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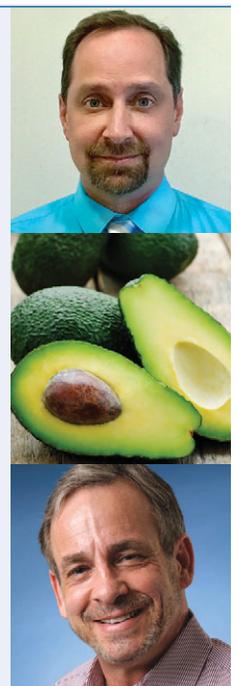
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Monday-Friday 9 am-8 pm,
Saturday 9 am-6 pm, Sunday 11 am-5 pm

Publisher • LE Publications, Inc.

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Life Extension • 3600 West Commercial Blvd., Fort Lauderdale, FL 33309
Editorial offices: 954-766-8433 • fax: 954-491-5306

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Survey of Supplement Users.
More information at
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LIFE EXTENSION (ISSN 1524-198X) Vol. 24, No. 1 ©2018 is published monthly except bi-monthly in April by LE Publications, Inc. at 3600 West Commercial Blvd., Fort Lauderdale, FL 33309-3338. LE Publications, Inc. All rights reserved. Published 13 times a year. Subscription rate: \$40 per year in the United States. US \$47 in Canada. US \$60 in other countries. Mail subscriptions or address changes to: LE Publications, Inc., P.O. Box 407198, Fort Lauderdale, FL 33340-7198, USA. Or phone us toll-free at: 1-800-841-5433. Canada Subscriptions: Publications mail agreement number 40028967. Return undeliverable Canadian addresses to PO Box 503, RPO West Beaver Creek, Richmond Hill, ON L4B4R6. You will be sent your first issue within six weeks after LE Publications, Inc. receives your subscription fee. Periodicals Postage paid at Fort Lauderdale, FL and at additional mailing offices. POSTMASTER: Send address changes to Life Extension, P.O. Box 407198, Ft. Lauderdale, Florida 33340-7198, USA. The articles in this magazine are intended for informational purposes only. They are not intended to replace the attention or advice of a physician or other health-care professional. Anyone who wishes to embark on any dietary, drug, exercise, or other lifestyle change intended to prevent or treat a specific disease or condition should first consult with and seek clearance from a qualified health-care professional. LEGAL NOTICE: Health claims contained in articles and advertisements in this publication have not been approved by the FDA with the exception of FDA approved qualified health claims for calcium, antioxidant vitamins, folic acid and EPA and DHA omega-3 fatty acids, and selenium as noted where applicable. Life Extension[®] does not endorse any of the businesses or the products and/or services that may appear in advertisements for non-Life Extension branded products or services contained in Life Extension magazine[®] except to state that they are advertisers who may have paid Life Extension for placement of an advertisement in this publication. Life Extension disclaims any and all responsibilities or warranties as to the accuracy of information contained in advertisements for non-Life Extension branded products or services. For Canadian customers send change of address information and blocks of undeliverable copies to P.O. Box 1051, Fort Erie, ON L2A 6C7.

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BY WILLIAM FALOON

FDA Fueled Opioid Epidemic

Heroin is one of the most addictive substances on earth.

When deprived of **opioid** drugs like **heroin** or **oxycodone**, addicts endure harsh withdrawal that often requires medical intervention. The addict may then undergo long-term treatment to reduce odds of relapsing.¹

Recovering **opioid addicts** may not sleep properly for years. Relentless physical and mental cravings result in over **90%** of treated users resuming opioid **addiction**.² The final exit for many is recovery or death.

Opioid addiction has skyrocketed in the United States as have fatal **overdoses**.³

To meet the surging demand, **synthetic opioids** (like fentanyl) are smuggled into the United States. Those convicted of trafficking opioids can face decades of incarceration.^{4,5}

What if, instead of risking **prison**, you duped the **FDA** into approving a synthetic **opioid drug** for routine pain relief?

That way doctors would widely prescribe your **opioid drug** with insurance companies paying for it.

Having physicians inadvertently hook their patients creates a large base of addicts who will do anything to avoid the horrors of opioid **withdrawal**.

That's what a pharmaceutical company accomplished when it got the **FDA** to approve their time-released **oxycodone** in **1995**.⁶

With FDA's approval in hand, the company launched a marketing campaign to mislead doctors and patients about the risk for addiction and abuse of their **opioid** drug.⁶

This article will open your eyes to facts that should have precluded **OxyContin**® from ever being approved for widespread use.

For those with persistent discomforts, help is available. Greater use of natural alternatives may reduce the growing population of Americans who become dependent on **opioid** drugs that are approved by the **FDA**.



An estimated 100 million Americans suffer **chronic pain**.⁷

Pain prevalence increases with age due partly to chronic **inflammatory** issues that exacerbate degenerative diseases such as arthritis and traumatic injury.

Opioid drugs provide immediate relief, but fail to correct the underlying **inflammatory** problem.

As pain sufferers become tolerant to narcotic drugs, they need to increase their dose. Increased dosage is required to keep their pain in abeyance and to satisfy their unintended **addiction** to the **synthetic opioid** their doctor prescribed.

Patients who thought they were going to take “pain pills” for a limited period find themselves hooked on a **narcotic** drug, something they might refuse if they knew of its **addiction** risk.

The complex factors that create **opioid addiction** are incompletely understood.⁸ The public gets confused when terms like “**detoxification**” are used to describe what

an addict endures to get off opioid drugs.

As you’ll read next, opioid addiction is more difficult to cure than merely removing a “toxin.”

How the Brain Gets Addicted

Brain cells contain **opioid receptors**.⁸

When a person takes an **opioid drug**, it quickly fills **opioid receptor sites** to relieve pain while inducing calmness and **euphoria** in many people.

Continued **opioid** drug use (be it heroin or oxycodone) causes opioid receptors to become **desensitized** in a way that often necessitates **higher** doses of the **opioid drug** to keep the brain from going into a **physical withdrawal**.

In the state of acute **withdrawal**, the **opioid receptor sites** in the brain scream for more **opioids**. With insufficient opioids, the addict can experience intense pain throughout their body that is already **agitated** because their

desensitized **opioid receptors** are unable to transmit neuronal **signals** the addict needs to feel normal.

Acute withdrawal is a **physical** phenomenon that can require medical intervention to prevent possible death. During the acute and chronic withdrawal period, the opioid addict may be unable to achieve normal **sleep** and is likely to suffer from relentless discomfort and intense agitation, along with craving for **opioid drugs**.

Over a multi-year recovery period, the opioid receptor sites can become re-sensitized to the low levels of natural opioids produced in the body. This in turn slowly enables the opioid addict to regain a sense of normalcy.

Sleep deprivation, however, can last for years as the brain is unable to achieve sufficient relief from the anxiety because their opioid receptor sites were so damaged. Instant relief can be found by reaching for a **heroin** or **oxycodone** “fix,” which can ignite another vicious addiction cycle.



**Recovering Opioid Addicts
May Not Sleep Properly For Years**

The body produces natural **opioids** that help mitigate pain and reduce anxiety. There are not enough **natural opioids** produced, however, to compensate for the **loss of receptor site sensitivity** caused by prior abuse of the **opioid drug**.

Understanding **how** opioids create physical addiction makes the FDA's **approval** of opioid drugs (like OxyContin®) all the more abhorrent.

How Heroin Abuse was Temporarily Curbed

In the **1960's**, compelling film footage of heroin addicts twisting and screaming as they were strapped to hospital gurneys was shown to high school students. This film footage vividly revealed the horrors that heroin addicts endure as they fight through the acute withdrawal phase.

These films often depicted addicts cooking heroin in rusty spoons and using dirty needles to inject it into their quivering bodies. The visual impact was significant.

Much of society back then viewed **heroin** (opioid) junkies with disdain. Educated individuals said **no** to needles and opioids.

The reason for the resurgence of addiction and overdose deaths is the **FDA** approved an **opioid** drug that was illegally marketed to physicians as a relatively "safe" pain reliever.

Where Today's Opioid Epidemic Started

In the early 1990s, a company called **Purdue Pharma** developed a highly-addictive semi-synthetic opioid drug and named



it **OxyContin®**.⁹ The company funded clinical trials showing that OxyContin® in long-acting form relieved pain for up to 12 hours with few of the side effects associated with opioid drugs.¹⁰

The **Food and Drug Administration** (FDA) reviewed the company-funded clinical studies on the use of **OxyContin®** and approved it. The FDA was told that because OxyContin® was in a "time-release" tablet, it posed a **lower** threat of abuse and addiction.¹⁰

The **FDA reviewer** (Curtis Wright, MD) who led the approval of OxyContin® left the FDA and within 2 years was working for **Purdue Pharma**.¹⁰

This kind of revolving door between the **FDA** and **pharmaceutical companies** has been previously exposed in this magazine, and more recently in the *Washington Post* and on the CBS TV program *60 Minutes*.

We view this **revolving door** as deferred bribery or "business as usual" as it relates to how the FDA

approves new drugs and allows dangerous ones to remain on the market.

Purdue Pharma heavily promoted their **OxyContin®** to primary-care physicians who had little training in the treatment of serious pain or in recognizing signs of drug abuse.⁶ OxyContin® rapidly became the instant fix for patients complaining of any kind of discomfort since the drug usually provided immediate relief.

OxyContin® does this by occupying the **opioid receptor** on brain cells. As pain returned, so did the patient for a refill of higher-dose OxyContin® to counteract the **desensitized** (less responsive) brain cell **opioid receptors** caused by their **prior** use of **OxyContin®**.

It did not take long for experienced drug abusers and novices to discover that chewing an OxyContin® tablet, crushing it and snorting the powder, or injecting it with a needle produced a high as powerful as **heroin**.

By year **2000**, parts of the United States began to see skyrocketing rates of addiction and crime related to **OxyContin®**,^{11,12} which has severely worsened in recent years.

Purdue Pharma Gets Indicted¹³

Between 1995 and 2001, **Purdue Pharma** brought in revenue of **\$2.8 billion** from sales of its FDA-approved **OxyContin®** drug.¹³

The active ingredient in OxyContin® is **oxycodone**, which is a semi-synthetic **opioid** narcotic.

Unlike drugs such as **Percocet®** that contain oxycodone and other ingredients, **OxyContin®** contained large amounts of pure **oxycodone** in each time-released tablet.

Purdue Pharma recognized they would face resistance from doctors who were concerned about the potential for **OxyContin®** to cause addiction.¹³

To counter this, the company developed a **fraudulent** marketing campaign designed to promote OxyContin® as a time-released drug that was less prone to such problems.¹³

As addiction rates soared, Purdue Pharma and its executives were **criminally charged** for misrepresenting the addiction potential of **OxyContin®** to physicians.

In **2007**, Purdue Pharma settled the criminal charges by paying a **\$634 million** fine.⁶ The executives who perpetrated the crimes were not sentenced to serve any jail time and the company was allowed to continue selling different versions of **oxycodone-containing** drugs.^{14,15}

As had been widely reported in recent years, neither **Purdue Pharma** nor the **FDA** has effectively stopped what has been an explosive growth in America's addiction for **opioid** drugs that **Purdue** conned the **FDA** into approving **23** years ago.

Unequal Justice

While heroin dealers forfeit their property and personal liberty, those responsible for today's **opioid addiction** epidemic continue to profit enormously. This is courtesy of the **FDA** approving and allowing ongoing sale of opioid prescription drugs.

FDA fuels this epidemic further by approving lower-cost generic **opioid** narcotics.

Yet the public does not understand how easy it is for brain cells to develop a physical **craving** for opioid drugs (and not everyone prescribed opioids becomes dependent or addicted).

Opioid Epidemic Reaches All-Time High in 2017

The **FDA** initially allowed **Purdue Pharma** to market a theory that **OxyContin®** was less prone to **addiction** than typical opioids.

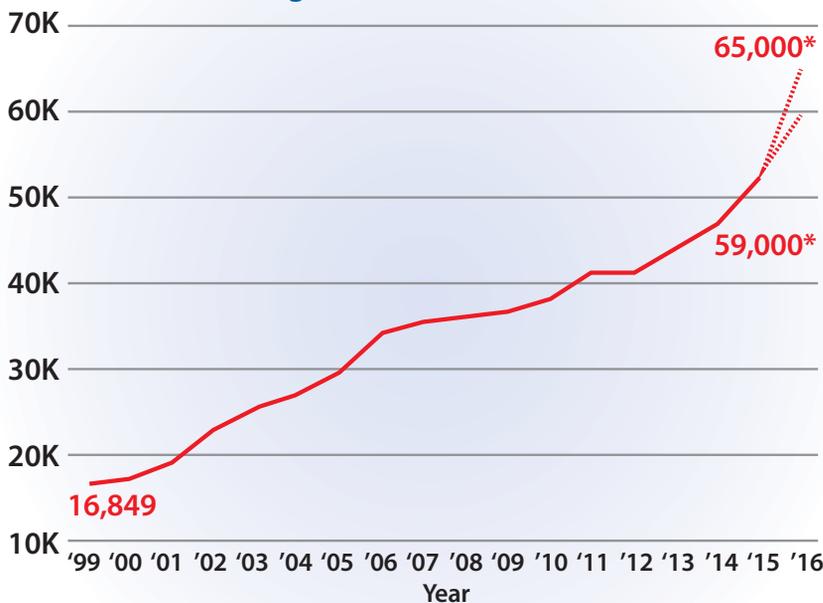
This bureaucratic blunder in **1995** is the **genesis** of today's nationwide crisis of opioid addiction, overdoses, and deaths. This includes **heroin** (from poppies), **oxycodone**, and more powerful opioid-receptor site occupiers such as **fentanyl** (which is an opioid drug sometimes used for general anesthesia).¹⁶⁻¹⁹

The charts on these pages speak for themselves.^{20,21}

These bleak numbers reflect over **200,000** lost lives caused by **opioid** drugs that never should have been approved for widespread use.

The **Centers for Disease Control and Prevention (CDC)** revealed research in **2017** suggesting that the numbers of deaths attributed to opioid abuse are grossly underestimated.²²⁻²⁴

Drug Overdose Deaths Per Year



*Estimate based on preliminary data. Source: National Institute on Drug Abuse, *The New York Times*

I cannot tell you how many times I've said NO to doctors and dentists who have offered me **OxyContin®** prescriptions with lots of refills.

I angrily bark back at these doctors by asking, "**Are you out of your mind?**" for trying to prescribe me a narcotic for something that is not particularly painful.

But how would a typical patient know to refuse an opioid prescription?

After all, the drug is approved by the FDA to treat pain. And since much of the public still thinks the FDA protects the public health, people generally follow their doctors prescribing orders.

The reality is the FDA should have known if you give a person an opioid drug, some will become addicted in a way that their brain cells constantly crave more of the opioid compound.⁸

Opioid addiction has reached crisis levels despite record numbers of people being incarcerated for its illicit distribution.

Education Over Incarceration

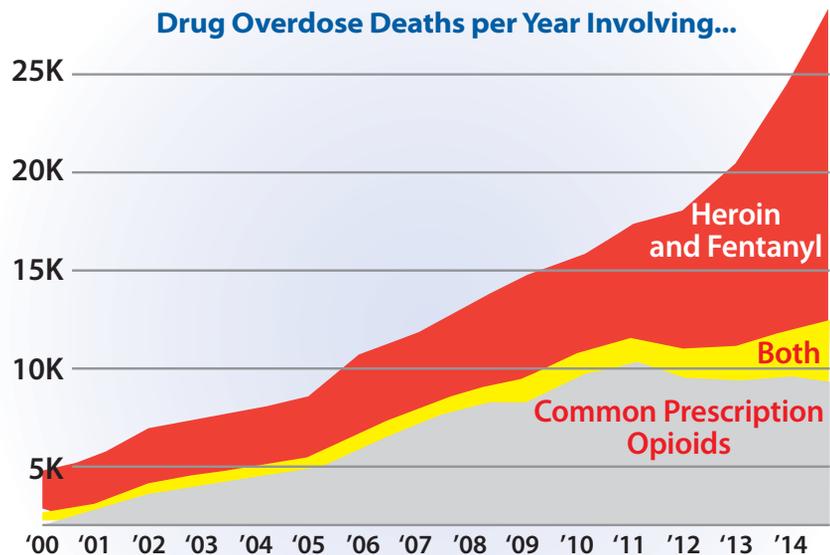
I continue to advocate **education over incarceration** as the nearly 40-year "**war on drugs**" has been an abysmal failure. This is evidenced by massive numbers of:

- Opioid addicts²⁵⁻²⁷
- Opioid overdose fatalities²⁸⁻³⁰
- Drug addiction treatment centers³¹
- Incarcerated drug traffickers (who are often addicts themselves)^{32,33}

Educating school children about the mechanisms of opioid

tolerance, dependence, addiction, and withdrawal will go a long way to dissuade them from considering an **opioid** compound.

Opioids need to regain the **stigma** that was successfully imparted on my generation in the **1960s/1970s** era.



Source: National Center for Health Statistics, Centers for Disease Control and Prevention

Horrors of Opioid Withdrawal

When an **addict** acutely stops taking their **opioid drug**, they can endure multiple **physical withdrawal** symptoms including:^{8,34}

- Systemic pain as the **opioid receptors** in their brain are no longer occupied by the **opioid drug**.
- Flu symptoms like runny nose, watery eyes, diarrhea, and nausea.
- Hot and cold sweats that involve feeling cold and shivering uncontrollably while simultaneously profusely sweating.
- Persistent insomnia that can last for years before normal sleep is restored.

These physical-withdrawal agonies can be vanquished by resuming the **opioid drug**.

In addition to the acute withdrawal agonies, there is a constant **craving** to have those brain opioid receptors occupied by an opioid drug, without which the addict cannot feel normal.

Is it any wonder that up to **90%** of **addicts** who undergo medical intervention resume their opioid drug use?²

The horrific consequences of **opioid withdrawal**, including the skyrocketing numbers of lethal **overdoses**, makes the FDA's approval of **OxyContin®** even more heinous.

Dealing With Reality

It is estimated that one-third of Americans suffer **chronic pain**.⁷

Drugs like **OxyContin**® effectively treat serious short- and long-lasting pain.

The problem is that some people become addicted with their very first opioid prescription. This can occur as opioid receptors become less responsive to the drug, triggering a vicious cycle where more drug is needed to achieve desired effect.

Last month we introduced an alternative **solution** for those who suffer **chronic pain**. This dual-nutrient formula is capable of modulating pain signals and modifying inflammatory responses that lead to systemic pain sensation.

There is no escape, however, from the agonies of acute and long lasting opioid withdraw.

In this month's issue, we publish a brief review of the carnage of opioid addiction and overdose deaths that are sweeping the United States.

This would not have happened had the **FDA** bothered to look at the underlying **mechanism** of **opioid addiction** before approving a controlled-release **opioid** for wide-spread use in **1995**.

We also introduce this month a new **prebiotic chewable** tablet that feeds the **beneficial bacteria** in your gastrointestinal tract. This special **prebiotic** is designed to help boost healthy bifidobacteria levels that critically decline with age.

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This is the time of year when we **discount** prices on *every* one of our advanced nutritional formulas.

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To order nutrients you need at **Super Sale** prices, call **1-800-544-4440** (24 hours).

For longer life,



William Faloon

As This Article Was Being Finalized...

Most of this article was written in **April 2017**.

Before it could appear in **Life Extension Magazine**®, the media woke up to the **opioid crisis** that is causing horrific human suffering and record-setting overdose deaths.

In **October 2017**, CBS News's **60 Minutes** in conjunction with the **Washington Post** aired an investigative report exposing **federal government** corruption that continues to fuel "**the worst drug epidemic in American history**."^{35,36}

The **FDA** is responsible for **initiating** this addiction crisis and intensifying it by approving more **opioid** drugs for sale at your local pharmacy. The FDA is now trying to remove some of the generic opioid drugs that are most likely to create addiction.

As body counts rose from overdose deaths, however, the **Drug Enforcement Agency** (DEA) tried to stop the illicit distribution of **FDA-approved** opioid drugs. **Big Pharma** responded by hiring away DEA's top attorneys and enforcement staff.

Big Pharma went further and lobbied **Congress** for new legislation that impedes the ability of the **DEA** to curb illicit distribution of **FDA-approved** opioids.

The bill, written and sponsored by **Big Pharma**, passed **Congress** by **unanimous** consent in **2016** and was signed into law by the **president**.



To view this **CBS News/Washington Post** joint expose on **federal corruption**, visit: www.LifeExtension.com/opioid

We at **Life Extension** have exposed FDA incompetence and corruption relating to fraudulent drug approvals dating back to the **1980s**.

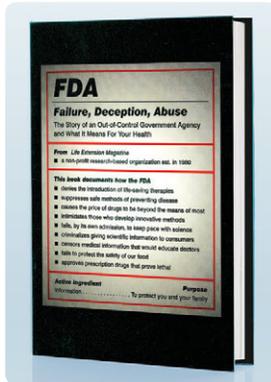
The new scandal revealing how our **federal government** initiated and fuels the opioid crisis is a sad but accurate **vindication** of our long-standing **revolving-door** allegations, whereby federal employees view their work as paving the way to lucrative careers in the industry they supposedly "**regulate**" under the deceitful guise of **consumer protection**.

Recall that the **FDA reviewer** who led the approval of **OxyContin**® left the **FDA** and within two years was working for **Purdue Pharma** (maker of OxyContin®).

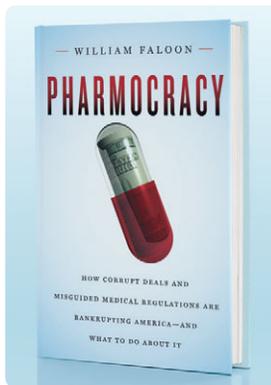
HOW I AM FIGHTING BACK

I've written hundreds of articles that meticulously describe how misguided FDA policies are the leading causes of disability and death.

Every few years, a publisher chronicles my articles into a **book** that is widely disseminated.

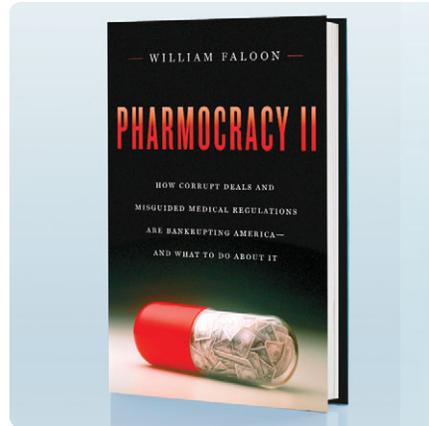


The first exposé book was titled: **FDA: Fraud, Deception and Abuse** (2009) Item#33816 • Retail price \$20
Super Sale price \$13.50 (only a few copies left)



My second rendering is titled: **Pharmocracy** (2011) Item#33835
Retail price \$24
Super Sale price \$8.64

(Note many chapters in **Pharmocracy** are also in **FDA: Fraud, Deception and Abuse**. So, if you buy **Pharmocracy**, you don't necessarily need to purchase **FDA: Fraud, Deception and Abuse**.)



My just-published new book is titled: **Pharmocracy II** (2017)
Item#34133
Retail price \$20
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In response to today's health-care-price conundrum, **Pharmocracy II** documents why conventional medicine costs so much and provides practical solutions that Congress (not influenced by pharmaceutical lobbyists) can implement to help resolve this nation's worsening healthcare cost crisis.

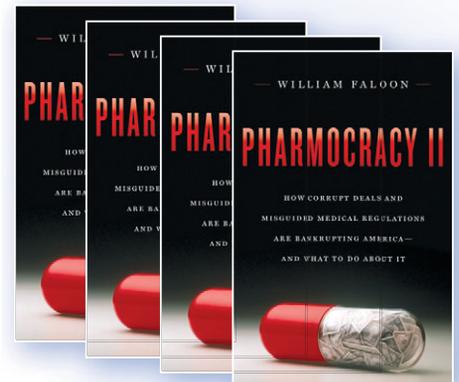
Pharmocracy II advocates for a **free market** approach that can spare Medicare and other government entitlement programs from insolvency, while improving the health of all Americans.

This book provides a rational basis for removing the compulsory aspect of healthcare regulation and allowing free-market forces to compete against government-sanctioned medicine.

More importantly, **Pharmocracy II** empowers the citizenry to inundate Congress with a unified demand to tear down corrupt regulations that are bankrupting the United States and suppressing cures for killer diseases.

The cover price for **Pharmocracy II** is \$20. Your price is \$13.50 during our annual Super Sale. Please consider buying four or more copies to send to your representative and two senators to educate them about misguided and corrupt government policies that are causing needless loss of human life. These books also make a great holiday gift.

Any of these books can be ordered by calling **1-800-544-4440** (24 hours/7 days).



Buy 4 for only \$9 each

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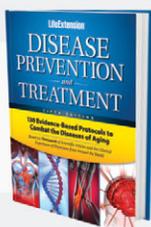
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Vitamin D Linked With Lower Breast Cancer Risk

A recent study has found a lower risk of breast cancer over five years of follow-up in association with higher levels of serum **vitamin D** or vitamin D supplementation.*

The investigation included participants in the Sister Study, which enrolled women who had a sister diagnosed with breast cancer, which placed all these women at higher breast cancer risk.

The study evaluated 1,611 women who subsequently developed **breast cancer** and compared them with 1,775 randomly selected women free of breast cancer. Blood levels of **25-hydroxyvitamin D** were analyzed in both groups.

A serum **25-hydroxyvitamin D** level of at least **38 ng/mL** was associated with a **21%** lower adjusted risk of developing breast cancer over follow-up in comparison with levels of **24.6 ng/mL** or less.

The use of a vitamin D supplement at least four times per week was associated with an **11%** lower risk of the disease, in comparison with those who did not regularly supplement. Breast cancer risk was **17%** lower among postmenopausal women who supplemented with modest doses of vitamin D.

Editor's Note: "Our results support the hypothesis that vitamin D supplementation could be effective for breast cancer prevention and may help to establish clinical benchmarks for beneficial 25(OH)D levels," the authors conclude.

* *Environ Health Perspect.* 2017 Jul 6;125(7)

AMPK Enhances Beneficial Effects of HDL

A recent study has found that **AMPK** activation enhances the ability of HDL cholesterol to inhibit development of atherosclerosis.*

Researchers were interested in evidence that the cellular enzyme AMPK could be a therapeutic candidate in the treatment of cardiovascular disease.

Scientists used mice that were bred with a predisposition to develop atherosclerosis. Drugs including metformin were employed to activate AMPK in the mice, which were fed a high-fat diet.

Results found that mice given the **AMPK activators** showed significantly enhanced HDL removal of cholesterol from arteries. It also increased the expression of enzymes such as LCAT that remove cholesterol from the bloodstream, and of proteins ABCA1 and ABCG1, which regulate cellular transport of cholesterol.

Furthermore, HDL from the treated mice exhibited superior oxidant-reduction capabilities and anti-inflammatory capacities, and reduced atherosclerotic plaque formation was observed.

Editor's Note: The study's authors comment that their observations "suggest that pharmacological AMPK activation enhances the anti-atherogenic properties of HDL in vivo. This likely represents a key mechanism by which AMPK activation attenuates atherosclerosis."

**J Lipid Res.* 2017 Aug;58(8):1536-1547.



Olive Oil Linked With Better Memory

Findings from a recent study indicate a potential protective role for **extra virgin olive oil** consumption against the development of Alzheimer's disease.*

For their research, the team used mice that were genetically modified to develop the memory impairment, amyloid plaques and neurofibrillary tangles that characterize Alzheimer's disease. Beginning at six months of age, the animals were given either an extra virgin olive oil-enriched diet or regular chow.

At nine months and 12 months of age, mice that received the olive oil-enhanced diet performed better on assessments of working memory, spatial memory, and learning compared to mice that received regular chow.

Brain tissue showed significant differences in nerve cell appearance and function between the two groups. "We found that olive oil reduces brain inflammation but most importantly activates a process known as autophagy," the study authors reported.

Editor's Note: Autophagy is the breakdown and clearance by the cells of intracellular debris and toxins.

* *Ann Clin Transl Neurol.* 2017 Jun 21;4(8):564-574

Just-Published Protocol in the *Disease Prevention and Treatment Book*

The scientists and writers at **Life Extension**® continuously update the online *Disease Prevention and Treatment* protocol chapters based on the latest research. A recent update is briefly summarized here with complete versions of this and other chapters and references available online at: <http://www.lifeextension.com/Protocols>

Cancer Treatment Advances

Malignant tumors can suppress the immune system and evade immune cell destruction. As we age, we undergo a process called *immune senescence*, which makes us more susceptible to infection and chronic disease.

Successful immunotherapeutic approaches overcome some of these barriers by boosting the immune system's natural defenses and providing it with new ways to attack cancer.

Integrative interventions can enhance immune system function and may complement prescription immunotherapies. For example, the over-the-counter drug **cimetidine** (Tagamet®) can modulate immune function and facilitate a more robust immune response against some cancers.

Opioid Overdose Antidote Price Skyrockets

The emergency medication device **Evzio** has become the latest example of out-of-control drug pricing.*

Made by the Richmond, Virginia-based company Kaleo, Evzio is the auto-injector version of naloxone and is used as a life-saving antidote to opioid overdoses. When it first appeared in 2014, a two-pack of Evzio cost \$575. Today, the list price has jumped **680%** to \$4,500.

Kaleo also makes the emergency epinephrine device **Auvi-Q**, which uses the same auto-injector and also costs \$4,500, although the company claims millions of people with insurance will be able to get it with no copay and the cash price for others would be \$360.

These prices have caught the attention of a number of US senators, including Minnesota Senator Amy Klobuchar, who contacted Kaleo and asked for more information regarding their pricing strategy.

The senator wrote, in part: "I understand that Kaleo is trying to mitigate the impact on consumers by providing Evzio for free to cities, first responders, and drug treatment programs, and offering various programs to help ensure that no consumer pays the \$4,500 price... While these subsidies and programs are noteworthy, I am concerned that they do not address the underlying problem of rising prescription drug costs."

Editor's Note: Health insurers are not happy with the high list price of the Kaleo auto-injector medications. It's been reported that major companies including Cigna and Humana have expressed opposition to the pricing strategy, and Aetna has put Auvi-Q on restricted coverage.

*Available at: <http://tinyurl.com/yblzjxrf>. Accessed October 24, 2017.

Experts Promote Insurance for Alternative Pain Treatment

Health insurance coverage of a broader array of types of pain management may be on the way if a coalition of insurers, clinicians, and others in the field have any influence.*

Pain experts are lauding the first-ever Integrative **Pain Care Congress**, which was initiated at the 28th annual meeting of the Academy of Integrative Pain Management (AIPM). The group supports extending insurance to cover integrated pain management approaches such as acupuncture and yoga, among others.

Experts see this as a win-win strategy, saying it would reduce the excessive prescription of **opioids**—widely seen as a major problem in the US—while also saving billions in healthcare expenses and bringing relief to the millions of Americans suffering with chronic pain.

Without insurance covering it, many pain sufferers can't afford treatments that could be effective for them.

"We have a dual health crisis in this country," says W. Clay Jackson, MD, the president of AIPM. "We have a crisis of overprescription of opioids but undertreatment of chronic pain."

Editor's Note: Dr. Jackson acknowledges that insurers will want evidence that alternative pain treatments are cost-effective. He says there is already "a great deal of evidence" and that it's growing, but points out the difference between "evidence-based" and "evidence-guided" care. "Very little of what we do in medicine is actually evidence-based," he observes. "A great deal of what we do is accepted clinical practice, what clinicians feel is working for patients."

*Available at: https://www.medscape.com/viewarticle/887500#vp_2. Accessed October 30, 2017.

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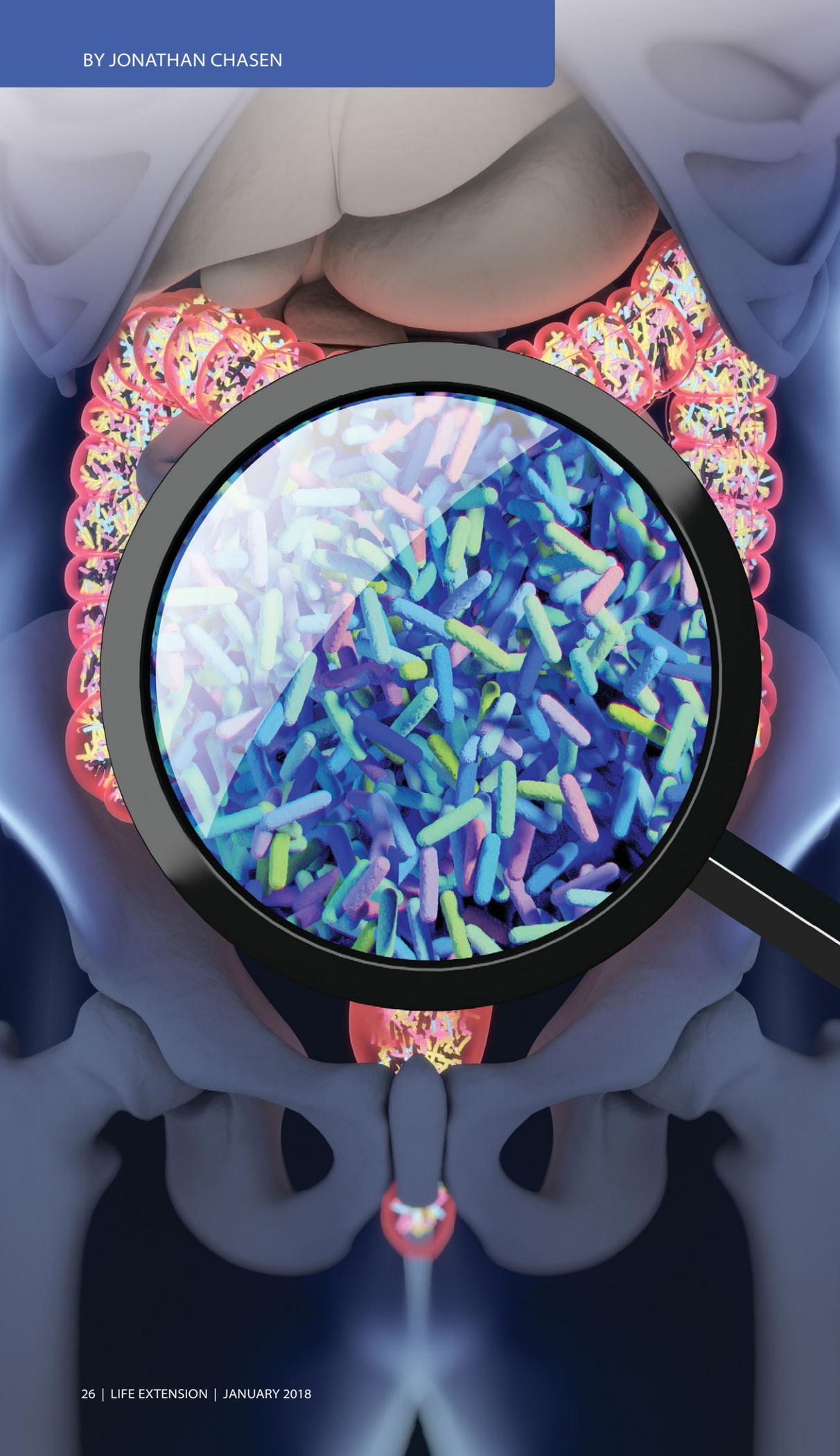


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A woman with dark hair tied back, wearing a white lab coat, is looking through the eyepiece of a white and black microscope. Her face is in profile, and she is focused on her work. The background is a bright, out-of-focus laboratory setting.

ROLE OF BIFIDOBACTERIA IN LONG-TERM HEALTH

An exciting area of medical research is focused on the **gut microflora** (or **microbiome**) that resides in the human digestive tract.

These trillions of microorganisms help regulate our immunity, endocrine system, digestion, and metabolism.¹⁻⁴

Scientists are discovering that the gut microbiome is linked with mood, cardiovascular health and the ability to fight off disease.⁵⁻⁸

Research shows how restoring optimum gut-flora balance may help promote long-term health.⁹

The *National Institutes of Health* launched the **Human Microbiome Project** to encourage advancement in the knowledge and application of the human microbiome for health and longevity.¹⁰

Among the most important and beneficial bacteria of the gut microbiome are those belonging to the group **bifidobacteria**.¹¹ Research shows that *bifidobacteria* have wide-ranging health benefits—they fight allergies, high cholesterol levels, respiratory diseases, stress, and anxiety. In an animal study, they reduced tumor cell growth.¹²

As children, our bodies have an abundance of bifidobacteria. But with age, poor diet, and antibiotic use, levels of bifidobacteria decline.¹²

To promote restoration of healthy **bifidobacteria** levels, researchers at *UCLA School of Medicine* studied a unique **prebiotic fiber** called **xylooligosaccharide (XOS)**, which is made from non-GMO corn cobs.

XOS provides an ideal natural environment for **healthy bacteria** to thrive in the gastrointestinal tract.¹³

In the studies, researchers found that **XOS** helped restore intestinal health and increases the presence of bifidobacteria in as little as **14 days**.¹⁴ And, it did so without promoting other harmful bacteria.

Given the numerous ways that **bifidobacteria** work to ensure our health, many people want to boost their healthy gut bacteria flora. **XOS** is a convenient novel method.

Boosting Your Bifido

According to research, the proportion of healthy bifidobacteria in the human gut is about **60%** in infancy.

By adulthood, bifidobacteria decline to **30%-40%**, fall to about **10%** in late middle age, and drop to *less than 5%* by old age.¹²

Less bifido means more room for unhealthy, dangerous bacteria to take over.

Like everything in our body, bifidobacteria need the right type of nourishment to grow and multiply. Keeping your bifidobacteria well fed ensures their presence as health-promoting residents of your digestive tract.

Many Americans' diets are notoriously deficient in dietary fiber. And, while bifidobacteria's number-one food source is dietary fiber, studies have revealed that they particularly thrive on a **prebiotic** called **xylooligosaccharide (XOS)**. This prebiotic was effective even when taken in relatively small amounts.¹⁵

Exciting human clinical trials demonstrate that this targeted **prebiotic** formulation dramatically boosts bifidobacteria in the digestive tract.^{13,14}

The Search for a Targeted Prebiotic

The term *prebiotic* might be new to some people, but prebiotics have been around for years.¹⁶ They are better known as **soluble fiber**.

Unfortunately, to achieve a significant increase in bifidobacteria, one would have to ingest a high dose of soluble fiber. An enormous **10 grams to 20 grams** of FOS (fructooligosaccharides)—a type of soluble fiber—were required in one study to achieve a significant increase in bifidobacteria. This can be problematic because such high doses of fiber supplements can cause excessive flatulence, bloating, and intestinal cramps.¹³

That's why researchers have been searching for a prebiotic with *targeted bifidogenic effects*—meaning one that *promotes* the growth of bifidobacteria. That search has led researchers to the special prebiotic **xylooligosaccharide**, or **XOS**, derived from non-GMO corn cob.

Recent human studies have shown that XOS helps safely and significantly boost levels of beneficial bifidobacteria.^{13,14}





What You Need to Know

Benefits of Prebiotics

- The trillions of bacteria living in the human gut have enormous impact on our health and vulnerability to disease.
- Prebiotics act as a “bacterial fertilizer,” and provide a healthy environment for beneficial bacteria to thrive and multiply.
- New studies show that supplementing with a prebiotic called xylooligosaccharide (XOS) can significantly and meaningfully boost bifidobacteria levels in the human gut, while reducing serum levels of cardiovascular-risk biomarkers including cholesterol, triglycerides, and glucose.
- Higher levels of bifidobacteria are associated with resistance to a wide range of age-related diseases, while deficiencies in bifidobacteria are closely aligned with susceptibility to those conditions.
- Because of its potency, XOS is effective at doses as low as one-tenth the amount usually used for other prebiotic supplements.

XOS Increases Bifidobacteria

The most compelling of the new studies on XOS boosting bifidobacteria count were conducted by microbiologists and clinical researchers affiliated with **UCLA School of Medicine**.¹³

In a rigorous double-blind, randomized, placebo-controlled study, 32 healthy subjects received either a **placebo**, **1.4 grams** of XOS, or **2.8 grams** of XOS every day for eight weeks.

The preparation contained **70% XOS**, so that the total amount of XOS ingested in the two study groups was **1 gram** or **2 grams**, respectively.

The big question: Would it be possible for such extremely low doses of XOS to significantly improve bifidobacteria levels?

The answer was a definite **yes**.

Bifidobacteria counts rose *significantly* in both XOS groups compared with placebo recipients. And the higher-dose group (**2 grams/day**) showed significantly larger increases in healthy bifidobacteria levels than the lower-dose group (**1 gram/day**).

The XOS groups did not experience any major increases in other *non-bifidobacteria microbes*, including the growth of more harmful bacteria. The XOS fiber *only* promoted the growth of beneficial bifidobacteria.

This is significant because some fiber supplements can produce increases in *both* good and bad microorganisms, which can essentially *cancel out* the benefits of increasing bifidobacteria levels.¹³

No significant side effects occurred in any of the three study groups at either the **1-gram** or **2-gram** dose.

What are Prebiotics?

Prebiotics benefit the individual by stimulating the growth and/or activity of healthy bacteria in the colon, thus improving the individual's health.²¹

It's important to note that all prebiotics are fiber, but not all fiber is prebiotic. For a food ingredient to be classified as a prebiotic it must:²¹

- Resist gastric acidity, enzymatic hydrolysis, and upper gastrointestinal tract absorption,
- Be fermented by intestinal flora,
- Stimulate growth and/or activity of beneficial bacteria.



A Healthier Gut in Just Two Weeks

The previous study showed that XOS increases the numbers of beneficial bifidobacteria. The next study showed that XOS increased beneficial bifidobacteria in **record time**. The researchers used the same XOS preparation and doses as the previous study, but without a control group.¹⁴

The lower-dose (**1-gram**) group saw significant increases in bifidobacteria counts in 28 days. But the higher-dose (**2-gram**) group achieved significant increases in bifidobacteria *in just 14 days*.

Keep in mind that these studies used doses of XOS *far below* the **10 grams-20 grams/day** required to achieve similar results with other prebiotics made from **fiber**.

Broad-Spectrum Benefits

But that's just half of the story. This study went on to show that taking XOS resulted in numerous clinical improvements throughout the body.

For example, taking XOS led to a significant increase in **fecal acidity**. This is a beneficial effect that may help to ward off less desirable organisms,¹⁷ while promoting the growth of healthy bacteria. This benefit has been reported previously with XOS supplementation in humans.¹⁸

In another benefit that has implications for heart health, scientists found increases in fecal levels of triglycerides and cholesterol—indicating that the XOS *removed* excess cholesterol and triglycerides from the body.¹⁴ These changes were echoed by significant reductions in serum triglyceride and cholesterol levels, along with significant drops in blood-sugar levels.

An *imbalanced* microbiome is associated with metabolic syndrome.¹⁹ This study shows us that by *restoring* healthy levels of bifidobacteria, XOS may help reduce several common metabolic health risks.¹⁴

These benefits are further testament to the system-wide impact of boosting the bifidobacteria content in the digestive tract.¹⁴

The Importance of Healthy Bacteria

It is still under investigation as to why **bifidobacteria** respond so positively to supplementation with **XOS** at low doses that don't cause side effects.

Studies show that bifidobacteria utilize precisely the kinds of carbohydrates that humans can't digest. This is especially true of the so-called **oligosaccharides**, of which XOS is one important example.²⁰

Genetic analysis of bifidobacteria suggests they are well-equipped to carry out that digestion, which not only feeds the bifidobacteria, but also produces useful molecules called **bacteriocins** that help *suppress* growth of the less-desirable bacteria.^{12,20}

Together, these findings highlight the importance of feeding these essential bacteria to keep them healthy so they can keep us healthy.

Summary

Microorganisms that reside in the human digestive tract, also called the gut **microbiome**, are a critical factor in sustaining our resistance to disease and promoting vigor and good health.

Many people realize the importance of taking a **probiotic** to help increase the numbers of beneficial bacteria.

One probiotic, *xylooligosaccharides*, or **XOS**, has now been shown in human clinical trials to selectively boost bifidobacteria populations in the gut in **low** doses!

These studies demonstrate systemic benefits when increasing bifidobacteria organisms in the digestive tract.

XOS boosted the numbers of health-promoting **bifidobacteria**, while lowering serum cholesterol, triglycerides and glucose. ●

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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Bifidobacteria and Immune Function

Scientists around the world are intensifying research on the broad health benefits that result from the trillions of bacteria in our intestines known as the **gut microbiome**. One particular bacteria known as **bifidobacteria** has been of great interest to researchers due to its ability to modulate so many areas of our health, especially our immunity.²²

Research clearly demonstrates that a strong bifidobacteria population can help to modulate an ailing immune system, restore immune balance by quelling excessive inflammation while also restoring effective immune surveillance against cancer cells. An active presence of bifidobacteria can have a beneficial impact on the reduction of diabetes, heart disease, allergies, infections and cancer.¹⁷

While bifidobacteria declines with age and can result in the beginning of degenerative diseases, scientists have looked for ways to increase its growth and viability. They've discovered that the unique fiber XOS dramatically increases the bifidobacteria population and with it, our immunity.

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* J Diet Suppl. 2011 Jun; 8(2):158-68

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1. *Front Microbiol.* 2016;7:1204.
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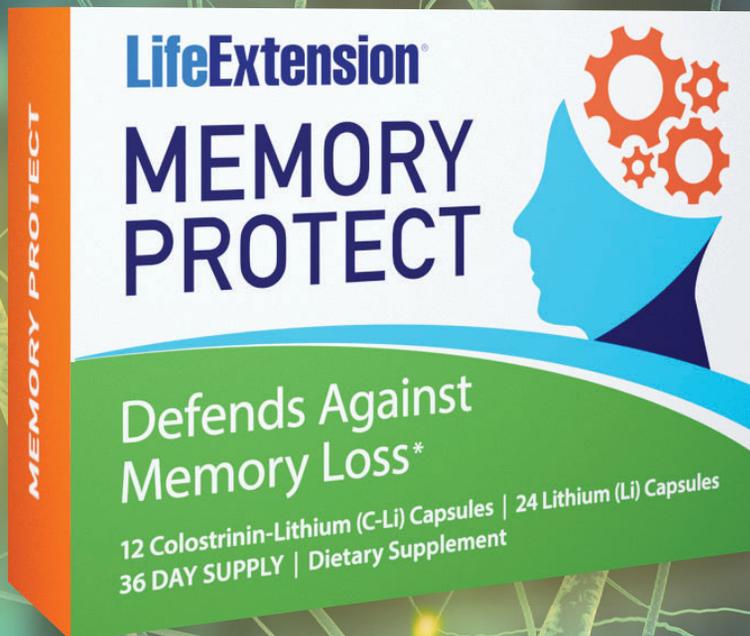
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Probiotic Blend • 15 Billion CFU†**

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- *Bifidobacterium lactis* BI-04
- *B. bifidum/lactis* Bb-02
- *L. paracasei* Lpc-37
- *B. longum* BI-05

TetraPhage Blend • 15 mg **

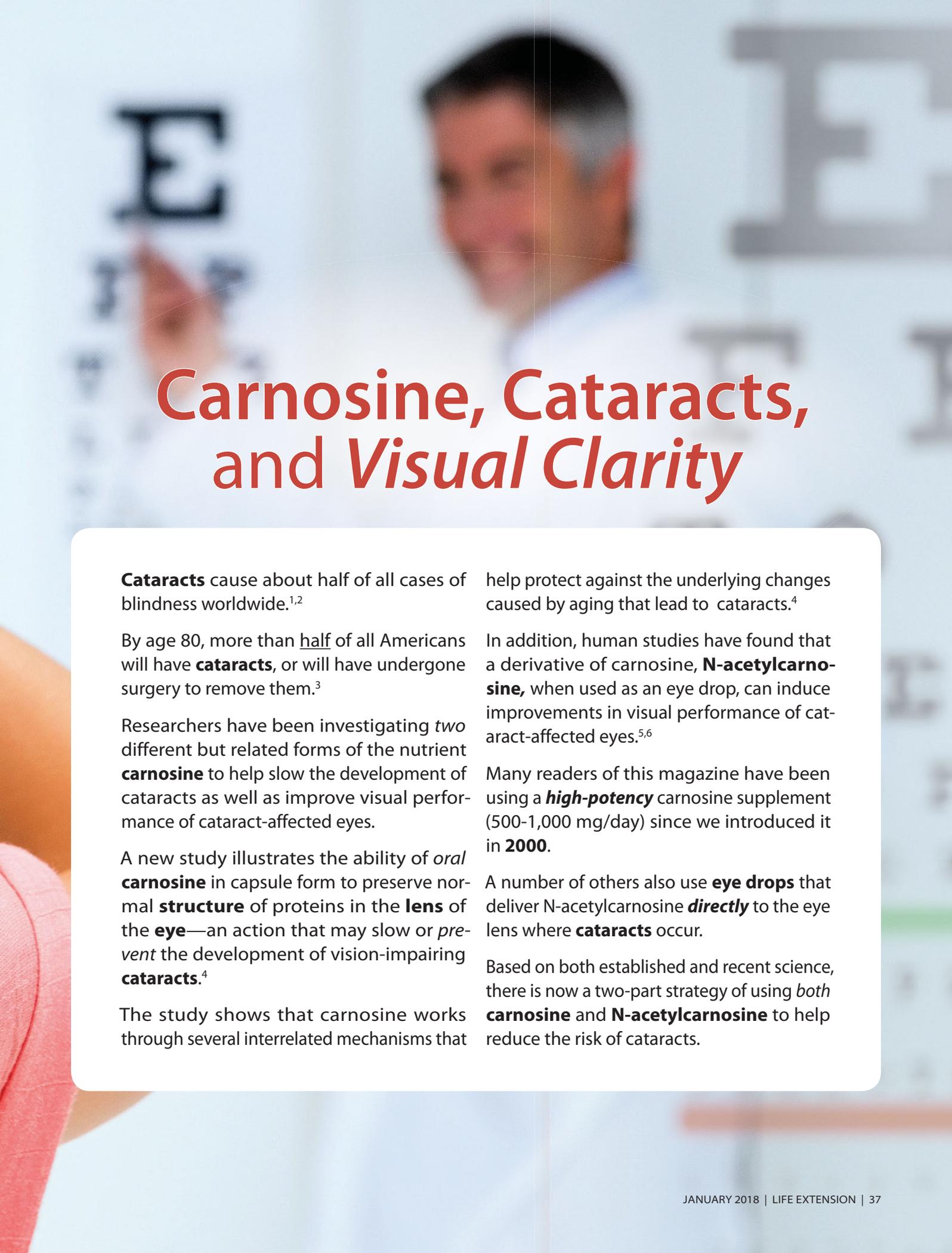
- LH01 - Myoviridae
- T4D - Myoviridae
- LL5 - Siphoviridae
- LL12 - Myoviridae

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Non-GMO † Colony Forming Units at time of manufacture. ** Daily Value not established.

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Carnosine, Cataracts, and *Visual Clarity*

Cataracts cause about half of all cases of blindness worldwide.^{1,2}

By age 80, more than half of all Americans will have **cataracts**, or will have undergone surgery to remove them.³

Researchers have been investigating *two* different but related forms of the nutrient **carnosine** to help slow the development of cataracts as well as improve visual performance of cataract-affected eyes.

A new study illustrates the ability of *oral* **carnosine** in capsule form to preserve normal **structure** of proteins in the **lens** of the **eye**—an action that may slow or *prevent* the development of vision-impairing **cataracts**.⁴

The study shows that carnosine works through several interrelated mechanisms that

help protect against the underlying changes caused by aging that lead to cataracts.⁴

In addition, human studies have found that a derivative of carnosine, **N-acetylcarnosine**, when used as an eye drop, can induce improvements in visual performance of cataract-affected eyes.^{5,6}

Many readers of this magazine have been using a **high-potency** carnosine supplement (500-1,000 mg/day) since we introduced it in **2000**.

A number of others also use **eye drops** that deliver N-acetylcarnosine **directly** to the eye lens where **cataracts** occur.

Based on both established and recent science, there is now a two-part strategy of using *both* **carnosine** and **N-acetylcarnosine** to help reduce the risk of cataracts.

Eye Lens Protector

Cataracts are cloudy spots in the otherwise crystal-clear lens of the eye that are formed when lens tissues break down, or when lens proteins clump together.^{4,7} They cause blurred vision, a faded appearance of colors, and increased sensitivity to glare and bright lights.⁷

Cataracts were once thought to be an inevitable consequence of aging. Today, we recognize that cataracts have several interrelated causes.

That makes a multitargeted nutrient like **carnosine** attractive for fighting the **structural** defects that manifest clinically as vision-robbing **cataracts**.⁸

Carnosine is a combination of two amino acids, alanine and histidine. Your body makes some of its own carnosine. It is found in higher concentrations in muscle, the brain—and in lenses of the eyes.⁹⁻¹²

A **dietary** source of carnosine is **red meat**, something that many health-conscious people seek to reduce or avoid altogether. Even red-meat eaters, however, only have protective **carnosine** levels part of the day. That's because the amount of carnosine in meat is rapidly degraded by *carnosinase* enzymes in your body.¹³

How Cataracts are Formed

In order to understand why carnosine is so beneficial, it's helpful to understand how cataracts form to begin with.

Cataracts are opaque collections of *deformed proteins* that accumulate within the clear lens of the eye.^{4,36}

All proteins rely closely on their exquisitely-folded molecular structure for their function. Misfolded proteins don't work properly, and misfolded *lens* proteins become opaque and unable to transmit light, thereby forming a cataract.^{37,38}

An important factor in protein misfolding in the lens is **nonenzymatic glycation**. In this process, sugars become *chemically bound* to amino acids, proteins, and other essential biomolecules, distorting their structure, which contributes to protein misfolding.^{4,39-42}

Specialized "chaperone" proteins called **crystallins** normally help prevent protein unfolding in the lens. But when crystallins *themselves* undergo glycation, they lose this protective function. This essentially removes the last line of defense, and allows cataracts to form even faster.^{23,38,40,41}

The most recent study of carnosine in cataracts shows us that, by slowing glycation-induced unfolding of lens proteins, carnosine can help prevent cataract formation.⁴

Scientists are discovering that the use of **oral** and **topical** forms of carnosine can help reduce the risk of cataracts.

As you'll read next, carnosine possesses *unique* mechanisms that guard against **structural changes** that lead to cataract formation.¹⁴⁻¹⁷

How Oral Carnosine Prevents Cataracts

As we age, the cumulative impact of oxidant stress and protein degradation¹⁸⁻²⁹ distorts our delicate eye lenses—and helps explain the increase in cataracts.

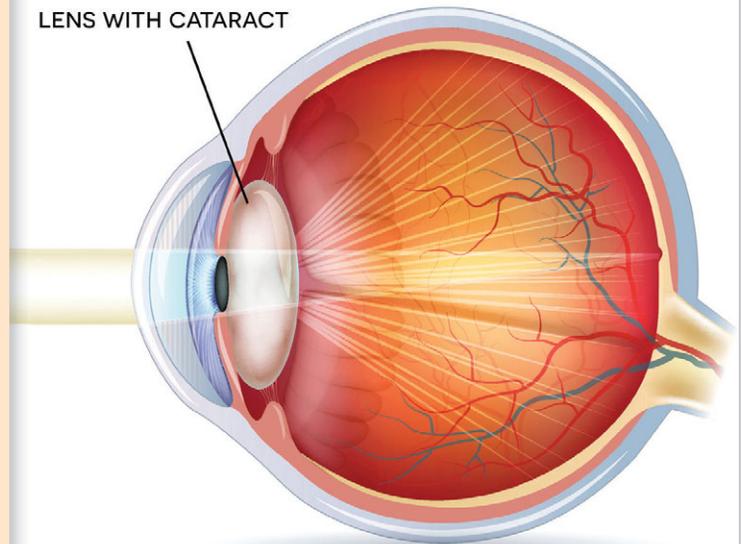
A factor for the development of age-related cataracts is **protein misfolding** and clumping—hallmarks of cataract formation.²⁹

A new laboratory study shows that carnosine works through several mechanisms that help protect against cataracts.

The researchers discovered the following new findings:⁴

- The presence of **carnosine** largely prevented the accumulation of distorted and dysfunctional lens proteins.
- Carnosine achieved these effects in part by restoring the protective function of the lens protein, *alpha-crystallin*. These *crystallins* are present at high concentrations in the eye lens, and preserving their proper **structure** and arrangement is an important factor in keeping the lens clear.

LENS WITH CATARACT





Carnosine May Help Prevent Cataracts

- Cataracts, which are cloudy collections of misfolded protein molecules that accumulate in the lens, are a leading cause of vision loss and blindness in older adults.
- Among the primary underlying causes of cataracts are oxidative stress and glycation of the delicate proteins that naturally maintain the lens in a state of crystalline clarity.
- Carnosine has potent anti-glycation and free radical-reducing properties.
- A new study sheds light on mechanisms by which carnosine protects lens proteins to prevent cataracts and their progression.
- Human, animal, and lab studies show that carnosine, unlike any medication, can not only prevent the protein damage that produces cataracts, but is also capable of reversing them, leading to the possibility of the first therapy to slow cataract progression.

Carnosine reduced lens **protein instability** and breakdown. Ultimately—and most importantly—carnosine *prevented* the development of lens cloudiness, the ultimate outcome of cataracts.

This new scientific study hails the **multitargeted** functions of **carnosine**, and suggests new mechanisms by which carnosine may prevent **glycation-** and **oxidative stress-related** cataract formation.⁴

Cataracts, Glycation, and Carnosine

Glycation is one of the underlying causes of cataracts.²⁹ It is also one of the basic processes (along with oxidative stress, mitochondrial dysfunction, and DNA damage) that hastens the aging process in all cells, tissues, and organs.^{27,28}

Diabetes is the classic example of the adverse impact of **glycation**. Diabetes is a grimly accurate model of **accelerated aging**.³⁰⁻³³ People with diabetes suffer from the features associated with normal aging, but at a much *faster rate* than seen in nondiabetic individuals.

One of the common denominators for diabetes and normal aging is the **glycation** of proteins and the resulting deterioration of their function.²⁷ This means that fighting glycation everywhere in the body is a direct and important way to **decelerate aging**.

Perhaps nowhere is the impact of **glycation** on accelerated aging as apparent as it is in the **eye lens**, the normally crystal-clear portal that focuses light on the retina.²⁹

Glycation of lens proteins occurs in both diabetic and nondiabetic people, although diabetics experience cataracts much *earlier* than nondiabetics.¹⁹⁻²⁷

Carnosine is a potent **antiglycation** agent and oxidative-stress reducer. One animal study of cataracts showed its ability to reduce levels of glycated lens proteins, prevent the loss of protective enzymes, and, ultimately, to delay the clouding of the lens.¹⁷

One important laboratory study showed that carnosine *prevented* the lens protein *crystallin* from clumping together into dense, opaque fibrils. Carnosine was then found to simultaneously *restore* crystallin's ability to positively impact other proteins and prevent them from **clumping** together.¹⁵

Even more promising, carnosine has now been shown to **disassemble** those dense opaque clumps of crystallin, thereby **restoring** lens transparency in animal lenses in culture.¹⁵

It is important to note that some of the studies presented here discuss the well-known antiglycation properties of oral carnosine supplementation in cataract prevention.

As you are about to learn, topical application of a derivative form of carnosine called **N-acetylcarnosine** has been shown to penetrate the lens of the eye and help maintain more youthful structural eye lens clarity.

Human Studies on N-Acetylcarnosine Eye Drops

As we have seen, **carnosine** can play an important role as it relates to normal structural changes that occur in the eye over time. When carnosine is applied as an eye drop, it can benefit the surface cornea, but does not penetrate the **eye lens**.

N-acetylcarnosine, however, can penetrate the front chamber of the eye and subsequently undergo conversion into **carnosine**.³⁴ N-acetylcarnosine **eye drops** may thus be a useful delivery vehicle to boost **carnosine** levels beyond the cornea into the front chamber of the eye and the **eye lens**.

Human studies have demonstrated that **N-acetylcarnosine 1% eye drops** lead to improvements in cataracts and visual performance of cataract-affected eyes.^{5,6}

Specifically, the studies demonstrated improvement in overall light transmission, glare sensitivity, and, most importantly, visual sharpness.^{5,6}

Improvements in glare sensitivity are particularly relevant for older adults who drive. Glare sensitivity can be very dangerous because it produces the characteristic halos around bright lights, which can confuse drivers and contribute to accidents.

One study showed that **N-acetylcarnosine 1% eye drops** given to older drivers improved **visual clarity** and reduced **glare sensitivity** at red and green targets.³⁵ For best results, use carnosine as early as possible, since its specialty lies in preventing, rather than treating, cataracts.

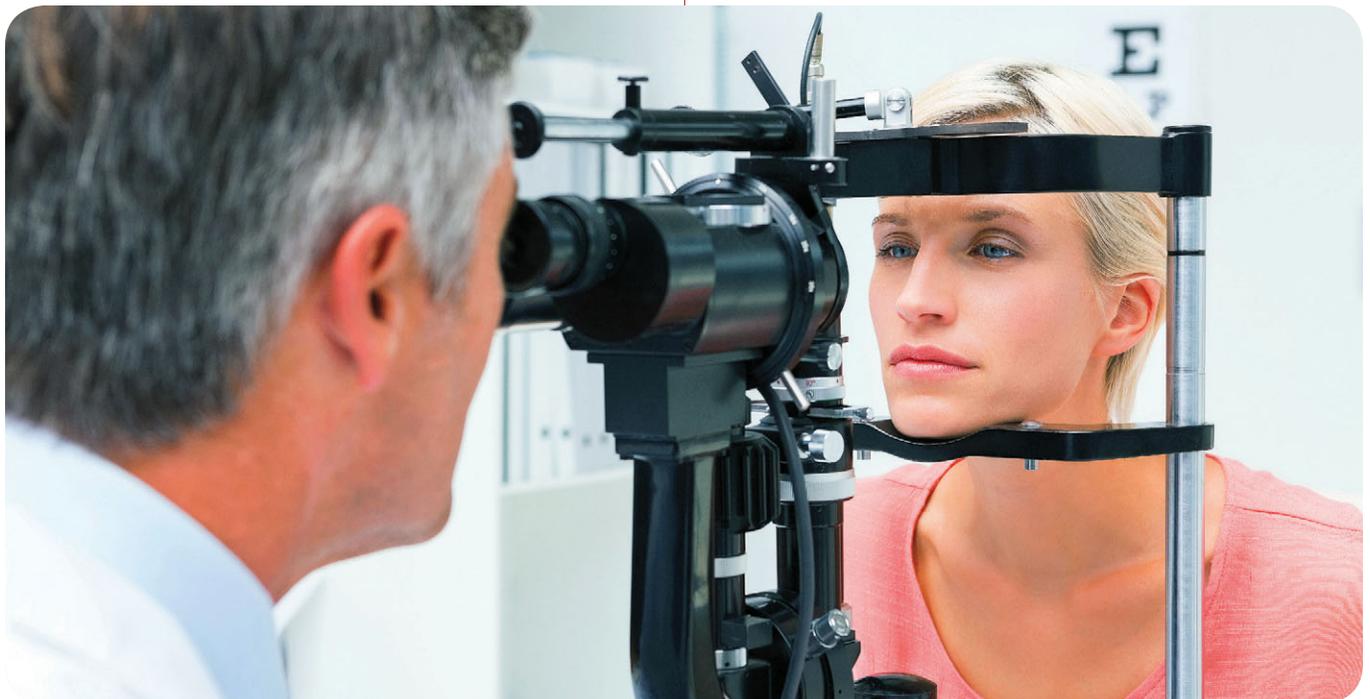
Summary

By age 80, a majority of Americans will have cataracts or have undergone cataract surgery.

Cataracts are dull, opaque collections of **misfolded proteins** that accumulate within the lens of the eye, blocking light and blurring vision.

Protein **glycation** is a destructive process involved in the production of the dense **protein clumps** that form **cataracts**. This has led to an explosion of interest in bioactive molecules capable of preventing or even reversing **glycation** in an effort to preserve clear vision into our advanced years.

Carnosine has now been shown to preserve the proper structure and arrangement of lens proteins, preventing loss of lens crystallinity under laboratory and real-world conditions. One of the main ways it accomplishes this is through its ability to fight **glycation**, which is a critical factor in cataract formation.



N-acetylcarnosine has long been used as a 1% stabilizing agent in **eye drops** that contain FDA-approved lubricating agents.

A number of people use these **eye drops** daily for their multifaceted benefits.

To maintain continuous carnosine blood levels, take a supplement that provides **500 mg** of **carnosine** twice daily.

The reason it's important to take **500 mg** of oral carnosine twice a day is that *carnosinase* enzymes degrade even higher-potency (**500 mg**) carnosine within 12 hours of ingestion.¹³

For the past 18 years, many readers of this publication have been using high-potency carnosine oral supplements and lubricating eye drops containing **N-acetylcarnosine**. ●

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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Understanding Cataracts

Cataracts are among the most common visual disorders, causing about half of all cases of blindness worldwide.^{1,2}

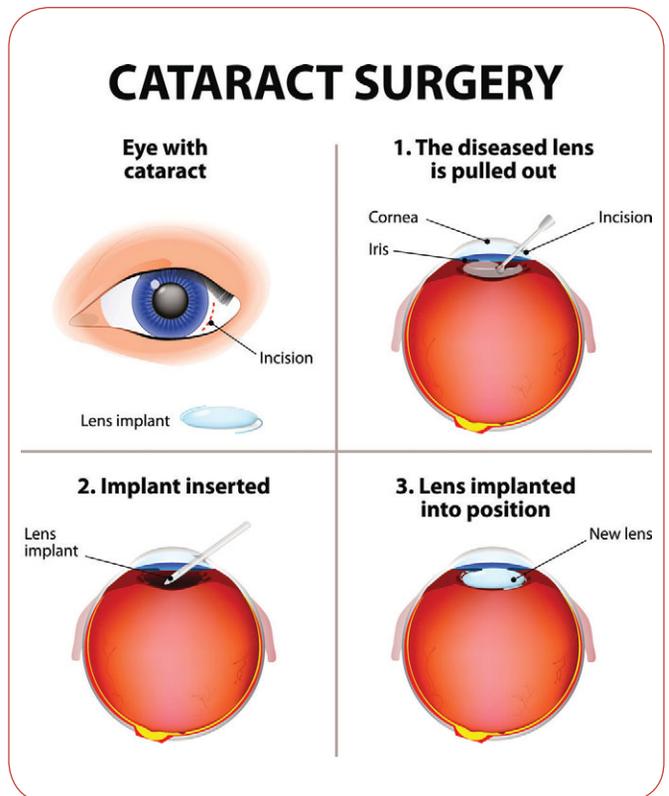
There are many risk factors for cataracts, including diabetes, smoking, alcohol, and sunlight exposure.³ **Glycation** plays an important role in the development of cataracts. Studies show that reducing or reversing glycation with oral carnosine and topical N-acetylcarnosine eye drops can slow cataract formation.^{4,8,17,43-46}

Symptoms of cataracts include blurred vision, a faded appearance of colors, increased sensitivity to glare and bright lights, and diminished night vision.³

As a result, many cataract sufferers have trouble with basic visual functions such as driving, reading, or recognizing faces.⁴⁷ Additionally, there is now evidence that cataract-induced vision problems can increase the risk of depression and even of falling in older people.⁴⁸

Anyone who is experiencing these symptoms should see their physician or optometrist for an eye examination, which is the only way of diagnosing cataracts.³

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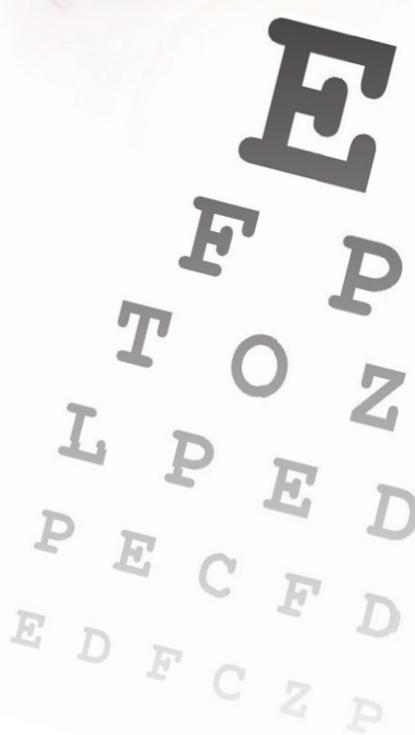


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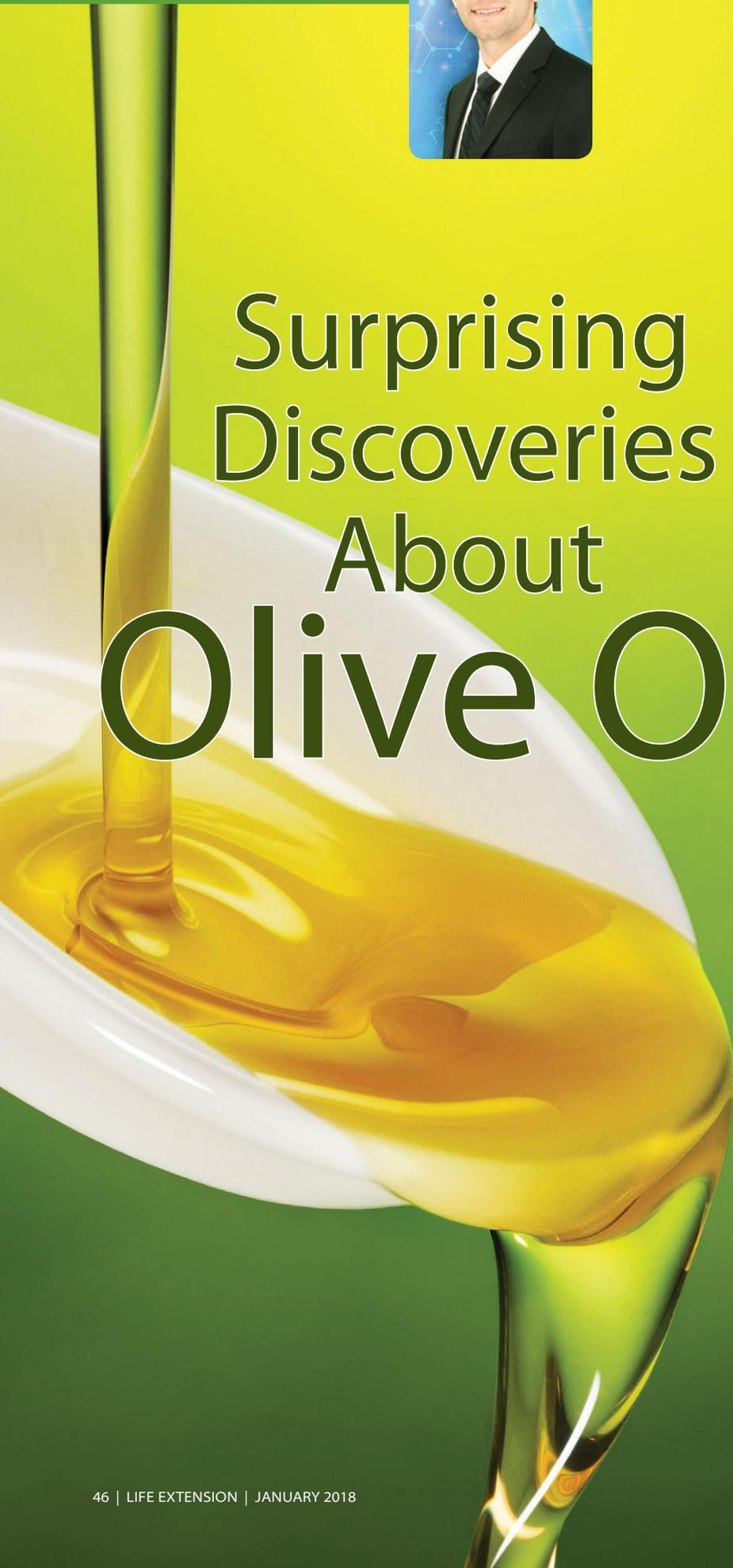
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BY CHANCELLOR FALOON



Surprising Discoveries About Olive Oil



The background of the page is a photograph of several glass bottles of olive oil of various sizes and shapes, some with cork stoppers. In the foreground, there is a small wooden bowl filled with a mix of green and purple olives. The scene is set on a rustic wooden surface, with olive branches and leaves scattered around. The lighting is bright and natural, highlighting the golden-yellow color of the oil and the textures of the wood and olives.

Those who follow a **Mediterranean diet** have an *increased* quality of life with a *lower* mortality rate.¹⁻³

The Mediterranean diet consists of a *low* intake of red meat and sweets with greater emphasis on fish, vegetables, mixed nuts, whole grains, wine (moderate consumption) and **olive oil**.^{4,5}

Unrefined extra virgin olive oil, a chief component of the Mediterranean diet, has been given significant credit for the diet's health-promoting ability, especially with its rich **polyphenol** content.⁶⁻⁹

Today, substantial new findings further validate extra virgin olive oil's benefits for cardiovascular, bone, and brain health. Several of these studies were large-scale clinical trials on humans.

One study in particular caught mainstream media attention. This study, with nearly **19,000** participants, showed that those who consumed the highest quality foods, and who most closely adhered to a true Mediterranean diet, were the ones who were most likely to derive the benefits, including sharp reductions in coronary **heart disease** and **stroke**.¹⁰

In a study conducted in Italy, almost **19,000** people were assessed to determine their adherence to a Mediterranean-style diet. The researchers discovered that people who derived the greatest health benefits ingested *higher* concentrations of micronutrients such as **polyphenols**.

One of the greatest sources of polyphenols in the Mediterranean diet stems from extra virgin olive oil. Olive oil that is not extra virgin is commercially produced in a way that degrades the polyphenols.^{8,11,12}

In addition, a large quantity of supposed *extra virgin olive oil* is **counterfeit** and does not meet the legal grades to be considered extra virgin. These counterfeit oils have even been refined and adulterated with pro-inflammatory fats such as corn, safflower and sunflower oils. It is estimated that this is the case in **50%** of the extra virgin olive oil sold in Italy, which implies that greater health benefits could be attained if purveyors of **counterfeit** olive oil were stopped.¹³⁻¹⁵

The situation is even worse in America, where an estimated **80%** of extra virgin olive oil does not meet the legal grades to be called extra virgin.¹³ Producing top-quality olive oil takes time and care, and there are many unscrupulous providers that intentionally mislabel their product to make money.

The lead author of the Italian study on Mediterranean diet quality suggested that testing for levels of **polyphenols** and other diet-derived natural compounds would be the ideal way to confirm the importance of this quality.¹⁶



Polyphenol Concentrations Show Connection With Olive Oil's Benefits

The high **oleic acid** (monounsaturated fat) content of olives was initially thought to be the main source of olive oil's health benefits.¹⁷ Today, more researchers contend that the health benefits stem from olive oil's high polyphenol content which includes: **oleuropein**, **tyrosol**, and **hydroxytyrosol**.¹⁸⁻²⁰

Increasing evidence suggests that the polyphenol **hydroxytyrosol** should be given the most credit as it makes up approximately **50%** of extra virgin olive oil's total polyphenol content.¹⁹

In **2017**, the *American Journal of Clinical Nutrition* published a study that evaluated the effects of **hydroxytyrosol** on a cohort of **1,851** men and women.²¹

To be eligible for this study all participants had to be at high-risk for cardiovascular disease.

The participants averaged age 67 and had either type II diabetes or at least three or more major risk factors: smoking, hypertension, dyslipidemia, overweight/obesity, or a family history of premature cardiovascular disease.

The subjects were divided randomly into one of three different intervention groups:

- Group 1: Traditional Mediterranean diet supplemented with extra virgin olive oil.
- Group 2: Traditional Mediterranean diet supplemented with nuts.
- Group 3: Control, low-fat diet.

To measure **hydroxytyrosol** ingestion, urinary levels of its metabolite (**homovanillyl alcohol**) were measured.

Results showed that *higher* urinary levels of **homovanillyl alcohol** resulted in sharply *lower* risks of cardiovascular events and mortality.²¹

Compared to those in the lowest quintile, individuals in the third or *higher* quintile levels of **homovanillyl alcohol** had at least **56%** *reduced* risk of a cardiovascular event (heart attack, stroke, or death from cardiovascular cause). In addition, subjects in the *highest* quintile of homovanillyl alcohol had, on average, **9.5 years longer** life after the age of 65.²¹

The highest urinary levels of homovanillyl alcohol were obtained by the subjects whose intervention included a traditional Mediterranean diet with the addition of **extra virgin olive oil**.



What You Need to Know

Olive Oil Alzheimer's Study Reaches Mainstream Media

Research on olive oil has been primarily focused on its cardiovascular support. However, a growing amount of research in the last decade has shown that it also reduces the risk of Alzheimer's disease.²²⁻²⁴

In a revealing animal study, researchers examined the effects of extra virgin olive oil on mice genetically prone to develop neurodegenerative changes typical of Alzheimer's disease, such as *amyloid* plaque. These six-month-old mice were divided into two groups, one fed a standard diet, and the other group the same standard diet plus extra virgin olive oil. After six months, they found significant differences in their behavior and neuropathology. The researchers concluded that extra virgin olive oil exerted a beneficial effect on all major characteristics of Alzheimer's disease, including behavior and neuropathology.²⁵

To test their neuropathology, all major biomarkers for Alzheimer's disease (**beta-amyloid**, **tau proteins**, and **synaptophysin**) were recorded.²⁶

Beta-amyloid and tau are deleterious proteins that, through many mechanisms, cause cellular dysfunction and death. **Synaptophysin** is a protein marker of synaptic integrity.

Extra Virgin Olive Oil for Heart, Bone, and Brain Health

- Extra virgin olive oil is a key component of the Mediterranean diet.
- A recent Italian study discusses the necessity of eating high quality, polyphenol-rich foods in order to obtain the benefits we associate with a Mediterranean diet.
- Oleuropein, tyrosol, and hydroxytyrosol are important polyphenols found in high-quality extra virgin olive oil.
- A Mediterranean diet rich in high-quality extra virgin olive oil is linked with reduced risks of cardiovascular disease and low bone density, and recent animal research has provided insights on its importance in fighting neurodegenerative diseases like Alzheimer's.

The research found that in the mice fed extra virgin olive oil, there was a significant *decrease* in these deleterious proteins and an *increase* in the beneficial synaptophysin.²⁵

The researchers credited these beneficial effects to extra virgin olive oil's ability to increase **autophagy**.

Autophagy is how cells rid themselves of debris that interferes with normal healthy cellular function.

This study, conducted by researchers at Temple University, was significant enough to catch media attention in *USA Today*.²⁷

Olive Oil and Bone Health

A fracture in the hip has a higher mortality rate than all other fractures in the elderly. The incidence of hip fractures are increasing yearly by **1%-3%** in most regions of the world.²⁸

A meta-analysis of three studies revealed that adherence to the **Mediterranean diet** was associated with a **21% reduced risk of hip fractures**.²⁹

In an additional study, a key component of the Mediterranean diet, extra virgin olive oil, was tested against a diet high in nuts, or a low-fat diet, on **870** subjects ages 55-80 with high risk of cardiovascular disease.³⁰ The subjects were monitored over a median follow-up of **8.9 years**, during which 114 cases of osteoporosis-related fractures occurred.

Subjects who integrated the *highest* amounts of **extra virgin olive oil** into their diet had a **51% lower** risk of fracture.³⁰

The most common way to assess the risk of fracture is a bone densitometry study, which is a specialized type of X-ray. These tests generate a "**T-score**" – higher T-scores mean greater bone-mineral density, and lower risk of fracture.

In another study on bone density, a group of researchers determined the **T-scores** of 418 subjects, average age of 50, and compared their diets.³¹

The researchers found the highest T-scores directly corresponded to those who had the greatest adherence to the Mediterranean diet, while the *lowest* T-scores were found in individuals who had the *highest* consumption of red meat. The foods items most closely correlated with high T-scores were extra virgin olive oil, fish, and fruits.³¹

Olive oil's bone-health supporting potential has also been demonstrated in animal studies. In one study, rats were assigned to one of four diet regimens. All received a regular diet, but with fat from either virgin olive oil or sunflower oil, which is high in omega-6 fatty acids. Two additional groups received supplemental CoQ10 in addition to olive or sunflower oil.³²

In aged rats (24 months old), loss of bone mineral density was significantly greater in sunflower oil-fed rats compared to the group that received olive oil. Interestingly, bone-mineral density and concentration was markedly increased, in both diet groups when supplemented with CoQ10.

The researchers found that sunflower oil was associated with significantly greater oxidative stress, which was effectively controlled with CoQ10 supplementation.



Additional Benefits of the Mediterranean Diet and Extra Virgin Olive Oil

In a double-blind placebo-controlled study on **41** adult women, extra virgin olive oil was able to increase the weight loss effect of an energy restricted diet. A control group of **20** women was selected to eat a daily high-fat breakfast with added soybean oil, and an intervention group of **21** women received a high-fat breakfast with the addition of extra virgin olive oil.³³

After nine weeks, the average weight loss in the 21 women that received the breakfast with extra virgin olive oil was approximately **80%** higher than the control group. Diastolic blood pressure *decreased* by an average of **5.1 mmHg**, and pro-inflammatory cytokines were also *reduced* in the group that received extra virgin olive oil.³³

In another recent study, researchers compared a Mediterranean diet to an average Australian diet for their impacts on metabolic and cardiovascular risk biomarkers.³⁴ The study included **152** participants, age 65 or greater. The Mediterranean diet was followed by 80 participants and 72 participants followed the average Australian diet. After 6 months, a significant reduction in F2-isoprostanes and triglycerides was seen in the participants who followed the Mediterranean diet.³⁴

F2-isoprostanes are produced by the reaction of free radicals with arachidonic acid.³⁵ It is an underutilized marker for oxidative stress. An innovative study found that the odds of coronary heart disease in individuals with the highest levels were elevated up to **30-fold** compared to those with normal levels.³⁶

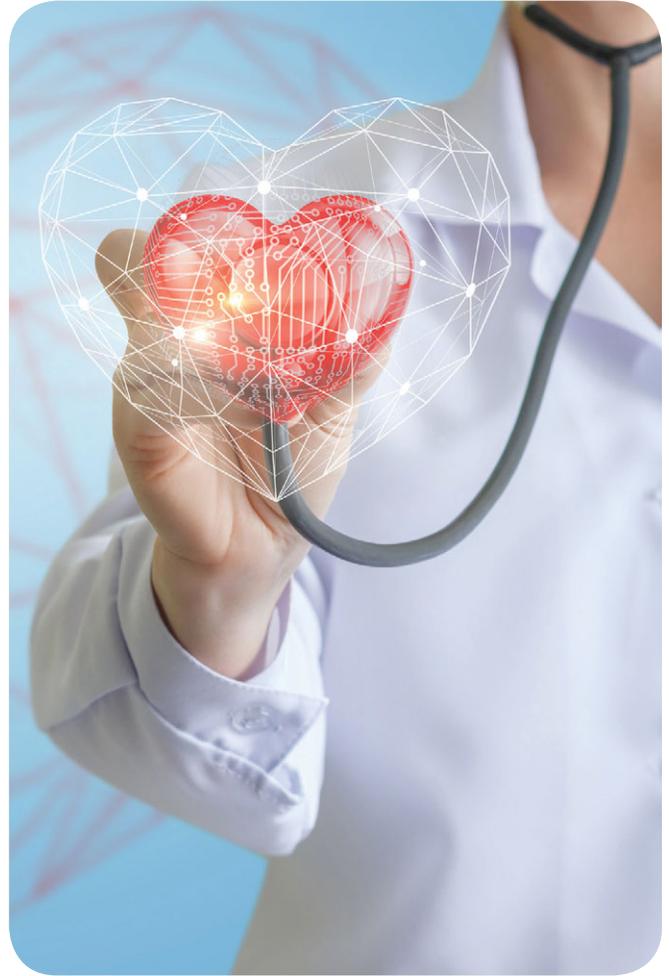
Triglycerides were long ago shown to increase vascular disease risk when elevated.

The blood marker most commonly evaluated for coronary artery disease risk is **LDL** cholesterol. The majority of the cardiovascular damage caused by LDL comes from its **oxidized** form.^{37,38} In a study of **71** subjects, a year-long Mediterranean diet intervention enriched with extra virgin olive oil was able to *increase* LDL's resistance to oxidation by **6.46%** and *decrease* the degree of LDL oxidative damage by **36.3%**.³⁹

Summary

A growing amount of research shows that extra virgin olive oil and adherence to a Mediterranean diet dramatically reduces **stroke** and **heart attack** risk.

Those who ingest the highest amount of an olive **polyphenol** called *hydroxytyrosol* were shown to live **9.5 years** longer (after age 65). These findings were published in **2017**.²¹



These recent discoveries corroborate research uncovered by **Life Extension®** in **2005**.⁴⁰ Many readers of this magazine have used this data to supplement with nutrient formulas containing **olive polyphenols** and/or increase their dietary intake of extra virgin olive oil. ●

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Other components in olive oil include monounsaturated fat, squalene, tocopherols, and phyosterols. Ingestion of olive oil may provide additional benefits beyond olive polyphenols.

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<p>Mitochondrial Energy Optimizer with BioPQQ® • 120 capsules, Item #01868 Glycation-protection formula helps maintain cell function, protein structural integrity, and mitochondrial biogenesis. Provides high potency carnosine along with R-lipoic acid, PQQ, benfotiamine, luteolin, and taurine.</p>	\$68	\$40.50 (four-bottle purchase)
<p>FLORASSIST® Prebiotic Chewable • 60 chewable tablets, Item #02203 Strawberry-flavored FLORASSIST® Prebiotic Chewable helps promote healthy bifidobacteria levels in as little as 14 days using a novel XOS prebiotic fiber.</p>	\$20	\$11.70 (four-bottle purchase)
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<p>Clearly EPA/DHA • 120 softgels, Item #02200 Concentrated Omega-3 uses a patented technology to provide 1,500 mg of EPA and 1,000 mg of DHA in four smaller clear softgels.</p>	\$30	\$18 (four-bottle purchase)
<p>Bone Restore Chewable Chocolate Tablets • 60 chewable tablets, Item #02123 This <u>new</u> formula provides bone-building nutrients in a tasty sugar-free, chewable, chocolate-flavored tablet.</p>	\$22	\$12.83 (four-bottle purchase)
<p>Glycemic Guard™ • 30 vegetarian capsules, Item #02122 Glycemic Guard™ contains plant extracts help maintain healthy after-meal blood glucose levels and insulin response, and promote healthy HbA1c levels.</p>	\$42	\$25.20 (four-bottle purchase)
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Lactoferrin (Apolactoferrin)

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BY ROGER PRICE

Milk Thistle

May Help Protect Against Second-Hand Cigarette Smoke

Smoking is a huge cause of **preventable** death¹ and has a devastating reach of deadly consequences from lung cancer, heart disease, stroke, osteoporosis, and to cancers in many parts of the body.^{2,3}

Even more insidious is the exposure to **second-hand smoke**. That is, the **involuntary** inhalation of smoke from a burning cigarette or a smoker exhaling.

According to the Centers for Disease Control, *“there is no risk-free level of second-hand smoke exposure; even brief exposure can be harmful to health.”*⁴

In fact, second-hand smoke has been cited as a carcinogen by the US Environmental Protection Agency and the National Toxicology Program.⁵

Second-hand smoke contains a long list of dangerous poisonous chemicals and gases, including carbon monoxide (found in car exhaust), butane (used in lighter fluid), hydrogen cyanide (used in chemical weapons), ammonia (used in household cleaners), and toluene (found in paint thinners).

Additionally, second-hand smoke contains arsenic (used in pesticides), lead (formerly found in paint), and cadmium (used to make batteries).⁶

This article reveals a novel way to potentially help protect against the adverse impact of second-hand cigarette smoke.

When nonsmokers are exposed to second-hand smoke, they may as well be smoking since they are breathing many of the same cancer-causing chemicals as do smokers.⁵

Just living with a smoker can dramatically increase the risk of lung cancer.⁷

Approximately 2,500,000 nonsmokers have died from health problems caused by second-hand smoke since 1964.⁴ (That's **2.5 million** nonsmokers who died from other people's smoking.)

But by far, smoking—and **second-hand smoke**—is the biggest risk factor for developing **chronic obstructive pulmonary disease (COPD)**.⁸

In the US, COPD is the third leading cause of death.^{9,10} Worldwide, the disease kills about **3 million** people annually—roughly twice the number who die from lung cancer.

Cigarette smoke, which contains thousands of toxic compounds and chemicals, causes the airways to become inflamed and damaged.^{11,12} Although the symptoms of COPD can be treated, little could be done to reduce smoke-induced lung inflammation or to prevent the changes associated with COPD.

Until now.

Three recent studies reveal that **silymarin**, a compound derived from **milk thistle**, has protective properties that can help reduce smoke-induced inflammatory responses—while also preventing the inflammation-induced damage to the airways that produces COPD.

This information is essential for the **12%** of Americans over 65 who still smoke despite the known risks,¹³ as well as for the millions more whose health is threatened by exposure to **second-hand** smoke.



COPD – The Most Ignored Smoking-Related Risk

Most people think of lung cancer as smoking's biggest health risk. But while lung cancer strikes about 222,500 people each year,¹⁴ in the United States that figure is dwarfed by the nearly **12 million** victims of COPD.¹⁵

Preventing COPD can help prevent lung cancer, since COPD is a major risk factor for developing the disease.^{16,17}

If you've ever known someone who suffers from it, you know how unpleasant COPD is. It's a progressive condition that makes it hard to breathe, although in the early stages there may be only mild symptoms. COPD includes chronic bronchitis, emphysema, and sometimes asthma.^{9,18,19} As the condition progresses, everyday activities like getting dressed can become extremely difficult.

COPD is commonly due to exposure to **tobacco smoke**, which causes chronic inflammation in the airways (called the bronchi) that deliver air in and out of the lungs. Over time, this results

in fibrosis, a form of scarring that narrows the bronchi substantially, making breathing increasingly difficult.²⁰⁻²²

Oxygen therapy is the primary means of reducing the death risk from COPD. Inhaled medications such as bronchodilators and corticosteroids may improve symptoms, but they have no impact on mortality.²³ This leaves many COPD sufferers with nothing much but palliative care and the certainty of an untimely death.

Making matters worse, because COPD contributes to **chronic inflammation** throughout the body, it also increases the risk of other inflammation-linked diseases.

People with COPD have markedly elevated risks of lung cancer, cardiovascular disease, and stroke.^{17,23-26}

COPD is closely associated with **frailty** (a syndrome that includes muscular weakness and balance disturbances), which is itself associated with risk of early death.^{27,28} COPD is also associated with osteoporosis, anxiety, malnutrition, and depression.²³

The Dangers of Second-Hand Smoke

Passive smoking occurs when a person is exposed to someone else's tobacco smoke. Nonsmokers who are exposed to cigarettes are still breathing the same harmful particles and chemicals that make smoking so harmful to smokers.²⁹

Studies show that **passive smoking** raises the risk of lung cancer (and other cancers), heart attacks, stroke, depression, and frailty—all of which increase the risk of an early death. Living with a smoker can increase the risk of lung cancer by as much as **30%**.⁷

In fact, more than **20%** of people with COPD don't smoke.³⁰

Whether you're the one doing the smoking or not, the bottom line is there is no safe level of exposure to cigarette smoke. But there is good news. While it can still be difficult to avoid others' smoke, there is something you may do to help protect yourself from its harmful effects.

Silymarin has been shown to reduce the **inflammation** caused by smoke exposure. This can possibly enable you to protect yourself, if not from the smoke itself, then at least from some of its deadly consequences.

How Silymarin may Help Protect Against COPD

Silymarin and its main component, **silibinin**, are the most important bioactive constituents of milk thistle. Extracts from milk thistle have been used for more than 2,000 years as traditional therapies for liver diseases. They are still used for that purpose today.³¹

The reason silymarin constituents are beneficial in liver disease

is largely because of their ability to combat chemical stress and inflammation—both of which contribute to liver diseases such as nonalcoholic fatty liver disease (NAFLD), cirrhosis, and some types of hepatitis.

More recently, scientists have started to explore silymarin's anti-inflammatory properties in other diseases as well, broadening the scope of potential uses for this ancient remedy. These studies have highlighted silymarin's powerful ability to combat the smoke-induced causes of COPD.

Three of the most recent silymarin studies offer, for the first time, real hope for COPD sufferers, for whom few therapies can change the inflammation-driven course of the disease.

Study #1

In the first study, mice were exposed to the equivalent of 1.5 packs of cigarette smoke per day for four weeks.²⁰

Even though four weeks are much less than the lifetime of exposure most older COPD patients have experienced, this limited smoke exposure still produced profound increases in inflammation in the mice. This was demonstrated by high levels of inflammatory cell infiltration, thickening of airway walls, and obstruction of their airways—all features of COPD in humans.²⁰

But when the animals were pretreated with **silymarin**, all of the inflammatory changes caused by the cigarette smoke were sharply reduced.²⁰ There were also significant reductions in the secretion of pro-inflammatory signaling molecules (cytokines) such as TNF-alpha, IL-1beta, and IL-8.

Smoking is also known to decrease one of the body's most protective enzymes, called superoxide dismutase (SOD). SOD is one of the body's primary internal defenses, and plays a critical role in reducing oxidative stress and inflammation.

This study showed that the higher dose of silymarin prevented the decreases in SOD caused by cigarette smoke—a powerful demonstration of silymarin's natural healing properties.²⁰

Study #2

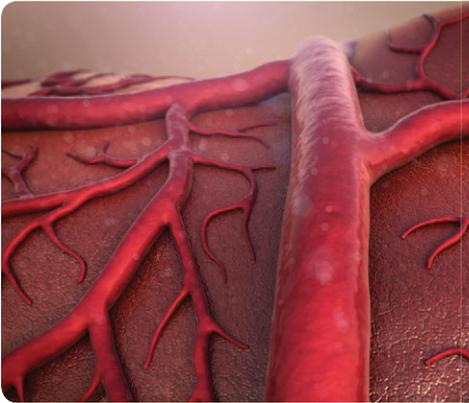
The second recent study was performed by the same group of researchers, this time using human bronchial cells in culture in order to shed light on how silymarin produces such dramatic anti-inflammatory benefits.²¹ They found that **silymarin** reduced the secretion of inflammatory cytokines caused by cigarette smoke by modulating a signaling pathway called **ERK MAPK**, which is a natural cellular stress-response system that induces inflammation.²¹

These anti-inflammatory actions were so impressive that the researchers suggested that silymarin could be an "ideal agent" for treating inflammatory lung diseases like COPD.

Study #3

The most recent study, published in mid-**2017**, is possibly the most exciting. Not only did it confirm silymarin's ability to reduce inflammation in the bronchi—it also revealed that it reduced the damage caused by the inflammation.

For this study, researchers exposed mice to even smaller amounts of cigarette smoke—



equivalent to just one hour of cigarette smoke per day (that's eight cigarettes) for four weeks.²² The mice also received a powerful toxin to boost the inflammatory response.

Just before the daily hour of cigarette smoke exposure, mice received either a high or low oral dose of **silibinin** (also known as silybin), an active component of silymarin.²²

This study demonstrated that both doses of silibinin sharply reduced the inflammatory changes in the bronchi in a fashion similar to the other studies.²²

In addition, the researchers found that silibinin significantly suppressed the cigarette smoke-induced **scarring** and fibrosis typical of humans with COPD. This protective action occurred in part by silibinin's ability to directly inhibit the expression of **TGF beta-1**, a protein that can increase local inflammation, and whose expression is increased by inflammation and smoke.

These **three** studies are the first demonstration of a therapy that can reduce the life-threatening scarring in smokers' lungs that severely compromises normal air exchange. This lung scarring eventually makes breathing so difficult that victims often have difficulty with even the simplest tasks such as speaking, eating, or drinking.

Smoking's Deadly Inflammatory Consequences

Tobacco use, mainly cigarette smoking, is the leading cause of preventable death in America.³⁴ It is a major contributor to COPD, and it greatly increases cardiovascular disease risks and visual impairment, largely through its promotion of inflammation throughout the body.^{22,23,34}

Both the smoke itself (which is really just a cloud of tiny particles of burned tobacco, added chemicals, and paper), and the chemical nicotine that it contains, contribute to chronic smoke-associated inflammation.³⁵ And inflammation, as we now know, contributes to virtually every age-related chronic disease, including those as diverse as cancer, osteoporosis, and Alzheimer's disease.^{16,17,28,31,36,37}

Research highlights the impact of nicotine on inflammatory changes in blood vessels that eventually produce arterial thickening, stiffening, and reduced blood flow to major organs—the underlying factors of cardiovascular disease.³⁵ Inflammatory changes damage endothelial function,^{24,33,36} which prevent arteries from being able to regulate blood flow and pressure, while also making platelets and vessel walls “stickier.” These processes increase the likelihood of a catastrophic blood clot that triggers a heart attack or stroke.

As we've seen in this article, extracts of milk thistle—silymarin and its chief component, silibinin—have a powerful anti-inflammatory effect that can help protect against smoke-induced inflammation and its consequences.

The Future of Silymarin

The growing realization that chronic **inflammation** is one of the deadliest effects of smoking³² suggests that silymarin could be a useful preventive agent for anyone who is, or ever has been, exposed to cigarette smoke.

As an added benefit, another study has demonstrated intriguing evidence that silymarin could have a powerful preventive effect on **bladder cancer**, which is associated with tobacco smoke exposure.³³

With increasing evidence that silymarin's anti-inflammatory properties extend well beyond its traditional role as a liver tonic, it seems likely that this is just the tip of the iceberg of silymarin's benefits for the body.

Summary

With no medical cure, and only palliative therapy available, COPD sufferers have been condemned to premature death.

New studies demonstrate that extracts of the **milk thistle**—silymarin and its chief component, silibinin—markedly reduce the disastrous impact of chronic, smoke-induced inflammation on lung tissue. This results in potential protection against the kind of physical and biochemical changes seen in COPD.

Silymarin's anti-inflammatory effects may also have benefit in other smoking-related disorders, given the important impact of inflammation on cardiovascular disease and cancer.

Anyone exposed to tobacco smoke (whether directly or indirectly) may consider supplementation with **milk thistle**, in the hopes of evading COPD, heart attacks, strokes, and even some cancers.

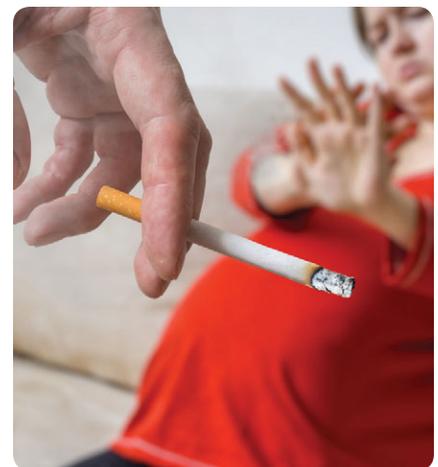
And at this point “hope” is about all we can expect as the deadly effect of second-hand smoke, and how to prevent it from killing those unintentionally exposed, has yet to be fully documented.

With regular milk thistle supplementation, it may finally be possible to provide some genuine protection against this powerful environmental threat. ●

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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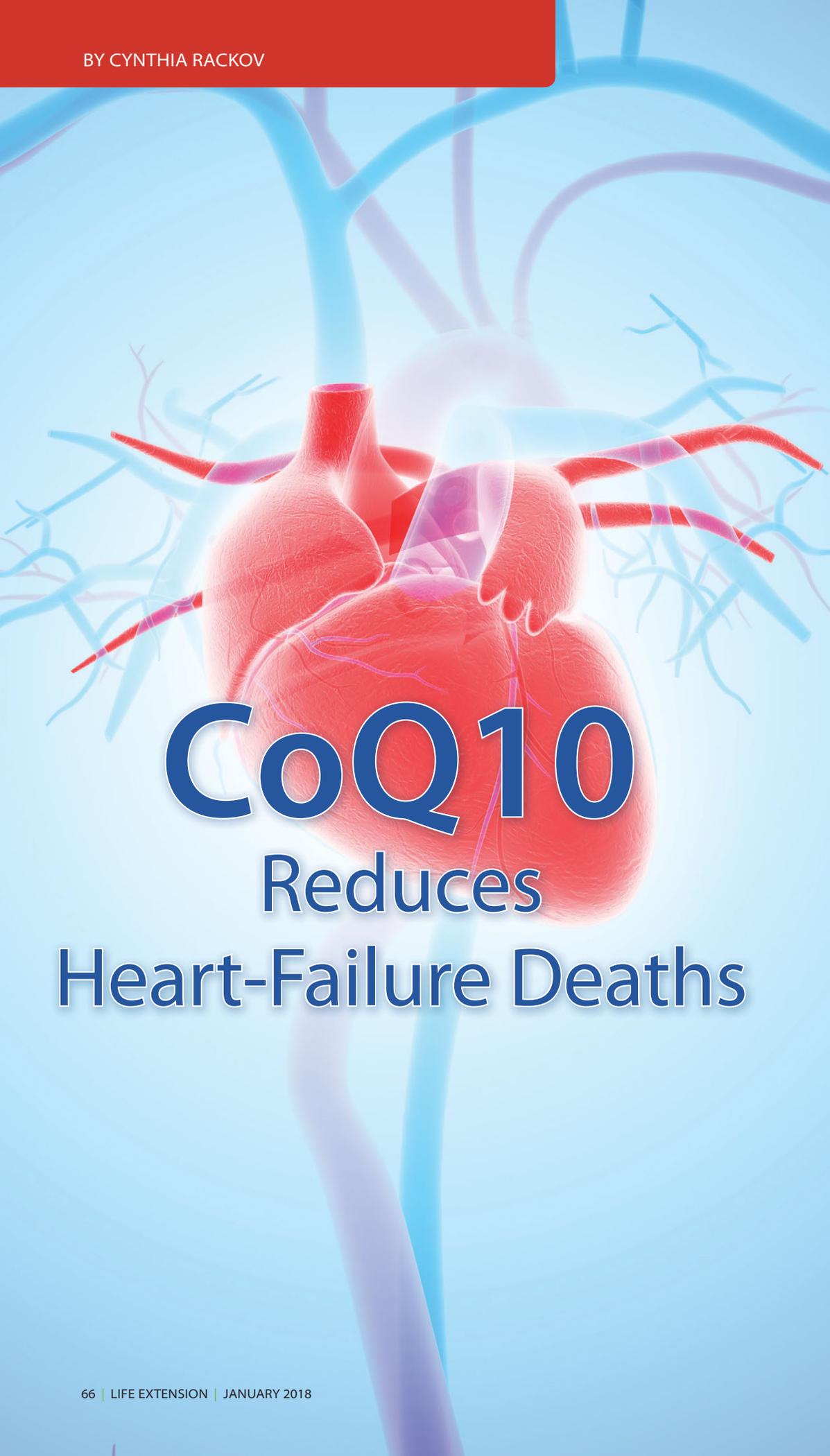
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BY CYNTHIA RACKOV



CoQ10

Reduces
Heart-Failure Deaths





The symptoms of advanced **heart failure** are debilitating.

Any kind of exertion results in rapid onset of fatigue and shortness of breath. Even simple tasks like washing the dishes or walking a block can leave you exhausted.

Today's **heart-failure** patients are prescribed multiple **drugs** that yield important benefits. Yet as their heart deteriorates, they are often restricted to a bed, couch, or wheelchair.

Americans are living longer and surviving early-life cardiac events via improvements in prevention and treatment. These include **stenting** procedures to open blocked **coronary arteries**, along with greater use of **blood tests** to identify risk factors before acute **heart attack** manifests.

As a result of these advances, people who would have succumbed to heart disease in mid-life face an epidemic of **heart failure** in their later years. The consequences include physical and mental impairment, decreased quality of life, and premature death.¹⁻⁶

Enormous strides have been made in delaying the onset of heart disease, but more than **prescription drugs** are needed for humans who now live longer.

Recent studies are confirming proper use of **coenzyme Q10** (or **CoQ10**) as a potential game-changer.

These clinical trials show that CoQ10 supplements can work with conventional medications to *restore* the heart's natural pumping ability.

This report provides a review of compelling human studies that are increasingly being recognized by forward-thinking cardiologists.

Clinical Trials: CoQ10 Reduces Heart Failure

Advanced heart failure patients do not live normal lives.

Their limbs swell as fluid accumulates, unable to be pumped back to the heart and excreted by the kidneys.

Fluid can accumulate in the abdominal cavity as well, leaving them bloated, physically heavy, and at risk for infection.

Quality of life drops abysmally as heart failure progresses, leading to increased stress on patients and their caregivers.

Heart failure can lead to other cardiovascular conditions, including stroke, blood clots, and heart arrhythmias. In heart-failure patients, the most common of these arrhythmias is **atrial fibrillation**, which can exacerbate existing heart failure.⁷⁻⁹

One-half of all heart-failure patients die within five years of diagnosis.¹⁰

It has been known for more than a decade that people with heart failure regularly have markedly lower levels of the energy-essential nutrient CoQ10 in their blood.

To add insult to the age-related decline in CoQ10 synthesis in the body, many congestive heart failure patients are prescribed **statin** drugs that lower CoQ10 levels even more.^{11,12}

Indeed, in one large study of older adults with heart failure, subjects with CoQ10 levels below a cut-point were **twice** as likely to die compared to those with levels above that value.¹²

Two-Year CoQ10 Trial

CoQ10 deficiency deprives the heart of a critical factor in its energy supply, and can be a key contributor to the impaired pumping function we identify as heart failure.¹³ This is because mitochondria in the heart (and everywhere else in the body) rely on CoQ10 for energy production.¹⁴

Seeking an effective therapy, an international group of cardiologists and cardiac surgeons set out to determine if long-term supplementation with CoQ10 could produce improvements in patients with heart failure. The researchers designed a randomized, controlled, double-blinded multicenter trial.¹⁵

They enrolled 420 people with moderate-to-severe heart failure, assigning them randomly to receive either placebo or CoQ10, **100 mg** three times daily for two years, in addition to their standard drug therapy.



New York Heart Association (NYHA) Functional Classification³²

HEART FAILURE CLASS	PATIENT SYMPTOMS
Class I (Mild)	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, or dyspnea (shortness of breath).
Class II (Mild)	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, palpitation, or dyspnea.
Class III (Moderate)	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, palpitation, or dyspnea.
Class IV (Severe)	Unable to carry out any physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.

The New York Heart Association (NYHA) Functional Classification system has become the standard for measuring symptoms that affect functioning related to heart failure.³²

By the end of the study, **26%** of placebo recipients had reached the primary long-term endpoint, i.e. development of a major adverse cardiovascular event (e.g., heart attack, stroke, death).

But among subjects receiving the CoQ10 supplement, only **15%** reached that endpoint, a significant decrease that translated into a **50% reduction** in the risk of those adverse events.¹⁵

In addition, supplemented subjects had a lower death rate from both cardiovascular (**9%** vs. **16%**) and all causes (**10%** vs. **18%**), as well as a significantly lower incidence of hospital stays for heart failure.

Supplemented subjects also showed a significant rate of improvement in their scores on the *New York Heart Association's* four-point scale of heart failure severity after two years.¹⁵

Taken together, the results of this study show that CoQ10 treatment of patients with chronic heart failure is safe, improves symptoms, and reduces major adverse cardiovascular events—a tremendous stride forward in improving outcomes in the many millions of heart failure sufferers.¹⁵

Supporting Studies

Several other human studies have shown significant benefits of CoQ10 supplementation in heart-failure victims.

For example, CoQ10 can improve the contractility (squeeze) exerted by the heart in patients with mild-to-moderate heart failure (those in NYHA Classes II and III).¹⁶ This was shown in a study using a **300 mg** daily dose for just four weeks, compared with placebo.¹⁶

Supplementation not only boosted serum CoQ10 levels by a factor of three, but also improved a measure of heart wall thickening during contraction by up to **15.6%**.

The amount of blood pumped out of the heart with each beat increased by **15%** in supplemented subjects, accompanied by a **21% decrease** in volume at the end of the beat. These are favorable measures of the heart's overall efficiency at pumping blood out to the body.

No side effects were observed in this study, nor in a follow up study of similar design.^{16,17}

In the follow-up study, in addition to improvements in contractility (squeeze) and pumping capacity, CoQ10 supplementation at the same dose improved **endothelial function**, which is an essential measure of the health of the delicate lining of arteries.¹⁷

What You Need to Know

CoQ10 Improves Heart Failure

- Heart failure—the inability of the heart to pump enough blood to meet the body's needs—is a growing epidemic in America and around the world.
- Coronary artery disease, diabetes, high blood pressure, being overweight, and having had a heart attack all increase your risk of heart failure.²⁵⁻²⁷
- A natural approach is now available for those with, or at high risk for, heart failure.
- Proper supplementation with CoQ10 has been shown to improve functional parameters of heart failure, reduce complications such as heart arrhythmias, and produce no significant side effects.
- Everyone at risk for this common, age-related condition should consider adding a highly absorbable form of CoQ10 to their health-promotion and disease-prevention regimens.



Facts about Heart Failure in the United States

“Heart failure” occurs when the heart’s ability to pump blood is insufficient to meet the body’s needs for nutrients and oxygen.¹

This does **not** mean that the heart has stopped beating, but it is a serious condition that can lead to many complications, and when severe enough, to death.

Here are some statistics about heart failure in the United States:¹

- Heart failure affects about **5.7 million** adults in the United States.¹⁰
- In 2009, one in 9 deaths included heart failure as contributing cause.¹⁰
- One-half of all heart-failure patients die within 5 years of diagnosis.¹⁰
- An estimated **\$30.7 billion** is spent each year as a result of heart failure to cover the costs of health-care services, medications, and missed days of work.¹
- Heart-failure rates vary by geography, with the highest incidence in a broad band across the South and Southern Midwest.¹

Another study looked at the use of CoQ10 in heart failure patients who have developed a heart arrhythmia called **atrial fibrillation**, in which the heart’s upper chambers tremble rapidly but cannot push blood effectively into the larger, pumping ventricles.¹⁸

People with heart failure frequently develop atrial fibrillation that can lead to heart failure, making it vital to treat either condition to prevent the other.^{19,20}

In this study, patients with known heart failure received either standard drug therapy only (control group), or standard drug therapy plus CoQ10, and were monitored for the development of **atrial fibrillation**.¹⁸

While over **22%** of subjects in the control group suffered atrial fibrillation episodes after 12 months of treatment, just **6.3%** of CoQ10 recipients had the arrhythmia, demonstrating a significant reduction of **atrial fibrillation** in these heart-failure patients.



Most Potent Form of CoQ10

One other study deserves mention in this context, because it relates to the best form of CoQ10 for people with or at risk for heart failure.

The authors of this study stated that people with severe (NYHA class IV) heart failure often fail to attain proper CoQ10 blood levels, despite doses of standard CoQ10 in the **ubiquinone** form of up to **900 mg/day**.²¹

This situation is attributable to the intestinal swelling that occurs in severe heart failure, which makes it difficult for the gut to absorb CoQ10.

In this study, overseen by renowned cardiologist Peter Langsjoen, MD, patients with advanced heart failure who had inadequate CoQ10 blood levels on an average **450 mg/day** dose of **ubiquinone** were switched to an average of **580 mg/day** of the **ubiquinol** form. Ubiquinol is known to have greater absorption.^{21,22}

This change resulted in a marked *increase* in plasma blood levels of CoQ10, to **6.5 µg/mL** from **1.6 µg/mL**, as well as significant improvements in pumping capacity and clinical status (from NYHA Class IV to Class II).

This study highlights the importance of the **ubiquinol** form of CoQ10.

For otherwise healthy individuals, **100 mg** daily doses of **ubiquinol** taken with a fatty meal markedly boost CoQ10 plasma levels. For heart-failure patients, however, Dr. Langsjoen suggests starting off with **600 mg/day** of **ubiquinol** to boost tissue concentrations of CoQ10. Heart failure patients can then maintain optimal CoQ10 serum levels with about **400 mg/day** of ubiquinol taken with a fatty meal.

Summary

Heart-failure rates in the United States have reached epidemic proportions.

The primary underlying cause is **aging**, accompanied by years of poorly controlled diabetes, high blood pressure, and other risk factors including calcification of valves, atrial fibrillation and/or a previous heart attack.²³

Mainstream medicine treats heart failure with a wide range of partially effective, but important prescription drugs.

Controlled clinical trials demonstrate that proper daily supplementation with CoQ10, a nutrient involved in providing energy to heart muscle cells, can mitigate symptoms and improve cardiac function in **heart failure** victims.

CoQ10 strengthens the heart muscle, boosts its capacity to pump blood throughout the body to nourish tissues, while reducing risk of **atrial fibrillation**.

While CoQ10 is naturally produced in the human body, tissue levels fall with age.²⁴ Statin drugs further deplete CoQ10 levels.

Supplementation with **ubiquinol**, the form of CoQ10 that provides greater **absorption**, may help prevent or ameliorate signs and symptoms of heart failure, and reduce the severity of the condition, potentially improving quality of life for millions of Americans and their family members. ●

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

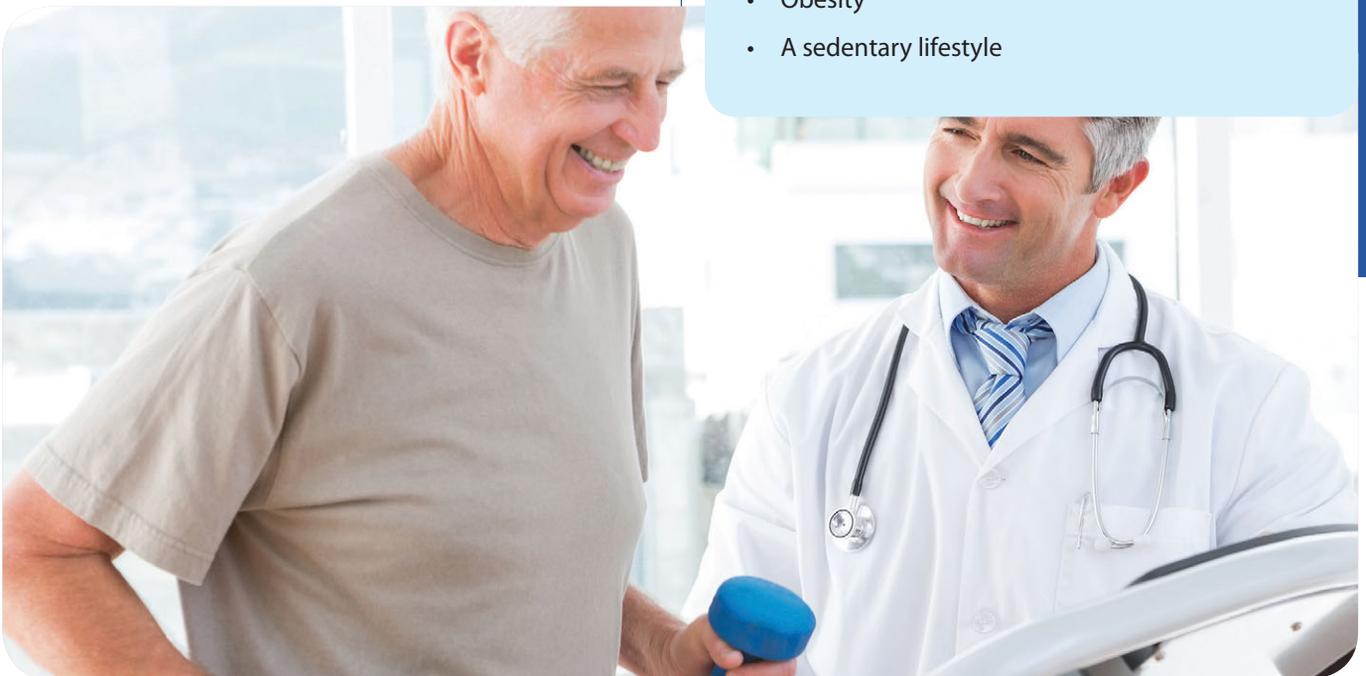
What Risk Factors Drive It?

A number of diseases, as well as lifestyle factors that contribute to cardiovascular disease generally, add to the risk for developing heart failure, these include:

- Coronary heart disease and coronary artery disease, two terms that are often used interchangeably, is a narrowing of the arteries resulting from a buildup of plaque. This can eventually lead to a heart attack.²⁸
- High blood pressure overtaxes the heart, causing the heart walls to thicken and enlarge, eventually making it inefficient at pumping blood.²⁹
- Diabetes can damage the heart muscle even when there is no other heart disease present, a condition known as diabetic cardiomyopathy.³⁰
- Obstructive sleep apnea, in which the upper airway is partially or completely obstructed during sleep, increases pressure in the heart, raises blood pressure, increases heart rate, lowers blood oxygen levels, and increases free radicals and inflammation.³¹

Many lifestyle factors also contribute to the risk of heart failure, including:¹

- Smoking tobacco
- A diet rich in fat, cholesterol, and sodium
- Obesity
- A sedentary lifestyle



What Are the Signs and Symptoms of Heart Failure?

Heart failure can progress for years without signs or symptoms, so that it is not detected until the heart's ability to pump blood to the rest of the body is diminished. This is what makes it one of the most insidious and dangerous conditions we encounter.

When they do develop, signs and symptoms arise directly from the heart's inability to pump enough blood to various parts of the body. These may include :¹

- Shortness of breath during normal daily activities
- Trouble breathing when lying down
- Weight gain with swelling of the feet, ankles, legs, or abdomen as a result of accumulation of fluid in the tissues
- Generally feeling tired and weak

In general, the sooner a diagnosis of heart failure is made, the sooner appropriate treatment can be initiated, aimed at boosting the heart muscle's "squeeze" and improving blood flow throughout the body.

In more severe cases, and especially when symptoms impair function, a wide variety of medications may be added to enhance heart muscle contractility, and reduce resistance to blood flow.

There is, however, no single drug today that can cure or entirely resolve heart failure, making prevention a clear priority.

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The Government-Driven Opioid Epidemic

America has been trapped in a losing drug war for decades, despite having spent over **\$1 trillion** combatting it.¹

Experts say the availability, addictive nature, and potency of **opioid drugs** has led to the worst narcotic crisis in American history—one that has killed hundreds of thousands of people and destroyed lives, businesses and families.²

Its victims range from the chronically poor in small-town Appalachia to middle-aged suburban moms, to a host of celebrities including the musician Prince and the actor Philip Seymour Hoffman.

Whether people are getting their fix from cheap **heroin/fentanyl** smuggled from other countries or through **prescription drugs** like OxyContin®, the results are too often the same: broken families, shattered lives, addiction, and death.

How did we get here? How did we end up in a place where, on a single day in early **2017**, authorities in Louisville, Kentucky, responded to **43** overdoses in a 24-hour period? Where **50** overdoses were recorded in a 24-hour period in Philadelphia in late **2016**?³ The answer is depressing, but not surprising.

The seeds of the opioid crisis were sown by **FDA collusion** with a pharmaceutical industry that subordinated humanity in exchange for the massive profits garnered by addicting millions of Americans to their **opioid**-based drugs.





Opioids go Mainstream

Not too long ago, **opioids** were relatively uncommon, both in the illicit drug trade and in the treatment of chronic pain.

Medically, they were mostly used to control cancer pain or trauma.^{4,5}

As street drugs, opioids were long ago overshadowed by cocaine and crack, and then later by methamphetamines. Heroin, the most common street opioid, was heavily stigmatized.

That began to change in **1995**, when a pharmaceutical company called **Purdue Pharma** was able to lay the groundwork for today's epidemic, as a result of inefficient, inept oversight by the **federal government**.

That year, the Food and Drug Administration (FDA) approved **oxycodone** for chronic pain. Oxycodone, sold under its trade name OxyContin®, was a semi-synthetic, time-released **opioid**, similar in structure and function to **heroin** and other opioids.

From the moment it was approved, **OxyContin®** was backed up by an unprecedented, aggressive, and poorly regulated marketing campaign.

First, Purdue Pharma targeted busy primary-care physicians because they were less likely to be trained in safe pain management, and had little time to manage complex pain cases.

Purdue also trained their sights on doctors who already prescribed the most opioids and saw the most chronic pain patients.

Next, they expanded the range of conditions, thereby selling doctors on the idea that it was an acceptable solution for virtually *any* type of pain. Finally, they made the false claim that the drug was less addictive than other opioids because it was offered in a time-release capsule.⁶

The campaign worked. Sales of the blockbuster painkiller skyrocketed from \$48 million in 1996 to **\$1.1 billion** in 2000.⁶ By 2003, nearly half of OxyContin® prescriptions were written by primary-care physicians.⁶ One year later, it became the most widely abused opiate in the United States.^{6,7}

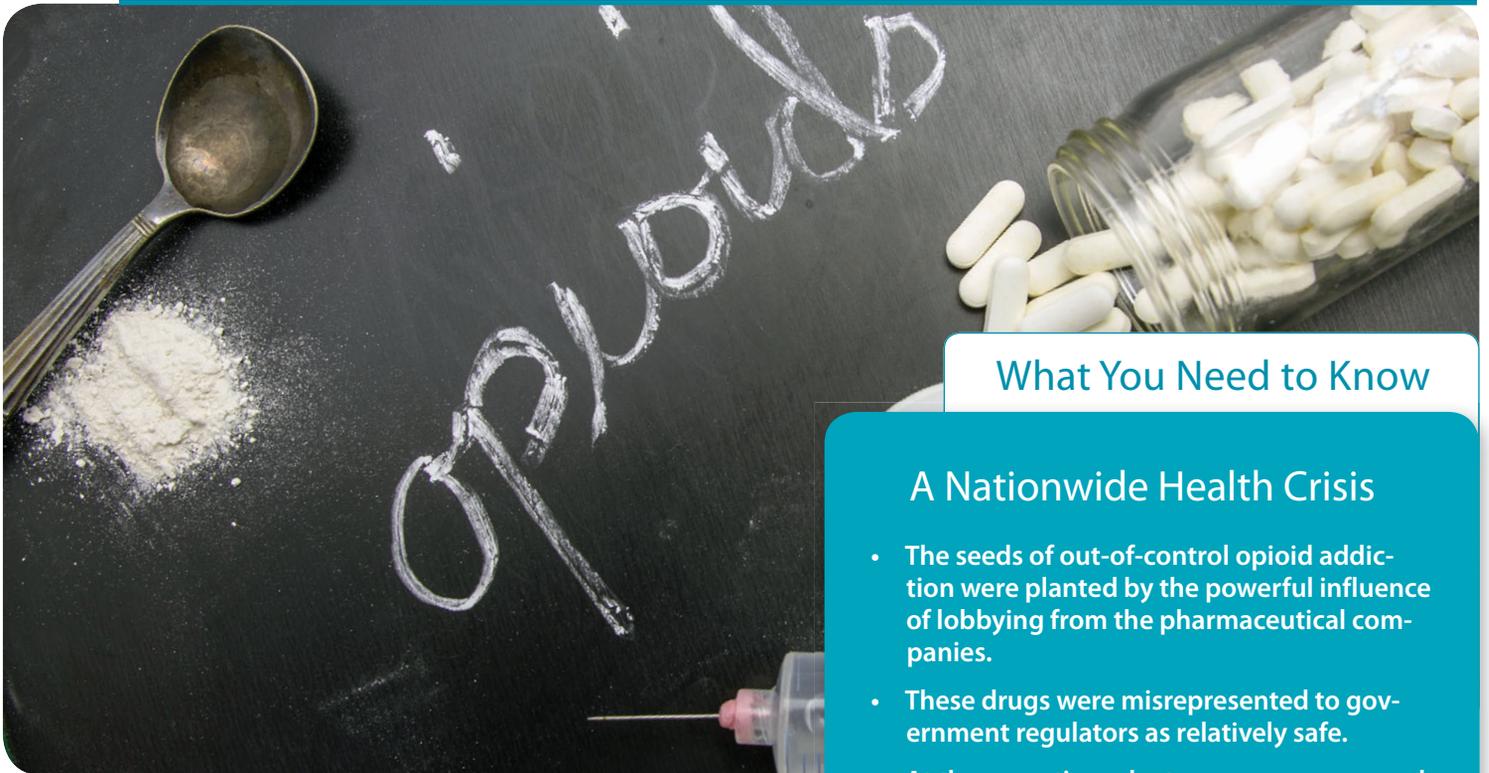
Eventually, Purdue Pharma's tactics came back to haunt it. In 2007, the company and three executives pleaded guilty to **criminal charges**. According to prosecutors, Purdue Pharma had intentionally lied about the addictive risk of OxyContin®. The company was slapped with \$634 million in fines.^{6,8} These executives responsible were not sentenced to serve any jail time.⁹

The convictions did little to stop the flow of powerful opioids into American communities. By **2015**, Purdue Pharma was pulling in **\$2.4 billion** annually from the sale of **opioids**, including OxyContin®.¹⁰

Today, synthetic opioids like **fentanyl**—which are much more *powerful* than pure heroin—are tearing through American communities.¹¹ According to the CDC, the death rate from **synthetic opioids** increased by **72.2%** in a single year, from 2014 to 2015.¹²

Fentanyl is the drug that killed the pop star Prince.¹³





What You Need to Know

A Nationwide Health Crisis

- The seeds of out-of-control opioid addiction were planted by the powerful influence of lobbying from the pharmaceutical companies.
- These drugs were misrepresented to government regulators as relatively safe.
- At the same time, doctors were encouraged to prescribe opioids in massive quantities.
- The result has been an epidemic of ruined careers, lives and relationships, as well as death by overdose at the astounding rate of nearly 100 victims a day.

Corruption in the Open

When it comes to the current opioid epidemic, no one is taking responsibility for flooding towns and cities with powerfully addictive drugs.

Based on the hard facts that began 23 years ago, the opioid epidemic is a crisis of greed as much as addiction. And the pharmaceutical industry has found a willing partner in **Congress** to help protect the annual **\$9 billion** trade in FDA-approved **opioid** drugs.

Here's what Joseph Rannazzisi, the former head of the Drug Enforcement Agency's office responsible for preventing prescription medicine abuse, told *The Guardian* about the relationship between the opioid lobby and the government:

"Congress would rather listen to people who had a profit motive rather than a public health and safety motive. As long as the industry has this stranglehold through lobbyists, nothing's going to change."¹⁴

Rannazzisi was specifically talking about a **2016** federal law called the **Ensuring Patient Access and Effective Drug Enforcement Act**.

Despite its benign name, Rannazzisi charged that this law effectively gutted the DEA's ability to regulate the dumping of opioids into disadvantaged communities.

According to this law, the DEA has to issue a warning to clinics and distributors who are suspected of diverting opioids into the illicit drug market.¹⁵ All this

does is give the distributors a chance to redirect their flow of drugs through new channels, with no accountability.

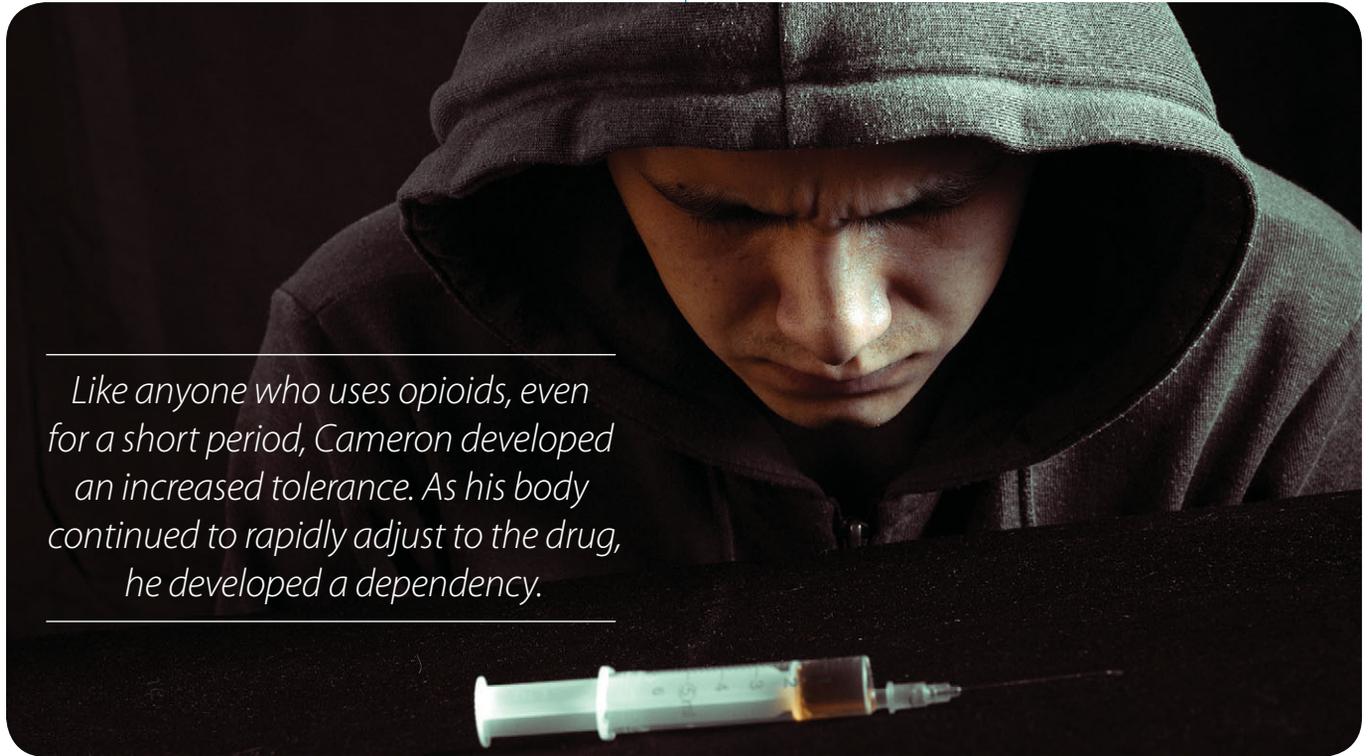
"This was a gift to the industry," he said.

This "gift" hasn't stopped states from trying to stem the flow of opioids into their communities. In 2017, Mississippi, Missouri, and Ohio sued multiple pharmaceutical companies, alleging that the companies downplayed the dangers of opioids while engaging in deceptive marketing.^{16,17} Other states followed.

In filing these lawsuits, the states are running up against an entrenched and incredibly powerful lobby.

A 2016 joint investigation between the *Center for Public Integrity* and the *Associated Press* found that the pharmaceutical lobby spent **\$880 million** over a 10-year period to roll back laws that make it harder to overprescribe opioids, limit distribution, and hold irresponsible manufacturers and distributors accountable.¹⁸

Overall, the industry is active in all 50 states and contributed to about 7,100 candidates for state-level offices. It operates through organizations like the **Pain Care Forum** and **International Pain Foundation**.^{10,18}



Like anyone who uses opioids, even for a short period, Cameron developed an increased tolerance. As his body continued to rapidly adjust to the drug, he developed a dependency.

Cameron's Story

Tragically, parents and activists are no match for this lobby—and few people have tried harder to inject some sense into opioid laws than a mother from New Mexico named Jennifer Weiss-Burke. Her son Cameron died of a heroin overdose just before his 19th birthday in a story that has become too familiar.¹⁰

Cameron first used opioids when they were prescribed at a hospital when he was 16, after he broke his collarbone in wrestling practice. He was sent home with a prescription for Percocet®, with enough pills to last for weeks.

Like many people who use opioids, even for a short period, Cameron developed an increased tolerance. As his body continued to rapidly adjust to the drug, he developed a dependency.¹⁹ At this point, he couldn't quit using opioids without suffering from physical withdrawal symptoms, which may include hallucinations, diarrhea, vomiting, fever, shakes, paranoia, and other painful symptoms.^{20,21} Soon after this, despite having been an excellent student, he became addicted to heroin, and he and his family spent the next two-plus years seeking treatment and trying to battle his addiction.

After Cameron's death, his mother started a grassroots campaign to pressure the New Mexico state legislature into passing a bill that would limit initial prescriptions of opioids for acute pain to seven days. The idea was to limit non-chronic patients' exposure to opioids to reduce the risk of tolerance and dependency.

But the pharmaceutical lobby wasn't going to let this happen. While Jennifer Weiss-Burke publicly lobbied state legislators and appeared in local media, lobbyists representing drug companies began a stealth campaign to undermine her bill.

"They were going individually, talking to senators and representatives one-on-one,"¹⁰ she told the Center for Public Integrity.

Ultimately, the bill died in committee, joining failed bills in a host of other states. The common thread in each case? Intense, behind-the-scenes industry lobbying through groups like the **Pain Care Forum** or even patient advocacy organizations including the American Cancer Society's lobbying arm.

The result is a virtually unchecked flow of powerful opioids and continued carnage among patients and victims of addiction.

Summary

America is in the middle of an addiction crisis.

The epidemic is fueled by opioids like OxyContin® (including generic oxycodone versions approved by the FDA), along with imported **heroin** and **fentanyl**.

The easy availability of these drugs is no accident. Makers of these powerful opioids convinced government regulators that these **oxycodone** (synthetic heroin) drugs had a lower potential for abuse.

These dangerous/addictive medications were approved by the FDA on that basis. The drug companies then embarked on an unprecedented marketing campaign to identify doctors who would prescribe opioids and expand the list of conditions for which opioids are prescribed.

The human cost of this government/industry campaign has been devastating: almost 100 people die every day from opioid overdose, and thousands more suffer from broken families, destroyed careers, and shattered health.

In the face of this devastation, grass-roots campaigns—largely driven by grieving parents—have sprung up to push for common-sense laws at the state and federal level to regulate the prescribing and distribution of opioids.

These campaigns have proven no match for the pharmaceutical lobby, which has spent roughly \$880 million over the past decade to squash any law regulating the industry.

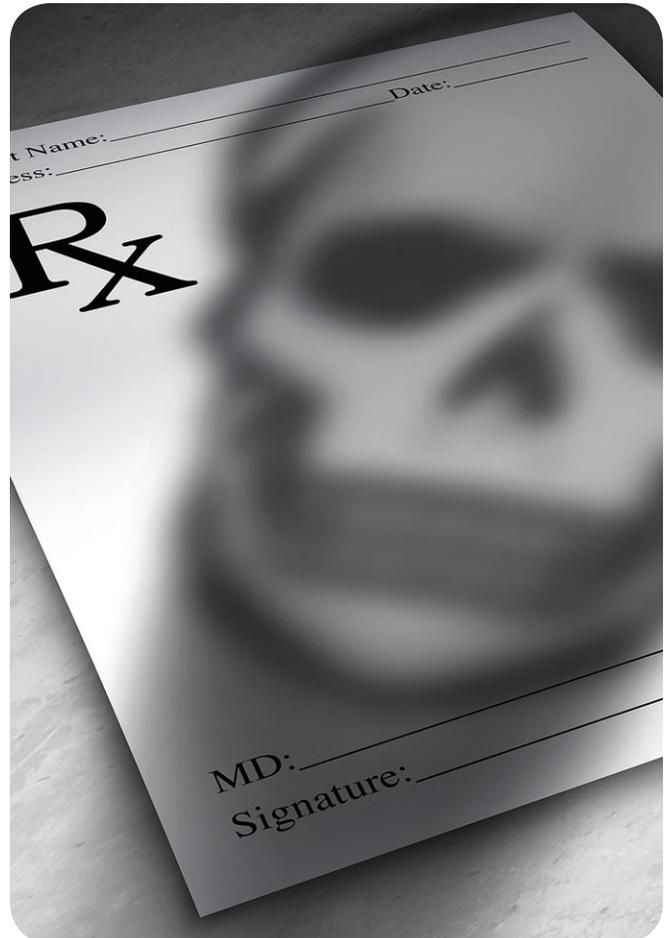
A long book could be written about the startling nuances of how **opioids** have made such a dreadful comeback in the form of powerful addicting drugs that are prescribed by physicians.

This crisis has its genesis in the FDA approving OxyContin® in **1995**, which enabled pharmaceutical companies to promote a range of **oxycodone drugs** as less prone to addiction and abuse.

As soaring overdose deaths made headline news, the FDA has taken steps to reduce **oxycodone** availability. That has caused addicts to switch to **heroin** and **fentanyl**, which are more lethal because potency varies so widely. ●

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1 bottle	\$36	\$24.30
4 bottles		\$21.60 each

Item #01618 • 60 capsules

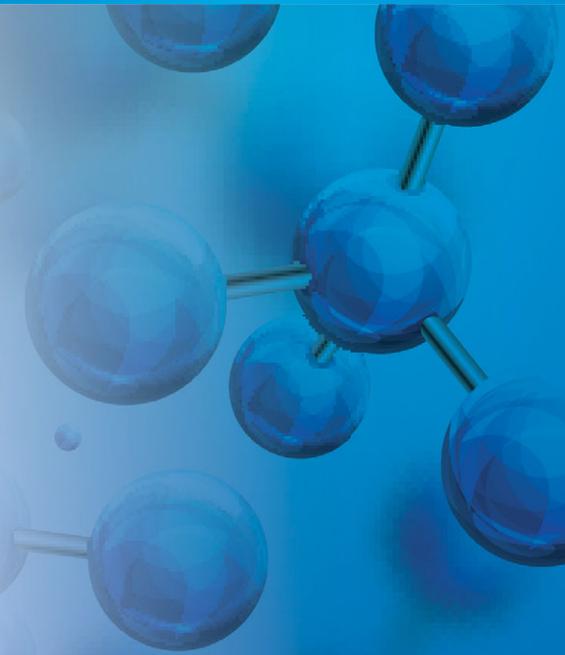
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BY SCOTT FOGLE, ND



Blood Tests to Guard Against Holiday Health Issues

LE: As we go into the holidays and the New Year, are there any laboratory tests people should be doing?

SF: First of all, the **Male** and **Female Panels** are our most popular tests because of the tremendous value they offer and the wide range of tests they include. These panels are often the best place to start to get a big picture of what's going on with your health. Our panels include tests such as **DHEA**, which is overlooked by most doctors. I find this shocking because DHEA is the youth hormone found in the highest quantities in the blood, far more than even testosterone, progesterone and estradiol combined. If your body places such an importance on DHEA, we should be paying close attention to it. To put the importance of DHEA into perspective, I created the following chart putting all the hormones into comparable units (note: methodologies vary for hormone testing so such a chart can never be fully precise, but the conversions are good for demonstration purposes)

Hormone (LabCorp)	Units	MALES	FEMALE (Luteal Phase)
		Approximate Median Value	
DHEA-S	pg/dL	347,400,000	271,600,000
Total Testosterone	pg/dL	590,000	28,000
DHEA	pg/dL	366,000	366,000
Pregnenolone	pg/dL	100,000	100,000
Progesterone	pg/dL	25,000	1,285,000
Total Estrogens	pg/dL	7,750	25,300
Estrone (E1)	pg/dL	4,200	8,200
Estradiol (E2)	pg/dL	2,510	12,740
Free Testosterone	pg/dL	1,790	210

As you can see, the level of DHEA-S (the form of DHEA tested in male and female panels) exceeds all the other steroid hormones combined! It is over **580 times** higher than total testosterone for a man and over **10,700 times** higher than total estrogens for a woman. Thus, DHEA is a key health hormone.

Research shows low levels of **DHEA** are connected to increased mortality, numerous diseases and aging issues. For example, in our **November 2017** magazine issue we discussed the science of DHEA's ability to increase the number of brain cells and its ability to combat specific features of metabolic syndrome. Without a doubt, DHEA is an essential hormone to check at regular intervals.

LE: What about blood-sugar levels, especially around the holiday season when there are so many tempting unhealthy foods and people tend to overeat? Is testing for fasting or after-meal glucose levels enough?

SF: The holidays are indeed a difficult time, especially when you factor in the stress they generate combined with all that available sugar. Testing your fasting glucose or after-meal (two to four hours) glucose is a great start. Many doctors still rely on only a fasting glucose to assess your health, but I will tell you from experience it is not always enough. Recently, **Life Extension®** began suggesting that a person test glucose two to four hours after eating to see how far it goes up. You don't want your glucose to go more than 40 points above your fasting baseline, and if you can keep it even lower than a 40-points increase, all the better. If you don't know your baseline glucose then **120-140 mg/dL** for an after meal glucose is good, but **110-125 mg/dL** is even better.

LE: Are insulin and hemoglobin A1c (HbA1c) also important to check?

SF: Yes, both of them are great tests. Mainstream medicine generally waits until your fasting blood sugar is elevated to test for HbA1c. In my opinion, this is too late. You should know your HbA1c levels earlier on so that you can take steps to mitigate the problem whether through lifestyle changes, drugs (like metformin and acarbose) and/or specific supplements. We suggest testing **HbA1c** levels much earlier than mainstream medicine. This test provides an important longer term assessment of your glucose levels and can tell us if excess glucose is causing havoc in your body via glycation, a process where the excess sugar

is inappropriately binding to proteins in your body. The higher your number the worse that havoc is in your body. Do not wait until you are nearly diabetic to start checking HbA1c, start checking it early and keep it low to avoid the devastation of glycation. If you want to age faster, then keep your HbA1c high because the high glycation will make your body age faster and look older.

Fasting insulin is another valuable diagnostic test. I would suggest that whenever you do a fasting glucose, such as in a CBC and chemistry, add in a fasting insulin and try to keep it under five. If your fasting insulin is high, it is a warning flag of more problems to come. If both fasting insulin and HbA1c are high, you need to take corrective action as soon as possible.

A convenient way to check on glucose, insulin and glycation through HbA1c is with our new enhanced **Diabetes Management Panel**. It includes glucose, HbA1c (checking for glycation), insulin and lots more.

LE: Are there any tests that can tell you even earlier that you have a problem with glucose and insulin?

SF: Yes, the earliest phase of developing diabetes begins with **insulin resistance**. If you want to catch it before serious problems develop there are some tests that can detect it even before your fasting insulin and HbA1c go up. Interestingly, insulin resistance can occur in the muscles and the liver and people with diabetes typically have it happening in both places. Those who are obese have predominantly one form of insulin resistance with some degree of the other too before it becomes full-blown diabetes. Either way,

your body is not responding appropriately to the insulin. The insulin should be effectively shuttling the glucose into the cells. With insulin resistance, you need ever increasing amounts of insulin to force the glucose into the cells. The problem is these higher spikes of insulin are just as bad as glucose spikes and ultimately lead to a host of accelerated aging and disease effects. So if you can test for excessive spikes of insulin you can address the process of moving toward diabetes at its earliest phase. Thus, the identification and treating of insulin resistance is the ultimate in preventive medicine since it is the first step in diabetes. Why wait until later when it is much harder to correct?

LE: What about the hormone connection to **weight loss**?

SF: It is such an important topic that we created a comprehensive **weight loss** panel. We took the popular **Male** and **Female Panels** and added hormones like cortisol, insulin and T3, the active thyroid hormone. These panels are described on the next page and can identify blood factors that preclude successful weight loss. ●

Dr. Scott Fogle is the Executive Director of Clinical Information and Laboratory Services at Life Extension®, where he oversees scientific and medical information as well as its laboratory division.

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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Before **type II diabetes** is diagnosed, complications caused by **glucose imbalance** can internally smolder. These include kidney impairment,^{2,3} vision loss,⁴⁻⁶ neuropathy,⁷ atherosclerosis,⁸⁻¹⁰ and cancer.¹¹⁻¹³

From now until **January 31, 2018** get a **Diabetes Management Profile-Enhanced** for only **\$49**. This panel is described below and can detect **sugar-related** abnormalities in time to take corrective action.

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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

Kidney Function:

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

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)
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Millions commit to losing weight each year. Most fail to achieve desired results. One reason is underlying hormone and other imbalances that preclude removal of body **fat** stores.

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Commercial labs would charge upwards of \$1,000 for all these tests, but they are available from **Life Extension's** personalized blood test service for only **\$275**.

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Provides all tests in **Diabetes Management Profile** above **PLUS**:

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You'll be sent a list of drawing stations in your area along with a pre-paid requisition. You can walk into the drawing station nearest you at your convenience. You also have free access to our Wellness Specialists to help review your results. Blood test services are available only in the continental United States and Anchorage, AK. Not available in Maryland. Restrictions apply for residents of MA, NY, NJ, RI, and PA.

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Reference

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Note: Do not change dosing or discontinue cardiovascular medications unless advised to do so by your physician.

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BY GARRY MESSICK

Avocados

Despite what seems to be commonly believed, there are indeed healthy foods that are also delicious. Avocados are a case in point.

A mainstay of South American and Mexican cuisine, the avocado is the fruit of the avocado tree, which may have originated in Peru, according to recent research. It is characterized by its smooth, creamy texture and famed for containing a much greater amount of healthy monounsaturated fats than any other fruit.

Let's delve into some of the more notable health benefits of this nutrient-dense food.

Fiber

At about **7%** by weight, the fiber content of the avocado is unusually high compared to most foods. That breaks down to about **25%** soluble fiber, **75%** insoluble fiber.¹ Soluble fiber has the benefit of feeding beneficial gut bacteria² and fiber in general is an important dietary component, linked to a lower risk of heart disease,³ aiding in weight control,⁴ and reducing blood-sugar spikes.⁵

Fats

The avocado is a very fatty food (more than three-quarters of its calories derive from fat), but it's the heart-healthy monounsaturated fat called *oleic acid*, which has been shown to lower inflammation⁶ and to reduce the risk of some types of cancer.⁷

Cholesterol

Research has found avocados can improve lipid profiles. One study found that a diet featuring avocados led to a **17%** reduction in total serum cholesterol in study subjects, a **22%** decrease in LDL ("bad" cholesterol) and triglycerides and an **11%** increase in beneficial HDL cholesterol.⁸

Nutrient Absorption

Research shows avocados can enhance the absorption of some nutrients. A study in *The Journal of Nutrition* found that eating an avocado along with raw carrots or tomato sauce significantly enhanced the absorption of alpha- and beta-carotene and their conversion to an active form of vitamin A.⁹

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OBTAINING THE **LOWEST PRICES** ON YOUR SUPPLEMENTS



We are pleased to announce our **29th** annual **SUPER SALE**.

During this special event, clients can obtain our most advanced formulas at **extra discounted** prices.

When consumers purchase products from **Life Extension®**, they can rest assured that the **quality** of the product is backed by our **commitment** to achieving indefinitely extended lifespans.

During Super Sale, **premium-quality** formulas are available at prices below those charged by commercial companies. This enables health enthusiasts to obtain nutrients they can **trust** at discounted prices.

While **Life Extension®** loyalists always receive a **25% discount** off the retail price, far **greater** savings occur when multiple bottles are purchased during **Super Sale**.

Life Extension's Rewards provide more **money-saving** benefits. This program allows customers to earn **reward dollars** on every order that can then be applied to future purchases.

Clients also have the choice of joining the **Premier Healthy Rewards** program for just \$49.95 a year, which doubles reward dollars, provides **free shipping**, and includes a **\$50 reward bonus** to use on any product or blood test.

Super Savings on **TWO-PER-DAY**

The **Two-Per-Day** multinutrient formula is superior to commercial multivitamins because it provides vastly **higher** potencies of **vitamins, minerals and plant extracts**.

Two-Per-Day also provides optimal forms of vital nutrients such as:

- **5-MTHF:** Active form of **folate**—up to 7 times more bioavailable.
- **Natural Vitamin E:** Twice as bioavailable as synthetic vitamin E
- **Selenium:** Three different forms that each have specific properties
- **B Vitamins:** Enzymatically active forms of B2 and B6
- **Added value:** Alpha lipoic acid and plant extracts like **apigenin**

The chart on the right side page compares **Two-Per-Day** to the most popular multivitamin commercial product (**Centrum®**).

This year's **Super Sale** begins **November 13, 2017**.

THIS CHART COMPARES THE FORMULA OF CENTRUM SILVER® TO TWO-PER-DAY:

Sample Ingredient Comparison	Centrum Silver® Adults 50+	Life Extension® Two-Per-Day
Vitamin A	2,500 IU	5,000 IU (beta-carotene+ preformed)
Vitamin C	60 mg	500 mg
Vitamin D3	1,000 IU	2,000 IU
Vitamin E	50 IU (synthetic)	100 IU (natural)
Thiamine (vitamin B1)	1.5 mg	75 mg
Riboflavin (vitamin B2)	1.7 mg	50 mg (with riboflavin-5-phosphate)
Niacin	20 mg	50 mg
Vitamin B6	3 mg	75 mg (with pyridoxal-5-phosphate)
Folate	400 mcg	400 mcg (5-MTHF)
Vitamin B12	25 mcg	300 mcg (methylcobalamin)
Biotin	30 mcg	300 mcg
Pantothenic acid	10 mg	50 mg
Iodine	150 mcg	150 mcg
Magnesium	50 mg	100 mg
Zinc	11 mg	25 mg
Selenium	19 mcg	200 mcg (three forms)
Manganese	2.3 mg	2 mg
Chromium	50 mcg	200 mcg
Molybdenum	45 mcg	100 mcg
Alpha lipoic acid	none	25 mg
Boron	none	3 mg
Inositol	none	50 mg
Lutein	250 mcg	5,000 mcg (from marigold extract)
Zeaxanthin	none	155 mcg (from marigold extract)
Lycopene	300 mcg	1,000 mcg
Apigenin	none	5 mg
Natural mixed tocopherols (providing gamma, delta, alpha, and beta tocopherols)	none	20 mg

How to Obtain **TWO-PER-DAY** at Substantial Savings:

The retail price of a **60 day** supply of the new **Two-Per-Day** tablets is **\$21. (Item # 02215)**

Your price during **Super Sale** is reduced to **\$14.18**. If you buy **four** bottles, the price is reduced to **\$12.60** per bottle (21 cents/day).

Two-Per-Day **capsules** are available at slightly higher price.

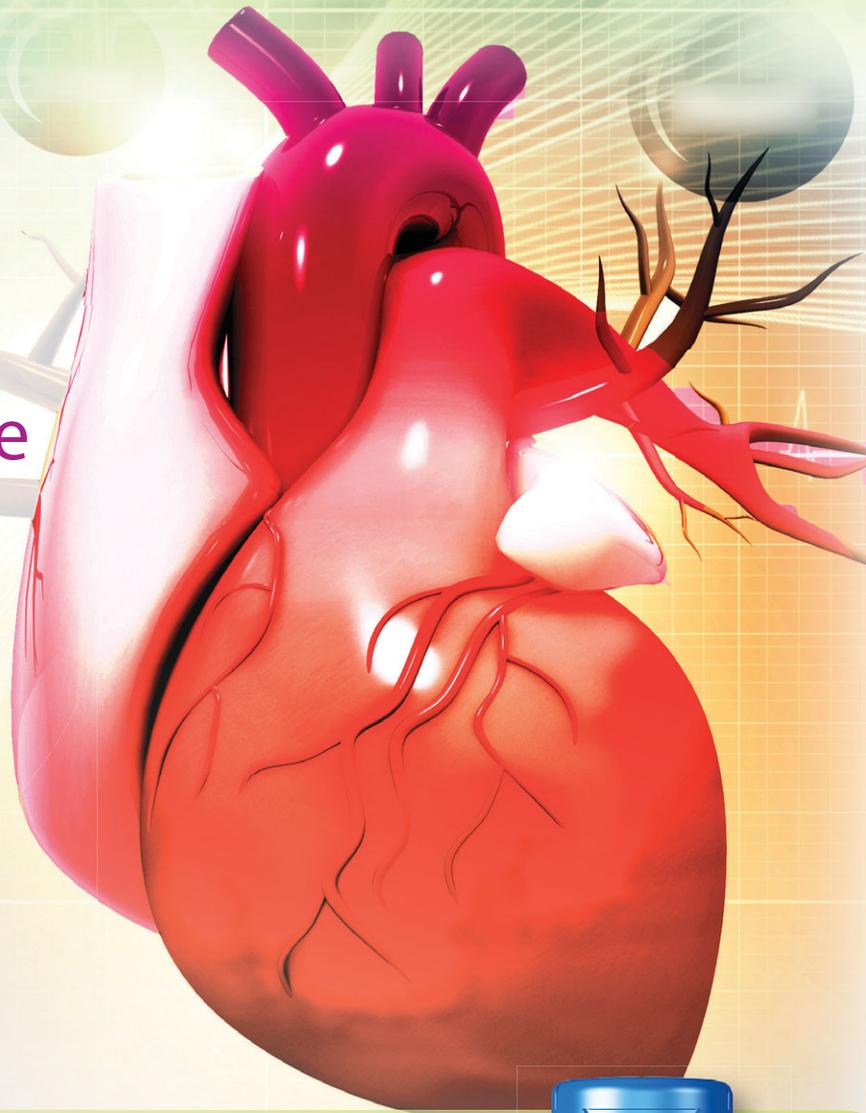
This page shows the incredible value of **Two-Per-Day** compared to a leading commercial formula.

For full product description and to order
call **1-800-544-4440** or log on to **Life Extension.com**

Metabolically Active

FOLATE

*Supports
Cardiovascular
Health*



Folate helps maintain homocysteine levels within the normal range,¹ thereby promoting cardiovascular health.² Folate also supports neurotransmitter synthesis—which in turn helps maintain cognitive abilities.³

However, not everyone has sufficient activity of the **enzyme** required to convert folate to its biologically active form, **5-methyltetrahydrofolate**, or **5-MTHF**.^{4,5}

5-MTHF requires no enzymatic conversion to become metabolically active⁶—providing maximum support for both cardiovascular and cognitive health.

Non-GMO

References

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Optimized Folate (1,000 mcg)
Item #01939 • 100 vegetarian tablets

	Retail Price	Super Sale Price
1 bottle	\$15	\$10.13
4 bottles		\$9 each



For full product description and to order **Optimized Folate**, call **1-800-544-4440** or visit **www.LifeExtension.com**

BY KYLE RODERICK

How Sharing Wealth Creates Planetary Health: Environmental Bert Ball

A nationally recognized environmentalist and pioneer of the sharing economy, Los Angeles-based Bert Ball is the founder and executive director of L.A. SHARES. For the past 26 years, L.A. SHARES has worked with 4,000+ Californian companies to give away more than \$180 million worth of goods and materials to almost 5,000 nonprofit organizations and schools throughout the City of Los Angeles.

According to Ball, decades of nurturing and growing an environmentally-focused organization that benefits communities and the planet has influenced the way he manages his mind/body health.

“Running an organization that has such an impact on the environment and the community has been a huge wake-up call in many ways,” he says. “When I started this organization, I was living on take-out food and working around the clock. As L.A. SHARES has grown, I have aged.”

In the past few years, Ball says he has made thriving rather than surviving a key priority. “I sleep much more than I did before, I shop more frequently for freshly prepared and preferably organic foods, plus I take daily vitamin and mineral supplements.” A lifelong sailor, Ball has lived in Marina del Rey for decades, where he takes regular bike rides and beach walks on the edge of the Pacific. “I started using sun block a few years ago,” he says, “after I got sunburned during a long traffic jam one day on the freeway.”



BERT BALL

L.A. SHARES serves school teachers, nonprofit health clinics and others working for vitally important community organizations that are looking for computers, software, medical supplies, furniture, art materials, literary classics, musical instruments and more. While L.A. SHARES helps nurture young minds in underserved schools and parks as well as senior-citizen centers and other community hubs, perhaps the most important entity to benefit from L.A. SHARES is the Earth.

“Everything we give away would be otherwise headed for the landfill,” says Ball, who describes his organization’s societal effect as win-win-win-win. “Public schools, senior centers and other nonprofits receive essential supplies such as computers, art materials, cots and other furniture that they could never afford to buy. All L.A. SHARES demands in return is that the recipient write a thank-you letter to the donor.”

Corporations and individuals contribute valuable resources to the community and get tax breaks for donations of items they’d otherwise throw out.

“Even better,” Ball says, “the Bureau of Sanitation is spared the expense of hauling what would have been solid waste, less garbage goes into the earth and so the planet wins.” In fact, by utilizing L.A. SHARES, California businesses adhere to Assembly Bill 939, which requires them to reduce their landfill-bound waste. In 2015, L.A. SHARES helped local companies divert more than one million pounds of useful goods and materials from local landfills.

Educated at Lehigh University and Sarah Lawrence College, Ball is a baby boomer who by his own admission, “partied away my early twenties.” After a stint working as

a paralegal in a New York corporate law firm, Ball moved to Los Angeles in the late 1980s with the intention of entering the film business. “Southern Californian culture bubbled with great energy then,” he recalls. “The mid-80s L.A. art scene featured great galleries with emerging artists, the weather was so much better than in New York, and biking, going to the beach, hiking and eating salad for dinner became part of everyday life.”

Although Ball scored a coup by getting accepted into UCLA’s highly competitive School of Theater, Film and Television’s Film Producers Master’s Degree Program, by the end of his course, “It was clear that the film business was loaded with huge risks, challenging personalities and far more politics than I ever imagined.” Reevaluating what he could do with his life, it dawned on Ball that “I wanted to be of service and do something that would help others who had never had the advantages that I had been given.”

Shortly after this realization, Ball visited the set of Steven Spielberg’s Peter Pan-inspired film “Hook” with his UCLA master’s class. Surveying the huge indoor sound studio, he asked then-studio head Peter Guber what would happen to the tons of plywood and lumber used to build the elaborate sets. When Guber replied, “It will all be thrown away,” Ball arranged to salvage tons of wood for Christmas in April, a national nonprofit organization that builds low-cost housing in underserved communities such as South Central Los Angeles.

“I saw that the studio’s trash was potentially someone else’s treasure,” he recalls. “Being able to divert these materials from a landfill and give them to people who could use them to build housing gave me a lot of satisfaction. Besides, there is really no such thing as throwing

something away—there is no such place as ‘away.’”

Shortly afterward, Ball started a pilot program of the City of Los Angeles Cultural Affairs Department called Materials for The Arts.

“Most people I spoke to about my new job had no idea what I was talking about,” he says. “Remember, this was before household and corporate recycling programs had been instituted in major cities across the US. People weren’t even thinking about recycling household trash, surplus office supplies or furniture. Back then, numerous friends told me I was crazy to go into the garbage business when I could pursue a career in film production and make lots of money.”

As it happened, the pilot program was so successful that in 1994 it became an independent, nonprofit organization called L.A. SHARES.

“It was exciting to expand and service multiple nonprofit groups and schools rather than just artists,” Ball says.

By the late 1990s, L.A. SHARES was one of the biggest and busiest nonprofit materials-reuse organizations in the world.



During Bill Clinton's presidential administration, Ball traveled to Washington, D.C. to meet with various Environmental Protection Agency executives and political and municipal leaders to advise on how state and city government agencies could create organizations similar to L.A. SHARES.

Back in the late 1990s, L.A. SHARES was one of the first non-profits to harness the power of the internet to broaden its depth and reach so as to distribute as many goods to needy groups as possible.

"We were early adopters of internet technology and influence," Ball says. "L.A. SHARES started hosting what are in essence online lotteries. Through our interactive website, qualified schools and non-profits in the City of Los Angeles registered online for the L.A. SHARES program and created a detailed online profile of their organization, including an overall 'Wish List' and a 'Top 20 List' of their most needed items, drawn from the donations we carry.

"When matching items came in, they were invited to bid on them. We asked them to promise that if they were chosen, they would pick up the goods directly from the donor and write the donor a thank-you note explaining how the goods are being used." (The same system prevails today.) "We keep careful records to ensure that goods are distributed fairly and equitably based on need, as well as how recently each of the groups has received other L.A. Shares items."

Ball is the first to admit that he could never have accomplished all that he has without the help of strong partners. For example, the City of Los Angeles provides free warehouse space in the Los Feliz and Wilmington areas.

"From its inception, the key partner of L.A. SHARES has been

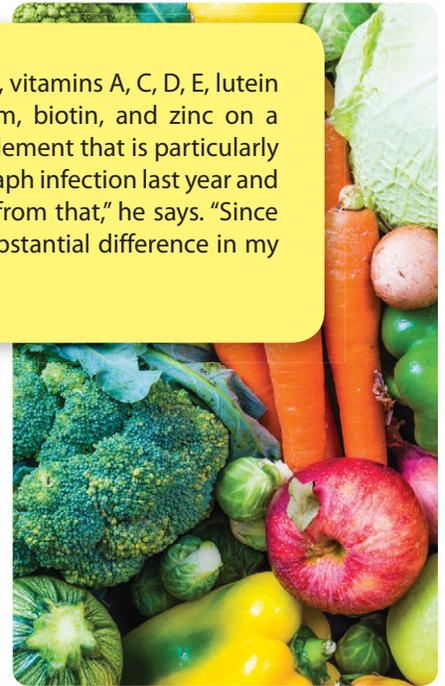
While he takes B vitamin complex, vitamins A, C, D, E, lutein and zeaxanthin, calcium, magnesium, biotin, and zinc on a daily basis, Ball says there's one supplement that is particularly valuable to him: probiotics. "I had a staph infection last year and started taking probiotics to recover from that," he says. "Since then, the probiotics have made a substantial difference in my digestion as well as my energy level."

the City of Los Angeles, with the direct support and participation from the Department of Public Works, Bureau of Sanitation, Solid Resources Citywide Recycling Division," he says. "The current mayor of Los Angeles, Eric Garcetti, has also been a stalwart supporter of the organization, dating back to when he was a Los Angeles City Council member."

Enlightened and proactive board members such as musician and cofounder of A & M Records Herb Alpert, various film industry executives, corporate sustainability officers and Los Angeles philanthropist Page Adler have also helped build L.A. SHARES into the powerhouse that it is today.

"For 26 years, this organization has managed to attract very effective board members and donors who are committed to expanding the reach of L.A. SHARES," Ball says.

One of the reasons why Ball thinks L.A. SHARES continues to grow and thrive is that it avoids the problem that most standard recycling programs face, namely, that they are "end-of-life based," as he puts it. "If you've got an empty bottle or a can, the Sanitation Department can help you dispose of it. But what about a bottle full of shampoo, an old-fashioned desk or a good battery? Our whole effort is aimed at interrupting the waste stream further up the line, when things like batteries or office



equipment are still in good working order and can thus be used by others." On an average day, Ball reports, L.A. Shares finds homes for about 150 items. On a great day, the organization has given away as many as 450 cots and chairs to a worthy recipient.

Ball is presently working with Lehigh University to perfect the L.A. SHARES software so that a staff of one can operate an online materials exchange program.

"We intend to release an inexpensive system by 2019," he says. "I like the idea of sharing our program with as many people as possible. My dream is that more people will start passing along their unwanted but still-functioning items to needy and deserving recipients." ●

For more information on L.A. SHARES, to either donate or be a recipient, log onto Lashares.org

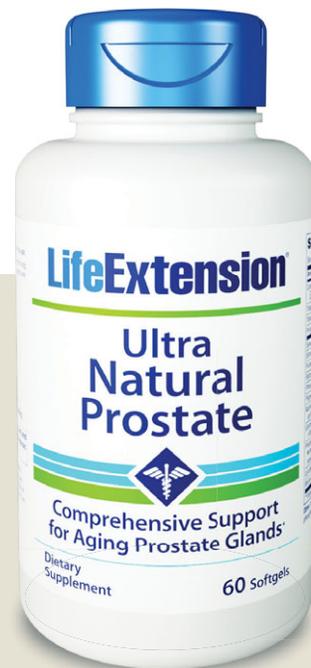
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Super Sale Price

1-bottle \$38.00

\$25.65

4-bottle

\$23.63 each

Non-GMO

For full product description and to order **Ultra Natural Prostate**, call **1-800-544-4440** or visit **www.LifeExtension.com**

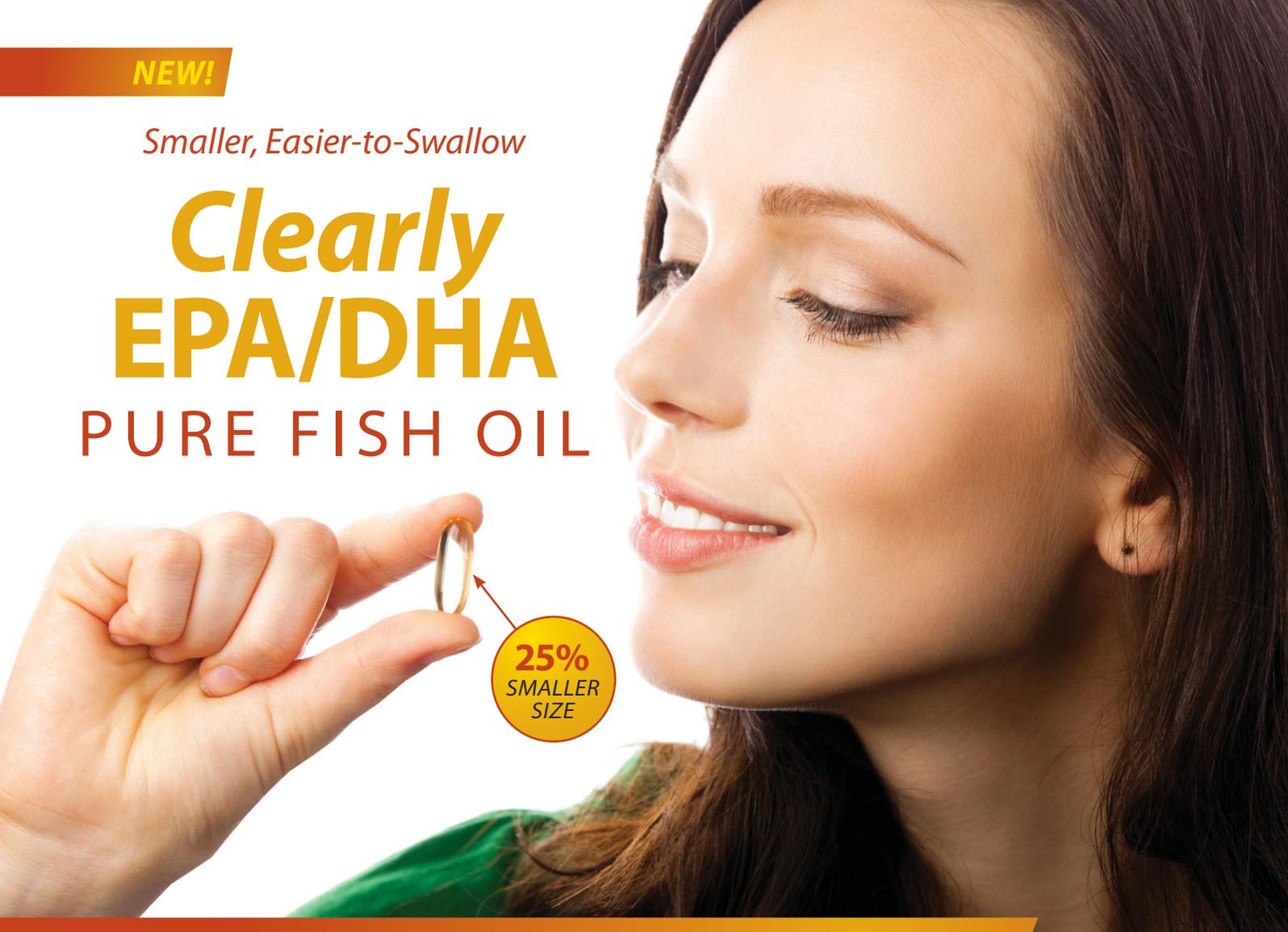
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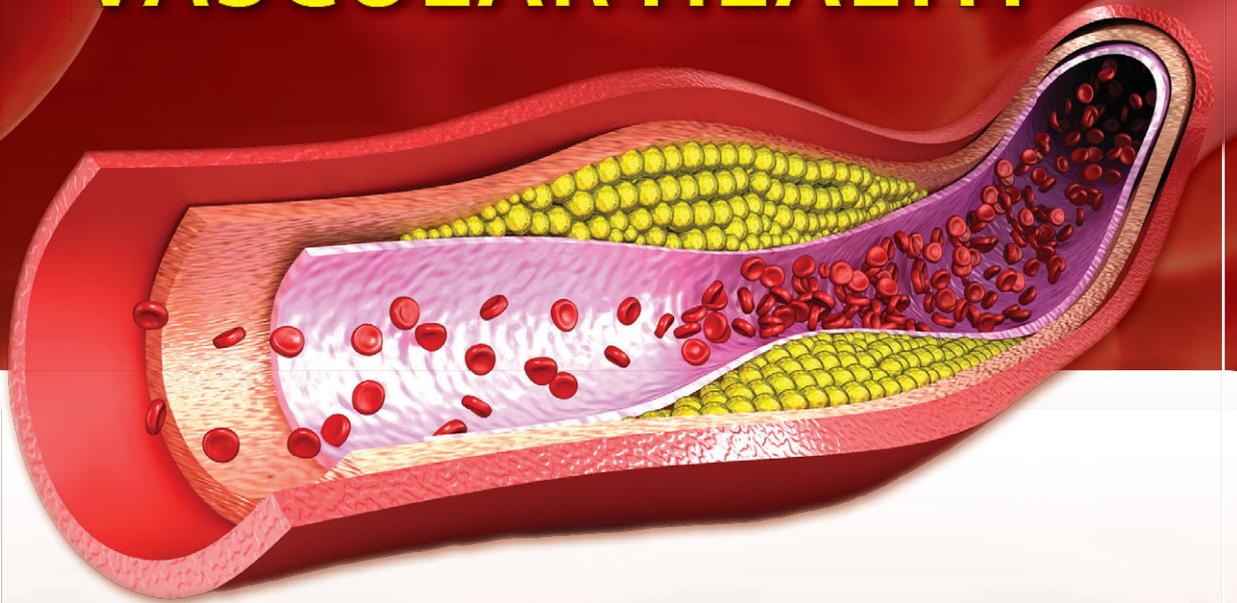
**Clearly EPA/DHA
Highly Concentrated Omega-3**
Item #02200 • 120 softgels

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1 bottle	\$30	\$20.25
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Four smaller softgels provide **1,500 mg** of **EPA** and **1,000 mg** of **DHA**.

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Item #01997 • 60 softgels

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1 bottle	\$68	\$45.90
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Non-GMO

Contains wheat



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GET THE COVERAGE YOU NEED.
Health Booster provides important
vitamins you may be missing.



Once-Daily Health Booster

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Optimal potencies of vitamin K2,
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Caution: Avoid use during pregnancy. Consult your healthcare practitioner before using this product if you are taking anti-coagulant or anti-platelet medications or have a bleeding disorder.
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AST (aspartate aminotransferase)
ALT (alanine transaminase)
Total protein • Albumin • Globulin
Albumin/globulin ratio • Bilirubin

Electrolytes and Minerals:
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Calcium • Phosphorus • Iron

Blood Sugar:
Glucose

Kidney Function:
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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)
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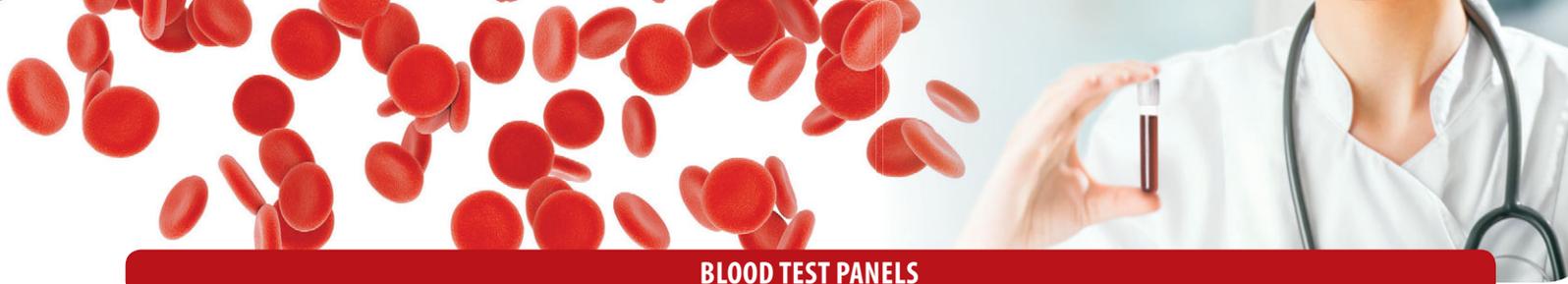
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<p>MALE LIFE EXTENSION PANEL (LC322582) CBC/Chemistry Profile • DHEA-S • PSA (prostate-specific antigen) Homocysteine • C-Reactive Protein (high-sensitivity) Free Testosterone • Total Testosterone • Estradiol • TSH for thyroid function • Vitamin D (25-hydroxyvitamin D) • Hemoglobin A1c</p>	\$269	<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 Vitamin D (25-hydroxyvitamin D) • Hemoglobin A1c</p>	\$269
<p>MALE HORMONE ADD-ON PANEL* (LCADDM) Pregnenolone and Dihydrotestosterone (DHT) To provide an even more in-depth analysis of a man's hormone status, Life Extension has created this panel as an addition to the Male Life Extension Panel. This panel provides information about a testosterone metabolite that can affect the prostate; and the hormone pregnenolone that acts as a precursor to all other steroid hormones.</p>	\$120	<p>FEMALE HORMONE ADD-ON PANEL* (LCADDF) Pregnenolone and Total Estrogen To provide an even more in-depth analysis of a woman's hormone status, Life Extension has created this panel as an addition to the Female Life Extension Panel. This panel provides information about total estrogen status and the hormone pregnenolone that acts as a precursor to all other steroid hormones.</p>	\$125
<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</p>	\$575	<p>FEMALE ELITE PANEL (LC100017)* CBC/Chemistry Profile • Free and total Testosterone • Total Estrogens Estradiol • Estrone • DHEA-S • Progesterone Pregnenolone DHT • FSH • LH • TSH • Free T3 • Free T4 • Reverse T3 • IGF-1 • SHBG • HbA1c Vitamin D 25-OH • hs-CRP • Ferritin • Homocysteine • Hemoglobin A1c</p>	\$575
<p>PSA (PROSTATE SPECIFIC ANTIGEN) (LC010322) Screening for Prostate Cancer</p>	\$31	<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>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>FEMALE BASIC HORMONE PANEL (LC100013) DHEA-S • Estradiol • Total and Free Testosterone • Progesterone</p>	\$75
<p>MALE BASIC HORMONE PANEL (LC100012) DHEA-S • Estradiol • Total and Free Testosterone • PSA</p>	\$75	<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>THYROID ADD-ON PANEL (LCTHYROID) Free T3 & Free T4.</p>	\$55	<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>INSULIN (LC004333) Helpful to assess insulin resistance.</p>	\$29.90	<p>DIABETES MANAGEMENT PROFILE – ENHANCED (LC100062) CBC/Chemistry Profile • Glucose • Insulin • Hemoglobin A1c</p>	\$49 SALE (Until January 31, 2018)
<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>ADVANCED OXIDIZED LDL PANEL*(LC100035) This panel looks at vascular inflammatory biomarkers, beginning with lifestyle choices to the development of metabolic and cardiovascular disease as well as the formation of vulnerable plaque. The panel contains the following tests: F2-Isoprostanes, Myeloperoxidase and Oxidized LDL.</p>	\$285		
<p>HOMOCYSTEINE (LC706994) High homocysteine is associated with heart attack, stroke, and dementia. Find out your homocysteine level so you can take steps to lower it if necessary.</p>	\$54		

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

Blood Pressure & Vascular Support

Advanced Olive Leaf Vascular Support with Celery Seed Extract
 Arterial Protect
 Blood Pressure Monitor Arm Cuff
 Dual Action Blood Pressure
 Endothelial Defense™ with Pomegranate Complete and CORDIART™
 Endothelial Defense™ with GliSODin®
 Natural BP Management
 NitroVasc with CORDIART™
 Pomegranate Complete
 Pomegranate Fruit Extract
 Triple Action Blood Pressure AM/PM 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
 CocoaMind™
 Cognitex® Basics
 Cognitex® with Brain Shield®
 Cognitex® with Pregnenolone & Brain Shield®
 Cognizin® CDP-Choline Caps
 DMAE Bitartrate (dimethylaminoethanol)
 Dopa-Mind™
 Ginkgo Biloba Certified Extract™
 Huperzine A
 Lecithin Granules
 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

Artichoke Leaf Extract
 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 BioPQQ®
 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
 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 with GlycoCarn®
 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)
 Inner Power

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
 Comfort Max™
 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® Herbal Joint Formula
 Bio-Collagen with Patented UC-II®
 Fast-Acting Joint Formula
 Glucosamine/Chondroitin Capsules
 Krill Healthy Joint Formula
 MSM (Methylsulfonylmethane)

Kidney & Bladder Support

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

Liver Health & Detoxification

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

Longevity & Wellness

Alpha-Lipoic Acid
 AppleWise Polyphenol Extract
 Berry Complete
 Blueberry Extract
 Blueberry Extract with Pomegranate
 DNA Protection Formula
 Enhanced Berry Complete with Acai
 Essential Daily Nutrients
 GEROPROTECT™ Ageless Cell™
 GEROPROTECT™ Longevity A.I.™
 Grapeseed Extract with Resveratrol & Pterostilbene

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

Men's Health

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

Minerals

Boron
 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

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

Multivitamins

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

Personal Care

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

Pet Care

Cat Mix
 Dog Mix

Probiotics

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

Skin Care

Advanced Anti-Glycation Peptide Serum
 Advanced Growth Factor Serum
 Advanced Lightening Cream
 Advanced Peptide Hand Therapy
 Advanced Triple Peptide Serum
 Advanced Under Eye Serum with Stem Cells
 Amber Self MicroDermAbrasion
 Anti-Aging Face Oil
 Anti-Aging Mask
 Anti-Aging Rejuvenating Face Cream
 Anti-Glycation Serum with
 Blueberry & Pomegranate Extracts
 Antioxidant Facial Mist
 Anti-Redness & Adult Blemish Lotion
 Collagen Boosting Peptide Serum
 DNA Repair Cream
 Environmental Support Serum
 Essential Plant Lipids Reparative Serum
 Eye Lift Cream
 Face Rejuvenating Anti-Oxidant Cream
 Healing Formula
 Healing Vitamin K Cream
 Hyaluronic Facial Moisturizer
 Hyaluronic Oil-Free Facial Moisturizer
 Hydrating Anti-Oxidant Facial Mist
 Hydroderm
 Lifting & Tightening Complex
 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 Phytoceramides with Lipowheat®
 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-essential Cream
 Youth Serum

Sleep

Bioactive Milk Peptides
 Enhanced Natural Sleep® with Melatonin

Enhanced Natural Sleep® without Melatonin
 Fast-Acting Liquid Melatonin
 Glycine
 L-Tryptophan
 Melatonin
 Optimized Tryptophan Plus

Sports Performance

Creatine Capsules
 Creatine Whey Glutamine Powder
 (Vanilla Flavor)
 New Zealand Whey Protein Concentrate
 (Natural Chocolate and Vanilla Flavor)
 Tart Cherry with CherryPure®
 Plant Protein Complete & Amino Acid Complex
 Whey Protein Isolate
 (Chocolate and Vanilla Flavor)

Vitamins

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

Weight Management

7-Keto® DHEA Metabolite
 Advanced Anti-Adipocyte Formula
 Advanced Natural Appetite Suppress
 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 Citrimax®
 Super CLA Blend with Sesame Lignans
 Waist-Line Control™

Women's Health

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

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

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

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

SUBTOTAL OF COLUMN 1

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01008	BLAST™ • 600 grams of powder	26.97	20.23				
02025	BLOOD PRESSURE (Dual Action) • 60 veg. tabs	44.00	33.00	28.00			
70000	BLOOD PRESSURE MONITOR (ACCUFIT™) • med/lg cuff	79.99	49.99				
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			
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							
01653	CALCIUM CITRATE W/VITAMIN D • 300 caps	24.00	18.00	15.94			
01651	CALCIUM D-GLUCARATE • 200 mg, 60 veg. caps	18.00	13.50	11.25			
01823	CALREDUCE SELECTIVE FAT BINDER 120 mint chewable tablets	45.00	33.75	28.50			
01700	CARDIO PEAK™ w/STANDARDIZED HAWTHORN & ARJUNA 120 veg. caps	36.00	27.00	24.00			
00916	CARNITINE W/GLYCOCARN® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
01532	L-CARNITINE • 500 mg, 30 veg. caps	15.00	11.25	9.90			
01829	CARNOSINE • 500 mg, 60 veg. caps	36.00	27.00	24.00			
02020	CARNOSINE (Super) • 500 mg, 60 veg. caps	40.00	30.00	27.00			
01932	CAT MIX • 100 grams powder	14.00	10.50	8.25			
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	35.00	26.25				
01910	CHOL-SUPPORT™ • 60 liquid veg. caps	48.00	36.00	32.00			
01504	CHROMIUM W/CROMINEX® 3+ (Optimized) 500 mcg, 60 veg. caps	9.00	6.75	6.00			
01503	CINSULIN® W/INSEAZ® AND CROMINEX® 3+ • 90 veg. caps	38.00	28.50	25.50			
01906	CISTANCHE (Standardized) • 30 veg. caps	20.00	15.00	12.00			
01818	CITRIMAX® (Super) • 180 veg. caps	40.00	30.00	28.50			
00818	CLA BLEND W/SESAME LIGNANS (Super) • 120 softgels	36.00	27.00	24.75	19.75		
02103	COCOAMIND™ • 14 packets	24.00	18.00	16.00			
01896	COGNITEX® W/BRAIN SHIELD® • 90 softgels	60.00	45.00	39.00	36.00		

SUBTOTAL OF COLUMN 2

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

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

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
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		
01948	COQ10 w/d-LIMONENE (Super-Absorbable) 100 mg, 100 softgels	46.00	34.50	28.00	26.25		
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		
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 100 mg, 60 softgels	62.00	46.50	39.00	36.00		
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 50 mg, 100 softgels	58.00	43.50	34.50	31.50		
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 50 mg, 30 softgels	20.00	15.00	12.00			
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 200 mg, 30 softgels	62.00	46.50	39.00	36.00		
00862	CRAN-MAX® • 500 mg, 60 veg. caps	17.50	13.13	11.25			
01424	CRAN-MAX® WITH ELLIROSE™ (Optimized) • 60 veg. caps	18.00	13.50	12.00			
01529	CREATINE CAPSULES • 120 veg. caps	10.95	8.21	6.94			
01746	CREATINE WHEY GLUTAMINE POWDER • 454 grams (vanilla)	30.00	22.50	19.50			
00407	CURCUMIN® (Super Bio) • 400 mg, 60 veg. caps	38.00	28.50	26.25			
01924	CURCUMIN® W/GINGER & TURMERONES (Advanced Bio) 30 softgels	30.00	22.50	20.25			
01804	CYTOKINE SUPPRESS™ W/EGCG • 30 veg. caps	30.00	22.50	20.25			
COSMESIS							
80157	ADVANCED ANTI-GLYCATION PEPTIDE SERUM • 1 oz	53.00	39.75	34.50			
80165	ADVANCED GROWTH FACTOR SERUM • 30 ml	65.00	48.75	42.75			
80154	ADVANCED LIGHTENING CREAM • 1 oz	65.00	48.75	42.75			
80155	ADVANCED PEPTIDE HAND THERAPY • 4 oz	46.00	34.50	29.25			
80152	ADVANCED TRIPLE PEPTIDE SERUM • 1 oz	65.00	48.75	42.75			
80140	ADVANCED UNDER EYE SERUM W/STEM CELLS • .33 oz	49.00	36.75	31.50			
80139	AMBER SELF MICRODERMABRASION • 2 oz	49.00	36.75	31.50			
80158	ANTI-AGING FACE OIL • 1 oz	59.00	44.25	39.00			
80118	ANTI-AGING MASK • 2 oz	72.00	54.00	47.52			
80151	ANTI-AGING REJUVENATING FACE CREAM • 2 oz	65.00	48.75	42.75			
80153	ANTI-AGING REJUVENATING SCALP SERUM • 2 oz	46.00	34.50	29.25			
80134	ANTI-GLYCATION SERUM W/BLEUBERRY & POMEGRANATE EXTRACTS • 1 oz	33.00	24.75	23.51			
80133	ANTIOXIDANT FACIAL MIST • 2 oz	32.00	24.00	22.80			
80105	ANTI-REDNESS & ADULT BLEMISH LOTION • 1 oz	74.50	55.88	49.17			
80156	COLLAGEN BOOSTING PEPTIDE SERUM • 1 oz	59.00	44.25	39.00			
80141	DNA REPAIR CREAM • 1 oz	49.00	36.75	31.50			
80167	ENVIRONMENTAL SUPPORT SERUM • 1 fl. oz	59.00	44.25	39.00			

SUBTOTAL OF COLUMN 3

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
80108	ESSENTIAL PLANT LIPIDS REPARATIVE SERUM • 1 oz	74.95	56.21	49.46			
80163	EYE LIFT CREAM • 0.5 fl oz	59.00	44.25	39.00			
80123	FACE REJUVENATING ANTIOXIDANT CREAM • 2 oz	69.50	52.13	45.87			
80137	HEALING FORMULA ALL-IN-ONE CREAM • 1 oz	53.00	39.75	34.07			
80102	HEALING VITAMIN K CREAM • 1 oz	79.50	59.63	52.47			
80109	HYALURONIC FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28			
80110	HYALURONIC OIL-FREE FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28			
80138	HYDRATING ANTIOXIDANT FACE MIST • 4 oz	39.95	29.96	28.50			
80103	LIFTING & TIGHTENING COMPLEX • 1 oz	74.50	55.88	49.17			
80135	MELATONIN CREAM • 1 oz	33.00	24.75	20.33			
80114	MILD FACIAL CLEANSER • 8 fl. oz	59.00	44.25	38.94			
80159	MULTI STEM CELL SKIN TIGHTENING COMPLEX • 1 oz	59.00	44.25	39.00			
80122	NECK REJUVENATING ANTIOXIDANT CREAM • 2 oz	64.00	48.00	42.24			
80150	RENEWING EYE CREAM • 1/2 oz	65.00	48.75	42.75			
80142	RESVERATROL ANTI-OXIDANT SERUM • 1 oz	46.00	34.50	29.25			
80166	SKIN FIRMING COMPLEX • 1 fl. oz	53.00	39.75				
80112	SKIN LIGHTENING SERUM • 1/2 oz	85.00	63.75	56.10			
80130	SKIN STEM CELL SERUM • 1 oz	74.00	55.50	51.75			
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 \$39)	59.00	44.25				
80116	ULTRA LIP PLUMPER • 1/3 oz	64.00	48.00	42.24			
80101	ULTRA WRINKLE RELAXER • 1 oz	89.95	67.46	59.82			
80113	UNDER EYE REFINING SERUM • 1/2 oz	74.50	55.88	49.17			
80104	UNDER EYE RESCUE CREAM • 1/2 oz	74.50	55.88	49.17			
80129	VITAMIN C SERUM • 1 oz	85.00	63.75	56.10			
80136	VITAMIN D LOTION • 4 oz	36.00	27.00	25.25			
80145	VITAMIN E-ESSENTIAL CREAM • 1 oz	28.00	21.00	19.50			
80149	YOUTH SERUM • 1 oz	65.00	48.75	42.75			
D							
00658	7-KETO® DHEA METABOLITE • 25 mg, 100 caps	28.00	21.00	18.00			
01479	7-KETO® DHEA METABOLITE • 100 mg, 60 veg. caps	40.00	30.00	27.00			
01640	DHA (Vegetarian) • 30 veg. softgels	20.00	15.00	13.50			
00607	DHEA • 25 mg, 100 tablets (Dissolve in mouth)	14.00	10.50	8.81			
01478	DHEA COMPLETE • 60 veg. caps	48.00	36.00	32.40			
00335	DHEA • 25 mg, 100 caps	16.00	12.00	11.00			
00454	DHEA • 15 mg, 100 caps	14.00	10.50	9.00			
00882	DHEA • 50 mg, 60 caps	19.00	14.25	12.75			
01689	DHEA • 100 mg, 60 veg. caps	24.00	18.00	16.50			
01358	DIGEST RC® • 30 tablets	19.95	14.96	12.75			
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			

SUBTOTAL OF COLUMN 4

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

JANUARY 2018

SUPER SALE SAVINGS ON ALL PRODUCTS

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

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

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
01671	D, L-PHENYLALANINE • 500 mg, 100 veg. caps	18.75	14.06	12.00			
01540	DMAE BITARTRATE • 150 mg, 200 veg. caps	18.00	13.50	11.25			
01570	DNA PROTECTION FORMULA • 60 veg. caps	34.00	25.50	24.00			
01931	DOG MIX • 100 grams powder	18.00	13.50	11.25			
02006	DOPA-MIND™ • 60 veg. tabs	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			
02009	ESOPHACOO™ • 120 chewable tablets	20.00	15.00	13.50			
01737	ESOPHAGEAL GUARDIAN (Berry flavor) • 60 chewable tablets	36.00	27.00	24.00			
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 600 mg, 30 veg. tabs	20.00	15.00	13.50			
01706	EXTRAORDINARY ENZYMES • 60 caps	26.00	19.50	18.00			
02008	(CALIFORNIA ESTATE) EXTRA VIRGIN OLIVE OIL • 500 ml (16.9 fl. oz)	33.00	24.75	22.50			
01514	EYE PRESSURE SUPPORT W/MIRTOGENOL® • 30 veg. caps	38.00	28.50	25.50			
F							
01054	FACE MASTER® PLATINUM • Facial Toning System	199.00	199.00				
00965	FAST-ACTING JOINT FORMULA • 30 caps	39.00	29.25	27.00			
01717	FAST-C® W/DIHYDROQUERCETIN • 120 veg. tabs	26.00	19.50	18.00			
01064	FEMMENESSENCE MACAPAUSE® • 120 veg. caps	34.99	26.24				
02125	FLORASSIST® GI w/PHAGE TECHNOLOGY • 30 liquid veg. caps	33.00	24.75	22.50			
01821	FLORASSIST® HEART HEALTH • 60 veg. caps	32.00	24.00	21.00			
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			
02203	FLORASSIST® PREBIOTIC • Natural Strawberry, 60 chewable tabs	20.00	15.00	13.00			
01920	FLORASSIST® THROAT HEALTH • 30 lozenges	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			
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				
SUBTOTAL OF COLUMN 5							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
01658	GINKGO BILOBA CERTIFIED EXTRACT™ 120 mg, 365 veg. caps	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	20.00	15.00	13.50			
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			
01411	GRAPE SEED EXTRACT W/RESVERATROL & PTEROSTILBENE 100 mg, 60 veg. caps	36.00	27.00	25.50			
01620	GREEN COFFEE EXTRACT COFFEEGENIC® 400 mg, 90 veg. caps	32.00	24.00	21.00			
00953	GREEN TEA EXTRACT (Mega) • lightly caffeinated, 100 veg. caps	30.00	22.50	18.00			
00954	GREEN TEA EXTRACT (Mega) • decaffeinated, 100 veg. caps	30.00	22.50	18.00			
H							
01074	5 HTP • 100 mg, 60 caps	27.95	20.96				
02002	HAIR, SKIN & NAIL REJUVENATION FORM W/VERISOL® 90 tabs	32.00	24.00	22.00			
01738	HCA (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			
01049	INNERPOWER™ • 530 grams powder	44.97	33.73				
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 • 2 oz, 300 mcg	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	27.45	20.59				
00789	KYOLIC® RESERVE • 600 mg, 120 caps	28.95	21.71				
01681	LACTOFERRIN • 60 caps	44.00	33.00	30.00			
00020	LECITHIN • 16 oz granules	18.00	13.50	12.00			
SUBTOTAL OF COLUMN 6							

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

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

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
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	12.00	9.00	7.50			
02107	(EXTEND-RELEASE) MAGNESIUM • 60 veg. caps	13.00	9.75	8.75			
01908	MEDITERRANEAN TRIM WITH SINETROL™-XPUR 60 veg. caps	18.00	13.50	12.00			
02109	MEDITERRANEAN WHOLE FOOD BLEND • 90 veg. caps	44.00	33.00	30.00			
01668	MELATONIN • 300 mcg, 100 veg. caps	5.75	4.31	3.75			
01083	MELATONIN • 500 mcg, 200 veg. caps	18.00	13.50	12.00			
00329	MELATONIN • 1 mg, 60 caps	5.00	3.75	3.47			
00330	MELATONIN • 3 mg, 60 veg. caps	8.00	6.00	5.16			
00331	MELATONIN • 10 mg, 60 veg. caps	28.00	21.00	18.00			
00332	MELATONIN • 3 mg, 60 veg. lozenges	8.00	6.00	5.16			
01734	MELATONIN (Fast-Acting Liquid) • 2 fl. oz (Citrus-Vanilla)	12.00	9.00	8.25			
01787	MELATONIN TIMED RELEASE • 300 mcg, 100 veg. tabs	12.00	9.00	8.25			
01788	MELATONIN TIMED RELEASE • 750 mcg, 60 veg. tablets	8.00	6.00	5.25			
01786	MELATONIN TIMED RELEASE • 3 mg, 60 veg. tabs	12.00	9.00	8.25			
02101	MEMORY PROTECT • 36 day supply	24.00	18.00	16.00			
01536	METHYLCOBALAMIN • 1 mg, 60 veg. lozenges (vanilla)	9.95	7.46	6.00			
01537	METHYLCOBALAMIN • 5 mg, 60 veg. lozenges (vanilla)	32.00	24.00	18.75	17.25		
00709	MIGRA-EEZE™ (Butterbur) • 60 softgels	33.00	24.75	22.00			
01522	MILK THISTLE (European) • 60 veg. caps	34.00	25.50	22.50			
01922	MILK THISTLE (European) • 60 softgels	28.00	21.00	18.75			
01925	MILK THISTLE (European) • 120 softgels	44.00	33.00	30.00			
01940	MIRAFORTE w/STANDARDIZED LIGNANS (Super) • 120 veg caps	62.00	46.50	42.00			
01869	MITOCHONDRIAL BASICS W/BIO-PQQ® • 30 caps	40.00	30.00	27.00			
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	16.50	15.00			
02144	NAD+ CELL REGENERATOR™ NICOTINAMIDE RIBOSIDE 250 mg, 30 veg. caps	42.00	31.50	28.00			
SUBTOTAL OF COLUMN 7							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
02145	NAD+ CELL REGENERATOR™ W/RESVERATROL (Optimized) 30 veg. caps	50.00	37.50	34.00			
01807	NATURAL APPETITE SUPPRESS (Advanced) • 60 veg. caps	38.00	28.50	25.50			
00984	NATURAL BP MANAGEMENT • 60 tablets	44.00	33.00	30.00			
02012	NATURAL CORTISOL BALANCE • 30 veg. caps	45.00	33.75	30.00			
01894	NATURAL ESTROGEN • 30 veg. tabs	30.00	22.50	20.00			
01626	NATURAL SEX FOR WOMEN® 50+ (Advanced)•90 veg. caps	59.00	44.25	34.00			
01444	NATURAL SLEEP® • 60 veg. caps	13.00	9.75	7.50			
01551	NATURAL SLEEP® w/ MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00			
01511	NATURAL SLEEP® W/O MELATONIN (Enhanced) • 30 caps	20.00	15.00	13.50			
01445	NATURAL SLEEP® MELATONIN • 5 mg, 60 veg. caps	18.00	13.50	12.00			
00987	NATURAL STRESS RELIEF • 30 veg. caps	28.00	21.00	18.00			
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		
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	PXG® PLUS MULBERRY (WellBetX®) • 180 veg. caps	34.95	26.21				
01953	POMEGRANATE COMPLETE • 30 softgels	24.00	18.00	15.75			
00956	POMEGRANATE FRUIT EXTRACT • 30 veg. caps	19.50	14.63	13.16			
-01837	POMI-T® • 60 veg. caps	35.00	26.25	24.00			
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		
SUBTOTAL OF COLUMN 8							

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JANUARY 2018

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ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01647	PQQ CAPS • 20 mg, 30 veg. caps	32.00	24.00	18.00	17.00		
00302	PREGNENOLONE • 50 mg, 100 caps	26.00	19.50	16.50			
00700	PREGNENOLONE • 100 mg, 100 caps	30.00	22.50	20.25			
*01373	PRELOX® NATURAL SEX FOR MEN® • 60 tablets	52.00	39.00	36.00			
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 Natural) • 60 softgels	38.00	28.50	26.25	24.00		
01909	PROSTAPOLLEN™ (Triple strength) • 30 softgels	28.00	21.00	18.75			
01742	PROTEIN-ISOLATE (Whey) Vanilla • 403 grams	30.00	22.50	19.50			
01743	PROTEIN-ISOLATE (Whey) Chocolate • 437 grams	30.00	22.50	19.50			
01770	PROTEIN CONCENTRATE (New Zealand Whey) Vanilla 500 grams	30.00	22.50	19.95			
01771	PROTEIN CONCENTRATE (New Zealand Whey) Chocolate 640 grams	30.00	22.50	19.95			
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			
01508	PTEROPURE® Pterostilbene • 50 mg, 60 veg. caps	32.00	24.00	22.50			
01209	PUMPKIN SEED EXTRACT (Water-soluble) • 60 veg. caps	20.00	15.00	13.50			
01637	PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT 100 mg, 60 veg. caps	64.00	48.00	45.00			
01217	PYRIDOXAL 5'-PHOSPHATE • 100 mg, 60 veg. caps	22.00	16.50	14.85			
Q, R							
01309	QUERCETIN (Optimized) • 250 mg, 60 veg. caps	22.00	16.50	15.00			
01030	RED YEAST RICE (Bluebonnet) • 600 mg, 60 veg. caps	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 oz	24.00	18.00	14.85	12.75		
01621	REJUVENEX® FACTOR FIRING SERUM • 1.7 oz	65.00	48.75	37.50			
01220	REJUVENEX® (ULTRA) • 2 oz	52.00	39.00	33.00	29.25		
00676	REJUVENIGHT® (ULTRA) • 2 oz	39.95	29.96	27.00			
01410	RESVERATROL W/PTEROSTILBENE • 100 mg, 60 veg. caps	36.00	27.00	24.00			
02030	RESVERATROL (Optimized) • 60 veg. caps	46.00	34.50	31.00			
00889	RHODIOLA EXTRACT • 250 mg, 60 veg. caps	14.00	10.50	9.00			
01900	RIBOGEN™ FRENCH OAK WOOD EXTRACT 200 mg, 30 veg. caps	36.00	27.00	24.75			
00972	(D) RIBOSE POWDER • 150 grams	27.50	20.63	18.56			
01473	(D) RIBOSE TABLETS • 100 veg. tabs	32.00	24.00	21.00			
02169	RAINFOREST 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				
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

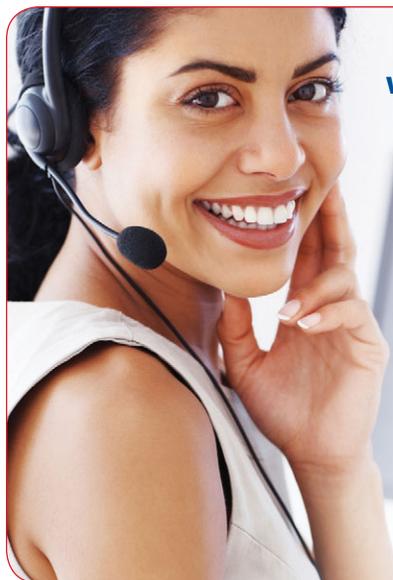
ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
S							
01432	SAFFRON W/SATIREAL® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
01935	SAME (S-ADENOSYL-METHIONINE) 200 mg, 30 enteric coated tablets	25.00	18.75	16.50			
01933	SAME (S-ADENOSYL-METHIONINE) 400 mg, 30 enteric coated tablets	36.00	27.00	24.00			
01934	SAME (S-ADENOSYL-METHIONINE) 400 mg, 60 enteric coated tablets	66.00	49.50	45.00			
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			
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			
01249	SINUS CLEANSER • 4 oz. bottle	25.00	18.75				
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 fl. oz	50.00	37.50	33.00			
02131	SKIN CARE COLLECTION NIGHT CREAM • 1.65 fl. oz	39.00	29.25	27.00			
01596	SKIN RESTORING PHYTOCERAMIDES w/LIPOWHEAT® 30 liquid veg. caps	25.00	18.75	17.25			
00961	SODZYME® w/GLISODIN® & WOLFBERRY • 90 veg. caps	28.00	21.00	18.00			
00657	SOLARSHIELD® SUNGLASSES • Smoke color	12.99	9.74	8.63			
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				
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			
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				
00668	THYROID FORMULA (Metabolic Advantage™) • 100 caps	21.95	16.46				
00349	TMG POWDER • 50 grams	14.00	10.50	8.25			
01859	TMG • 500 mg, 60 liquid veg. caps	13.00	9.75	9.00			
01400	TOCOTRIENOLS (Super-absorbable) • 60 softgels	30.00	22.50	21.00			
01278	TOOTH PASTE • 4 oz (Mint) tube	9.50	7.13	6.50			
01917	TRANQUIL TRACT™ • 60 veg. caps	52.00	39.00	34.50			

SUBTOTAL OF COLUMN 10

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
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	21.00	15.75	14.00			
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)	11.00	8.25	7.50			
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	27.00	20.25	18.00			
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			
01732	VITAMIN D3 • 2,000 IU, 1 fl. oz, Mint flavor	28.00	21.00	18.75			
01753	VITAMIN D3 • 1,000 IU, 90 softgels	7.00	5.25	4.50			
01751	VITAMIN D3 • 1,000 IU, 250 softgels	12.50	9.38	8.44			
01713	VITAMIN D3 • 5,000 IU, 60 softgels	10.00	7.50	6.50			
01718	VITAMIN D3 • 7,000 IU, 60 softgels	14.00	10.50	9.45			
01758	VITAMIN D3 W/SEA-IODINE™ • 5,000 IU, 60 caps	14.00	10.50	9.38			
00864	VITAMIN D3 LIQUID • 2,000 IU, 1 fl. oz	28.00	21.00	18.75			
02040	VITAMINS D AND K W/SEA-IODINE™ • 60 caps	24.00	18.00	16.50			
01863	VITAMIN E (Natural) • 400 IU, 90 softgels	28.00	21.00	19.50	18.00		
01936	VITAMIN K2 (Low dose) • 45 mcg, 90 softgels	18.00	13.50	12.00			
W							
01902	WAIST-LINE CONTROL™ • 120 veg. caps	42.00	31.50	28.50			
X, Y							
01919	X-R SHIELD • 90 veg. caps	15.00	11.25	9.75			
00409	XYLIWHITE™ MOUTHWASH • 16 oz	10.00	7.50				
SUBTOTAL OF COLUMN 11							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
Z							
01813	ZINC HIGH POTENCY • 50 mg, 90 veg. caps	7.95	5.96	5.25			
01561	ZINC LOZENGES • 60 veg. lozenges	9.00	6.75	6.00			
01961	ZINC LOZENGES (Enhanced) • 30 veg. lozenges	12.00	9.00	6.00			
01051	ZYFLAMEND® WHOLE BODY • 120 liquid veg. caps	72.95	54.71				
BOOKS							
33998	THE RIGHT TO TRY by Darcy Olsen • 2016	26.99	20.24				
33885	THE BLUE ZONES SOLUTION by Dan Buettner • 2015	26.00	19.50				
33877	THE TRUTH ABOUT MEN AND SEX by Abraham Morgentaler, MD, FACS • 2015	16.99	12.74				
33875	DOCTORED: THE DISILLUSIONMENT OF AN AMERICAN PHYSICIAN • by Sandeep Jauhar • 2015	26.00	19.50				
33874	MISSING MICROBES • by Martin J. Blaser, MD • 2014	28.00	21.00				
33873	EATING ON THE WILD SIDE • by Jo Robinson • 2014	16.00	12.00				
DPT05	DISEASE PREVENTION AND TREATMENT, EXPANDED FIFTH EDITION (Hardcover) • 2014	69.95	39.95	36.00			
33865	THE RESTORATION OF THE HUMAN BODY [IN 7 PARTS] by Sergey A. Dzugan, MD, PhD • 2014	29.95	22.46				
33862	I'M TOO YOUNG FOR THIS • by Suzanne Somers • 2013	26.00	19.50				
33835	PHARMOCRACY • by William Faloon • 2011	24.00	9.60	8.00			
33838	YOUR GUIDE TO HEALTHY SKIN THE NATURAL WAY by Gary Goldfaden, MD • 2012	26.00	15.00				
33815	KNOCKOUT • by Suzanne Somers • 2009	25.99	17.00				
SUBTOTAL OF COLUMN 12							

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SUBTOTAL COLUMN 8

SUBTOTAL COLUMN 9

SUBTOTAL COLUMN 10

SUBTOTAL COLUMN 11

SUBTOTAL COLUMN 12

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SUBTOTAL OF COLUMNS 1 - 12

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Super Bio-Curcumin®

Item #00407 • 60 vegetarian capsules

	Retail Price	Super Sale Price
1 bottle	\$38	\$25.65
4 bottles		\$23.63 each

Non-GMO



Advanced Bio-Curcumin® with Ginger & Turmerones

Item #01924 • 30 softgels

	Retail Price	Super Sale Price
1 bottle	\$30	\$20.25
4 bottles		\$18.23 each

Non-GMO

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Advanced Bio-Curcumin® contains the same optimal potency of **curcumin** with the added benefits of **ginger** and additional **turmeric** extracts.

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36 CARNOSINE, CATARACTS AND VISUAL CLARITY

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