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October 2011

How FDA Regulation Bankrupts America

Curing Today's Health Care Cost Crisis

Natural Solutions For Addiction

Omega-3 Fatty Acids Reduce Premature Death Risk Up to 85% - WILLIAM FALOON

PHARMOCRACY



HOW CORRUPT DEALS AND

MISGUIDED MEDICAL REGULATIONS ARE

BANKRUPTING AMERICA—AND

WHAT TO DO ABOUT IT



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critically important gamma tocopherol is displaced from cells within the body. While alpha tocopherol vitamin E inhibits lipid peroxidation, the gamma tocopherol form quenches the dangerous peroxynitrite free radical. It is especially important for those who take vitamin E supplements to make sure they consume at least 200 mg a day of gamma tocopherol.

• GAMMA TOCOPHEROL If one

consumes only alpha tocopherol, the

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Vitamin K1 (as phytonadione)	1000 mcg	Sesame lignans	20 mg	Selenium (as Sodium selenite)	67 mcg
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REPORTS

28 SLASH YOUR RISK FOR PREMATURE DEATH WITH OMEGA-3s

Most health-conscious consumers (and cardiologists) know about the benefits of omega-3 fatty acids found in fish oil for heart health. Startling new data show that omega-3 supplementation can reduce your risk of dying prematurely by as much as 85%.



42 SILENT EPIDEMIC OF IODINE DEFICIENCY

lodine levels in table salt have *plummeted* in recent years. Nearly 74% of adults may not be getting enough as a result. Discover this widespread deficiency's link to heart disease, psychiatric disorders, and breast cancer and how easy it is to correct.



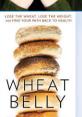
54 COMBATING AGE-RELATED **BRAIN DETERIORATION**

Your brain is shrinking at this very moment, the result of unavoidable age-related structural degradation. Starting at age 30, this process leads to everything from cognitive decline to learning disabilities. Dr. Eric Braverman outlines ways to reverse brain aging.



68 NATURAL WAYS TO CURE ADDICTION

There is a drug-induced death in this country every 15 minutes. Despite the trillion dollars spent so far on the "drug wars" and addiction treatment programs that rely on counseling, relapse rates hover at 90%. One forward-thinking doctor has achieved a relapse rate of just 9% using specific nutrients, hormones, and gut ecology restoration.



80 BOOK EXCERPT: WHEAT BELLY

Generations ago, 42-inch waistlines were rare, childhood obesity virtually nonexistent-and no "fitness craze" kept people thin. In this compelling excerpt from his latest work, Dr. William Davis smashes conventional wisdom about healthy "whole grains" and makes the case for one of the chief culprits behind today's obesity epidemic: wheat.



HOW OVER-REGULATION IS BANKRUPTING AMERICA

Inefficient and corrupt government policies have caused medical prices to spiral out of control. The economic result of this calamity is that Medicare faces an unfunded liability of such magnitude that no one knows how to pay for it. Egregious FDA over-regulation stifles the very cost-cutting medical innovations that could restore the nation to fiscal stability. As outlined in William Faloon's new book, Pharmocracy, the only solution to today's health care cost crisis is to repeal draconian laws that have granted a virtual monopoly to the entrenched medical establishment. Unless a free market is restored in the medical field, no one, including government, business, or the individual, will be able to afford the artificially inflated costs of health care.

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Creatine reduces statin drug side effects; soluble fiber busts belly fat; fisetin prevents diabetic complications; and more.



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How Regulation of Medicine is Bankrupting the United States and What Congress Can Do to Stop It



BY WILLIAM FALOON



A fierce debate is raging as to who will pay for this nation's skyrocketing sick-care costs.

Private companies have scaled back sharply on health care coverage they used to provide. Employees now pay an increasing percentage of their medical insurance premiums, along with higher deductibles, co-pays, and no-pays (i.e., exclusions). Many businesses provide no health coverage to their employees.^{1,2}

Based on the median income in the United States, the typical family cannot come close to paying the staggering cost of health care themselves.

It seems rather odd, but since neither **business** nor **individuals** can afford today's sick-care costs, the burden is increasingly being borne by the sector <u>least</u> able to pay, i.e., heavily indebted state and federal **governments**.

The federal government is already saddled with a huge <u>unfunded</u> **Medicare liability**. No one has figured out <u>where</u> the money will come from to cover these future health care costs.

To put this into context, the most recent estimate of Medicare's unfunded liability is \$24.6 trillion.³ Yet total federal tax revenues taken in annually (which include Medicare premiums) are only around \$2 trillion.^{4,5} As our current President stated last year, we are approaching a point where the government will have to spend more money on Medicare than every other federal program combined!⁶

The most recent government report states that the Medicare hospital trust fund will go bankrupt five years sooner than what was projected a mere twelve months earlier.7

None of these numbers are reliable. Congress and agency bureaucrats use all kinds of accounting gimmicks when projecting Medicare's date with insolvency.

For instance, the unfunded Medicare liability was pegged at \$37 trillion in 2009.8 That means the government should have had \$37 trillion in a trust fund earning interest in order to meet its future obligations. But politicians constantly manipulate the numbers. The latest report reduced Medicare's official unfunded liability to \$24.6 trillion. The reason for these wild fluctuations is that in

any given year, officials can create "assumptions" out of thin air, like assuming doctors will take major pay cuts. Congress has not enacted these pay cuts, but bureaucrats pretend they do in order to understate Medicare's true unfunded liability.9

What no one in government understands is that health care costs are set to skyrocket even further as new drugs the FDA is approving are costing around \$100,000 per patient. 10-12 Be it \$24.6 trillion or \$37 trillion, the government does not have the money to cover its Medicare obligations.

And **Medicaid**, which provides health care for lower income people, also has trillions of dollars of unfunded liabilities that are being paid with tax and newly issued debt dollars.13



Why Aren't These **Criminal Acts Being Prosecuted?**

Bernard Madoff was sentenced to 150 years in prison because he took investors' money and diverted it to other purposes. The federal government forced Americans to pay Medicare premiums their entire lives. Instead of those premiums being placed in a reserve fund for future use, they were squandered on whatever was most politically expedient at the time, which included overpaving those with the right connections.

While Madoff will spend the rest of his life incarcerated, no one talks about bringing civil or criminal charges against those responsible for the largest Ponzi scheme in the history of the human race, i.e., Medicare with its \$24.6 trillion of admitted unfunded liabilities.

Like the federal government, many local and state governments have also operated a Ponzi scheme of unfunded pension and health care liabilities they cannot pay. 14-16 Since the federal government is mathematically insolvent, it seems ludicrous to assume that exorbitant sick-care costs can be resolved by any level of **government**.

While politicians aimlessly point fingers as to who should pay America's medical bills, please remember that there is a realworld **solution**. Health care in the United States is so tightly regulated that it in many ways resembles the inefficiencies of Maoist China. where the economy was suffocated by erratic and illogical governmental decrees. As China lifted its regulatory stranglehold, prosperity flourished. It's time for US leaders to follow China's example and stop over-regulating medicine!



Even I Was Shocked!

For the enlightenment of new members, please know that the **Life Extension Foundation**® has sounded the alarm bells since the early **1980s** about the health care cost crisis that must now be confronted. We said that unless the shackles of regulation are removed, this nation faced inevitable **economic insolvency** with little in the way of <u>cures</u> being found for age-related diseases.

I have written dozens of articles and made hundreds of media appearances attacking today's broken health care system. I was not aware until recently, however, of how much my own health insurance premiums had gone up, since I was covered under a group plan.

For me, my wife, and two children, **Life Extension** is paying a staggering \$17,000 per year! Since our group plan insures over 300 people, we obtain a considerable discount off the individual rate—yet the premiums, deductibles, copays, and no-pays are worse than ever.

I'd like to think **Life Extension** is the most efficiently run organization in the world. We can, at the

moment, afford these outrageous health insurance premiums for our dedicated employees. But I know many businesses and individuals cannot, and certainly not the **government**, which is unable to pay for what it is already on the hook for.

We Have Been Deceived...

Look back over the past 30 years and ask how many <u>cures</u> for the diseases of aging have been found? One can argue the number is near zero!

Americans have paid outlandish prices for prescription drugs under the guise that pharmaceutical profits would fund research leading to medical breakthroughs. The problem is that real-world discoveries have <u>not</u> manifested. One can point to some treatments that prolong patient survival, but these are offset by lethal side effects inflicted by fraudulently approved therapies. ¹⁷⁻¹⁹ The fact is that few real <u>cures</u> have occurred despite Americans spending more health care dollars than anyone else.

<u>Unregulated</u> medicine has made considerable strides, but the majority of the population does

AS WE SEE IT

not know about these approaches, and vested financial interests have spent billions to ensure that the media, politicians, and bureaucrats continue suppressing them.

We have been **deceived** by those who associate **regulations** with beneficial outcomes. As it relates to **medical progress**, the <u>opposite</u> has occurred, i.e., excessive regulation is causing millions to suffer and die needlessly while health care costs skyrocket.²⁰

Few understand that the underlying purpose of **regulations** is to provide a government-protected advantage to the group favoring the regulation. It's not about how a regulation will protect the public, but a matter of *how it can financially benefit a special interest*.²¹

An often-cited example is the petition drug maker Wyeth filed with the FDA asking that a natural human form of estrogen called estriol be banned.22,23 The female hormone drugs Wyeth is selling (Premarin® and PremPro®) have been shown to inflict all kind of lethal side effects.24-31 Instead of spending money on research to come up with safer forms of estrogen (such as combining natural estrogens with indole-3-carbinol),32-34 it was much cheaper to persuade political hacks at the FDA to outlaw the competition (i.e., bioidentical estriol hormone compounds).35

Pharmaceutical companies have spent enormous dollars persuading the FDA to re-classify nutrients like **pyridoxamine** as prescription drugs so that they can monopolize them for their own economic benefit.³⁶ If it were not for aggressive letter-writing campaigns to Congress by consumers, <u>all</u> dietary supplements would be expensive prescription drugs by now.

FDA—Failure, **Deception**, and Abuse

In **2010**, a 498-page book was published exposing how **FDA** overregulation has destroyed citizens' health and this nation's finances. Many more pages could be added based on what we have published over the past year alone.

The magnitude of the artificially inflated costs are beyond obscene. For example, an increasingly popular prescription drug in the United States is a testosterone ointment called AndroGel®. Last time we checked, pharmacy chains sell a one-month supply for \$348. Many men who try it will continue it each month for the rest of their lives

The cost of the active ingredient in AndroGel® is around \$4. It costs a few more dollars to put it into ointment form under good manufacturing practices. So for less than \$15 retail, consumers could

purchase the same amount of testosterone as is in AndroGel®—if it were not for FDA over-regulation.

Even though transdermal testosterone delivery technology has been known for decades, and the patent for bioidentical testosterone expired a long time ago, the FDA only allows a chosen few pharmaceutical companies to sell it. When a compounding pharmacy tries to develop more efficient ways to make testosterone creams, FDA inspectors use existing regulations to stop them. The regulations mandate that individually compounded drugs be made from scratch. If a pharmacy tries to produce larger quantities in bulk, it is no longer classified as "compounded" according to FDA regulations and is therefore illegal.37

In this Orwellian tragedy, the annual cost of regulated AndroGel® comes to \$4,176 whereas the same amount of topical testosterone in an unregulated environment would drop to only \$180 a year.

Regulated testosterone thus costs 23 times more than freemarket testosterone. And look who pays for it! If you have health insurance, vou will likely face a \$25-50 co-pay each month, while your insurance company is fleeced for the balance. If you are a low income individual and don't have insurance, there are government programs (like Medicaid) that will pay the full retail price of AndroGel®. If you are not indigent and have no insurance, then you are stuck with the entire tab. Be you a taxpaver, co-payor, or outof-pocket payer your finances are being eaten away by these absurd regulations. Is it any wonder why medical insurance premiums are increasing so sharply?

Consumers have to band together to demand Congress introduce emergency legislation that repeals the absurd over-regulation of medicine that exists today.



I have written a new book titled **Pharmocracy** that details how egregious pharmaceutical company profits are protected by regulations, and how these vested interests will go to any corrupt length to ensure these regulations are perpetuated no matter how inane they are. 38,39

How Regulated Costs Add Up

Institutionalized corruption artificially inflates the cost of virtually every health care service.

Going back to the AndroGel® example, we estimate that more than 80 million American men could benefit by restoring their testosterone levels to youthful ranges.⁴⁰ If these men are forced to use only FDA-approved testosterone drugs, the excess cost to the United States will be **\$319 billion** each year for this one drug.

It used to be just a few years ago that when the entire federal deficit reached \$300 billion, the public and some politicians complained. Yet the overpayment Americans are stuck with for this one class of drug (AndroGel® and others) because of FDA over-regulation may exceed previous federal deficits unless the law is amended.

When one considers there are thousands of medically related products and services that are artificially inflated by senseless regulations, it becomes clear that radical change is required to avoid an economic meltdown.

Pharmocracy

SEND THIS BOOK TO YOUR MEMBERS OF CONGRESS.

Governments collapse when ineptitude and corruption reach such egregious magnitudes that the citizenry has no choice

Since the year 1980, the Life Extension Foundation® has published articles that expose how over-regulation in the United States causes lifesaving medications to be delayed or suppressed altogether. We have also explained the extortionist costs to consumers who are forced to pay for what are too often dangerous FDA-approved therapies.

The new book **Pharmocracy** presents factual and irrefutable logic to reform today's broken health care system.

While **Pharmocracy** uncovers egregious **FDA** incompetence

and abuse, Congress is the body of government that provides FDA with enabling laws that result in needless suffering and death-while the nation descends into financial ruination.

Implementing the free-market approaches advocated in this book can spare Medicare and Medicaid from insolvency, while significantly improving the health and productivity of the American public.

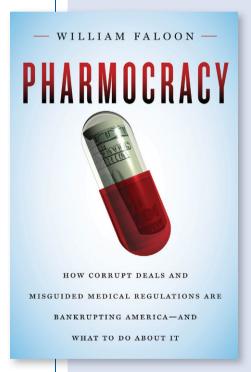
Pharmocracy provides a rational basis to remove the suffocating compulsory aspect of health care regulation and allow free-market forces to compete against governmentsanctioned medicine.

The cover price for each copy of **Pharmocracy** is \$24. Life Extension members can obtain it at a 60% discount and pay only \$9.60 a copy.

The unprecedented step we have taken is to offer four copies to Life Extension members for only \$32 (or \$8 each). The reason we want you to

purchase four copies is to send one to your representative and two senators. We believe if enough constituents send a copy of **Pharmocracy** to Congress, Congressional members will be forced to recognize the obvious free-market solutions to today's health care costs crisis, and know that a large segment of the public supports them against pharmaceutical interests.

To order one or four copies of **Pharmocracy**, call 1-800-544-4440 or visit www.lef.org/pharm



Even Compounded Testosterone Costs Too Much

As stated earlier, FDA regulations prohibit **compounding pharmacies** from making production-scale batches of popular drugs. Each compounded drug must be individually formulated by a licensed pharmacist. The result is that the labor involved in making a compounded drug comprises more than what the active ingredient costs.

But there are additional regulations that add even greater costs. Consumers require a prescription to buy compounded testosterone just like they do with FDAapproved testosterone. While competent physician supervision can enhance the safety and efficacy of a testosterone replacement program, the frank reality is that the majority of prescriptions for drugs like AndroGel® are not prescribed by physicians who understand how to optimally manage hormone replacement in men. Seldom are estrogen levels monitored to protect against estrogen overload that can occur when too much testosterone converts (aromatizes) into estrogen in an aging man's body.41,42

An advantage with compounded testosterone is that if a physician knows how to write a prescription for it, they often have received training on follow-up monitoring. Compounded testosterone cream can be obtained for less than \$30 a month, compared to the \$348/month price for AndroGel®. Either form can contain the same amount of bioidentical testosterone.

Compounded testosterone cream is 91% <u>less</u> expensive than FDA-protected drugs, yet compounded testosterone is still <u>twice</u> as expensive as it needs to



be because of governmental overregulation.

In dealing with runaway health care costs, a solution is to make drugs like testosterone available to men over age 40 without the need of a doctor's visit. There have been companies that have physicians review blood tests over the phone and prescribe testosterone, but FDA and state licensing boards have shut many of these down. Corrupt regulations ensure that efficiencies that would slash health care cost (at the expense of pharmaceutical profits) are outlawed.

Simple Solution to Avert Economic Ruination

Life Extension initiated a petition drive back in the 1980s to allow individual Americans to "opt-out" of the FDA's regulatory umbrella. Our rationale was that

this would provide consumers with more advanced treatments at lower prices.

Hundreds of our enlightened members petitioned, requesting liberation from the FDA stranglehold. The public, Congress, and media were apathetic at that time.

The FDA was far from lethargic. They responded to our petition in a way that resembled an angry hornet's nest when disturbed (or how some dictators respond to street protestors). The notion that we dared challenge the FDA's absolute authority resulted in years of legal battles in which the FDA did everything in its power to destroy us.⁴⁴

Move forward to today, and the political climate has turned around. The **health care cost crisis** we long ago predicted has evolved into a harsh reality no one can ignore. It is mathematically

impossible to solve it by forcing one group to pay regulated medicine's inflated costs. The only salvation are the free-market reforms we long ago drafted.

Our proposal is quite simple. Amend the law to allow good manufacturing practice (GMP)-certified facilities to produce generic prescription drugs that do not undergo the excessive regulatory hurdles that force consumers to pay egregiously inflated prices.

To alert consumers when they are getting a generic whose manufacturing is not as heavily regulated as it is currently, the law would mandate that the label of these less-regulated generic drugs clearly states:

"This is not an FDA-approved manufactured generic drug and may be ineffective and potentially dangerous. This drug is NOT manufactured under the same standards required for an FDAapproved generic drug. Purchase this drug at your own risk."

By allowing the sale of these less costly generics, consumers will have a choice as to what companies they choose to trust.

Equally important in our proposals is allowing consumers to be told about the off-label benefits of prescription drugs, such as the extensive body of evidence that metformin may help prevent type 2 diabetes 45,46 (and not just treat it) and that metformin may also prevent and help treat certain cancers.47-54

A concern critics raise regarding this free-market solution is safety. Who will protect consumers from poorly made generic drugs, they ask?

First of all, there will be the same regulation of these drugs as there are with GMP-certified supplement makers. FDA inspectors will visit facilities, take sample products, and assay to ensure potency of active ingredient and dissolution. Laboratories that fail to make products that meet label claims would face civil and criminal penalties from the government.

Secondly, there is no incentive not to provide the full potency of active ingredient in these less regulated generic drugs. The price of the active ingredients makes up such a small percentage of the overall cost that a manufacturer would be idiotic to scrimp on potency.55

Companies that foolishly make inferior generics will be viciously exposed by the media, along with the FDA, consumer protection groups, and even prescribing physicians, who will be suspicious if a drug is not working as it is supposed to.

Companies producing inferior products will be quickly driven from the marketplace as consumers who choose to purchase these lower-cost generics will seek out laboratories that have reputations for making flawless products.

Substandard companies would not only be castigated in the public's eve, but face civil litigation from customers who bought the defective generics. When one considers that GMP-certified



manufacturing plants can cost hundreds of millions to set up, a company would guarantee itself future insolvency if it failed to produce generic drugs that met minimum standards.

Pharmaceutical Company Propaganda

No matter how many facts show that free-market generic drugs can be made safe, there are alarmists who believe that even if one person suffers a serious adverse event because of a lower-cost generic drug, then the law should not be amended to allow the sale of these *less-regulated* products.

What few understand is that enabling lower-cost drugs to be sold might reduce the number of poorly made drugs. The reason is that prescription drug counterfeiting is a major issue today.⁵⁶ Drugs are *counterfeited* because they are so expensive. Yet in the free market environment we espouse, a month's supply of the popular cholesterollowering drug like simvastatin would sell for only \$3. It is difficult to imagine anyone profiting by counterfeiting it. So amending the law to enable these super lowcost drugs to be sold might reduce the counterfeiting that exists right

Another reason these less-regulated generics will do far more good than harm is that people who need them to live will be able to afford them. The media has reported on

heart-wrenching stories of destitute people who are unable to pay for their prescription drugs. They either do without or take a lessthan-optimal dose. The availability of these free-market generics will enable virtually anyone to be able to afford their medications.

Those who think generic drugs are safe today should be aware of isolated instances when improperly made active ingredients make it into prescription drugs sold in US pharmacies. These defective ingredients often emanate from FDAapproved manufacturers in China and India. The FDA gives false assurances that these governmentapproved laboratories are safe. The reality is that the FDA can only inspect each Chinese drug-making factory at best only once every 13 years.⁵⁷ So the protection consumers think they have today is a facade. I would feel more comfortable buying generics from a company that had its own inspectors in offshore manufacturing facilities as opposed to relying on meaningless FDA rhetoric.

As this Article Was Being Finalized...

As this article was being finalized, news broke that the FDA had just granted an exclusive monopoly to a company to sell a non-patented progesterone drug that prevents premature births.58

Healthy women naturally secrete huge amounts of progesterone during pregnancy that helps maintain their uterine lining. To protect against premature births and miscarriages in women at risk, enlightened doctors have for decades prescribed progesterone medications that were made by state-licensed compounding pharmacies. The cost per injection was around **\$20**.





By granting orphan drug status to one company (KV Pharmaceutical), FDA rules banned all other forms of progesterone for this indication. The immediate impact was that the cost per injection skyrocketed to \$1,500—or as much as \$30,000 for a full-term pregnancy.⁵⁹

An uprising over this price gouging forced the FDA to back down and state it "does not intend to take enforcement action against pharmacies that compound hydroxyprogesterone caproate."

What the FDA is saying is that while it has the discretion to arrest compounding pharmacists for making this drug, it does not "intend to" do so. After the FDA made this announcement, KV Pharmaceutical reduced the price to \$690 per injection—which is still more than 34 times its previous free market price.

It is unclear how private insurance and Medicaid will determine whether to pay \$690 per injection for the version FDA rules state is the only one that can be legally sold or continue paying for the much lower-cost compounded version.

Women who are denied access to this drug because of the regulatory quagmire face increased risks they will deliver pre-term babies. In these cases, the costs for intensive neonatology care can run into the hundreds of thousands of dollars per premature-born baby, a price often borne by Medicaid or private insurance.

No country on earth can afford this kind of institutionalized corruption, where the chosen few pharmaceutical companies favored by the **FDA** reap extortionist profits as the nation collapses into a financial abyss. This rare instance in which public backlash forced the FDA to back away from protecting a pharmaceutical company's obscene profit reveals that citizens have the power the save this country from financial Armageddon.

Fight Back Against This Institutional Corruption

The United States of America faces a health care cost crisis that will render Medicare, Medicaid, and many private insurance plans insolvent. The shocking details about this country's inability to fund future medical costs are no longer confined to the pages of Life Extension Magazine®. You are reading about them virtually every day in the mainstream media.60,61

When terrorists attacked the United States in 2001, there were patriotic Americans who enlisted in the armed services. Many lost their limbs, their vision, and their lives.

No one has to engage in physical combat to save this country from the institutionalized inefficiencies and corruption that plague today's disease-care system.

My new book Pharmocracy presents irrefutable logic to reform today's broken health care system. The cover price for each copy of *Pharmocracy* is \$24. Life Extension members obtain it at a **60% discount** and pay only **\$9.60**.

We are offering four copies of Pharmocracy to Life Extension members for only \$32 (or \$8 each). The reason we want you to purchase four copies is so you can send a copy to your representative and two senators.

We believe if enough citizens send Pharmocracy to Congress, that our leaders will be forced to recognize the *obvious* **free-market** solutions to today's broken health care system.

To order one or four copies of Pharmocracy today call 1-800-544-4440.

For longer life,

William Faloon

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ENHANCE

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The daily serving of 2 softgels of Endothelial Defense™ contains:

Superoxide Dismutase/Gliadin Complex (GliSODin®) [SOD (Superoxide Dismutase) Enzyme Activity = 500 IU]	500 mg
POMELLA® Pomegranate (Punica granatum) Extract (fruit) [std. to 30% punicalagins (120 mg)]	400 mg
Pomegranate (Punica granatum) 5:1 Extract (fruit)	100 mg
PomComplete [™] Pomegranate (Punica granatum) Blend [flower extract and seed oil (standardized to 22% (30 mg) punicic acid)]	137.5 mg

POMELLA® Extract is covered under U.S. Patent 7.638.640. POMELLA® Extract is a registered trademark of Verdure Sciences, Inc. Isocell SA, France is the owner of US Patents Nos. 6,045,809 and 6,426,068B1 and the registered trademark of GliSODin®.

Contains soybeans and wheat. Contains gluten.

Next-Generation Pomegranate Power

The unique blend of pomegranate flower extract and seed oil in Endothelial **Defense** contains potent polyphenols that provide support for youthful lipid and glucose metabolism, natural immunity, and help with inflammatory factors.8

A bottle containing 60 softgels of Endothelial Defense™ with Full-**Spectrum Pomegranate™** retails for \$56. If a member buys four bottles, the price is reduced to just \$39 per bottle.



Item # 01498

To Order Endothelial Defense™ with Full-Spectrum Pomegranate™, call 1-800-544-4440 or visit www.LifeExtension.com

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- 8. Altern Med Rev. 2008 Jun;13(2):128-44.



In a startling revelation, medical costs for a family of four will run \$19,393 in the year 2011. That's an increase of \$1,319 from 2010 and double what it cost in 2002.

The obvious problem is that typical families <u>cannot</u> afford **\$19,393** yearly. Neither can their employers, their insurance companies, and certainly not our debt-laden state and federal governments.

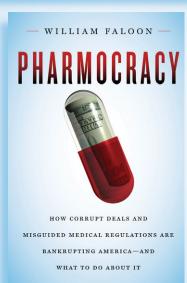
There is a **free-market solution** to today's **artificially** inflated health care costs.

Congress can amend the law to allow **free-market forces** to drive <u>down</u> sick-care costs, better enable the prevention of diseases, and facilitate rapid development of improved medical therapies.

A just-released book titled *Pharmocracy* provides factual documentation to reform the broken health care system that plagues the United States. It is more than 300 pages long because there are at least that many underlying reasons why medicine costs far more than it should.

Until now, no one has identified and amalgamated the plethora of illogical *regulations* that <u>cause</u> health care to be so overpriced.

While **Pharmocracy** exposes **FDA** corruption and ineptitude, **Congress** is the body of government that provides the FDA with enabling laws that ultimately result in needless suffering and death ... while the nation descends into financial ruin.



Implementing **free-market** approaches described in **Pharmocracy** can spare **Medicare** and **Medicaid** from insolvency while significantly improving the health and productivity of the American public.

Pharmocracy provides an irrefutable and rational basis to remove the suffocating compulsory aspect of health care regulation. It then documents how the **free market** can provide superior health care at far **lower prices** while better protecting consumers.

HOW YOU CAN COMBAT INFLATED HEALTH CARE COSTS

Fight back against institutionalized corruption that is rendering this nation insolvent. **Pharmocracy** provides a blueprint as to how motivated citizens can tear down the bureaucratic barriers that push health care costs beyond the financial reach of the typical American.

Pharmocracy is sold at a bookstore near you or can be ordered directly by calling **1-800-544-4440** or visit **www.lef.org/pharm**.

PHARMOCRACY Item # 33835 Cover price: \$24 • Member price: \$9.60 Four-book member price: \$8 each



Item # 00893

The retail price for a box containing two 5 mL vials of Brite Eyes III is \$34. If a member buys four boxes, the price is reduced to \$24 per box.

To order Brite Eyes III, call 1-800-544-4440 or visit www.LifeExtension.com vision problems.

The older eyes get, the more susceptible they become to an array of debilitating issues that can hamper eyesight and cripple quality of life. With just a few drops of the proper eye lubricant, eye irritation stemming from dryness may be alleviated.

Brite Eyes by Life Extension® provides a powerful dose of two well-established lubricants in every drop, soothing eye discomfort without irritation. Hydroxymethylcellulose and glycerin are FDAapproved for ophthalmic use and are uniquely preserved with potent antioxidants and anti-glycating agents.

The Brite Eyes formula is buffered in a way to make it soothing to the eye. The suggested use of Brite Eyes III is to apply 1 to 2 drops in each eye every day.

Each box of Brite Eyes III contains two individual vials that provide 5 mL each. The reason for putting **Brite Eyes** into individual vials is to reduce the risk of bacterial contamination. Having small vials also makes it convenient for consumers to keep Brite Eyes readily accessible at home, the office, in one's purse or pocket, and other places where access to a soothing eye drop is needed.







IN THE NEWS

Creatine May Reduce Side Effects of Statin Drugs

The nutrient most associated with an ability to help reduce the side effects of statin drugs is coenzyme Q10 (CoQ10). Numerous studies support the use of CoQ10 in combination with prescription statin drugs. However, creatine appears to be another nutrient that may be of considerable benefit to those taking statin drugs experiencing any of the classic side effects of statin drugs, such as myalgia, weakness, and lethargy.

A recent study performed at the Johns Hopkins School of Public Health found creatine highly effective for reducing the side effects of the statin drugs.* In fact, the researchers theorize one of the effects of the statin drugs may be a decrease in intracellular creatine in muscle, similar to the toxic effects of glucocorticoids and cyclosporine.

This study looked at 12 patients identified as intolerant of several different statin drugs. Amazingly, the study found that creatine loading followed by maintenance creatine therapy totally prevented myopathy symptoms in eight out of 10 patients receiving statins. More telling of the profound effect of the creatine: all patients went on to develop myopathy symptoms while receiving statins alone, which went away after creatine was reintroduced.

Creatine supplementation plus CoQ10 may be the most effective combination yet found for treating or preventing statin drug side effects.

-Will Brink

Ann Intern Med. 2010 Nov 16;153(10):690-2.

Soluble Fiber Helps **Bust Belly Fat**

In a recent article published in Obesity, researchers from Wake Forest Baptist Medical Center report an association between increased intake of soluble fiber and a reduction in visceral or belly fat that surrounds the body's organs and is considered the most dangerous type of adipose tissue.* "We know that a higher rate of visceral fat is associated with high blood pressure, diabetes, and fatty liver disease," explained lead researcher Kristen Hairston, MD.

Dr. Hairston and her colleagues evaluated data from 1,114 participants in the Insulin Resistance and Atherosclerosis Family Study. Physical examinations were conducted, and visceral and subcutaneous fat was measured via computed tomography upon enrollment and after five years. Dietary intake over the previous year was reported during the five-year follow-up visit.

Although consuming more soluble fiber was not associated with the accumulation of less subcutaneous fat, an association with decreased visceral fat accumulation over time was observed.

Editor's note: Dr. Hairston plans to conduct a clinical trial later this year to test whether consuming a soluble fiber supplement elicits a similar benefit as that suggested by the current research. Examples of soluble fiber sources are propolmannan, oat bran, flaxseed, beans, and apples.

-D. Dye

Obesity. 2011 Jun 16.

IN THE NEWS

Review Finds Improved Survival in Trials of Vitamin D3 Supplementation

A lengthy review published in The Cochrane Library reveals that supplementing older individuals with vitamin D3 is associated with reduced mortality over a two-year period.*

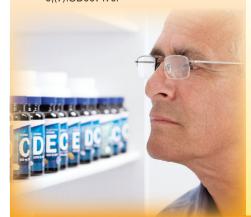
Goran Bielakovic of the University of Nis in Serbia and his European associates selected 50 randomized trials involving vitamin D supplementation, which provided a total of 94,148 participants for their analysis. The median length of supplementation with vitamin D was two years.

Dr. Bjelakovic and his colleagues uncovered a significant benefit for supplementation with vitamin D3, but not for other forms of the vitamin, on improving survival over the course of the trials. "Our analyses suggest that vitamin D3 reduces mortality by about 6%," he concluded. "This means that you need to give about 200 people vitamin D3 for around two years to save one additional life."

Editor's note: Because there were fewer trials involving other forms of vitamin D included in the current analysis, the apparent absence of a survival benefit for these forms needs to be taken with caution. The dose of vitamin D3 used in these trials was far less than the 5,000 IU to 10,000 IU most Life Extension members use today.

-D. Dve

Cochrane Database Syst Rev. 2011 Jul 6;(7):CD007470.



Flavonoid Prevents Diabetic Complications

Recently, the journal PLoS ONE reported the discovery by Salk Institute for Biological Studies researchers of a benefit for fisetin in the prevention of several complications that can result from diabetes.* Fisetin is a flavone found in abundance in strawberries, and smaller quantities in other fruit and vegetables.

Salk Institute Cellular Neurobiology Laboratory head David Schubert, PhD, and his associates evaluated the effects of fisetin in healthy control mice and Akita mice bred to develop type 1 diabetes. The latter developed kidney disease, retinopathy, and neuropathies typical of human type 1 diabetics.

Although the diabetes in animals that received fisetin remained, kidney enlargement and urinary protein decreased compared to diabetic mice that did not receive the compound. Anxiety-related symptoms, which are a central nervous system complication that occurs in many human diabetics, were also reduced in animals that were given fisetin.

Editor's note: Dr. Schubert remarked, "We will never know if a compound like fisetin works in humans until someone is willing to support a clinical trial.

—D. Dve

* PLoS ONE. 2011;6(6):e21226.

Studies Show How Tocotrienols Reduce Stroke Damage

Reports published online in the Journal of Cerebral Blood Flow & Metabolism¹ and in the journal Stroke² reveal the findings Chandan K. Sen and his associates discovered of protective effects for tocotrienols against the damage incurred by stroke.

In the first article, Dr. Sen and colleagues reported the effect of tocotrienols in a canine model of stroke. Animals that received tocotrienols experienced less overall brain damage, decreased loss of neural connections and better blood flow to the affected area (from collateral vessels) compared with those that did not receive the compounds.1

In the Stroke article, Dr. Sen and coauthors describe experiments with alpha-tocotrienol that uncovered one of three mechanisms by which the compound helps prevent the death of brain cells following stroke. The current research demonstrated that tocotrienol activates genes that produce multidrug resistance-associated protein 1 (MRP1), a protein that clears away intracellular oxidized glutathione, which accumulates during stroke and triggers brain cell death.2

Editor's note: Alpha-, beta-, gamma-, and delta-tocotrienols are four of the eight forms in which vitamin E occurs and, while not abundant in Western diets, are available in supplemental form.

-D. Dye

- 1. J Cereb Blood Flow Metab. 2011 Jun 15.
- 2. Stroke. 2011 Aug;42(8):2308-14.



Vitamin D Insufficiency **Associated with Football Injuries**

The American Orthopaedic Society for Sports Medicine's Annual Meeting held in San Diego was the site of a presentation by Michael Shindle, MD, and his colleagues showing a higher incidence of vitamin D insufficiency among National Football League players with muscle injuries.*

The current study included 89 NFL players aged 21 to 32 years. Vitamin D deficiency was identified in 27 participants, and insufficient levels were observed in 45 subjects. Caucasian players had an average level of 30.3 nanograms per milliliter, while African Americans averaged 20.4 nanograms per milliliter. Among those with muscle injury, vitamin D levels averaged 19.9 nanograms per milliliter, which is considered deficient.

Co-author Joseph Lane, MD, of the Hospital for Special Surgery concluded that, "Further research also needs to be conducted in order to determine if increasing vitamin D leads to improved maximum muscle function."

Editor's note: Scott A. Rodeo, MD, who is co-chief of the Sports Medicine and Shoulder Service at the Hospital for Special Surgery, added that, "Screening and treatment of vitamin D insufficiency in professional athletes may be a simple way to help prevent injuries."

-D. Dve

American Orthopaedic Society for Sports Medicine's Annual Meeting. July 7-10, 2011. San Diego, California.

IN THE NEWS

Omega-3 Supplementation Soothes Anxiety, Inflammation

In an article published in Brain, Behavior and Immunity, researchers at Ohio State University College of Medicine report that supplemental omega-3 fatty acids from fish oil lower anxiety as well as the stress-associated increase in pro-inflammatory molecules known as cytokines in healthy young adults without anxiety disorders.*

Janice Kiecolt-Glaser and her colleagues divided 68 first- and second-year medical students, who experience significant levels of stress, to receive omega-3 fatty acids or a placebo. Those who received omega-3s had a 20% reduction in anxiety compared to those who received the placebo, as well as lower amounts of proinflammatory cytokines.

"We saw a 14% reduction in the amounts of interleukin-6 among the students receiving the omega-3," stated Ohio State professor of molecular virology, immunology, and medical genetics Ron Glaser, PhD. "Anything we can do to reduce cytokines is a big plus in dealing with the overall health of people at risk for many diseases," he added.

Editor's note: The supplement used in the study provided about four or five times the amount of fish oil contained in a daily serving of salmon.

-D. Dve

Brain Behav Immun. 2011 Jul 19.

Higher Vitamin D Levels Improve Osteoporosis Drug Response

The Endocrine Society's 93rd Annual Meeting was the site of a presentation of the finding of Richard Bockman, PhD, and his associates of a better response to treatment with bisphosphonate drugs among women whose vitamin D levels were higher than the range of 20 to 30 nanograms per milliliter considered adequate by the Institute of Medicine.*

The current study included 160 women with osteoporosis who had been using bisphosphonates for 18 months or more and who had received at least two bone mineral density scans separated by up to 5 years. Eighty-nine of the participants were classified as responders to bisphosphonates, and 71 were nonresponders.

Bisphosphonate responders were seven times likelier than nonresponders to have a 25-hydroxyvitamin D level of 33 nanograms per milliliter or higher. "If you want to see a particular outcome from this treatment, then maybe 20 to 30 is not appropriate," Dr. Bockman stated.

Editor's note: "This value of at least 33 nanograms/milliliter is higher than the level considered as 'adequate' by the Institute of Medicine report for the general population and most likely requires a vitamin D intake higher than 600 IU for this therapeutic outcome," Dr. Bockman stated.

The Endocrine Society 93rd Annual Meeting. June 4-7, 2011. Boston, Massachusetts.

IN THE NEWS

Broccoli Compound Goes After Cancer Cells

A study reported in Molecular Nutrition & Food Research shows that sulforaphane, a compound that occurs in cruciferous vegetables including broccoli, targets cancer cells by inhibiting a family of enzymes known as histone deacetylases while leaving healthy cells alone.* Histone deacetylase inhibitors help turn on tumor suppressor genes that are silenced in cancer cells. restoring normal function.

Emily Ho and her colleagues studied the effects of sulforaphane in normal, benign hyperplastic and prostate cancer epithelial cells. They found that the compound induced cell cycle arrest and programmed cell death in prostate hyperplasia and cancer cells, while not affecting normal cells.

"It is well documented that sulforaphane can target cancer cells through multiple chemopreventive mechanisms." the authors write.

"Here we show for the first time that sulforaphane selectively targets benign hyperplasia cells and cancerous prostate cells while leaving the normal prostate cells unaffected," they announce.

Editor's note: Oregon State University researchers had previously found that giving mice a high-sulforaphane diet retarded prostate tumor growth.

-D. Dye

Mol Nutr Food Res. 2011 Jul;55(7):999-1009





Movie Premiere: **Transcendent Man** with Ray Kurzweil

TRANSCENDENT MAN chronicles the life and ideas of Ray Kurzweil, an inventor and futurist who presents his bold vision of the Singularity, a point in the near future when technology will be changing so rapidly that we will have to enhance ourselves with artificial intelligence to keep up. Ray predicts this will be the dawning of a new civilization in which we will no longer be dependent on our physical bodies, we will be trillions of times more intelligent. and there will be no clear distinction between human and machine, real reality and virtual reality.

Ray predicts that human aging and illness will be reversed, world hunger and poverty will be solved, and we will ultimately cure death. Critics accuse Ray of being too optimistic and argue that the dangers of the Singularity far outweigh the benefits, pointing out the apocalyptic implications that once machines achieve consciousness, we may not be able to control them. Whether Ray's controversial ideas incite excitement or fear, dogma or disbelief, this ambitious documentary will forever change the way you look at life, death, and your own future.

For more information, visit: http://transcendentman.com/

-Felicia Ptolemy and Celia Black

ANTI-AGING PRACTICE IN INDONESIA

PERPASTI (Indonesian Society of Anti-Aging Physicians) is the first and biggest medical society of anti-aging practitioners in Indonesia.

It was officially announced on September 3, 2006, in Jakarta by the Minister of Health of the Republic of Indonesia. Although it is a young organization, the founders were very keen to absorb the knowledge and practice anti-aging medicine for themselves and their patients. Furthermore, a series of seminars, symposia, and workshops were held in Jakarta and other cities in Indonesia (which is home to more than 220 million people). Almost 700 doctors attended these seminars, including specialists of all kinds and general practitioners. This speaks to the broader appeal of the organization, which among its founders comprises dermatologists, lung specialists,

pharmacologists, pathologists, naturopathic and homeopathic doctors, estheticians, advanced hormone therapists, epidemiologists, and physical exercise specialists.

Topics that were brought forward included obesity, stress reduction. esthetics/cosmetics, growth hormone, integrative cancer therapy, improving quality of life, and growing older without aging.

The desire to disseminate the science and skill of teaching wellness and anti-aging medicine has prompted chapters of PERPASTI to open up in cities throughout Indonesia.

The upcoming Congress in September-October 2011 will bring forward the latest developments in this medical specialty.

> For registration information, call 021-3915158 or visit www.perpasti.com.





Aging is Characterized by Inflammation, Glycation, and Mitochondrial Decay

The loss of cellular vitality is caused by a number of factors, including mitochondrial problems, glycation, and free-radical reactions. Life Extension® members have access to a state-of-the-art nutritional formula called MITOCHONDRIAL ENERGY OPTIMIZER WITH BIOPQQ™ that helps protect delicate cellular structures and enables cells to perform life-sustaining metabolic processes.

Mitochondrial Energy Optimizer with BioPQQ™ is designed to counteract age-related structural and functional changes by providing the following unique ingredients:

- **CARNOSINE** As humans age, proteins in their bodies become **irreversibly** damaged by glycation reactions. Glycation is the cross-linking of proteins and sugar to form **non-functioning** structures (Advanced Glycation End Products or "AGEs") in the body, which can lead to alterations of normal cell function. **Carnosine** is not only a powerful **anti-glycating** agent, but it also protects **neurons** against reactive and cytotoxic protein carbonyl species associated with normal aging.1-5
- PQQ This breakthrough micronutrient has recently been shown to trigger *mitochondrial biogenesis*—the growth of <u>new</u> mitochondria in aging cells!⁶ PQQ also activates genes involved in protecting the delicate structures within the mitochondria.7-10
- **LUTEOLIN** Systemic inflammation is involved in most undesirable consequences of aging. Culprits behind chronic inflammatory reactions are pro-inflammatory cytokines, such as interleukin-1 and tumor necrosis **factor alpha**. Luteolin is a super-potent plant extract that has been shown to modulate these dangerous inflammatory cytokines. 11-16
- **BENFOTIAMINE** Effectively modulates multiple destructive biochemical pathways, including AGEs' formation pathway, which are induced by higher than desirable blood glucose levels. Human mortality studies indicate that ideal fasting glucose levels are between 74-85 mg/dL. Yet many aging people have fasting glucose above **90** mg/dL, which is less than optimal. 16-19 Benfotiamine protects endothelial cell integrity from the effects of high glucose levels. In addition, benfotiamine exhibits direct antioxidative capacity and prevents induction of DNA damage.20
- PYRIDOXAL 5'-PHOSPHATE Aging results in the formation of advanced glycation end-products throughout the body. Pyridoxal 5'-phosphate is the active form of vitamin B6 that has been shown to protect against both lipid and protein glycation reactions.²¹⁻²⁴

- R-LIPOIC ACID Destructive free-radical activity in the mitochondria plays a major role in the loss of cellular vitality. A microencapsulated Bio-Enhanced R-lipoic acid facilitates youthful mitochondrial energy output while quarding against free radicals. Two forms of lipoic acid are sold on the supplement market, but **R-lipoic acid** is far more potent.²⁵⁻²⁸
- **ACETYL-L-CARNITINE ARGINATE** The amino acid L-carnitine is required to transport fats into the **mitochondria** to be burned for cellular energy. Acetyl-L-carnitine arginate is a patented form of carnitine that also supports neurites in the brain.29

Taking all of the individual ingredients in the **Mitochondrial Energy** Optimizer with BioPOO™ separately would be prohibitively expensive, but Life Extension members obtain this comprehensive formula at substantial savings.

A bottle of **Mitochondrial Energy Optimizer with BioPQQ™** containing **120 capsules** retails for \$94. If a member buys four bottles, the price is reduced to \$63 per bottle. Contains soybeans.

with BioPQQ™ provide:		
Carnosine	1000 mg	In a
ArginoCarn® Acetyl-L-carnitine arginate DiHCl	675 mg	ife Extens
Bio-Enhanced® R-Lipoic acid (microencapsulated)	150 mg	MITOCHONDR ENERGY OPTIM with BioPOQ"
Benfotiamine	150 mg	Supports Optimal Mitochool Biogenesis and Function
Pyridoxal 5'-Phosphate	100 mg	Dietary Supplement 120 Capsules
BioPQQ™	10 mg	
Luteolin	8 mg	Item # 01568

To order Mitochondrial Energy Optimizer with BioPQQ™, call 1-800-544-4440 or visit www.LifeExtension.com

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 9. Entirez Gene: CRESBP CRE Bi binding protein [Homo sapiens] Genello: 1387.

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Bio-Enhanced® is a registered trademark of GeroNova Research, Inc. ArginoCarn® is a registered trademark of Sigma-tau HealthScience, Inc. and is protected by U.S. patent nos. 6,365,622, US 6,703,042, and EP1202956. BioPQO™ is a trademark of MGC (Japan).



Life Extension® first introduced SAMe in 1997. Since then, researchers continue to discover impressive benefits of this versatile nutrient. Largely known for its effects on optimal mood, SAMe has also shown benefits for the liver, brain, and joints.

A recent study conducted at Harvard Medical School and Massachusetts General Hospital cited the impressive benefits of SAMe for mood elevation.¹

A report published in Germany indicates that SAMe may help maintain healthy neurological function.* The impressive results showed that:

- SAMe <u>increased</u> glutathione levels by 50% and glutathione enzyme activity by 115%.²
- SAMe <u>decreased</u> a measurement of free radical activity by 46%.²
- SAMe inhibited lipid peroxidation by 55% in culture.²

In addition to these findings, SAMe also improves brain cell **methylation**, thereby facilitating youthful **DNA enzymatic actions** (which may help account for SAMe's mood elevating properties). These enzymatic reactions are required for the healthy conversion of neurotransmitters such as **serotonin** and **dopamine**.



The good news is that **SAMe** prices continue to **plummet**. Compared to when SAMe was first introduced to the United States in 1997, Life Extension members can now obtain it for **78% less**. On an inflation-adjusted basis, the savings are even greater.

A box of 20 **400 mg** SAMe tablets retails for \$32. When a member buys six boxes, the price is reduced to only **\$18.75** a box—a **savings of 40%!**

(SAMe is also available in bottles containing 50 400 mg tablets. Retail price is \$72. If a member buys four bottles, the price is reduced to \$49.50 per bottle.) (Item #01055)

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To order your supply of premium-grade SAMe, call 1-800-544-4440 or visit www.LifeExtension.com

CAUTION: SAMe should not be taken by those diagnosed with bipolar disorder.



SLASH YOUR RISK for Premature Death with OMEGA-3s

BY DELIA WILDER

For years, consumers have been learning of the benefits of reducing cardiovascular disease by ingesting **omega-3 fatty acids**. This message has made its way into the mainstream as cardiologists now prescribe omega-3 supplements to their patients.¹

Far beyond the benefits of heart disease reduction, scientists have discovered startling new data that omega-3 fatty acids *slash* the *overall risk* of an early death.¹⁻⁴ That reduction is seen not only in people with known chronic diseases but even in those who are apparently healthy. Published studies show that you can *reduce your risk of dying prematurely by as much as 85%* by maintaining optimal levels of omega-3 fats in your body.⁵ >>

A wealth of published studies has demonstrated a significant reduction in mortality with the use of fish oils. In one such report, scientists studying people who had lived through a heart attack were shocked to find that patients with the highest levels of omega-3s in their blood were prevented from dving of any cause, not just heart-related conditions.6 In a similar study, people who'd had heart attacks were found to have a much lower likelihood of a dangerous cardiac arrhythmia called atrial fibrillation if they had high omega-3 levels—and had an incredible 85% lower risk of dving from all causes in addition.⁵

Intrigued, scientists began looking at healthy people with no evident heart disease. Would the protection apply to those people as well? The answer is ves. When a large group of Norwegian men 64-76 years of age were supplemented with 2.4 g/day of omega-3s, they had a 47% reduction in risk of dving from all causes compared with a placebo group. Women can achieve similar levels of protection: a massive Australian dietary intake study found that women with the highest omega-3 consumption had a 44% reduction in risk of mortality from inflammatory diseases.4 The effect was dose-related: for each standard-deviation increase in omega-3 intake, women achieved a 17% reduction in their risk of dving.

What explains this remarkable and consistent reduction in "all-cause mortality?" There are many factors at work, but one of the most important is related to the ways in which your dietary fat intake affects your body's inflammatory status.^{8,9} A high intake of omega-3s (from cold-water fish, from flax seed oil, and

from fish oil supplements) can push your body from a dangerous pro-inflammatory condition to a healthier, lower-inflammation state. 10 And that has direct impact on your chances of living longer.

Omega-3 Fats and Inflammation: Steps Toward a Longer Life

The typical Western diet now contains a vast excess of omega-6 fats (largely derived from poultry products and certain vegetable oils). Other animal products are rich in saturated fats, not omega-6 fats and not nearly enough omega-3s (which we get from ocean fish and plant foods such as nuts and flax seeds). 11,12

The optimum ratio of omega-6 to omega-3 fats in the diet is roughly 4 to 1, though some proponents claim the ratio should be two omega-6s for each one omega-3. Shockingly, those who follow unhealthy modern Western diets often consume these fats in ratios as high as 25 (omega-6) to only 1 (omega-3). 10,11

The resulting increase in inflammatory cytokines from insufficient omega-3 intake creates chronic, low-grade inflammation that directly exacerbates aging and may contribute to early death from myriad chronic conditions. 9,13,14 In other words, inflammation is aging at a very fundamental level.9

That's why high consumption of omega-3s, particularly EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) found in fish oil has such a dramatic impact on your risk of dying. By nudging your omega-6 to omega-3 ratio back toward the optimum, you can significantly reduce your body's inflammatory load.



You should do that by reducing your intake of saturated fat (from meat and dairy), reducing omega-6s (from poultry and certain vegetable oils), and increasing your intake of omega-3s (from fish, fish oil, and flax seed oil). By supplementing with omega-3s, you can increase your chances of living longer and better. by cutting your risk of a host of age-related, longevitystealing chronic conditions that originate with inflammation. The evidence is detailed and compelling.

Omega-3s Combat Stress and Cortisol Damage

Chronic stress and the resulting elevation in stress hormones (cortisol, epinephrine, norepinephrine) accelerate aging. 15 They are major contributors to premature death from a variety of causes, mostly related to increased risk of chronic cardiovascular, infectious, and metabolic disorders. 15-17 There's also evidence that chronic stress itself lowers your blood levels of omega-3s.18

Supplemental omega-3s can inhibit the excessive adrenal gland stimulation that triggers stress effects.^{19,20} Studies of healthy adults subjected to biological and emotional stress demonstrate that omega-3 supplementation from fish oil prevents cortisol, epinephrine, and norepinephrine elevations. 20-23 Plantderived omega-3 supplements in animal studies not only blocked cortisol elevations, but countered stressinduced learning deficits.²⁴

Omega-3s Battle Depression, Anxiety

Victims of chronic mental illness, particularly depression and anxiety, have a shockingly high rate of premature death from "natural causes." 25,26 These illnesses can cost men nearly 15 years of life expectancy and women nearly 18 years.²⁷ Depression, the most common mental illness, affects more than 5% of the US population during any given 2-week period. and is strongly correlated with dying early.²⁸

Scientific discoveries in the past decade demonstrate roles for omega-3s in the management of mental illness, especially depression and anxiety. Omega-3s are essential components of brain cell membranes and may help increase nerve cell transmission of signals with serotonin, levels of which can be abnormal in depression.^{29,30} Their anti-inflammatory effects also show promise in preventing depression-related loss of brain cells.31

People with major depressive disorder and bipolar disorder have low brain levels of omega-3s. 32,33 Those low levels are closely associated with worsening depression and even predict an increased risk of



Slash Your Risk for Premature Death with Omega-3s

- Omega-3 fatty acids have a well-established role in preventing cardiovascular disease and death.
- Recent studies are revealing a role for these beneficial fats in reducing your risk of premature death from numerous causes.
- By reducing your total body level of inflammation, omega-3s can slash the risk of many conditions that cause us to die early.
- Keeping your omega-3 levels high, and your omega-6 levels low, can help prevent the metabolic syndrome, symptoms of depression and anxiety, a variety of forms of cancer, and many forms of liver and kidney diseases, all of which are associated with premature death.
- Omega-3s also contribute to reducing the deadly effects of chronic stress and high cortisol levels.
- If you aren't supplementing with at least 2 grams/day of a high-quality omega-3 product, you may be unnecessarily courting an early death.

suicide.34 Conversely, higher dietary intake of omega-3s is associated with as much as a 34% reduction in risk of symptomatic depression, compared with people having the lowest rate of consumption.³⁵

Omega-3 supplementation has by now become much more accepted because of its dramatic effectiveness in managing depression. Studies show that daily doses of 1 gram or more of EPA and DHA significantly reduce scores on standard depression rating scales, especially in older adults. 36-38

Anxiety can be a crippling short-term problem that also contributes directly to *premature death*; one study found a 77% increase in mortality risk among anxious women at midlife. 39-41 Omega-3 supplementation may be important in managing symptoms of anxiety as well as depression. An omega-3-rich mixture of essential fatty acids lowered test anxiety in one early human study.⁴⁰ Later studies demonstrated reduction of anxious feelings in populations of substance abusers treated with 3 grams/day of EPA plus DHA.42

Omega-3s: Powerful Weapons against Metabolic Syndrome

The metabolic syndrome is a clustering of risk factors including abdominal obesity, elevated fasting glucose (also called insulin resistance or "pre-diabetes"), hypertension, elevated triglycerides, and lowered high-density lipoprotein (HDL). This syndrome contributes to disease risk that may increase the chances of an early death from multiples causes. 43-47



Epidemiological evidence suggests that people with low levels of omega-3s in their blood have as much as a **2.4-fold** higher risk of having metabolic syndrome.⁵² On the other hand, people with the highest intakes of omega-3s have as much as a 46% lower risk of metabolic syndrome.^{49,50}

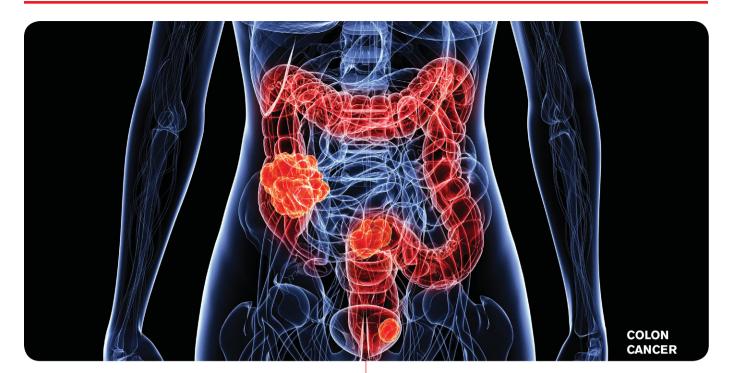
Supplementation with omega-3s at doses ranging from 1-3.7 grams per day has now been shown to improve all 5 parameters of the metabolic syndrome:

- Treatment with omega-3s has an *anti-obesity* effect.51 It reduces total fat mass, abdominal fat mass, the size of individual fat cells, and raises levels of the beneficial cytokine adiponectin. 52,53
- Higher plasma omega-3 levels correlate with improved insulin sensitivity and glucose tolerance. 50,54 Supplementation both prevents and reverses insulin resistance, especially in the face of a high-fat diet. 55,56
- Average doses of 3.7 grams/day of fish oil reduce both systolic and diastolic blood *pressure*. 57 Additional studies with doses as low as 1 gram/day also showed decreases in systolic blood pressure.58
- Omega-3 supplementation dramatically *lowers* triglycerides and other risk factors for atherosclerosis. 52,58-60 One gram per day of fish oil was shown to normalize triglyceride levels in elderly people and protect them from rising levels.⁶¹
- Higher omega-3 plasma levels are correlated with *higher HDL* levels. 50 Supplementation with omega-3s resulted in a reduction in the ratio of triglycerides to HDL level, a beneficial change.⁵²

Omega-3s Fight Cancer at Its Earliest Stages

Cancers of all kinds are common causes of untimely death. Diet has long been known to be an important factor in the development of many kinds of cancer. The Mediterranean dietary pattern, abundant in vegetables, fruits, and omega-3-rich fish, is associated with low cancer rates. 62 One study comparing the Mediterranean diet with an American Heart Association-recommended diet found a 56% reduction in risk of developing cancer and a 61% reduction in risk of dying from cancer.⁶² The Mediterranean diet group's intake of omega-3 fats was also significantly higher than in the control group.

Cancers of the digestive tract are common and also the most susceptible to prevention with omega-3 fats.



These cancers have a strong inflammatory component, which may explain at least part of the benefits of omega-3 fatty acids.⁶³ Laboratory and human clinical studies demonstrate that omega-3 treatment causes decreased proliferation and increased cell death (apoptosis) of cancer-prone colon cells, while healthy tissue is unaffected.^{64,65} Effective doses range from 2.5 to 7.7 grams/day of fish oil.64,66 Two grams/day of EPA alone can reduce the number of precancerous rectal polyps in patients at high risk for colorectal cancer.⁶⁷

Inflammation also plays a major role in skin cancer development following exposure to ultraviolet (UV) rays from the sun.⁶⁸ Not surprisingly, studies show that omega-3s have a role in protecting skin cells from the cancer-causing effects of the sun. 68,69 Four grams per day of purified omega-3s protected a group of healthy subjects from sunburn, UV-induced precancerous changes in skin, and DNA damage in circulating blood cells.70

Cancers of the breast and prostate are also responsive to omega-3 prevention. Men with the highest blood levels of EPA and DHA have a 38-41% reduced risk of prostate cancer, compared with those having the lowest levels.71 Treatment with omega-3s reduced the rate at which prostate cancers progress to the dangerous state of independence from hormonal control; that progression is typically the harbinger of an untreatable cancer and early death.⁷²

In a group of premenopausal women at high risk of breast cancer, those consuming the highest ratio of omega-3:omega-6 fats had a 50% reduction in their risk of developing cancer.⁷³ Women who had been

diagnosed and treated for early breast cancer, and whose diet contained the largest amount of omega-3s, had a 25% reduction in the risk of cancer recurrence.74 High-risk women who supplemented with 2.5-7.6 grams/day of DHA/EPA achieved excellent levels of these omega-3s in their breast tissue and had no side effects.75

Omega-3s: Vital Protection for Kidney and Liver Function

Kidney disease kills more than 46,000 Americans annually and is the ninth leading cause of death in the US; roughly 4.5 million of us suffer from kidney disease of one form or another.76 Although there are many different types of kidney disease, most of them share a significant oxidative and inflammatory component that can be helped by high levels of omega-3s.77-80 In one large study, people consuming the highest amounts of omega-3s had a 31% reduction in their risk of developing chronic kidney disease.⁷⁸ And kidney transplant recipients with higher levels of omega-3s in their blood had significantly lower risk of transplant rejection than did those with lower levels.81

Kidney disease (and its treatment) imposes massive metabolic and oxidative stress on the victim's body, accounting in part for a high mortality rate. Dialysis patients taking EPA/DHA 1.8 grams/day experienced significantly lower levels of harmful adrenal stimulation compared with controls, and 3.4 grams/day dropped their triglyceride levels significantly, thereby lowering their heart attack risk. 19,82

Two grams/day of EPA/DHA significantly reduced markers of inflammation in patients with end-stage renal disease, while 2.1 grams/day of fish oil reduced markers of oxidative stress.83,84 A dose of 4 grams/day of fish oil substantially improved renal function in diabetic patients, a group at major risk of early death from kidney disease.85

Non-alcoholic fatty liver disease (NAFLD) affects up to 35% of the world's population. Its dangerous consequence called non-alcoholic steatohepatitis (NASH) may lead to cirrhosis of the liver, a cause of premature death in the United States.86-88 The massive liver accumulation of triglycerides in NAFLD is also strongly associated with diabetes and cardiovascular disease, further reducing longevity.⁸⁹ Mainstream medicine has proved impotent to date at slowing the progression of NAFLD to NASH, or at reducing its potentially deadly consequences.90

As with all of the other causes of early death, a high intake of omega-3s is strongly preventive of NAFLD: men with the greatest consumption of EPA/DHA had a **52-56% reduction** in their risk of having the condition.⁸⁹ Supplementation with omega-3s provides impressive protection and treatment for people with NAFLD. Studies show that doses of 1 gram/day and

Still More Ways Omega-3s Can Keep You From Dying Too Early

There's compelling evidence that omega-3s play a role in some less-than-obvious causes of early death. For example, osteoporosis, which affects more than 4.5 million American women and an additional 800,000 men,95 causes fractures that are major contributors to premature death, often ending an otherwise productive life in a prolonged and painful fashion.96-98 Keeping omega-3 levels optimum may help to prevent osteoporotic fractures and thus reduce your risk of early death. 95-105

Chronic lung diseases such as asthma and COPD (chronic obstructive pulmonary disease) also significantly shorten life span. 106 Again, there's a wealth of evidence supporting a role for omega-3s in mitigating the inflammatory state that triggers these conditions and contributes to early death.¹⁰⁶⁻¹¹⁶

Given the role of inflammation in the aging process, it just makes sense to ensure that our omega-3 levels are as high as possible.

more result in marked improvements in serum markers of liver cell damage, reductions of circulating triglycerides, and visible improvement in liver texture and blood flow on Doppler ultrasound tests. 91-93

Summary

Americans die too young, despite the highest expenditures on prescription drugs in the world.94 We succumb to a host of chronic conditions typically labeled "age-related," though aging is not the only inducing factor. Instead, we are falling victim to persistent inflammatory changes brought on in large part by poor dietary choices.

Compelling studies demonstrate that people with high omega-3 intakes live longer. We now have a clear understanding of why: they have lower rates of virtually every one of the "age-related" conditions that hasten death.

You should consume at least two grams (2,000 milligrams) of EPA/DHA daily to emulate studies showing reduction in risk of early death.

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





"TRADITIONAL" RISK REDUCTION BY OMEGA-3 INTAKE

Condition	Outcome
Overall death from cardiac causes	20-29% fewer deaths in supplemented patients ^{1,2}
Risk of sudden cardiac death	13-57% lower risk in patients supplemented with 1.8 g/day EPA/DHA ^{2,3}
Risk of non-fatal cardiac events	8% lower risk in patients supplemented with 1.8 g/day EPA/DHA³
Risk of hospitalization for cardiac arrythmia (atrial fibrilation)	81% lower risk in supplemented patients ⁵
Risk of depression, anxiety, or stress	28-35% lower risk in those with highest intake ¹¹⁷

REDUCTION IN RISK OF ALL-CAUSE MORTALITY BY OMEGA-3 INTAKE

Study Population	Reduction in All-Cause Mortality
Heart attack survivors	71-85% reduction in supplemented patients or those with highest omega-3 levels ^{5,6}
Patients with stable coronary heart disease	27% reduction in supplemented patients or those with highest omega-3 levels ¹¹⁸
Breast cancer survivors	41% reduction in those with highest EPA and DHA intake ⁷⁴
Hemodialysis patients	57% reduction in those with highest DHA levels ¹¹⁹
Healthy women ≥ 49 years old	44% reduction in inflammatory disease mortality in those with highest omega-3 intake4
Men without overt cardiovascular disease	47% reduction in patients supplemented with 2.4 g/day omega-37

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PROSTATE FORMULA PROVIDES ULTRA PROTECTION

Ultra Natural Prostate Formula combines <u>eleven</u> cutting-edge *natural* ingredients that have been scientifically substantiated to protect the prostate gland and maintain its healthy function.* One of the newest additions to the formula is **European pumpkin seed oil extract**, which is rich in **delta-7 sterols** and **fatty acids**.

The formula provides **saw palmetto extract** and **Graminex Flower Pollen Extract**™ to interfere with DHT activity and help regulate inflammatory reactions in the prostate.* **Lycopene** is a carotenoid that has been added to the formula to help maintain healthy DNA gene function in prostate cells.

In order to boost its anti-estrogen capabilities, **Ultra Natural Prostate Formula** incorporates **HMRLignan**[™],
derived from Norway spruce, flax lignans, and **nettle root extract**.

Since normal aging can lead to potentially unsafe levels of prostaglandins in the prostate, *Pygeum africanum* extract is included to help suppress prostaglandins and thereby promote prostate comfort.* **Beta-sitosterol** has been added because it is the most biologically active component of *pygeum* and enhances its protective effects.

Ultra Natural Prostate Formula also contains **5-LOXIN**° **boswellia extract** to protect against the dangerous enzyme *5-lipoxygenase* and the mineral

boron to help slow elevation of prostatespecific antigen (PSA).

The retail price for one bottle of **Ultra Natural Prostate Formula** is \$38. If a member buys four bottle, the price is reduced to **\$26.25** per bottle. If a member buys 12 bottles, the price is reduced to **\$24** per bottle.

Contains soybeans and corn.

The daily dose of two softgels of Ultra Natural Prostate Formula provides:

USPlus® Saw Palmetto (CO ₂ DeepExtract™)	320 mg
(std to 85%-95% total fatty acids and sterols)	
Graminex Flower Pollen Extract™	252 mg
5-LOXIN®	70 mg
Pumpkin seed oil (Cucurbita pepo)	200 mg
extract (standardized to 85% total fatty acids)	
Stinging nettle root extract (Urtica dioica)	240 mg
Pygeum extract	100 mg
Lycopene	10 mg
Phytosterol complex	678 mg
(standardized to 26.6% free beta-sitosterol)	
Proprietary blend of HMRlignan™	20.15 mg
Norway Spruce and ActiFlax™ Flax Lignan extrac	ts
Boron	3 mg

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To order Ultra Natural Prostate Formula, call 1-800-544-4440 or visit www.LifeExtension.com



Health-conscious individuals know the vital importance of the omega-3s found in **fish oil** for heart health and brain support. Over **14,000** scientific studies in the past 35 years confirm the benefits of the omega-3 fatty acids EPA and DHA at *any* stage in life.

Yet many young people aren't getting enough. **Omega-3 Chewables** offer a low-dose way to *augment* their current nutritional regimen.

Cutting-Edge Delivery System

Omega-3 Chewables feature a state-of-the-art *micro-encapsulation technology*.

This "double-shell" protection system keeps the fish oil locked into tiny capsules contained in each soft chew. They pass intact into your gastrointestinal tract, where they're broken down and absorbed.

No fishy taste, no aftertaste.

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Sourced from small-species fish harvested in pristine waters off the coast of South America, the fish oil in **Omega-3 Chewables** is thoroughly tested for safety and purity. It conforms to global health standards, including those established by the European Union, Health Canada, and the Food and Drug Administration (FDA).

A Convenient Way to Eat Your Omega-3s

Each Omega-3 Chewable supplies **120 mg** of **EPA** and **DHA** fatty acids. It's a nice way to help **children** (and some adults) increase their omega-3 intake.

Most adults will continue to rely on **Super Omega-3** with **Sesame Lignans and Olive Fruit Extract** softgel capsules to meet optimal potencies.

A re-sealable pouch containing 60 individually wrapped soft chews retails for \$24. If a member buys 4 pouches, the price is reduced to only **\$16.50** per pouch.

Contains fish (anchovy, sardine). Contains corn and rice.

Supportive but not conclusive research shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease.

Caution: If you are taking anti-coagulant or anti-platelet medications, consult with your healthcare provider before taking this product.



Item# 01518

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



There's no debating the power of omega-3 fatty acids. From support for heart health and brain function to help with inflammation, their broad-spectrum benefits have been firmly established in a wealth of studies. 1-9

To ensure the purest, most stable, easy-to-tolerate fish oil supplement, Life Extension® SUPER OMEGA-3 EPA/ **DHA** is molecularly distilled. This patented process ensures any pollutants are reduced to virtually undetectable levels. The result? Our fish oil enjoys a 5-star rating for purity, quality, and concentration from the International Fish Oil Standards program (IFOS)—the highest possible rating from the world's premier testing laboratory.

Sesame Lignans and Standardized Olive Fruit Extract for Enhanced Benefits

Fish oils (and other fatty acids) have a tendency to oxidize, rendering them nutritionally inferior. Scientific studies show that when added to fish oil, sesame lignans safeguard against oxidation and direct fatty acids toward pathways that help with inflammatory reactions.10

To further emulate the benefits of a Mediterranean diet, Super Omega-3 delivers standardized, high-potency olive fruit extract. Research shows that when combined with olive oil, fish oil supplements help with inflammation better than fish oil alone.11

Olive also contains the compounds hydroxytyrosol, tyrosol, and oleuropein. Together these nutrients counter the action of free radicals, delay aging in specialized skin cells, prevent undesirable LDL oxidation, and help maintain normal platelet activation.12-15

Super Omega-3 supplies the equivalent content of **6 ounces of extra virgin olive oil**. Take <u>two</u> softgels twice daily with meals.

A bottle containing 120 softgels of Super Omega-3 EPA/ **DHA with Sesame Lignans and Olive Fruit Extract** retails for \$32. If a member buys four bottles, the price is reduced to just \$21 per bottle. If 10 bottles are purchased, the cost is just \$18.68 per bottle. Item #01482



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EPA Pure+™ Extract (eicosapentaenoic acid)	1400 mg
DHA Pure+™ Extract (docosahexaenoic acid)	1000 mg
Olive Fruit Extract [std. to 6.5% polyphenols (39 mg), 1.73% hydroxytyrosol/tyrosol (10.4 mg), 0.5% verbascoside/oleuropein (3 mg)]	600 mg
Sesame Seed Lignan Extract	20 mg

For those with sensitive stomachs, Super Omega-3 is also available with enteric coating and retails for \$34. If a member buys four bottles, the price is reduced to \$23.25 per bottle. If 10 bottles are purchased, the cost is just \$21 per bottle. Item #01484

To order the most advanced fish oil supplement, Super Omega-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract (with or without enteric coating), call 1-800-544-4440 or visit www.LifeExtension.com

CAUTION: If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product. Contains fish (anchovy, mackerel), soybeans, and sesame.

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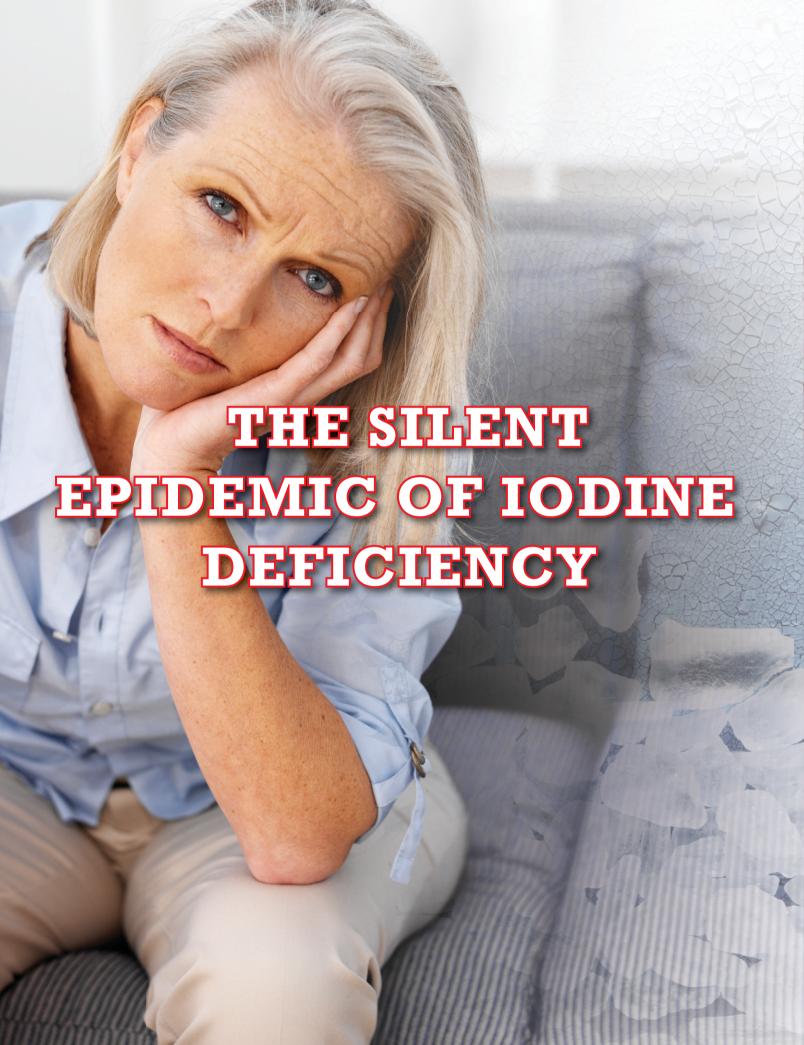
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Supportive but not conclusive evidence shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease.

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BY NANCY PICCONE

In 2008, researchers concerned about the growing threat of *iodine deficiency* analyzed 88 samples¹ of **iodized table salt**—the main supply of this critical micronutrient for most people.²

Less than <u>half</u> of those tested contained amounts of iodine sufficient for optimal health.

Coupled with the trend of reduced salt consumption, rates of **iodine deficiency** are now reaching epidemic levels.

In the developed world, iodine deficiency has increased more than <u>fourfold</u> over the past 40 years. Nearly **74%** of normal, "healthy" adults may no longer consume enough iodine.^{3,4}

In this article, the latest data on this dangerous trend are presented. You will learn of iodine deficiency's profound impact on overall health. You will discover iodine's vital role in thyroid function and its link to obesity, cognitive impairment, heart disease, psychiatric disorders, and various forms of cancer. You will also find out how iodine can help ward off breast cancer and fibrocystic breast disease. >>

Unknowingly Robbing Our Bodies

In nature, iodine is a relatively rare element. It's found in abundance in the ocean. Its presence in soil, on the other hand, is very low in many places around the world, including the United States.

Iodine is essential to life and especially crucial for brain development in children, making its deficiency the number <u>one</u> cause of preventable mental retardation worldwide.

It also plays a central role in healthy function of your **thyroid gland**. This is why the most visible symptom of iodine deficiency is **goiter**—the unsightly, painful enlargement of the thyroid gland that manifests as an enormous swelling around the neck and larynx.

While goiter was relatively common a few generations ago, most middle age and younger Americans have never seen it. This is largely due to the industry practice of salt iodization in this country, first implemented in the 1920s after the effects of iodine deficiency were recognized and since emulated around the world.^{2,5,6} (The Morton company was the first to add iodine to salt in 1924, after a successful public health campaign.)⁷ Unfortunately, as evidenced by recent FDA findings, many table salt makers are now failing to add iodine in quantities sufficient to support optimal health.

Other consequences of iodine deficiency, so-called *iodine deficiency disorders* (IDD), are subtle and may inflict greater damage.^{6,8} It is estimated that IDDs affect between 800 million and 2 billion people worldwide; reduction in salt intake is likely to drive those numbers still higher.^{2,9-11}



The health benefits of reducing salt intake have been well established.^{9,12,13} Millions of Americans are slashing their use of salt to protect themselves against high blood pressure and cardiovascular disease.

But by cutting our salt intake we are also cutting our iodine intake, which is why mean urinary iodine levels (a measure of iodine sufficiency) plummeted by more than half over a 20-year period.^{4,14} Additional, otherwise healthy behaviors have also contributed to inadequate iodine intake. (See Table 1 on page 46.)

The danger of low dietary iodine is further compounded by your body's decreased ability to utilize it, the result of contamination by a ubiquitous environmental toxin called *perchlorate*.

Originally developed for explosives and rocket fuel,¹⁸ perchlorate now pervades ground water and food supplies throughout the US. It's even used as a flavor-enhancer in certain foods.¹⁹⁻²¹ Perchlorate blocks the thyroid gland's ability to absorb and utilize dietary iodine, an effect that is of concern when iodine intake drops off.^{18,22}

The US recommended dietary allowance (RDA) for iodine is 150-290 micrograms (mcg) for adults, while the Food and Nutrition Board of the Institute of Medicine has set the tolerable upper limit at 1,100 mcg. 18,23,24

These guidelines may be inadequate to address certain health conditions.

They were first established as sufficient only to *prevent* goiter. Daily doses for optimal health of **3,000-6,000** mcg have been used without side effects in studies of people with other iodine deficiency-related health conditions such as polycystic breast disease.¹⁸

By way of comparison, the average daily Japanese consumption of iodine ranges from **5,280** to **13,800** mcg of iodine, with no harmful effects and a host of benefits. The Japanese experience is shedding new light on the importance of iodine, not only for thyroid health, but on other body functions as well. In particular, compelling evidence is emerging about the role of iodine in maintaining breast health, a major concern for millions of American women.

Since thyroid function is a puzzle to many people, we'll begin with a brief overview of that important gland and its requirements for iodine. Then we'll turn to the role of iodine in maintaining breast health, particularly in preventing breast cancer and fibrocystic breast disease.

Your Thyroid Gland and the Role of Iodine

Your thyroid gland is located in the front of your neck, just below your voice box. The thyroid produces two forms of thyroid hormone, both of which are derived from the amino acid tyrosine and several atoms of iodine. Thyroid hormones control your body's metabolism, regulating everything from body temperature and heart rate to glucose consumption and even blood lipid levels.²⁷⁻²⁹

Too much thyroid hormone (*hyperthyroidism*) results in an excessively high metabolic rate. People with this condition have rapid heart rates and often palpitations, ²⁹ excessive sweating, and may feel much warmer than other people do, even in a cool room. In extreme cases they may lose weight and experience muscle weakness.

Too little thyroid hormone (hypothyroidism) results in just the opposite set of symptoms: a slower than normal heart rate,²⁹ a chronic feeling of being cold, constipation, unexplained weight gain, dry skin, hair loss or coarse dry hair, weakness, muscle aches, depression, and fatigue.^{30,31} In extreme cases, people with low thyroid function experience cognitive decline,³² and babies born to mothers with inadequate iodine levels are at high risk for a unique form of mental retardation known as *cretinism*. Cognitive impairment caused by low thyroid function is *reversible* with iodine or thyroid hormone supplementation.^{32,33}

Both over- and under-production of thyroid hormone are associated with the thyroid gland swelling known as *goiter*. In *hyperthyroidism*, the goiter is the result of inflammation of the gland as it is under attack by an overactive immune system.

In *hypothyroidism*, the goiter develops as the thyroid attempts to make more thyroid hormone in the absence of sufficient dietary iodine.

Iodine deficiency is the most common cause of goiter, and since it causes hypothyroidism, is also the most common endocrine (glandular) problem in the world. ¹⁸ Iodine deficiency is most prevalent in people who live far inland, away from the oceans that provide our best source of iodine. Those areas are commonly referred to as "goiter belts," because of the high rates of impaired thyroid function.⁵

Iodine deficiency disorders can produce symptoms of low thyroid function (hypothyroidism) *even without abnormalities in measured thyroid hormone levels*.³⁴ Recent evidence suggests, for example, that iodine deficiency is linked to obesity, cognitive impairment, psychiatric disorders, fibromyalgia, and a variety of cancers.³⁴

Iodine Deficiency

- lodized salt is the chief source of iodine in the industrialized world.
- Rates of iodine deficiency have reached epidemic levels, increasing <u>fourfold</u> over the past 40 years.
- Recent scientific analysis reveals that many commercial table salt brands now contain inadequate amounts of iodine.
- lodine is critical to healthy thyroid function.
- Inadequate iodine intake causes weight gain, low energy, depression, cardiovascular disease, cognitive decline, and a variety of cancers.
- lodine is vital to breast health in older women, with low intake correlated to increased risks for breast cancer and fibrocystic breast disease.



Table 1. Why Health-Conscious Americans Suffer From Iodine Deficiency		
Healthy Action	Unintended Reduction in Iodine Consumption	
Are you using less salt overall?	lodized salt is a major source of iodine in America; using less salt means you're getting less iodine ²	
Are you putting less salt on your food directly?	Salt used in cooking loses up to 62.4% of its iodine content	
Are you using Kosher or sea salt?	These forms of salt contain little or no iodine	
Are you eating more vegetables and less meat?	Foods of plant origin have lower iodine content than foods of animal origin ¹⁶	
Are you exercising regularly?	A substantial amount of iodine is lost in sweating during regular exercise regimens ¹⁷	

Paradoxically, another major consequence of mild-to-moderate iodine deficiency in older adults is hyperthyroidism (excessive thyroid function), especially in women.³⁵ This is the result of rapidly growing thyroid gland nodules that over-produce thyroid hormone; it can trigger cardiac arrhythmias, osteoporosis, and muscle wasting.³⁵

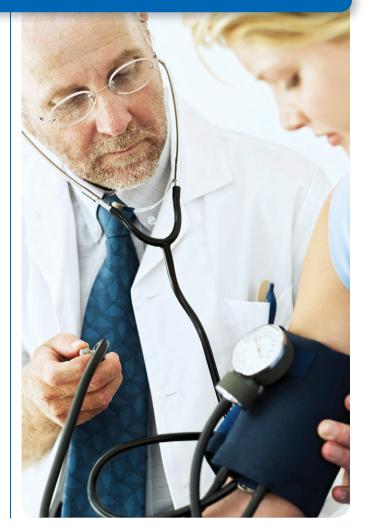
Among those negative consequences is the impact of iodine deficiency on breast health. Compelling data are emerging that link iodine deficiency to breast cancers and high rates of fibrocystic breast disease, two of the greatest concerns of older women in the US. It's worth exploring those data here; including evidence that iodine supplementation can promote healthy breast tissue.

Fortunately, all iodine deficiency disorders and related health dangers can be *prevented* by adequate intake of iodine.⁸

The Emerging Role of Iodine in Breast Health

Iodine deficiency is rapidly emerging as a major risk factor for breast cancer.

Human breast tissue and breast milk contain higher concentrations of iodine than the thyroid gland itself, which contains just 30% of the body's iodine stores. 18,36,370 Breast tissue is rich in the same iodine-transporting proteins used by the thyroid gland to take up iodine from the blood. 18,38 The evolutionary



reasons for this are clear: iodine is essential to the developing newborn brain, so the mother's body must have a direct means of supplying iodine to the nursing infant. 18,39

Iodine plays an important role in the health of women's breast tissue.⁴⁰ In the presence of chemicals and enzymes found in breast tissue, iodine has been shown to exert a powerful antioxidant effect equivalent to vitamin C.^{18,41} Iodine-deficient breast tissue exhibits chemical markers of elevated lipid peroxidation, one of the earliest factors in cancer development.^{18,42-45}

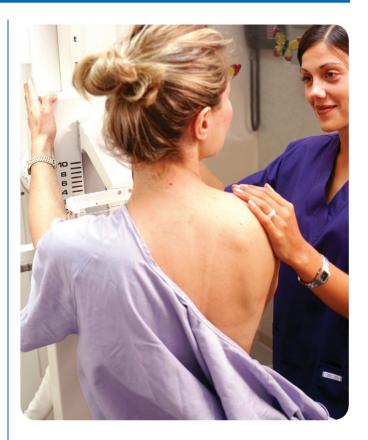
Iodine-deficient breast tissue also shows alterations in DNA and increases in estrogen receptor proteins.⁴⁰ Coupled with iodine deficiency-induced increases in circulating estrogen levels, these changes can substantially increase the risk of breast cancer in women with low iodine levels.⁴⁴

Iodine also helps regulate levels of the stress hormone cortisol and contributes to normal immune function. Abnormal cortisol levels and deficient immune function are significant contributors to the risks of breast cancer; women with fibrocystic breast disease may also suffer from elevated cortisol levels. Abs. 1

Taken together, these biological factors explain the well-known link between iodine deficiency and thyroid disease, thyroid cancer, and breast cancer, all of which predominate in postmenopausal women.^{42,52,53}

The link between iodine consumption and breast cancer is most evident when you compare the Japanese and Western diets against cancer incidence.

Japanese women consume a diet high in iodinerich seaweed, which provides them with an iodine intake 25 times higher than the average American woman's. Japanese women also have breast cancer rates roughly one-third of those found in American women, a difference that disappears in Japanese

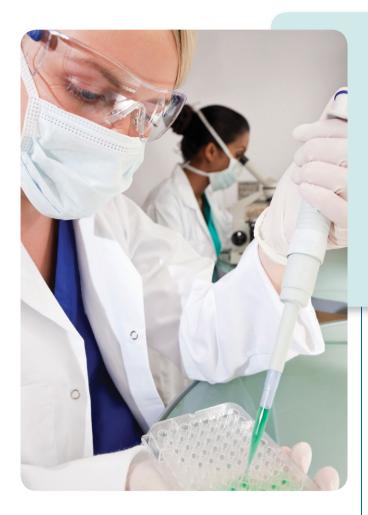


women who immigrate to the US, where they consume considerably less seaweed. 18,52,55

Studies of iodine therapy for breast cancer prevention are encouraging. Continuous iodine given to cancer-prone rats cut mammary tumor rates nearly **2.5-fold**. Breast cancer cells avidly absorb iodine, which in turn suppresses tumor growth and causes cancer cell death. 57,58

Added dietary iodine reduces the size of both benign and malignant breast tumors, an effect credited in part to iodine's direct reduction of lipid peroxidation levels. ^{54,56} Although the doses of iodine used in these

Table 2. Prevalence of Iodine Deficiency in Australia ³			
Group	% With Mild Deficiency	% With Moderate to Severe Deficiency	Total % Deficient
Pregnant Women	29.6	19.8	49.4
Postpartum Women	34.6	19.2	53.8
Diabetic Patients	37.8	34.1	71.9
Normal Volunteers	47.4	26.3	73.7



studies are substantial, equivalent to **5,000 mcg** daily, no toxic effects of iodine were observed, either on thyroid function or in other tissues. ^{18,54,56} Further benefits may be obtained by supplementing with selenium in addition to iodine; selenium is an essential cofactor in the enzymes used in thyroid and breast tissue to make optimal use of dietary iodine. ^{4,11,25}

In addition to its obvious role in preventing breast cancer, increased iodine intake may be important in mitigating another common, if less lethal, breast disorder—**fibrocystic breast disease** or FBD.

While harmless, fibrocystic breast disease is extremely common. It is found in at least 9% of all women who undergo biopsies, though the actual rate is probably much higher. Animal studies have shown that fibrocystic breast disease can be induced by depriving breast tissue of iodine. These changes can be reversed by iodine doses equivalent to 5,000 mcg per day in humans.

Women with fibrocystic breast disease obtain substantial relief from oral administration of iodine at doses of **3,000-6,000 mcg**, with **65%** achieving improvements according to their own and their

Iodine From The Sea: The Most Effective Natural Form

Earth's oceans are the main repository of iodine on the planet, and nowhere is iodine as highly concentrated as in seaweed. In particular, seaweeds such as kelp and bladderwrack are capable of concentrating and storing iodine at astonishingly high levels. Scientists speculate that these primitive plants accumulate iodine to protect themselves from oxidative stress in the open ocean. Humans can reap the benefits of this natural process, because the iodine in these seaweeds is in the most biologically available forms, making it ideal for consumption.

physicians' assessments.⁶² In those studies, only 33% of placebo recipients reported any benefit. No side effects were detected at any of the doses used.¹⁸

It is becoming increasingly clear that iodine deficiency interferes with optimum breast health, and intake of levels far higher than the recommended dietary allowance of 150-290 mcg is required to achieve benefits. Daily amounts of 3,000-6,000 mcg may help relieve the symptoms of fibrocystic breast disease.¹⁸

The Role of Iodine in Cardiovascular Health

Iodine and iodine-rich foods enjoy a long history as natural therapies for hypertension and cardiovascular disease.⁴ Even when no overt symptoms are evident, hypothyroidism can contribute to heart disease and stroke, and it increases the risk of death from these conditions.⁶³⁻⁶⁵

Thyroid dysfunction creates unfavorable disturbances in lipid profiles, elevating low-density lipoprotein (LDL) and total cholesterol levels and raising the risk of atherosclerosis. ^{27,28,66} Hypothyroidism also weakens the heart muscle, causing it to "squeeze" less firmly with each contraction; it can cause cardiac arrhythmias as well. ^{29,63,67} These effects may not be evident at rest, but become important during moderate exercise. ⁶³ Low thyroid function is also associated with higher waist-to-hip ratios, an obesity-related risk factor for cardiovascular disease. ⁶⁸

Restoring normal thyroid function helps reverse multiple cardiovascular risk factors, most notably adverse lipid profiles.²⁷ Yet mainstream medicine has traditionally used thyroid hormone treatment, which may be dangerous if it over-drives an already weakened heart.⁶⁹

Iodine therapy shows promise in safely and effectively modulating these health concerns.

Iodine Protects Against Stomach Cancer

The thyroid gland, breast tissue, and portions of the digestive tract share similarities in that all of them contain a rich concentration of iodine.^{42,70} Stomach lining cells in particular concentrate iodine, capitalizing on its antioxidant effects.⁷¹

This has led medical researchers to investigate whether iodine deficiency plays a role in cancers of the digestive tract.

They found that people living in iodine-deficient areas of the world are not only prone to iodine-deficiency goiters, but also have higher rates of stomach cancers.⁷¹ Stomach cancer patients in a landlocked area of Iran were **2.5 times** as likely to have severe iodine deficiency than control patients.⁷² Gastric cancer is the most common cancer in parts of northeastern Turkey where iodine deficiency is common, and iodine levels in gastric cancer tissue were markedly lower than those in surrounding healthy tissue.⁷³

Increased iodine intake has been *strongly correlated* with a reduction in stomach cancer rates in recent years.⁷⁴

Summary

Iodine is critical to healthy thyroid function. Its deficiency can cause weight gain, low energy, depression, cardiovascular disease, cognitive decline, and a variety of cancers.

Yet rates of *iodine deficiency* have reached epidemic levels, increasing <u>fourfold</u> over the past 40 years. A startling **74**% of normal, "healthy" adults may no longer be consuming sufficient quantities.

Recent scientific analysis reveals that many commercial table salt brands now contain inadequate amounts of iodine. Emerging evidence points to the severe impact of low iodine on a wide range of health issues, including increased risks of breast cancer and fibrocystic breast diseases. •

If you have any questions on the scientific content of this article, please call a Life Extension®
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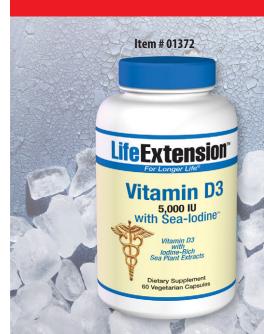
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Combating Age-Related BRAIN DETERIORATION

BY ERIC R. BRAVERMAN, MD, WITH DALE KIEFER, BS

You probably won't hear this from your doctor, but your brain's gradually shrinking as you read this.

Why?

A certain amount of physical wasting or *atrophy*—also medically termed "regional deterioration of brain structure"—occurs in the brain naturally with age. The impact of these *structural* alterations is vastly underestimated by both physicians and patients alike. This process usually commences around age 30, with marked acceleration observed at 50.

The results of physical brain deterioration can be dramatic. They include neurocognitive deficits, such as diminished attention span, verbal skills, spatial perception, deficits in abstract thinking and creativity, along with increased difficulty learning new tasks and retaining new information, flagging memory, and deteriorating sleep quality.

Maintaining a youthful brain in the face of these detriments of aging is perhaps the most crucial challenge of aging. The brain, our most important organ, is responsible for orchestrating a complex symphony of hormonal, neurochemical, and electrical signals to maintain the body in a state of vibrant health.

In this article, you will learn of the many insults on brain health in the modern world and what you can do to halt and *reverse* them. >>

Attention Impairment

Subtle declines in memory, reasoning, and cognition are statistically likely to progress well beyond mere "forgetfulness" among many individuals. Sadly, a significant number of Americans will succumb to cognitive decline, and eventually to dementia, well before their bodies have given out. According to the Alzheimer's Association, 5.3 million Americans are currently afflicted with this mind-robbing disease, and the ranks of the affected are expected to swell in coming vears as more Baby Boomers attain elder status.²

Mild cognitive impairment (MCI) is a related condition that often precedes the development of Alzheimer's-type dementia. Some international studies suggest that up to 40% of older people will be affected by mild cognitive impairment worldwide, and many of these patients will go on to develop Alzheimer'stype dementia.^{3,4} In a lecture I delivered at Columbia University, I noted that dementia takes 15 to 20 years to develop; by 80-85 years of age, up to 50% of Americans will suffer some form of dementia. But even by 70 or 80, nearly everyone experiences some cognitive loss.

Obesity and Cognitive Decline

In addition to brain atrophy, researchers have reported that just being overweight in middle age puts you at greater risk of having decreased cognitive abilities and suffering "steeper cognitive decline" later in life.7

How to Detect Attention Impairment^{5,6}

Various forms of attention become impaired as the brain ages. Impairments can be quantified using objective tests, such as the test of variables of attention (TOVA). Forms of altered attention include the following:

- Omissions (missed stop signs, for example)
- · Commissions (jumping the gun, for instance)
- Response time (slow response indicates flagging attention)
- Response variability (becomes inconsistent)
- · Complex attention (can the subject "pull it all together"?)

Using sophisticated brain imaging techniques, researchers have shown that obese people literally have smaller brains than their age-matched, normalweight peers. Using MRI analysis techniques, for example, scientists at the University of Pittsburgh showed that, among elderly subjects with apparently normal cognition, obesity is associated with declining volumes in several key areas of the brain.8 Furthermore, research suggests that the decline of the key brain chemical dopamine is related to the impulse to overeat, which in turn encourages obesity, perpetuating a vicious cycle of weight gain and increasing imbalances in brain neurotransmitters. 9,10 This means that obesity accelerates cognitive decline, damages attention, erodes memory, and decreases your brain's processing speed, while altering brain voltage.

Calcification

Aging is often accompanied by increased calcification; we essentially "turn to stone." Brain calcification, which is sometimes associated with hyperparathyroidism, results in impaired brain processing speed. 11-13 In older women with osteoporosis, bone loss has been shown to predict cognitive decline.14,15 That's why I often say "frail frame; frail brain." Osteoporosis and osteopenia destroy your brain, not just your bones.

Interestingly, menopause induced by surgical removal of the ovaries decreases brain processing speed. 16 Evidently, hormonal factors may help explain why women have increased rates of cognitive decline and dementia compared to men, which illustrates the importance of restoring the whole body to youthful health through the use of bioidentical hormones.



Addiction

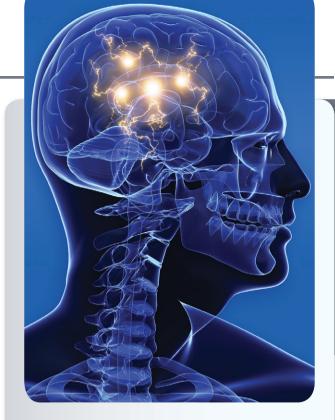
Drug abuse and addiction impact numerous aspects of a person's life. While the immediate costs are fairly well known, the long-term consequences of addiction receive less attention. Accelerated cognitive decline is one of them. Disturbances in the dopamine-driven "reward cascade" in the brain are associated with multiple drug-seeking behaviors. Alcohol, cocaine, heroin, marijuana, nicotine, and glucose all cause activation and neuronal release of brain dopamine. Dr. Kenneth Blum and I. along with other colleagues, have published numerous articles regarding our discovery that individuals with genetically determined deficits in certain dopamine receptors are at greater risk of addiction, due to abnormal cravings that are only satisfied by the "feel good" dopamine molecule. We have related this genetic abnormality to addictive, compulsive, and impulsive behaviors ranging from drug abuse to gambling to overeating that leads to morbid obesity. 17-19

Experts are now projecting that as Baby Boomers age, the ranks of older drug abusers will grow significantly. Some drugs of abuse are outright neurotoxic, destroying brain structures even as they enhance the desire to continue abusing them. Others, like nicotine from tobacco, temporarily enhance memory and attention, but in the long term, tobacco "accelerates dementia processes."

Alcohol abuse results in cognitive impairment that may last long after sobriety is achieved. Alcohol abuse during pregnancy results in potentially severe, irreparable harm to the fetus' developing nervous system. Tragically, fetal alcohol syndrome is the leading cause of retardation around the world.²⁴ Alcohol-related impairments of executive brain functions manifest as a reduced ability to focus on tasks and pay attention.²⁵ Other drugs that induce long-term cognitive deficits include cocaine, GBH (the so-called date-rape drug), amphetamines, MDMA (ecstasy), marijuana, and opiates such as heroin and oxycontin.^{22,26-31}

Strong Muscles, Strong Brain

Fortunately, it is possible to fight back and greatly improve one's odds of aging gracefully with a sharp mind fully intact. From nutrients that support healthy brain structure to bio-identical hormones that help maintain youthful brain function, there's plenty that can be done to prevent cognitive decline. Surprisingly, it begins not with the mind itself, but with muscle. Studies have repeatedly shown that older individuals who exercise regularly and maintain a healthy weight are less likely to succumb to cognitive decline, mild



Preserving Cognitive Function

- Your brain begins to structurally deteriorate as early as age 30.
- Maintaining youthful cognitive function is a crucial challenge of aging.
- Declining memory function may also begin as early as age 30 and is often evident after 50 years of age.
- Fortunately, it is possible to take proactive steps to maintain youthful cognition with aging.
- Maintaining a healthy body weight and body fat percentage may help preserve healthy brain structure and function.
- Frail bones have been linked with cognitive decline in women.
- Hormonal balance may promote healthy cognitive function.
- Traumatic brain injury is a common yet overlooked cause of cognitive difficulties.
- Exercise increases blood flow to the brain and may decrease the risk of cognitive decline, while promoting healthy sleep.
- A healthy diet and extra nutritional support further enhance cognitive function.

cognitive impairment (MCI), and Alzheimer's disease than their heavier, more sedentary peers. 34-36

Shrinking muscle mass correlates with declining cerebral blood flow. Since sluggish cerebral blood flow is associated with a greater risk of cognitive impairment, it follows that building and maintaining adequate muscle mass equates with maintaining healthy cerebral blood flow. We once assumed that cerebral blood flow remains more or less constant, but we have recently discovered that exercise increases cerebral blood flow, possibly by speeding up brain metabolism.34,35,37,46,47

Strategies for Preserving and Enhancing Brain Function

Scientists recently published the results of a controlled trial that examined the effects of aerobic exercise on cognition and other biomarkers of Alzheimer's disease among older adults diagnosed with mild cognitive impairment. Subjects were randomly assigned to engage in intensive aerobic exercise for 45 to 60 minutes per day, four days a week, for six months. Control subjects underwent supervised stretching sessions for equivalent periods, but did not engage in vigorous exercise. Results showed that aerobic exercise, but not simple stretching, acted as a "potent [non-drug-induced] intervention that improves executive control processes



for older women at high risk of cognitive decline."38 Another recent study conducted by the Mayo Clinic on more than 1,300 subjects concluded.

"Any frequency of moderate exercise performed in midlife or late life was associated with a reduced odds of having mild cognitive impairment."37

Traumatic Head Injury: A Word of Caution

The National Football League (NFL) is just beginning to address the long-term effects on its players of countless head injuries sustained over the years on the gridiron. Meanwhile, primetime television dramas would have us believe that knocking a person unconscious is a humane, relatively harmless (and remarkably common) way to neutralize a bad guy. But the reality is guite different. Retired boxers who can barely speak are a better example of the effects of repeated head blows.

The NFL's struggle with the issue is only the latest instance in which the media have focused. however fleetingly, on the dangers of traumatic brain injury (TBI). TBI is far more pervasive-and considerably more dangerous-than people imagine, or television dramas portray.

It is estimated that from 1.4 to 3.8 million Americans sustain TBIs each year, although many injuries go unreported.32,33 TBI encompasses sports-related concussions and repetitive head traumas. Symptoms may include loss of memory, sluggish reactions, aggressiveness, apathy, impulsiveness, reduced intellect, etc. It is a misconception that concussion is reliably signaled by unconsciousness.

Brain scans using magnetic resonance imaging (MRI), positron emission tomography (PET), or computed tomography (CT) are capable of detecting massive injuries, but many TBIs are missed by these methods due to the initial subtlety of symptoms. At PATH Medical, we evaluate brain function using a much broader range of assessments, including tests of brain electrophysiology, memory function, attention function, personality temperament and type, etc. If you suspect you or your child may have sustained a traumatic brain injury, never hesitate to seek professional evaluation and treatment.



The benefits of exercise are achieved through a variety of mechanisms, including enhanced production of key neurotransmitters. 43,44 As I note in my book Younger You: Unlock the Hidden Power of Your Brain to Look and Feel 15 Years Younger (McGraw-Hill, 2006), serotonin is an important brain chemical messenger associated with the regulation of mood and sleep. Deficiencies yield depression, fatigue, and poor sleep. Acetylcholine is a key neurotransmitter involved in cognition, memory, and learning. A deficit in acetylcholine, and its receptors, is associated with dementia and Alzheimer's disease. Dopamine affects the body's ability to regulate weight, experience pleasure, and feel energetic. When dopamine levels fall, obesity, addiction, and fatigue may result. Gamma-aminobutyric acid (GABA) is a crucial neurotransmitter that has a stabilizing effect on the brain's other chemical messengers. GABA controls the brain's rhythm, affecting one's ability to handle stress and to function mentally and physically at a calm, steady pace.49

In addition to these four foundational neurotransmitters, studies have shown that exercise increases production of a substance known as brain-derived neurotrophic factor, which has been associated, at least in women, with enhanced cognitive function and brain plasticity. 44,50-52 Exercise also encourages angiogenesis, or the formation of new blood supply structures. This is important for growing new brain cells and their supporting structures. 50,53,54

The Power of Neurogenesis: **New Brain Growth and Life**

When I attended medical school, we learned that many types of cells regenerate more or less constantly throughout life; in essence, entire organs are eventually renewed as old cells are replaced. But the brain and central nervous system represented a notable exception. Brain cells are finite, we were told, and soon after birth the ability to grow and regenerate neurons is irrevocably lost. Furthermore, dogma held, the myriad pathways and connections among adult brain cells are "fixed and immutable," incapable of further adaptation, and certainly incapable of new growth.

We now know this is incorrect.⁵⁵⁻⁵⁸ Research conducted since the 1970s has shown that the growth of new nerves (a process known as neurogenesis) does occur. This growth plays an important role in the brain's plasticity, or ability to remodel, especially in key areas of the brain, such as the hippocampus, which is responsible for some of the most important higher cognitive functions, including memory and emotion. It's no coincidence that Alzheimer's disease strikes the hippocampus first, eroding long-term memory.

While the hippocampus is vulnerable to the ravages of Alzheimer's disease, it also responds to better nutrition and increased exercise, thereby promoting neurogenesis. In fact, scientists are only beginning to fully appreciate the dramatic implications of this discovery, which may yield new treatments for conditions ranging from mental illness and addiction to age-associated declines in memory and cognition. 55,59-62

Exercise Improves Sleep

One of the chief complaints among many of my elderly patients is poor sleep quality. Fortunately, exercise also improves sleep. And better sleep is also associated with increased neurogenesis in the adult brain. 63 Conversely, poor sleep may restrict neurogenesis. By engaging in regular aerobic exercise you'll sleep better, age more slowly and improve the architecture. and thus health, of your brain.

Robust Brain Function, Robust Libido

A healthy brain correlates with better mental acuity—but also better sex. There's a common saying that "the brain is the greatest erogenous zone." This is truer than most of us realize. When the brain is alive, so are the sex organs. I've treated patients who came to me complaining of multiple problems, including failing memory and declining cognition, not to mention poor sleep quality and sluggish libido. My patients have experienced remarkable success reversing these declines using treatments ranging from nutrients, to better dietary habits, to electrocranial stimulation, to bioidentical hormone replacement therapy. In some cases it is necessary to treat underlying conditions such as hypertension, which is a contributing factor in vascular dementia, before success is achieved. After treatment, patients experience improved memory, reasoning and intellect, and they have been known to rave about their reignited sex lives.

Summary

Maintaining youthful cognitive function is a crucial challenge of aging, both in terms of cognitive function and structural deterioration or "brain wasting." Declining memory function may begin as early as age 30 and is often evident after 50 years of age. Fortunately, it is possible to take proactive steps to maintain youthful cognition with aging. Maintaining a healthy body weight and body fat percentage may help preserve healthy brain structure and function. Frail bones have been linked with cognitive decline in women. Hormonal balance may promote healthy cognitive function. Traumatic brain injury is a common vet overlooked cause of cognitive difficulties. Exercise increases blood flow to the brain and may decrease the risk of cognitive decline, while promoting healthy sleep. A healthy diet and extra nutritional support further enhance cognitive function. •

Causes of Dementia*48

Many medical conditions can contribute to dementia. These include:

- Alzheimer's disease
- Vascular dementia
- Hormone or neurotransmitter deficiencies/ imbalances
- Toxic disorders
 - -Alcoholism/drug abuse/intoxication
 - -Heavy metal intoxication (e.g., lead, mercury, etc.)
- · Vitamin deficiencies especially B vitamins (B, [thiamine], B, [niacin], B,)
- Organ failure or dysfunction
 - -Hypothyroidism
 - -Hypo- and hyperparathyroidism
 - -Kidney failure
 - -Liver failure
 - -Respiratory failure
- Chronic infections
 - -HIV
 - -Neurosyphilis
 - -Tuberculosis
 - -Prion diseases
- Head trauma
 - -Boxer's syndrome
 - -Traumatic brain injury (e.g., concussion)
 - -Chronic subdural hematoma
- Neoplastic conditions
 - -Primary brain tumor
 - -Metastatic brain tumor
- Psychiatric disorders
 - -Depression
 - -Schizophrenia
- · Degenerative diseases
 - -Huntington's disease
 - -Amyotrophic lateral sclerosis (ALS or Lou Gehrig's disease)
 - -Multiple sclerosis
 - -Dementia with Lewy bodies

*This list is not intended to be comprehensive

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

STRATEGIES FOR PRESERVING AND ENHANCING BRAIN FUNCTION

Exercise

Exercise is crucial for preserving and even enhancing brain function as we age.

- Exercise increases cerebral arterial blood flow. 46,64
- Exercise promotes angiogenesis and stimulates neurogenesis in the adult hippocampus.⁵⁰
- Exercise promotes production of beneficial brain proteins called neurotrophins.^{65,66}
- More muscle equates with better cerebral arterial blood flow, and thus better cognition.

Healthy Diet

A healthy diet forms the foundation for successful aging. Diets high in saturated fat and cholesterol are significantly linked to an increased risk of dementia. ^{67,68} In contrast, diets high in omega-3 oils and olive oil (found in the Mediterranean diet) are linked to a significantly reduced risk of dementia. ⁶⁹⁻⁷¹

Follow the antioxidant-rich "Rainbow Diet," which is nutrient-dense, not calorie-dense. The Rainbow Diet is low in sodium and saturated fat and high in fiber. It is also anti-inflammatory. As its name implies, the Rainbow Diet emphasizes the consumption of a wide range of foods in all colors of the rainbow. White foods are excluded from this diet, with the exceptions of yogurt and egg whites. 49

Bioidentical Hormones*

Levels of many hormones decline with advancing age. It is possible to restore the body and mind to youthful vigor by re-establishing and maintaining youthful levels of these crucial hormones, under the supervision of a qualified physician. Some are available as supplements (e.g., DHEA, melatonin, vitamin D3), while others require a doctor's prescription and supervision.⁴⁹

- Dehydroepiandrosterone (DHEA)/DHEA-S
- Erythropoietin
- Estradiol
- Human growth hormone (HGH)
- Insulin-like growth factor (IGF)
- Insulin
- Melatonin
- · Parathyroid hormone
- Pregnenolone
- Testosterone
- Vitamin D3



Dr. Braverman's Nutrient Recommendations

Nutrients are essential tools for keeping your brain young and fit. They are capable of increasing your brain power and processing speed, while simultaneously addressing specific adverse conditions throughout the rest of the body.⁴⁹

- Omega-3 fatty acids (fish oil): 2,000-6,000 mg/day (containing a minimum of 1,400 EPA and 1,000 mg DHA)
- Vitamin D3: 2,000-10,000 IU/day
- Coenzyme Q10: 100-300 mg daily
- Resveratrol: 250-500 mg daily
- Vitamin C: up to 4,000 mg daily
- B complex: 50-100 mg daily
- Acetyl-L-carnitine: up to 1,500-3,000 mg per day
- Acetyl-L-carnitine arginate: 1,000 mg per day
- R-lipoic acid: 150-400 mg daily
- Phosphatidylserine: 100-200 mg per day
- Ashwagandha: 250 mg per dayVinpocetine: 15-30 mg per day
- Alpha-glycerylphosphorylcholine (GPC): 600 mg per day
- Zinc: 30-90 mg/day (Editor's note: Individuals supplementing with more than 50 mg of zinc should take at least 2 mg of copper daily.)
- Vitamin K2: 100 mcg to 2,100 mcg daily

Drug Therapy

Certain prescription therapies may promote more successful aging.

- Antihypertensive therapy. Evidence suggests that antihypertensive drugs may help reduce the risk for, and progression of, dementia.⁷²
- Antidepressants. Modern antidepressants increase neurogenesis and preserve neurotransmitters 73,74

^{*(}For a complete list, see my book, Younger You)⁴⁹



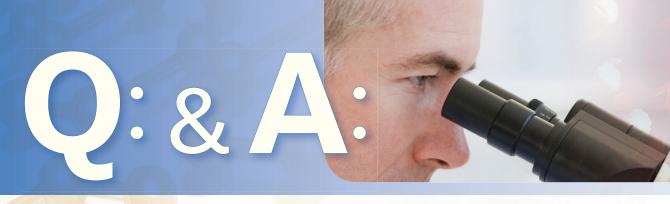
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WHAT DO THESE TWO DHEA STUDIES HAVE IN COMMON?

1 STUDY

"DHEA enhances effects of weight training on muscle mass and strength in elderly women and men"

American Journal of Physiology Endocrinology Metabolism 2006 Nov;291(5):E1003-8

2 STUDY

"Effect of DHEA on abdominal fat and insulin action in elderly women and men: a randomized controlled trial"

Journal of the American Medical Association 2004 Nov;292(18):2243-8

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LIFE EXTENSION® DHEA WAS USED IN BOTH STUDIES!

DHEA (dehydroepiandrosterone) has demonstrated many benefits, including positive effects on body composition. Regrettably, our natural production of this hormone diminishes by about 80% between the ages of 25 and 75 years. This has been associated with a decrease in muscle mass and strength and an increase in abdominal girth.

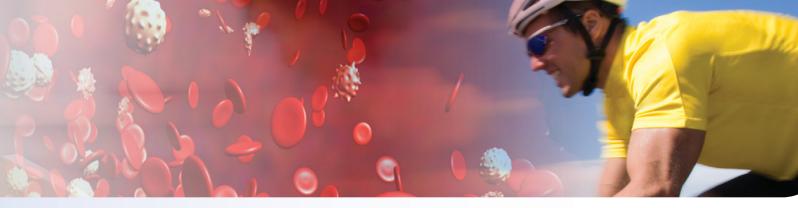
In the first of the two studies sponsored in part by the National Institutes of Health, researchers sought to determine the effect of DHEA replacement in DHEA-deficient elderly individuals. They randomized 56 men and women to receive either 50 mg/day of Life Extension's DHEA before bedtime or a placebo. Both groups then underwent a program of resistance training for four months. At the end of the study, DHEA replacement produced a significantly greater effect in enhancing the benefits of weight training on muscle mass and strength in both men and women compared with the placebo group.¹

The second study cited was conducted by the same research team. The effects of DHEA-replacement therapy or a placebo on abdominal fat were investigated for the first time in 56 DHEA-deficient elderly men and women who did not exercise regularly. Using the same DHEA-dosing regimen as in the previous study, the researchers found that DHEA levels rose to youthful ranges in both men and women. This increase was accompanied by changes in body composition. Compared with miniscule changes in weight loss in the placebo group, women taking DHEA lost an average of 10.2% of their visceral (intra-abdominal) fat, while men shed an average of 7.4%. Subcutaneous fat (under the skin) losses averaged 6% in both men and women taking DHEA.²

DHEA is widely available as a dietary supplement. These two studies utilized **Life Extension's DHEA** formulation to safely restore DHEA levels to youthful ranges in these elderly individuals, which helped maximize lean tissue mass,¹ maintain healthy abdominal weight,² and support insulin sensitivity.²

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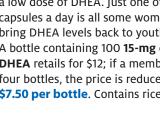


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7-Keto° DHEA 100 mg, 60 vegetarian Capsules, Item # 01271

7-Keto® DHEA is a metabolite of DHEA that safely increases fat-burning enzymes in the liver. Human subjects who consumed 200 mg of 7-Keto® DHEA a day in conjunction with a diet and exercise program lost more total weight and body fat than those who took a placebo.¹ Since 7-Keto® DHEA does not convert to estrogen or testosterone in the body, it can be used by those with hormone-sensitive cancers such as breast and prostate cancer. This 7-Keto® DHEA supplement contains a potent **antioxidant blend** to protect against free radicals that might be formed in response to increased fat-burning. A bottle containing 60 100-mg vegetarian capsules of 7-Keto® **DHEA**, along with a special antioxidant blend, retails for \$40; if a member orders four bottles, the price is reduced to only **\$27 per bottle**. Contains rice.

Reference: 1. Curr Therap Res. 2000;61(7):435-42.



DHEA Complete (25 mg DHEA+100 mg 7-Keto® DHEA), 60 vegetarian Capsules, Item # 01250

To obtain optimal potencies of both forms of DHEA, the **DHEA Complete** formula provides 25 mg of DHEA, 100 mg of 7-Keto® DHEA, and a potent antioxidant blend in each capsule. For those seeking to combine the multiple benefits of DHEA and 7-Keto® DHEA, this is the ideal single-formula supplement. A bottle containing 60 vegetarian capsules of **DHEA Complete** retails for \$48; if a member orders four bottles, the price is reduced to only \$32.40 per bottle. Contains rice.



DHEA 100 mg, 60 Capsules, Item # 00883

Some people produce so little DHEA that they need to take high doses. These 100-mg capsules provide high-potency DHEA at a very low cost. A bottle containing 60 100-mg capsules of **DHEA** retails for \$22.50; if a member orders four bottles, the price is reduced to just \$14.25 per bottle. Contains rice.

Natural Support for Cellular Energy Production

Optimized Carnitine with GlycoCarn®

Diminished cellular energy production is an inevitable consequence of aging. As adults mature, the cellular power plants known as the mitochondria become dysfunctional. The resulting slowdown in energy production manifests in numerous health problems.

Nutritional researchers have discovered that the amino acid *carnitine* promotes the burning of fat for fuel in the mitochondria, thus promoting youthful levels of cellular energy production.* Researchers have now identified several optimized, next-generation forms of *carnitine* that not only help boost cellular energy production, but also may confer targeted benefits for the brain, heart, muscles, and central nervous system.

Optimized Carnitine with GlycoCarn® combines these advanced forms of carnitine—acetyl L-carnitine, glycine propionyl L-carnitine, and acetyl L-carnitine arginate—in a single formula that provides balanced, broadspectrum support for cellular energy production throughout the body.

Acetyl L-carnitine readily crosses the blood-brain barrier to combat oxidative stress and promote energy production in critical brain and central nervous system tissues.1 Acetyl L-carnitine also supports healthy brain function by stimulating the release of acetylcholine and dopamine, two neurotransmitters that play vital roles in brain health and communication.*

Acetyl L-carnitine arginate has an added molecule of arginine that enables it to augment the effects of acetyl L-carnitine, promoting the growth of neurites that facilitate communication among nerve cells in the brain.²

GlycoCarn® is a patented form of **glycine propionyl L-carnitine** that quickly penetrates into heart, endothelial, and muscle cells, with effects that range from protecting heart muscle from lack of blood flow to combating muscle fatique by increasing muscle energy stores of glycogen.³

Two capsules of **Optimized Carnitine with GlycoCarn®** provide:

Acetyl L-carnitine HCI 800 mg ArginoCarn® Acetyl L-carnitine Arginate Di-HCl 300 mg **GlycoCarn® Glycine Propionyl L-Carnitine HCI** 300 mg

A bottle of 60 vegetarian capsules of **Optimized Carnitine with GlycoCarn®** retails for \$29. If a member buys four bottles, the price is reduced to only \$19.58 per bottle.

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- 2. Neurochem Res. 1995 Jan:20(1):1-9.
- 3. Mol Cell Biochem. 2003 Dec;254(1-2):227-34.

To order **Optimized Carnitine** with GlycoCarn®, call 1-800-544-4440 or visit www.LifeExtension.com



GlycoCarn® and ArginoCarn® are registered trademarks of Sigma-tau HealthScience, Inc., and are protected by US patent Nos. 6,703,042 and worldwide patent EP1202956. The combination of multiple forms of Carnitine is protected by Sigma-tau patent # 6,245,378.

YOU'RE ONLY AS OLD AS YOU THINK —

Think Better WITH COGNITEX®

It starts with forgetting where you put your car keys. Then you can't remember a loved one's birthday. A few years later, it takes a moment to recall an old friend's name. Sadly, brain degeneration affects all aging adults. However, enhanced communication between neurons may hold the key to maintaining youthful cognition and memory.

Cognitex® with Pregnenolone & NeuroProtection Complex provides 9 cutting-edge brain boosting supplements in one exciting formula!

We all strive for a youthful brain, but the key to brain power may come from **uridine-5'-monophosphate (UMP)**, a compound that is naturally found in the milk of nursing mothers and is essential to humans when their brains are the youngest — as infants. More importantly, UMP supports superior cognitive function in aging adults.

In order to bolster this improved brain function, Cognitex® contains **Sharp-PS® GOLD** to promote normal neuronal cell membrane activities and structure. With this structure in place, **vinpocetine** enhances circulation and oxygenation of brain cells while **phospholipid-grape seed extract** improves blood vessel tone and elasticity, thus boosting oxygen flow to the brain.

Wild blueberry extract has been added to protect against free-radical damage, and **pregnenolone** may have beneficial properties as well.

In order to protect against inflammation to a healthy brain, a **proprietary NeuroProtection Complex Blend** contains standardized extracts of hops, ginger, and rosemary — all known to have anti-inflammatory capabilities.

With a healthy brain in place, the proper levels of *acetylcholine* are needed to enable brain neurons to communicate. To maintain these levels, Cognitex® includes **alpha-glyceryl phosphoryl choline** (A-GPC) to boost acetylcholine and **Sensoril®** ashwagandha extract to inhibit an enzyme that degrades acetylcholine in the aging brain.

The retail price for 90 softgels of Cognitex® (with or without pregnenolone) is \$74 (item #00922) and \$72 (item #00921), respectively. If a member orders four bottles of either version, the price per bottle is reduced to just \$49.95 and \$48, respectively.

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



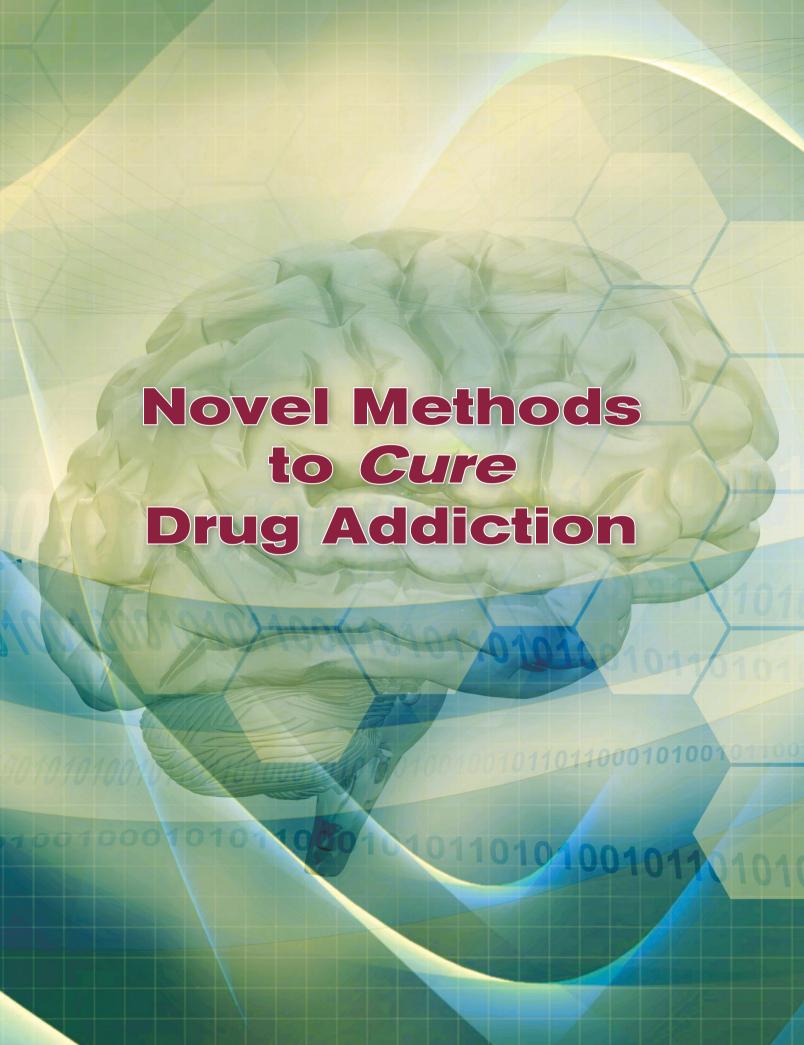
Just three softgels of Cognitex® provide the following nutrients:

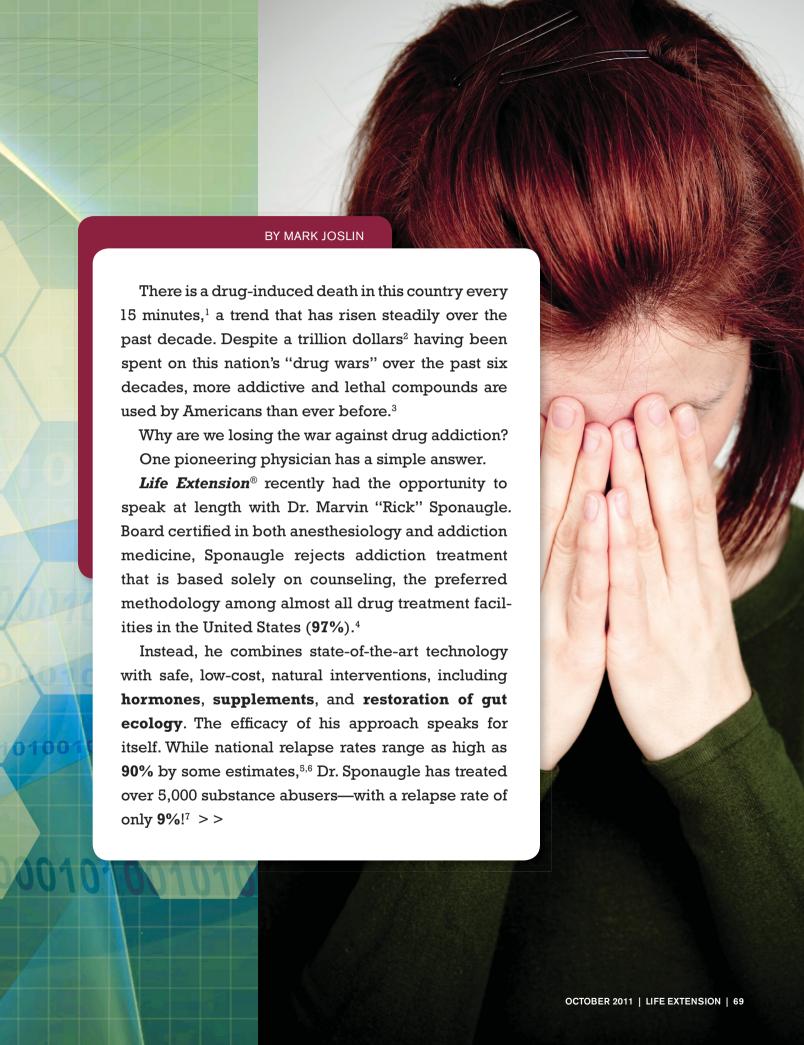
600	mg
100	mg
50	mg
20	mg
150	mg
150	mg
125	mg
50	mg
125	mg
	100 50 20 150 150 125 50

Caution: If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product.

Perluxan* is used with permission. Sensorii* is protected under US Patents Nos. 6,153,198 and 6,713,092, and is a registered trademark of Natreon, Inc. Sharp-PS* GOLD is a registered trademark of Enzymotec Ltd.

Contains fish (wild herring, blue whiting), soybeans, corn, and rice.





According to Dr. Sponaugle, most detox and rehab programs are ineffective because they do not address the root problem. "Patients continue to relapse until their brain function is optimized. Otherwise, patients will continue to use drugs to stimulate underactive brain regions and to calm overactive brain regions. We have learned that successful addiction treatment requires diagnosis and treatment of multiple underlying biochemical and medical disorders."

Official statistics support Sponaugle's contention. The National Institutes of Health report that long-term drug abuse induces adverse chemical alterations in the <u>brain</u> that remain long after someone has stopped using drugs.⁶ This simple fact supports a multitargeted *neurochemical* intervention over behavioral approaches like counseling.



What Is Addiction? Dr. Sponaugle's Viewpoint

Conventional medicine and most of society have long viewed addictions as pathological behavior over which the sufferer is expected to have a great deal of control. That, says Dr. Sponaugle, has led to conventional treatments that basically try to talk the patient out of a biochemical craving.

Sponaugle, who trained as an anesthesiologist, intensive care specialist, and pain management specialist, was horrified early in his career to see physicians allowing their addicted patients to undergo painful and dangerous withdrawal symptoms. This type of "cold turkey" withdrawal can be lethal to someone whose entire physiological system is out of balance due to substance abuse. In one instance, a nurse who had a heart transplant and was addicted to 3,200 mg/day of OxyContin® was placed in Dr. Sponaugle's care by her university heart surgeons because they knew that traditional detox could harm her transplanted heart.

Sponaugle recognized that addictive behavior is the product of two major inputs to brain chemistry. First, a person's inherited characteristics determine the ebb and flow of certain neurotransmitters in the brain. Second, acquired changes further amplify imbalances in those vital brain chemicals.

ADDICTION STATISTICS: USA		
Percent of persons 12 years of age and over with any illicit drug use in the past month ⁸	8%	
Number of persons 12 years of age and over with any nonmedical use of a psychotherapeutic drug in the past month ⁹	6.2 million	
Percentage of young adults (ages 18-25) who reported driving under the influence of alcohol at least once in the year 2000. ¹⁰	19.9%	
Emergency Department (ED) visits for drug misuse or abuse ¹¹	2.1 million	
ED visits for pharmaceutical misuse or abuse by adults aged 50 or older in 2008 ¹¹	256,097 (a 121% increase from 2004)	
ED visits for illicit drug use by adults aged 50 or older in 2008 ¹²	118,495 • Cocaine 63% • Heroin 27% • Marijuana 19% • Illicit stimulants 5%	
Number of Americans needing treatment for substance abuse and addiction in 2004 ⁵	22.5 million	
Number who received treatment ⁵	3.8 million	
Percent of illegal drug users who are employed ⁵	71%	
Days of work lost to alcoholism annually ⁵	500 million	

Sponaugle uses high-tech SPECT (single-photon emission computed tomography) scans of the brain to demonstrate changes in brain blood flow and neurotransmitter activity in patients with various kinds of addictions. Remarkably, there are characteristic patterns on those images that correlate with different addictive substances, and even with behaviors such as video game addictions.¹³⁻¹⁵

Most experts have used those SPECT scans to study the impact of the drug or the behavior on brain function. Sponaugle's key insight, however, was to recognize that *certain patterns of brain activity* themselves *make addiction more likely*.

Sponaugle says some of these brain activity patterns reflect *inherited* patterns of brain chemistry. People who display these patterns, he says, simply learn that they can feel "more normal" when they use a particular chemical substance.

But that's only half of the story, says Sponaugle. He feels it is also important to diagnose and treat *acquired* alterations in brain chemistry that further promote substance use. Such changes include those wrought by chronic exposure to pharmacologic drugs and other environmental toxins, and especially those produced by changes in normal gut bacteria.

Unless we address both inherited and acquired patterns of brain chemistry, Sponaugle argues, we will routinely fail to treat the underlying factors that sustain addictive behavior. The result? Addicts will continue to use chemical substances to "medicate" themselves to achieve a sense of normality, resulting in the kinds of high relapse rates we see in conventional addiction treatments.

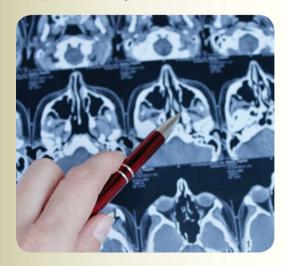
Inherited Abnormalities in Brain Chemistry

According to Sponaugle, the overwhelming majority of his 5,000 successfully treated patients have areas of their brains that are either overactive or underactive. And that abnormal activity level helps determine the kind of drug, substance, or behavior a person may turn to in order to "normalize" their feelings.

The *underactive* areas most commonly involve the prefrontal cortex (brain region behind the forehead) and the pleasure or reward system of the brain. People with diminished activity in the nucleus accumbens (reward center) display what scientists call "reward deficiency syndrome," or RDS.¹⁶ People with RDS have a hard time feeling "normal" responses to positive events, leaving them essentially hungering for happiness. Neurons in those low-activity areas are primarily driven by the neurotransmitter dopamine;

Dr. Sponaugle's Approach to Curing Addiction

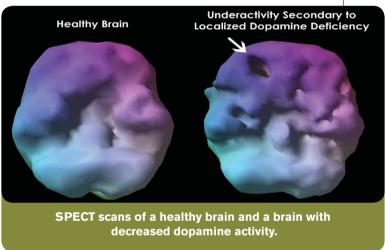
- Conventional addiction treatment using psychotherapy, medications, shock therapy, and painful detox programs often yield disappointing results.
- Up to 90% of those who attempt to overcome an addiction relapse.
- This may be because long-term drug use creates long-lasting changes in brain chemistry.
- Dr. Marvin "Rick" Sponaugle has developed an effective, integrative addiction recovery program that addresses the brain imbalances at the root of addictions.
- Addressing inherited and acquired patterns of brain chemistry is crucial to achieve lasting addiction recovery.
- Inherited addiction tendencies can involve areas of the brain that are overactive or underactive.
- Acquired hormone and gut imbalances can disrupt brain chemistry, setting the stage for addiction.
- Dr. Sponaugle restores optimal nutrient levels, hormones, enzymes, brain chemicals, and gastrointestinal health to help people overcome addiction—with a remarkable relapse rate of only 9%.



addicts tend to display marked deficiencies in dopamine activity in both areas.¹⁷⁻¹⁹

As a result, says Sponaugle, people with RDS often seek to rebalance their brains with stimulating substances or behaviors that produce a dopamine surge in their pleasure center. For example, these patients might become addicted to cocaine, opiate drugs such as morphine or heroin, or stimulants such as amphetamines.

Dr. Sponaugle has demonstrated these effects graphically in a series of SPECT scans on his patients with addictions to cocaine and OxyContin®: all of them showed marked reduction in activity of neurons that rely on dopamine. Sponaugle refers to these areas as "dopamine holes," and he uses them as a diagnostic feature as he seeks to rebalance his patients' brain chemistry.



People with *overactive* brain regions have an entirely different set of problems and are likely to become addicted to "calming" substances, according to Sponaugle.⁷ Neurotransmitters involved in these areas are excitatory chemicals such as dopamine, histamine, glutamate, epinephrine (adrenalin) and norepinephrine.²⁰ Their effect is to increase electrical activity of brain cells. At low levels of excess activity, patients may experience mild anxiety or insomnia. At higher levels, they may experience panic attacks or even live in a more or less continuous panic mode.⁷

This increased activity also shows up on SPECT scans, most notably in patients with high levels of anxiety or with panic disorders. ²¹⁻²³ Histamine is especially active in such patients' brains. ²⁴⁻²⁶ Dr. Sponaugle has a large file of SPECT scans showing overactive brain regions derived from elevated histamine activity in his patients addicted to "calming" substances such as alcohol, benzodiazepine anti-anxiety medications (e.g., Valium® or Xanax®), and again, opiates.

Acquired Abnormalities in Brain Chemistry

According to Dr. Sponaugle, people are "set up" for addictions by their inherited brain chemistry patterns. But that alone is not always enough to trigger an addiction. A "second hit" is usually required, typically in the form of imbalances in two important biological areas, the intestine and the endocrine (hormonal) system.

Gut Imbalance

The human gut is frequently referred to as the "second brain," because of its normally high production of serotonin and other neurotransmitters.²⁷ Sponaugle says his clinical research suggests that "Addiction is more frequently caused by toxins from the gut than from any other single causation."⁷

Alterations in the patterns of intestinal bacteria, coupled with ingestion of toxins from the environment, can produce what is known as intestinal hyperpermeability or "leaky gut," a damaged intestinal lining that allows substances that normally would be eliminated in the stool to be absorbed into the bloodstream, with consequences in the brain.^{28,29} Bacterial overgrowth in the gut may also interfere with serotonin.30 According to Dr. Sponaugle, food allergies cause elevated histamine levels that lead to increased electrical activity throughout the brain. Histamine's chemical structure is closely related to dopamine, and Dr. Sponaugle believes that histamine stimulates dopamine activity in the brain.

Dr. Sponaugle says that in his clinical experience, "alcoholism is linked with overgrowth of candida in the gastrointestinal tract." He has observed that this GI disturbance is linked with deficiencies of two calming brain chemicals: serotonin and taurine. The combination of serotonin deficiency, taurine deficiency, and excessive histamine activation keeps the alcoholic in a state that feels like a constant alcohol-withdrawal pattern, says Sponaugle. "The need to drink becomes more intense, causing increased anxiety and insomnia."

Hormonal Imbalance

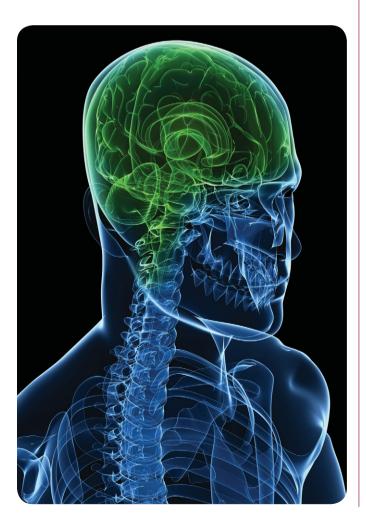
Dr. Sponaugle says that his clinic has found hormonal imbalances to be one of the most common causes of addiction in middle-aged women. This is hardly surprising, since hormones such as estrogen, progesterone, and pregnenolone are known to have powerful effects on brain function, yet traditional centers fail to evaluate female hormones. These "neurosteroids" are potent modulators of the neurotransmitters dopamine, serotonin, and gamma-aminobutyric acid (GABA), so

when a woman's hormones are out of balance, so is the electrical activity in her brain. 31-33

Estradiol, for example, increases serotonin receptor activity in the brain.34 That contributes to a sense of well-being that can be rapidly lost in the premenstrual period and at the onset of menopause, when estrogen levels plummet. These are also the times in a woman's life when she is most likely to suffer from depression, anxiety, and insomnia—all of which can be "self-medicated" with chemical substances that transiently "quiet" overactive brain regions: alcohol, Xanax[®], and even opiate pain medication.

Dr. Sponaugle's Approach to Diagnosis and Treatment

Dr. Sponaugle's unique approach focuses on determining abnormal brain chemistry patterns and then rectifying them. In order to correctly assess biochemical and medical disorders that can distort brain chemistry and cause various addiction and anxiety issues,



Sponaugle conducts a comprehensive analysis of more than 65 brain chemicals, hormones, enzymes, toxins, amino acids, infectious biomarkers, and vitamins through blood and urine testing.

This extensive evaluation allows Sponaugle to determine the root causes of each individual's addictive behaviors. In many cases, the possibilities of exposure to mold and industrial toxins are also evaluated.

Dr. Sponaugle is critical of conventional addiction treatment programs, noting that most focus only on one or two aspects of drug addiction.

Instead. Sponaugle uses a combination of treatments he refers to as nutritional and rapid detox. Sponaugle's nutritional detox provides intravenous amino acids, vitamins, and minerals to remedy biochemical imbalances safely.

Dr. Sponaugle drew on his extensive anesthesia and intensive care training to develop his rapid detox protocol. In this phase, he administers intravenous (IV) sedation and other medications that help blunt or block symptoms of physical withdrawal. These symptoms are typically related to elevated levels of "fight or flight" hormones like adrenaline that produce anxiety, agitation, palpitations, and jitteriness. Those unpleasant feelings, left uncorrected, make the detox experience so uncomfortable that many addicts prefer the addiction itself.

Dr. Sponaugle customizes his protocol to each patient, which helps him avoid any of the effects of the withdrawal-related adrenaline surge. His continued assessment and balancing of hormone and neurotransmitter levels over the longer term enables his patients' recovery process to be more effective.

A Look at Dr. Sponaugle's Casebook

Two cases from Dr. Sponaugle's clinical experience serve to illustrate his approach.

Jennifer

Jennifer was a 54-year-old nurse who began drinking large amounts of wine at age 50 (she had previously been a light social drinker only). On arrival at Dr. Sponaugle's clinic, she had just returned from a 28-day, \$46,000 stay at a treatment center in Arizona, relapsing just four days after returning home.

Jennifer's brain scan revealed both areas of low dopamine activity (dopamine holes in her prefrontal cortex) and an overactive deep limbic region linked with serotonin and taurine deficiency. Her brain scan revealed generalized overactivity, likely due to elevated histamine from her leaky gut syndrome. Her urinary neurotransmitter testing revealed low serotonin and taurine levels, and a markedly elevated histamine level, vividly demonstrating brain chemical imbalances associated with excessive wine consumption.

Complicating her alcohol-related serotonin deficiency was Jennifer's menopausal low estradiol levels, making her brain resistant to what serotonin she did produce. The Arizona treatment center had started her on serotonin-boosting SSRI (selective serotonin reuptake inhibitor) medication [Lexapro®], but it had no effect on her menopausal serotonin-resistant receptors.

The net result, says Dr. Sponaugle, was an overactive limbic system creating a steady beat of depression and anxiety. It is hardly surprising that without further treatment, Jennifer quickly resorted to self-medication with her drug of choice: alcohol.

Jennifer was started on high-quality supplements including 5-hydroxytryptophan (5-HTP), allowing her brain to begin making more serotonin. She was also given appropriate estradiol replacement to restore her serotonin receptors to their normal sensitivity. She used a gut-detoxifying formula, probiotics, and a combination of L-glutamine, gamma-oryzanol, and soothing herbs to help heal her intestine.

Jennifer has been alcohol-free for more than 15 months and experiences absolutely no craving for alcohol. Jennifer describes her own progress as "amazing."

Editor's note: Individuals taking selective serotonin reuptake inhibitor drugs such as Lexapro[®] should not take 5-HTP.

Susan

Susan was a 21-year-old woman who came to Dr. Sponaugle's clinic with her mother. Susan had been drinking two liters of vodka while consuming 1,000 mg of OxyContin® (a narcotic) and 20 mg of Xanax® (an anti-anxiety drug) daily. Susan's problems had begun at age 12, since which time she had attended eight drug rehab programs at a cost of \$240,000.

Susan had begun by raiding her parents' liquor cabinet to "calm her anxious brain." Dr. Sponaugle learned that Susan had not experienced anxiety issues prior to age 12, which was also, significantly, the age when she began having her periods, which were always longer and heavier than those of her peers.

Sponaugle recognized in Susan the classic presentation of progesterone deficiency. Her ovaries were producing normal levels of estrogen unopposed by progesterone, a situation known to result in enhanced anxiety.^{35,36} Her relatively high estrogen levels also boosted dopamine production, further adding to overactivity in Susan's anxiety-producing brain regions.³⁷

Like Jennifer, then, Susan began by drinking the most readily-available calming drug she could find: alcohol. Her alcohol consumption contributed to the kind of toxic yeast overgrowth in the gastrointestinal tract that Dr. Sponaugle has found is associated with deficiencies of serotonin and taurine (two calming brain chemicals) in alcoholic patients. Her ensuing leaky gut contributed to elevated brain histamine activity.

Quite naturally, then, Susan turned to stronger drugs that could calm the mounting anxiety levels triggered by excess histamine activity. She discovered the soothing nature of narcotics and the calming influence of the benzodiazepines (such as Xanax[®]).

Sponaugle began by optimizing Susan's hormonal levels (the original problem) and balancing her brain chemistry. He aggressively detoxified her gut with natural supplements designed to kill the yeast *Candida albicans* and other unwanted organisms. And he restored levels of nutrients and minerals that had been deficient.

Susan is now more than three years post-treatment without a single relapse. Says Sponaugle, "She is well on her way to enjoying a wonderful future."

Summary

While millions of Americans suffer from chemical addictions, conventional detox and treatment programs have dismal success, with relapse rates ranging from 50-90%. Few such programs take into account the complicated inherited and acquired abnormalities in brain chemistry associated with addictions, focusing instead on frustrating "talk therapy" or medical detoxification strategies. Marvin "Rick" Sponaugle, MD, is a board certified anesthesiologist and addiction specialist who incorporates state-ofthe art brain science and comprehensive biochemical testing to understand each addict's unique pattern of brain chemistry. He uses this information to determine precisely how and why each person is self-medicating with their drug(s) of choice to achieve what for them is often the only semblance of "normalcy" they can experience. Armed with this information and an understanding of integrative health, Sponaugle first detoxifies his patients while administering deficient amino acid brain chemical precursors, vitamins, and minerals, along with medications to neutralize their uncomfortable adrenaline surges. He then administers a comprehensive program of biochemical and hormonal balancing to remove the driving forces behind the addiction. Sponaugle's results speak for

Neurological Conditions

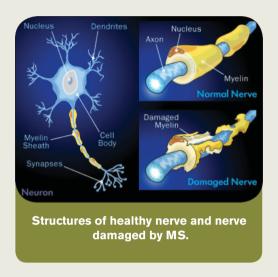
Dr. Sponaugle reports exceptionally successful results with his biochemically-based addiction treatment programs. He has now applied the same principles of detoxification and chemical balancing to other apparently intractable conditions. Among these, the most intriguing are his management of neurological illnesses such as multiple sclerosis (MS), amyotrophic lateral sclerosis (ALS, also called Lou Gehrig's Disease), attention deficit/hyperactivity disorder (ADHD), and even Alzheimer's disease (AD).

Says Sponaugle, "US physicians lag far behind their European counterparts in recognizing the role played by biotoxins, especially those from indoor molds and solvent toxins such as benzene and toluene, in the causation of MS, AD, and other neurological conditions." Sponaugle notes that basic science studies have long demonstrated a relationship between mold toxins and MS.³⁸ In MS, brain cells lose their vital insulating sheath of the fat-and-protein material called myelin, leading to the debilitating symptoms of the disease. It is now well documented that fungi, including molds, release toxins that activate immune system cells and trigger them to destroy brain cells.^{38,39} Nonetheless, says Sponaugle, American physicians continue to tell their patients that the cause of MS is unknown.

There is increasing evidence that fungal toxins play a causative role in other neurological conditions as well, including Alzheimer's disease. In this condition, fungal toxins have been identified in actual brain or nerve tissue from sufferers of the disorders.⁴⁰ Tissue from these patients and those with other neurological disorders also contains high levels of an enzyme that targets the fungal protein called chitin, which is not otherwise found in the human body.⁴¹

Molds and their toxins are distressingly prevalent in our food supply. One study demonstrated that nearly 20% of corn samples from the midwest contained one of the four most dangerous fungal toxins. ⁴² Sponaugle says that one in four Americans, 24%, have a particular genetic factor that interferes with the effective removal of mold and industrial toxins. He sees this genetic factor in 80% of his non-addicted "wellness" patients who suffer common maladies such as chronic fatigue syndrome, fibromyalgia, and even poorly-defined malaise, in addition to neurological conditions such as depression, anxiety, rage, and bipolar symptoms.

Dr. Sponaugle has turned his observations into solid clinical practice. He has designed an aggressive intravenous treatment model for toxin removal that is highly successful at diminishing symptoms of his patients suffering from MS as well as other debilitating brain disorders such as ALS, Parkinson's disease, Alzheimer's disease, and autism.



Non-Addictive Conditions Also Respond to Sponaugle's Treatment Approach

Among the many targeted programs Dr. Sponaugle offers, several are aimed at treating non-addictive conditions. These conditions share certain characteristics with the addictive disorders, such as producing imbalances in brain chemistry, and often have a toxin exposure as a cause. Sponaugle has successfully treated patients with:

- Hypoglycemia
- · Food allergies
- Nutrient depletion
- Anxiety/insomnia
- ADD/ADHD (including many high-performing adult professionals)
- Depression
- · Multiple sclerosis
- · Alzheimer's disease
- · Hormonal imbalance

Sponaugle's Brain and Body Wellness Program targets those with suspected toxins (especially indoor mold and industrial solvent toxicity) that may be at the root of their disorders. His comprehensive testing and proprietary intravenous treatment model have been highly successful in managing these conditions.

themselves: his patients' relapse rate is just 9%. Patients and family members can find more information at: http://floridadetox.com.



For more information visit www.floridadetox.com or call 1-888-775-2770.

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

Dr. Marvin Sponaugle

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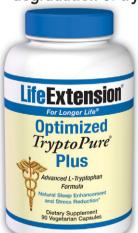
The Optimal Tryptophan Formula!

When **tryptophan** is ingested as a food or supplement, it is naturally **degraded** by specialized <u>enzymes</u> in the body. The problem is that activity of one of these enzymes <u>increases</u> with **age**, thereby denying the brain the **tryptophan** it needs to produce adequate **serotonin**. The result of the <u>excess</u> **degradation** of **tryptophan** can be seen in serotonin-associated troubles, such as:

- 1) Poor sleep quality
- 2) Emotional mood and stress
- 3) Weight gain and appetite
- 4) Loss of feeling of well-being

The degradation of tryptophan in the body can be inhibited with the intelligent use of other nutrients. For instance, the amino acid *lysine* competes with tryptophan in the same oxidative degradation pathway. This means that in the presence of sufficient <u>lysine</u>, less <u>tryptophan</u> is broken down through oxidation.

The primary tryptophan-degrading enzyme is overactivated by inflammatory cytokines. The most comprehensive way to suppress the inflammatory factors that cause the enzymatic degradation of tryptophan is to take the proper



dose of **niacinamide** along with extracts from **ginger**, **hops**, and **rosemary**.

A patent-pending formula called **Optimized TryptoPure**™ **Plus** has been developed that provides **lysine**, **niacinamide**, **hops**, **ginger**, and **rosemary** extracts to protect **tryptophan** against excessive *degradation* in our aging bodies, thus sparing it for conversion into **serotonin** in the brain.

SAFEST TRYPTOPHAN IN THE WORLD!

Life Extension®'s **Optimized TryptoPure™ Plus** formula contains **tryptophan** that is certified <u>pure</u> enough to be used as an active ingredient in pharmaceutical products. This premium-quality tryptophan costs more than other tryptophan raw material as it undergoes significantly more rigorous manufacturing processes to safeguard purity.

Each three-capsule serving provides 1,000 mg of certified pure tryptophan, along with the doses of lysine, niacinamide, and ginger-hops-rosemary extracts needed to protect this precious tryptophan from unwanted degradation in the body. While some people may take two to three capsules all at once before bedtime, others may choose to take one capsule on an empty stomach before each meal.

A bottle containing 90 vegetarian capsules retails for \$40. If a member purchases four bottles, the price is reduced to **\$27 per bottle**.

Each three capsule serving supplies:	
TryptoPure® L-Tryptophan (100% pure USP pharmaceutical-grade L-tryptophan)	1000 mg
L-Lysine (from USP pharmaceutical-grade AjiPure™ L-Lysine HCl)	250 mg
Proprietary TryptoPure® Plus Blend Perluxan® Hops Standardized Extract (Humulus lupulus L.) (cones), Ginger Root Standardized Extract (Zingiber officinale) (rhizome), and Ursole™ Rosemary Standardized Extract (Rosmarinus officinalis) (leaves)	285 mg
Niacin (as Niacinamide)	66 mg

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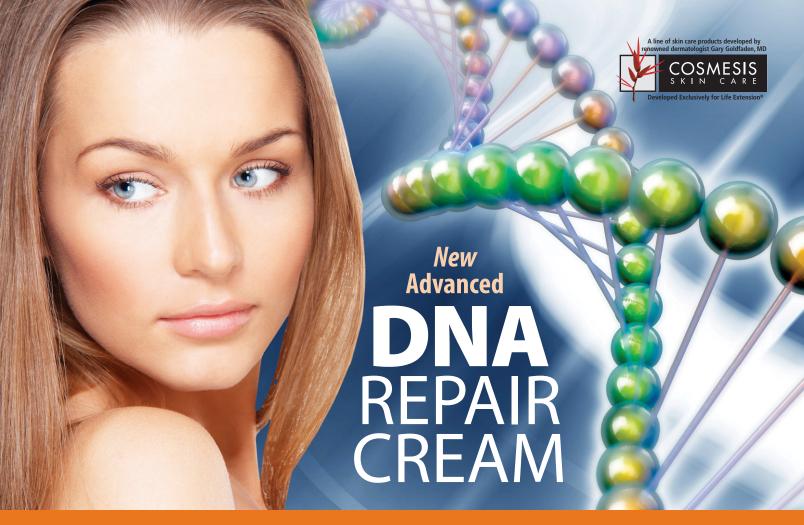


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To order Optimized TryptoPure™ Plus, call 1-800-544-4440 or visit www.LifeExtension.com

Take separately from food or supplements containing protein or amino acids, especially arginine.

CAUTION: Serotonin syndrome is characterized by high levels of serotonin and symptoms like confusion, sweating, agitation, nausea, involuntary muscle contractions, and racing heartbeat. Do not take L-tryptophan if you experience these symptoms. Do not take L-tryptophan in combination with other agents that increase serotonin levels in the central nervous system. Agents that increase serotonin levels can include psychiatric medications (e.g. antidepressants, lithium), migraine medications (e.g. sumatriptan), Parkinson's disease medications (e.g. carbidopa), and dextromethorphan, an over-the-counter cough suppressant. Do not use before driving or operating heavy machinery.



FOR ULTIMATE SKIN REJUVENATION

Whether you're a man or a woman, the visible effects of aging on your appearance are always the same.

Skin tone eventually loses its luster. The firm, supple look of your younger years begins to fade. Your face and neck become noticeably dry and wrinkled instead of refreshed and vibrant.

Now you can combat these unsightly changes with new **DNA Repair Cream** by **Cosmesis**®.

An innovation in skin care, this new formula features *teprenone* and *caprylic acid*, two key ingredients that help restore your skin's youthful glow.

Teprenone has a molecular structure similar to **vitamin K**, while caprylic acid occurs naturally in **palm** and **coconut oils**—topical ingredients dermatologists have relied on for years to help men and women *enhance* their skin's appearance.

A Clinically Studied Beautifier

Teprenone is more than just a moisturizer.

It has been shown to improve a host of visible age-related changes most maturing individuals face with the passage of time.

A group of women aged **52-64** applying **teprenone** twice daily experienced a **45%** improvement in skin tone, **56%** improvement in the appearance of spots and blemishes—and visibly more moist-looking skin in all the women tested after just <u>one</u> month.*

Plus ...

The new **DNA Repair Cream** also features *hyaluronic acid*, a compound found in high concentrations in your skin when you're young whose levels inevitably decline over time.

Abundant in olive oil and similar to vitamin A in molecular structure, the moisturizer **squalane** also occurs in



Item # 80141

your skin naturally and gradually diminishes over the years.

The quenching action of *red tea extract* in **DNA Repair Cream** also lends your skin a fresher look.

Together, this novel combination of beautifiers works to replenish youthful skin appearance—and helps you stay young-looking as you grow older.

A 1 oz jar of **DNA Repair Cream** retails for \$49. If a member buys two jars, the price is reduced to only **\$31.50** per jar.

Reference:* Sederma. Data on file. 2007.

To order Cosmesis DNA Repair Cream call 1-800-544-4440 or visit www.LifeExtension.com



There are **three** forms of **vitamin K** that the human body can utilize to promote **arterial health** and **bone support**. 1-8

Life Extension®'s Super K with Advanced K2 Complex provides the dynamic trio of vitamin K forms in one softgel, including vitamin K1, vitamin K2 (MK-4), and vitamin K2 (MK-7).

Vitamin K1 is the form of vitamin K that is found in green vegetables. **K1** is tightly bound to plant fiber, so only a fraction is *absorbed* into the bloodstream. Supplementation ensures ample **K1** blood levels.

Vitamin K2 is usually found in meats, dairy, and egg yolks. Since you may be avoiding these foods for health reasons, ingesting a **K2** supplement is essential. **MK-4** is the most rapidly absorbed form of **K2**, and **MK-7** boasts a very long half-life in the body, making both forms the perfect complement to any **vitamin K** regimen.⁹

The retail price for a bottle containing **90 softgels** (three-month supply) is \$26. If a member buys four bottles, the price is reduced to just **\$17.25 per bottle**.

Super K formula provides in just one daily softgel:

Vitamin K1	1000 mcg
Vitamin K2 (MK-4)	1000 mcg
Vitamin K2 (MK-7)	100 mcg

Item #01224

The same **Super K** formula consisting of Vitamin K1, K2 (MK-4) and K2 (MK-7) can be found in the **Life Extension® Super Booster**. If you take the **Super Booster**, you do <u>not</u> need additional **Super K softgels**.

Contains tree nuts (coconut).

Warning to Coumadin® (warfarin) Drug Users

Patients prescribed vitamin K-antagonist anti-coagulant prescription drugs like warfarin should consult their physician before taking vitamin K supplements like Super K and Super Booster. There is evidence, however, that users of drugs like warfarin could benefit from a consistent low dose of supplemental vitamin K. Ask your doctor if you can take a low doc4 for ge a day) of vitamin K2 in the long-acting MK-7 form for the purpose of stabilizing your INR levels and also protecting your body against long-term vitamin K deficit. Do not initiate any form of vitamin K supplementation without full cooperation of

long-term vitamin K deficit. Do not initiate any form of vitamin K supplementation without full cooperation of your treating doctor, as your doctor may need to increase your dose of warfarin to compensate for the vitamin k you supplement with. Life Extension provides several forms of low-dose vitamin K for physician consideration.

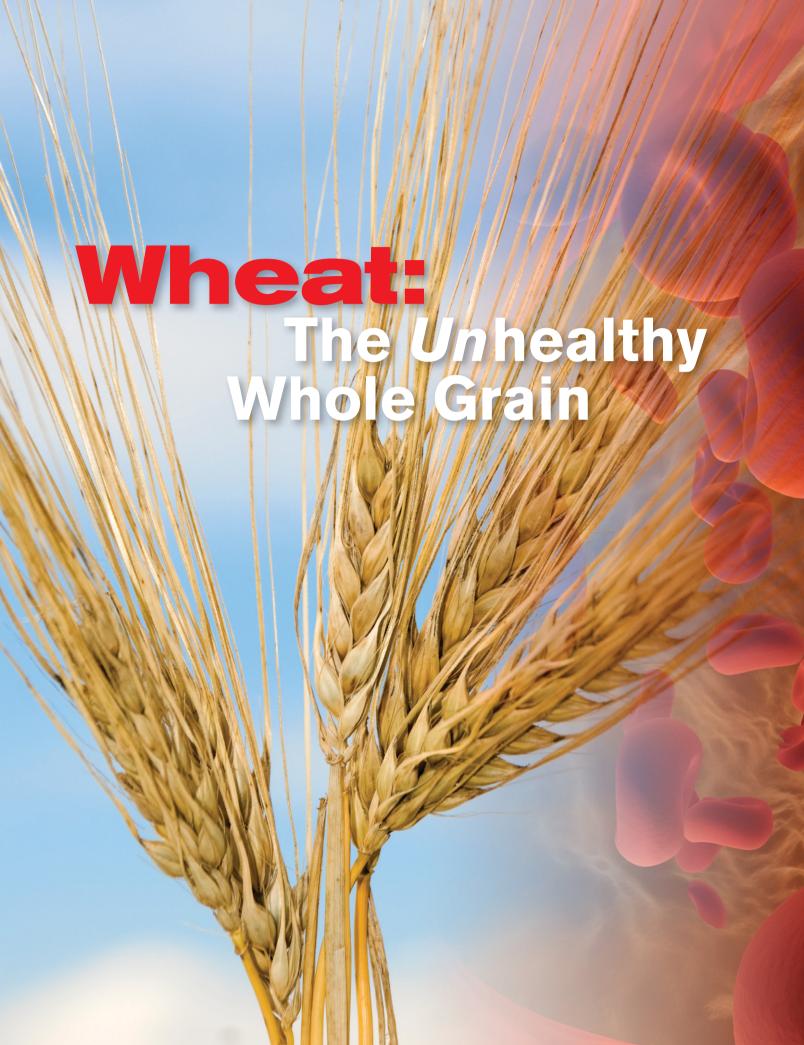
To order Super K or Super Booster, call 1-800-544-4440 or visit www.LifeExtension.com

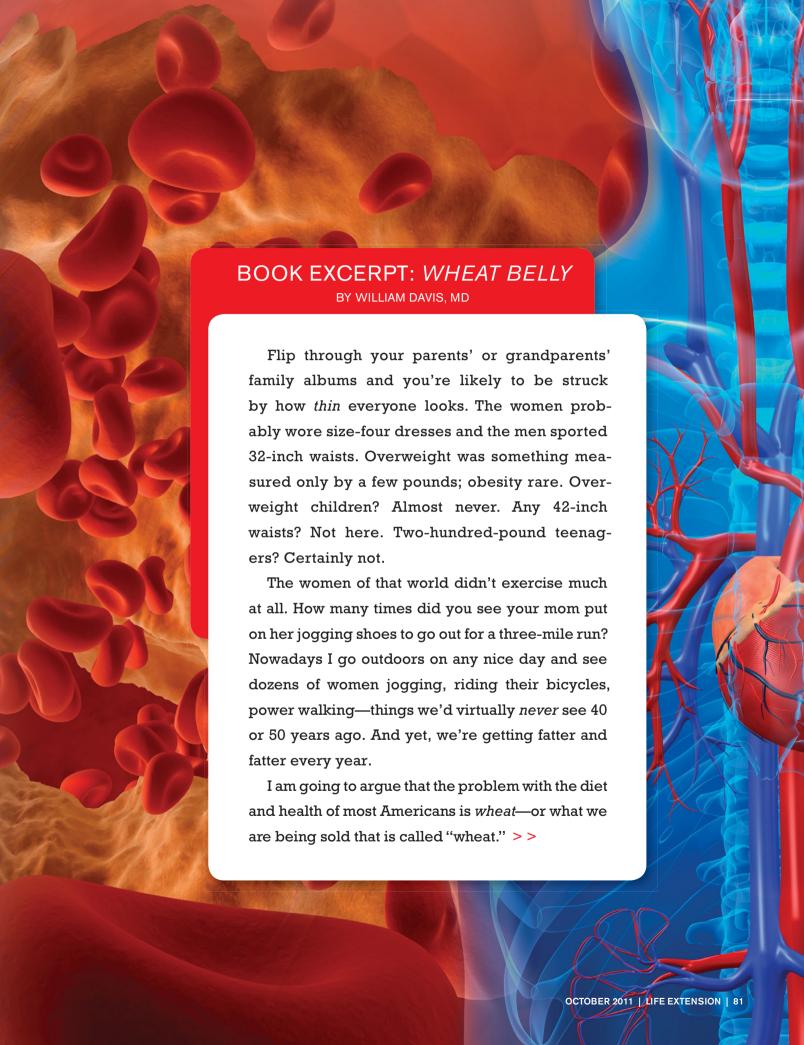
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These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease







Documented peculiar effects of wheat on humans include appetite stimulation, exposure to brain-active *exorphins* (the counterpart of internally derived endorphins), exaggerated blood sugar surges that trigger cycles of satiety alternating with heightened appetite, the process of *glycation* that underlies disease and aging, inflammatory and pH effects that erode cartilage and damage bone, and activation of disordered immune responses. A complex range of diseases results from consumption of wheat, from celiac disease—the devastating intestinal disease that develops from exposure to wheat gluten—to an assortment of neurological disorders, diabetes, heart disease, arthritis, curious rashes, and the paralyzing delusions of schizophrenia.

The sad truth is that the proliferation of wheat products in the American diet parallels the expansion of our waists. Advice to cut fat and cholesterol intake and replace the calories with whole grains that was issued by the National Heart, Lung, and Blood Institute through its National Cholesterol Education Program in 1985 coincides precisely with the start of a sharp upward climb in body weight for men and women. Ironically, 1985 also marks the year when the Centers for Disease Control and Prevention (CDC) began tracking body weight statistics, documenting the explosion in obesity and diabetes that began that very year.

So why has this seemingly benign plant that sustained generations of humans suddenly turned on us? For one thing, it is not the same grain our forebears ground into their daily bread. Wheat has changed dramatically in the past fifty years under the influence of agricultural scientists. Wheat strains have been hybridized, crossbred, and introgressed to make the wheat plant resistant to environmental conditions, such as drought, or pathogens, such as fungi. But most of all, genetic changes have been induced to increase *yield per acre*. Such enormous strides in yield have required drastic changes in genetic code. Such fundamental genetic changes have come at a price.

Wheat starches are the complex carbohydrates that are the darlings of dietitians. "Complex" means that the carbohydrates in wheat are composed of polymers (repeating chains) of the simple sugar, glucose. Conventional wisdom, such as that from your dietitian or the USDA, says we should all reduce our consumption of simple carbohydrates in the form of candy and soft drinks, and increase our consumption of complex carbohydrates.

Of the complex carbohydrate in wheat, 75 percent is the chain of branching glucose units, *amylopectin*, and 25 percent is the linear chain of glucose units, *amylose*. In the human gastrointestinal tract, both

amylopectin and amylose are digested by the salivary and stomach enzyme amylase. Amylopectin is efficiently digested by amylase to glucose, while amylose is much less efficiently digested, some of it making its way to the colon undigested. Thus, the complex carbohydrate amylopectin is rapidly converted to glucose and absorbed into the bloodstream and, because it is most efficiently digested, is mainly responsible for wheat's blood-sugar-increasing effect.

Wheat: Super Carbohydrate

People are usually shocked when I tell them that whole wheat bread increases blood sugar to a higher level than sucrose. Aside from some extra fiber, eating two slices of whole wheat bread is really little different, and often worse, than drinking a can of sugar-sweetened soda or eating a sugary candy bar.

This information is not new. A 1981 University of Toronto study launched the concept of the glycemic index, i.e., the comparative blood sugar effects of carbohydrates: the higher the blood sugar after consuming a specific food compared to glucose, the higher the glycemic index (GI). The original study showed that the GI of white bread was 69, while the GI of whole grain bread was 72 and Shredded Wheat cereal was 67, while that of sucrose (table sugar) was 59.2 Yes, the GI of whole grain bread is higher than that of sucrose. Incidentally, the GI of a Mars Bar nougat, chocolate,



sugar, caramel, and all—is 68. That's *better* than whole grain bread. The GI of a Snickers bar is 41—*far* better than whole grain bread.

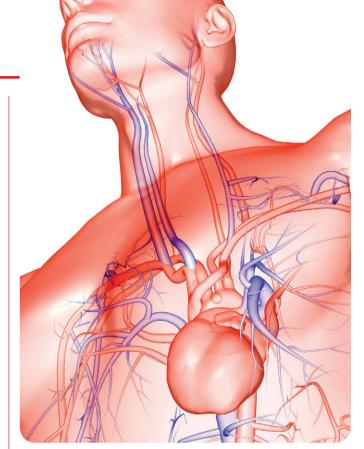
This has important implications for body weight, since glucose is unavoidably accompanied by insulin, the hormone that allows entry of glucose into the cells of the body, converting the glucose to fat. The higher the blood glucose after consumption of food, the greater the insulin level, the more fat is deposited. This is why, say, eating a three-egg omelet that triggers no increase in glucose does not add to body fat, while two slices of whole wheat bread increases blood glucose to high levels, triggering insulin and growth of fat, particularly abdominal or deep visceral fat.

Trigger high blood sugars repeatedly and/or over sustained periods, and more fat accumulation results. The consequences of glucose-insulin-fat deposition are especially visible in the abdomen—resulting in, yes, wheat belly. The bigger your wheat belly, the poorer your response to insulin, since the deep visceral fat of the wheat belly is associated with poor responsiveness, or "resistance," to insulin, demanding higher and higher insulin levels, a situation that cultivates diabetes. Moreover, the bigger the wheat belly in males, the more estrogen is produced by fat tissue. The bigger your wheat belly, the more inflammatory responses that are triggered: heart disease and cancer.

The extremes of blood sugar and insulin are responsible for growth of fat specifically in the visceral organs. Experienced over and over again, visceral fat accumulates, creating a fat liver, two fat kidneys, a fat pancreas, fat large and small intestines, as well as its familiar surface manifestation, a wheat belly. (Even your heart gets fat, but you can't see this through the semi-rigid ribs.)

Visceral fat is different. It is uniquely capable of triggering a universe of inflammatory phenomena. Visceral fat filling and encircling the abdomen of the wheat belly sort is a unique, twenty-four-hour-a-day, seven-day-a-week metabolic factory. And what it produces is inflammatory signals and abnormal cyto-kines, or cell-to-cell hormone signal molecules, such as leptin, resistin, and tumor necrosis factor.^{3,4} The more visceral fat present, the greater the quantities of abnormal signals released into the bloodstream.

All body fat is capable of producing another cytokine, adiponectin, a protective molecule that reduces risk for heart disease, diabetes, and hypertension. However, as visceral fat increases, its capacity to produce protective adiponectin diminishes.⁵ The combination of lack of adiponectin along with increased leptin, tumor necrosis factor, and other inflammatory products underlies abnormal insulin responses, diabetes, hypertension, and heart disease.⁶ The list of other



health conditions triggered by visceral fat is growing and now includes dementia, rheumatoid arthritis, and colon cancer.⁷ This is why waist circumference is proving to be a powerful predictor of all these conditions, as well as of mortality.⁸

High blood insulin provokes visceral fat accumulation, the body's means of storing excess energy. When visceral fat accumulates, the flood of inflammatory signals it produces causes tissues such as muscle and liver to respond less to insulin. This so-called insulin resistance means that the pancreas must produce greater and greater quantities of insulin to metabolize the sugars. Eventually, a vicious circle of increased insulin resistance, increased insulin production, increased deposition of visceral fat, increased insulin resistance, etc., etc., ensues.

But you could remove wheat and an entire domino effect of changes develop: less triggering of blood sugar rises, no exorphins to drive the impulse to consume more, no initiation of the glucose-insulin cycle of appetite. And if there's no glucose-insulin cycle, there's little to drive appetite except genuine physiologic need for sustenance, not overindulgence. If appetite shrinks, calorie intake is reduced, visceral fat disappears, insulin resistance improves, blood sugars fall. Diabetics can become nondiabetics, prediabetics can become nonprediabetics. All the phenomena associated with poor glucose metabolism recede, including high blood pressure, inflammatory phenomena, glycation, small LDL particles, triglycerides.

If you also count the people who don't vet meet full criteria for prediabetes but just show high aftermeal blood sugars, high triglycerides, small LDL particles, and poor responsiveness to insulin (insulin resistance)—phenomena that can still lead to heart disease, cataracts, kidney disease, and eventually diabetes—you would find few people in the modern age who are *not* in this group, children included.

This disease is not just about being fat and having to take medications; it leads to serious complications, such as kidney failure (40 percent of all kidney failure is caused by diabetes) and limb amputation (more limb amputations are performed for diabetes than any other non traumatic disease). We're talking real serious.

Pancreatic Assault and Battery

The cost of Americans becoming obese dwarfs the sum spent on cancer. More money will be spent on health consequences of obesity than education.

The early phase of growing visceral fat and diabetes is accompanied by a 50 percent *increase* in pancreatic beta cells responsible for producing insulin, a physiologic adaptation to meet the enormous demands of a



body that is resistant to insulin. But beta cell adaptation has limits.

High blood sugars, such as those occurring after a nice cranberry muffin provoke the phenomenon of glucotoxicity," actual damage to pancreatic insulin-producing beta cells that results from high blood sugars.9

The higher the blood sugar, the more damage to beta cells. The effect is progressive and starts at a glucose level of 100 mg/dL, a value many doctors call normal. After two slices of whole wheat bread with low-fat turkey breast, a typical blood glucose would be 140 to 180 mg/dL in a nondiabetic adult, more than sufficient to do away with a few precious beta cells which are never replaced.

Your poor, vulnerable pancreatic beta cells are also damaged by the process of lipotoxicity, loss of beta cells due to increased triglycerides and fatty acids, such as those developing from repeated carbohydrate ingestion. Recall that a diet weighted toward carbohydrates results in increased VLDL particles and triglycerides that persist in both the after-meal and between-meal periods, conditions that further exacerbate lipotoxic attrition of pancreatic beta cells.

Pancreatic injury is further worsened by inflammatory phenomena, such as oxidative injury, leptin, various interleukins, and tumor necrosis factor, all resulting from the visceral fat hotbed of inflammation, all characteristic of prediabetic and diabetic states.¹⁰

Over time and repeated sucker punches from glucotoxicity, lipotoxicity, and inflammatory destruction, beta cells wither and die, gradually reducing the number of beta cells to less than 50 percent of the normal starting number.¹¹ That's when diabetes is irreversibly established.

Part of the prevailing standard of care to prevent and treat diabetes, a disease caused in large part by carbohydrate consumption . . . is to advise increased consumption of carbohydrates.

Fighting Carbohydrates with Carbohydrates

Years ago, I used the ADA diet in diabetic patients. Following the carbohydrate intake advice of the ADA, I watched patients gain weight, experience deteriorating blood glucose control and increased need for medication, and develop diabetic complications such as kidney disease and neuropathy. Ignoring ADA diet advice and cutting carbohydrate intake leads to improved blood sugar control, reduced HbA1c, dramatic weight loss, and improvement in all the metabolic messiness of diabetes such as high blood pressure and triglycerides.



The ADA advises diabetics to cut fat, reduce saturated fat, and include 45 to 60 grams of carbohydrate—preferably "healthy whole grains"—in each meal, or 135 to 180 grams of carbohydrates per day, not including snacks. It is, in essence, a fat-phobic, carbohydrate-centered diet, with 55 to 65 percent of calories from carbohydrates. If I were to sum up the views of the ADA toward diet, it would be: Go ahead and eat foods that increase blood sugar, just be sure to adjust your medication to compensate.

Reduction of carbohydrates improves blood sugar behavior, reducing the diabetic tendency. If taken to extremes, it is possible to *eliminate* diabetes medications in as little as six months. In some instances, I believe it is safe to call that a cure, provided excess carbohydrates don't make their way back into the diet. Let me say that again: If sufficient pancreatic beta cells remain and have not yet been utterly decimated by long-standing glucotoxicity, lipotoxicity, and inflammation, it is entirely possible for some, if not most, prediabetics and diabetics to be cured of their condition, something that virtually never happens with conventional low-fat diets such as that advocated by the American Diabetes Association.

We might gain better understanding of the aging process if we were able to observe the effects of *accelerated* aging. We need not look to any mouse experimental model to observe such rapid aging; we need

only look at humans with diabetes. Diabetes yields a virtual proving ground for accelerated aging, with all the phenomena of aging approaching faster and occurring earlier in life—heart disease, stroke, high blood pressure, kidney disease, osteoporosis, arthritis, cancer. Specifically, diabetes research has linked high blood glucose of the sort that occurs after carbohydrate consumption with hastening your move to the wheelchair at the assisted living facility.

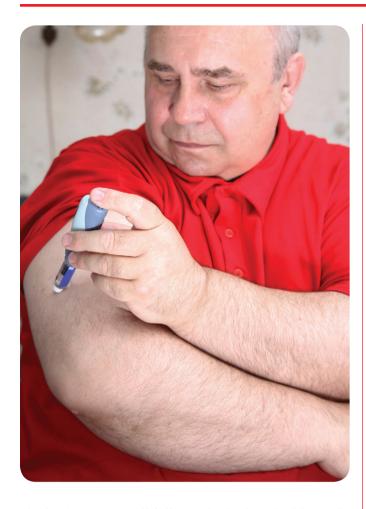
Advanced glycation end products, appropriately acronymed AGE, is the name given to the stuff that stiffens arteries (atherosclerosis), clouds the lenses of the eyes (cataracts), and mucks up the neuronal connections of the brain (dementia), all found in abundance in older people. The older we get, the more AGEs can be recovered in kidneys, eyes, liver, skin, and other organs. Although we can see evidence of some AGE effects—saggy skin and wrinkles, the milky opacity of cataracts, the gnarled hands of arthritis—none are truly quantitative. AGEs nonetheless, at least in a qualitative way, identified via biopsy as well as some aspects apparent with a simple glance, yield an index of biological decay.

AGEs are useless debris that result in tissue decay as they accumulate. They provide no useful function: AGEs cannot be burned for energy, they provide no lubricating or communicating functions, they provide no assistance to nearby enzymes or hormones. Beyond effects you can see, accumulated AGEs also mean loss of the kidneys' ability to filter blood to remove waste and retain protein, stiffening and atherosclerotic plaque accumulation in arteries, stiffness and deterioration of cartilage in joints such as the knee and hip, and loss of functional brain cells with clumps of AGE debris taking their place.

While some AGEs enter the body directly because they are found in various foods, they are also a byproduct of high blood sugar (glucose), the phenomenon that defines diabetes.

The sequence of events leading to formation of AGEs goes like this: Ingest foods that increase blood glucose. The greater availability of glucose to the body's tissues permits the glucose molecule to react with any protein, creating a combined glucose-protein molecule. Once AGEs form, they are irreversible and cannot be undone. They also collect in chains of molecules, forming AGE polymers that are especially disruptive. AGEs are notorious for accumulating right where they sit, forming clumps of useless debris resistant to any of the body's digestive or cleansing processes.

Thus, AGEs result from a domino effect set in motion anytime blood glucose increases. Anywhere that glucose goes (which is virtually everywhere in



the body), AGEs will follow. The higher the blood glucose, the more AGEs will accumulate and the faster the decay of aging will proceed.

Diabetes is the real-world example that shows us what happens when blood glucose remains high, since diabetics typically have glucose values that range from 100 to 300 mg/dL all through the day as they chase their sugars with insulin or oral medications. If such repetitive high blood sugars lead to health problems, we should see such problems expressed in an exaggerated way in diabetics . . . and indeed we do. Diabetics, for instance, are two to five times more likely to have coronary artery disease and heart attacks, 44 percent will develop atherosclerosis of the carotid arteries or other arteries outside of the heart, and 20 to 25 percent will develop impaired kidney function or kidney failure an average of eleven years following diagnosis.¹⁴ In fact, high blood sugars sustained over several years virtually *guarantee* development of complications.

With repetitive high blood glucose levels in diabetes, you'd also expect higher blood levels of AGEs, and indeed, that is the case. Diabetics have 60 percent greater blood levels of AGEs compared to non-diabetics.¹⁵

AGEs that result from high blood sugars are responsible for most of the complications of diabetes, from neuropathy (damaged nerves leading to loss of sensation in the feet) to retinopathy (vision defects and blindness) to nephropathy (kidney disease and kidney failure). The higher the blood sugar and the longer blood sugars stay high, the more AGE products will accumulate and the more organ damage results.

AGEs form even when blood sugar is normal, though at a much lower rate compared to when blood sugar is high. AGE formation therefore characterizes normal aging of the sort that makes a sixty-year-old person look sixty years old. But the AGEs accumulated by the diabetic whose blood sugar is poorly controlled cause accelerated aging. Diabetes has therefore served as a living model for age researchers to observe the age-accelerating effects of high blood glucose. Thus, the complications of diabetes, such as atherosclerosis, kidney disease, and neuropathy, are also the diseases of aging, common in people in their sixth, seventh, and eighth decades, uncommon in younger people in their second and third decades. Diabetes therefore teaches us what happens to people when glycation occurs at a faster clip and AGEs are permitted to accumulate.

AGE formation is therefore a continuum. But while AGEs form at even normal blood glucose levels (fasting glucose 90 mg/dL or less), they form faster at higher blood sugar levels. The higher the blood glucose, the more AGEs form. There really is *no* level of blood glucose at which AGE formation can be expected to cease entirely.

Being nondiabetic does *not* mean that you will be spared such fates. AGEs accumulate in nondiabetics and wreak their age-advancing effects. All it takes is a little extra blood sugar, just a few milligrams above normal, and—voilà—you've got AGEs doing their dirty work and gumming up your organs. Over time, you too can develop all the conditions seen in diabetes if you have sufficient AGE accumulation.

Thus, wheat products such as your poppy seed muffin or roasted vegetable focaccia are triggers of extravagant AGE production. Wheat, because of its unique blood glucose–increasing effect, makes you age faster. Via its blood sugar/AGE-increasing effects, wheat accelerates the rate at which you develop signs of skin aging, kidney dysfunction, dementia, atherosclerosis, and arthritis.

The Great Glycation Race

There is a widely available test that, while not capable of providing an index of biological age, provides a measure of the *rate* of biological aging due to

glycation. Knowing how fast or slow you are glycating the proteins of your body helps you know whether biological aging is proceeding faster or slower than chronological age. Thankfully, a simple blood test can be used to gauge the ongoing rate of AGE formation: hemoglobin A1c, or HbA1c. HbA1c is a common blood test that, while usually used for the purpose of diabetes control, can also serve as a simple index of glycation.

Hemoglobin is the complex protein residing within red blood cells that is responsible for their ability to carry oxygen. Like all other proteins of the body, hemoglobin is subject to glycation, i.e., modification of the hemoglobin molecule by glucose. The reaction occurs readily and, like other AGE reactions, is irreversible. The higher the blood glucose, the greater the percentage of hemoglobin that becomes glycated.

Red blood cells have an expected life span of sixty to ninety days. Measuring the percentage of hemoglobin molecules in the blood that are glycated provides an index of how high blood glucose has ventured over the preceding sixty to ninety days, a useful tool for assessing the adequacy of blood sugar control in diabetics, or to diagnose diabetes.

A slender person with a normal insulin response who consumes a limited amount of carbohydrates will have approximately 4.0 to 4.8 percent of all hemoglobin glycated (i.e., an HbA1c of 4.0 to 4.8 percent), reflecting the unavoidable low-grade, normal rate of glycation. Diabetics commonly have 8, 9, even 12 percent or more glycated hemoglobin—twice or more the normal rate. The majority of nondiabetic Americans are somewhere in between, most living in the range of 5.0 to 6.4 percent, above the perfect range but still below the "official" diabetes threshold of 6.5 percent. 16,17 In fact, an incredible 70 percent of American adults have an HbA1c between 5.0 percent and 6.9 percent.¹⁸ HbA1c does not have to be 6.5 percent to generate adverse health consequences. HbA1c in the "normal" range is associated with increased risk for heart attacks, cancer, and 28 percent increased mortality for every 1 percent increase in HbA1c. 19,20

That trip to the all-you-can-eat pasta bar, accompanied by a couple of slices of Italian bread and finished off with a little bread pudding, sends your blood glucose up toward 150 to 250 mg/dL for three or four hours; high glucose for a sustained period glycates hemoglobin, reflected in higher HbA1c.

HbA1c—i.e., glycated hemoglobin—therefore provides a running index of glucose control. It also reflects to what degree you are glycating body proteins beyond hemoglobin. The higher your HbA1c, the more you are also glycating the proteins in the

lenses of your eyes, in kidney tissue, arteries, skin, etc.21 In effect, HbA1c provides an ongoing index of aging rate: The higher your HbA1c, the faster you are

So HbA1c is much more than just a feedback tool for blood glucose control in diabetics. It also reflects the rate at which you are glycating other proteins of the body, the rate at which you are aging. Stay at 5 percent or less, and you are aging at the normal rate; over 5 percent, and time for you is moving faster than it should, taking you closer to the great nursing home in the sky.



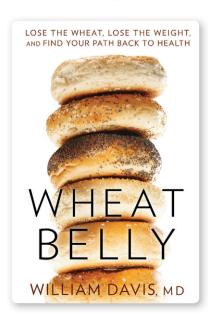
Dr. William Davis is medical director of the online heart disease prevention and reversal program, Track Your Plaque (www.trackyourplague.com). Join his conversations on Facebook and on his blogs, wheatbellyblog. com and trackyourplague.com/blog.

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To order a copy of Wheat Belly, call 1-800-544-4440 or visit www.LifeExtension.com

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Assert **Control** over the Calories You Eat!

Would you spend hours at the beach *without* wearing sunglasses and sun protection lotion? The answer should be a resounding no!

Yet most aging individuals do little to protect their bodies against the <u>excess</u> **calories** they ingest each day.

Few of us realize the deadly impact that large meals inflict. For instance, chronic overeating results in our bloodstreams being <u>bloated</u> with **glucose**, **insulin**, and **triglycerides** long <u>after</u> a meal is finished. This occurs not only because we *absorbed* too many calories, but also from the age-associated impairment to our internal regulators of carbohydrate and fat metabolism. This helps explain why, with advancing age, we tend to accumulate unwanted body weight even as we try to cut down on food intake and exercise more.

The good news is that scientists have identified documented methods to <u>reduce</u> the toxic damage from excess calorie intake by taking the proper nutrients <u>before</u> heavy meals.

Comprehensive Calorie Management

The **Calorie Control Weight Management Formula with African Mango Irvingia** is designed to be taken before the <u>two</u> heaviest daily meals to help neutralize the dangers of caloric excess. The ingredients were chosen based on scientific findings that age-associated fat accumulation is at least partially caused by the loss of one's metabolic capacity to utilize ingested calories. Each scoop of this good-tasting powdered drink mix contains:

- **1.** A proprietary fiber called **LuraLean**® that swells in the stomach after ingestion with water to help reduce calorie consumption. LuraLean® binds to **bile acids** in the small intestine and helps transport them out of the body. These bile acids otherwise facilitate the digestion and assimilation of **dietary fat** into the bloodstream. LuraLean® also slows the rapid emptying of ingested food into the small intestine, thereby reducing the surge of **glucose** entering the bloodstream. LuraLean® works better than other fibers because its own enzymes have been removed, thus sparing it from degradation in the digestive tract. This enables LuraLean® to form a stable *viscous barrier* to help impede calorie absorption and maintain its sponge-like activity throughout the digestive tract. In placebo-controlled studies, LuraLean® has induced weight loss along with significant reductions in fasting lipid and post-meal glucose/insulin levels.
- **2.** A white kidney bean extract called **Phaseolus vulgaris** that inhibits the *amylase* enzyme in the digestive tract. *Amylase* breaks down carbohydrates that are then absorbed into the bloodstream as glucose. *Phaseolus vulgaris* has produced weight loss and abdominal fat reductions, along with significant reductions of triglycerides, in placebo-controlled trials.
- **3.** An African plant extract called *African Mango Irvingia gabonensis* that favorably regulates **leptin** to decrease appetite and facilitate triglyceride removal from adipocytes; inhibits **glycerol-3-phosphate dehydrogenase** to reduce fatty acid storage in adipocytes; and up-regulates **adiponectin** to facilitate insulin sensitivity. Irvingia has demonstrated favorable weight loss results in placebo-controlled trials.
- **4.** A proprietary **green tea phytosome** that <u>absorbs</u> much better into the bloodstream to boost *resting metabolic rate*. In a controlled clinical study, this green tea phytosome induced **30.1 pounds** of weight loss on average in 90 days when combined with a reduced calorie diet.

Life-Saving Importance of Taking Calorie Control Weight Management Formula with African Mango Irvingia Before Heavy Meals

Once we accept the danger that each surplus calorie poses to our aging body, it becomes easy to understand the critical need to impede the absorption <u>and</u> effects of ingested foods by taking the **Calorie Control Weight Management Formula with African Mango Irvingia** <u>before</u> the two heaviest meals of the day.

The retail price for a one month (60-serving) supply of **Calorie Control Weight Management Formula with African Mango Irvingia** is \$50. If a member buys four jars, the price is reduced to \$33. If eight jars are purchased the member price is slashed to only \$30 per jar.

Contains soybeans, tree nuts, and corn. LuraLean[®] is a registered trademark of AHD International LLC. This supplement should be taken in conjunction with a healthy diet and regular exercise. Results may vary. CAUTION: Take at least two hours apart from medications. Because this product may lower blood glucose, consult your healthcare provider before taking this product if you are taking blood glucose lowering medication. Taking fiber products without adequate liquid may increase the risk of choking. Consult your healthcare provider before taking this product if you have difficulty swallowing or esophageal narrowing.

To order the Calorie Control Weight Management Formula with African Mango Irvingia, call 1-800-544-4440 or visit www.LifeExtension.com/calorie-control



Take Control of Excess Glucose Calories with...

CinSulin[®]
with InSea^{2™} and
Crominex[®] 3+

Cutting-Edge Support for Healthy Glucose Metabolism

Dietary carbohydrates are nearly impossible to avoid in today's "grab-and-go" world. The result? Countless aging Americans find themselves under constant assault from excess *glucose* calories. Even health-conscious, active people can experience higher-than-desired blood sugar levels as they age. Life Extension® offers an enhanced, all-natural, *multipronged* approach called CinSulin® with InSea^{2™} and Crominex® 3+.

An Extract Clinically Validated by the <u>USDA!</u>

Excitement has been building among scientists around the world over the clinically proven power of a novel form of **cinnamon** to support healthy glucose metabolism.

Scientists at the **US Department of Agriculture** have been quietly studying it *for more than a decade*. ^{1,2} Government experts have been amazed by compelling *in vitro* results documenting its ability to induce a **twenty-fold** increase in sugar metabolism. ³

Studies in humans have proven just as impressive. In a recent double-blind, placebo-controlled clinical trial,⁴ a group of maturing individuals (average age 61) taking **500 mg** per day of the cinnamon extract contained in the **CinSulin®** formula experienced an average *decline* of **12 mg/dL** in fasting blood glucose after only <u>two</u> months. This novel cinnamon extract <u>also</u> produced a significant decrease in **after-meal glucose spikes** (an average of **32** mg/dL) after ingestion of **75 g** of carbohydrates!

An objective of those who practice **calorie restriction** is to maintain **fasting glucose** levels around **80** mg/dL of blood and after-meal glucose spikes to no greater than **40** mg/dL. CinSulin® may help more longevity enthusiasts accomplish their glucose control objective.



Standardized for Purity and Safety

The danger with cinnamon is the presence of naturally occurring, toxic fat-soluble compounds known as *aldehydes*.

Life Extension® has identified a highly purified "type-A" water-soluble cinnamon extract using a patented process that <u>eliminates</u> these dangerous toxins.



Carb Blockers from the Sea

Researchers have known of the many health benefits of seaweed extracts for years.

Only recently has it come to light that a proprietary form of **seaweed** extract called **InSea**^{2™} blocks the action of **glucosidase** and **amylase**—enzymes your body uses to break down **carbohydrates** into glucose, facilitating its transport into the bloodstream.

Derived from **brown seaweed** and **bladderwrack**, a single **500** mg dose of this proprietary compound triggered a **48.3%** decline in after-meal blood sugar spikes in a recent double-blind, placebo-controlled trial.⁵

Better Glucose Absorption with Novel Chromium Complex

Chromium has long been known for its role in maintaining healthy glucose metabolism in those already within normal range. It has been *optimized* with standardized extract of **Indian gooseberry** and a proprietary form of the adaptogen *shilajit*. The name of this most advanced chromium complex is **Crominex® 3+**. The **Crominex® 3+** complex helps support:

- Normal cellular glucose absorption⁶⁻¹⁰
- Healthy endothelial function^{11,12}
- Healthy lipid and triglyceride levels 13-16
- Normal cellular energy production^{17,18}

Combined with **CinSulin**® and **InSea**^{2™}, the result is an unrivalled formula that affords <u>optimal</u> support for healthy glucose metabolism in aging individuals. The suggested serving of 1 vegetarian capsule of **CinSulin®** with **InSea**^{2™} and **Crominex® 3+** taken 20-30 minutes before three meals of the day supplies:

CinSulin®	525 mg
InSea²™	300 mg
Chromium (as Crominex® 3+)	399 mca

A bottle containing 90 vegetarian capsules of **CinSulin® with InSea^{2™}** and **Crominex® 3+** retails for \$38. If a member buys four bottles, the price is reduced to just **\$25.50** per bottle.



Item #01503

To order CinSulin® with InSea^{2™} and Crominex® 3+

or Optimized Chromium
with Crominex® 3+ call 1-800-544-4440
or visit www.LifeExtension.com

For Those Who Want Only Extra Chromium

For those wishing to obtain the unique benefits of the novel chromium complex (chromium plus Indian gooseberry and shilajit), **Life Extension**® also now offers a standalone version of **Optimized Chromium with Crominex® 3**+.

A bottle containing 60 **500 mcg** vegetarian capsules of **Optimized Chromium with Crominex**® **3**+ retails for \$9. If a member buys four bottles, the cost is just **\$6** per bottle.

Contains rice.



Item #01504

CinSulin® is a registered trademark of Tang-An Medical Ltd., manufactured under US patent #6,200,569. InSea^{2m} a trademark of innoVactiv™. Crominex® 3+ is a registered trademark of Natreon, Inc.

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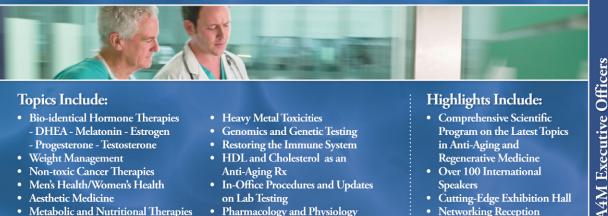
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- 5. Take the opportunity to discuss the results with one of our knowledgeable health advisors by calling 1-800-226-2370; or review the results with your personal physician.

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For Our Local Members:

For those residing in the Ft. Lauderdale, Florida area, blood-draws are also performed at the Life Extension Nutrition Center from 9:00 am to 2:00 pm Monday through Saturday. Simply purchase the blood test and have it drawn with no wait! Our address is 1100 West Commercial Blvd, Ft. Lauderdale, FL, 33309. We're located at Commercial Blvd and Powerline Road, just west of I-95. For more information or directions call 954-766-8144.

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	To provide an even more in-depth analysis		VITAMIN D (250H) (LC081950)	\$47
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	seeking to maintain optimal blood level values	S.	Provides valuable information on your risk	
	FEMALE HORMONE RE-TEST PROFILE (LCRTF)*	\$250	of developing heart disease, sudden heart	
\cup	CBC/Chemistry Profile, DHEA-S, Total Estroger		attack, and cardiac death. The Omega	
	Pregnenolone, Total and Free Testosterone,	,	Score™ also includes your AA:EPA ratio, allowing you to determine and track a major	
	Progesterone, and TSH. Continual monitoring		factor in total body inflammation.	
	of hormone levels is necessary for women		·	
	seeking to maintain optimal blood level values	3.	COQ10* (COENZYME Q10) (LC120251)	\$145
			This test is used to check the blood level	

* 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.

of CoQ10 and will enable more precise dosing for anyone seeking to achieve and

maintain high levels of this critical antioxidant.

** This test is packaged as a kit, requiring a finger stick performed at home.



MOST POPULAR SINGLE TESTS

Life Extension Member Pricing

	Elio Extori	31011
\bigcirc	HORMONES CORTISOL (LC004051) This test is to measure adrenal function.	\$39
\bigcirc	ADRENOCORTICOTROPIC HORMONE (ACTH)* (LC004440) A pituitary function test useful in evaluating adrenocortical dysfunction.	\$91.50
\bigcirc	DHEA-SULFATE (LC004020) This test shows if you are taking the proper amount of DHEA. This test normally costs \$100 or more at commercial laboratories.	\$61
\bigcirc	DIHYDROTESTOSTERONE (DHT)* (LC500142) Measures serum concentrations of DHT.	\$99
\bigcirc	ESTRADIOL (LC004515) For men and women. Determines the proper amount in the body.	\$33
	INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN 3 (IGFBP3) (LC140152) Elevated levels in hypertensive individuals have been associated with a nine-fold increase of carotid arteriosclerosis.	\$47
\bigcirc	INSULIN FASTING* (LC004333) Can predict those at risk of diabetes, obesity, and heart and other diseases.	\$42
\bigcirc	PREGNENOLONE* (LC140707) Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.	\$116
\bigcirc	PROGESTERONE (LC004317) Primarily for women. Determines the proper amount in the body.	\$55
	SEX HORMONE BINDING GLOBULIN (SHBG) (LC082016) This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens	\$33
\bigcirc	SOMATOMEDIN C (IGF-1) (LC010363) Indicates growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality.	\$75
0	TOTAL AND FREE TESTOSTERONE (LC140103) Determines whether testosterone replacement should be considered as a therapy for depressio abdominal obesity, low energy, poor mental performance, or loss of libido.	\$99 n,
	Blood tests available only in the continental United States.	

For non-member prices call 1-800-208-3444

lember Pricing	
CARDIAC RISK Lp-PLA2 (PLAC TEST)* (LC123240) This test is used to aid in predicting risk for coronary heart disease, and ischemic stroke associated with atherosclerosis. Lp-PLA2 is a cardiovascular risk factor that provides unique information about the stability of the plaque inside your arteries.	\$125
C-REACTIVE PROTEIN (HIGH-SENSITIVITY) (LC120766) Measures inflammation factors in arteries. Recent studies indicate that C-reactive protein may be the most accurate risk factor for predicti heart attack and stroke.	\$42 ng
APOLIPOPROTEIN ASSESSMENT (APO A1 + APO B + RATIO) (LC216010) This ratio correlates with risk of coronary artery	\$55

(APO A1 + APO B + RATIO) (LC216010)
This ratio correlates with risk of coronary artery disease and is useful in the presence of borderline elevations of cholesterol.

FIBRINOGEN* (LC001610)
High levels of this blood-clotting factor increase the risk of heart attack and stroke.

HOMOCYSTEINE (LC706994)
Can indicate if you are likely to have a heart attack or stroke. Even if you take folic acid, you still may have dangerously high levels of this artery-clotting metabolic debris that can be lowered with high doses of TMG and vitamin B6.

VAPTM TEST (LC804500)
The VAP cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid profile. Direct measurements, not estimations, are provided for total cholesterol, LDL, HDL, VLDL, and cholesterol subclasses.

MALE HEALTH
PSA (PROSTATE-SPECIFIC ANTIGEN)
(LC010322)

\$31

Can provide an early warning sign for prostate disorders and possible cancer.

FREE-PSA (INCLUDES TOTAL PSA)* (LC480780)
Recommended to determine if an elevated PSA is indicative of prostate cancer.

BONE HEALTH
OSTEOCALCIN* (LC010249)
\$91

Osteocalcin is often used as a biochemical marker, or biomarker, for the bone formation process. It has been routinely observed that higher serum osteocalcin levels are relatively well correlated with bone diseases characterized by increased bone turnover, especially osteoporosis.

DPD CROSS LINK URINE TEST (LC511105)
The deoxypyridinoline (DPD) urine test can be used to measure bone re-absorption rates in healthy individuals and in those with enhanced risk of developing metabolic bone diseases.
Deoxypyridinoline can be used to monitor therapies (which may include bisphosphonate

drugs) in people diagnosed with osteoporosis.

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

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TERMS AND CONDITIONS

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

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Glycine Capsules
Glycine Powder

Arginine Capsules

L-Arginine Free Base Powder

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L-Carnitine Capsules

L-Glutathione, L-Cysteine & C L-Glutamine Capsules

L-Glutamine Powder

L-Lysine Capsules

L-Lysine Capsules
L-Lysine Powder
L-Tyrosine Tablets
Mega L-Glutathione Capsules
N-Acetyl-L-Cysteine Capsules

Optimized Carnitine with GlycoCarn®

PharmaGABA

Super Carnosine Capsules

Taurine Capsules

Tryptopure® Tryptophan

(Optimized) Tryptopure® Plus

BONE & JOINT HEALTH

ArthroMax™ with Theaflavins Bone-Up™

Bone Restore™

Bone Strength Formula w/KoAct™

Chondroitin Sulfate

Chondrox

Fast Acting Joint Formula
Glucosamine Chondroitin Capsules

BRAIN HEALTH

Acetyl-L-Carnitine

Acetyl-L-Carnitine-Arginate

CDP Choline Capsules

Cognitex® with NeuroProtection Complex Cognitex® with Pregnenolone &

NeuroProtection Complex Cognitex® Basics

DMAE

DMAE-Ginkgo Ginkgo Biloba Certified Extract™

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Lecithin with B5 and BHA
Lecithin Granules

Methylcobalamin Lozenges Optimized Ashwagandha Extract

Phosphatidylserine Capsules

Rhodiola Extract

Super Ginkgo Extract

Vinpocetine

DIGESTIVE

Bromelain Powder

Carnosoothe w/PicroProtect

Digest RC™

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(also available with Probiotics)

Florastor

Intact Digest

Life Flora™ Natural EsophaGuard

N-Zimes™ Pancreatin

Primal Defense™

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Theralac Probiotics

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Blast™ Dual-C

Inner Power™

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Bilberry Extract

Blackcurrant Freeze Dried Extract

Brite Eyes III

Eye Pressure Support with Mirtogenol®

Overxcast Polarized Sunglasses

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(Plus Astaxanthin also available)

Vision Optimizer

FIBER

Apple Pectin Powder

Fiber Food Hi-Lignan® Nutri-Flax® WellBetX PGX® Soluble Fiber Blend

Asian Cruciferous Vegetable Soup Cruciferous Vegetable Soup

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Dr. Proctor's Advanced Hair Formula

Dr. Proctor's Shampoo

Life Extension Shampoo and Conditioner Super-Absorbable Tocotrienols

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Homocysteine Resist Natural BP Management Peak ATP® with GlycoCarn®

Policosanol

Red Yeast Rice

Super Absorbable CoQ10™ with *d*-Limonene

Super Omega-3 EPA/DHA with Sesame

Lignans & Olive Fruit Extract

Super Ubiquinol CoQ10

Super Ubiquinol CoQ10 with Enhanced Mitochondrial™ Support

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Theaflavin Standardized Extract

TMG Powder

TMG Tablets

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Astaxanthin

Berry Complete

Blueberry Extract

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Calcium D-Glucarate
Cilantro Herbal Extract

Citrus Bioflavonoid

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Full-Spectrum Pomegranate™

Grapeseed Extract with Resveratrol &

Pterostilbene Huperzine A with Natural Vitamin E

Kyolic® Garlic Formula 105 Kyolic® Reserve

Mega Green Tea Extract

Mega Green Tea Extract (Decaffeinated) Mega Lycopene Extract

Nutrim Optimized Ashwagandha Extract

Pomegranate Extract

Pomegranate Juice Concentrate

ProGreens® Pure-Gar™

Pycnogenol

Optimized Quercetin Resveratrol with Synergistic Grape-Berry Actives

Rhodiola Extract

Rosmarinic Acid Extract

Silymarin

SODzyme™ with GliSODin®

Stevia Extract Super Bio-Curcumin® Super Ginkgo Extract

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Venotone

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DHEA Complete
GH Pituitary Support Day Formula
GH Pituitary Support Night Formula

Melatonin

Melatonin Timed Release

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Pregnenolone

ProFem Cream

Pure IGF

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Echinacea

Enhanced Life Extension Whey Protein

i26 Hyperimmune Egg Immune Protect with PARACTIN®

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Norwegian Shark Liver Oil Optimized Fucoidan w/Maritech® 926

Primal Defense™ ProBoost™ Thymic Protein A

Pure Gar™ Sambu® Guard

Thymic Immune Factors

Ultimate Flora Advanced Immunity Vitamin C with Dihydroquercetin

Zinc Lozenges with Vitamin C **INFLAMMATORY REACTIONS**

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DHA 240

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MSM

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Life Extension Mix™ Powder
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Life Extension Mix™ w/o Copper Tablets

Life Extension Mix™ w/Copper Tablets
Life Extension Mix™ w/Extra Niacin
Life Extension Mix™ w/Extra Niacin w/o Copper

Life Extension Mix™ w/Stevia Powder
Life Extension Mix™ w/Stevia w/o Copper Powder

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Life Extension Two-Per-Day
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	Buy 4 bottles, price each	46.66	35.00		
00788	ACETYL-L-CARNITINE ARGINATE - 100 caps	59.00	44.25		
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01308	ADVANCED LIPID CONTROL - 60 veg. caps	30.00	22.50		
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01300	ADVANCED ORAL HYGIENE - 60 veg. mint lozenges	20.00	15.00		
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00681	AHCC - 500 mg, 30 caps	59.98	44.99		
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46925	ALLI® REFILL PACK - 120 caps	69.95	58.00		
00457	ALPHA-LIPOIC ACID W/BIOTIN (SUPER) - 250 mg, 60 caps	37.00	27.75		
	Buy 4 bottles, price each	32.00	24.00		
01440	ANTI-ALCOHOL ANTIOXIDANTS w/HEPATOPRO - 100 caps	26.00	19.50		
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01510	ANTI-ADIPOCYTE FORMULA w/ADIPOSTAT - 60 veg. caps	35.00	26.25		
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00038	ARGININE/ORNITHINE POWDER - 150 grams	22.95	17.21		
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01025	(L)-ARGININE FREE-FORM POWDER - 100 grams	15.98	11.99		
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01317	ARTHROMAX™ w/THEAFLAVINS - 120 veg. caps	44.00	33.00		
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01404	ARTHRO-IMMUNE JOINT SUPPORT - 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
00919	ARTICHOKE LEAF EXTRACT - 500 mg, 180 veg. caps	28.00	21.00		
00000	Buy 4 bottles, price each	25.38	19.04		
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00000	Buy 4 bottles, price each	34.93	26.20		
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01000	Buy 4 bottles, price each	9.00	6.75		
01066	ASPIRIN - 81 mg, 300 enteric coated tablets	6.00	4.50		
00700	Buy 4 bottles, price each	5.33	4.00		_
00708	ASTAXANTHIN - 2 mg, 30 softgels	10.25	7.69		

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0925	BENFOTIAMINE (MEGA)- 250 mg, 120 veg. caps	30.00	22.50		
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1206	BERRY COMPLETE - 30 veg. caps	21.00	15.75		
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0664	BETA-CAROTENE - 25,000 IU, 100 softgels	10.98	8.24		
	Buy 4 bottles, price each	9.83	7.37		
0653	BETTERWOMAN® -40 caps	40.00	30.00		Г
	Buy 4 bottles, price each	38.00	28.50		
1073	BILBERRY EXTRACT - 100 mg, 100 veg. caps	28.00	21.00		Н
	Buy 4 bottles, price each	25.00	18.75		
1512	BIOACTIVE MILK PEPTIDES - 30 caps	18.00	13.50		H
1012	Buy 4 bottles, price each	16.00	12.00		
1006	BIOSIL™ - 5 mg, 30 veg. caps	18.95	15.16	\vdash	\vdash
1007	BIOSIL™ - 1 fl oz	29.99	23.99		┝
	BIOTIN - 600 mcg, 100 caps	7.50	5.63	_	⊢
0102					
01.45	Buy 4 bottles, price each	6.50	4.88	_	⊢
0145	BIOTIN POWDER - 30 grams	12.50	9.38		H
1007	Buy 4 bottles, price each	11.00	8.25	_	H
1037	BLACKCURRANT FREEZE DRIED EXTRACT - 60 veg. caps	21.95	16.46	_	┝
1008	BLAST™ - 600 grams of powder	26.95	20.21	_	L
1526	BLENDER - 28 oz bottle	8.99	6.74	_	L
0000	BLOOD PRESSURE MONITOR-ARM CUFF (medium)	99.95	64.97		L
0001	BLOOD PRESSURE MONITOR-WRIST (travel size)	69.95	45.47		L
1214	BLUEBERRY EXTRACT - 60 veg. caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		L
11438	BLUEBERRY EXTRACT w/ POMEGRANATE - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		L
1506	BONE FORMULA (DR. STRUM'S INTENSIVE) - 300 veg. caps	56.00	42.00		
	Buy 4 bottles, price each	50.00	37.50		
0811	BONE RESTORE - 150 caps	22.50	16.88		
	Buy 4 bottles, price each	19.50	14.63		
1211	BONE STRENGTH FORMULA w/KOACT® - 120 caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
0313	BONE-UP® - 240 caps	24.95	18.71		
	Buy 4 bottles, price each	22.50	16.88		
1379	BOOSTER - 60 softgels	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
1590	BOOSTER w/ADVANCED K2 COMPLEX (SUPER) - 60 softgels	42.00	31.50		Г
	Buy 4 bottles, price each	38.00	28.50		
0621	BORON - 3 mg, 100 caps	5.95	4.46		
	Buy 4 bottles, price each	5.25	3.94		
0202	BOSWELLA - 100 caps	38.00	28.50		Н
	Buy 4 bottles, price each	30.00	22.50		
0258	BOSWELLA TOPICAL CREAM - 4 OZ	15.00	11.25		\vdash
	Buy 4 jars, price each	13.00	9.75		
	SUB-TOTAL OF COLUMN 2				L

SUB-TOTAL OF COLUMN 1

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Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01253	BRANCHED CHAIN AMINO ACIDS - 90 veg. caps	\$19.50	\$14.63		
	Buy 4 bottles, price each	17.00	12.75		
00999	BREAST HEALTH FORMULA - 60 veg. caps	34.00	25.50		
	Buy 4 bottles, price each	30.00	22.50		
00893	BRITE EYES III - 2 vials, 5 ml each	34.00	25.50		
	Buy 4 boxes, price each	32.00	24.00		
00136	BROMELAIN POWDER - 100 grams	21.00	15.75		
	Buy 4 bottles, price each	18.75	14.06		
01203	BROMELAIN (SPECIALLY-COATED) - 500 mg, 60 enteric coated tablets		15.75		
01200	Buy 4 bottles, price each	19.00	14.25		
00884	BUTTERBUR EXT. w/STANDARDIZED ROSMARINIC ACID - 60 softgels	44.00	33.00		
00004		39.60	29.70		
	Buy 4 bottles, price each	39.00	29.70		
01015	<u> </u>	40400	440.00		
01015	CALCIUM CITRATE w/VITAMIN D - 300 caps	\$24.00	\$18.00		
	Buy 4 bottles, price each	21.25	15.94		
00535	CALCIUM D-GLUCARATE - 200 mg, 60 caps	18.00	13.50		
	Buy 4 bottles, price each	15.00	11.25		
01493	CALORIE CONTROL WEIGHT MANAGEMENT FORMULA BLUEBERRY-POMEGRANATE FLAVOR - 402 grams powder	50.00	37.50		
	Buy 4 jars, price each	44.00	33.00		
	Buy 8 jars, price each	40.00	30.00		
00118	CAPSULE FILLER MACHINE FOR "00" CAPSULES	17.95	13.46		
	Buy 4 machines, price each	17.25	12.94		
00613	CAPSULE FILLER MACHINE FOR "0" CAPSULES	17.95	13.46		
	Buy 4 machines, price each	17.25	12.94		
00916	CARNITINE w/GLYCOCARN® (OPTIMIZED) - 60 veg. caps	29.00	21.75		
	Buy 4 bottles, price each	26.10	19.58		
01041	L-CARNITINE - 500 mg, 30 caps	15.00	11.25		
	Buy 4 bottles, price each	13.20	9.90		
01258	CARNOSOOTHE w/PICROPROTECT™ - 60 veg. caps	29.95	22.46		
0.200	Buy 4 bottles, price each	27.00	20.25		
01287	CARNOSINE (SUPER) - 500 mg, 90 caps	66.00	49.50		
01201	Buy 4 bottles, price each	60.00	45.00		
01003	CAT MIX - 100 grams powder	15.00	11.25		
01003		12.00	9.00		
00390	Buy 4 bottles, price each CDP CHOLINE CAPS - 250 mg, 60 caps	36.00	27.00		
00390	<u> </u>	34.00	25.50		
20000	Buy 4 bottles, price each				
00998	CELL SENSOR-EMF DETECTION METER	39.95	29.95		
01370	CHILDREN'S FORMULA LIFE EXTENSION MIX™ - 100 chewable tablets		13.50		
00550	Buy 4 bottles, price each	16.00	12.00		
00550	CHLORELLA - 500 mg, 200 tablets	23.50	17.63		
04540	Buy 4 bottles, price each	21.00	15.75		
01549	CHLOROPHYLLIN w/ZINC - 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	20.00	15.00		
	CHO-LESS™ - 90 capsules	32.50	24.38		
00541	CHOLINE CHLORIDE - 16 oz liquid	14.95	11.21		
0000:	Buy 4 bottles, price each	14.00	10.50		
00364	CHONDROITIN SULFATE CONCENTRATE - 400 mg, 60 tablets	19.95	14.96		
	Buy 4 bottles, price each	18.00	13.50		
01218	CHROMIUM ULTRA - 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
01504	CHROMIUM W/CROMINEX® 3+ (OPTIMIZED) - 500 mcg, 60 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
00551	CILANTRO HERBAL EXTRACT - 1 0Z	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		

No.		Retail Each	Member Each	Qty	Total
01503	CINSULIN® w/INSEA2™ AND CROMINEX® 3+- 90 veg. caps	\$38.00	\$28.50		
	Buy 4 bottles, price each	34.00	25.50		
00069	CITRUS BIOFLAVONOID - 100 caps	16.79	12.59		
	Buy 4 bottles, price each	15.56	11.67		
00818	CLA BLEND W/SESAME LIGNANS (SUPER) - 1000 mg, 120 softgels	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
	Buy 10 bottles, price each	26.33	19.75		
00819	CLA BLEND w/GUARANA & SESAME (SUPER)-1000 mg, 120 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.33	28.75		
01078	CLEANSE SMART - 60 caps	31.99	23.99		
00050	COD LIVER OIL (EMULSIFIED) - 12 fl oz (355 ml)	10.97	8.23		
	Buy 4 bottles, price each	10.34	7.76		
00293	COD LIVER OIL (EMULSIFIED) - 100 softgels (Emulsified)	10.97	8.23		
	Buy 4 bottles, price each	10.34	7.76		
00922	COGNITEX® w/PREGNENOLONE &	74.00	55.50		
	NEUROPROTECTION COMPLEX - 90 softgels				
	Buy 4 bottles, price each	66.60	49.95		
	Buy 12 bottles, price each	64.00	48.00		
00921	COGNITEX® w/o PREGNENOLONE	72.00	54.00		
	w/NEUROPROTECTION COMPLEX - 90 softgels				
	Buy 4 bottles, price each	64.00	48.00		
	Buy 12 bottles, price each	62.00	46.50		
01421	cognitex® basics - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		
00110	COMPLETE B-COMPLEX - 180 caps	21.50	16.13		
	Buy 4 bottles, price each	18.00	13.50		
01575	COMPREHENSIVE NUTRIENT PACK - 30-day supply	189.00	141.75		
	Buy 4 bottles, price each	171.00	128.25		
00119	COPPER CAPSULES - 2 mg, 100 caps	9.91	7.43		
00113	Buy 4 bottles, price each	8.96	6.72		
00040	* **		18.75	_	
00949	COQ10™ w/ d-LIMONENE (SUPER ABSORBABLE) - 50 mg, 60 softgels	25.00			
	Buy 4 bottles, price each	22.00	16.50		
	Buy 12 bottles, price each	20.00	15.00		
00950	COQ10 [™] w/ d-LIMONENE (SUPER ABSORBABLE) - 100 mg, 100 softgels	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
	Buy 12 bottles, price each	56.00	42.00		
01226	COQ10 (SUPER UBIQUINOL) - 100 mg, 60 softgels	56.00	42.00		
	Buy 4 bottles, price each	52.00	39.00		
	Buy 12 bottles, price each	48.00	36.00		
01426	COQ10 W/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)-100 mg, 60 softgels		46.50		
	Buy 4 bottles, price each	56.00	42.00		
	Buy 12 bottles, price each	52.00	39.00		
04.400	•			_	
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)-50 mg, 100 softgels		43.50		
	Buy 4 bottles, price each	53.00	39.75		
	Buy 10 bottles, price each	50.00	37.50		
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)-50 mg, 30 softgels	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)-200 mg, 30 softgels	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
	Buy 10 bottles, price each	52.00	39.00		
01053	CORIOLUS SUPER STRENGTH - 600 mg, 150 veg. caps	99.95	74.96		
00857	COROMEGA CHILD BRAIN & BODY - (Lemon Lime) 30 packets	25.00	18.75		
20001	Buy 4 boxes, price each	22.50	16.75		
	Day 1 Danos, prior odori	22.00	10.10		
	SUB-TOTAL OF COLUMN 4				

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No.		Retail Each	Member Each	Qty	Tota
	C CONTINUED				
80140	COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS - 33 oz	\$49.00	\$36.75		
	Buy 2 bottles, price each	42.00	31.50		
30139	COSMESIS AMBER SELF MICRODERMABRASION - 2 OZ	49.00	36.75		
	Buy 2 jars, price each	42.00	31.50		
30118	COSMESIS ANTI-AGING MASK - 2 oz	72.00			
30110	Buy 2 bottles, price each	63.36			
30134	COSMESIS ANTI-GLYCATION SERUM - 1 0Z	33.00	24.75		
30101	W/BLUEBERRY & POMEGRANATE EXTRACTS	00.00	21.70		
	Buy 2 bottles, price each	31.35	23.51		
30133	COSMESIS ANTIOXIDANT FACIAL MIST - 2 OZ	32.00	24.00	_	
00133		30.40	22.80		
00107	Buy 2 bottles, price each	+		_	
30127	COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2 oz	45.00			
	Buy 2 jars, price each	42.80	32.10	_	
30128	COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2 0Z	59.00			
	Buy 2 jars, price each	51.92		_	
30117	COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2 OZ	64.00			
	Buy 2 jars, price each	57.49			
10121	COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2 0Z	58.00	43.50		
	Buy 2 jars, price each	51.04	38.28		
30105	COSMESIS ANTI-REDNESS & BLEMISH LOTION - 1 OZ	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
30120	COSMESIS CORRECTIVE CLEARING MASK - 2 OZ	64.50	48.38		
	Buy 2 jars, price each	56.76	42.57		
80141	COSMESIS DNA REPAIR CREAM - 1 oz jar	49.00	36.75		
	Buy 2 jars, price each	42.00	31.50		
0108	COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 0Z	74.95	56.21		
	Buy 2 bottles, price each	65.95			
30123	COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 oz	69.50			
00120	Buy 2 jars, price each	61.16			
30107		74.50		_	
00107		-			
0404	Buy 2 bottles, price each	65.56		_	
30131	COSMESIS HAIR SUPPRESS FORMULA - 4 0Z	59.00			
	Buy 2 bottles, price each	51.92		_	
30137	COSMESIS HEALING FORMULA ALL-IN-ONE CREAM - 1 0Z	53.00	39.75		
	Buy 2 jars, price each	45.43	34.07		
30115	COSMESIS HEALING MASK - 2 OZ	64.50	48.38		
	Buy 2 bottles, price each	56.76	42.57		
30109	COSMESIS HYALURONIC FACIAL MOISTURIZER - 1 0Z	58.00	43.50		
	Buy 2 bottles, price each	51.04	38.28		
30110	COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 1 OZ	58.00	43.50		
	Buy 2 bottles, price each	51.04	38.28		
30138	COSMESIS HYDRATING ANTI-OXIDANT FACE MIST - 4 OZ	39.95	29.96		
	Buy 2 bottles, price each	38.00	28.50		
30103	COSMESIS LIFTING & TIGHTENING COMPLEX - 1 OZ	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
0135	COSMESIS MELATONIN CREAM - 1 0Z	33.00	24.75		
70100	Buy 2 jars, price each	27.10	20.33		
80114	COSMESIS MILD FACIAL CLEANSER - 8 0Z	59.00	44.25		
0114		-			
01100	Buy 2 bottles, price each	51.92	38.94	\vdash	
80122	COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2 OZ	64.00	48.00		
	Buy 2 jars, price each	56.32	42.24	_	
30111	COSMESIS PIGMENT CORRECTING CREAM - 1/2 oz	74.00	55.50		
	Buy 2 bottles, price each	65.12	48.84		
30106	COSMESIS REJUVENATING SERUM - 1 0Z	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
	SUB-TOTAL OF COLUMN 5			_	

No.		Retail Each	Member Each	Qty	Total
80142	COSMESIS RESVERATROL ANTI-OXIDANT SERUM - 1 OZ	\$46.00	\$34.50		
	Buy 2 bottles, price each	39.00	29.25		
80112	COSMESIS SKIN LIGHTENING SERUM - 1/2 0Z	85.00	63.75		
	Buy 2 bottles, price each	74.80	56.10		
80130	COSMESIS SKIN STEM CELL SERUM - 1 0Z	74.00	55.50		
	Buy 2 bottles, price each	69.00	51.75		
80116	COSMESIS ULTRA LIP PLUMPER - 1/3 oz	64.00	48.00		
	Buy 2 bottles, price each	56.32	42.24		
80101	COSMESIS ULTRA WRINKLE RELAXER - 1 0Z	89.95	67.46		
	Buy 2 bottles, price each	79.76	59.82		
80113	COSMESIS UNDER EYE REFINING SERUM - 1/2 0Z	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80104	COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80129	COSMESIS VITAMIN C SERUM - 1 OZ	85.00	63.75		
	Buy 2 bottles, price each	74.80	56.10		
30136	COSMESIS VITAMIN D LOTION - 4 OZ	36.00	27.00		
	Buy 2 bottles, price each	33.66	25.25		
30102	COSMESIS VITAMIN K HEALING CREAM - 1 02	79.50	59.63		
	Buy 2 bottles, price each	69.96	52.47		
00862	CRAN-MAX® - 500 mg, 60 veg. caps	17.50	13.13	П	
	Buy 4 bottles, price each	15.00	11.25		
01424	CRAN-MAX® with UTIROSE™ (OPTIMIZED) - 60 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00609	CREATINE CAPSULES - 120 caps	10.95	8.21		
	Buy 4 bottles, price each	9.25	6.94		
00610	CREATINE POWDER - 500 grams	29.00	21.75		
30010	Buy 4 bottles, price each	26.63	19.97		
01096	CREATINE WHEY GLUTAMINE POWDER - 1000 grams (vanilla)	45.00	33.75		
31030	Buy 4 bottles, price each	42.00	31.50		
^N1N89	CRUCIFEROUS VEGETABLE SOUP - 32 oz. pouch	11.95	8.96		
01005	Buy 6 pouches, price each	11.25	8.44		
^∩1∩0∩	(ASIAN) CRUCIFEROUS VEGETABLE SOUP - 32 oz. pouch	11.95	8.96		
01030	Buy 6 pouches, price each	11.25	8.44		
01429	CR MIMETIC LONGEVITY FORMULA - 60 veg. caps	39.00	29.25		
J1429			27.00		
*^D\\/\\/	Buy 4 bottles, price each	36.00			
	CR WAY OPTIMAL HEALTH PROGRAM SOFTWARE	195.00	195.00		<u> </u>
00407	CURCUMIN® (SUPER BIO) - 400 mg, 60 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
11062		¢1400	¢11 04		
01063	DERMA-VITS™ - 90 caps	\$14.99	\$11.24	\vdash	
01313	DERMAWHEY- 400 mg, 60 caps	65.00	48.75		
00050	Buy 4 bottles, price each	59.00	44.25	H	
00856	DHA (BARLEAN'S KID'S) 8 fl. oz (Fruit Punch)	22.00	16.50		
0000	Buy 4 bottles, price each	20.00	15.00	\vdash	<u> </u>
00995	DHA 240 - 240 mg, 60 softgels	19.00	14.25		
20050	Buy 4 bottles, price each	17.00	12.75	H	<u> </u>
00658	7-KETO® DHEA METABOLITE - 25 mg, 100 caps	28.00	21.00		
04.074	Buy 4 bottles, price each	24.00	18.00		<u> </u>
01271	7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		<u> </u>
00607	DHEA - 25 mg, 100 tablets (dissolve in mouth)	14.00	10.50		
	Buy 4 bottles, price each	11.75	8.81		
	SUB-TOTAL OF COLUMN 6				

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Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01250	DHEA COMPLETE - 60 veg. caps	\$48.00	\$36.00		
	Buy 4 bottles, price each	43.20	32.40		
00335	DHEA - 25 mg, 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
00454	DHEA - 15 mg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	10.00	7.50		
00882	DHEA - 50 mg, 60 caps	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
00883	DHEA - 100 mg, 60 caps	22.50	16.88		
	Buy 4 bottles, price each	19.00	14.25		
01358	DIGEST RC - 30 tablets	19.95	14.96		
	Buy 4 boxes, price each	17.00	12.75		
01272	DIGESTIVE ENZYMES (ENHANCED SUPER)- 100 veg. caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01273	DIGESTIVE ENZYMES w/PROBIOTICS (ENHANCED SUPER) - 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
00034	D,L-PHENYLALANINE CAPSULES - 500 mg, 100 caps	18.75	14.06		
	Buy 4 bottles, price each	16.00	12.00		
00257	DMAE BITARTRATE - 150 mg, 200 caps	14.00	10.50		
	Buy 4 bottles, price each	10.50	7.88		
00197	DMAE-GINKGO - 100 caps	36.00	27.00		
	Buy 4 bottles, price each	30.00	22.50		
	Buy 8 bottles, price each	27.50	20.63		
00059	DMG - 125 mg, 60 tablets	18.50	13.88		
	Buy 4 boxes, price each	17.00	12.75		
01547	DNA PROTECTION FORMULA - 60 veg. caps	30.00			
0.0	Buy 4 bottles, price each	28.00	21.00		
00544	DOG MIX - 100 grams powder	19.50	14.63		
00011	Buy 4 bottles, price each	16.00	12.00		
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA - 2 OZ	39.95	29.96		
00021	Buy 4 bottles, price each	32.00	24.00		
00320	DR. PROCTOR'S HAIR FORMULA SHAMPOO - 8 OZ	24.95	18.71		
00020	Buy 4 bottles, price each	22.00	16.50		
00376	DR. TUNG'S TONGUE CLEANER	8.45	6.34		
00070	Buy 4 bottles, price each	8.05	6.04		
00899	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 2.4 OZ	39.95	29.96		
00033	Buy 4 jars, price each	38.95	29.21		
00240		12.00	9.00		
00240	DUAL-C - 90 caps Buy 4 bottles, price each	10.50	7.88		
	E	10.50	1.00		
00388		¢142E	¢10.76		_
00300	ECHINACEA EXTRACT - 250 mg, 60 caps	\$14.35 12.50	\$10.76 9.38		
01004	Buy 4 bottles, price each				
01024	EDTA - 500 mg, 100 caps	17.50	13.13		
01321	ELASTIN & COLLAGEN BODY FIRMING LOTION - 8 fl. oz.	10.00	7.50		
00048	EMULSIFIED SUPER TWIN EPA/DHA - 12 fl. oz.	23.57	17.68		
01498	ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™ - 60 softgels	56.00	42.00		
00007	Buy 4 bottles, price each	52.00	39.00		
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® - 60 veg. caps	52.00	39.00		
	Buy 4 bottles, price each	46.00	34.50		_
00625	EPA/DHA (MEGA) - 120 softgels	19.95	14.96		
	Buy 4 bottles, price each	18.00	13.50		L
01428	ESSENTIAL FAT-SOLUBLE NUTRIENTS - 30 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
*01042	EUROPEAN LEG SOLUTION DIOSMIN 95 - 600 mg, 30 veg. tabs	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01514	EYE PRESSURE SUPPORT w/MIRTOGENOL® - 30 veg. caps	38.00	28.50		
01514	EYE PRESSURE SUPPORT w/MIRTOGENOL* - 30 veg. caps Buy 4 bottles, price each	38.00 34.00	28.50 25.50		

No.		Retail Each	Member Each	Qty	Total
	F	•	•		
101054	FACE MASTER® PLATINUM	\$199.00	\$199.00		
0965	FAST-ACTING JOINT FORMULA - 30 caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
0053	FEM DOPHILUS® - 30 caps	25.95	19.46		
0055	FEM DOPHILUS® - 60 caps	39.95	29.96		
1064	FEMMENESSENCE MACAPAUSE® - 120 veg. caps	34.99	26.24		
1311	FERNBLOCK® w/SENDARA™ (ENHANCED) - 30 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	35.00	26.25		
0229	FIBER FOOD CAPS - 200 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 10 bottles, price each	11.90	8.93		
0718	FIBRINOGEN RESIST™ - 30 veg. caps	49.00	36.75		
0710		44.00			
0070	Buy 4 bottles, price each		33.00	_	
0873	FLAXSEED POWDER (HI-LIGNAN® NUTRI-FLAX®) - 16 oz powder	9.95	7.46	_	
1384	FLORADIX® IRON & HERBS - 17 fl. oz	43.49	32.62	_	
1200	FLORASTOR® - 250 mg, 50 caps	55.15	41.36		
1382	FLORAVITAL® IRON & HERBS - 17 fl. oz	43.49	32.62	_	
1212	FLUSH + BE FIT - 2- week cleanse for women	29.99	22.49		
1439	FOLATE (OPTIMIZED) (L-METHYLFOLATE) 1000 mcg - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
0347	FOLIC ACID + B12 CAPSULES - 200 caps	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		
0300	FORSKOLIN - 10 mg, 60 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
1513	FUCOIDAN w/MARITECH® 926 (OPTIMIZED) - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
0993	FUCOXANTHIN-SLIM™ - 90 softgels	44.00	33.00		
	Buy 4 bottles, price each	39.00	29.25		
	G	00.00	20.20	_	
0127	GABA POWDER - 100 grams	\$23.75	\$17.81	_	
0121		-	1		
0550	Buy 4 bottles, price each	22.50	16.88	_	
0559	GAMMA E TOCOPHEROL/TOCOTRIENOLS - 60 softgels	42.00	31.50		
	Buy 4 bottles, price each	37.00	27.75	_	
0759	GAMMA E TOCOPHEROL W/SESAME LIGNANS - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
0117	GELATIN CAPSULES - 1000 empty caps size "00"	19.00	14.25		
	Buy 4 bags, price each	18.00	13.50		
1301	GH PITUITARY SUPPORT DAY FORMULA - 120 vegetarian tabs	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
1302	GH PITUITARY SUPPORT NIGHT FORMULA - 120 veg. caps	25.00	18.75		
	Buy 4 bottles, price each	22.50	16.88		
1228	GINGER FORCE - 60 softgels	29.95	22.46		
0778	GINKGO BILOBA CERTIFIED EXTRACT™ - 120 mg, 365 caps	46.00	34.50		
	Buy 2 bottles, price each	43.50	32.63		
0504	GINKGO EXTRACT (SUPER)- 120 mg, 100 caps	29.00	21.75	Т	
	Buy 4 bottles, price each	26.50	19.88		
1032	(PANAX RED) GINSENG - 60 veg. caps	29.99	22.49		
		19.50		\vdash	
0756	GLA WITH SESAME LIGNANS (MEGA) - 60 softgels		14.63		
00.45	Buy 4 bottles, price each	18.00	13.50	_	
0345	(L) GLUTAMINE CAPSULES - 500 mg, 100 caps	14.95	11.21		
	Buy 4 bottles, price each	13.50	10.13		
0141	(L)-GLUTAMINE POWDER - 100 grams	19.00	14.25		
	Buy 4 bottles, price each	16.88	12.66		

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No.		Retail Each	Member Each	Qty	Tota
	G CONTINUED				
00522	GLUCOSAMINE/CHONDROITIN CAPSULES - 100 caps	\$38.00	\$28.50		
	Buy 4 bottles, price each	32.00	24.00		
00512	GLUCOFIT™ - 100 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
00113	GLUTATHIONE, CYSTEINE & C - 750 mg, 100 caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00314	L-GLUTATHIONE (MEGA) - 250 mg, 60 caps	39.64	27.03		
	Buy 4 bottles, price each	35.68	26.76		
00795	GLYCINE - 1000 mg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	10.80	8.10		
00128	GLYCINE POWDER - 300 grams	18.00	13.50		
00120	Buy 4 bottles, price each	16.00	12.00		
01091	GRAPE EXTRACT w/RESVERATROL (WHOLE) - 60 veg. caps	36.00	27.00		
11031	Buy 4 bottles, price each	34.00	25.50		
)1411	· · · · · · · · · · · · · · · · · · ·		27.00		
)1411	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE-100 mg, 60 veg. caps	36.00			
20050	Buy 4 bottles, price each	34.00	25.50		
0953	GREEN TEA EXTRACT (MEGA) - lightly caffeinated - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	26.50	19.88		<u> </u>
00954	GREEN TEA EXTRACT (MEGA) - decaffeinated - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	26.50	19.88		
	Н				
)1074	5 HTP - 100 mg, 60 caps	\$27.95	\$20.96		
00010	HAIR CONDITIONER - 16 oz	6.00	4.50		
	Buy 4 bottles, price each	4.50	3.38		
00230	HCA - 90 caps	18.00	13.50		
	Buy 4 bottles, price each	15.50	11.63		
)1433	HOLY BASIL - 60 softgel caps	31.95	23.96		
)1434	HOLY BASIL - 120 softgel caps	51.95	38.96		
)1435	HOMOCYSTEINE RESIST - 100 caps	24.00	18.00		
	Buy 4 bottles, price each	21.60	16.20		
00067	HOODIA GORDONII - 60 caps	14.00	10.50		
00627	HUPERZINE A W/NATURAL VITAMIN E - 50 mcg, 60 caps	27.95	20.96		
	Buy 4 bottles, price each	24.00	18.00		
00661	HYDRODERM® - 1 oz	79.95	59.96		
	Buy 2 bottles, price each	65.33	49.00		
	1				
01060	i26 HYPERIMMUNE EGG - 140 grams powder	\$49.99	\$42.00		
01319		31.99	25.59		
01318	<u>'</u>	31.99	25.59		
01010	IDEAL BOWEL SUPPORT 299V - 30 veg. caps	21.95	16.46		
00955	IMMUNE PROTECT W/PARACTIN® - 30 veg. caps	29.50	22.13		
,0000	Buy 4 bottles, price each	26.55	19.91		
01049	INNERPOWER™ - 555 grams powder	42.00			
			31.50		
0155	INOSINE - 500 mg, 60 caps	22.95	17.21		
00440	Buy 4 bottles, price each	21.00	15.75		
00410	INOSITOL CAPSULES - 1000 mg, 360 caps	48.00	36.00		
0400	Buy 4 bottles, price each	43.75	32.81		
00108	INOSITOL POWDER - 100 grams	18.00	13.50		
	Buy 4 bottles, price each	16.88	12.66		
1021	INTACT DIGEST™ - 8 fl oz	35.00	26.25		
	Buy 4 bottles, price each	33.00	24.75		
)1292	INTEGRA-LEAN® IRVINGIA - 150 mg, 60 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
	SUB-TOTAL OF COLUMN 9				

No.		Retail Each	Member Each	Qty	Total
01002	IODORAL® - 180 tabs	\$50.00	\$37.50		
00563	IRON PROTEIN PLUS - 300 mg, 100 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01492	IRVINGIA W/PHASE 3™ - 120 veg. caps CALORIE CONTROL COMPLEX (OPTIMIZED)	56.00	42.00		
	Buy 4 bottles, price each	48.00	36.00		
	J, K				
00056	JARRO-DOPHILUS EPS™ - 60 veg. caps	\$21.95	\$16.46		
01224	K w/ADVANCED K2 COMPLEX (SUPER) - 90 softgels	26.00	19.50		
	Buy 4 bottles, price each	23.00	17.25		
01050	(NKO) KRILL OIL - 60 softgels	33.95	25.46		L
00316	KYOLIC® GARLIC FORMULA 102 - 200 caps	23.95	17.96		
	Buy 4 bottles, price each	20.50	15.38		
0214	KYOLIC® GARLIC FORMULA 105 - 200 caps	22.95	17.21		
	Buy 4 bottles, price each	18.25	13.69		
00789	KYOLIC® RESERVE - 600 mg, 120 caps	24.75	18.56		
	Buy 4 bottles, price each	21.45	16.09		
	L				
0513	LACTOFERRIN (APOLACTOFERRIN) CAPS - 60 caps	\$40.00	\$30.00		
	Buy 4 bottles, price each	36.00	27.00		
00017	LAVILIN UNDERARM DEODORANT - 12.5 grams cream	15.00	11.25		
	Buy 4 jars, price each	13.75	10.31		
00020	LECITHIN - 16 oz. granules	15.00	11.25		
	Buy 4 jars, price each	12.50	9.38		
01555	LIFE EXTENSION MIX™ - 315 tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
1557	LIFE EXTENSION MIX™ W/EXTRA NIACIN - 315 tablets	98.00	73.50		\vdash
71007	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
)1554		110.00	82.50		
11554	LIFE EXTENSION MIX™ - 490 caps		73.50		
	Buy 4 bottles, price each	98.00			
1155	Buy 10 bottles, price each	85.00	63.75		
11000	LIFE EXTENSION MIX™ POWDER - 14.81 oz	98.00			
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
01565	LIFE EXTENSION MIX™ - 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
)1567	LIFE EXTENSION MIX™ W/EXTRA NIACIN 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01564	LIFE EXTENSION MIX™ - 490 caps w/o copper	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
1566	LIFE EXTENSION MIX™ POWDER - 14.81 oz w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
00263	LIFE FLORA™ - 300 mg, 120 caps	20.50	15.38		Т
	Buy 4 bottles, price each	18.75	14.06		

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Buyers Club Order Form

		Each	Member Each	Qty	Tota
01314	LIFESHIELD® IMMUNITY™ - 60 veg. caps	\$39.95	\$29.96		
01227	LIVER FORCE - 30 veg. caps	34.95	26.21		Т
00939	5-LOXIN® - 75 mg, 100 veg. caps	19.50	14.63		Г
	Buy 4 bottles, price each	17.25	12.94		
01013	L-LYSINE - 620 mg, 100 caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
00129	L-LYSINE POWDER - 300 grams	16.00	12.00		
	Buy 4 bottles, price each	13.75	10.31		
01470	LURALEAN® CAPS SPECIAL PROPOLMANNAN PARTICLE SIZE - 120 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
00455	LYCOPENE EXTRACT (MEGA) - 15 mg, 90 softgels	35.00	26.25		
	Buy 4 bottles, price each	30.00	22.50		
	M				
01369	MAGNESIUM CAPS - 500 mg, 100 veg. caps	\$10.00	\$7.50		
	Buy 4 bottles, price each	9.00	6.75		
00502	MAGNESIUM CITRATE - 160 mg, 100 caps	9.00	6.75		Т
	Buy 4 bottles, price each	7.50	5.63		
00704	MAITAKE™ SX-FRACTION - 90 veg. tablets	49.95	37.46		
00547	MELATONIN - 300 mcg, 100 caps	5.75	4.31		
	Buy 4 bottles, price each	5.00	3.75		
01083	MELATONIN - 500 mcg, 200 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00329	MELATONIN - 1 mg, 60 caps	5.00	3.75		
	Buy 4 bottles, price each	4.63	3.47		
00330	MELATONIN - 3 mg, 60 caps	8.00	6.00		
	Buy 4 bottles, price each	6.88	5.16		
01086	MELATONIN - 3 mg, 60 time-release veg. caps	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
00331	MELATONIN - 10 mg, 60 caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
00332	MELATONIN - 3 mg, 60 lozenges	8.00	6.00		
	Buy 4 bottles, price each	6.88	5.16		
01087	MELATONIN TIME RELEASE - 300 mcg, 100 veg. caps	6.25	4.69		
	Buy 4 bottles, price each	5.63	4.22		
01088	MELATONIN TIME RELEASE - 750 mcg, 60 veg. caps	5.75	4.31		
	Buy 4 bottles, price each	5.00	3.75		
01009	MEMORY UPGRADE™ - 600 grams powder	26.95	20.21		H
01047	MENOPAUSE SOLUTIONS - 120 tablets	49.95	37.46		
00536	METHYLCOBALAMIN - 1 mg, 60 lozenges (vanilla)	9.95	7.46		Н
	Buy 4 bottles, price each	8.00	6.00		
00537	METHYLCOBALAMIN - 5 mg, 60 lozenges (vanilla)	32.00	24.00		\vdash
	Buy 4 bottles, price each	25.00	18.75		
	Buy 10 bottles, price each	23.00	17.25		
	* ''			_	\vdash
00709	MIGRA-EEZE™ (BUTTERBUR) - 60 softgels	29.50	22.13		

No.		Retail Each	Member Each	Qty	Total
01517	MILK THISTLE (CERTIFIED EUROPEAN) - 120 veg. caps	\$52.00	\$39.00		
	Buy 4 bottles, price each	48.00	36.00		
00623	MINERAL FORMULA FOR MEN - 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 12 bottles, price each	10.83	8.13		
00624	MINERAL FORMULA FOR WOMEN - 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 12 bottles, price each	10.83	8.13		
01315	MIRAFORTE w/STANDARDIZED LIGNANS (SUPER) - 120 caps	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
01569	MITOCHONDRIAL BASICS w/BIOPQQTM - 30 caps	52.00	39.00		
	Buy 4 bottles, price each	46.00	34.50		
01568	MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ™ - 120 caps	94.00	70.50		
	Buy 4 bottles, price each	84.00	63.00		
00803	MIST ORAL III w/COQ10 - 2 fl oz	28.00	21.00		
	Buy 4 bottles, price each	25.33	19.00		
00065	MK-7 - 90 mcg, 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01279	MOUTHWASH W/POMEGRANATE - 16 oz	18.50	13.88		
0.2.0	Buy 4 bottles, price each	17.00	12.75		
00451	MSM (METHYLSULFONYLMETHANE) - 1000 mg, 100 caps	14.00	10.50		
00-10 1	Buy 4 bottles, price each	11.95	8.96		
	N	11.55	0.30		
00215	N-ACETYL-L-CYSTEINE - 600 mg, 60 caps	\$14.00	\$10.50		
	Buy 4 bottles, price each	13.50	10.13		
00168	NAPCA W/ALOE VERA - 8 fl oz	10.50	7.88		
	Buy 4 bottles, price each	9.61	7.21		
00066	NATTOKINASE - 60 softgels	24.98	18.74		
00891	NATURAL APPETITE CONTROL - 90 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.20	18.90		
00984	NATURAL BP MANAGEMENT - 60 tablets	42.00	31.50		
	Buy 4 bottles, price each	37.80	28.35		
00913	NATURAL ESOPHAGUARD - 10 softgels	19.95	14.96		
00313	Buy 2 boxes, price each	19.00	14.25		
00712	NATURAL ESTROGEN w/POMEGRANATE EXTRACT - 60 caplets	38.00	28.50		
00112	Buy 4 bottles, price each	33.00	24.75		
01221	NATURAL FEMALE SUPPORT - 30 veg. caps	28.00	21.00		
01221		24.00			
01.471	Buy 4 bottles, price each		18.00		
01471	NATURAL GLUCOSE ABSORPTION CONTROL - 60 veg. caps	39.00	29.25		
00000	Buy 4 bottles, price each	36.00	27.00		
00698	NATURAL RELIEF 1222™ - 2 0Z	28.00	21.00		
04004	Buy 4 tubes, price each	25.00	18.75		
01084	NATURAL SLEEP® - 3 mg, 60 veg. caps	12.99	9.74		
	Buy 4 bottles, price each	10.00	7.50		_
01507	NATURAL SLEEP® (ENHANCED) W/ MELATONIN- 30 caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01511	NATURAL SLEEP® (ENHANCED) W/O MELATONIN - 30 caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
	SUB-TOTAL OF COLUMN 12				

SUB-TOTAL OF COLUMN 11

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No.		Retail Each	Member Each	Qty	Tota
	N CONTINUED				
01085	NATURAL SLEEP MELATONIN® - 5 mg, 60 veg. caps	\$18.00	\$13.50		
	Buy 4 bottles, price each	16.00	12.00		
00987	NATURAL STRESS RELIEF - 30 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01076	NEW FACE SOLUTION - 1.7 oz bottle	54.00	40.50		
	Buy 4 bottles, price each	49.00	36.75		
00373	NO-FLUSH NIACIN - 800 mg, 100 caps	19.00	14.25		
	Buy 4 bottles, price each	17.00	12.75		
01035	NUTRIM - 170 grams powder	25.95	19.46		Г
00523	N-ZIMES™ - 270 caps	23.90	17.93		Г
	Buy 4 bottles, price each	22.00	16.50		
	0				
01518	OMEGA-3 CHEWABLES - 60 softchews, 120 mg EPA/DHA	\$24.00	\$18.00		
	Buy 4 pouches, price each	22.00	16.50		
01483	OMEGA 3 EPA/DHA w/SESAME LIGNANS &	18.00	13.50		
01100	OLIVE FRUIT EXTRACT (SUPER) - 60 softgels	10.00	10.00		
	Buy 4 bottles, price each	16.00	12.00		
01482	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER)- 120 softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	24.90	18.68		
01484	OMEGA 3 EPA/DHA W/SESAME LIGNANS & - 120 enteric coated softgels OLIVE FRUIT EXTRACT (SUPER)	34.00	25.50		
	Buy 4 bottles, price each	31.00	23.25		
	Buy 10 bottles, price each	28.00	21.00		
01501	ONE-PER-DAY - 60 veg. tablets	19.95	14.96		
	Buy 4 bottles, price each	18.00	13.50		
01328	ONLY TRACE MINERALS - 90 caps	15.00	11.25		Г
	Buy 4 bottles, price each	12.50	9.38		
00915	OPTIZINC® - 30 mg, 90 veg. caps	5.95	4.46		
	Buy 4 bottles, price each	5.00	3.75		
01070	ORGANIC TOTAL BODY CLEANSE™ - 14-day supply	34.99	26.24		Г
	P				
00107	PABA CAPS - 500 mg, 100 caps	\$15.42	\$11.57		Τ
	Buy 4 bottles, price each	13.59	10.19		
00073	PANCREATIN - 500 mg, 50 caps	13.22	9.92		
	Buy 4 bottles, price each	12.12	9.09		
01323	PEAK ATP® WITH GLYCOCARN® - 60 veg. caps	59.00	44.25		
	Buy 4 bottles, price each	56.00	42.00		
00342	PECTA SOL-C® MODIFIED CITRUS PECTIN - 454 grams powder	99.95	74.96		
-007L	Buy 4 jars, price each	95.70	71.78		
01080	PECTA SOL-C® MODIFIED CITRUS PECTIN - 270 veg. caps	69.95	52.46		
00673	PGX™ SOLUBLE FIBER BLEND (WELLBETX®) -180 caps	34.95	26.21		
00865	PHARMAGABA™ - 60 chewable tablets	29.95			
	Buy 4 bottles, price each	27.00	20.25		
01320	PHOSCHOL® - 900 mg, 100 softgels	69.45	52.09		
00368	PHOSPHATIDYLSERINE CAPS - 100 mg, 100 caps	54.00	40.50		
	Buy 4 bottles, price each	48.00	36.00		
00614	PILL CUTTER/GRINDER	11.95	8.96		
00561	·				\vdash
1000	POLICOSANOL - 10 mg, 60 tablets	24.00	18.00		
04.400	Buy 6 bottles, price each	18.00	13.50		
01423	POMEGRANATE™ (FULL-SPECTRUM) - 30 softgels	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
	SUB-TOTAL OF COLUMN 13				

No.		Retail Each	Member Each	Qty	Total
00956	POMEGRANATE EXTRACT - 30 veg. caps	\$19.50	\$14.63		
	Buy 4 bottles, price each	17.55	13.16		
00957	POMEGRANATE JUICE CONCENTRATE - 16 oz. liquid	25.95	19.46		
	Buy 4 bottles, price each	24.00	18.00		
00577	POTASSIUM IODIDE - 1 box, 14 tablets	6.95	5.21		
	Buy 4 boxes, price each	5.25	3.94		
01500	PQQ CAPS W/BIOPQQ™ - 10 mg, 30 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
00302	PREGNENOLONE - 50 mg, 100 caps	24.00	18.00		
	Buy 4 bottles, price each	19.00	14.25		
00700	PREGNENOLONE - 100 mg, 100 caps	26.00	19.50		
50100	Buy 4 bottles, price each	22.50	16.88		
n1272	PRELOX® NATURAL SEX FOR MEN® - 60 tablets	52.00	39.00	_	
013/3					
20574	Buy 4 bottles, price each	48.00	36.00	_	
00571	PRIMAL DEFENSE™ - 90 caplets	49.95	37.46		
	Buy 4 bottles, price each	48.50	36.38		
01019	PRIMAL DEFENSE™ - 180 caplets	78.95	59.21		
00525	PROBOOST THYMIC PROTEIN A™ - 4 mcg, 30 packets	72.00	54.00		
	Buy 4 boxes, price each	70.00	52.50		
00869	PRO FEM CREAM - 2 fl oz (Progesterone Cream)	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01020	PROGREENS® - 15 stick pack	22.50	16.88		
01072	PRO M INTERNAL DEODERIZER - 500 mg, 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
†01495	PROSTATE FORMULA W/ 5-LOXIN® STAND. LIGNANS (ULTRA NAT)-60 softgels	38.00	28.50		
01100	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		
24000	* * * * * * * * * * * * * * * * * * * *			_	
01092	PROTEIN - VANILLA - (Enhanced Life Extension) -1000 grams powder	42.00	31.50		
	Buy 4 bottles, price each	40.00	30.00	_	
01093	PROTEIN - CHOCOLATE - (Enhanced Life Extension) -1000 grams powder	42.00	31.50		
	Buy 4 bottles, price each	40.00	30.00		
01094	PROTEIN - NATURAL - (Enhanced Life Extension) -1000 grams powder	42.00	31.50		
	Buy 4 bottles, price each	40.00	30.00		
01095	PROTEIN - BERRY - (Enhanced Life Extension) -1000 grams powder	42.00	31.50		
	Buy 4 bottles, price each	40.00	30.00		
00290	PROTEIN - VANILLA - (Designer Whey) 2 lbs powder	42.49	31.87		
	Buy 4 bottles, price each	38.50	28.88		
00282	PROTEIN - CHOCOLATE - (Designer Whey) 2 lbs powder	42.49	31.87		
	Buy 4 bottles, price each	38.50	28.88		
00283	PROTEIN - NATURAL - (Designer Whey) 2 lbs powder	42.49	31.87		
000	Buy 4 bottles, price each		28.88		
01508	PTEROPURE™ - 50 mg Pterostilbene 60 veg. caps	38.50		\vdash	
νισυδ		32.00	24.00		
11050	Buy 4 bottles, price each	30.00	22.50	-	
01056	PURE-GAR® - 200 caps	24.95	18.71		
	Buy 4 bottles, price each	21.00	15.75	<u> </u>	
01075	PURE PLANT PROTEIN - Natural Vanilla 450 grams powder	36.00	27.00		
	Buy 4 jars, price each	33.00	24.75		
1209	PUMPKIN SEED EXTRACT (WATER-SOLUBLE) - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
)1210	PUMPKIN SEED EXT w/SOY ISOFLAVONES (WATER-SOLUBLE)- 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01031	PYCNOGENOL® - 60 veg. caps	89.95	67.46		
01217	PYRIDOXAL 5'-PHOSPHATE - 100 mg, 60 veg. caps	22.00	16.50	\vdash	
v 1⊑11			14.85		
	Buy 4 bottles, price each	19.80	14.00		
	SUB-TOTAL OF COLUMN 14				

SUB-TOTAL OF COLUMN 13

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No.		Retail Each	Member Each	Qty	Tota
	Q, R				
01309	QUERCETIN (OPTIMIZED) - 250 mg, 60 veg. caps	\$18.00	\$13.50		
	Buy 4 bottles, price each	17.00	12.75		
01030	RED YEAST RICE (Bluebonnet) - 600 mg, 60 veg. caps	17.50	13.13		
00979	RED YEAST RICE (Nature's Plus)- 600 mg, 60 veg. caps	23.95	17.96		
00060	RED YEAST RICE EXTENDED RELEASE - 30 veg. tablets	21.50	16.13		
00605	REGIMINT - 60 enteric-coated caps	19.95	14.96		
	Buy 4 bottles, price each	18.67	14.00		
01448	REJUVENEX® BODY LOTION - 6 OZ	24.00	18.00		Г
	Buy 4 tubes, price each	19.80	14.85		
	Buy 8 tubes, price each	17.00	12.75		
00918	REJUVENEX® FACTOR - 1.7 oz airless pump	65.00	48.75		H
00010	Buy 2 bottles, price each	60.00	45.00		
	Buy 4 bottles, price each	55.00	41.25		
		49.91	37.43		
01220	Buy 8 bottles, price each	52.00	39.00		\vdash
U 1 Z Z U	REJUVENEX® (ULTRA) - 2 0Z				
	Buy 2 jars, price each	48.00	36.00		
	Buy 4 jars, price each	44.00	33.00		
0007-	Buy 8 jars, price each	39.93	29.95		L
00676	REJUVENIGHT (ULTRA) - 2 0Z	39.95	29.96		
	Buy 4 jars, price each	36.00	27.00		
00706	REJUVENIGHT w/PROGESTERONE (ULTRA) - 2 0Z	42.00	31.50		
	Buy 4 jars, price each	38.00	28.50		
01413	RESVERATROL W/PTEROSTILBENE - 20 mg, 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01410	RESVERATROL W/PTEROSTILBENE - 100 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01430	RESVERATROL w/SYNERGISTIC GRAPE-BERRY ACTIVES (OPTIMIZED) - 250 mg, 60 veg. caps	46.00	34.50		
	Buy 4 bottles, price each	41.33	31.00		
00889	RHODIOLA EXTRACT - 250 mg, 60 veg. caps	11.75	8.81		
	Buy 4 bottles, price each	10.58	7.94		
00972	(D) RIBOSE POWDER - 150 grams	27.50	20.63		
	Buy 4 jars, price each	24.75	18.56		
01473	(D) RIBOSE TABLETS - 100 veg. tabs	32.00	24.00		Г
	Buy 4 bottles, price each	28.00	21.00		
01208	R-LIPOIC ACID (SUPER) - 300 mg, 60 veg. caps	49.00	36.75		Т
	Buy 4 bottles, price each	45.00	33.75		
00070	RNA CAPSULES - 500 mg, 100 caps	17.95	13.46		Н
-0010	Buy 4 bottles, price each	16.16	12.12		
00917	ROSMARINIC ACID EXTRACT - 60 veg. caps	59.00	44.25	_	\vdash
00311		53.00	39.75		
	Buy 4 bottles, price each	00.00	39.73		<u> </u>
01000		¢0.05	₾7.40		
01082	SACCHAROMYCES BOULARDII+MOS - 30 veg. caps	\$9.95	\$7.46		H
01067	SACCHAROMYCES BOULARDII+MOS - 90 veg. caps	21.95	16.46		L
01432	SAFFRON w/SATIEREAL (OPTIMIZED) - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		L
*00573	sambu® guard - 175 ml	17.49	13.99		L
00358	SAME (S-ADENOSYL-METHIONINE) – 200 mg, 20 enteric coated tablets	17.00	12.75		
	Buy 8 boxes, price each	15.00	11.25		

No.		Retail Each	Member Each	Qty	Total
00453	SAME (S-ADENOSYL-METHIONINE) – 200 mg, 50 enteric coated tablets	\$40.00	\$30.00		
	Buy 4 bottles, price each	35.00	26.25		
00557	SAME (S-ADENOSYL-METHIONINE) – 400 mg, 20 enteric coated tablets	32.00	24.00		
	Buy 6 boxes, price each	25.00	18.75		
01055	SAME (S-ADENOSYL-METHIONINE) – 400 mg, 50 enteric coated tablets	72.00	54.00		
	Buy 4 bottles, price each	66.00	49.50		
01043	SEA-IODINE™ - 1000 mcg, 60 veg. caps	8.00	6.00		
	Buy 4 bottles, price each	7.20	5.40		
00046	SELENIUM - 2 oz dropper bottle	9.95	7.46		
	Buy 4 bottles, price each	9.45	7.09		
00567	SE-METHYL L-SELENOCYSTEINE - 200 mcg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
00318	SERRAFLAZYME - 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00011	SHAMPOO - 16 fl oz	6.00	4.50		
	Buy 4 bottles, price each	4.75	3.56		
00284	SHARK LIVER OIL (NORWEGIAN) - 1000 mg, 30 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00184	SILYMARIN - 100 mg, 50 caps	9.25	6.94		
00104	Buy 4 bottles, price each	8.25	6.19		
01502	SKIN RESTORING CERAMIDES w/LIPOWHEAT™ - 30 liquid caps	25.00	18.75	_	
01302	Buy 4 bottles, price each	23.00	17.25		
00961	SODZYME® w/GLISODIN® AND WOLFBERRY - 90 veg. caps	28.00	21.00	_	
00901					
00657	Buy 4 bottles, price each	24.00	18.00	_	
00007	SOLARSHIELD SUNGLASSES - 1 pair smoke color	12.99	9.74		
01007	Buy 2 pairs, price each	11.50	8.63	_	
01097	SOY EXTRACT (ULTRA) - 150 veg. caps	87.00	65.25		
00000	Buy 4 bottles, price each	78.00	58.50		
00286	SOY PROTEIN CONCENTRATE - 16 oz of powder	12.00	9.00		
	Buy 4 jars, price each	10.63	7.97		
01099	STABILIUM® 200 - 30 caps	30.00	22.50		
00432	STEVIA EXTRACT - 100 packets, 1 gram each	9.95	7.46		
	Buy 4 boxes, price each	9.00	6.75		
00351	ST. JOHN'S WORT EXTRACT - 300 mg, 60 caps	10.98	8.24		
	Buy 4 bottles, price each	10.00	7.50		
00327	ST. JOHN'S WORT EXTRACT (PLANETARY) - 600 mg, 60 tablets	16.75	12.56		
	Buy 4 bottles, price each	13.85	10.39		
01476	STRONTIUM - 750 mg, 90 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00971	SUN PROTECTION SPRAY W/BETA GLUCAN - SPF30 - 6 oz	14.95	11.21		
	Buy 4 bottles, price each	13.50	10.13		
00747	SUNGLASSES (OVERXCAST POLARIZED) - gray color, large	27.00	20.25		
	Buy 2 pairs, price each	21.00	15.75		
00748	SUNGLASSES (OVERXCAST POLARIZED)- gray color, medium	27.00	20.25		
	Buy 2 pairs, price each	21.00	15.75	L	
00758	SUPER ABSORBABLE SOY ISOFLAVONES - 60 caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01381	SUPERCRITICAL OMEGA 7™	56.95	42.71		
01408	SUPER SAW PALMETTO/NETTLE ROOT W/BETA-SITOSTEROL 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	26.00	19.50		
	Buy 12 bottles, price each	24.00	18.00		
				_	

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01407		Retail Each	Member Each	Qty	Tota
01407	S CONTINUED				
101	SUPER SAW PALMETTO W/BETA-SITOSTEROL - 30 softgels	\$15.00	\$11.25		
	Buy 12 bottles, price each	12.00	9.00		
00578	SUPER SELENIUM COMPLEX - 200 mcg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	10.00	7.50		
	Buy 12 bottles, price each	9.00	6.75		
00674	SYTRINOL™ - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
	T				
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	1-800-544-4440 or visit www.LifeExtension.com				
01062	TART CHERRY - 600 mg, 60 caps	\$18.95	\$14.21		
00199	TAURINE - 1000 mg, 50 caps	8.95	6.71		
	Buy 4 bottles, price each	8.00	6.00		
00133	TAURINE POWDER - 300 grams	20.00	15.00		
	Buy 4 bottles, price each	16.88	12.66		
01304	THEAFLAVIN STANDARDIZED EXTRACT - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00555	(L) THEANINE - 100 mg, 60 caps	24.00	18.00		
	Buy 4 bottles, price each	20.50	15.38		
****01038	THERALAC PROBIOTICS - 30 caps	44.95	33.71		Г
00224	THYMIC IMMUNE FACTORS - 100 caps	18.00	13.50		Г
	Buy 4 bottles, price each	14.00	10.50		
00668	THYROID FORMULATM (METABOLIC ADVANTAGE) - 100 caps	21.95	16.46		Г
00349	TMG POWDER - 50 grams	14.00	10.50		Г
	Buy 4 bottles, price each	11.00	8.25		
00359	TMG - 500 mg, 180 tablets	18.00	13.50		Г
	Buy 4 bottles, price each	15.50	11.63		
00781	TOCOTRIENOLS WITH SESAME LIGNANS - 60 softgels	38.00	28.50		Г
	Buy 4 bottles, price each	36.00	27.00		
01400	TOCOTRIENOLS (SUPER-ABSORBABLE) - 60 softgels	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
01278	TOOTHPASTE - 4 oz (Mint)	9.50	7.13		
01210	Buy 4 tubes, price each	8.67	6.50		
01274	TOTAL SUN PROTECTION CREAM W/BETA GLUCAN - 4 OZ	28.00	21.00		
01217	Buy 4 tubes, price each	25.20	18.90		
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT- 60 veg. caps	24.00	18.00		Н
01400	Buy 4 bottles, price each	22.00	16.50		
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT	32.00	24.00		
01.00	w/resveratrol -60 veg. caps	02.00	200		
	Buy 4 bottles, price each	29.60	22.20		
00866	TRYPTOPURE® L-TRYPTOPHAN - 500 mg, 90 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
01202	TRYPTOPURE® PLUS (OPTIMIZED) - 90 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
	TWO-PER-DAY - 60 veg. tablets	9.95	7.46		
01516	Buy 4 bottles, price each	9.00	6.75		
01516		18.95	14.21		
01516 01515	TWO-PER-DAY - 120 veg. tablets	10.50	17.21		
	TWO-PER-DAY - 120 veg. tablets Buy 4 bottles, price each	17.00	12.75		

No.		Retail Each	Member Each	Qty	Total
	U				
00310	UDO'S OIL 3-6-9 BLEND - 17 fl oz	\$27.49	\$21.99		
00311	UDO'S 3-6-9 OIL BLEND - 180 caps	33.79	27.03		
00322	UDO'S CHOICE® WHOLESOME FAST FOOD - 16 oz bottle	27.49	21.99		
01061	ULTIMATE FLORA ADVANCED IMMUNITY PROBIOTICS - 30 caps	29.99	22.49		
	V				
00213	VANADYL SULFATE - 7.5 mg, 100 tablets	\$15.00	\$11.25		
	Buy 4 bottles, price each	12.50	9.38		
00252	VELVET DEER ANTLER - 250 mg, 30 caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
00408	VENOTONE - 60 caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01327	VINPOCETINE - 10 mg, 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	14.00	10.50		
01033	VISION OPTIMIZER - 90 caps	29.95	22.46		
01098	VITAL GREENS MIX - 319.5 grams powder	48.00	36.00		
0.000	Buy 4 jars, price each	44.00	33.00		
01219	VITAMIN A NUTRISORB - 0.6 fl oz	27.00	20.25	Н	
00091	VITAMIN B1 CAPS - 500 mg, 100 caps	18.73	14.05		
00031	Buy 4 bottles, price each	17.00	12.75		
00093	VITAMIN B2 CAPS - 100 mg, 100 caps	14.32	10.74		
00033		13.00	9.75		
00096	Buy 4 bottles, price each	12.75	9.75		
00096	VITAMIN B3 NIACIN - 1000 mg, 100 caps				
00070	Buy 4 bottles, price each	12.00	9.00		
00372	VITAMIN B3 NIACIN - 500 mg, 100 caps	7.65	5.74		
00000	Buy 4 bottles, price each	6.65	4.99		
00098	VITAMIN B5 - 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
00556	VITAMIN B6 - 250 mg, 100 caps	12.50	9.38		
	Buy 4 bottles, price each	11.00	8.25		
00361	VITAMIN B12 - 500 mcg, 100 lozenges	8.75	6.56		
	Buy 4 bottles, price each	7.25	5.44		
00927	VITAMIN C WITH DIHYDROQUERCETIN - 1000 mg, 250 tablets	25.50	19.13		
	Buy 4 bottles, price each	23.25	17.44		
00084	VITAMIN C (BUFFERED) POWDER - 454.6 grams	23.95	17.96		
	Buy 4 bottles, price each	22.00	16.50		
00864	VITAMIN D3 - 2000 IU, 1 fl oz	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
00251	VITAMIN D3 - 1000 IU, 250 caps	12.50	9.38		
	Buy 4 bottles, price each	11.25	8.44		
00713	VITAMIN D3 - 5000 IU, 60 caps	11.00	8.25		
	Buy 4 bottles, price each	9.90	7.43		
01418	VITAMIN D3 - 7000 IU, 60 caps	14.00	10.50		
	Buy 4 bottles, price each	12.60	9.45		
01372	VITAMIN D3 w/SEA-IODINE™ - 5000 IU, 60 veg. caps	14.00	10.50		
	Buy 4 bottles, price each	12.50	9.38		
01472	VITAMINS D AND K w/SEA-IODINE™ - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
00063	VITAMIN E (PURE NATURAL) - 400 IU, 100 caps	18.75	14.06		
	Buy 4 bottles, price each	17.25	12.94		
	Buy 10 bottles, price each	15.00	11.25		
	SUB-TOTAL OF COLUMN 18				

SUB-TOTAL OF COLUMN 17

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01225	VITAMIN K2 (LOW-DOSE) - 45 mcg, 90 softgels	\$18.00	\$13.50		
	Buy 4 bottles, price each	16.00	12.00		
	Z				
01585	ZEAXANTHIN W/LUTEIN & MESO-ZEAXANTHIN AND C3G (SUPER)- 60 softgels	\$22.00	\$16.50		
	Buy 4 bottles, price each	19.80	14.85		
01586	ZEAXANTHIN W/LUTEIN & MESO-ZEAXANTHIN - 60 softgels PLUS ASTAXANTHIN AND C3G (SUPER)	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
00061	zinc Lozenges - 75 lozenges	9.50	7.13		
	Buy 4 bottles, price each	6.75	5.06		
01051	ZYFLAMEND - 120 softgels	60.95	45.71		
01029	ZYFLAMEND EASYCAPS - 180 softgels	31.95	23.96		

SUB-TOTAL OF COLUMN 19

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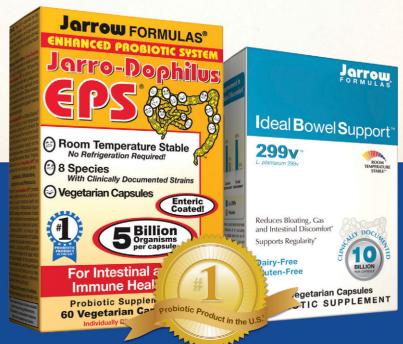
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Many people think that only joints are affected by inflammation. The truth is the body's natural inflammation response affects everyone and every major organ system. Given the link between a healthy inflammation response and whole-body health – a source of extensive and ongoing research – a supplement strategy geared toward promoting a healthy inflammation response is as fundamental as a daily multivitamin.* Extensive research conducted within the last two decades has indicated that phytochemicals present in herbs and spices can safely and effectively promote a healthy inflammation response.*

Zyflamend® contains combinations of herbs traditionally used to promote a healthy inflammation response.* These herbs – most of which have been part of the human diet for thousands of years – are uniquely extracted to deliver the full spectrum of naturally occurring constituents.

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‡ According to 2010 SPINS Data

Bone Health: The Inflammation Connection

Emerging evidence suggests that inflammation exerts a significant effect on bone metabolism by stimulating production of RANKL (Receptor Activator for Nuclear Factor K B Ligand), a molecule that activates osteoclasts, the cells responsible for the breakdown of bone.

Throughout life, cells known as osteoblasts construct bone matrix and fill it with calcium. At the same time, osteoclasts work just as busily to tear down and resorb bone. This fine balance is regulated by many factors.

As our bodies age, this fine balance is lost. As the relative hormone levels shift in midlife — more drastically in women than in men — the osteoclasts gain the upper hand and bone mass begins to dwindle.

Life Extension offers a proprietary comprehensive mineral formula called Bone Restore which has been designed to support healthy bone density and strength. Bone Restore provides 1200 elemental milligrams of calcium from three different forms, along with the critically important nutrients magnesium, boron, zinc, silicon, manganese and vitamin D needed for healthy bones.

An ideal bone health protocol would pair the necessary building blocks for bone remodeling with a formula that promotes a healthy and natural inflammation response.* Zyflamend, the patented herbal formula for a healthy inflammation response*, coupled with Bone Restore, a mineral formula designed to support healthy bone density and strength, is the comprehensive approach to total bone health.

To order Zyflamend or Bone Restore, call 1-800-544-4440 or visit www.LifeExtension.com



Are You Getting Curcumin's Benefits?

Curcumin is the health-promoting trace compound derived from the Indian spice **turmeric**. But not all turmeric is alike.

The curcumin found in the vast majority of dietary supplements is derived from turmeric that is **nutritionally inferior**.

Why? Almost all growers harvest turmeric at the point when the turmeric root turns its signature yellow color, but *before* it has fully matured.

The turmeric root requires more time in the ground for highly beneficial phytonutrients called *curcuminoids* and *sesquiterpenoids* to attain peak concentrations.

Life Extension®'s **Super Bio-Curcumin**® derives from turmeric that is organic, cultivated to maturity, then specially transported and processed to preserve and deliver the root's most <u>complete</u> nutritional profile.

In recent studies comparing the effects of standard curcumin against turmeric extracts comparable to **Super Bio-Curcumin**®, researchers observed:^{1,2}

- Nearly twice the support for immune health.
- Approximately twice the support for inflammatory issues.
- Almost double the **antioxidant** support.

A separate study³ indicated powerful support for heart health using a comparable extract.

Unrivaled Potency and Absorbability with BCM-95®

Curcumin is neither absorbed nor *retained* well in the blood, which is another challenge facing those who wish to maximize its benefits.

The highly popular **Super Bio-Curcumin**® uses **BCM-95**®, a patented, *bioenhanced* preparation of curcumin. It has been shown to reach **7 times higher concentration** in the blood than standard curcumin.⁴

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A bottle containing 60 vegetarian capsules of **Super Bio-Curcumin**® retails for \$38. If a member buys 4 bottles, the price is reduced to only **\$26.25** per bottle.

References

- 1. Int J Pharmacol. 2009;5(6):333-45.
- 2. J Food Nutr Res. 2009;48(3):148-52. 3. Arch Gerontol Geriatr. 2002;34:37-46.
- Arch Gerontol Geriatr. 2002;34:37-46.
 Indian J Pharm Sci. 2008 Jul-Aug;70(4):445-9.

To order Super Bio-Curcumin®

call **1-800-544-4440** or visit **www.LifeExtension.com**

Contains rice.

CAUTION: Do not take if you have gallbladder problems or gallstones. If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product.

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