patients in the 12 months ended June 30, 2017, the lowest rate among the 50 largest U.S. metro areas. Denver was the area with the highest rate, **9.3%**. *The Wall Street Journal* determined those rates by merging population data with Medicare stroke-and-thrombectomy data compiled by Definitive HealthCare LLC, a medical-data analysis company. Among all U.S. hospitals, the rate was **2.8%**.



Some hospitals do better. Atlanta's Grady gave thrombectomies to **28%** of its clot-based Medicare stroke patients in the year ended June 30. The University of Toledo gave them to **26%** and Swedish Medical Center in Englewood, Colo., to **24%** in the same period.

Thrombectomies, which have been used in some hospitals for a decade, gained currency after the positive 2014 and 2015 clinical trials. In the procedure, a doctor typically slides a catheter through an artery to the brain and grabs a clot, often with a relatively simple device called a stent-retriever.

A hospital must spend millions of dollars to gear up with special equipment and staff. But thrombectomies are well-reimbursed by Medicare and insurers, and ultimately are more profitable than a lower level of stroke treatment, says Tudor G. Jovin, chief of the University of Pittsburgh's renowned Stroke Institute.

Providence Regional Medical Center in Everett, Wash., treats about 750 clot-based stroke patients annually but doesn't do thrombectomies. Officials there say they are trying to build up a 24-hour-a-day thrombectomy capability. Until they do, they say, the regional ambulance service transports thrombectomy candidates an hour south to Seattle. The hospital's medical director for stroke, Dr. Tarvinder Singh, says Providence has the equipment to do thrombectomy and that he hopes to hire two specialists soon.

There is debate over which stroke victims should go immediately to thrombectomy. Some hospitals that aren't capable of doing thrombectomies say they can first give an anticoagulating drug called tPA, and, if it isn't enough, quickly transfer patients to a comprehensive center for a thrombectomy.

Many stroke specialists say some hospitals that don't do thrombectomies resist a change in ambulance protocols because these allow the hospitals to admit more patients and hold on to them longer. Officials in non-thrombectomy hospitals say there isn't a financial motive for resisting protocol changes that may send patients elsewhere. They say it is optimal to see a stroke patient as quickly as possible, and that they are capable of transferring patients in a timely fashion.

Robert P. Holman, medical director of the District of Columbia Fire and Emergency Medical Services, agrees that the protocol in the capital often sends patients first to a non-thrombectomy hospital but says patients can be transferred to a thrombectomy center quickly and arrive there with just a 20-minute drive. He defends the current system by saying it is "very hard for our first responders to assess in the field" a stroke's severity.

And it is hard to tell afterward if a given patient would have benefited from a timely thrombectomy, because a stroke's impact is unpredictable. Dr. Nogueira



in Atlanta's Grady uses the metaphor of fighting a forest fire: Sometimes, it stops the fire after a few trees burn. Other times, "irreversible damage has already taken place."

Even the conventional wisdom that all patients have only a short window of opportunity has been challenged. A study presented in Europe in 2017 showed some patients even 24 hours after a stroke can have a **73%** lower risk of disability with a thrombectomy. The outcome largely depends on the patient's individual physiology, the researchers said.

Fewer than 20 states have ambulance protocols directing severe-stroke patients to thrombectomy hospitals, according to the Society of NeuroInterventional Surgery.

In Washington, D.C., there is no requirement ambulances take severely-stricken patients to the three hospitals capable of thrombectomies. Instead, a stroke patient often gets taken initially to a hospital designated as a "primary stroke center." That designation is largely given to U.S. hospitals able to give the drug tPA, which usually won't dissolve the largest clots in large arteries.

Most of these hospitals don't offer thrombectomies, often leading to delay for patients who need them, says Juliette Saussy, former medical director of D.C. Fire and EMS.

Dr. Saussy quit in January 2016, she says, after unsuccessfully urging changes, including a revised stroke protocol in which paramedics would assess the severity of strokes in ambulances and speed more in for thrombectomies. Dr. Saussy says that in many cities, non-thrombectomy hospitals have resisted changing such protocols. "They have a fundamental belief, which I don't agree with, that paramedics can't diagnose severe stroke," she says. "We're not doing the right thing for patients."

Dr. Holman, who succeeded her, says his department's protocol hasn't changed since Dr. Saussy's departure but the department is trying to find ways for emergency personnel to screen patients and better decide whom to take directly to thrombectomy-ready hospitals.

A 984-patient study published in September 2017 in the journal *Circulation* concluded "interhospital transfer was associated with significant treatment delays and lower chance of good outcomes" from a thrombectomy.

Thrombectomy advocates say it has been demonstrated that paramedics can conduct simple measures to determine how severe a stroke is. Doctors from Barcelona wrote in the journal *Stroke* in December 2013 that they had created a scale that "is a simple tool that can accurately assess stroke severity" by emergency-medicine technicians. Authorities in some U.S. cities, including Pittsburgh, have adopted the scale.

Some U.S. regions have revamped their ambulance protocols to send stroke victims more quickly to thrombectomy hospitals, and many major hospitals have been gearing up procedures to get severe-stroke victims quickly into the treatment.

Among them is the University of Pittsburgh's UPMC Presbyterian hospital. When a possible stroke patient arrives at the emergency room, a neurology team member is notified immediately. If it is the right kind of severe stroke, the patient goes in for a thrombectomy immediately. A stroke patient in the emergency department gets evaluated in a median of 22 minutes, down from 59 minutes in 2015, the hospital says.

The UPMC's Dr. Jovin sometimes breaks into song and dance during the procedure. During a complex case last year involving five passes to remove clots, he sang "clot access number five," to the tune of "Love Potion No. 9."

A thrombectomy's benefits can be striking. Walter Noble and Harold "Butch" Wright, next-door neighbors in Mesa, Ariz., suffered severe strokes a month apart—Mr. Wright on Christmas Day 2014, Mr. Noble in January 2015.

They were taken to the closest hospital, Banner Baywood Medical Center. There, their fates diverged.

Doctors noted Mr. Noble's right-sided weakness, says Mohamed Teleb, the doctor who later treated him. They did a CT scan and gave him the drug tPA. Mr. Noble, then 75, started fluctuating between being able and unable to talk. They transferred him quickly to Banner Desert Medical Center for a thrombectomy, Dr. Teleb says.

The next morning Mr. Noble was alert. He says he now lives a normal life.

Mr. Wright had a stroke after 10 a.m., says his wife, MaryAnn Wright. He, too, got the drug, and his



symptoms fluctuated, Dr. Teleb says. A neurologist was consulted at 3:57 p.m. Mr. Wright wasn't transferred to Banner Desert until around 7 p.m., says Dr. Teleb, who did both thrombectomies.

Dr. Teleb started Mr. Wright's thrombectomy at about 8:10 p.m. and found large amounts of tissue destroyed. Mr. Wright, five years younger than Mr. Noble, was sent to a hospice and died two days later, says Ms. Wright.

Dr. Teleb says the cases were "mirror images." The difference between the neighbors, he says, was that Mr. Noble was transferred "in a timely manner, while the other patient was transferred at least three or four hours later."

A spokeswoman for Banner Health, which includes both hospitals, says that at that time "medical literature did not clearly demonstrate that a thrombectomy was of benefit to patients suffering from an acute ischemic stroke" and that "once new literature and guidelines emerged, Banner took a lead in the early identification of patients who were candidates for this treatment."

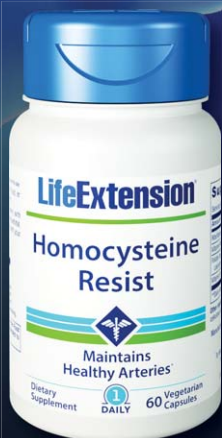
Dr. Teleb says he and others are working toward a Phoenix-area ambulance protocol to send severe stroke patients more directly to thrombectomy-ready hospitals. He estimates it will take three to six months before that happens.

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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A woman in a beige suit is sitting on a white modern chair, holding a black clipboard. She is looking down at it. Next to her, a man in a grey suit is sitting on a similar chair, talking on a black mobile phone. He is looking down at the phone. In the background, another man in a grey suit is partially visible, also sitting. They are in a bright, modern office setting with large windows showing a cityscape. The text "LETHAL DANGERS OF SITTING TOO LONG" is overlaid in large, bold, blue letters at the bottom of the image.

LETHAL DANGERS OF SITTING TOO LONG



Sitting at a desk or watching TV for too long, without moving your muscles, increases risk of death from a deep-vein clot in the leg by **48%**.¹

These clots, called **deep vein thrombosis** (DVT), can result in a pulmonary embolism, an often fatal condition.^{2,3}

Realizing a new strategy is needed in today's age of sedentary lifestyles, scientists have investigated the effects of various nutrient compounds.

Two extracts—**nattokinase** and **French maritime pine bark**—have been found to help prevent the formation of deadly clots, and to make clots that do develop more likely to resolve quickly.⁴⁻¹⁰

This is an important life-saving finding for anyone who regularly sits for extended periods of time during their daily commute, at their job, on an airplane, or at home watching television.

Deep Vein Thrombosis: A Silent Killer

Life Extension® readers take nutrients to reduce arterial plaque and the risk of clot-triggered heart attack or stroke.

But even those with healthy arteries can still be at risk for **deep vein thrombosis** (DVT).

These clots can develop quickly, without warning symptoms, and are often fatal.

When these clots break apart, pieces travel through the circulatory system and can reduce, or entirely block, blood flow to the lungs. This is a **pulmonary embolism**, which can result in death *within minutes*.

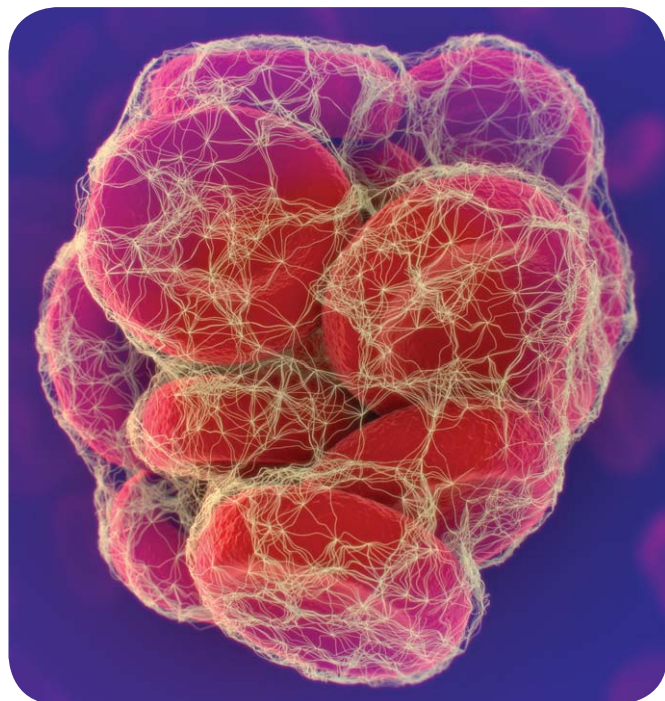
Up to 100,000 Americans die this way every year.¹¹

Even when it does not result in an embolism, a deep vein thrombosis can lead to **post-thrombotic syndrome**, a condition characterized by leg pain, heaviness, swelling, scaling, discoloration, or ulceration in the affected limb.^{11,12}

A Solution to Deadly Clots

With age and inactivity, blood tends to pool in the legs, and the body's natural systems that *break down* clots lose their ability to keep pace with the systems that *form* clots.^{13,14}

Good lifestyle habits—such as exercising, eating a healthy diet, and avoiding smoking—are important elements for risk reduction. For many people, especially those at high risk of blood clots, good habits may not be enough on their own.



Anti-clotting **drugs** reduce risk of deep vein thrombosis, but they can cause internal (blood vessel) bleeding.^{15,16} Compression stockings have shown limited effectiveness^{17,18} in addition to being uncomfortable in warm weather.

Nattokinase and **French maritime pine bark** are plant extracts that have been shown to help prevent **deep vein thrombosis**. The mechanisms include:^{6-10,19-21}

- Inhibiting unwanted clot formation within veins,
- Improving microcirculation in the veins of the legs,
- Promoting elasticity of vessel walls, and
- Inducing breakdown of clots.

Let's examine the individual effects of each of these natural extracts.

The Anti-Clotting Activities of Nattokinase

Nattokinase is an enzyme extracted from soybeans fermented with the bacterium *Bacillus natto*.

Nattokinase directly lowers levels of factors involved in arterial and venous blood clotting.

For example, nattokinase breaks down the main protein found in clots (called **fibrin**), as well as fibrin's precursor, **fibrinogen**.^{10,19,20}

It also reduces the activity of two proteins—**factor VIII** and **factor VII**—elevated levels of which can produce unwanted clotting.⁸

Animal and human studies reveal the effects of these mechanisms of action.

In one study, investigators gave **nattokinase** to dogs with experimentally induced blood clots. Using a type of X-ray technology, they were surprised to learn that they could literally **watch** the clots break down in real time.¹⁰

In this study, nattokinase produced a mild but steady increase in the rate of **fibrin breakdown** in the blood, an action that can prevent clots and reduce the size and toughness of existing clots.¹⁰

In a later study, scientists demonstrated that **nattokinase** could break down **fibrinogen** (fibrin's precursor) in the blood of spontaneously hypertensive rats. It also reduced blood pressure, a significant finding since high blood pressure is a risk factor for blood clots.²²

High blood levels of **fibrinogen** predispose a person to coronary and cerebral artery disease.²³⁻²⁶ Fibrinogen levels tend to increase with age and poor health habits.²⁷ **Life Extension** recommends an optimal fibrinogen blood level of **295-369 mg/dL**.

Human Study

A **human** study corroborates the anti-clotting factors of **nattokinase**.

For the study, researchers gave **4,000 fibrinolytic units** of **nattokinase** daily, for two months, to three groups of volunteers: healthy individuals, cardiovascular disease patients, and kidney dialysis patients.

All three groups demonstrated significant decreases in pro-coagulation factors VII and VIII, and fibrinogen compared to baseline.⁸

This study suggests that nattokinase is as effective in individuals with impaired endothelial and coagulation function as it is in those with normal function. There were no adverse effects or unwanted bleeding,⁸ and other tests confirmed nattokinase's safety.²⁰

French Maritime Pine Bark Extract

French maritime pine bark is a natural extract that is rich in special **polyphenols**.

Studies show that it provides powerful thrombosis-preventive effects by:

- Reducing platelet aggregation, thus inhibiting clots,⁶
- Increasing the activity of an *enzyme* that generates *nitric oxide*, which regulates vascular function to reduce thrombotic risks,^{21,28}
- Scavenging free radicals, which reduces stress on vascular walls that can cause microscopic injuries that trigger coagulation,²¹
- Improving microcirculation of the legs, which is critical during sedentary periods,^{7,21} and
- Inhibiting the action of “protein-melting” enzymes, which would otherwise degrade elastic proteins in the blood vessel walls, making them stiff and reducing blood flow.^{7,29}



What You Need to Know

Preventing Deep Vein Thrombosis

- Spending long periods sitting can lead to **deep vein thrombosis**, which can trigger a deadly pulmonary embolism.
- Nattokinase and French maritime pine bark extract help prevent deep vein thrombosis by inhibiting unhealthy clotting, promoting leg microcirculation, and supporting vein flexibility.
- A human study has shown that this dual-extract blend safely prevented deep vein thrombosis while also decreasing leg swelling.
- These two extracts represent a safe, effective option for preventing the potentially deadly dangers associated with sitting for long periods of time.

Putting Pine Bark to the Test

To validate these effects, scientists enlisted volunteers during flights averaging 8.25 hours. Flying for this duration increases the risk of developing a **deep vein thrombosis**.

The test group took **200 mg** of French maritime pine bark extract two to three hours before their flight, another **200 mg** six hours into the flight, and another **100 mg** the next day. The control group took placebos at the same intervals. All subjects underwent ultrasound scans of their legs within 90 minutes before and after flights to detect clots.⁴

Incredibly, individuals treated with French maritime pine bark extract showed **zero** blood clots—a **100% success rate**. The controls showed four superficial venous thromboses and **one** deep venous thrombosis.⁴ This demonstrates that the extract can prevent blood clots during prolonged periods of sitting.⁴

In another human trial, subjects who flew for over eight hours twice weekly were divided according to low, moderate, or high risk of thromboses. Within each risk group, some received standard care only, some also received French maritime pine bark extract, and the rest used compression stockings.³⁰

In the moderate- and high-risk groups, those taking bark extract developed **zero** thromboses. In the moderate-risk group, those receiving standard management showed **two** thromboses—one deep vein and one superficial vein.³⁰ These unwanted thrombotic results were the same in the high-risk group.

Swelling and ankle circumference were also significantly lower in those taking the extract. No side effects were observed.³⁰

Pine Bark Extract Inhibits Dangerous Lower Leg Swelling

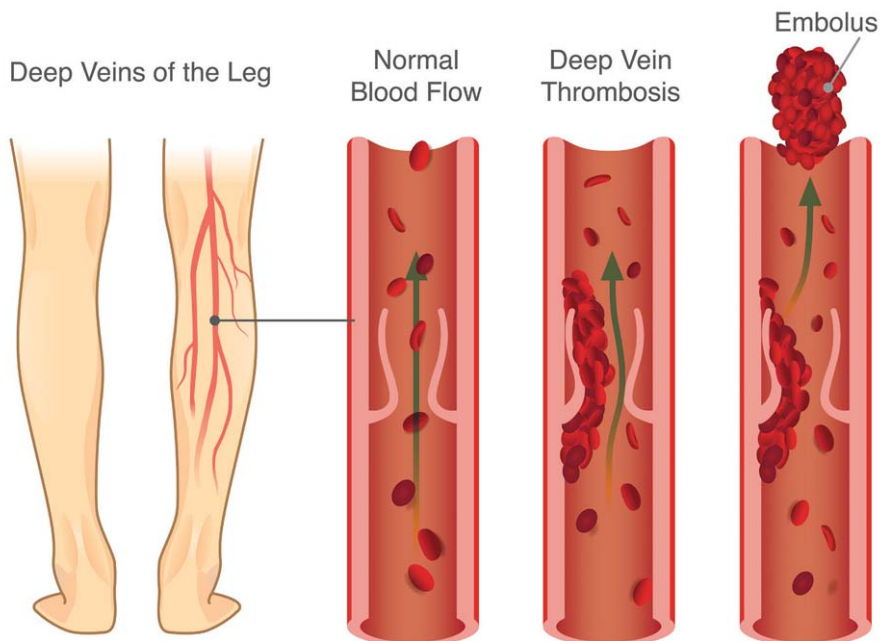
Reduced ankle swelling is an excellent indicator of enhanced return of blood up the legs. For this reason, some scientists have specifically studied ankle swelling as a way to assess the risk of deep vein thrombosis.

To assess ankle swelling, researchers enlisted volunteers at risk for deep vein thrombosis due to a long flight. Some received **200 mg** of French maritime pine bark extract two to three hours preflight, **200 mg** six hours into the flight, and **100 mg** the next day. A second group served as controls.

Ankle swelling increased **91%** in the control group, but only **36%** in the extract group. Similarly, the edema score increased **58.3%** in controls, but only **17.9%** in the extract group.

The fact that the extract group experienced less swelling confirms its benefit to healthy venous flow,³¹ a finding that researchers expect can help lead to fewer venous blood clots.

DEEP VEIN THROMBOSIS



Possible Symptoms of Deep Vein Thrombosis

Deep vein thrombosis often has no warning signs. But if you do notice any of the following, seek immediate medical attention:³⁴

- Swelling in one or both legs,
- Tenderness or pain in one or both legs, even if it's only when standing or walking,
- Warm skin on your leg,
- Red or discolored skin on your leg,
- Veins you can suddenly see, and
- Tired legs



Pine Bark Extract vs. Compression Stockings

Other studies have compared pine bark extract with compression stockings. Wearing these is a common method for reducing leg swelling, but they are not necessarily effective in reducing **post-thrombotic syndrome**, which can cause leg pain, heaviness, swelling, scaling, discoloration, or ulceration in the affected limb.^{11,12}

One study showed that taking **150 mg** of French maritime pine bark extract daily for 12 months was more effective than stockings in relieving edema, lowering ankle circumference, and enhancing microcirculation.³² More importantly, **no** deep vein thromboses occurred in the extract group, while the stockings group experienced **two** episodes.³²

In another study, researchers wanted to see how pine bark extract stacked up to compression stockings in people flying twice a week for over eight hours.³⁰ The results showed similar reductions in swelling, with the extract group experiencing a **3.9%** reduction, and the stockings group experiencing a **3%** reduction, compared to controls.

However, the extract was *far superior* in reducing **post-flight leg pain**. Compared to controls, **64.7%** *fewer* extract participants reported post-flight leg pain, while **11.7% more** stockings-users reported leg pain.³⁰

Finally, when compared to several compounds believed to reduce swelling, French maritime pine bark extract was found to be **superior** at reducing edema scores and oxidative stress. It also improved symptom scores comparable to compression stockings.³³

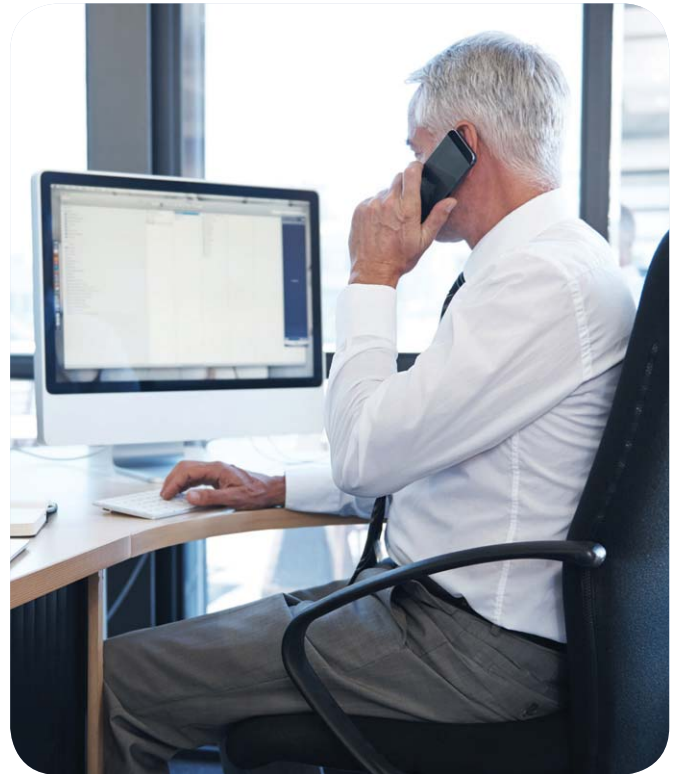
Dual-Extract Supplement Prevents Deep Vein Thrombosis

The above studies demonstrate the individual benefits of nattokinase and French maritime pine bark extract for reducing the factors associated with blood clots and reducing leg pain and swelling.

Next, investigators wanted to determine the **combined** effects of these two natural compounds.

To do so, they conducted a randomized, placebo-controlled human trial involving 204 passengers on a cross-Atlantic flight. The passengers received either a placebo or a proprietary blend combining **nattokinase** and **French maritime pine bark** extract two hours predeparture and again six hours later. Ultrasounds were conducted pre- and post-flight.

Passengers taking the supplement had **zero** deep vein thrombosis cases—a **100% success rate**. In contrast, **five** control passengers developed a deep vein thrombosis, and **two** others had superficial clots—a total of **seven** events.⁵



And while leg swelling was equal between the two groups preflight, edema **decreased** by **15%** among supplemented passengers, while control passengers experienced a **12% increase**. No adverse side effects were reported.⁵

These findings confirm that these two extracts help prevent deep vein thrombosis and decrease edema in individuals spending long periods sitting—two key steps in reducing the risk of sudden death from a pulmonary embolism.

Summary

Deep vein thrombosis is a serious risk for anyone who spends extended periods sitting. In addition to causing uncomfortable leg swelling, it can lead to a sudden and deadly pulmonary embolism.

Nattokinase and **French maritime pine bark** extract protect against these risks by improving leg microcirculation, promoting vein elasticity, inhibiting venous clot formation, and helping to dissolve any clots that do form.

When taken together, these nutrients have been shown to decrease leg swelling and prevent deep vein thrombosis. ●

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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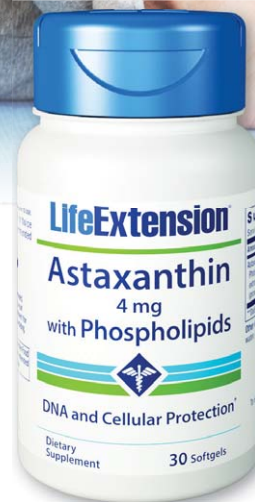
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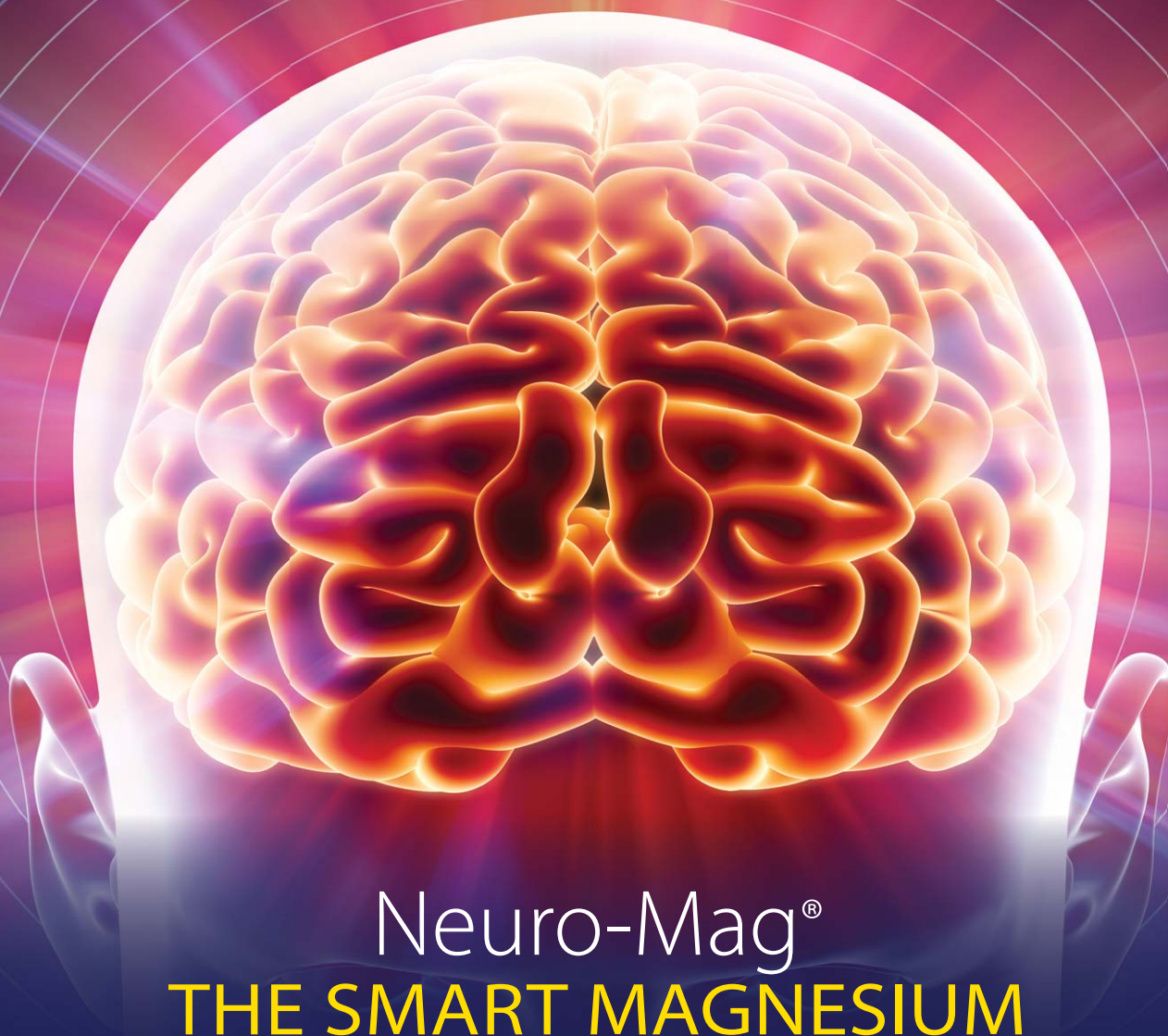


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* *Alzheimers Dis.* 2015;49(4):971-90.

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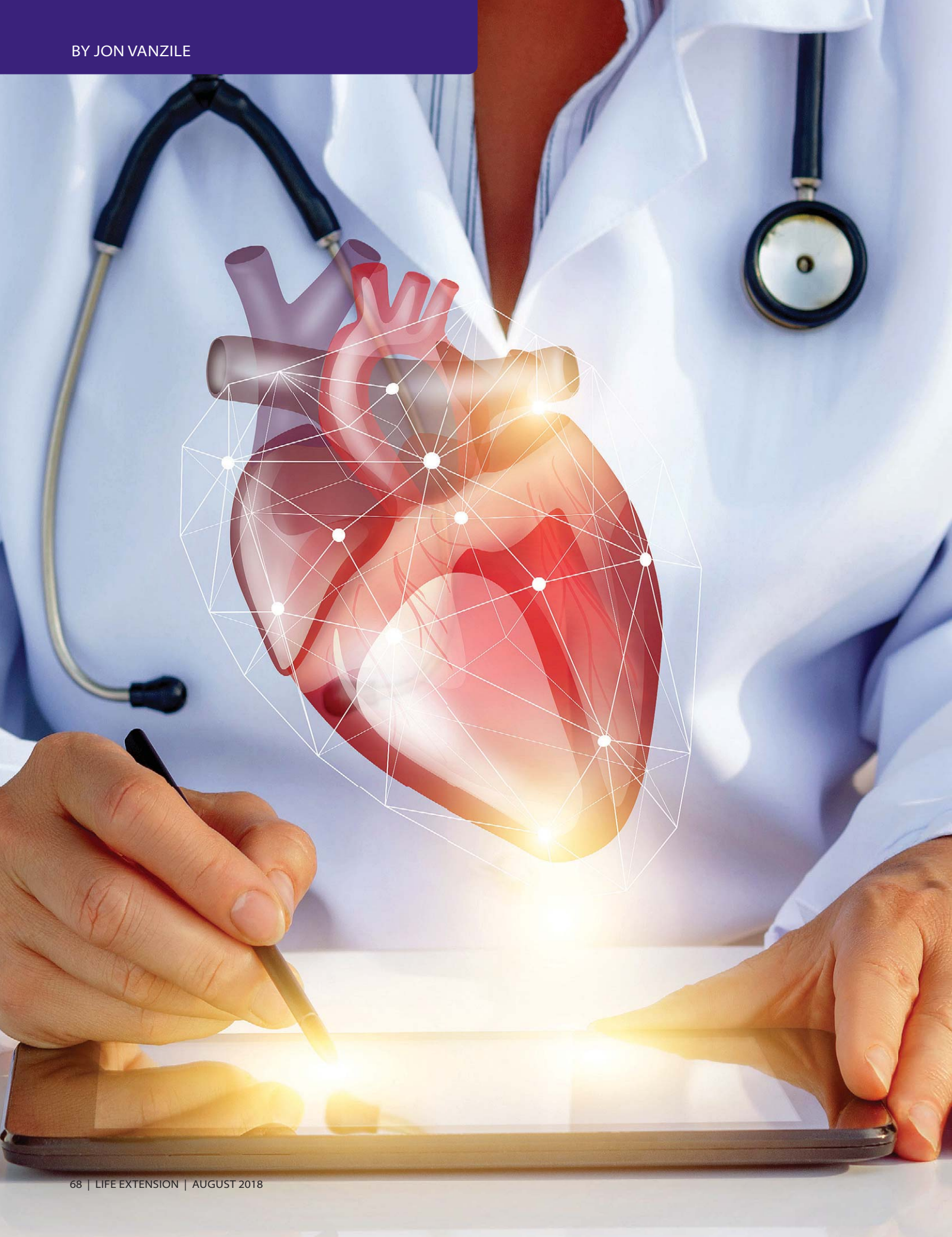


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Dr. Ozner's Approach to Heart Disease Prevention

In a matter of just 40 seconds or so, one person in the United States will suffer a **heart attack**.¹ That adds up to nearly 90 heart attacks every hour.

After years of accepting high death rates from cardiovascular disease, an advance has occurred in therapeutic prevention.

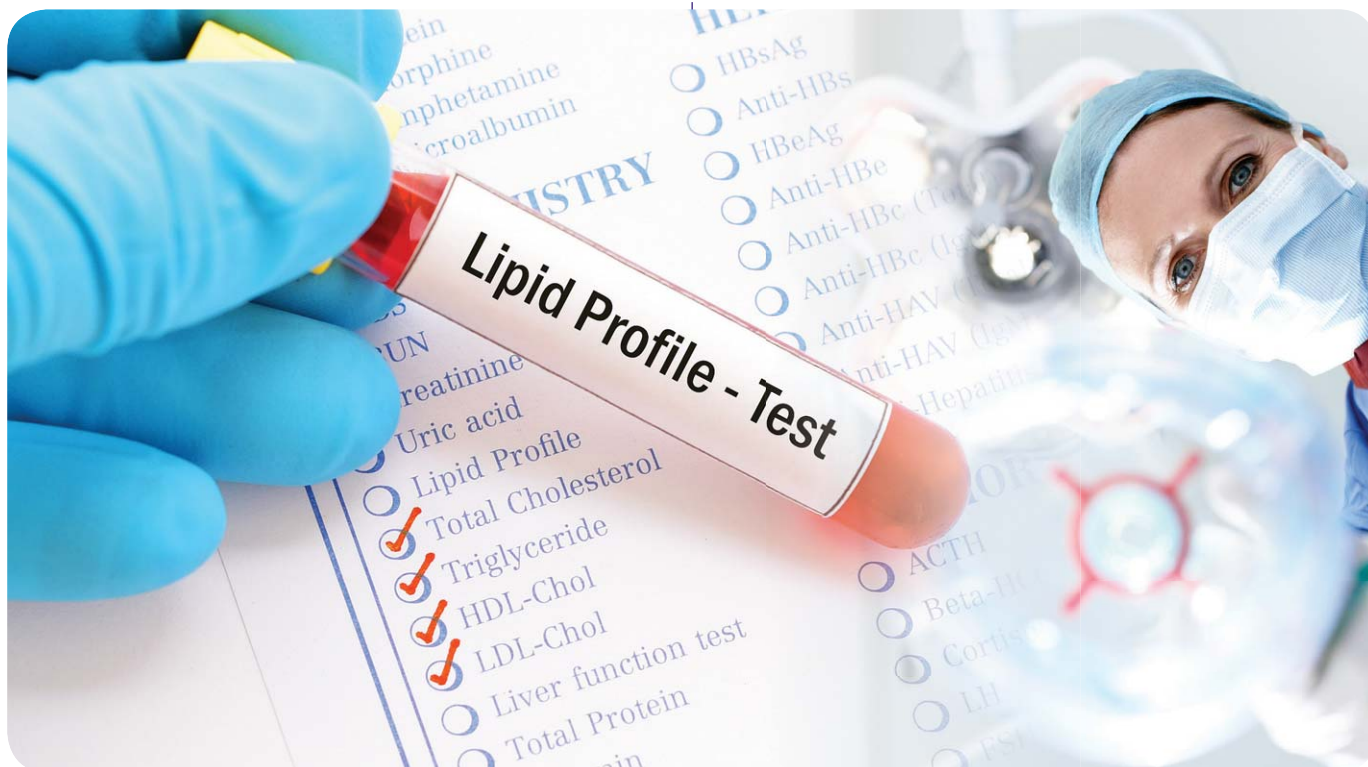
According to prominent Miami cardiologist **Michael Ozner, M.D.**, we are standing on the brink of a revolution in the way we treat coronary heart disease.

This change is so profound that Dr. Ozner thinks we might finally "**have the ability to take the majority of heart attack risk off the table.**"

How is this possible?

It's all thanks to a new understanding of what causes coronary heart disease—and an explosion in new treatments that will be used in the battle against this formidable enemy.

With these treatments, we may also be able to not only prevent atherosclerotic plaques from forming, but stabilize and reverse plaques that already exist. This reduces a major cause (coronary atherosclerosis) of heart disease.



It's the Lipoproteins

Coronary artery disease occurs when cholesterol-carrying **lipoproteins** enter the artery wall and are then retained and oxidized. When this happens, immune system components enter the vascular wall and engulf these dysfunctional lipoproteins.

This process eventually leads to an **atherosclerotic plaque**, which can be thought of as a “pimple” in the artery wall. If the plaque ruptures, a clot can form and block the coronary artery, causing a sudden heart attack.

Contrary to what many people think, the problem isn't cholesterol itself. Instead, it's the *lipoproteins* that carry cholesterol. These lipoproteins come in different densities and sizes. The most potentially dangerous lipoproteins are *low density lipoproteins* (LDL) and remnant lipoproteins.

“Lipoproteins are like little taxi cabs in the circulation carrying cholesterol and triglyceride molecules to destinations where they are needed,” says Dr. Ozner, medical director of Wellness and Prevention at Baptist Health South Florida and author of multiple best-selling books on heart disease.

“If there are too many lipoproteins, they can penetrate the arterial wall. And once they get inside, they can become engulfed by macrophages leading to plaque development. If we can reduce the number of potentially harmful lipoproteins that enter the vascular wall in the first place, it will reduce the number of plaques that can rupture and cause heart attacks.”

Researchers are making advances on multiple fronts to reduce the number of dangerous lipoproteins and to shrink or stabilize existing plaques. Recent studies are showing a significant impact in cardiovascular disease with a reduction in heart attack and stroke.

Proven Ways to Stabilize and Shrink Arterial Plaque

When it comes to any discussion about reducing the risk of heart attack and heart disease, Dr. Ozner is adamant on one point: **It always begins with following a healthy lifestyle.**

We already know that following a prudent lifestyle dramatically reduces the risk of suffering from heart disease. This includes limiting sugar, refined starch, and saturated and trans fats while avoiding processed food, smoking, and excess alcohol. Staying physically active, reducing stress, and getting sufficient sleep are likewise important.

Dr. Ozner is also a proponent of the **Mediterranean diet**, which focuses on consuming healthy fats, whole grains, omega-3-rich fish, and a wide variety of fruits and vegetables. He believes in it so strongly he wrote the best-selling book, *The Complete Mediterranean Diet*.

A recent meta-analysis of published studies found that eating a Mediterranean diet significantly reduces coronary artery disease, heart attack, and stroke.²

The Importance of Proper Blood Testing

In order to combat heart disease, it is critical to have your blood tested regularly to correct metabolic disturbances that can lead to heart attacks.

Standard cholesterol blood testing often leaves hidden risk undetected, says Dr. Ozner. For a more complete picture, it is important to also measure **atherogenic lipoproteins**, namely **apolipoprotein B** (or **apoB** for short).

It is also important to detect the level of chronic inflammation that, when elevated, is highly damaging to the heart and blood vessels. A low-cost way of measuring this is with a high sensitivity **C-reactive protein (CRP)** blood test.

"You can have normal LDL-C (cholesterol) levels, but high levels of apolipoprotein B," Dr. Ozner says.

In other words, you can have normal LDL-C levels and think you are healthy, but unless you know your **apolipoprotein B** levels, you may be at increased risk of heart attack.

These tests (apoB and hs-CRP) give a much better assessment of heart attack risk than a standard lipid profile alone. Dr. Ozner recommends measuring apoB blood levels in addition to a standard lipid (cholesterol and triglyceride) panel.

When Lifestyle Isn't Enough

For some people, a healthy lifestyle isn't enough to keep their levels of dangerous lipids and lipoproteins low. This includes people with a genetic predisposition

to high cholesterol and lipoprotein levels. This group of men and women should be prescribed statin drugs to lower LDL cholesterol levels and further reduce the risk of heart attack.

But some particularly difficult responders *still* cannot reach their goals despite a healthy lifestyle *and* statins. For those cases, researchers are exploring novel pathways to slash the level of dangerous blood lipids and lipoproteins. The early trial results of these new therapies have been very encouraging.

To be clear, these therapies are for those who are unable to reduce their risk of heart attack or stroke through lifestyle modifications. Medicine has targeted this group of difficult responders to significantly lower their heart attack risk.

Let's consider five of the most promising therapies.

PCSK9 Inhibitors

PCSK9 inhibitors are a new class of drug that has been shown to lower LDL cholesterol dramatically—driving it down to levels below **50 mg/dL** when given in conjunction with a traditional statin.

These drugs work by inactivating a liver protein called *proprotein convertase subtilisin/kexin type 9* or **PCSK9**.

By inhibiting the activity of PCSK9, there are more liver receptors available to clear cholesterol-containing LDL particles from the bloodstream, thereby leading to a decrease in LDL levels.



The potential of these drugs was shown in the GLAGOV trial. This trial examined the ability of one of the leading **PCSK9 inhibitors** (evolocumab), brand name **Repatha®**, to lower cholesterol in patients already taking statins. This large double-blind, placebo-controlled study enrolled patients from almost 200 hospitals around the world.

The addition of **Repatha®** to statin therapy led to **significant plaque regression** as well as reduced LDL-C levels. Some patients' LDL-C levels fell to less than **50 mg/dL**.³ These results were published in the *Journal of the American Medical Association* in 2016.

Next came the 2017 FOURIER trial, a highly anticipated clinical trial that was presented at the March 2017 American College of Cardiology annual meeting.

With more than 27,000 participants in this study, FOURIER connected the dots by showing that the combination of **Repatha®** and statins not only lowered LDL cholesterol by approximately **60%**, but also significantly reduced the risk of **heart attack** and **stroke** compared to statin therapy alone. Researchers in this trial reported LDL levels as low as **30 mg/dL**.⁴

Finally, the EBBINGHAUS trial examined the relationship between long-term PCSK9 use and **cognitive function**. Researchers found that **Repatha®** had no adverse effect on cognitive function—even among patients who experienced LDL levels below **25 mg/dL**.⁵ These results were also presented at the 2017 American College of Cardiology conference.

High cost is a major drawback to widespread acceptance of PCSK9 inhibitors. Currently, the annual cost

of **Repatha®** is about **\$14,000**.⁶ Only a few insurance programs cover some of this high cost.

This is where the drug **inclisiran** enters the picture. Inclisiran offers a potentially less expensive approach that also reduces the activity of PCSK9.

Inclisiran

Inclisiran causes the liver to produce less PCSK9. Although the drug is still in Phase 3 clinical trials, the early results are promising, and its safety profile has been good.

In a **2017** study published in the *New England Journal of Medicine*, researchers reported on a double-blind, placebo-controlled study of 501 patients with high LDL cholesterol. Patients received either a single injection of inclisiran, a two-dose inclisiran injection (at day one and day 90), or a placebo and were tracked for 240 days.

Once again, patients experienced a profound reduction in LDL cholesterol. After a single injection, researchers noted LDL reductions of up to **41.9%** after six months. Patients who received two doses experienced a **52.6%** drop in LDL levels, with some patients achieving LDL levels below **50 mg/dL**.⁷

One of the main advantages of a drug like inclisiran, says Dr. Ozner, is its ease of use. It appears that patients would only need to get one injection every six months to manage their cholesterol and atherogenic particle number. This would result in improved compliance and hopefully a cost savings.





Ezetimibe

Ezetimibe (Zetia) lowers cholesterol by blocking cholesterol absorption in the intestines. It also lowers dangerous **apo-B**.

In the landmark IMPROVE-IT trial published in the *New England Journal of Medicine*, ezetimibe lowered LDL cholesterol in high-risk patients when added to optimal statin therapy—and importantly, further reduced the risk of heart attack.⁸

Bempedoic Acid

Another tool in this emerging arsenal is **bempedoic acid**. This once-daily pill works in the liver to prevent cholesterol formation by inhibiting a key enzyme called ATP citrate lyase.

Early clinical trials have shown that bempedoic acid doesn't have the same risk of muscle-related side effects as statins, can be used in conjunction with statins, and results in a significant reduction in LDL cholesterol and particle number.⁹⁻¹¹

Canakinumab

In the recently reported CANTOS trial,¹² patients with a history of heart attack and a **hs-CRP** level of **2 mg/L** or more were randomly assigned to canakinumab or to placebo.

Canakinumab significantly reduced hs-CRP levels from baseline, as compared with placebo. It also resulted in a significantly lower incidence of recurrent cardiovascular events (heart attack and stroke) than placebo.

According to Dr. Ozner, this trial further confirms that inflammation plays a causal role in atherosclerotic heart disease—and if lowered, helps reduce heart attacks and strokes.

In order to combat heart disease, it is critical to have your blood tested regularly to correct metabolic disturbances that can lead to heart attacks.

Summary

Preventing heart disease begins with a healthy lifestyle. But for those who are unable to achieve an optimal level of lipids and lipoproteins despite lifestyle modifications, medications are necessary to ward off the dangers of heart disease.

In addition to statins, newer medications are being developed that can significantly lower heart attack risk.

With these medications, it is now possible to achieve lower levels of LDL cholesterol and atherogenic lipoproteins, thus helping to prevent the devastation of coronary artery occlusion and perhaps also reduce risk of aortic stenosis.^{13,14} For those with preexisting coronary disease, these medications can stabilize and regress existing plaques and lower heart attack risk.

According to Dr. Ozner, “This is really a seismic change. We should be shouting this from the rooftops. It can lead to the end of the heart attack epidemic in this country.”

As he writes in his highly acclaimed book *Heart Attack Proof*, “Cardiovascular disease is not inevitable—it can be defeated. Heart health and longevity are within your grasp.” ●

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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HDL (high-density lipoprotein)

Triglycerides

METABOLIC PROFILE

Glucose

Hemoglobin A1c

Kidney function tests: creatinine, BUN, uric acid, BUN/creatinine ratio

Liver function tests: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase

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Blood proteins: albumin, globulin, total protein, albumin/globulin ratio

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Platelet count

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PSA (Prostate Specific Antigen)

HORMONES

Free and Total Testosterone

DHEA-S

Estradiol (an estrogen)

TSH (thyroid function)

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Homocysteine

C-Reactive Protein (high sensitivity)

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Total Cholesterol

LDL (low-density lipoprotein)

HDL (high-density lipoprotein)

Triglycerides

METABOLIC PROFILE

Glucose

Hemoglobin A1c

Kidney function tests: creatinine, BUN, uric acid, BUN/creatinine ratio

Liver function tests: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase

Blood minerals: calcium, potassium, phosphorus, sodium, chloride, iron

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Fight Chronic Stress at the Biological Level

BY JOHN VERONA

An estimated **75%-90%** of primary-care physician visits may be related to acute or **chronic stress**.¹

Chronic stress, which can lead to anxiety, depression, and sleep disorders has been shown to have a negative impact on our hormones and organs in the body.²

Chronic stress also contributes to accelerated aging and premature death.³⁻⁵

With the help of the plant adaptogen **ashwagandha**, it is possible to help reduce the damage of stress at a **biological level**.

Adaptogens work by bringing bodily functions into balance.

Ashwagandha can help calm us down and work at the source of our anxiety by rebalancing our neurotransmitters.⁶

Ashwagandha offers a unique way to reduce chronic stress at the source and shield the body from its invisible biological damage.



The Dangers of Chronic Stress

Left untreated, chronic stress can cause or exacerbate many serious health issues. These include:^{5,7-11}

- Cardiovascular health (heart disease, high blood pressure, stroke)
- Obesity (stress-induced eating)
- Diabetes
- Osteoporosis
- Gastrointestinal complaints
- Mental health (anxiety, depression, and insomnia)
- Sexual dysfunction

It may be impossible to avoid stressful situations in life, but it is possible to help block the harmful biochemical effects that stress has on the body.

Ashwagandha Combats Chronic Stress

Research has shown that ashwagandha can help the body fight the negative effects of chronic stress.¹²⁻¹⁴

A study of patients with chronic stress was conducted using ashwagandha extract (**300 mg**) twice a day for 60 days. The result was a significantly reduced score on stress assessment scales. Ashwagandha also reduced blood levels of the stress hormone cortisol.¹⁴ This study demonstrated ashwagandha's ability to improve a person's resistance to stress itself.

Additional studies indicate how ashwagandha can also help relieve some of the harmful effects that chronic stress inflicts on the body.^{6,13-15} Two of ashwagandha's stress-related targets are insomnia and anxiety.

Overcoming Stress-Induced Insomnia

Over time, chronic stress can impair the body's ability to obtain restorative sleep. Besides making you feel drained and fatigued, poor sleep quality can have a negative effect on endurance,¹⁶ contributes to weight gain,¹⁷ and can increase fine lines and wrinkles.¹⁸

Lack of beneficial, restorative sleep increases the risk of heart attack, stroke, diabetes, and hypertension. Sleep deprivation has been associated with accelerated aging and shorter lifespans.¹⁹⁻²¹

This was seen in a study showing that sleep deprivation contributes to the shortening of *telomeres*. Our telomeres are structures on the tips of chromosomes that decrease in length as we age and result in loss of cellular functions. Telomere length is a way of measuring biological aging.²²

Stress causes a slew of biochemical changes that contribute to poor quality sleep, which then leads to greater stress.²³ Ashwagandha can help break this vicious cycle—and it has been used in traditional medicine for this purpose. Part of ashwagandha's scientific name—*somnifera*—means “sleep inducer.”

Physicians commonly prescribe several different kinds of prescription drugs to treat sleep disorders. These drugs can induce sleep, but at the risk of side effects—including addiction²⁴ and an increased risk of premature death.²⁵

The exciting news is that ashwagandha can improve the quality of sleep—without the side effects associated with sleep drugs.²⁶

Ashwagandha works by activating nerve-cell receptors for the calming neurotransmitter **GABA**,

which is essential for restful sleep and preventing insomnia.⁶ In this way, ashwagandha helps prepare the body for sleep.

Sleep disorders and anxiety frequently go hand-in-hand. Because of this close connection, any remedy for poor sleep should include components that also help to lower anxiety—and ashwagandha does just that.

Anxiety and Mood Disorders

Anxiety and mood disorders affect approximately **40 million** American adults, making them the most common mental illnesses in the U.S.²⁷

In 2011, close to 48 million prescription drugs were written for the anti-anxiety drug Xanax alone.²⁸ These types of drugs come with side effects including memory problems, difficulty concentrating, and headaches.

Animal studies suggest that extracts from ashwagandha have anxiety-reducing effects comparable to those produced by such common prescription drugs as **diazepam** (Valium®) and **lorazepam** (Ativan®).²⁹⁻³¹

In rodent models, researchers use a behavioral assay, known as *elevated plus maze*, which has been validated as a way to test the anti-anxiety effects of different compounds.³²

In one study, sleep-deprived rats experienced a high level of anxiety during this procedure, but this effect was ameliorated in ashwagandha-fed animals.³³

A recent, double blind, randomized, placebo-controlled human trial found that compared to placebo, subjects receiving **ashwagandha extract** daily experienced *reductions* in physiological and

psychological markers of stress, improvements in well-being, and reductions in serum cortisol levels.¹³

And in animal studies evaluating its antidepressant activity, ashwagandha was found to work through mechanisms comparable to antidepressants such as **imipramine** (Tofranil®) and **fluoxetine** (Prozac®).^{29,34,35}

Protection Against Neurodegenerative Diseases

Research has revealed that ashwagandha is also an excellent medicinal compound in the fight against neurodegenerative diseases like Alzheimer's and Parkinson's disease.

For example, in a rat model of Parkinson's disease, researchers evaluated the impact of ashwagandha on different behavioral, biochemical, and neurochemical tests. What the researchers found was that in rats fed ashwagandha, all the different parameters studied were **reversed**.³³

These impressive results led the researchers to conclude that ashwagandha may be helpful in **protecting brain cells** from injury in Parkinson's disease and may serve as an important component of an alternative treatment protocol.

Similar encouraging results have been seen with Alzheimer's.

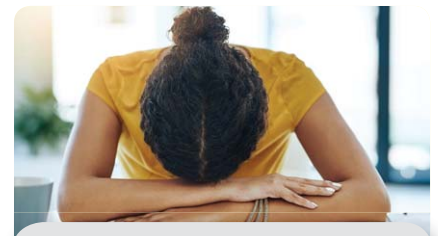
Many scientists believe that Alzheimer's disease is caused by the disruption of communication between neurons, which can lead to cell death.³⁴ This is what is thought, in turn, to cause the characteristic memory problems in the early stages of the disease—and ultimately loss of language and reasoning later on.

Laboratory studies have shown that compounds in ashwagandha

can regenerate *neurites*—the fingerlike projections that facilitate communication between nerve cells—^{35,36} while also **reconstructing** damaged neurons.³⁶

In order to reduce the symptoms and the progression of Alzheimer's disease, physicians commonly use **donepezil** (Aricept®). This drug blocks the breakdown of *acetylcholine*, a neurotransmitter that helps the brain perform everyday activities like learning and memory.

Lab studies show that ashwagandha extract *mimics* the action of this drug on a more subtle level by protecting against acetylcholine breakdown. This important action may underlie its effectiveness in helping preserve cognitive function and memory.^{37,38}



Ashwagandha and Chronic Stress

- Chronic stress can lead to depression, anxiety, and sleep problems.
- More than **75%** of primary care visits may be related to acute or chronic stress.
- Left untreated, chronic stress can cause or aggravate many serious health issues and contribute to accelerated aging and premature death.
- Ashwagandha is an adaptogen that helps restore the body's natural balance, helping fight the negative biochemical and emotional effects of chronic stress.

Summary

Ashwagandha has been used for centuries as a medicinal compound for the relief of stress and anxiety.

Studies now show that it can help combat the symptoms of chronic stress by combatting anxiety, depression, and insomnia.

More recent studies indicate that ashwagandha shows promise for its potential benefits in the fight against neurodegenerative disorders.

Ashwagandha offers a more natural alternative for insomnia, mood disorders, and anxiety—while providing the additional benefit of neuroprotection. ●

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

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BY GARRY MESSICK

Fred Bartlit, Steven Drouillard,
and Dr. Marni Boppert, authors of
*Choosing the StrongPath: Reversing
the Downward Spiral of Aging*

It's called sarcopenia, and *Choosing the StrongPath* authors Fred Bartlit, Steven Drouillard, and Dr. Marni Boppert want you to avoid succumbing to it.

Virtually written off as an inevitable process by mainstream medicine, sarcopenia is the degenerative loss of skeletal muscle and strength largely due to inactivity and poor diet. Sarcopenia is associated with frailty in old age, but Bartlit, Drouillard, and Boppert insist it's the result of a tendency to become more sedentary over time, rather than aging per se. They also insist sarcopenia is *not* an inevitable malady, and that in fact its progression can be slowed and even reversed with a program of strength training—particularly the one they describe in their book and call the StrongPath.

Avoiding or reversing sarcopenia is even more important than it might seem at first blush. Much more than just limiting mobility or increasing the tendency to fall as one ages, sarcopenia is associated with higher risk of infections and pneumonia, and linked to diseases of aging such as heart disease, cancer, diabetes, and Alzheimer's.

Fred Bartlit is a highly regarded attorney who has worked for presidents George W. Bush and Barack Obama. Steven Drouillard is a faculty member at the University of Philosophical Research in Los Angeles and a business advisor to William R. Hearst II. Dr. Marni Boppert heads the Molecular Muscle Physiology Laboratory at the University of Illinois at Urbana-Champaign. Together, the authors answer our questions and address topics such as the detrimental effects of sarcopenia, the failure of mainstream medicine to properly address this health crisis, and the importance of maintaining muscle-training exercise as an ingrained habit.



Dr. Marni Boppert



**Fred Bartlit (left) and
Steven Drouillard (right)**



LE: Now that people are generally living longer than ever, what is the first step in beating sarcopenia and staying healthy?

FB, SD, & MB: To combat the change in lifespan, you need to shift your mentality. Instead of fearing age or aging, embrace it. Make it great. Few realize this opportunity exists as a choice. Being a centenarian can be a positive experience. Our behavior determines the path we choose. Here's an example: In 2015, the *Huffington Post* reported on a guy named Fred Winter, living in Michigan, who was 100 years old at the time and still doing 100 push-ups a day. He began working on his strength and fitness around age 70. He reportedly competes in (and wins) senior games, too. So the choice is ours: We can embrace this gift of years or we can squander it.

LE: So lack of exercise can have significantly negative effects on aging individuals.

FB, SD, & MB: To our knowledge, no one—not clinicians or others—has adequately sounded the alarm on the detrimental impact of sedentary behavior. If we are going to embrace the gift of longevity, it's important that we fully under-

stand how to change our behavior so those additional years represent a better quality of life rather than a decades-long dreary period of increasing disability, frailty, chronic disease, and mental decline.

The impact of our sedentary lifestyle on our musculoskeletal system is pervasive. Statistics confirm that one-third of adults are inactive and another one-third is not sufficiently active to sustain health. While we lose muscle and bone as we age, we gain fat. Body fat is not only unsightly, but it also initiates a systemic inflammatory response that can harm tissue health. While some deterioration in function and health is noticeable in certain people early on, most will not be fully aware of its impact until much later in life, as the cycle of musculoskeletal tissue loss and fat infiltration progressively increases.

LE: Talk a little, if you would, about why sarcopenia is so insidious.

FB, SD, & MB: We are all prone to this disease that causes strength and muscle loss, and we need to understand it to combat it. We have learned from experience that frailty does not have to come with age. In fact, it is possible to become stronger as older adults than we were in our youth. You can counteract this loss of muscle tissue with strength training, which will also have a positive effect on many other chronic diseases.

Beginning in our thirties, every single human being on Earth develops this condition, which stealthily and steadily sucks away our strength. Every year we get weaker and weaker unless we proactively work against this default trend. The erosion of our strength accelerates in our 50s and continues to increase as we move into our 60s.

There is an exponential increase in loss of lean tissue after 75. The result is that all of us are trapped in a death spiral. As we lose strength, we become less active, and as we become less active, we lose more strength. Unknowingly, we spiral downward.

By the time we are in our 60s, we have lost a lot of our strength. This loss makes it hard to recover if we lose our balance, and sooner or later, most of us suffer a bad fall—a fall that may even break a hip. The resulting couple of weeks of bed rest, or even simply inactivity, cause a further dramatic reduction in strength, which in turn further reduces our activity. We then become much more cautious, because we can feel how close we are to falling again in our steadily weakening condition. Eventually, we endure a series of falls, each time further reducing our activity. In a few years, we can basically become disabled, confined to an easy chair, walker, or wheelchair, as the unending spiral of injury and reduced activity grinds us into worthlessness.

LE: How can simple muscle loss be so damaging, and even lethal?

FB, SD, & MB: Muscles are the body's primary reserve of amino acids. They are key to the health of our immune system. When the reserve becomes depleted by **10%**, our immune system is compromised, and we are at a higher risk of infections. At minus **20%**, we suffer from decreased wound healing, weakness, and still higher risk of infection. At minus **30%**, we break out with bedsores, catch pneumonia, and suffer a general inability to heal. At minus **40%**, death looms, and pneumonia overtakes many that have not already succumbed to chronic diseases.

Heart disease, many forms of cancer, type II diabetes, Alzheimer's, and other chronic diseases may be prevented or improved when we address the causes of deteriorated strength associated with aging.

We are now slowly learning that strength is critically important. As our lives unfold, we don't think about this much. We simply assume we will get older and stay about the same in our physical strength. But it turns out that we are unknowingly facing this death spiral of lost strength that ruins our enjoyment of life long before death.

LE: Is the threat of sarcopenia finally getting the attention it deserves from medical professionals?

FB, SD, & MB: It is remarkable that sarcopenia research and analysis is still a very new aspect of medical science. Only in the past few years has this disease become an increasingly urgent subject of academic discussion in journals and conferences. This important subject remains unknown to most physicians. In fact, the first major collection of research and discussion papers was assembled only a few years ago in 2012 by Dr. Alfonso Jose Cruz-Jentoft, an expert in geriatric medicine in Spain, titled *Sarcopenia*.

According to Dr. Cruz-Jentoft, the key to keeping our strength as we age is engaging in regular weight training. He explains, "RE (resistance exercise) may be considered the primary preventive or treatment strategy in the battle against sarcopenia."

So this specific type of exercise not only helps prevent loss in muscle strength but can also help to treat and reverse this disease.

LE: For people to get started on exercising, you suggest establishing a habit. How might that work?

FB, SD, & MB: If you're going to be exercising at home, it may begin as small as doing one push-up or one squat. More important than the size of the effort to begin with is learning how to condition a habit by trying something like fixing the time when you're going to automatically do your push-up or squat, without thinking. Perhaps when you first wake up. Do it every day. Repetition is key to making something a habit, and doing something easy, automatically every day will make the action a habit more quickly. Focus first and foremost on showing up for the routine and establishing the habit.

After that, repeat the action consistently. Increase the number of repetitions incrementally every week on the same day. This will prepare you for the strength training that lies ahead.

LE: What's your advice for exercising at a gym?

FB, SD, & MB: If you are going to start going to a gym, and we strongly recommend that you do, fix the days of the week and the time you will be going. Do not leave the question of where or when open. This is essential. This is part of building a successful habit. If you can afford a trainer, it is a great help in many ways. You'll find it easier to get to an appointment when you have made a commitment to someone else. This technique may help you get over the hump of establishing a habit, and the trainer will tell you what to do, so that you don't have to think about that. Less thinking helps in habit formation. So does a present-moment focus on the sensations you are experiencing during a workout.

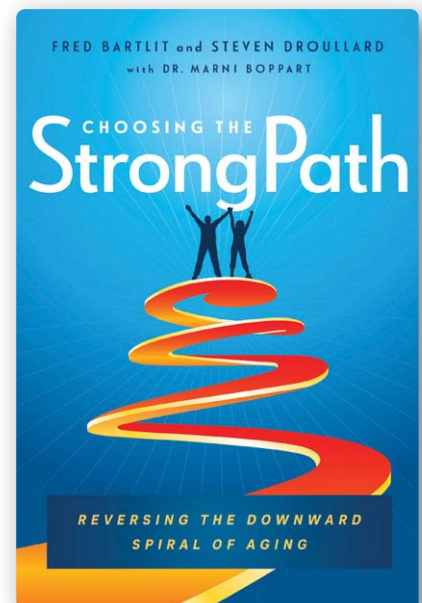
LE: Finally, what would you most like readers to keep in mind if they follow your "StrongPath" program?

FB, SD, & MB: Results occur quickly, particularly if you are a beginner or have not been exercising seriously for some time. Don't let the gym or your own fear intimidate you. You can do this.

Those who would like to learn more about the StrongPath can visit our website at StrongPath.com, where you can read about case studies, download and print our workout logs, watch training videos, and learn about the latest trends in resistance training and nutrition. ●

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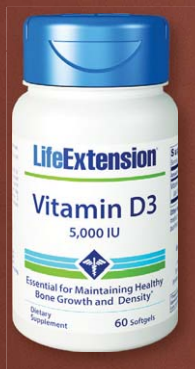
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MARCI ZAROFF



© PHOTOGRAPH BY RAINER HOSCH

Organic Fiber Pioneer

MARCI ZAROFF

BY KYLE RODERICK

Just as consuming organic foods and nutritional supplements helps promote optimum health, “so does wearing organic fabrics and using organic home textiles,” says New York-based entrepreneur Marci Zaroff.

A petite powerhouse, Zaroff and the company that she founded, Under the Canopy, has been revolutionizing the way we dress, sleep and bathe by manufacturing organic clothing and home textiles for over 20 years.

Zaroff wrote the book *ECOrenaissance: A Lifestyle Guide for Co-creating a Stylish, Sexy and Sustainable World* as a guide to sustainable living.

“Skin is the largest organ of our body,” Zaroff explains. “Conventional cotton is grown with toxic pesticides and other poisons, treated with toxic dyes and finished with carcinogenic chemicals such as formaldehyde, so it’s far healthier for us, our children and our planet to wear and use pure organic fibers in everyday life.”

Zaroff’s career has been at the forefront of organic fiber fashion. A vegetarian for the last 35 years, Zaroff regularly practices yoga and takes various health supplements (see sidebar).



Marci Zaroff stays strong while weathering hectic work and travel schedules that regularly take her to far-flung spots around the globe. Here's what she takes whether she's on the road or at home:

- Probiotics each morning
- Flax seed oil in morning smoothies
- A multivitamin every day, plus additional vitamin D
- Digestive enzymes every day before meals
- Magnesium in the evenings for promoting relaxation and sleep
- Echinacea during cold and flu season

LE: Why is it important to use textiles that are made from organically grown fibers and plant-based, earth-safe dyes?

MZ: Hundreds of ingredients in the insecticides used on cotton have been variously classified by the EPA and other scientific authorities as carcinogenic and/or endocrine disruptors. While five of the top nine pesticides used on cotton in the U.S. (cyanide, dicofol, naled, propargite, and trifluralin) are known cancer-causing chemicals, all nine are classified by the U.S. Environmental Protection Agency (EPA) as Category I and II dangerous chemicals. Clothing dyes are also one of the leading sources of water pollution worldwide.

LE: In 2007, the Environmental Justice Foundation, in collaboration with Pesticide Action Network UK, reported that conventionally grown cotton accounts for **16%** to **25%** of all insecticides used globally each year, more than any other single crop. Is there any good news from the EPA regarding toxic insecticides used on cotton crops?

MZ: The EPA has recognized the dangers of Aldicarb, the world's second best-selling insecticide. Acutely poisonous to humans and wildlife, Aldicarb is still used in 25 countries, including the U.S., where 16 states have reported its presence in their groundwater. The EPA has signaled that Aldicarb's phase-out will begin this year.

LE: Why and how did you become an organic textile entrepreneur?

MZ: I realized that organic and sustainable apparel, along with textiles for the bed and bath, as well as furniture and curtain fabrics, were the missing links that I wanted to forge between organic foods and other key elements in the sustainable lifestyle chain. Another key reason powering my

decision to develop the market for organic cotton fashions and home textile products arose out of U.S. government reports which stated that conventionally grown cotton uses more insecticides globally than any other crop. I knew that organic cotton represented a better way forward for humanity and the planet which is our home.

LE: So how did you get such a huge project started?

MZ: In 1995, I founded Under the Canopy, a sustainable lifestyle brand of certified organic, eco-friendly home fashion, apparel, and hotel textiles that are manufactured according to socially responsible methods. I worked with organic cotton farmers and fabric manufacturers in the U.S., India, South America, and Europe to pioneer sourcing, manufacturing and marketing of third party-certified organic-cotton bed linens, bath towels, bathrobes, clothing, draperies, pillows, etc. My team and I created a development, distribution, and monitoring business model to ensure that organic textile manufacturing processes and products remain transparent, authentic and of the highest possible quality.

LE: Starting your business must have required many months, if not years of due diligence.

MZ: I did spend a fair amount of time researching various mills, vetting and visiting them for occupational health and safety, ethical working conditions and fair trade practices. But I soon found mills in India and in the U.S. that could produce organic clothing.

LE: Why and how have organic textiles gained a foothold in the mass market?

MZ: Evidence-based reporting on the Internet, cable television, and print media is continually increasing people's awareness of how what we wear on our bodies is just as important as what we put inside our bodies. Increasing numbers of people, especially Millennials, are questioning how chemical residues from conventionally grown cotton plus dyes in clothing, bedding, towels and other home textiles may be irritating their skin, triggering allergies or contributing to chronic and serious conditions such as asthma.

LE: What's the hard data on organic textile sales growth?

MZ: In 2016, the Organic Trade Association reported that U.S. organic food sales totaled around \$47 billion, indicating sales increases of almost \$3.7 billion from the previous year. While 2016 sales of non-food organic products increased by almost 9% to \$3.9 billion, organic fiber products such as sheets and towels, along with health supplements and personal care products, accounted for the bulk of those sales. What's more, in 2016, U.S. organic cotton farmers produced a record 17,000-plus bales, which has helped increase supply to manufacturers.

LE: Having steadily worked with organic cotton farmers, sustainable textile mills and trade associations during the nascent years of the organic textile industry, you're one of the experts who defined the Global Organic Textile Standard (GOTS). Please explain the important points about GOTS, why it is important and how it is evolving.

MZ: GOTS is a stringent third-party certification system that ensures highest product purity and ethical manufacturing of organic

fabrics, home linens and clothing. Although I spent about six years working with colleagues to create universal standards for organic fiber certification, I have been collaborating for almost two decades with other green business leaders to define and refine this. GOTS is now in its fifth iteration, and I sit on the board of directors of the Organic Trade Association (O.T.A.), where I continue to advocate for upholding highest possible standards in organic textile manufacturing.

LE: I understand that you have also helped create standards for the world's first Fair Trade Textile Certification with the nonprofit organization Fair Trade USA.

MZ: Yes, and I've also worked on the Cradle to Cradle Certified™ Product Standard. This guides

designers and manufacturers through a continual improvement process that evaluates how a product measures up in the five quality categories of material health, material reutilization, renewable energy and carbon management, water stewardship, and social fairness.

LE: You've worked consistently as an advocate for the world's organic farmers and organic product manufacturers.

MZ: Yes, I enjoy speaking and consulting internationally on organic and sustainable textiles, strategic vision, social innovation, green business, and the rise of the values-driven Millennial generation. ●

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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Coconut

BY GARRY MESSICK

When singer-songwriter Harry Nilsson comically touted the medicinal properties of a certain tropical fruit in his 1971 hit song, “Coconut,” he wasn’t too far off the mark.

Popularly used as an ingredient in various desserts, candy bars and sweetened drinks, the flesh, oils, and water (or “milk”) of the coconut have health benefits when consumed without all that added sugar. In its basic forms, coconut has been a beneficial staple of the diets of tropical and subtropical populations for centuries.

Let’s take a look at some aspects of the coconut’s nutritional value as uncovered by scientific research.

Lower Cardiovascular Risk

Studies of groups of people who consume large amounts of coconuts have found an association with low rates of heart disease. Cases of stroke and ischemic heart disease are rare in the coconut-loving inhabitants of the island of Kitava, near Papua, New Guinea.¹ Similarly, vascular disease has been found to be uncommon in Polynesians on the island of Tokelau, who obtain **60%** of their caloric intake from coconuts.²

Improves Cholesterol Levels

Research shows the saturated fats in coconut oil may raise HDL (“good”) cholesterol while lowering harmful LDL cholesterol. In one study, 40 female subjects with abdominal obesity and similar diets were divided into two groups of 20. On a daily basis, one group was given coconut oil, the other soybean oil. After 12 weeks, the coconut oil group had higher HDL and lower LDL compared with the soybean oil group.³ Another study employing 116 subjects with coronary artery disease found that a diet rich in extra-virgin coconut oil increased their HDL as well as decreased their waist circumference and body mass.⁴

Oxidant Reducer

Research shows that the proteins in coconuts demonstrate good radical-scavenging activity and could help protect DNA from oxidative damage.⁵

Skin Care

Researchers have found that coconut oil works well to combat xerosis, a common skin condition characterized by rough, dry, scaly, itchy skin.⁶ Coconut oil was also found to do a better job than mineral oil in relieving mild-to-moderate eczema.⁷

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Note: **EGCG** is the acronym for **epigallocatechin gallate**, which is the polyphenol in green tea that has demonstrated the most robust health benefits.



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The background of the page features a collage of fresh Mediterranean ingredients. In the top left, there are several bright red cherry tomatoes on their vine. To their right is a small white bowl with a floral pattern containing golden olive oil. Below the tomatoes, a sprig of fresh rosemary with its characteristic needle-like leaves is visible. In the bottom left, a white bowl is filled with a mix of green, black, and yellow olives. At the very bottom, a small white dish contains a variety of whole peppercorns in black, white, and red.

The Complete Mediterranean Diet

by Michael Ozner, MD

Leading cardiologist Dr. Michael Ozner is well aware that most people do not eat a healthy diet.

Beyond even Dr. Ozner's area of expertise in heart disease, a poor diet has been linked to virtually all of the worst medical scourges of our day, including cancer, diabetes, and obesity. With that in mind, he wrote *The Complete Mediterranean Diet*.

The Mediterranean diet—rich in fruits, vegetables, whole grains, beans, nuts, seeds, and healthy fats—has a large body of research backing it up as an effective way to reduce the risk of all the above-mentioned illnesses and more.

"You may very well wonder how a single eating plan can afford all these benefits," says Dr. Ozner. "The secret seems to lie in the fact that the Mediterranean diet is synergistic. This means that the components are not only nutritious in themselves, but when combined with one another, act to provide added benefits as well. They are more powerful in combination than if they were eaten separately."

In his book, Dr. Ozner explains how diet and lifestyle affect your health, and how and why the Mediterranean diet is so beneficial. He follows that introduction with 500 recipes, a small sampling of which (two entrées, a salad, and a soup) follows. Enjoy.

—Garry Messick

Stuffed Sesame Chicken Breasts

Makes 4 servings

4 (4-5-ounce) skinless, boneless chicken breasts
Salt and freshly ground pepper to taste
1 tablespoon dried tarragon or 4 sprigs fresh tarragon
½ red bell pepper, deseeded and thinly sliced
½ green bell pepper, deseeded and thinly sliced
4 tablespoons lime juice
¼ small red chili pepper, finely minced (optional)
¼ cup sesame seeds
Extra-virgin olive oil to drizzle
4 fresh tarragon sprigs for garnish

Rinse breasts under cold water and pat dry with paper towels. With a sharp knife, split open one side of breasts to create a pocket. Season inside of breasts with salt and pepper, as desired, and tarragon (¼ tablespoon of dried tarragon per breast or 1 full sprig stuffed inside the pocket of each breast). Insert slices of both red and green bell peppers into each breast pocket and then close, securing with a toothpick. Combine lime juice and chili pepper; set aside. Sprinkle each breast with a generous amount of sesame seeds and place breasts in a single layer on a nonstick baking sheet. Drizzle tops of breasts with chili/lime mixture and bake at 400 degrees for about 30 minutes or until chicken is tender and cooked through. Set oven to broil and lightly drizzle olive oil over the top of each breast. Place baking sheet under broiler and broil chicken breasts until sesame seeds are golden brown. Serve garnished with fresh sprigs of tarragon.

Approx. 237 calories per serving.

37 grams protein, **8 grams** total fat, **1 gram** saturated fat, 0 trans fat, **4 grams** carbohydrates, **96 mg** cholesterol, **85 mg** sodium, **1 gram** fiber

Peppered Filet of Sole

Makes 4 servings

1 tablespoon olive oil
1 tablespoon trans fat-free canola/olive oil spread
2 cups sliced button mushrooms
1 medium shallot, finely chopped
4 (4-ounce) sole fillets
1 teaspoon lemon pepper seasoning
1 teaspoon paprika
Cayenne pepper to taste
1 medium tomato, chopped
2 scallions, thinly sliced

In a large skillet over medium heat, melt olive oil and canola/olive oil spread. Add mushrooms and shallot and sauté until soft. Place fillets over mushroom mixture. Sprinkle each fillet with lemon pepper seasoning, paprika, and cayenne. Cover skillet and cook over medium heat until fish flakes easily. Divide into 4 portions and sprinkle each serving with tomatoes and scallions. Serve while hot.

Approx. 203 calories per serving

31 grams protein, **8 grams** total fat, **2 grams** saturated fat, 0 trans fat, 0 carbohydrates, **86 mg** cholesterol, **158 mg** sodium, **<0.5 gram** fiber



Mediterranean Mixed Greens

Makes 4-6 servings

6 cups assorted fresh mixed greens (such as arugula, radicchio, baby spinach, watercress, and romaine)
1 small red onion, thinly sliced and separated into rings
20 firm cherry tomatoes, halved
¼ cup chopped walnuts
¼ cup dried cranberries
Crumbled feta cheese (optional)
Freshly ground pepper to taste

FOR DRESSING:

2 tablespoons balsamic vinegar
4 tablespoons extra-virgin olive oil
1 tablespoon water
½ teaspoon crushed dried oregano
2 cloves fresh garlic, finely minced

In a large salad bowl, combine greens, onion, tomatoes, walnuts, and cranberries. Gently toss.

Dressing: Combine vinegar, olive oil, water, oregano, and garlic. Shake well. Pour dressing over salad and toss lightly to coat.

Garnish with feta cheese if desired, and pepper to taste.

Approx. 140 calories per serving

2 grams protein, **12 grams** total fat, **1 gram** saturated fat, 0 trans fat, **6 grams** carbohydrates, 0 cholesterol, **47 mg** sodium, **1 gram** fiber

Chilled Avocado Soup

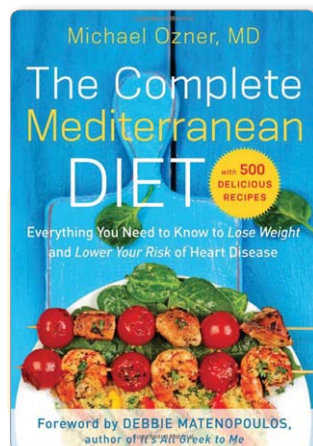
Makes 4-6 servings

3 medium ripe avocados, halved, seeded, peeled, and cut into chunks
½ cucumber, peeled and chopped
½ cup chopped white onion
¼ cup finely diced carrot
2 cloves fresh garlic, minced
2 cups low-sodium, fat-free chicken broth, divided
Hot red pepper sauce to taste
Salt and freshly ground pepper to taste
Paprika to sprinkle
Thin avocado slices for garnish
Low-fat sour cream (optional)

Chill 4-6 soup bowls. In a food processor or blender, combine avocados, cucumber, onion, carrot, garlic, and 1 cup broth, and process until almost smooth. Add remaining broth, hot sauce, and salt and pepper to taste, and process again until almost smooth. Pour into chilled bowls, cover tops, and chill for at least 1 or more hours. To serve, remove chilled bowls and sprinkle each serving with paprika. Add slices of avocado and a dollop of sour cream, if desired. Serve chilled.

Approx. 255 calories per serving

4 grams protein, **22 grams** total fat, **3 grams** saturated fat, 0 trans fat, **15 grams** carbohydrates, 0 cholesterol, **70 mg** sodium, **10 grams** fiber



To order *The Complete Mediterranean Diet*, call 1-800-544-4440 or visit www.LifeExtension.com
 Item #33867
 Retail price \$19.95
 Your price \$9.99

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

Jarrow
FORMULAS®

THE PROBIOTIC FOR WOMEN

**Clinically Documented Probiotic
Strains That Promote Healthy Vaginal
Microflora and Urinary Tract Health***

Jarro-Dophilus® Women contains the four predominant *Lactobacilli* strains of the healthy vaginal tract.*

All four strains were isolated from the vaginal tracts of healthy pregnant women and have been clinically tested for efficacy

L. crispatus LbV 88

L. jensenii LbV 116

L. gasseri LbV 150N

L. rhamnosus LbV 96

in helping to maintain protective, healthy vaginal microflora and urinary tract health.*

When it comes to choosing effective probiotics, clinically documented strains matter.™

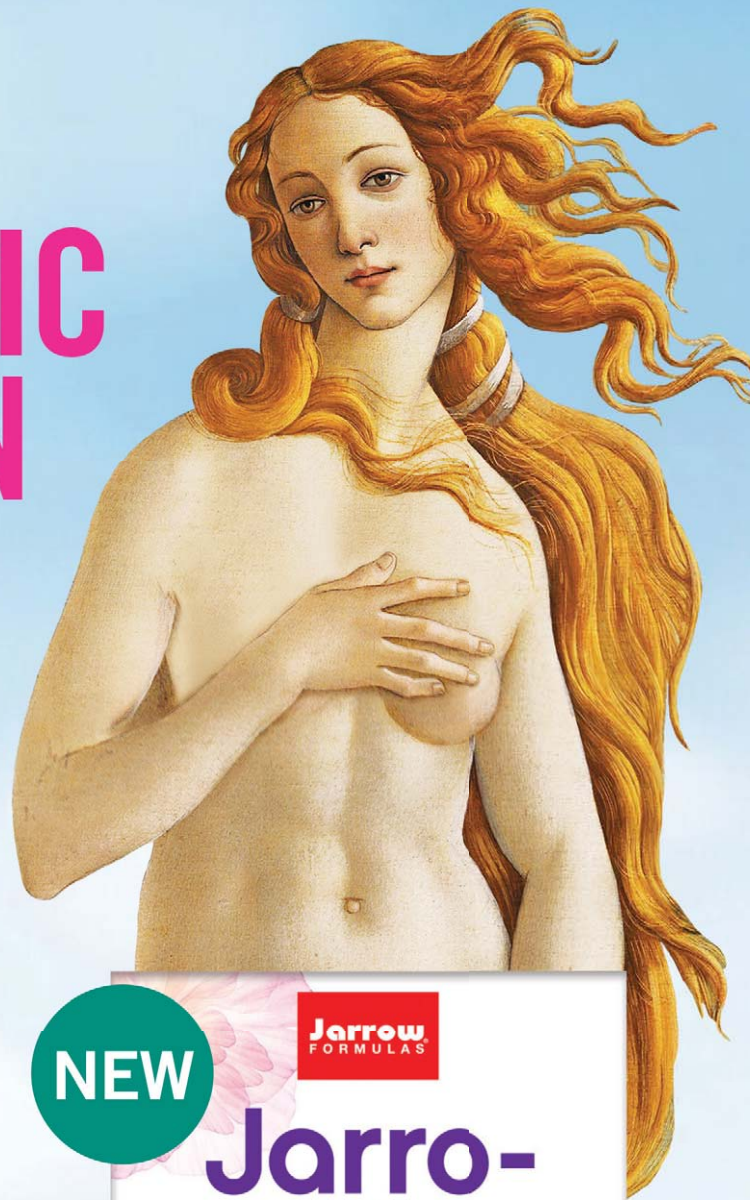
Choose science.

Choose Jarro-Dophilus® probiotics.

Jarro-Dophilus® Women 5 Billion Per Capsule 30 Veggie Caps

Item # **52142** Retail Price **\$27.95** Your Price **\$20.96**

For full product description or to order Jarro-Dophilus® Women call 1-800-544-4440 or visit www.LifeExtension.com



Jarro-Dophilus® Women contains the clinically tested Astarte® strains which are protected by U.S. Patent 8,846,027 and European Patent 2,509,610. Astarte® is owned by HSO Health Care GmbH, Vienna, Austria, and licensed in the U.S. to Jarrow Formulas, Inc. Other international patents pending.

ASTARTE

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

Visit us at www.jarrow.com for more product information.

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XOS
IN A TASTY
STRAWBERRY
CHEWABLE



RESTORE YOUTHFUL GUT BALANCE

With Strawberry Flavored
FLORASSIST® Prebiotic Chewable

- With age, our **bifidobacteria** levels decline to as little as **5%**, creating gut imbalance.¹
- *Increasing **bifidobacteria** levels enhances digestion and carbohydrate metabolism.*
- *Strawberry flavored **FLORASSIST® Prebiotic Chewable**, helps restore healthy **bifidobacteria** levels in as little as 14 days using **XOS** prebiotic fiber.²*
- **1,000 mg** of **XOS** (xylooligosaccharides) per prebiotic chewable.

	Retail Price	Your Price
1 bottle	\$20	\$15
4 bottles		\$13 each

Item #02203 • 60 Chewable Tablets

References

1. *Front Microbiol.* 2016;7:1204.
2. *Korean J Nutr.* 2007;40(2):154-61.

For full product description and to order **FLORASSIST® Prebiotic Chewable**, call **1-800-544-4440** or visit **www.LifeExtension.com**

PreticX™ is a trademark of AIDP, Inc.



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



1-2-3 EASY How it works:

ORDER

Call 1-800-208-3444 toll-free or visit
LifeExtension.com/LabServices.

DRAW

For blood tests, take your form to a local lab. Collect at home for saliva, breath, etc.

REVIEW

Go over results **for free** with our Wellness Specialists by calling **1-800-226-2370**. You may wish to review them with your doctor as well.

IT'S THAT SIMPLE! DON'T DELAY! CALL TODAY!

For Our Local Customers:

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

**5990 NORTH FEDERAL HIGHWAY,
FT. LAUDERDALE, FL, 33308-2633**

Terms and Conditions

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

LifeExtension

Blood Testing

The Ultimate Information

YOUR
PRICE

\$35

○ CBC/CHEMISTRY PROFILE (LC381822) includes:

Lipid Profile:

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

Liver Function:

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

Electrolytes and Minerals:

Sodium • Potassium • Chloride
Calcium • Phosphorus • Iron

Blood Sugar:

Glucose

Kidney Function:

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

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

○ NEUROTRANSMITTER BASIC PANEL** (LC100058)

Serotonin, Dopamine, Epinephrine, Norepinephrine, GABA, Glutamate, Glycine, Histamine, and PEA. Alternations in these nine neurotransmitters play a significant role in contributing to symptoms such as cognitive disorders, depression, anxiety, diminished drive, fatigue and sleep difficulties, cravings, addictions, pain and more! Not available in NY.

\$199

○ FOOD SAFE ALLERGY TEST – BASIC** (LCM73001)

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

\$198

○ TOXIC METALS PANEL (FECAL) ** (LC100076)

The results of fecal elemental analysis can help you identify and eliminate dietary exposure to toxic metals, while also assessing the body's natural excretion of metals. The panel tests Antimony, Arsenic, Beryllium, Bismuth, Cadmium, Copper, Lead, Mercury, Nickel, Platinum, Thallium, Tungsten, and Uranium.

\$170

○ FOOD SAFE ALLERGY TEST – COMBO** (LCM73003)

This test measures delayed (IgG) food allergies to all 190 foods found in our Basic and Extended panels.

\$375

GENETIC TESTING

○ DNA GENETIC CANCER RISK PROFILE** (LC100057)

With only a saliva sample, you can identify your risk for 25 hereditary cancers by analyzing 98 genes from your DNA including the well-known BRCA1, BRCA2, TP53, and APC. Not available in NY and RI.

\$265

○ APOE GENETIC TEST FOR ALZHEIMER'S AND CARDIAC RISK ** (LC100059)

Apolipoprotein E (ApoE) is an important regulator of cholesterol and triglycerides levels in your blood and supports lipid transport and injury repair in your brain. Genetically, E4 is the strongest risk factor for developing Late Onset Alzheimer's disease. According to the National Institute of Health, inheriting a single copy of ApoE4 increases the risk of Alzheimer's disease by about three-fold. Inheriting two copies increases the risk by about 12-fold. In fact, almost 40% of AD patients have inherited an E4 allele.

\$149

○ PATHWAY FIT®- DNA WEIGHT MANAGEMENT (LC100067) **

Your DNA holds the blueprint to how your body responds to both food and exercise! This panel looks at 40+ genetic traits.

\$299

○ PAIN MEDICATION DNA INSIGHT® PROFILE (LC100069) **

This profile helps you understand your body's likely response to pain relief for 13 commonly prescribed pain medications.

\$299

○ MENTAL HEALTH DNA INSIGHT® PROFILE (LC100068) **

The Mental Health DNA Insight® profile helps you understand your body's likely response to 50+ psychiatric medications.

\$299



BLOOD TEST PANELS

	YOUR PRICE		YOUR PRICE
<p>○ MALE LIFE EXTENSION PANEL (LC322582) CBC/Chemistry Profile • DHEA-S • PSA (prostate-specific antigen) Homocysteine • C-Reactive Protein (high-sensitivity) • Apolipoprotein B (ApoB) Free Testosterone • Total Testosterone • Estradiol • TSH for thyroid function • Vitamin D (25-hydroxyvitamin D) • Hemoglobin A1c</p>	\$269	<p>○ NMR LIPOPROFILE® (LC123810) 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>	\$99
<p>○ MALE ELITE PANEL (LC100016)* CBC/Chemistry Profile • Free and Total Testosterone • Total Estrogens Estradiol • DHEA-S • Progesterone • Pregnenolone • DHT • FSH • LH • TSH Free T3 • Free T4 • Reverse T3 • Free and Total PSA • IGF-1 • SHBG • HbA1c Vitamin D 25-OH • hs-CRP, ferritin • Homocysteine • Hemoglobin A1c Apolipoprotein B (ApoB)</p>	\$575	<p>○ WEIGHT LOSS PANEL-COMPREHENSIVE (LC100028) CBC/Chemistry Profile • DHEA-S • Free and Total Testosterone • Estradiol Progesterone • Cortisol, TSH • Free T3 • Free T4 • Reverse T3 • Insulin Hemoglobin A1c • Vitamin D 25-hydroxy • C-reactive protein (high sensitivity) Ferritin</p>	\$275
<p>○ MALE COMPREHENSIVE HORMONE PANEL (LC100010)* CBC/Chemistry Profile • DHEA-S, Estradiol • DHT • PSA Pregnenolone • Total and Free Testosterone • SHBG • TSH • Free T3 This panel now includes Free T4 and Cortisol with no increase in price!</p>	\$299	<p>○ HEALTHY AGING PANEL-COMPREHENSIVE (LC100026)* 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 • Insulin</p>	\$249
<p>○ MALE BASIC HORMONE PANEL (LC100012) DHEA-S • Estradiol • Total and Free Testosterone • PSA</p>	\$75	<p>○ ADRENAL STRESS PROFILE – SALIVA (LC100070) ** Check your red flags of adrenal imbalance. This panel contains Cortisol (x4), DHEA, SalgA.</p>	\$159
<p>○ FEMALE LIFE EXTENSION PANEL (LC322535) CBC/Chemistry Profile • DHEA-S • Estradiol • Homocysteine C-Reactive Protein (high-sensitivity) • Progesterone • Free Testosterone Total Testosterone • TSH for thyroid function • Apolipoprotein B (ApoB) Vitamin D (25-hydroxyvitamin D) • Hemoglobin A1c</p>	\$269	<p>○ SIBO HOME BREATH KIT (LACTULOSE) (LC100063) ** SIBO stands for small intestinal bacterial overgrowth. Research shows that up to 70% or more of those diagnosed with IBS have SIBO.</p>	\$249
<p>○ FEMALE ELITE PANEL (LC100017)* CBC/Chemistry Profile • Free and total Testosterone • Total Estrogens Estradiol • Estrone • DHEA-S • Progesterone Pregnenolone • Apolipoprotein B (ApoB) DHT • FSH • LH • TSH • Free T3 • Free T4 • Reverse T3 • IGF-1 • SHBG • HbA1c Vitamin D 25-OH • hs-CRP • Ferritin • Homocysteine • Hemoglobin A1c</p>	\$575	<p>○ COMPREHENSIVE THYROID PANEL (LC100018) TSH, Total T4, Free T4, Free T3, Reverse T3, Thyroglobulin Antibody (ATA), Thyroid Peroxidase Antibody (TPO)</p>	\$199
<p>○ FEMALE COMPREHENSIVE HORMONE PANEL (LC100011)* CBC/Chemistry Profile • DHEA-S, Estradiol • Total Estrogens Progesterone • Pregnenolone • Total and Free Testosterone • SHBG TSH • Free T3 This panel now includes Free T4 and Cortisol with no increase in price!</p>	\$299	<p>○ THYROID PANEL WITH REVERSE T3 (LC100044) TSH, Total T4, Free T4, Free T3, Reverse T3</p>	\$120
<p>○ FEMALE BASIC HORMONE PANEL (LC100013) DHEA-S • Estradiol • Total and Free Testosterone • Progesterone</p>	\$75	<p>○ OMEGA-3 INDEX COMPLETE ** (LC100066) Beneficial for everyone taking omega-3/fish oil! You want to target a range of 8%-12% for optimal health.</p>	\$99

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



With Your Healthy Rewards, you earn **LE Dollars** back on every purchase you make — including blood tests!
See www.LifeExtension.com/Rewards for details.

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

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

Blood Pressure & Vascular Support

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

Bone Health

Bone Restore
Bone Restore-Sugar Free
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™
Focus Tea™
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin Granules
Memory Protect
Migra-Eeze™
Neuro-Mag® Magnesium L-Threonate
Optimized Ashwagandha Extract
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

Digest RC®
Effervescent Vitamin C - Magnesium Crystals
Enhanced Super Digestive Enzymes
Enhanced Super Digestive Enzymes
w/Probiotics
EsophaCool™
Esophageal Guardian
Extraordinary Enzymes
Gastro-Ease™

Ginger Force®
Pancreatin
Regimint
Tranquil Tract™
TruFiber™
WellBetX PGX plus Mulberry

Energy Management

Adrenal Energy Formula
Asian Energy Boost
D-Ribose Powder
D-Ribose Tablets
Forskolin
Mitochondrial Basics with PQQ
Mitochondrial Energy Optimizer with PQQ
NAD+ Cell Regenerator™
Optimized NAD+ Cell Regenerator™
with Resveratrol
PQQ Caps
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® Clearly EPA/DHA
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
Kenyan Green Tea Crystal
Kenyan Purple Tea Crystal
Rainforest Blend Decaf Ground Coffee
Rainforest Blend Ground Coffee
Rainforest Blend Ground Natural Mocha Flavor
Rainforest Blend Natural Vanilla Flavor
Rainforest Blend Whole Bean Coffee
Stevia Sweetener

Glucose Management

CinSulin® with InSea2® and Crominex® 3+
Glycemic Guard™
Mega Benfotiamine
Tri Sugar Shield®

Heart Health

Aspirin (Enteric Coated)
BioActive Folate & Vitamin B12 Caps
Cardio Peak™ with Standardized
Hawthorn and Arjuna
Homocysteine Resist
Optimized Carnitine
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with PQQ
Super Ubiquinol CoQ10 with Enhanced
Mitochondrial Support™
Super-Absorbable CoQ10 Ubiquinone
with d-Limonene
TMG Powder
TMG Liquid Capsules

Hormone Balance

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

Immune Support

AHCC®
Enhanced Zinc Lozenges
Immune Modulator with Tinofend®
Immune Protect with PARACTIN®
Immune Senescence Protection Formula™
Kinoko® Gold AHCC
Kinoko® Platinum AHCC
Kyolic® Garlic Formula 102
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
ComfortMax™
Cytokine Suppress™ with EGCG
Serrafazyme
Specially-Coated Bromelain
Super Bio-Curcumin®
Zyflamend™ Whole Body

Joint Support

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

Kidney & Bladder Support

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

Liver Health & Detoxification

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

Longevity & Wellness

Alpha-Lipoic Acid
AppleWise Polyphenol Extract
Berry Complete
Blueberry Extract
Blueberry Extract with Pomegranate
DNA Protection Formula
Enhanced Berry Complete with Acai
GEROPROTECT® Ageless Cell™
GEROPROTECT® Longevity A.I.™

Grapeseed Extract
Mediterranean Whole Food Blend
Mega Green Tea Extract (decaffeinated)
Mega Green Tea Extract (lightly caffeinated)
Optimized Fucoidan with Maritech® 926
Optimized Resveratrol
Pycnogenol® French Maritime
Pine Bark Extract
Resveratrol
RNA (Ribonucleic Acid)
Super R-Lipoic Acid
X-R Shield

Men's Health

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

Minerals

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

Miscellaneous

Potassium Iodide
Solarshield® Sunglasses

Mood & Stress Management

Advanced Cortisol Balance
Enhanced Stress Relief
5 HTP
L-Theanine
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
Hair, Skin & Nail Rejuvenation Formula
w/VERISOL®
Hair Suppress Formula
Life Extension Toothpaste
Venotone
Xyliwhite Mouthwash

Pet Care

Cat Mix
Dog Mix

Probiotics

Bifido GI Balance
FLORASSIST® Balance
FLORASSIST® GI with Phage Technology
FLORASSIST® Heart Health
FLORASSIST® Immune Health
FLORASSIST® Mood
FLORASSIST® Nasal
FLORASSIST® Oral Hygiene
FLORASSIST® Prebiotic
FLORASSIST® Throat Health
Jarro-Dophilus® for Women
Theralac® Probiotics
TruFlora® Probiotics

Skin Care

Adult Blemish Lotion
Advanced Anti-Glycation Peptide Serum
Advanced Growth Factor Serum
Advanced Hyaluronic Acid 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-Aging Rejuvenating Scalp Serum
Anti-Glycation Serum with
Blueberry & Pomegranate Extracts
Antioxidant Facial Mist Hydrator
Collagen Boosting Peptide Serum
Cucumber Hydra Peptide Eye Cream
DNA Support Cream
Environmental Support Serum
Essential Plant Lipids Serum
Eye Lift Cream
Face Rejuvenating Anti-Oxidant Cream
Healing Formula
Hyaluronic Facial Moisturizer
Hyaluronic Oil-Free Facial Moisturizer
Hydrating Anti-Oxidant Facial Mist
Hydroderm
Lifting & Tightening Complex
Melatonin Advanced Peptide Cream
Melatonin Cream
Mild Facial Cleanser
Multi Stem Cell Skin Tightening Complex
Neck Rejuvenating Anti-Oxidant Cream
Rejuvenex® Body Lotion
Rejuvenex® Factor Firming Serum
Resveratrol Anti-Oxidant Serum
Shade Factor™
Shade Factor™ Sunscreen Lotion
Shade Factor™ Sunscreen Spray
Skin Care Collection Anti-Aging Serum
Skin Care Collection Body Lotion
Skin Care Collection Day Cream
Skin Care Collection Night Cream
Skin Firming Complex
Skin Lightening Serum
Skin Restoring Ceramides
Skin Stem Cell Serum
Skin Tone Equalizer
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
Vitamin K Cream
Youth Serum

Sleep

Bioactive Milk Peptides
Enhanced Sleep with Melatonin
Enhanced Sleep without Melatonin
Fast-Acting Liquid Melatonin
Glycine
L-Tryptophan
Melatonin
Melatonin IR/XR
Optimized Tryptophan Plus
Quiet Sleep Melatonin

Sports Performance

Creatine Capsules
Plant Protein Complete & Amino Acid Complex
Tart Cherry with CherryPure®
Wellness Code™ Whey Protein Concentrate
(Chocolate and Vanilla Flavor)
Wellness Code™ Advanced Whey Protein
Isolate (Vanilla Flavor)
Wellness Code™ Whey Protein Isolate
(Chocolate and Vanilla Flavor)

Vitamins

Ascorbyl Palmitate
Benfotiamine with Thiamine
Beta-Carotene
BioActive Complete B-Complex
Biotin
Buffered Vitamin C Powder
Fast-C® with Dihydroquercetin
Gamma E Mixed Tocopherol Enhanced
with Sesame Lignans
Gamma E Mixed Tocopherol/Tocotrienols
High Potency Optimized Folate
Inositol Caps
Liquid Emulsified Vitamin D3
Liquid Vitamin D3
Low-Dose Vitamin K2
Methylcobalamin
MK-7
No Flush Niacin
Optimized Folate (L-Methylfolate)
Pantothenic Acid (Vitamin B-5)
Pyridoxal 5'-Phosphate Caps
Super Absorbable Tocotrienols
Super K with Advanced K2 Complex
Super Vitamin E
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 Appetite Suppress
AMPK Metabolic Activator
CalReduce Selective Fat Binder
DHEA Complete
Garcinia HCA
HCAActive™ Garcinia Cambogia Extract
Integra-Lean®
Mediterranean Trim with Sinetrol™ XPur
Optimized Irvingia with Phase 3™ Calorie
Control Complex
Optimized Saffron with Satiereal®
Super CLA Blend with Sesame Lignans
Waist-Line Control™

Women's Health

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

		YOUR PRICE					
ITEM No.	PRODUCT	Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	QTY	Total
A							
01524	ACETYL-L-CARNITINE • 500 mg, 100 veg. caps	34.00	25.50	22.50			
01974	ACETYL-L-CARNITINE ARGINATE • 90 veg. caps	38.00	28.50	26.00			
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			
01807	ADVANCED APPETITE SUPPRESS • 60 veg. caps	38.00	28.50	25.50			
02012	ADVANCED CORTISOL BALANCE • 30 veg. caps	45.00	33.75	30.00			
01828	ADVANCED LIPID CONTROL • 60 veg. caps	30.00	22.50	20.25			
00681	AHCC® • 500 mg, 30 caps	59.98	44.99				
24404	AHCC® (KINOKO® PLATINUM) • 750 mg, 60 veg. caps	84.95	63.71				
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			
02207	AMPK METABOLIC ACTIVATOR • 30 veg. tabs	38.00	28.50	24.00			
01509	ANTI-ADIPOCYTE FORMULA W/MERATRIM® & INTEGRA LEAN® (Advanced) • 60 veg. caps	39.00	29.25	27.00			
02140	ANTI-ALCOHOL w/HEPATOPRO COMPLEX • 60 caps	22.00	16.50	15.00			
01625	APPLEWISE 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	44.00	33.00	29.00			
01617	ARTHRONAX® W/THEAFLAVINS & APRÈSFLEX® 120 veg. caps	44.00	33.00	30.00			
01618	ARTHRONAX® ADVANCED W/UC-II® & APRÈSFLEX® 60 caps	36.00	27.00	24.00			
02138	ARTHRONAX® ELITE • 30 veg. tablets	30.00	22.50	20.00			
01404	ARTHRO-IMMUNE JOINT SUPPORT • 60 veg. caps	32.00	24.00	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							
01945	B-COMPLEX (Bio-Active Complete) • 60 veg. caps	12.00	9.00	8.00			
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 (Enhanced) • 60 veg. caps	29.00	21.75	19.50			
00664	BETA-CAROTENE • 25,000 IU, 100 softgels	11.50	8.63				
01622	BIFIDO GI BALANCE • 60 veg. caps	20.00	15.00	13.50			
01873	BILBERRY EXTRACT • 100 mg, 90 veg. caps	36.00	27.00	24.00			
01512	BIOACTIVE MILK PEPTIDES • 30 caps	18.00	13.50	12.00			
01631	BIO-COLLAGEN W/PATENTED UC-II® • 40 mg, 60 small caps	36.00	27.00	24.00			
*01006	BIOSIL™ • 5 mg, 30 veg. caps	19.99	15.99				
*01007	BIOSIL™ • 1 fl oz	31.99	25.59				
00102	BIOTIN • 600 mcg, 100 caps	7.50	5.63	4.88			
SUBTOTAL OF COLUMN 1							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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	26.97	20.23				
70000	BLOOD PRESSURE MONITOR (ACCUFIT™) • med/lg cuff	79.99	49.99				
70004	BLOOD PRESSURE MONITOR • Digital wrist cuff	69.95	52.46				
02024	BLOOD PRESSURE (Triple Action AM/PM) • 60 veg. tabs	44.00	33.00	28.00			
01214	BLUEBERRY EXTRACT • 60 veg. caps	22.50	16.88	15.00			
01438	BLUEBERRY EXTRACT W/ POMEGRANATE • 60 veg. caps	30.00	22.50	20.25			
01506	BONE FORMULA (DR. STRUM'S INTENSIVE) • 300 caps	56.00	42.00	37.50			
01726	BONE RESTORE • 120 caps	22.00	16.50	14.25			
02123	BONE RESTORE • Chocolate, Sugar-Free • 60 chewable tabs	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			
00984	BP MANAGEMENT (Optimal) • 60 tablets	44.00	33.00	30.00			
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			
01203	BROMELAIN (Specially-coated) 500 mg, 60 enteric coated tablets	21.00	15.75	14.25			
C							
01963	CALCIUM CITRATE W/VITAMIN D • 200 veg. caps	18.00	13.50	12.50			
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			
02018	CARNITINE (Optimized) • 60 veg. caps	30.00	22.50	20.00			
01532	L-CARNITINE • 500 mg, 30 veg. caps	15.00	11.25	9.90			
01829	CARNOSINE • 500 mg, 60 veg. caps	36.00	27.00	24.00			
02020	CARNOSINE (Super) • 500 mg, 60 veg. caps	40.00	30.00	27.00			
01932	CAT MIX • 100 grams powder	14.00	10.50	8.25			
02199	CHILDREN'S FORMULA LIFE EXTENSION MIX™ 120 chewable tablets	25.00	18.75	17.00			
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	37.50	37.50				
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			
00818	CLA BLEND W/SESAME LIGNANS (Super) • 120 softgels	36.00	27.00	24.75	19.75		
SUBTOTAL OF COLUMN 2							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01896	COGNITEX® W/BRAIN SHIELD® • 90 softgels	60.00	45.00	39.00	36.00		
01897	COGNITEX® W/PREGNENOLONE & BRAIN SHIELD® 90 softgels	62.00	46.50	39.75	37.50		
01421	COGNITEX® BASICS • 60 softgels	38.00	28.50	26.25	24.00		
01659	COGNIZIN® CDP-CHOLINE CAPS • 250 mg, 60 veg. caps	36.00	27.00	25.50			
02202	COMFORTMAX™ • 30 day supply	44.00	33.00	29.00			
01945	COMPLETE B-COMPLEX (BioActive) • 60 veg. caps	12.00	9.00	8.00			
02298	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		
01951	COQ10 w/d-LIMONENE (Super-Absorbable) 100 mg, 60 softgels	30.00	22.50	20.00			
01929	COQ10 (Super Ubiquinol) • 100 mg, 60 softgels	56.00	42.00	36.00	33.00		
01733	COQ10 w/PQQ (Super Ubiquinol) • 100 mg, 30 softgels	50.00	37.50	30.00	27.00		
01437	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 100 mg, 30 softgels	33.00	24.75	22.00			
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			
00467	CURCUMIN® (Super Bio) • 400 mg, 30 veg. caps	20.00	15.00	14.00			
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							
80105	ADULT BLEMISH LOTION • 1 fl. oz	74.50	55.88	49.17			
80157	ADVANCED ANTI-GLYCATION PEPTIDE SERUM • 1 fl. oz	53.00	39.75	34.50			
80165	ADVANCED GROWTH FACTOR SERUM • 1 fl. oz	65.00	48.75	42.75			
80170	ADVANCED HYALURONIC ACID SERUM • 1 fl. oz	45.00	33.75	29.25			
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 fl. oz	65.00	48.75	42.75			
80140	ADVANCED UNDER EYE SERUM W/STEM CELLS • .33 fl. 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 fl. 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 fl. oz	46.00	34.50	29.25			
80134	ANTI-GLYCATION SERUM W/BLEUBERRY & POMEGRANATE EXTRACTS • 1 fl. oz	33.00	24.75	23.51			
80133	ANTIOXIDANT FACIAL MIST HYDRATOR • 2 fl. oz	32.00	24.00	22.80			
80156	COLLAGEN BOOSTING PEPTIDE SERUM • 1 fl. oz	59.00	44.25	39.00			
SUBTOTAL OF COLUMN 3							

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
80169	CUCUMBER HYDRA PEPTIDE EYE CREAM • .5 oz	38.00	28.50	26.00			
80141	DNA SUPPORT CREAM • 1 oz	49.00	36.75	31.50			
80167	ENVIRONMENTAL SUPPORT SERUM • 1 fl. oz	59.00	44.25	39.00			
80108	ESSENTIAL PLANT LIPIDS SERUM • 1 fl. 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			
80137	HEALING FORMULA ALL-IN-ONE CREAM • 1 oz	53.00	39.75	34.07			
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 fl. oz	39.95	29.96	28.50			
80103	LIFTING & TIGHTENING COMPLEX • 1 oz	74.50	55.88	49.17			
80168	MELATONIN ADVANCED PEPTIDE CREAM • 1 oz	38.00	28.50	26.00			
80114	MILD FACIAL CLEANSER • 8 fl. oz	59.00	44.25	38.94			
80159	MULTI STEM CELL SKIN TIGHTENING COMPLEX • 1 fl. oz	59.00	44.25	39.00			
80122	NECK REJUVENATING ANTIOXIDANT CREAM • 2 oz	64.00	48.00	42.24			
80150	RENEWING EYE CREAM • 1/2 oz	65.00	48.75	42.75			
80142	RESVERATROL ANTI-OXIDANT SERUM • 1 fl. oz	46.00	34.50	29.25			
80166	SKIN FIRMING COMPLEX • 1 fl. oz (2 units \$34.50)	53.00	39.75				
80112	SKIN LIGHTENING SERUM • 1/2 fl. oz	85.00	63.75	56.10			
80130	SKIN STEM CELL SERUM • 1 fl. oz	74.00	55.50	51.75			
80164	SKIN TONE EQUALIZER • 0.4 fl oz	59.00	44.25	39.00			
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 each \$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 fl. 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 fl. 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			
80102	VITAMIN K CREAM • 1 oz	79.50	59.63	52.47			
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							

AUGUST 2018

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
30747	DIGEST RC® • 30 caps	19.95	14.96				
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			
02270	DNA PROTECTION FORMULA • 30 veg. caps	20.00	15.00	13.50			
01931	DOG MIX • 100 grams powder	18.00	13.50	11.25			
02006	DOPA-MIND™ • 60 veg. tabs	44.00	33.00	28.00			
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							
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			
02200	EPA/DHA (Clearly) • 120 softgels	30.00	22.50	20.00			
01937	EPA/DHA (Mega) • 120 softgels	20.00	15.00	13.50			
02033	ESOPHACOOOL™ • 60 chewable tablets	12.00	9.00	8.00			
01737	ESOPHAGEAL GUARDIAN (Berry flavor) • 60 chewable tablets	36.00	27.00	24.00			
01894	ESTROGEN FOR WOMEN • 30 veg. tabs	30.00	22.50	20.00			
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							
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			
01064	FEMMENESSENCE MACAPAUSE® • 120 veg. caps	34.99	26.24				
02125	FLORASSIST® GI w/PHASE TECHNOLOGY •30 liquid veg. caps	33.00	24.75	22.50			
01821	FLORASSIST® HEART HEALTH • 60 veg. caps	32.00	24.00	21.00			
02124	FLORASSIST® IMMUNE HEALTH • 30 veg. caps	26.00	19.50	18.00			
02120	FLORASSIST® ORAL HYGIENE • 30 lozenges	20.00	15.00	13.00			
01825	FLORASSIST® BALANCE • 30 liquid veg. caps	32.00	24.00	21.00			
02000	FLORASSIST® MOOD • 60 caps	33.00	24.75	22.50			
02208	FLORASSIST® NASAL • 30 veg. caps	36.00	27.00	24.00			
02203	FLORASSIST® PREBIOTIC •Strawberry flavor, 60 chewable tabs	20.00	15.00	13.00			
01920	FLORASSIST® THROAT HEALTH • 30 lozenges	20.00	15.00	13.50			
02212	FOCUS TEA™ • Spearmint flavor, 14 stick packs	20.00	15.00	13.50			
01913	FOLATE HIGH POTENCY (Optimized) • 5,000 mcg, 30 veg. tablets	18.00	13.50	12.00			
01939	FOLATE (Optimized) • 1,000 mcg, 100 veg. tablets	15.00	11.25	10.00			
01842	FOLATE + VITAMIN B12 (BioActive) • 90 veg. caps	12.00	9.00	8.00			
01544	FORSKOLIN • 10 mg, 60 veg. caps	16.00	12.00	10.50			
01513	FUCOIDAN W/MARITECH® 926 (Optimized) • 60 veg. caps	36.00	27.00	24.75			
G							
02070	GAMMA E MIXED TOCOPHEROL/TOCOTRIENOLS • 60 softgels	40.00	30.00	27.00			
02075	GAMMA E MIXED TOCOPHEROL w/ENHANCED SESAME LIGNANS • 60 softgels	32.00	24.00	21.75			
01394	GARLIC (Optimized) • 200 veg. caps	24.95	18.71	15.75			
SUBTOTAL OF COLUMN 5							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
02100	GASTRO-EASE™ • 60 veg. caps	44.00	33.00	30.00			
02119	GEROPROTECT® AGELESS CELL™ • 30 softgels	40.00	30.00	27.00			
02133	GEROPROTECT® LONGEVITY A.I.™ • 30 softgels	56.00	42.00	38.00			
01122	GINGER FORCE® • 60 liquid caps	34.95	26.21				
01658	GINKGO BILOBA CERTIFIED EXTRACT™ 120 mg, 365 veg. caps	50.00	37.50	33.00			
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	22.00	16.50	15.00			
02122	GLYCEMIC GUARD™ • 30 veg. caps	42.00	31.50	28.00			
01669	GLYCINE • 1,000 mg, 100 veg. caps	12.00	9.00	8.10			
02211	GRAPE SEED EXTRACT 100 mg, 60 veg. caps	35.00	26.25	23.00			
01620	GREEN COFFEE EXTRACT COFFEEGENIC® 400 mg, 90 veg. caps	32.00	24.00	21.00			
00953	GREEN TEA EXTRACT (Mega)•lightly caffeinated,100 veg. caps	30.00	22.50	18.00			
00954	GREEN TEA EXTRACT (Mega)•decaffeinated, 100 veg. caps	30.00	22.50	18.00			
H							
01074	5 HTP • 100 mg, 60 caps	27.95	20.96				
02002	HAIR, SKIN & NAIL REJUVENATION FORM W/VERISOL® 90 tabs	32.00	24.00	22.00			
01738	HCA (Garcinia) • 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			
02121	HOMOCYSTEINE RESIST • 60 veg. caps	26.00	19.50	17.50			
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			
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			
30731	IONIC SELENIUM • 300 mg, 2 fl. oz	13.69	10.27				
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							
52142	JARRO-DOPHILUS® PROBIOTIC FOR WOMEN 30 enteric-coated veg. caps	27.95	20.96				
00056	JARRO-DOPHILUS EPS® • 60 veg. caps	23.95	17.96				
02034	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 (Jarrow)• 60 softgels	33.95	25.46				
00316	KYOLIC® GARLIC FORMULA 102 • 200 veg. caps	28.55	21.41				
SUBTOTAL OF COLUMN 6							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
00789	KYOLIC® RESERVE • 600 mg, 120 caps	30.15	22.61				
01681	LACTOFERRIN • 60 caps	44.00	33.00	30.00			
00020	LECITHIN • 16 oz granules	18.00	13.50	12.00			
02255	LIFE EXTENSION MIX™ • 240 tablets	74.00	55.50	48.00	42.00		
02257	LIFE EXTENSION MIX™ W/EXTRA NIACIN • 240 tablets	74.00	55.50	48.00	42.00		
02254	LIFE EXTENSION MIX™ • 360 caps	78.00	58.50	50.00	44.00		
02256	LIFE EXTENSION MIX™ POWDER • 12.70 oz	72.00	54.00	46.00	40.00		
02265	LIFE EXTENSION MIX™ • 240 tablets w/o copper	74.00	55.50	48.00	42.00		
02264	LIFE EXTENSION MIX™ • 360 caps w/o copper	78.00	58.50	50.00	44.00		
01608	LIVER EFFICIENCY FORMULA • 30 veg. caps	18.00	13.50	12.00			
01639	5-LOX INHIBITOR W/APRÈSFLEX® • 100 mg, 60 veg. caps	22.00	16.50	15.00			
01678	L-LYSINE • 620 mg, 100 veg. caps	9.00	6.75	6.00			
00455	LYCOPENE (Mega) • 15 mg, 90 softgels	35.00	26.25	22.50			
M							
01992	MACUGUARD® OCULAR SUPPORT w/SAFFRON • 60 softgels	25.00	18.75	17.50			
01993	MACUGUARD® OCULAR SUPPORT w/SAFFRON & 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	13.00	9.75	8.50			
02107	(EXTEND-RELEASE) MAGNESIUM • 60 veg. caps	13.00	9.75	8.75			
02209	MALE VASCULAR SEXUAL SUPPORT • 30 veg. caps	24.00	18.00	16.00			
01908	MEDITERRANEAN TRIM WITH SINETROL™-XPUR 60 veg. caps	18.00	13.50	12.00			
02109	MEDITERRANEAN WHOLE FOOD BLEND • 90 veg. caps	44.00	33.00	30.00			
01668	MELATONIN • 300 mcg, 100 veg. caps	7.00	5.25	4.50			
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			
02234	MELATONIN (Fast-Acting Liquid) • 2 fl. oz (Citrus-Vanilla)	12.00	9.00	8.25			
02201	MELATONIN IR/XR • 60 caps	12.00	9.00	7.50			
01787	MELATONIN TIMED RELEASE • 300 mcg, 100 veg. tabs	12.00	9.00	8.25			
01788	MELATONIN TIMED RELEASE • 750 mcg, 60 veg. tablets	8.00	6.00	5.25			
01786	MELATONIN TIMED RELEASE • 3 mg, 60 veg. tabs	12.00	9.00	8.25			
02101	MEMORY PROTECT • 36 day supply	24.00	18.00	16.00			
01536	METHYLCOBALAMIN • 1 mg, 60 veg. lozenges (vanilla)	9.95	7.46	6.00			
01537	METHYLCOBALAMIN • 5 mg, 60 veg. lozenges (vanilla)	32.00	24.00	18.75	17.25		
00709	MIGRA-EEZE™ (Butterbur) • 60 softgels	33.00	24.75	22.00			
01522	MILK THISTLE (European) • 60 veg. caps	34.00	25.50	22.50			
01922	MILK THISTLE (European) • 60 softgels	28.00	21.00	18.75			
01925	MILK THISTLE (European) • 120 softgels	44.00	33.00	30.00			
01940	MIRAFORTE w/STANDARDIZED LIGNANS (Super) • 120 veg caps	62.00	46.50	42.00			
01869	MITOCHONDRIAL BASICS w/PQQ • 30 caps	40.00	30.00	27.00			
SUBTOTAL OF COLUMN 7							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
01868	MITOCHONDRIAL ENERGY OPTIMIZER w/PQQ • 120 caps	68.00	51.00	45.00			
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	22.00	call for pricing				
02144	NAD+ CELL REGENERATOR™ NICOTINAMIDE RIBOSIDE 250 mg, 30 veg. caps	42.00	call for pricing				
02148	NAD+ CELL REGENERATOR™ W/RESVERATROL (Optimized) 30 veg. caps	48.00	call for pricing				
01603	NEURO-MAG® MAGNESIUM L-THREONATE • 90 veg. caps	40.00	30.00	27.00			
02032	NEURO-MAG® MAGNESIUM L-THREONATE 93.35 grams • Tropical Punch Flavor	38.00	28.50	26.00			
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		
02092	ONCE-DAILY HEALTH BOOSTER • 30 softgels	30.00	22.50	20.00			
02091	ONCE-DAILY HEALTH BOOSTER • 60 softgels	54.00	40.50	38.00			
02213	ONE-PER-DAY • 60 tablets	23.00	17.25	16.00			
01328	ONLY TRACE MINERALS • 90 veg. caps	15.00	11.25	9.38			
P							
01789	PALMETTOGUARD® SAW PALMETTO w/BETA-SITOSTEROL 30 softgels	15.00	11.25	10.50	9.00		
01790	PALMETTOGUARD® SAW PALMETTO/ NETTLE ROOT w/BETA-SITOSTEROL • 60 softgels	28.00	21.00	19.50	18.00		
*00342	PECTA SOL-C® MODIFIED CITRUS PECTIN • 454 grams powder	113.95	96.86				
*01080	PECTA SOL-C® MODIFIED CITRUS PECTIN • 270 veg. caps	82.95	70.51				
01811	PEONY IMMUNE • 60 veg. caps	36.00	27.00	24.00			
*00673	PGX® PLUS MULBERRY (WellBetX®) • 180 veg. caps	34.95	26.21				
01953	POMEGRANATE COMPLETE • 30 softgels	24.00	18.00	15.75			
00956	POMEGRANATE FRUIT EXTRACT • 30 veg. caps	19.50	14.63	13.16			
-01837	POMI-T® • 60 veg. caps	38.00	28.50	26.00			
00577	POTASSIUM IODIDE • 130 mg, 14 tabs	6.95	5.21	3.94			
01500	PQQ CAPS • 10 mg, 30 veg. caps	18.00	13.50	11.00	10.00		
01647	PQQ CAPS • 20 mg, 30 veg. caps	32.00	24.00	18.00	17.00		
SUBTOTAL OF COLUMN 8							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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® ENHANCED SEX FOR MEN • 60 tablets	52.00	39.00	36.00			
00525	PROBOOST™ THYMIC PROTEIN A • 30 packets	66.60	49.95				
01441	PROGESTA-CARE® • 4 oz cream	36.39	27.29	25.72			
02029	PROSTATE FORMULA (Ultra) • 60 softgels	38.00	28.50	26.25	24.00		
01909	PROSTAPOLLEN™ (Triple strength) • 30 softgels	28.00	21.00	18.75			
02261	PROTEIN CONCENTRATE (Whey) Chocolate • 640 gram	30.00	22.50	19.95			
02260	PROTEIN CONCENTRATE (Whey) Vanilla • 500 grams	30.00	22.50	19.95			
02246	PROTEIN ISOLATE (Advanced Whey) Vanilla • 454 grams	30.00	22.50	19.50			
02243	PROTEIN ISOLATE (Whey) Chocolate • 437 grams	30.00	22.50	19.50			
02242	PROTEIN ISOLATE (Whey) Vanilla • 403 grams	30.00	22.50	19.50			
02127	PROTEIN (PLANT) COMPLETE & AMINO ACID COMPLEX • 15.87 oz	34.00	25.50	23.00			
01812	PROVINAL® PURIFIED OMEGA-7 • 30 softgels	27.00	20.25	18.00			
01676	PS CAPS (Phosphatidylserine) • 100 mg, 100 veg. caps	54.00	40.50	36.00			
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			
02169	RAINFOREST BLEND GROUND COFFEE • 12 oz. bag	13.00	9.75				
02173	RAINFOREST BLEND GROUND COFFEE Natural Mocha • 12 oz. bag	15.00	11.25				
02172	RAINFOREST BLEND GROUND COFFEE Natural Vanilla • 12 oz. bag	15.00	11.25				
02171	RAINFOREST BLEND WHOLE BEAN COFFEE 12 oz. bag	13.00	9.75				
02170	RAINFOREST BLEND DECAFFEINATED ROAST GROUND COFFEE 12 oz. bag	14.00	10.50				
01030	RED YEAST RICE (Bluebonnet) • 600 mg, 60 veg. caps	18.08	13.56				
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 fl. oz	24.00	18.00	14.85	12.75		
01621	REJUVENEX® FACTOR FIRMING SERUM • 1.7 oz	65.00	48.75	37.50			
01220	REJUVENEX® (Ultra) • 2 oz	52.00	39.00	33.00	29.25		
00676	REJUVENIGHT® (Ultra) • 2 oz	39.95	29.96	27.00			
02210	RESVERATROL • 100 mg, 60 veg. caps	32.00	24.00	21.00			
02230	RESVERATROL (Optimized) • 60 veg. caps	45.00	33.75	30.00			
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			
01208	R-LIPOIC ACID (Super) • 240 mg, 60 veg. caps	49.00	36.75	33.75			
00070	RNA CAPSULES • 500 mg, 100 caps	17.95	13.46	12.12			
SUBTOTAL OF COLUMN 9							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE				QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each			
S								
01432	SAFFRON W/SATIEREAL® (Optimized) • 60 veg. caps	36.00	27.00	24.00				
02175	SAMe (S-Adenosyl-Methionine) 200 mg, 30 enteric coated tablets	25.00	18.75	16.50				
02176	SAMe (S-Adenosyl-Methionine) 400 mg, 30 enteric coated tablets	36.00	27.00	24.00				
02174	SAMe (S-Adenosyl-Methionine) 400 mg, 60 enteric coated tablets	66.00	49.50	45.00				
01740	SEA-IODINE™ • 1,000 mcg, 60 veg. caps	8.00	6.00	5.40				
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				
01626	SEX FOR WOMEN 50+ (Enhanced) • 90 veg. caps	59.00	44.25	34.00				
01938	SHADE FACTOR™ • 120 veg. caps	44.00	33.00	30.00				
02110	SHADE FACTOR™ SUNSCREEN LOTION • 4 fl. oz	20.00	15.00	13.00				
02118	SHADE FACTOR™ SUNSCREEN SPRAY • 6 fl. oz	22.00	16.50	14.25				
01884	SILYMARIN • 100 mg, 90 veg. caps	14.00	10.50	9.50				
02129	SKIN CARE COLLECTION ANTI-AGING SERUM • 1.75 fl. oz	60.00	45.00	37.50				
02132	SKIN CARE COLLECTION BODY LOTION • 6 oz	28.00	21.00	18.00				
02130	SKIN CARE COLLECTION DAY CREAM • 1.65 oz	50.00	37.50	33.00				
02131	SKIN CARE COLLECTION NIGHT CREAM • 1.65 oz	39.00	29.25	27.00				
02096	SKIN RESTORING CERAMIDES 30 liquid veg. caps	25.00	18.75	17.25				
01444	SLEEP (Quiet) • 60 veg. caps	13.00	9.75	7.50				
01445	SLEEP MELATONIN (Quiet) • 5 mg, 60 veg. caps	18.00	13.50	12.00				
01551	SLEEP w/ MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00				
01511	SLEEP W/O MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00				
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	76.00	57.00	50.00				
01649	SOY ISOFLAVONES (Super Absorbable) • 60 veg. caps	28.00	21.00	18.75				
00432	STEVIA™ (Better) • 100 packets, 1 gram each	9.95	7.46					
00438	STEVIA™ ORGANIC LIQUID SWEETENER (Better) • 2 oz	11.00	8.25					
00987	STRESS RELIEF (Enhanced) • 30 veg. caps	28.00	21.00	18.00				
01476	STRONTIUM • 750 mg, 90 veg. caps	20.00	15.00	13.50				
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				
02205	TEA CRYSTALS (Kenyan Green) • 14 stick packs	12.00	9.00	8.00				
02206	TEA CRYSTALS (Kenyan Purple) • 14 stick packs	18.00	13.50	12.00				
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	41.95	35.66					
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					
SUBTOTAL OF COLUMN 10								

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
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 tube (Mint)	9.50	7.13	6.50			
01917	TRANQUIL TRACT™ • 60 veg. caps	52.00	39.00	34.50			
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT 60 veg. caps	24.00	18.00	16.50			
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL • 60 veg. caps	32.00	24.00	22.20			
02003	TRIPLE ACTION THYROID • 60 veg. caps	36.00	27.00	24.00			
01803	TRI SUGAR SHIELD® • 60 veg. caps	36.00	27.00	24.00			
01386	TRUFIBER™ • 180 grams	32.95	24.71				
01389	TRUFLORA® PROBIOTICS • 32 veg. caps	42.95	32.21				
01722	L-TRYPTOPHAN • 500 mg, 90 veg. caps	33.00	24.75	22.50			
01721	TRYPTOPHAN PLUS (Optimized) • 90 veg. caps	32.00	24.00	21.75			
02216	TWO-PER-DAY • 60 tablets	12.00	9.00	7.50			
02215	TWO-PER-DAY • 120 tablets	23.00	17.25	15.50			
02217	TWO-PER-DAY • 60 caps	13.00	9.75	8.50			
02214	TWO-PER-DAY • 120 caps	24.00	18.00	16.00			
00326	L-TYROSINE • 500 mg, 100 tablets	13.50	10.13				
U, V							
01921	URIC ACID CONTROL • 60 veg. caps	24.00	18.00	16.50			
00213	VANADYL SULFATE • 7.5 mg, 100 veg. tablets	15.00	11.25	9.38			
02102	VENOFLOW™ • 30 veg. caps	52.00	39.00	36.00			
00408	VENOTONE • 60 caps	18.95	14.21	12.00			
01327	VINPOCETINE • 10 mg, 100 veg. tablets	18.00	13.50	10.50			
00372	VITAMIN B3 NIACIN • 500 mg, 100 caps	7.65	5.74	4.99			
02028	VITAMIN B5 • 500 mg, 100 veg. caps (Pantothenic Acid)	14.00	10.50	9.50			
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	30.00	22.50	20.00			
00084	VITAMIN C POWDER (Buffered) • 454 grams	28.00	21.00	19.00			
01736	VITAMIN C-MAGNESIUM CRYSTALS (Effervescent) • 180 grams	20.00	15.00	13.50			
02232	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			
02244	VITAMIN D3 LIQUID • 2,000 IU, 1 fl. oz	28.00	21.00	18.75			
02040	VITAMINS D AND K W/SEA-IODINE™ • 60 caps	24.00	18.00	16.50			
01863	VITAMIN E (Super) • 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			
SUBTOTAL OF COLUMN 11							

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

		YOUR PRICE				
ITEM No.	PRODUCT	Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	QTY Total
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	9.00	6.75	6.00		
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		
01254	ZYFLAMEND™ WHOLE BODY • 120 liquid veg. caps	72.95	54.71			
BOOKS						
33998	THE RIGHT TO TRY by Darcy Olsen • 2016	26.99	20.24			
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			
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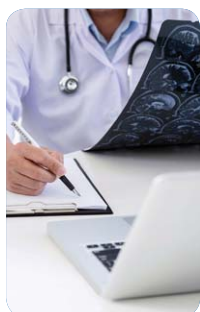
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