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Life Extension Two-Per-Day Tablets provide much higher potencies of key nutrients and represent a better value than many commercial brands.

A bottle of 120 Life Extension Two-Per-Day Tablets retails for $18.95. If a member buys four bottles, the price is reduced to $12.75 per bottle. (The retail price for 180 tablets of Centrum® is around $14.)

The most comprehensive nutrient formula in the world is Life Extension Mix. Some Foundation members, however, prefer to take their nutrients separately and need only a basic multi-nutrient supplement to fill the missing gaps. For many years, these members had to rely on commercial “one-a-day” supplements that provide very low potencies.

In response to requests for a science-based multi-nutrient, a special formula was compounded to provide the greatest potencies that can fit into two tablets. When compared to conventional “one-a-day” products, Life Extension Two-Per-Day contains up to 50 times more potency!

The box on this page reveals how much more potent the Two-Per-Day formula is compared to the leading commercial multi-vitamin. Few consumers realize that commercial supplements often contain the cheapest form of nutrients that don’t provide optimal benefits. For example, the 30 IU of synthetic vitamin E contained in Centrum® may provide relatively little vitamin E to the bloodstream. Studies show that synthetic vitamin E is distributed throughout the body only about half as much as natural vitamin E.1-5 The 200 IU of natural vitamin E contained in Two-Per-Day thus provides about 13 times more vitamin E activity than does Centrum®.

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28 BLUEBERRY EXTRACTS HALT METABOLIC SYNDROME
Today, 24% of Americans endure the deadly metabolic syndrome—the co-occurrence of insulin resistance, hypertension, obesity, and abnormal blood lipid profiles. Find out how blueberry extracts may effectively target these factors and halt this lethal pandemic.

40 SAFELY MANAGE YOUR ANXIETY
Forty million Americans suffer from some form of anxiety disorder. The problems with anti-anxiety drugs are addiction, lost efficacy, and a host of side effects. In this exclusive excerpt from his latest book, The Chemistry of Calm, psychiatrist Henry Emmons outlines proven natural strategies to safely manage anxiety.

52 HOW CURCUMIN PROTECTS AGAINST CANCER
As mainstream oncology misguidedly focuses on toxic, single-agent treatments, a wealth of compelling data puts curcumin at the forefront of multimodal cancer prevention.

64 PRACTICAL METHODS TO REDUCE CALORIE INTAKE
Thousands of scientific studies over the past 75 years have shown that low-calorie diets with optimal nutrition protect against disease and extend life span. Yet many find eating fewer calories difficult or unsatisfying. Discover efficient methods of following a reduced calorie diet.

74 NATURAL SKIN SOLUTIONS FOR CANCER TREATMENT SIDE EFFECTS
Radiation, chemotherapy, and surgery often lead to painful and unsightly dermatological effects, from rashes and dryness to acne and extreme dryness. Here we describe nutrients that can resolve these problems topically.

17 IN THE NEWS
Longevity linked to carotene intake; omega-3s combat age-related macular degeneration; and more.

87 SUPERFOODS
Traditional cultures have relied on ginger for treating a wide variety of ailments for thousands of years. Modern research has validated its efficacy. Thanks to an extensive phenolic profile, ginger can relieve dozens of common conditions, including migraine, upper respiratory infections, rheumatoid arthritis, morning sickness, and more.

7 ON THE COVER
NO REAL HEALTHCARE COST CRISIS
For the past four decades, Life Extension® has warned that corrupt legislation and suffocating FDA regulation will bankrupt the United States. That day of reckoning is approaching as the government is rapidly losing the ability to subsidize the economically unsustainable healthcare costs it has created. Here we detail how inefficient and fraudulent government edicts have led to today’s disease-care crisis—and how this catastrophe can be averted with commonsense changes to the law.
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When tryptophan is ingested as a food or supplement, it is naturally degraded by specialized enzymes in the body. The problem is that activity of one of these enzymes increases with age, thereby denying the brain the tryptophan it needs to produce adequate serotonin. The result of the excess 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 lysine, less tryptophan 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.

Life Extension®’s Optimized TryptoPure™ Plus formula contains tryptophan that is certified pure enough to be used as an active ingredient in pharmaceutical products. This pharmaceutical-pure 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 capsules retails for $40. If a member purchases four bottles, the price is reduced to $27 per bottle.
Gustavo Tovar Baez, MD, operates the Life Extension Clinic in Caracas, Venezuela. He is the first physician in Caracas to specialize in anti-aging medicine.

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Ross Pelton, RPh, PhD, CCN, is director of nutrition and anti-aging research for Intramedicine, Inc. He has authored six books and teaches continuing education courses for health professionals on a wide variety of health topics.

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Jonathan V. Wright, MD, is medical director of the Tahoma Clinic in Renton, WA, and a board member of the Vitamin C Foundation and the American Preventive Medical Association, among many other groups.
Richard Kratz, MD, DSci, is clinical professor of ophthalmology at the University of California, Irvine, and the University of Southern California (Los Angeles). Dr. Kratz pioneered the cataract-removal technique called phacoemulsification and developed intraocular lenses to replace the crystalline lens. He is currently involved in projects relating to glaucoma, cataract extraction, and facilitating eyesight for the totally blind.

Peter H. Langsjoen, MD, FACC, is a cardiologist specializing in congestive heart failure, primary and statin-induced diastolic dysfunction, and other heart diseases. A leading authority on coenzyme Q10, Dr. Langsjoen has been involved with its clinical application since 1983. He is a founding member of the executive committee of the International Coenzyme Q10 Association, a fellow of the American College of Cardiology, and a member of numerous other medical associations.

Ralph W. Moss, PhD, is the author of books such as Antioxidants Against Cancer, Cancer Therapy, Questioning Chemotherapy, and The Cancer Industry, as well as the documentary “The Cancer War”. Dr. Moss has independently evaluated the claims of various cancer treatments and currently directs The Moss Reports, an updated library of detailed reports on more than 200 varieties of cancer diagnoses.

Michael D. Ozner, MD, FACC, FAHA is a board-certified cardiologist who specializes in cardiovascular disease prevention. He serves as medical director for the Cardiovascular Prevention Institute of South Florida and is a noted national speaker on heart disease prevention. Dr. Ozner is also author of The Great American Heart Hoax and The Miami Mediterranean Diet (2008, Benbella Books). For more information visit www.drozner.com.

Robert Pastore, PhD, CNS is a clinical nutritionist practicing in New York City. Due to his thorough nature and focus on organic chemistry and biochemistry, his colleagues have termed his practice forensic nutrition. He is a member of Harvard Medical School Postgraduate Association, the American College of Nutrition, New York Academy of Sciences, and the American Association of Pharmaceutical Scientists.

Jonathan V. Wright, MD, is medical director of the Tahoma Clinic in Renton, WA. He received his MD from the University of Michigan and has taught natural biochemical medical treatments since 1983. Dr. Wright pioneered the use of bioidentical estrogens and DHEA in daily medical practice. He has authored 11 books and publishes Nutrition and Healing, a monthly newsletter with a worldwide circulation of more than 100,000.
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** or **structural dysfunctions** 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 FDA-approved 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.

**Eye support is essential to preventing age-related vision problems.**

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**
No Real Healthcare Cost Crisis

BY WILLIAM FALOON

For 31 years Life Extension® has warned that corrupt disease-care legislation combined with suffocating FDA regulation will bankrupt the United States of America.

The day of reckoning is rapidly approaching when the Federal government will be unable to subsidize the hyper-inflated healthcare prices that it created.

We have shown how inefficient and fraudulent government edicts are the cause of today’s medical cost crisis—and how this catastrophe can be averted with commonsense changes to the law.\(^1\)\(^-\)\(^3\)

A Real-World Example

Life Extension® is on the front lines seven days a week helping people who confront medical issues, many of whom are unable to pay the artificially inflated prices brought on by failed government policies.

I recently received a call from a friend whose younger sister contracted genital herpes and suffered frequent painful outbreaks. Herpes is an incurable virus that 20% of American women (ages 14-49) are infected with.\(^4\) It is estimated that 80% of cases remain undiagnosed.\(^5\)
I suggested that my friend’s sister consider taking 500 mg a day of valacyclovir (Valtrex®) as this has been shown to reduce the number of herpes outbreaks and reduce the chances of spreading the virus to one’s sexual partner by 47%. I recalled the retail price of Valtrex® was around $3 per tablet, but thought that it might be available as a lower-priced generic.

When I called the Life Extension Pharmacy®, I was shocked to learn that the brand name Valtrex® had jumped to $7.40 per tablet and that the generic cost almost this much! Since Valtrex® needs to be taken every day for prevention of outbreaks, the monthly cost for the generic comes to around $200, bringing the annual price tag to $2,400.

I was outraged that an off-patent drug could be priced this high and ordered our staff to find out what it really cost to produce high-quality generic Valtrex® tablets. What we discovered is beyond abhorrent. The raw material to make a one-month supply of generic Valtrex® is only 60 cents! The pharmaceutical-quality manufacturing process adds $1.50, which means the total cost to make a bottle of 30 500 mg generic Valtrex® tablets is only $2.10.

Yet this same bottle retailed in pharmacies for around $200—a government-protected markup of 9,523% (or 95 times over the cost of manufacture)!

No other business can get away with charging this much for a product whose patent expired. The only reason this happens is that Federal laws provide a virtual monopoly to protect the drug industry’s outlandish profits.

When I called my friend back about the $200/month price, the first thing she said is “My sister cannot afford that.” That means this young girl will suffer frequent herpes outbreaks and is more likely to pass this incurable virus on to others.

For those concerned that this girl may forever be denied her medicine, drug companies have lobbied Congress to create laws whereby taxpayers will foot the bill for many of those who cannot pay the ever-escalating costs of medical insurance.

As we have so often reported, the Federal government gives pharmaceutical companies a virtual monopoly over patented and generic drugs. The outlandish profits earned from these drugs are then used to buy lobbyists who persuade Congress to pass legislation that leaves the taxpayer on the hook for paying for these over-priced medicines.

What a racket! Overcharge so much for your product that most consumers cannot afford it, complain to Congress that consumers cannot afford your medicines—and then receive tax dollars to pay your monopolistic prices.

We long ago proposed that Congress change the law to permit companies to freely make generics, which would result in the price for generic Valtrex® plummeting from $200 a month to somewhere around $7 (or from $2,400/year to $84/year).

I titled this article “No Real Healthcare Cost Crisis” because it reveals how this country is being driven to economic insolvency by corrupt legislation, while pharmaceutical interests enjoy record profits.

Misguided FDA Decision Causes Price of Old Drug to Skyrocket 5,000%

In July 2009, the FDA officially announced what physicians have long known. An old drug called colchicine can effectively treat acute flares of gouty arthritis.

This drug has been sold as a low-cost generic since the 19th century in the US, and its origins go back 3,000 years to the ancient Greeks.

Since colchicine was around so long, it pre-dated the FDA itself. The FDA wanted this drug tested
for safety and efficacy and offered one company a three-year exclusive if it would conduct a study. In the one-week randomized trial this company conducted, it was discovered that a shortened dosage period produced good symptom management while leading to fewer side effects than longer term use. Astute physicians may have already figured this out, but it is good that a study was done to confirm the shortened dose advantage. The question is, can we afford it?

Before the study, colchicine was sold by several companies for around nine cents a pill. Once the FDA granted the three-year exclusive, the price shot up 50-fold to an average of $5 per pill.6

In 2007, there were 100,000 prescriptions written for colchicine for which Medicare-Medicaid paid about $1 million.7 Under the new monopoly granted by the FDA (with legislative authority from Congress), taxpayer funded agencies (Medicare-Medicaid) will pay around $50 million for the same drug.7

There are more cost-effective ways to have ascertained better dosage for this old drug, such as a one-week trial funded by the National Institutes of Health (NIH). An NIH-funded trial would have cost the government a fraction of the 5,000% increase it and private payers will now have to fork over for a non-patented medication that has been used for centuries in this country. This is just a tiny example of how pharmaceutical company-sponsored legislation and misguided regulatory policies create an artificial healthcare cost crisis. Multiply this across the entire medical sector and you can see why radical reform is needed if an economic crisis is to be averted.

How Is This Affecting You?

If you obtain health insurance from your job, it now costs your employer nearly twice as much ($6,700 per employee) than it did in the year 2001.9 You might have noticed that you now pay a greater portion of the insurance premium through your employer and that your deductibles and co-pays are substantially higher than what they used to be.

Health insurance costs to employers are projected to double again over the next ten years. This means that fewer dollars will be available to pay you. It also means that employers are not hiring as many people because of skyrocketing health insurance costs.

Employees fortunate enough to have healthcare insurance in 2010 will pay on average $4,023 in premium subsidies and out-of-pocket expenses.10 This compares with almost nothing a decade ago. According to the Wall Street Journal, “Health Costs Are Crushing Small Businesses” as medical premiums have increased four times faster than the rate of inflation since 2001.11

If you pay for your own medical insurance, you’ve already been stung with skyrocketing premium rate increases, along with higher deductibles, higher co-pays and refusals to cover certain expenses. Those without coverage face astronomical out-of-pocket costs for any serious medical issue.

Drug Makers Sharply Raised Prices in 2009

As if prescription drug costs were not already high enough, brand-name pharmaceuticals increased 9.1% in 2009, while biotech drugs rose 11.5%.8 This follows a pattern of prescription drug price increases that far outpace inflation, even as the cost of the active ingredient plummets (as can be seen in the 60-cent-a-month raw material cost of valacyclovir).

Americans continue to pay the highest prices in the world for their prescription medications as pharmaceutical company influence in Congress guarantees monopolistic-like protection.
According to President Obama, “We will eventually be spending more on Medicare than every other government program combined.” That acknowledgment, however, did not stop passage of legislation (Healthcare Reform Act) that provides another Federal disease-care entitlement (and drug company subsidy) for people under age 65.

While the public is finally waking up to the colossal $14 trillion official Federal debt, only a few understand that the $37 trillion unfunded Medicare liability is our real deficit problem. Nothing else comes close to threatening our health and financial well-being.

The year 2008 marked the first time that Medicare posted a deficit, meaning it spent more on disease-care outlays than the taxes it collected. By the year 2017, the Federal government tells us that the Medicare hospital trust fund will be depleted. But this number is based on optimistic projections that are not happening, such as a 21% cut to doctors that was supposed to occur in 2010 but was canceled by Congress.

An increasing number of doctors are refusing to accept Medicare today because it pays so little. If a cut in physician payments is ever implemented, the Medicare system could collapse because there will not be enough physicians to cover the aging population.

The chart on this page was created in 2007 and reveals the stunning magnitude of the Medicare and Social Security deficits. What’s really scary is that this does not factor in the Medicare Prescription Drug Act or Healthcare Reform Act passed by Congress over the past few years that will add trillions of additional deficit dollars to this chart.

The Federal government pretends it can raise taxes enough on wealthy individuals to offset the staggering liabilities it has incurred by promising more sick-care coverage than what Medicare is already on the hook for. The notion that taxes can be raised on a tiny percentage of the population to pay the gargantuan Medicare liability is a mathematical impossibility and represents the largest Ponzi scheme in the history of mankind.

Life Extension (and other media sources) has reported egregious examples of how Medicare expenditures are squandered. In some cases, crooks set up phony clinics, collect millions from Medicare for services never rendered, and then move on to another location before Medicare figures out it is paying bogus claims.
The real money, however, involves lobbying Congress to force Medicare to grossly overpay for the particular service, device, or pharmaceutical a company happens to sell.

One of the fastest growing areas of the disease-care industry is “home healthcare.” It aims to save billions by avoiding costly hospitalizations. Hospitals, of course, learned how to bilk Medicare long ago, and home healthcare providers are no less proficient.

An investigative report by the 
Wall Street Journal
uncovered a ridiculous program in which Medicare paid a $2,200 bonus once a company made ten at-home visits to a particular patient. With this kind of incentive, home healthcare companies jumped through hoops to hit the ten-visit mark, even threatening employees with no pay if they failed to figure a way to bill Medicare ten at-home visits for every patient. Remember, for each patient that Medicare paid for ten consecutive visits, an absurd $2,200 taxpayer-funded bonus was kicked back to the home healthcare provider PLUS the cost Medicare had to pay for each at-home visit.

Those who successfully lobby Congress receive windfall profits from Medicare, while those who don’t are so short-changed that many are dropping out of the system. It’s somewhat analogous to the former Soviet Union, where companies favored by the entrenched Communist Party received special status, while those who lacked political connections often could not pay their employees because no money came from Moscow.

One home healthcare company that receives 90% of its revenue payments from Medicare enjoyed revenues of $1.5 billion in 2009, compared to only $88 million in the year 2000. Its stock has gone from less than $1 in 2000 to $60 in 2009.15

Clearly, the way to make money in today’s economy is to find a way to guarantee that the Federal government will pay you inflated prices so you don’t have to worry about competing in the free market for consumer dollars.

A Trip to Mexico with My Son

I try to spend time with my children and wound up in Mexico for a few days last summer, where my 13-year-old son was bitten by an insect. He developed a painful reaction that required immediate attention. Fortunately, in Mexico, you don’t need a prescription to buy most drugs. I was able to walk into a pharmacy and purchase a tube of triamcinolone cream at virtually no cost. Within a few hours my son was cured.

In the United States, it is not so easy or affordable. For some ludicrous reason, the FDA mandates that one obtain a doctor’s prescription for topically-applied triamcinolone cream. If this insect bite had occurred in the US, I would have had to find an urgent care medical facility that was open, pay the doctor over $100, and then take the prescription to a pharmacy and wait for it to be filled. My son would have spent many additional hours in pain and I would have spent a lot more money and time.

If I could not locate an urgent care center, a hospital emergency room visit would be the only alternative. The cost to me and my insurance company would have been over $500 for an ER visit as opposed to spending only a few dollars for a tube of triamcinolone cream at a Mexican pharmacy with no prescription.

The Mexican pharmacy, by the way, was overwhelmed with American tourists who were behaving like kids in a candy store. The shelves were stocked with just about every popular American prescription drug, but no prescription was required. Prices for most drugs were a fraction of what they cost in the US.
Prescription Status for Many Drugs Should Be Abolished

There was a time when the public was so ignorant about medical issues that a doctor’s prescription was required for most drugs to be safely and effectively used.

That has changed. An enlightened individual can use the Internet to learn about drugs that lower blood pressure, glucose, and lipids, along with the drug’s side effects. At-home blood pressure devices are more effective in monitoring real-world blood pressure than periodic visits to a doctor’s office. An enlightened patient can precisely individualize dosing of anti-hypertensive medications to bring their blood pressure to optimal levels (below 115/75 mm Hg in most people).

Enlightened individuals, with the help of trained health advisors, can also interpret their own blood test results and choose medications and hormones that can normalize abnormalities that hurried doctors too often overlook. Periodic audits of one’s self-prescribing regimen by a physician would be highly recommended.

Naysayers who argue that people will take inappropriate doses or the wrong drug ignore the epidemic of adverse reactions that occur when patients blindly follow physician’s prescribing orders. Look at how many prescriptions doctors wrote for Avandia® long after studies showed sharply higher heart attack and stroke risks.16,17

If doctors were relieved of having to see patients for simple issues (like elevated LDL and triglycerides) they could focus more time on patients who need intensive hands-on treatment.

Accepting Harsh Realities

Medicare’s date with insolvency is a mathematical near-certainty.

There are many reasons for this, but corrupt legislation that precludes a medical free market from developing, along with bureaucratic overregulation, ensures that disease-care expenditures will cripple this nation.

As we proposed in detail in the August 2009 issue of Life Extension Magazine, the cost of prescription drugs would plummet if the FDA did not have such stringent approval requirements for generics.

As proposed today, if patients were empowered to make their own decisions on personal health issues, medical costs would plunge as wasteful visits to doctors’ offices could be reduced.

I suspect most of you reading this recognize that there reaches a point where the words “we
cannot afford it” become a harsh reality. Whether one agrees with the solutions suggested in this editorial or not, the simple fact is that Medicare, private insurance, and the private sector cannot afford the costs of today’s broken sick-care system.

For the edification of new members, please know that we at Life Extension have been sounding the alarm bells about the catastrophic consequences of artificially inflated disease-care costs for the past four decades.

The Federal government has responded by launching relentless criminal investigations against me (and others) at the behest of pharmaceutical interests, who don’t want you to know that Americans have been forced to pay $200 for a bottle of valacyclovir (Valtrex®) that costs only $2.10 to make!

For longer life,

William Faloon

P.S. - Generic drug prices fluctuate widely. When more manufacturers obtain FDA approval, prices sometimes drop. When manufacturers cease making certain generics, prices can sharply increase. In January 2011, the Life Extension Pharmacy was able to offer 30 500 mg tablets of valacyclovir for $103, though this price is subject to being increased at any time. When I called a local Walgreens the very same day, they quoted $199.99 for the same amount of valacyclovir.

From an efficacy standpoint, valacyclovir provides relatively mediocre results in those suffering acute herpes or shingles outbreaks.

For those seeking natural and more innovative approaches to controlled herpes and shingles attacks, log on to www.lef.org/herpes

References

Aging individuals frequently encounter a weakening of the bladder and its sphincter muscle that controls the release of urine. Laboratory and human clinical studies demonstrate that ingestion of water-soluble pumpkin seed extract (with soy isoflavones) can significantly improve the structural support of the bladder and the function of the sphincter muscle. The data supporting the value of water-soluble pumpkin seed extract (with soy isoflavones) is particularly strong in studies performed in women. A clinical study of aging men also demonstrated positive results.

HOW TO USE PUMPKIN SEED-SOY EXTRACTS

The pumpkin seed has a long history of use in helping to maintain healthy bladder function. Japanese scientists have patented a method to obtain the water-soluble constituents of the pumpkin seed, which are absorbed far more efficiently into the bloodstream. These water-soluble pumpkin seed extracts appear to be the active constituents to help with the urinary discomforts endured by so many maturing women and men.

Clinical studies on women and men have used capsules containing 262 mg of water-soluble pumpkin seed extract and 50 mg of soy isoflavones taken two times each day. The results from human studies show the maximum benefits occurring after six to eight weeks of continued use.

WATER-SOLUBLE PUMPKIN SEED AND SOY EXTRACT

Based on the remarkable and consistent clinical results, Life Extension is making the identical Japanese formula used in the human studies available to its members for the first time.

A bottle containing 60 Water-Soluble Pumpkin Seed Extract (with Soy Isoflavones) capsules retails for $22. If a member buys four bottles, the price is reduced to only $15 per bottle. Each capsule provides 262 mg of water-soluble pumpkin seed extract and 50 mg of soy isoflavones. Item # 01210 Contains soybeans, corn, and rice.

For those who are taking other soy supplements, or are allergic to soy, Water-Soluble Pumpkin Seed Extract Standalone capsules are available as well. A bottle containing 60 262 mg capsules retails for $20. If a member buys four bottles, the price is reduced to only $13.50 per bottle. Item # 01209 Contains corn and rice.

To order Water-Soluble Pumpkin Seed Extract with Soy Isoflavones (or Water-Soluble Pumpkin Seed Extract standalone) call 1-800-544-4440 or visit www.LifeExtension.com

Go Less is a trademark of Frutarom Netherlands BV.

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.
POWER PRICES – Life Extension Pharmacy® can save you over 80% on common prescriptions such as metformin and simvastatin. In fact, while CVS offers 90 40mg tablets of simvastatin for $154.99, Life Extension Pharmacy® sells the same dosage for $21.23. An 86% reduction!*

INDIVIDUAL NEEDS – While chain pharmacies deal in volume, Life Extension Pharmacy® deals in value. Our pharmacists spend quality one-on-one time with customers to answer any and all questions.

FOUNDATION PARTNERSHIP – Life Extension Pharmacy® is partnered with the Life Extension Foundation®, enabling us to provide cutting edge integrative care. We also provide access to peer-reviewed scientific literature through the Foundation, as well as vital information about drug interactions, side effects, lower-cost alternatives, and, in some cases, safer medications.

EXCEPTIONAL KNOWLEDGE – In addition to offering safety and prescription advice, our pharmacists are trained to think independently, and will explain how vitamins, minerals, hormones, and natural nutrients may be used to work synergistically with your drugs to help you achieve optimal health.

* Prices as of January 1, 2011. Prices subject to change.

To find out how you may benefit by transferring your prescriptions, call 1-877-877-9700.

Life Extension Pharmacy, Inc. is a licensed pharmacy based in Fort Lauderdale, FL. A portion of prescription proceeds goes to the Life Extension Foundation, a nonprofit organization.
Few nutritional sources have gained as much scientific validation as pomegranate. The vast majority of research has focused on extracts from the fruit. Only recently have scientists identified the synergistic action of compounds specific to other parts of the pomegranate—most notably its seeds and flowers.

The Next-Generation Pomegranate Formula

Life Extension® introduces an advanced, cutting-edge pomegranate formula that brings together novel phytonutrients for the first time in a unique, high-potency blend.

Full-Spectrum Pomegranate™ combines standardized extracts from the whole fruit and flower, along with pomegranate seed oil, to support system-wide health.

In addition to the highly absorbable antioxidant powerhouses found in pomegranate fruit, Full-Spectrum Pomegranate™ augments these polyphenols with newly discovered biologically active compounds from other parts of the pomegranate plant.

These little-known nutrients include: punicanolic acid, a member of the triterpene family of essential oils that provides cellular support to help with inflammation, and pomegranatate, to combat age-related metabolic changes.

This superior formula supplies the complete nutritional profile of the pomegranate plant. Just one softgel of Full-Spectrum Pomegranate™ provides polyphenols equivalent to 12.3 ounces of pomegranate juice (or 24 pomegranates) plus a proprietary blend of seed oil and flower extract.

One softgel of Full-Spectrum Pomegranate™ contains:

**POMELLA® Pomegranate** (Punica granatum) Extract (fruit) [std. to 30% punicalagins (120 mg)]

**PomComplete™ Pomegranate** (Punica granatum) Blend [flower extract and seed oil (standardized to 22% (30 mg) punicic acid)]

Full-Spectrum Pomegranate™

A bottle containing 30 softgels of Full-Spectrum Pomegranate™ retails for $24. If a member buys four bottles, the price is reduced to just $15.75 per bottle.

**References**


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 trademark of GliSODin®.

Contains soybeans.

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

Research conducted by the University of Western Ontario has uncovered a beneficial role for vitamin C in sepsis, an immune system reaction to bacterial infection that results in the formation of blood clots, impaired blood flow, and organ failure. The findings were reported in the November 2010 issue of the journal *Intensive Care Medicine.*

Capillaries that have been blocked by blood clots, caused by oxidative stress and activation of the blood clotting pathway, are the cause of multiple organ failure and death in septic patients.

In experiments with mice, Karyl Tyml and colleagues demonstrated that vitamin C administered intravenously early in the development of sepsis prevents capillary blockage, as well as reverses the condition by restoring blood flow if administered later. Reversal of blood flow blockage by vitamin C appeared to be dependent upon the production of nitric oxide, which dislodges platelets from the capillary wall.

*Editor’s note:* Dr. Tyml noted that, “Vitamin C is cheap and safe. Previous studies have shown that it can be injected intravenously into patients with no side effects.”

—D. Dye


Urgent alert: The FDA has just notified small pharmacies that they will no longer be allowed to manufacture or distribute injectable vitamin C—despite its remarkable power to heal conditions that conventional medicine can’t touch. Life Extension will aggressively investigate the FDA’s outrageous decision and enlighten health freedom activists how they can help to reverse it.

Longer Life Associated with Higher Alpha Carotene Levels

An article appearing in the *Archives of Internal Medicine* reports the discovery of researchers at the Centers for Disease Control and Prevention of an association between higher serum levels of the carotenoid alpha-carotene and a lower risk of dying over a 13.9 year average period.

Chaoyang Li, MD, PhD, and colleagues evaluated data from 15,318 adults who enrolled in the Third National Health and Nutrition Examination Survey Follow-up Study between 1988 and 1994. The participants were followed through 2006, during which the causes of deaths that occurred were recorded.

Among participants whose alpha-carotene levels were highest at 9 or more micrograms per deciliter, there was a 39% lower adjusted risk of dying from any cause compared with those whose levels were lowest.

“These findings support increasing fruit and vegetable consumption as a means of preventing premature death,” the authors conclude.

*Editor’s note:* To obtain high levels of alpha carotene you should include the following in your diet: pumpkin, carrots, sweet potatoes, cantaloupe, spinach, broccoli, green beans, barley, oats, and plant-based foods.

—D. Dye

*Arch Int Med.* 2010 Nov 22.
IN THE NEWS

Calcium, Vitamin C Supplements May Help Protect Against Diabetes

In an article published in Diabetes Care, Honglei Chen, MD, PhD, and colleagues report that individuals who regularly consume calcium or vitamin C supplements have a lower risk of developing diabetes than people who don’t consume such supplements.*

Dr. Chen and associates evaluated data from 232,007 participants in the NIH-AARP Study. Questionnaires administered upon enrollment between 1995 and 1996 provided information concerning multivitamin supplement use as well as individual vitamin and mineral supplements. Multivitamins were categorized as stress-tab, Theragran-M® or One-a-Day® types. Follow-up questionnaire responses revealed 14,130 cases of diabetes diagnosed after the year 2000.

A protective effect for multivitamin use against diabetes was observed; however, its significance disappeared after adjusting for the use of individual supplements. When individual supplements were examined, participants who used vitamin C daily had a 9% lower risk of developing diabetes, and for those who used calcium, the risk was 15% lower.

Editor’s note: The authors write that, “It is likely that multivitamins at their current composition cannot reduce the risk of diabetes. Most multivitamins contain lower amounts of single antioxidants than individual vitamin supplements and thus might not be sufficient to be biologically effective.” —D. Dye


Garlic Could Help Reduce Osteoarthritis of the Hip

An article published in BMC Musculoskeletal Disorders reports the discovery of Frances M. K. Williams, PhD, and her associates of a protective effect of allium vegetables, which include garlic, leeks, and onions, against osteoarthritis of the hip.*

The study included 1,000 healthy female twins between the ages of 46 to 77, many of whom had no symptoms of arthritis. Dietary questionnaire responses provided information on the participants’ intake of 131 foods. Radiographic evaluation assessed the presence of early osteoarthritis in the hip, knee, and spine.

Among women whose fruit and vegetable intake was high, there was a lower adjusted risk of hip osteoarthritis compared to those whose intake was low, with the greatest protective benefit observed for non-citrus fruit and allium vegetables. Further research in cultured human cartilage cells determined that diallyl disulphide, a compound that occurs in garlic, limited the expression of cartilage-damaging enzymes.

Editor’s note: Dr. Williams remarked that, “While we don’t yet know if eating garlic will lead to high levels of this component in the joint, these findings may point the way towards future treatments and prevention of hip osteoarthritis.” —D. Dye

* BMC Musculoskelet Disord. 2010 Dec 8;11(1):280.

Greater Omega-3 Fatty Acid Intake Associated with Protection Against Advanced Age-Related Macular Degeneration

Researchers from Johns Hopkins University report in the journal Ophthalmology their finding of a protective effect for fish that contain abundant amounts of the omega-3 fatty acids EPA and DHA against the development of advanced age-related macular degeneration.*

Sheila K. West, PhD, and her associates evaluated data from 2,391 participants in the Salisbury Eye Evaluation (SEE) Study. Dietary questionnaire responses were analyzed for the type and amount of fish and shellfish consumed weekly.

Early macular degeneration was diagnosed in 227 subjects, 153 had intermediate-stage disease, and advanced macular degeneration was observed in 68 participants. Although there did not appear to be a significant protective effect for fish and shellfish in general, those whose intake of high omega-3 fatty acid fish was greatest at one or more servings per week had a 60% lower risk of advanced disease compared to those who consumed less than one serving.

Editor’s note: The finding adds evidence to that of other research, including the Age-Related Eye Disease Study (AREDS), concerning the benefit of nutritional components against macular degeneration. High amounts of omega-3’s have been measured in the retina of the eye and may be essential to eye health.

—D. Dye

Low Dose Aspirin Could Help Protect Against Death from Cancer

An article published in *The Lancet* reveals a protective effect of low dose aspirin against the risk of dying from a number of cancers. “These findings provide the first proof in man that aspirin reduces deaths due to several common cancers,” the authors announce.*

Peter Rothwell and his colleagues pooled data from 8 randomized trials comparing the use of aspirin to no aspirin or another blood thinning agent to prevent vascular disease. Those who received aspirin had a 21% lower risk of dying from cancer over the treatment periods compared to those who did not receive the drug. Further analysis found a significant benefit after 5 years of follow-up, with aspirin use associated with a 34% lower risk of dying from all cancers and a 54% lower risk of dying from gastrointestinal cancer. Doses of aspirin higher than 75 milligrams were not associated with increased protection.

*Editor's note:* “Perhaps the most important finding for the longer-term is the proof of principle that cancers can be prevented by simple compounds like aspirin and that ‘chemoprevention’ is therefore a realistic goal for future research with other compounds,” Dr. Rothwell stated.

—D. Dye

* *Lancet.* 2010 Dec 7.

Hot Flashes Reduced by Folic Acid

A trial described in the journal *Gynecological Endocrinology* found that the B vitamin folic acid significantly reduced the number and intensity of hot flashes experienced by a group of menopausal women.*

Brain release of the hormone norepinephrine and its metabolite MHPG has been found to be higher in women who experience hot flashes than in those who do not. In the current research, 46 women suffering from hot flashes were divided to receive 5 milligrams folic acid or a placebo daily for four weeks.

Nine of the women who received folic acid experienced complete elimination of hot flashes, and six had moderate improvement. Only one woman in the placebo group experienced a complete response. Participants who received folic acid also experienced a reduction in plasma MHPG. A review subsequent to the treatment period found that hot flashes returned in all subjects who had experienced improvement when supplementing with folic acid.

*Editor's note:* While hormone replacement therapy is helpful in alleviating hot flashes, there are some women whose medical conditions preclude its safe usage.

—D. Dye

* *Gynecol Endocrinol.* 2010 Sep;26(9):658-62.

Pomegranate May Help Prevent Prostate Cancer Metastasis

The American Society for Cell Biology’s 50th Annual Meeting was the site of a presentation concerning the identification of compounds in pomegranate that protect against prostate cancer metastasis.*

In 2006, researchers observed a reduction in the increase of PSA levels in men with prostate cancer who consumed 8 ounces of pomegranate juice daily. Researchers involved in the current study, led by Manuela Martins-Green, PhD, had previously determined that pomegranate juice concentrate increased cell death in prostate tumor cell lines that were resistant to testosterone (which is associated with metastasis), as well as increased cell adhesion and decreased migration in cells that survived.

The team identified phenylpropanoids, hydrobenzoic acids, flavones, and conjugated fatty acids as compounds responsible for the effects in the cancer cells that were not destroyed. In addition to inhibiting the growth of the tumor cell lines, the compounds inhibited their migration and attraction to a signal that promotes metastasis to the bone.

*Editor's note:* Dr. Martins-Green and her associates noted, “Expect that further testing for dose-dependent effects, side effects, etc., should allow usage of these components as a more effective treatment for metastatic prostate cancer than simply drinking the juice.”

—D. Dye

* *American Society for Cell Biology’s 50th Annual Meeting.* December 12, 2010.
IN THE NEWS

Greater Branched-Chain Amino Acid Intake Associated with Lower Likelihood of Being Overweight

In the Journal of Nutrition, an international team of researchers report an association between an increased intake of the branched-chain amino acids (BCAAs) leucine, isoleucine, and valine and a reduced risk of being overweight or obese.*

The team analyzed data from 4,429 men and women enrolled in the INTERMAP Study, a cross-sectional investigation of individuals residing in Japan, China, the UK, and the US. Increased consumption of branched-chain amino acids was associated with a lower adjusted risk of being overweight. For those whose intake was among the top 25% of participants, a 30% lower risk of being overweight was observed in comparison with those whose intake was lowest. Obesity among British and American subjects also had an inverse association with branched-chain amino acid intake, with a 25% lower risk occurring among participants whose BCAA intake was highest compared to those whose intake was among the lowest fourth.

Editor’s note: In their discussion of possible protective mechanisms for the amino acids against weight gain, the authors write that leucine may increase energy expenditure, stimulate the hormone leptin, and possibly increase the activity of mTOR, which, like leptin, regulates energy balance. The branched-chain amino acids may also help reduce impaired glucose tolerance, which contributes to obesity.

—D. Dye

Life Extension® Meets FITCAMP Malibu

“100 is the new 50, and at FITCAMP we teach what it takes to make that a reality. Your body has an intelligence, and it’s my job to raise your Body Intelligence IQ.”

—Greta Blackburn

Greta Blackburn, co-author of The Immortality Edge: Realize the Secrets of Your Telomeres for a Longer, Healthier Life (2010), founded FITCAMP nearly two decades ago. It has since matured into a pinnacle event offering the latest breakthroughs in fitness, sports, and anti-aging technology. By combining information exchange with one-on-one physical training sessions and a daily schedule packed with everything from Pilates, taught by guru Mari Winsor, to Hell Hikes and hoopng, campers learn specific skill sets to take home and incorporate into their daily lives.

FITCAMP seminars feature pioneers like Mike Fossel, MD, PhD, and top Life Extension experts.

Testimonials

“I would highly recommend Greta's FITCAMP to anyone who is ready to take the next step toward wellness and lifestyle transformation. The facilities, food, and presenters were world-class. The opportunity to associate with so many vibrant, open-minded individuals, and the endless supply of love and support from other campers, was priceless.”

—Craig Phillips, age 60

“Greta B's FITCAMP is challenging, fun, and rewarding. It helped me prepare for my second 76 years to be healthy, fit, and enjoyable. All the presenters are cutting-edge, knowledgeable, and motivating. I came home with a wealth of new insights for taking my life to the next level.”

—Gabrielle Guhl, age 76

A FITCAMP is scheduled for early spring in South Florida. For more information call 800-727-2888 or visit www.fitcamp.com

Craig Phillips, 60-years-old, professional skier. Gabrielle Guhl, 76-years-old, on the ropes course.
The old adage “Where there’s smoke, there’s fire” may never be more true than when it comes to the radiation emitted from cell phones. For too many years, Big Cellular has brushed off claims that this radiation could be dangerous and labeled those who point to the alarming science supporting such claims as outside the mainstream. In *Disconnect*, National Book Award Finalist Devra Davis tackles this issue head on, taking readers on a tour de force to the darkest edges of the trillion-dollar cell phone industry.

Did you know that most cell phones come with a notice that says “do not hold closer than one inch from your body?” And did you know that insurance companies refuse to provide coverage to cell phone companies and operators in case of claims of health damage from long-term operation of their device?

Davis, a PhD, MPH, visiting professor at Harvard University and Georgetown University, didn’t know the above information either, but when she learned it, the new knowledge set her off on a fact-finding mission that became this book. In the book’s foreword, David Servan-Schreiber, MD, PhD states, “I myself, a physician, a scientist, a patient being followed for a malignant brain tumor for the past eighteen years...used a cell phone like everybody else. I was convinced, as well, that such technology could not possibly be released on the enormous scale that it has reached today without governments having demanded proof that there could be no health hazards from the widespread use of a new type of microwave radiation that practically everyone would be intensely exposed to for decades.”

In short, Dr. Davis found out that her assumptions weren’t just wrong, they were dangerously wrong. In her search for the truth, she encounters several key players, including Om P. Gandhi, an expert on how cell phone radiation penetrates the human brain. Gandhi was once a consultant to major cell phone carriers but now he refuses to work with them. She also talks to Franz Adlkofer, the leader of a multi-lab study that conclusively showed that human DNA is unraveled by cell phone microwave radiation.

While this information is disturbing, you’ll find that the lengths companies have gone to cover it up is even more so. In fact, the word is starting to get out, as more than a dozen countries advise restricting the use of cell phones by children and limiting direct exposures to the bodies and heads of adults. Davis provides a list of useful tips to help readers avoid unnecessary exposure in the back of the book. However, if you want the complete, compelling, and potentially life-saving tale of how cell phone radiation came to be ubiquitous in our lives, you’ll have to start on page one.

**Editor’s note:** Life Extension has long recommended that people use the speaker option on their cell phone and keep the phone about one foot away from one’s body when talking. This reduces the electro-magnetic field exposure to virtually zero.
People who struggle with weight loss often point to several “Achilles’ heels” that sabotage their efforts to keep off the pounds: eating between meals, grazing at night, and a constant desire to snack, are among the most common.

The fantastic news is that a proprietary extract of saffron, called Satiereal®, is clinically proven to deal with nearly all of the above issues. In fact, women involved in Satiereal® studies experienced the following amazing results:

• 100% reduction in the desire to snack
• 50% fewer instances of eating between meals
• Less hunger
• Moderate weight loss
• More energy
• Better mood

Say goodbye to “kitchen raids” and say hello to “weight control” with Optimized Saffron with Satiereal®.

A bottle containing 60 vegetarian capsules of Optimized Saffron with Satiereal® retails for $36. If a member buys four bottles, the cost is just $24 per bottle.

References

To order
Optimized Saffron with Satiereal®,
call 1-800-544-4440
or visit www.LifeExtension.com

Satiereal® is a registered trademark of INORÉAL.
International patents pending.

The fact that Satiereal® induced significant reductions (100%) in the desire to snack, but with only moderate weight loss, is further support for the multi-pronged approach needed to effectively manage weight that has long been espoused by Life Extension®.

This supplement should be taken in conjunction with a healthy diet and regular exercise program. Results may vary.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Discover the European “Secret” to Youthful, Healthy Legs

Combat Unsightly Veins with This High-Potency Extract

30 YEARS OF CLINICAL EVIDENCE BRINGS LONG-AWAITED RELIEF

It is estimated that half of all women in the United States will develop unsightly veins by age 50. While dermatologists often suggest surgery to correct this “age-related” issue, European women have enjoyed access to a natural solution for 30 years!

Life Extension® offers American women the same extract without a prescription. No more compression bandages or stockings. Instead, experience the same beautifying effects European women have been raving about for three decades—naturally!

Derived from the sweet orange, European Leg Solution featuring Certified Diosmin 95 contains a plant-based nutrient called diosmin and is available in a vegetarian tablet.

MICRONIZED FOR GREATER EFFECTIVENESS

In order to derive any significant benefit, bioactive diosmin extract must be able to reach veins directly.

Life Extension®’s proprietary extract undergoes a complex, highly refined process called micronization. It yields the only form of diosmin clinically proven to support healthy vascular function in the legs. This scientifically controlled, multi-phase technique radically reduces the size of the standard diosmin particles contained in each tablet, from 37 microns to less than 2 microns. The result is an optimally bioavailable standardized extract. This ensures rapid, efficient delivery of diosmin to the bloodstream, enabling enhanced penetration of the delicate inner lining of the veins.

As with so many “age-related” conditions, inflammation is the chief culprit behind the presence of unsightly veins. Inflammatory responses are precipitated by the interaction between white blood cells and the endothelial lining.

Life Extension’s European Leg Solution featuring Certified Diosmin 95 offers effective protection by disrupting this inflammatory response.

THE PREFERRED TREATMENT AMONG EUROPEAN WOMEN FOR BEAUTIFUL LEGS IS HERE

Life Extension’s European Leg Solution featuring Certified Diosmin 95 provides the same pharmaceutical grade extract used by millions throughout Europe. The retail price for a bottle containing 30 600 mg vegetarian tablets is $20. If a member buys four bottles, the cost is only $13.50 per bottle.

Six Ways Life Extension’s European Leg Solution featuring Certified Diosmin 95 Works for You

1. Maintains healthy blood flow through your capillaries—the most fragile of your blood vessels.
2. Maintains tone and elasticity of your veins—the key to sustained vascular health.
3. Eases the effects of circulating cytokines that promote inflammation.
4. Safeguards collagen and elastin against oxidative damage.
5. Enjoys an outstanding safety record.
6. Produces results in just 1–2 weeks, with a single 600 mg tablet taken each morning.

*Product not for sale outside the United States.

To order European Leg Solution featuring Certified Diosmin 95, call 1-800-544-4440 or visit www.LifeExtension.com

References:

Contains corn.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Painful swelling or stiffness is often the result of damaged connective tissue and inflamed joints. Life Extension®’s Arthro-Immune Joint Support has been formulated with two powerful plant extracts that can help those suffering from inflammation.

Andrographis paniculata has been recognized for its beneficial effect on inflammation. It was shown to provide significant improvement that resulted in fewer tender and/or swollen joints. Arthro-Immune Joint Support contains the superior PARACTIN® Andrographis extract, which has been used in clinical, animal and in vitro studies.

Curcumin, a natural compound known for its ability to reduce inflammation and as an antioxidant, was shown in a yet unpublished study to have a beneficial effect on inflammation. The highly bioavailable BCM-95® Bio-Curcumin® is the second component of Arthro-Immune Joint Support.

Just one capsule a day provides a potent serving of PARACTIN® and BCM-95® Bio-Curcumin®. A bottle of 60 vegetarian capsules retails for $30. When a member buys four bottles, the price is reduced to only $19.50 per bottle.
Vitamin C’s popularity is undeniable—and so are its benefits! It has been over 80 years since this critical vitamin was isolated, and its importance in our diet cannot be overstated. However, since humans don’t manufacture vitamin C internally, it must be obtained through dietary sources or supplements.

This can be problematic because vitamin C is a water-soluble nutrient that is quickly oxidized and released by the body, which means that for those seeking vitamin C’s optimal health benefits they have to consume the vitamin several times a day.1

Fortunately, a flavonoid antioxidant known as dihydroquercetin functions as a vitamin C “supercharger.” Studies demonstrate that dihydroquercetin acts to inhibit the oxidation of vitamin C, thereby helping to maintain its concentration and to recycle vitamin C throughout the body.2,3 This synergistic relationship between dihydroquercetin and vitamin C greatly enhances the efficacy of both molecules in the body’s organs and tissues.

Vitamin C with Dihydroquercetin was formulated for those seeking to obtain optimal efficacy and antioxidant protection from their vitamin C supplement. The suggested daily dose of one tablet of this formula supplies 1,000 mg of vitamin C (as ascorbic acid), along with 10 mg of dihydroquercetin-3-rhamnoside, a highly bioavailable form of dihydroquercetin derived from grape leaf extract.

A bottle containing 250 tablets of Vitamin C with Dihydroquercetin retails for $25.50. If a member buys four bottles, the price is reduced to just $17.44 per bottle. Contains corn.

References:

To order VITAMIN C with Dihydroquercetin, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
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® now offers an enhanced, all-natural, multipronged approach called CinSulin® with InSea™ and Crominex® 3+.

An Extract Clinically Validated by the USDA!

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. Government experts have been amazed by compelling in vitro results documenting its ability to induce a twenty-fold increase in sugar metabolism.

Studies in humans have proven just as impressive. In a recent double-blind, placebo-controlled clinical trial, a group of maturing individuals (average age 61) taking 500 mg per day of the cinnamon extract contained in the new CinSulin® formula experienced an average decline of 12 mg/dL in fasting blood glucose after only two months. This novel cinnamon extract also 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.

Combined with CinSulin® and InSea2™, the result is an unrivalled formula that affords optimal support for healthy glucose metabolism in aging individuals. The suggested serving of 1 vegetarian capsule of CinSulin® with InSea2™ and Crominex® 3+ taken 20-30 minutes before three meals of the day supplies:

<table>
<thead>
<tr>
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<tr>
<td>CinSulin®</td>
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<tr>
<td>InSea2™</td>
<td>300 mg</td>
</tr>
<tr>
<td>Chromium (as Crominex® 3+)</td>
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A bottle containing 90 vegetarian capsules of CinSulin® with InSea2™ and Crominex® 3+ retails for $38. If a member buys four bottles, the price is reduced to just $25.50 per bottle. Contains rice.

**To order CinSulin® with InSea2™ and Crominex® 3+ or Optimized Chromium with Crominex® 3+ call 1-800-544-4440 or visit www.LifeExtension.com**

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**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 eliminates 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 InSea2™ 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 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.

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+.

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.

*CinSulin® is a registered trademark of Tang-An Medical Ltd., manufactured under US patent #6,200,569. InSea2™ a trademark of innoVactiv™. Crominex® 3+ is a registered trademark of Natreon, Inc.

**References**

2. Phytomedicine. 2010 May 27.
18. Phytother Res. 2007 May;21(5):401-5.
Can Blueberry Extracts Halt Metabolic Syndrome?
The ability of blueberry polyphenols to combat diabetes first gained scientific validation over 80 years ago. This groundbreaking data appeared in mainstream medicine’s revered bastion of knowledge—the Journal of the American Medical Association (JAMA).

This landmark JAMA report published in 1927 revealed the ability of a specific blueberry extract to slash blood sugar levels. The totality of the evidence was so compelling, the author called it the one compound to date that came closest to curing diabetes.

Of course, the conventional physicians on JAMA’s editorial board saw fit to refute these findings. They argued that such extracts could not be standardized, dismissing the blueberry compounds under study as a “new and non-official remedy.” Mainstream doctors today persist in making similar pronouncements about natural interventions.

Life Extension® members know better.

In this article, you will discover up-to-date data vindicating blueberry polyphenols’ promise in combating the factors that result in deadly metabolic syndrome—the co-occurrence of insulin resistance, hypertension, abdominal obesity, and abnormal blood lipid profiles that increases the risk of heart disease and diabetes.

You will learn how blueberries may boost insulin sensitivity, lower LDL cholesterol and triglycerides, and improve leptin sensitivity, which has been associated with reduced appetite and lower body weight.

You’ll also discover the potential of blueberry polyphenols to halt the progress of the disease in humans who are already diabetic. Finally, detailed evidence is presented of the potential ability of blueberry extract to combat multiple forms of cancer—for which metabolic syndrome sufferers are at greater risk than the general population.2
In other words, the simple addition of concentrated blueberry polyphenols into the high-fat diet group blocked body fat accumulation.

The same held true for fasting glucose levels. The high-fat diet control group exhibited very high fasting glucose, whereas the high-fat group given blueberry extracts was found to have fasting glucose levels identical to the low-fat group. Blood levels of the hormone leptin, secreted by fat cells and sometimes called “the hunger hormone,” rose significantly in the high-fat diet group, while the blueberry-supplemented high-fat group showed lowered leptin levels. (Reduced blood leptin has been associated with reduced appetite and lower body weight.)

The authors added that blueberry juice did not prove as effective as blueberry extract in attaining these results.

A similar experimental model revealed normalization of elevated blood lipids—cholesterol and triglycerides in particular—in mice given a high-fat diet that were also fed blueberry extracts or whole blueberries. The experimental group fed blueberry extracts gained less weight and had lower body fat than animals fed the high-fat diet alone.

Researchers also noted in this study that they did not observe the same lipid-lowering effect in the group fed whole berries as opposed to purified berry extract.

Other scientists have corroborated these findings using an enriched blueberry juice with high antioxidant...
and polyphenol content. The experimental group whose drinking water contained this fortified blueberry juice ate less, weighed less, and had lower blood sugar levels than controls.

**A Potent Intervention in Pre-Diabetic Humans**

These remarkable results have prompted researchers to examine blueberry’s impact on blood lipid profiles, insulin sensitivity, and cardiovascular health in aging humans at risk for diabetes—or already diabetic. Some have identified a role for blueberry extracts in halting the progression to full-blown diabetes in at-risk or pre-diabetic individuals.

In a recent double-blind, placebo-controlled study, 32 obese, insulin-resistant (pre-diabetic) adult men and women drank smoothies made with freeze-dried blueberry powder for six weeks. A placebo control group consumed smoothies without blueberry extracts. Participants were carefully screened and counseled by dieticians both before and during the study to avoid eating other anthocyanin-rich foods or beverages. In another measure of the study’s rigor, participants were also instructed about ways to decrease caloric intake to compensate for the caloric energy load of their twice-daily smoothies. Further, blood samples were obtained following a fasting period with a clamp technique considered state-of-the-art for precise determination of insulin sensitivity. Besides measurements of body composition, weight, and adiposity, blood was also drawn for a host of inflammatory markers.

With no changes in body weight or composition compared to controls, the blueberry group showed a statistically significant and much greater improvement in *insulin sensitivity* (22.2% plus or minus 5.8%) versus the placebo arm (4.9% plus or minus 4.5%).

Another study examined 48 individuals afflicted with *metabolic syndrome*, the constellation of pathologies that includes high blood pressure, *central obesity* (around the abdomen), elevated blood glucose, insulin resistance, and unfavorable lipid profiles (high LDL cholesterol and triglycerides and low HDL cholesterol).

In this randomized, controlled trial, participants consumed a freeze-dried blueberry drink or an equal amount of fluids. After eight weeks, the blueberry group experienced greater decreases in systolic and diastolic blood pressure readings, compared with the control group. The test group also exhibited lower levels of *oxidized LDL* and other inflammatory markers associated with the metabolic syndrome.

**Blueberry Extracts and Metabolic Syndrome**

- Blueberry polyphenols’ power to combat diabetes first gained scientific validation in this country over 80 years ago in the *Journal of the American Medical Association*.
- As conventional medicine has ignored these findings ever since, researchers are confirming blueberry polyphenols’ role in targeting factors that contribute to metabolic syndrome.
- They have been shown to combat high blood sugar, obesity, adverse blood lipid profiles, insulin resistance, high blood pressure, and full-blown diabetes.
- Blueberry polyphenols have also emerged recently as potentially powerful anti-cancer agents—an important finding since those with metabolic syndrome are at much greater risk for a horrifically wide range of cancers than the general population.
Blueberry Extract Improves Pancreatic Cell Function

At the molecular level, researchers are discovering how berry polyphenols favorably influence the balancing act of energy needs fueled by sugar and the hyperglycemia that results from excess sugar in the bloodstream.

Scientists have zeroed in on blueberry anthocyanins, part of a vast group of more than 600 water-soluble phytochemicals that give many fruits and vegetables the deep blue, purple, red and near-black colors seen in vegetables such as radishes and fruits such as black raspberries and blueberries.

Anthocyanins comprise part of a larger class of plant pigments and flavone-derived plant products known as flavonoids. Both classes of phytochemicals are encompassed by the antioxidant supergroup known as polyphenols, carbon-containing organic compounds with a wide range of antioxidant, anti-inflammatory, and blood sugar-regulating actions.

In particular, in vitro studies carried out using cultured rodent pancreatic insulin-producing cell lines showed that delphinidin-3-glucoside, the pigmentary compound that gives blueberries their deep blue color, stimulated insulin secretion more than other tested anthocyanins. This means they may boost much-needed insulin production in pancreatic cells damaged by diabetes.

Blueberry Extract's Anti-Cancer Power

As detailed in the November 2010 issue of Life Extension Magazine, diabetics are predisposed to a horrifically wide array of cancers, including those of the breast, liver, colon, pancreas, endometrium (uterine lining), kidney, and possibly other tissues. Just as the anti-diabetic drug metformin has proven a potent anti-cancer agent, blueberry extracts are emerging as powerful chemopreventive interventions as well.

In vitro studies have revealed a host of anti-cancer properties shared by blueberry anthocyanins and other flavonoids found in brightly colored fruits and vegetables. Their biochemical structure enables them to powerfully neutralize reactive oxygen species (ROS). By inflicting damage to cell structure and DNA, ROS can induce the development of cancer in healthy cells. Using many different types of cancer cell lines in the laboratory, scientists have demonstrated anthocyanins' capacity to neutralize harmful ROS.

Researchers have discovered that blueberry anthocyanins combat cancer development in three distinct ways:

1. They inhibit the creation of new blood vessels essential to tumor growth (angiogenesis).
2. They impede the spread of tumor cells to different locations in the body (metastasis).
3. They stimulate cellular maturation, or differentiation, into less injurious or malignant forms.

Pre-clinical studies have confirmed these effects. Using experimental models of cancer, blueberry polyphenols display the ability to slow or inhibit tumor growth altogether. These include blocking esophageal cancer in rats using a mixed berry preparation, colon cancer inhibition in rats with pterostilbene, a constituent of blueberries, and protection from skin cancer—causing UVB ultraviolet radiation and DNA damage in mice skin.

In one animal experiment with direct relevance to human tumor biology, researchers devised a model to investigate a possible nutritional approach to a common type of tumor seen in infants known as endothelial cell neoplasms. A control group of mice was given injections of a cell line known to cause hemangioendothelioma, a type of skin tumor, and was fed orally with a standard liquid. Test mice injected with the same tumor-causing cell line also received a liquid feeding that contained a standardized blueberry extract.

After the test period, the investigators found dose-dependent smaller tumor size and enhanced survival in the blueberry extract–treated group compared to controls. That is, animals that received higher doses of blueberry extract had a greater reduction in tumor size than those that received lower doses. Molecular and biochemical assays showed less oxidative stress.
Rossi and colleagues used a detailed food-frequency questionnaire with US Department of Agriculture (USDA) nutrient and food-composition databases to extrapolate average intake of polyphenols, such as those found in blueberries and other fruits.

After comparing the dietary data of patient groups with tissue-confirmed tumors to matched controls admitted to the same hospitals for acute but non-cancerous conditions, Rossi and colleagues estimated an in extract-treated animals. They also observed greater antioxidant activity, inhibition of tumor-signaling pathways, and diminished proliferation of the type of blood vessel cells that lead to uncontrolled tumor growth.

Other studies have shown that blueberries and other anthocyanins have the ability to block the runaway growth of tumor cells in tissue culture. In particular, they induce apoptosis or programmed cell death. These studies show promise regarding blueberries’ ability to combat tumor growth in animal models of esophageal, colon, lung, and skin cancer.

### Chemoprevention in Humans

Given these promising findings, a multinational group of European researchers led by Marta Rossi of the Mario Negri Pharmacologic Research Institute in Milan, Italy, recently reported on polyphenols and other compounds found in blueberries and other fruits in relation to tumor risk. Using a similar study design, these researchers have compared relative risk for colorectal cancers in large patient groups with and without tumor growth in retrospective case-control studies.

**Diabetes: An American Scourge**

The Centers for Disease Control estimate that between one in three to one in five Americans between the ages of 18 and 79 will be diabetic by mid-century. This dramatic rise is expected to double or even triple the more than $174 billion spent on diabetic care in the US in 2007.

At the core of this raging epidemic is the complex interplay of adiposity, or increased body weight due to fat, and pools of inflammatory molecules (cytokines) generated by greater fat stores. Changes in cell-to-cell signaling and cellular integrity lead to insulin resistance, a condition marked by faulty transport of glucose, the sugar released into the circulation by the digestion of simple and complex sugars and carbohydrates.

Under normal conditions, glucose is taken up from the bloodstream and moved into the cytoplasmic interior of cells, where it is burned as fuel to provide energy for cellular processes.

In diabetics, glucose builds up in the blood as cells become unable to utilize sugar properly, leading to the state known as insulin resistance. Over time, the pancreas can no longer produce insulin in sufficient quantity to transport sugar into the insulin-resistant cells. Thus, later stages of the disease are marked by inadequate or near-zero pancreatic insulin production.

Insulin resistance is the hallmark of type 2 diabetes, which accounts for 90 to 95% of all cases diagnosed in the United States. Formerly known as noninsulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes, type 2 diabetes is increasingly seen in young adults and even children, which represents an epidemiologic shift that mirrors striking increases in overweight and obesity among youth over the last 35 years. End-stage organ damage occurs in the heart and blood vessels (cardiovascular diseases), kidney, eyes, skin, liver, and other vital structures.
The Close Relationship Between Metabolic Syndrome and Cancer

An estimated 24% of the US population suffers from metabolic syndrome,33 a constellation of risk factors including abdominal obesity, atherogenic dyslipidemia (high triglycerides, high LDL, and low HDL), elevated blood pressure, insulin resistance, a pro-inflammatory state, and a pro-thrombotic state.

Scientists have long known that metabolic syndrome increases the risks of diabetes and heart disease.33 Now, a growing body of research reveals that metabolic syndrome is closely linked with another deadly disease of aging—cancer.

A study published in late 2010 reveals that elevated triglycerides are linked with an increased risk of cancer in men and women. More than 500,000 adults were followed for an average of 13 years. Men with the highest triglyceride levels experienced an elevated risk for melanoma as well as cancers of the colon, respiratory tract, kidney, and thyroid. Elevated triglycerides increased the risk of respiratory, cervical, and non-melanoma skin cancers in women.34

Metabolic syndrome has been particularly closely linked with colorectal cancer.33 In both men and women, metabolic syndrome increases the risk of colon tumors.35

Not only does metabolic syndrome increase colon cancer risk, it also influences the prognosis of the disease. Patients with colorectal cancer who also have metabolic syndrome suffer from worse survival rates, compared with colorectal cancer patients who do not have metabolic syndrome.36

Scientists believe that the pathophysiological mechanisms linking metabolic syndrome and cancer include abdominal obesity, insulin resistance, elevated C-reactive protein (CRP), elevated body mass index, high levels of insulin-like growth factor-1, high leptin levels, and low adiponectin levels.33

odds ratio for cancer risk as a function of polyphenol intake. Using this method, the researchers concluded that the polyphenols found in blueberries and other fruits may exert a protective effect against these cancers.25,26

In laboratory and animal studies, blueberry extract has proven effective in fighting triple-negative human breast cancer cell lines, which are among the most aggressive forms of breast cancer. In the laboratory, blueberry extracts decreased cell signaling pathways involved in the spread of cancer. In an animal model of human breast cancer, blueberry extracts decreased tumor weight and proliferation, while increasing cancer cell death.27

The anti-cancer benefits of blueberries may arise from their potent antioxidant activity. When scientists assayed 25 fruits commonly consumed in the United States, they found that blueberries and other berries, along with pomegranates, demonstrated the highest cellular antioxidant activity. They proposed that increasing consumption of fruits such as blueberries may thus decrease oxidative stress, reducing the risk of cancer.28

Berry polyphenols have also demonstrated the ability to protect genomic DNA integrity, thereby preventing mutations that can lead to cancer. In addition to fighting oxygen free radicals, berry extracts demonstrate anti-angiogenic effects and inhibit the expression of nuclear factor-kappaB (NF-kB), a factor that turns on genes involved in inflammation and cancer.29

Summary

The power of blueberry polyphenols to combat diabetes first gained scientific validation in this country over 80 years ago in the Journal of the American Medical Association. Its author argued they were the closest thing to a “cure” for diabetes known to modern science at the time. Yet mainstream medicine has ignored this natural intervention. Recent research indicates a significant role for blueberry polyphenols in favorably altering the factors that contribute to metabolic syndrome: high blood sugar, abdominal obesity, adverse lipid profiles, insulin resistance, and high blood pressure. Given that metabolic syndrome sufferers are also predisposed to a broad range of cancers, it is both significant and encouraging that blueberry polyphenols have emerged recently as potentially powerful anti-cancer agents.

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

References


World’s Most Advanced
RESVERATROL Formula

In 2003, the Life Extension Foundation® introduced a standardized extract of resveratrol shown to favorably alter genes implicated in the aging process—many of the same genes that respond to calorie restriction or CR.

Since then, we have gone to extraordinary lengths to identify additional compounds that simulate calorie restriction’s ability to trigger youthful gene expression—the process by which genes transmit signals that slow certain aspects of aging.

For example, initial research funded by Life Extension showed that a combination of low-dose resveratrol plus grape seed extract induced many of the favorable gene expression changes observed in calorie-restricted animals.

We have since uncovered compelling evidence that certain compounds found in berries, such as pterostilbene and fisetin, also possess potent “longevity gene” activators that work in synergy with resveratrol. For example, fisetin (found in strawberries) has been shown to stabilize resveratrol in the body by shielding it from metabolic breakdown, thus extending its beneficial effects.

High-Potency Resveratrol with Synergistic Activators

Life Extension members gain access to standardized trans-resveratrol combined with plant extracts that favorably influence longevity gene expression. Unlike many commercial formulas, Life Extension standardizes to trans-resveratrol, which researchers contend is the most active constituent.

A bottle containing 60 vegetarian capsules of Optimized Resveratrol with Synergistic Grape-Berry Actives retails for $46. If a member buys four bottles, the price is reduced to just $31 per bottle. The suggested dose of one capsule a day provides:

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Contains yeast.

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

References

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Methylcobalamin is the form of vitamin B12 active in the central and peripheral nervous system. The liver may not convert the common form of vitamin B12 (cyanocobalamin) into adequate amounts of methylcobalamin needed for proper neuronal functioning.

Methylcobalamin has been shown to protect against glutamate-induced “excitotoxic” neuronal damage. For fastest absorption and utilization, hold lozenge in mouth until completely dissolved and then swallow.

The Life Extension Foundation® Buyers Club imports pharmaceutical-grade methylcobalamin, the neurologically active form of vitamin B12, at remarkably low prices. Methylcobalamin lozenges come in a good-tasting vanilla flavor.

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To order vanilla-flavored methylcobalamin lozenges, call 1-800-544-4440 or visit www.LifeExtension.com

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.
Defuse the Metabolic Time Bomb!

Ever since a landmark report was published in a prestigious medical journal back in 1927, researchers around the world have compiled impressive data on the power of berry extracts to support healthy metabolic function.

Today, the need for natural metabolic support is greater than ever as 24% of the US population faces a host of co-occurring health issues related to long-term carbohydrate exposure. And all of us are confronted with unavoidable age-related metabolic changes that can affect blood glucose, triglycerides, cholesterol, insulin, body weight, heart health—even normal cellular reproduction.

Broad-Spectrum Defense with Berry Extracts

To meet this urgent need, Life Extension has developed an integrated set of standardized, high-potency berry extract formulas—for unrivaled protection.

Specific polyphenols (plant-based compounds) found in blueberries, pomegranate and other brightly colored fruits—along with dark fruits like açai and blackcurrant—have been shown to provide broad-spectrum support for total metabolic health.

In addition to their extraordinary antioxidant capacity, compounds found in blueberries (including anthocyanins and pterostilbene) target multiple factors that support healthy utilization of carbohydrate calories. Taken together, published studies show that they promote:

- Glucose levels already within normal range
- Healthy body weight
- Insulin levels already within normal range
- Healthy DNA structure
- Blood lipids (triglycerides, cholesterol) already within normal range
- Youthful cellular function and reproduction
- Endothelial and vascular function
- Blood pressure already within normal range

Tailored Formulas to Meet Your Needs

Life Extension offers four comprehensive berry extract formulas to meet the varying dietary needs of aging individuals.

Berry Complete
“High-ORAC Complex”
30 vegetarian capsules
Retail: $21
Four-bottle Member Price: $14 ea.
Item #01206

Even if you’re getting your recommended five servings of fruits and vegetables each day, chances are you’re not getting enough of the beneficial anthocyanins and other polyphenols found in brightly colored and dark-skinned varieties. This value-priced formula contains standardized extracts from 17 of these seasonal fruits, vegetables, and legumes. Scientists measure the antioxidant potency of these and other foods using what’s called the ORAC index (Oxygen Radical Absorbance Capacity). The extracts contained in Berry Complete boast the highest ORAC values, ensuring maximum metabolic and antioxidant support. Just one capsule supplies the equivalent antioxidant potency of more than 50% of the daily recommended five servings of fruits and vegetables.

Contains soybeans and corn.

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.
For even greater phenolic and antioxidant potency, this formula includes RZD™ Açaí. The açaí berry ranks highest on the ORAC index of any known plant. Using a cutting-edge technology called Radiant Zone Drying™, Enhanced Berry Complete delivers the fullest possible polyphenolic and nutritional profile of açaí. Just one capsule supplies the equivalent antioxidant strength of more than 100% of the recommended five-per-day servings of fruits and vegetables. Contains soybeans and corn.

To augment the multiple benefits of blueberry extract, this formula includes a proprietary, standardized pomegranate extract called POMELLA. It is rich in punicalagins — polyphenols contained in pomegranate that have been shown to benefit arterial health through their power to support healthy endothelial function.47-49

AuroraBlue® Wildcrafted Blueberry Complex 100 mg [standardized to 30% punicalagins (60 mg)]

Each vegetable capsule of Blueberry Extract with Pomegranate provides:

| Wild Blueberry (Vaccinium angustifolium) extract (fruit) | 375 mg [standardized to 1.5% total anthocyanins (5.625 mg)] |
| POMELLA® Pomegranate (Punica granatum) extract (fruit) | 200 mg [standardized to 30% punicalagins (60 mg)] |
| AuroraBlue® Wildcrafted Blueberry Complex | 100 mg |
| Wild Blueberry (Vaccinium angustifolium) extract (fruit) | 75 mg [standardized to 4.9% total anthocyanins (3.675 mg)] |

NOTE: Life Extension®’s Cognitex with NeuroProtection Complex, with or without pregnenolone, also contains a standardized wild blueberry anthocyanin extract.

**Blueberry Extract with Pomegranate**

60 Vegetarian Capsules
Retail: $20.25 ea.

**Blueberry Extract**

60 Vegetarian Capsules
Retail: $22.50

To order any of these HIGH-POTENCY BERRY EXTRACT FORMULAS, call 1-800-544-4440 or visit www.LifeExtension.com

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.
With all the medical and media attention given to depression over the past two decades, another equally commonplace condition has been widely overlooked: anxiety disorder.

This is all the more remarkable when you consider the amount of pressure so many of us face in our daily lives. In today’s hectic, fast-paced, stressful world, you would think anxiety-related disorders would pose a far greater threat to our society than depression. And it turns out you’d be right.

According to the National Institute of Mental Health, 40 million American adults, or about 18.1% of people in this age group in any given year, suffer from some form of anxiety disorder.* By comparison, only 14.8 million American adults, or about 6.7% of the US adult population, suffer from major depression.*†

In other words, the number of adults in this country currently suffering from some form of anxiety disorder is almost three times the number of people stricken with major depression.

This is not to diminish the problem of depression. In fact, anxiety disorders frequently co-occur with depressive disorders or substance abuse.* And most people who suffer from one type of anxiety disorder also have another type of anxiety disorder, which is what makes the information you’re about to learn so timely, relevant, and valuable.

As many clinicians will tell you, the range of drugs available to effectively treat anxiety remains relatively limited. Many are potentially addictive and lose efficacy over time, like the benzodiazepines Valium®, Xanax®, and Klonopin®. Others come with a host of undesirable side effects, including dry mouth, cognitive or memory impairment, and loss of sex drive.

Pioneering and visionary psychiatrist Dr. Henry Emmons—first profiled in Life Extension Magazine® over three years ago—has remained at the forefront in identifying natural interventions to restore calm in the face of stress, with minimal side effects.

In this exclusive excerpt from his most recent work, The Chemistry of Calm, Dr. Emmons presents a comprehensive set of natural compounds, along with recommended dosages and regimens, to effectively combat the hidden scourge of anxiety disorder.

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Using medications to try to improve brain chemistry can offer relief, at least in the short term. But medications do not restore normal levels of neurotransmitters, nor even promote normal function. They manipulate the brain chemistry to achieve their desired effects.

SSRIs, for example, prevent the reuptake (or recycling) of serotonin from the space between the nerve cells (the synapse). This allows the chemical to remain in the area of activity for a longer period of time. And the benzodiazepines, such as Valium, Ativan, and Xanax®, work by stimulating the GABA receptors, thus mimicking the calming effects of GABA in the brain.

With time, the brain accommodates to medications and they often lose their effectiveness, requiring higher doses or different drugs. When you try to stop them, there are frequently withdrawal symptoms that feel worse than the original problem.

When the brain produces a neurotransmitter, it starts with a raw ingredient, usually an amino acid from the diet or another chemical that is already present in the brain. Enzymes are then used to convert the amino acid into the needed brain chemical. By understanding this process in detail, we can take measures to assure an ample supply of the raw ingredients and also enhance the activity of the enzymes. There are various cofactors, for example, that help the enzymes work faster (e.g., the B vitamins).

Understanding the function of nutrients allows for more subtle and natural interventions than standard medical practice, and if they are taken appropriately, I believe that they can work better and have fewer side effects than medication.

<table>
<thead>
<tr>
<th>Brain Chemical</th>
<th>Role in the Fear Circuitry</th>
<th>Nutritional Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glutamate, the excitatory chemical</td>
<td>Heightens overall brain activity</td>
<td>Taurine, NAC, green tea, vitamin D3, magnesium, omega-3s</td>
</tr>
<tr>
<td>GABA, the inhibitory chemical</td>
<td>Slows overall brain activity</td>
<td>GABA, L-theanine, taurine, vitamin B6, zinc, inositol, herbal therapies</td>
</tr>
<tr>
<td>Norepinephrine, the arousal chemical</td>
<td>Raises level of alertness</td>
<td>L-theanine, NAC, omega-3s, inositol</td>
</tr>
<tr>
<td>Dopamine, the reward chemical</td>
<td>Focuses attention and enhances pleasure and reward</td>
<td>L-theanine, B vitamins, omega-3s, St. John’s wort, ginkgo</td>
</tr>
<tr>
<td>Serotonin, the soothing chemical</td>
<td>Calms, regulates sleep and appetite, protects against stress</td>
<td>Tryptophan/5-HTP, DHEA, folic acid, vitamin B6, vitamin B12, vitamin D, omega-3s, St. John’s wort</td>
</tr>
<tr>
<td>CRH/cortisol, the stress hormone</td>
<td>Prolonged elevation leads to fat storage, insulin resistance, degenerative brain disorders, memory loss, inflammation</td>
<td>DHEA, B vitamins, antioxidants, herbal adaptogens</td>
</tr>
</tbody>
</table>
The Talking Brain

The neurotransmitters are chemicals that enable the different parts of the brain to stay in touch with one another and coordinate their roles. The table below summarizes the key players in the fear circuitry, what they do, and how to support them nutritionally.

Calm Yourself: Glutamate and GABA

Our bodies are truly elegant in their design, and this is especially apparent with brain function. One common element of this design is a binary system, wherein one chemical activates a process while its partner turns it off again. That is true of the brain chemicals glutamate and GABA, which together account for over 80 percent of brain activity. Glutamate accelerates brain activity—it is excitatory. GABA, on the other hand, puts the brakes on brain activity—it is inhibitory. Together, they keep the brain humming along at just the right pace—not too fast, not too slow.

If you have developed anxiety, then you know that your balance of these two chemicals has been thrown off and the brain’s activity level is turned up too high, at least in some areas of the brain.

The balancing supplements for glutamate and GABA include the amino acids taurine, GABA, and L-theanine; the antioxidants NAC and green tea; vitamins B6 and D; the minerals magnesium and zinc; omega-3 fatty acids; and several herbal therapies.

How Do You Know if Glutamate and GABA Are Imbalanced?

Remember that all of these chemicals are necessary and even beneficial when they are in balance and working properly. But it is possible to have too much glutamate for your own good. If it becomes truly excessive, then the overactivation that results can become outright dangerous to the cells. Glutamate then changes from being simply excitatory to becoming excitotoxic, and this may result in the premature death of the cell. This process may be related to the later development of neurodegenerative diseases such as Alzheimer’s or Parkinson’s disease. This is not a good state for your brain to be in for very long.

Additionally, your GABA levels may have fallen too low so that there is not enough inhibition to keep glutamate in check. Like a car that has lost its brake fluid, you may have lost the ability to slow things down. To remedy this imbalance, we can find ways to either reduce the effects of glutamate, enhance the activity of GABA, or both.

The balancing supplements for glutamate and GABA include the amino acids taurine, GABA, and L-theanine; the antioxidants NAC and green tea; vitamins B6 and D; the minerals magnesium and zinc; omega-3 fatty acids; and several herbal therapies.

Disarm Yourself: Reduce Norepinephrine

Norepinephrine raises our level of alertness and arousal. That is well and good if you’re doing something like hunting or evading capture, but not helpful if you are speaking in front of a group or if you have developed panic anxiety for any reason. With depression there is often too little norepinephrine, but in anxiety it is frequently elevated and needs to be toned down.

At an emotional level, you may feel panicky, as if something awful is about to happen. And mentally, your mind may go blank as you find that you can’t think clearly or remember things, no matter how hard you try.
You can tone down the effects of norepinephrine by taking the amino acid L-theanine, the antioxidant NAC, inositol, and the omega-3 fatty acids. You should also avoid caffeine.

**Reward Yourself: Balance Dopamine**

The effects of dopamine are more complex than those of norepinephrine, at least in regard to anxiety. In some ways, they have a similar function. Both tend to be energizing and aid in mental focus and concentration. Both can aggravate anxiety when levels are too high. But dopamine has some beneficial effects against anxiety as well, such as improving motivation and the experience of pleasure. Unless dopamine becomes really excessive, your anxiety may improve if you gently boost your dopamine levels.

Signs of dopamine deficiency include feeling apathetic and fatigued, difficulty losing weight, feeling unmotivated (as with exercise), low sex drive, and general difficulty getting pleasure from things. If you have these signs along with anxiety, consider taking these measures to boost dopamine function: B vitamins, omega-3 fatty acids, L-theanine.

**Soothe Yourself: Boost Serotonin**

Nearly everyone feels better when their serotonin levels are optimal. It has such a wide array of functions, involved with everything from sleep to appetite to impulse control to sexual desire. It is the brain chemical that helps soothe us when we feel stressed or threatened, and it offers considerable protection to the brain against the damaging effects of cortisol.

Because it is such a key brain chemical, the signs of serotonin depletion are many: insomnia (or irregular circadian rhythms); craving sweets and other carbohydrates; frequent muscle aches and pains; impulsive behaviors; moodiness, especially sadness, anxiety, and irritability; feeling emotionally sensitive or vulnerable; feeling insecure, lacking self-confidence; and low stress tolerance.

Most people with anxiety, especially if their mood is low as well, may benefit by boosting their serotonin levels. Consider taking the following supplements: the amino acid L-tryptophan or the related precursor 5-HTP, the hormone DHEA, the B vitamins and vitamin D, and omega-3 fats.

**Protect Yourself: Take the Sting Out of Cortisol**

Do you long for a stress-free life? Do you wish that your stress hormones would go away and not come back? Actually, you wouldn’t want either of these, any more than you would want a life without pain. No one wants to be in pain all the time, but to be unable to feel pain at all creates a nightmare of its own. Likewise, if you were unable to mount a stress response, if your body suddenly became unable to produce the stress hormones, your physiology would collapse.

Stress is not the problem. It is unremitting stress and a constantly elevated level of cortisol that create the problems. The consequences can be severe. If it goes unchecked, elevated cortisol may cause weight gain, insulin resistance, or even type 2 diabetes; elevated blood pressure and coronary artery disease; memory problems and possibly dementia and other neurodegenerative diseases; and immune system problems, which may impair your body’s ability to fend off diseases of all types, including autoimmune disorders and even cancers.3

It is crucial to protect yourself with some of the following supplements: the steroid hormone DHEA, which tones down the effects of cortisol; the B vitamins, which help keep homocysteine (a harmful
amino acid associated with heart disease, depression, and anxiety) in check; antioxidants; and herbal adaptogens such as rhodiola. (See sidebar on page 46.)

### The Therapeutic Supplements

In addition to the basic supplements (see table on page 47), there are several therapeutic supplements, summarized in the table above.

I consider these supplements to be medicinal, with stronger therapeutic effects than the basic supplements. I’ve listed them roughly in the order in which I recommend them for the treatment of anxiety, with my first choices listed at the top.

If you are taking medication already, be sure to talk with your doctor before adding any of the supplements from these categories. And if you are considering going off medication, remember never to stop your medication suddenly—always consult with your doctor about how to safely taper off any psychiatric medication.

#### L-theanine

L-theanine is an amino acid found in high concentrations in green tea. But you would have to consume an awful lot of it to get a therapeutic dose of theanine. You can get more by taking a green tea extract, but you can also take a supplement containing L-theanine alone, or in combination with other calming agents.

Researchers have found that it changes brain waves as measured on EEG, promoting the relaxed and alert state associated with alpha waves. That makes it unusual because it can sharpen mental focus and calm anxiety at the same time.

L-theanine is one of my most common treatments for anxiety and may help any of the seven types of anxiety. It is usually taken in doses from 50 to 200 mg once or twice daily. For severe anxiety, it may be taken three or four times per day. It is not habit-forming like so many anti-anxiety medications. There are no known drug interactions, but I recommend talking to your doctor about how to safely taper off any psychiatric medication.

#### 5-HTP

While 5-HTP can also help sleep, it may be used during the daytime as well because it is not usually sedating. Considerable research has shown that 5-HTP can reduce anxiety, both general and panic, as well as improve mood.

If you are already taking an SSRI, do not take 5-HTP without consulting your prescribing physician.

I usually recommend a starting dose of 50 mg daily, increasing every few days as tolerated. Most people do well with 100–150 mg daily, but the dose may safely go as high as 300 mg per day if needed. It is usually best to take it divided into two or three doses throughout the day, but if it is sedating it may all be taken at night. However, a small number of people actually have trouble sleeping from 5-HTP, and should then take it early in the day.

It may be best absorbed if taken half an hour before meals, and that can also reduce carbohydrate cravings.

<table>
<thead>
<tr>
<th>Supplement</th>
<th>Typical Dosage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-theanine</td>
<td>100–200 mg twice daily.</td>
<td>Found in green tea; can be both calming and focusing.</td>
</tr>
<tr>
<td>5-HTP</td>
<td>50–100 mg up to three times daily.</td>
<td>Boosts serotonin. Helps anxiety and depression.</td>
</tr>
<tr>
<td>NAC</td>
<td>600 mg up to three or four times daily.</td>
<td>A potent antioxidant; recently shown to treat OCD.</td>
</tr>
<tr>
<td>Taurine</td>
<td>500 mg once or twice daily.</td>
<td>Improves glutamate/GABA function.</td>
</tr>
<tr>
<td>Inositol</td>
<td>500–1,000 mg two to three times daily (studies use 12–18 g per day).</td>
<td>Often considered a B vitamin, it can effectively treat panic, OCD, and phobic anxiety.</td>
</tr>
<tr>
<td>GABA</td>
<td>250–750 mg up to three times daily.</td>
<td>Does not cross easily into the brain, so other measures may have more effect on GABA.</td>
</tr>
<tr>
<td>DHEA</td>
<td>5–10 mg daily, up to 50 mg daily.</td>
<td>Get levels tested before taking.</td>
</tr>
</tbody>
</table>
for people who have them. But if that is a hassle or causes stomach upset, it is fine to take it with meals.

**Editor’s note:** Many people prefer using tryptophan combined with its essential cofactors lysine and niacinamide in lieu of 5-HTP. Tryptophan is better able to remain stable in the blood and cross the blood-brain barrier, where it is converted to serotonin. If 5-HTP converts to serotonin in the blood, this serotonin will not cross the blood-brain barrier.

**NAC**

NAC is short for N-acetyl cysteine. It has been used for years in emergency rooms for patients who are at risk for liver damage from something they have ingested (such as the common pain medication acetaminophen). It protects the liver for the same reason it protects the brain: it works as a powerful antioxidant, boosting levels of the body’s own primary antioxidant—glutathione.

As researchers have realized the connection between glutamate/GABA balance and anxiety conditions, they have begun experimenting with NAC. Recently, it has been used with one of the most complex anxiety illnesses—the spectrum of compulsive disorders (including OCD). Remarkably, researchers have found that this simple and inexpensive nutritional supplement works for such hard-to-treat problems as pathological gambling and compulsive hair-pulling (trichotillomania).6 Researchers at Yale are now conducting a placebo-controlled trial with patients whose OCD symptoms have not improved with other treatments.7

**Tonic Herb: Rhodiola**

A group of herbs known as herbal adaptogens or tonic herbs have long been used to strengthen immunity, improve energy, and enhance the body’s ability to handle stress. My favorite for someone with stress, anxiety, or even depression is *Rhodiola rosea*, also known as arctic root.

Traditionally, rhodiola has been used to improve energy and mental focus, but recent studies have looked at its benefits with anxiety and depression.11 A small study done at UCLA in 2008 showed that participants with general anxiety improved greatly on rhodiola, with minimal side effects.12 It may work by improving serotonin and dopamine levels and countering the effects of cortisol.13

Look for an extract standardized to at least 3 percent rosavins and about 1 percent salidrosides. A typical dosage is 100–250 mg twice daily, with breakfast and dinner. While it usually improves anxiety and even sleep, it is usually best not to take it just before bedtime. If it feels energizing, take it early in the day, with breakfast and lunch.

**Editor’s Note:** While it is generally considered safe for long-term use and is not known to interact with medications, rhodiola is contraindicated for individuals with bipolar disorder. Individuals diagnosed as bipolar, or who have a family history of bipolar disorder, should consult with a psychiatrist before taking rhodiola.

NAC typically comes in a dose of 600 mg and may be taken **two or three times daily**. Some of my patients have had mild headaches or stomach upset, but it is generally well tolerated, especially if you take it with food.

**Taurine**

Taurine is an amino acid that increases glycine and GABA to calm the brain, and it also protects the brain by reducing the harmful effects of excess glutamate.8 You may be familiar with it, as it is added to some of the popular energy drinks such as Red Bull. Apparently the manufacturers see it as a means of further supporting someone during periods of extreme exertion, when taurine levels can become depleted. I don’t recommend replenishing it through energy drinks, but you may calm your brain if you boost your taurine levels in safer ways.
Researchers found inositol to be just as effective as a popular antidepressant for panic disorder, and participants tolerated it well even at massive doses up to 18 grams per day. Inositol is often recommended at a dose of about 1,500 mg daily, though in studies it has been used at much higher doses. Its side effects are mild, including occasional nausea or diarrhea, dizziness, fatigue, and headache. There has been a report of inositol worsening bipolar disorder, and I do not recommend it if you have that condition.
GABA

GABA has already been discussed as the neurotransmitter most responsible for calming down an overactive brain, and it is available as a nutritional supplement without prescription. Then why isn’t it higher on my list of recommendations? If you take it by mouth, most of it gets broken down before it gets to the brain, so it is not as useful as you might think. Still, a portion of it does appear to get into the brain, and some of GABA’s calming effects may occur in the rest of the body, as with muscle relaxation. It has been shown in human studies to help create a relaxed alpha brain wave pattern even more effectively than L-theanine, and also to boost immune function in individuals who were subjected to stress.10

GABA may be taken in doses as small as 100 mg twice daily, up to 750 mg three times per day. If drowsiness occurs, take it just at bedtime.

DHEA

Dehydroepiandrosterone or DHEA is a steroid hormone produced in the adrenal glands, where cortisol and adrenaline are also made. It can be converted into testosterone and estrogen, and levels of DHEA are higher in men than in women. More and more physicians are recommending it, particularly in midlife or beyond, when DHEA levels drop below normal. Some clinicians recommend doses up to 50 mg or more. Levels can be monitored to be sure it doesn’t get too high.

References

Since Life Extension® introduced CoQ10 in 1983, our scientists have continued to develop increased potency and absorbability. 

**Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™** contains PrimaVie® shilajit which doubles levels of CoQ10 in the mitochondria.¹

Combining CoQ10 and shilajit produced a 56% increase in cellular energy production in the brain, and in muscle there was a 144% increase in cellular energy production.²

Shilajit boosts CoQ10’s beneficial effects by stabilizing CoQ10 in the superior ubiquinol form, which prolongs its action at the cellular level.³,⁴ Additionally, shilajit facilitates the more efficient delivery of CoQ10 into the mitochondria, which results in enhanced cellular energy.⁵-⁹

Shilajit helps the mitochondria convert fats and sugars into the body’s main source of energy, ATP (adenosine triphosphate).⁵-⁹

**Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™**

Combining ubiquinol CoQ10 with shilajit generates a powerful synergy that supports more youthful cellular energy production than CoQ10 alone.²,⁴,⁵

References:

PrimaVie® is a registered trademark of Natreon, Inc. Kaneka QH® is a registered trademark of Kaneka Corporation.
In Germany, doctors are recommending a natural extract from the herb butterbur to those who suffer from regular episodes of head cavity discomfort. In clinical trials in both Germany and the United States, butterbur reduced the incidence of head cavity discomforts by up to 61%.1,2

Butterbur’s principal active constituent, petasin, reduces smooth muscle spasms and helps relax the constriction of cerebral blood vessels. Butterbur’s ability to relax constricted arteries and smooth muscle may help control head cavity discomfort.

Life Extension’s Migra-Eeze™ contains butterbur root extract standardized to provide 22.5 mg of petasins with each daily dose of two softgels. Riboflavin (vitamin B2) and ginger are included based on the ability of these nutrients to exert functional changes that may also guard against head cavity discomforts.

It is recommended that two softgels of Migra-Eeze™ be taken every day. Two softgels supply:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butterbur (Petasites hybridus) CO₂ Extract (root) [standardized to 15% petasins (22.5 mg)]</td>
<td>150 mg</td>
</tr>
<tr>
<td>Riboflavin</td>
<td>380 mg</td>
</tr>
<tr>
<td>Riboflavin (as riboflavin 5’ phosphate)</td>
<td>20 mg</td>
</tr>
<tr>
<td>Ginger (Zingiber officinale) Extract (root) [standardized to 5% gingerols (12.5 mg)]</td>
<td>250 mg</td>
</tr>
</tbody>
</table>

A 60-softgel bottle of Migra-Eeze™ retails for $29.50. If a member buys four bottles, the cost is reduced to just $19.75 per bottle—a savings of 33%!

Contains soybeans.

References
**Experience Tranquility**

**Overstressed? Anxious? Losing sleep?**
Left unchecked, the inner turmoil created by these issues can lead to heart palpitations, muscle weakness, headaches, and even increased blood pressure. You need to take action to halt these symptoms immediately.

Fortunately, Life Extension® has created Natural Stress Relief, a calming formula made with lemon balm and L-theanine, two ingredients clinically proven to help with anxiety, insomnia, and overall mood.1,2

The Cyracos® lemon balm extract used in this product is prepared from a special lemon balm chosen for its high concentrations of hydroxycinnamic and rosmarinic acids. These potent constituents may be mood enhancers that relieve everyday stress and alleviate sleep problems.1

L-theanine, an amino acid derived from green tea, is a natural relaxant that has been used by the Japanese for years. Those who have taken L-theanine compare it to a massage, meditation session, and aromatherapy rolled into one.2

Based on a tremendous amount of published data, Life Extension® combined these two ingredients with the idea of providing the ultimate calming experience. Try it today.

Each vegetarian capsule of Natural Stress Relief provides:

- 300 mg of Cyracos® lemon balm extract
- 200 mg of Suntheanine® L-Theanine

Note that the amount of L-theanine in this product is double that of most L-theanine stand-alone supplements. The reason for this potency increase is reports of greater benefit when at least 200 mg of L-theanine are taken.

The retail price of a 30 count bottle of Natural Stress Relief is $28. If a member buys four bottles, the price of this potent stress-relieving formula is reduced to just $18 per bottle.

**References:**

Contains rice.

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

According to the American Cancer Society,\(^1\) one out of every three women in the United States risks developing some form of cancer over the course of their lives. For men, that number rises to one in two. Since cancer is an age-related disease, the risk of diagnosis increases the longer one lives, making it the second leading cause of death in this country.\(^2,3\)

These data underscore a stark reality. When it comes to cancer prevention, the medical establishment and drug company profiteers remain grossly negligent in protecting the public. The result is countless avoidable cancer deaths each year. There is an urgent need to provide aging individuals with validated interventions to target cancer’s multiple causative factors before they take hold.

Among the most compelling and underrecognized of these is curcumin. In contrast to mainstream oncology’s focus on single-agent toxic treatments, curcumin has emerged as a potent multimodal cancer-preventing agent, with 240 published studies appearing in the global scientific literature in the past year alone.

In this article, you will learn of the multiple factors involved in carcinogenesis (cancer development). You will discover up-to-date research demonstrating curcumin’s power to disrupt specific molecular mechanisms that lead to cancer—and to even treat the disease in many cases. \(>\)
How Curcumin Protects Against Cancer

Curcumin is derived from the Indian spice turmeric and possesses several active components, all of which contribute to its anti-inflammatory and chemopreventive power.\(^6\) In fact, curcumin targets ten causative factors involved in cancer development.

Disrupting any one of these factors gives you a good chance of preventing cancer; disrupting several provides even greater protection, including the prevention of DNA damage.\(^7\)

By blocking the inflammatory master molecule nuclear factor-kappaB (or NF-kB), curcumin blunts cancer-causing inflammation, slashing levels of inflammatory cytokines throughout the body.\(^8,9\)

Curcumin also interferes with production of dangerous advanced glycation end products that trigger inflammation which can lead to cancerous mutation.\(^10\)

Curcumin alters cellular signaling to enhance healthy control over cellular replication, which tightly regulates the cellular reproductive cycle, helping to stop uncontrolled proliferation of new tissue in tumors.\(^11\) It promotes apoptosis in rapidly reproducing cancer cells without affecting healthy tissue\(^11-13\) and reins in tumor growth by making tumors more vulnerable to pharmacologic cell-killing treatments.\(^11,14\)

In addition, curcumin regulates tumor suppressor pathways and triggers mitochondrial-mediated death in tumor tissue, thereby increasing the death of cancer cells.\(^11,15\)

Finally, curcumin interferes with tumor invasiveness and blocks molecules that would otherwise open pathways to penetration of tissue.\(^2\) It also helps to starve tumors of their vital blood supply and it can oppose many of the processes that permit metastases to spread.\(^8,16,17\) These multi-targeted actions are central to curcumin’s capacity to block multiple forms of cancer before they manifest.

System-Wide, Safe, Multimodal Defense

In human cancer patients, curcumin doses as high as \(3,600 \text{ mg}\) a day have been shown to induce the following favorable anti-cancer effects:

- **Paraptosis.** A process similar to apoptosis (programmed cell death), curcumin initiates paraptosis only in breast cancer cells, resulting in their rapid destruction.\(^22\)

- **Targeted destruction of cancer-cell mitochondria** (leaving mitochondria in healthy cells unaffected).\(^22\)

- **Disruption of the cancer cell cycle.** Curcumin can “suspend” cancerous cells in a non-reproductive state within their life cycle, thereby halting their replication.\(^20,23-25\)

- **Cancer cell downregulation.** Curcumin blocks a group of molecules vital to the process of metastasis. In animal models, it has been shown to reduce metastatic spread to the lungs via this pathway.\(^17,26,27\)

- ** Arrested stem cell development.** Curcumin inhibits growth and renewal of so-called cancer stem cells, aberrant cells now believed to be at the root of many cancers, including breast cancer.\(^3,28\)
Curcumin has also been shown to effectively combat cervical cancer, a leading cause of cancer death in women in developing nations and a common cancer in this country.\textsuperscript{29} It is caused largely by infection with the human papilloma virus, or HPV. Curcumin’s anti-inflammatory effects break the link that triggers HPV-induced cancer development.\textsuperscript{29,30}

Curcumin further promotes apoptosis of cancer cells within the lining of the uterus and reduces the growth rate of painful but non-malignant uterine leiomyomas (uterine fibroids).\textsuperscript{31-34} Collectively, these effects make curcumin attractive both as a primary chemopreventive agent in women at risk for breast cancer and an adjuvant treatment option in those who have already developed the disease.\textsuperscript{20,21}

**Prostate Cancer Defense**

Prostate cancer is the second leading cause of cancer death in American men.\textsuperscript{35,44} Fortunately, its long latency period and slow growth rate make it a prime candidate for prevention.\textsuperscript{36} Curcumin strikes at multiple targets in prostate malignancies, interfering with the spread of cancer cells and regulating inflammatory responses through the master regulator NF-κB.\textsuperscript{36-38}

Like certain breast cancers, prostate cancer is often dependent on sex hormones for its growth. Curcumin reduces expression of sex hormone receptors in the prostate, which speeds androgenic breakdown and impairs cancer cells’ ability to respond to the effects of testosterone.\textsuperscript{39-42} It also inhibits cancer initiation and promotion\textsuperscript{43} by blocking metastases from forming in the prostate and regulating enzymes required for tissue invasiveness.\textsuperscript{44}

**Combating Gastrointestinal Cancers**

Colorectal cancer is the third most common malignancy in adults and the second leading cause of cancer deaths.\textsuperscript{45,46} Despite aggressive surgical care and chemotherapy, nearly 50% of people with colorectal cancers develop recurrent tumors.\textsuperscript{47} This may be due in part to the survival of dangerous colon cancer stem cells that resist conventional chemotherapy and act as “seeds” for subsequent cancers.\textsuperscript{3,48,49}

On the other hand, these cancers are excellent candidates for prevention, since they follow a predictable sequence from non-malignant polyps to full-blown cancerous growths, usually requiring a decade to develop.\textsuperscript{46}

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**Multimodal Anti-Cancer Power of Curcumin**

- Curcumin has emerged as a potent cancer-preventing agent, with 240 published studies appearing in the global scientific literature in the past year alone.
- Its multimodal effects act to simultaneously counter ten discrete causative factors in cancer development.
- It intervenes at each stage in the complex sequence of events that enable cancer cells to develop, proliferate, and metastasize.
- Its multitargeted mechanisms of action have yielded compelling results in combating a remarkably broad array of cancers, including those of the breast, uterus, cervix, prostate, and GI tract.
- A blossoming body of research reveals curcumin’s promise in countering cancers of the blood, brain, lung, and bladder as well.
Much as with malignancies of the breast, cervix, and prostate, curcumin slows the progression from colon polyp to cancer by damping down the inflammatory cascade triggered by NF-kB and pro-inflammatory cytokines. This halts the growth of cancer cells before they can become detectable tumors via a host of interrelated molecular mechanisms.

Curcumin also creates a gastrointestinal environment more favorable to optimal colon health by reducing levels of so-called secondary bile acids, natural secretions that contribute to colon cancer risk. That has a direct effect, inhibiting proliferation of cancer cells and further reducing their production.

Curcumin also suppresses colon cancer when combined with other polyphenols such as resveratrol. The combination of curcumin with green tea extracts has prevented experimentally induced colon cancer in rats.

Curcumin also synergizes with standard chemotherapy drugs, helping to boost their efficacy and potentially reduce the dose of toxic chemotherapy products, minimizing needless harm and suffering for cancer patients. Curcumin increases colon cancer cell response to radiation.

A novel feature of curcumin is its ability to bind to and activate vitamin D receptors in colon cells. Vitamin D is known to exert potent anti-cancer properties.

Curcumin is equally powerful at preventing cancers in the stomach. It inhibits growth and proliferation of human gastric cancer cells in the laboratory and is particularly effective in stopping cancers that have become resistant to multiple drug treatment. Curcumin can prevent gastric cancer cells from progressing through their growth cycle, blocking further tumor growth.

Infection with the bacterium Helicobacter pylori (H. pylori) is a known cause of gastritis, peptic ulcer, and gastric cancer. Curcumin blocks growth of H. pylori and reduces the rate at which stomach cells react by turning cancerous. This effect is again related to curcumin’s fundamental ability to block activation of inflammatory NF-kB.

Further Preventive Potential

Curcumin’s anti-inflammatory, antioxidant, and gene-regulating powers have been explored in preventing or treating cancers of the blood-forming system (leukemias, lymphomas, and myelomas) as well as those of the brain, lung, and bladder. Even aggressive tumors of the head and neck, often following years of smoking, are proving responsive to curcumin treatment. Curcumin is also emerging as a potentially effective intervention for pancreatic cancer—one of cancer’s most lethal and aggressive forms.
Ten Key Causative Factors in Cancer Development

More than many other age-related diseases, cancer results from the cumulative effect of years of discrete, small-scale assaults on the body. Oxidation, inflammation, stress, infection, and other physiological insults take their toll, inflicting lethal damage over time that sets abnormal cell proliferation in motion.91,92

1. **DNA damage.** Numerous biomolecular assaults strike at the “blueprint” that cells need in order to replicate themselves accurately. DNA damage is often referred to as the “initiator” in cancer development—the first step in the onset of most cancers.

2. **Excessive or chronic inflammation.** Inflammatory processes trigger the release of a host of disruptive cytokines (cell-signaling molecules) that affect virtually all cellular functions. Inflammation is commonly referred to as a cancer “promoter” for this reason.

3. **Disruption of cell signaling pathways.** Normal communication within and between cells assures proper regulation of their healthy function. These pathways are easily disrupted by adverse events such as inflammation.

4. **Alterations in the cellular reproductive cycle.** Cells undergo a four-stage process as they prepare to replicate themselves. The cell cycle itself is controlled by signaling pathways that can be altered or disrupted at each of these stages.

5. **Abnormal regulation of apoptosis.** Apoptosis is the process of naturally “pre-programmed” cell death that prevents overgrowth of tissue. When apoptosis fails, cells may undergo uncontrolled reproduction.

6. **Altered survival pathways.** The flip side of unregulated apoptosis: survival of too many healthy cells, paradoxically, can endanger the host by permitting a cancer to take hold by increasing the odds of mutation and proliferation.

7. **Excessive cellular proliferation.** Certain hormones and other stimuli can directly trigger cells to reproduce without safe limits, especially when the preceding regulatory mechanisms have failed.

8. **Aggressive invasion of healthy tissue.** This is accomplished by excessive production of enzymes and adhesion molecules that “dissolve” tissue and allow the tumor to literally take root. The word “cancer” itself is derived from the crab-like appearance of fully-developed malignancies, which extend tendrils in all directions into healthy tissue.

9. **Rapid angiogenesis.** Tumors require growth of new blood vessels for nourishment. They are endowed with the capacity to spontaneously generate new blood vessels just like healthy tissue. Angiogenesis in cancer tissue is a primary means by which tumors grow.

10. **Metastasis.** This is the migration of cancerous cells to regions of the body beyond the locus of the primary tumor. Metastases are the distinguishing features of most malignant cancers, and the typically herald the onset of end-stage disease because they disrupt otherwise healthy tissues.

**Summary**

Cancer is the second leading cause of death in the US, and the risk of developing the disease increases significantly as we age.

Curcumin has emerged as a potent cancer-preventing agent, with 240 published studies appearing in the global scientific literature in the past year. Curcumin’s multimodal effects act to simultaneously counter ten discrete causative factors in cancer development.

It intervenes at each stage in the complex sequence of events that must occur in order for a cancer to develop, progress, invade, and ultimately metastasize to healthy tissue.

The multi-targeted mechanisms of curcumin have yielded compelling results in combating a remarkably
broad array of cancers, including those of the breast, uterus, cervix, prostate, and GI tract. A burgeoning body of research demonstrates curcumin’s potential to counter cancers of the blood, brain, lung, and bladder as well.

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

References


Sweet DREAMS

Choose the Melatonin That’s Right For You

Healthy sleep is one of the best ways to feel revitalized and maintain optimal health. Increasingly, research has shown the health benefits of a good night’s sleep. Melatonin is one of the most popular supplements for supporting sleep.

Now, pick the right melatonin for your needs with doses ranging from 300 mcg to 10 mg. For optimal results, melatonin should be taken within 30-60 minutes of going to sleep.

Melatonin 300 mcg
100 capsules
Retail $5.75
Members $4.31
Item # 00547
Contains rice.

Melatonin 3 mg
60 capsules
Retail $8
Members $6
Item # 00330
Contains rice.

Melatonin 300 mcg
100 time-release vegetarian capsules
Retail $6.25
Members $4.69
Item # 01087

Melatonin 3 mg
60 dissolve-in-mouth lozenges
Retail $8
Members $6
Item # 00332
Contains corn.

Melatonin 500 mcg
200 vegetarian capsules
Retail $18
Members $13.50
Item # 01083
Contains rice.

Melatonin 3 mg
60 time-release vegetarian capsules
Retail $10.50
Members $7.88
Item # 01086

Melatonin 750 mcg
60 time-release vegetarian capsules
Retail $5.75
Members $4.31
Item # 01088
Contains rice.

Natural Sleep 3 mg
60 time-release vegetarian capsules
Retail $12.99
Members $9.74
Item # 01084
Contains corn.

Natural Sleep Melatonin 5 mg
60 time-release vegetarian capsules
Retail $18
Members $13.50
Item # 01085
Contains corn.

Cautions: Do not use melatonin if you have asthma or an autoimmune disease. When using nutritional supplements, please consult with your physician if you are undergoing treatment for a medical condition or if you are pregnant or lactating.

ChromeMate® is a registered trademark of Interhealth Nutritional Inc.

To order any of these premium-grade Melatonin supplements, call 1-800-544-4440 or visit www.LifeExtension.com

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.
FOR HEALTHY FEMALE HORMONE SUPPORT

NATURAL ESTROGEN

WITH POMEGRANATE EXTRACT

As women age, their natural production of youth hormones declines, which can give rise to unpleasant problems and accelerate various aging processes.

Estrogen confers a wide range of health benefits, such as helping to maintain firm skin and muscle tone, supporting healthy sexual function, producing-greater feelings of well-being, and supporting cardiovascular and bone health.*

Concerned about the life-threatening side effects of estrogen drugs, many women deprive themselves of the benefits of natural hormone solutions.

Natural Estrogen with Pomegranate Extract contains standardized plant extracts that may help produce hormone-like modulating effects that are beneficial for most women over 40. This newly improved formula contains health-promoting phytoestrogens and polyphenols that confer powerful hormone-modulating and DNA-protecting effects. Natural Estrogen also provides the following complementary plant extracts:

- Black cohosh to mimic the safe estrogen “estriol”
- Licorice to facilitate natural estrogen synthesis
- HMRlignan™ extract to protect against some of estrogen’s unwanted effects
- Broccoli extract to help modulate estrogens and maintain healthy cell division
- Dong quai to balance estrogens and induce progesterone synthesis
- Vitex agnus-castus to establish hormone balance and suppress excess prolactin.

A bottle of 60 caplets of Natural Estrogen with Pomegranate Extract (a one-month supply) retails for $38. If a Life Extension member orders four bottles, the price is reduced to only $24.75 per bottle.

Contains soybeans. Contains corn.

The recommended daily dose of two caplets provides:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoySelect® soybean (Glycine max) 70:1 Extract</td>
<td>400 mg [standardized to 13% isoflavones (52 mg), 18% Group-B Saponins (72 mg)]</td>
</tr>
<tr>
<td>Broccoli (Brassica oleracea L.) Super Concentrate Extract</td>
<td>300 mg [standardized to 4% glucosinolates (12 mg)]</td>
</tr>
<tr>
<td>POMELLA® Pomegranate (Punica granatum) Extract</td>
<td>200 mg [standardized to 30% Punicalagins (60 mg)]</td>
</tr>
<tr>
<td>Black cohosh extract (Cimicifuga racemosa) (root and stem)</td>
<td>40 mg [standardized to 2.5% triterpene glycosides (1 mg)]</td>
</tr>
<tr>
<td>HMRlignan™ Norway spruce (Picea abies) lignan extract (knot wood)</td>
<td>30 mg [standardized to 90% Hydroxymatairesinol potassium acetate (27 mg)]</td>
</tr>
<tr>
<td>Dong quai extract (Angelica sinensis) (root)</td>
<td>25 mg [standardized to 1% ligustilide (0.25 mg)]</td>
</tr>
<tr>
<td>Licorice extract (Glycyrrhiza glabra) extract</td>
<td>25 mg</td>
</tr>
<tr>
<td>Vitex extract (Vitex agnus-castus) extract (fruit)</td>
<td>20 mg [standardized to 5% flavonoids (1 mg)]</td>
</tr>
</tbody>
</table>

Caution: Do not take in case of pregnancy, lactation, or estrogen-dependent tumors. SoySelect® is a registered trademark of Indena SpA. HMRlignan™ is a trademark used under sublicense from Linnea SA. POMELLA® Extract is covered under U.S. Patent 7,638,640 and POMELLA® is a registered trademark of Verdure Sciences, Inc.

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

The better
For Optimal Absorption

In 2010, there were more than 160 published studies on curcumin. Every week, scientists discover new benefits of curcumin, such as reducing inflammation and promoting healthy DNA function.

Unfortunately, not all forms of curcumin are readily absorbed into the bloodstream. As a result, you may not be achieving peak blood levels of this vital nutrient.

Super Bio-Curcumin® is absorbed up to seven times more than regular curcumin.1,2

The graphs on this page illustrate that just one 400 mg capsule of Super Bio-Curcumin® can provide curcumin levels equivalent to ingesting 2,500–2,800 mg of other curcumin supplements.

Additionally, Super Bio-Curcumin® can stay in the bloodstream almost twice as long as other curcumin supplements.

Life Extension®’s Super Bio-Curcumin® contains the newly patented BCM-95® turmeric compound. A bottle containing 60 Super Bio-Curcumin® with BCM-95® capsules retails for $35. If a member buys four bottles, the price is reduced to just $24 per bottle. Each bottle will last most members two months.

Contains rice.

References:

To order Super Bio-Curcumin®, with BCM-95®, call 1-800-544-4440 or visit www.LifeExtension.com

Bio-Curcumin® and BCM-95® are registered trademarks of Dolcas-Biotech, LLC.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
THE BENEFITS OF A CR WAY™ DIET

For 75 years, thousands of scientific studies have shown that low-calorie diets with optimal nutrition protect against disease and extend life span. Yet the idea of eating fewer calories may seem difficult to some. And no wonder: tabloids—both in print and on the Web—have distorted what calorie restriction really means, suggesting that following such a diet results in a dreary life where one eats small amounts of tasteless food. How silly!

In the October 2010 issue of Life Extension Magazine® we began to dispel such myths with “Calorie Restriction Can Be Easy,” an article that shows how food choices can make all the difference between feeling happy and satisfied or experiencing insatiable craving for food you don’t really need and that may eventually kill you. If you missed it, take a moment to look at it on www.lef.org. It provides excellent background for the focus of this piece: optimizing food choices for satisfaction and health benefits.

Think for a minute: What do you want from your food? Great taste, perhaps? All the nutrients you need to be healthy? Protection from disease or reversal of a disease you already have? How about increased functionality? And possibly slowing or even reversing aging? All of these goals are part of the CR Way™ to Optimal Health, where delicious meals are the starting point for enjoying life and realizing your full potential. > >
And here’s proof that many CR recipes are easy to make—and take just a few minutes to prepare:

**The CR Way™ Long-Life Cereal**

**Ingredients:**
- 5 ounces wild rice (cooked al dente)
- Cinnamon (to taste)
- 1.4 ounces blueberries
- 1.6 ounces strawberries (approximately ¼ cup)
- .35 ounces pumpkin seeds
- .35 ounces walnuts (approximately 5 walnut halves)
- 2 teaspoons lime (or lemon) juice
- 1 teaspoon olive oil (extra virgin)
- ½ cup almond non-dairy beverage (unsweetened)

---

### Complete Nutritional Values in One Serving of the CR Way™ Long-Life Cereal

<table>
<thead>
<tr>
<th>NUTRIENT</th>
<th>VALUE</th>
<th>%DV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>366.36</td>
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</tr>
<tr>
<td>Food Energy (kJ)</td>
<td>1532.85</td>
<td></td>
</tr>
<tr>
<td>Protein (g)</td>
<td>10.91</td>
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</tr>
<tr>
<td>Calories from Protein</td>
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</tr>
<tr>
<td>% Calories from Protein</td>
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</tr>
<tr>
<td>Carbohydrates (g)</td>
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<tr>
<td>Starch (g)</td>
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<tr>
<td>Sugars (g)</td>
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<tr>
<td>Glucose (g)</td>
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<td>Fructose (g)</td>
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<tr>
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<td>Est. Net Carbs (g)</td>
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<tr>
<td>Calories from Carbohydrates</td>
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<tr>
<td>% Calories from Carbohydrates</td>
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<td>Polyunsaturated Fat (g)</td>
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<td>Omega-3 (g)</td>
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<td>Omega-6 (g)</td>
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<tr>
<td>Calories from Fat</td>
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<tr>
<td>% Calories from Fat</td>
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<tr>
<td>Ash (g)</td>
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<tr>
<td>Water (g)</td>
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<tr>
<td>Theobromine (mg)</td>
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<tr>
<td>Phytosterols (mg)</td>
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<tr>
<td>Stigmasterol (mg)</td>
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<tr>
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<td>Beta-sitosterol (mg)</td>
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<tr>
<td>Retinol (mcg)</td>
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<td>Lutein+zeaxanthin (mcg)</td>
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<tr>
<td>Vit-A IU</td>
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<tr>
<td>Vit-B1 Thiamine (mg)</td>
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<tr>
<td>Vit-B2 Riboflavin (mg)</td>
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<tr>
<td>Vit-B3 Niacin (mg)</td>
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<td>Vit-B5 Pantothenic Acid (mg)</td>
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<tr>
<td>Vit-B6 Pyridoxine (mg)</td>
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</tr>
<tr>
<td>Total Folate (mcg)</td>
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<tr>
<td>Folate, Food (mcg)</td>
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<tr>
<td>Folic Acid (mcg)</td>
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<tr>
<td>Folate, DFE (mcg_DFE)</td>
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<tr>
<td>Vit-B12 Cyanocobalamin (mcg)</td>
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<tr>
<td>Vit-H (mcg) Biotin</td>
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<td>Vit-C (mg)</td>
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<tr>
<td>Vit-D (IU)</td>
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<tr>
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<tr>
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<tr>
<td>Vit-K (mcg)</td>
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<td>Calcium (mg)</td>
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<tr>
<td>Copper (mg)</td>
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<tr>
<td>Iron (mg)</td>
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<td>Manganese (mg)</td>
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<tr>
<td>Molybdenum (mcg)</td>
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<tr>
<td>Selenium (mcg)</td>
<td>2.19*</td>
<td>3%</td>
</tr>
<tr>
<td>Zinc (mg)</td>
<td>2.97*</td>
<td>20%</td>
</tr>
</tbody>
</table>

Values marked with a single asterisk (*) indicate totals with some values not available. This may result in an underreporting of values. Due to FDA rounding rules, discrepancies may occur between actual nutrient values and the values used on the Nutrition Facts labels. This detailed information is provided by the NutriBase CR Way™ Edition software, which provides a thorough analysis of all the nutrients.
Besides being able to put this scrumptious CR recipe together in seconds, you can even prepare it in advance and refrigerate it in a leak-proof portable container, so it’s easy to take on your morning commute. Make sure to add the almond milk just before you leave so the ingredients remain crunchy, if that adds to your enjoyment.

Below are the basic Nutrition Facts of the CR Way™ Long-Life Cereal:

As you can see, this recipe supplies only 370 calories, yet it is loaded with essential nutrients, including healthy amounts of vitamins C, K, and the Bs, along with minerals like magnesium, manganese, phosphorus, and even 20% of the daily value of zinc—a nutrient that is hard to come by.

Note that the software shows 7.2 mg of phytosterols, which are a likely reason that CR Way™ all-star foods like blueberries may have extraordinary benefits, such as cognitive enhancement and life extension in animal models. Other ingredients, like the strawberries, are also loaded with beneficial phytonutrients.

When you prepare this, make sure that the strawberries and blueberries are organic, since both fruits absorb pesticides very easily. In fact, conventionally grown blueberries and strawberries have the dubious distinction of being listed among the “Dirty Dozen” on the Environmental Working Group’s 2010 Shopper’s Guide to Pesticides.

The Benefits of a CR Way™ Diet

- Seventy-five years of research demonstrates that low-calorie diets with optimal nutrition protect against disease and extend life span.
- Some people mistakenly believe that a calorie-restricted diet must be bland and arduous.
- The CR Way™ to Optimal Health provides a wealth of information on capturing the health and longevity benefits of calorie restriction while enjoying delicious foods.
- NutriBase CR Way™ Edition software helps track the calories and nutrients you consume each day, in order to ensure your success at adopting the principles of calorie restriction.
- CR Way™ recipes promote good health via numerous mechanisms, including decreasing the production of advanced glycation end products, providing heart-healthy fats, and maintaining healthy blood sugar levels through the use of low glycemic index foods.
Low Glycemic Effect

A fundamental aspect of this and every CR Way™ recipe is that it has a minimal effect on blood glucose. Most of the carbohydrate sources included in this recipe rank on the low end of the glycemic index (GI), which ranks foods according to their effect on blood glucose levels. The lime juice, nuts, and olive oil also have a favorable effect on blood glucose.

Heart-Healthy Fat

Another important characteristic of this CR Way™ recipe is its heart-healthy fats. Two of its principal fat sources—walnuts and olive oil—are known for their beneficial cardiovascular effects.

Keeping AGEs Low

Notice that this recipe requires very little cooking. The ingredients that are cooked are heated only until al dente (slightly firm). This minimizes the cross-linking of proteins and sugars that results in AGEs (advanced glycation end products), another name for biological garbage that accumulates in the body when foods are eaten that have been cooked at high heat or for a long time or with very little water. Once AGEs are in the body, getting them out is virtually impossible, while the possibility of disease increases. CR Way™ advice: when you cook foods, cook them for short periods at low heat with lots of water—blanching or steaming rather than frying or searing, for example.

The CR Way™ Long-Life Cereal is one of dozens of recipes available through the CR Way™ to Optimal Health, a program offered by the Life Extension Foundation®. This program includes the NutriBase CR Way™ Edition software, downloaded to your computer—giving you the best tool to manage your lifestyle for better health.

Some people believe that calorie restriction research showing life extension in mice is not applicable to humans. Try telling that to Okinawan elders, likely the world’s longest-lived people, whose low-calorie lifestyle has been studied extensively by gerontology experts. Or try convincing Walter Breuning, the world’s oldest man, who at 114 follows a CR Way™ eating schedule exactly the same as ours—preferring to eat only two meals a day.

The fact is, humans have tremendous advantages over mice—one of them being that we are free to choose delicious foods that add to the benefits of following a low-calorie, nutrient-dense diet. The CR Way™ Long-Life Cereal is just one example. Imagine eating that well at every meal. Soon your life would be transformed. Afflictions like heart disease and cancer are suddenly less likely, while your energy soars. Chances are good that you would live a longer, better life.

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

References

CR Way Optimal Health Membership

Enjoy life fully, with the best chance of living longer and better! Become an Optimal Health Member of LivingTheCRWay.com

Membership Benefits

Expert Guidance!
CR Way™ experts Paul McGlothin & Meredith Averill help you achieve your goals for better health. Join these renowned leaders of calorie restriction research and practice for twice-monthly live teleconferences where you get the answers you need.

Advanced dietary software!
You receive the NutriBase CR Way Edition Software, the advanced diet and lifestyle manager that downloads in minutes to your home computer. Delicious recipes and "Foods to Choose" come preloaded.
Use it to help activate your longevity biochemistry as well as improve your heart health, prevent or fight major diseases, lower blood sugar, manage exercise, make it easy to lose weight, and even improve your mood.

Quick-start guide speeds you on your way happily!
You get online access to the CR Way to Happy Dieting, which shows you how to use your food and lifestyle to increase happiness, making a healthful diet fun and satisfying to follow. Using the quick-start guide lowers your stress and helps you avoid disease, too. This resource even offers a CR Way to Fast Foods Meal Plan for busy people who have no time to prepare food, but don’t want to sacrifice their health.

Full access to life-transforming content on LivingTheCRWay.com

The CR Way To Peak Performance
Your diet and lifestyle coach for performing at your best.

Getting Smarter
A blueprint for improving your brainpower.

Long, Healthy Life
Introduction to the beneficial cellular changes that the CR Way is based on.

A Happier You
Strategies to relieve your stress and increase your happiness.

Protection From Disease
Help in preventing or fighting cancer, diabetes, and kidney, and Alzheimer's diseases—and tracking the research for proof of more!

Science Behind the Benefits
Description of the solid science that supports (and explains) the benefits.

The Longevity Guide
Pointers for your becoming a centenarian.

If you’ve priced top-level software packages, teleconferences with experts, electronic diet guides, and membership Websites—you probably imagine that the CR Way Optimal Health Membership costs thousands of dollars per year. Instead, we welcome you to get it all for $195!

Begin your journey to a longer, healthier life!

Order your first year’s CR WAY OPTIMAL HEALTH MEMBERSHIP
Call 1-800-544-4440 or visit www.LifeExtension.com/CR
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 *excess* 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 bloated with *glucose*, *insulin*, and *triglycerides* long after 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 *reduce* the toxic damage from excess calorie intake by taking the proper nutrients before heavy meals.

**Comprehensive Calorie Management**

The **Calorie Control Weight Management Formula** is designed to be taken before the two 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 **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 absorbs 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 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 and effects of ingested foods by taking the **Calorie Control Weight Management** formula before the two heaviest meals of the day.

The retail price for a one month (60-serving) supply of **Calorie Control Weight Management** is $56. If a member buys four jars, the price is reduced to $36. If eight jars are purchased the member price is slashed to only $33 per jar. This is the lowest price the propriety ingredients contained in this good-tasting powder formula has ever sold for!

*Contains soybeans, tree nuts, and corn.*

**Caution:** Take at least two hours apart from medications. Because this product may lower blood glucose, consult with your healthcare provider before taking this product if you are taking blood glucose lowering medication. Taking fiber products without enough liquid may cause choking. Consult your healthcare provider before taking this product if you have difficulty swallowing or have esophageal narrowing.

To order the Calorie Control Weight Management today, call 1-800-544-4440 or visit www.LifeExtension.com/calorie-control

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Scientists have intensely focused on finding out how calorie restriction so radically extends life span. In response to reduced calorie intake, beneficial “youth” genes are activated while detrimental “senescence” genes are disabled. These favorable gene expression changes play a critical role in the ability of calorie restriction to slow aging.

The incredible news is that a select group of nutrients has been discovered that trigger many of the same favorable mechanisms (including more youthful gene expression patterns) as caloric restriction.

Among the most promising caloric restriction mimics and enhancers are resveratrol, pterostilbene, quercetin, and grape seed polyphenols, along with black tea extract. These nutrients have been shown to generate many of the same effects in the body as caloric restriction, without significant dietary modification.¹-⁸ In particular, they help “mimic” caloric restriction’s favorable impact on genes that influence the aging process.¹-⁸

CR Mimetic Longevity Formula includes resveratrol, pterostilbene, quercetin, grape seed polyphenols, black tea extract, and fisetin to provide even broader-spectrum gene expression support in one nutritional compound. The suggested dose of two capsules each day of CR Mimetic Longevity Formula provides:

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>Trans-Resveratrol</td>
<td>250 mg</td>
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<tr>
<td>Trans-Pterostilbene</td>
<td>3 mg</td>
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<tr>
<td>Quercetin</td>
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<tr>
<td>Grape seed polyphenols</td>
<td>50 mg</td>
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<tr>
<td>Fisetin</td>
<td>48 mg</td>
</tr>
</tbody>
</table>

A bottle containing 60 vegetarian capsules of CR Mimetic Longevity Formula retails for $39. If a member buys four bottles, the cost is reduced to $27 per bottle.

To order CR Mimetic Longevity Formula call 1-800-544-4440 or visit to www.LifeExtension.com

Note: Those taking other resveratrol products may consider switching to CR Mimetic Longevity Formula.

REFERENCES

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Most Life Extension® members take a supplement containing zeaxanthin, lutein, meso-zeaxanthin, and astaxanthin to protect their vision.

With new findings that C3G (cyanidin-3-glucoside) can enhance night vision, it makes sense to add this unique berry extract to the Super Zeaxanthin formula. This enables members to obtain the optimal amount of C3G without having to swallow another capsule.

Maintain Macular Density

The macular pigment is composed of lutein, zeaxanthin, and meso-zeaxanthin. The density of the macula is essential to proper vision. Macular density declines naturally over time.

Eating lots of lutein- and zeaxanthin-containing vegetables can help maintain the structural integrity of the macula. However, since meso-zeaxanthin is not part of the typical diet, it cannot be easily replaced. Young people convert lutein into meso-zeaxanthin inside their macula. Some aging people, however, lose their ability to convert lutein into meso-zeaxanthin.

The Super Zeaxanthin formula provides zeaxanthin, lutein and meso-zeaxanthin to help maintain macular density.

Combat “Eye Fatigue”

Staring at a fixed-distance object such as a computer screen for a long period of time can cause the muscles that focus your eyes (called the ciliary body) to tire or go into spasm. This can result in physical symptoms such as head discomfort, sensitivity to glare, tiredness, soreness, dryness, and blurry vision.

Super Zeaxanthin contains a potent dose of astaxanthin, a carotenoid found in red algae. Studies show that taking astaxanthin with other carotenoids protects against free radical induced DNA damage, repairs UVA-irradiated cells, and inhibits inflammatory cell infiltration. Astaxanthin also helps support vascular health within the eye and improves visual acuity. Its fat-soluble nature offers protection to sensitive cells inside the eye.

To order Super Zeaxanthin with Lutein, Meso-Zeaxanthin Plus Astaxanthin and C3G, call 1-800-544-4440 or visit www.LifeExtension.com

Enhanced Night Vision!

Falling down is responsible for 70% of accidental deaths in older people. Poor lighting conditions are often the culprit.

Fortunately, C3G derived from black currant supports eyesight in dark conditions by promoting the healthy function of delicate structures within the retina that support night vision.

Super Zeaxanthin now contains a potent dose of C3G to nourish cells throughout the body.

Comprehensive Ocular Protection in One Daily Capsule

The new Super Zeaxanthin formula provides natural plant extracts that have been shown to promote healthy eyesight. Just one softgel of Super Zeaxanthin with Lutein, Meso-Zeaxanthin Plus Astaxanthin and C3G provides:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concentration</th>
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</thead>
<tbody>
<tr>
<td>OptiLut®, Lutein Plus® and MZ®</td>
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<tr>
<td>Marigold (Tagetes erecta) Extract (flower)</td>
<td>[free lutein equivalent 10 mg]</td>
</tr>
<tr>
<td>Zeaxanthin &amp; Meso-zeaxanthin blend</td>
<td>3.75 mg</td>
</tr>
<tr>
<td>(micronized zeaxanthin, OptiLut®, Lutein Plus® and MZ® Marigold Extract)</td>
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<tr>
<td>Natural Astaxanthin</td>
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<tr>
<td>(Zanthin® CO2 extract of Haematococcus pluvialis algae)</td>
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</tr>
<tr>
<td>C3G (Cyanidin-3-glucoside)</td>
<td>2.2 mg</td>
</tr>
<tr>
<td>[from European black currant (Ribes nigrum) extract (fruit)]</td>
<td></td>
</tr>
</tbody>
</table>

The retail price for a bottle containing 60 softgels of Super Zeaxanthin with Lutein, Meso-Zeaxanthin Plus Astaxanthin and C3G is $42. If a member buys four bottles, the price is reduced to just $28.50 per bottle.

Contains soybeans.
Study after study confirms the vital importance of maintaining optimal levels of vitamin D for broad-spectrum health benefits. Research often indicates that a blood level of 50 ng/mL of 25-hydroxyvitamin D is ideal. Because people have individual requirements, Life Extension® has created the largest selection of vitamin D supplements available to ensure that you achieve your vitamin D3 goals.

Keep in mind that you may already be getting 1,000-3,000 IU of vitamin D in your multi-nutrient formula.

**Which VITAMIN D is Right for You?**

### Vitamin D3 1,000 IU
- **250 capsules**
- Retail: $12.50
- **Four-bottle Member Price:** $8.44 ea.

Commercial companies offered only 400 IU vitamin D products when Life Extension long ago introduced this 1,000 IU version. For most people, this 1,000 IU potency is insufficient to attain optimal vitamin D blood levels. For smaller individuals who obtain 2,000-3,000 IU in their multi-nutrient formulas (and children), this potency of vitamin D may be suitable.

**Item # 00251**

Please refer to website for allergen information.

### Vitamin D3 5,000 IU with Sea-Iodine™*
- **60 vegetarian capsules**
- Retail: $14
- **Four-bottle Member Price:** $9.38 ea.

Most people do not ingest enough vitamin D and iodine, especially those seeking to reduce their salt intake. Combining 5,000 IU of vitamin D3 and 1,000 mcg of iodine into one capsule makes taking these two nutrients economical and convenient.

**Item # 01372**

Please refer to website for allergen information.

### Vitamin D3 5,000 IU
- **60 capsules**
- Retail: $11
- **Four-bottle Member Price:** $7.43 ea.

For those obtaining 1,000-3,000 IU of vitamin D in their multi-nutrient formulas, this 5,000 IU potency is what most need to achieve optimal vitamin D blood levels.

**Item # 00713**

Please refer to website for allergen information.

### Vitamin D3 7,000 IU
- **60 capsules**
- Retail: $14
- **Four-bottle Member Price:** $9.45 ea.

Some individuals (such as those weighing more than 180 pounds) may require higher potencies of vitamin D. When combined with 1,000-3,000 IU obtained from multi-nutrient formulas, this 7,000 IU vitamin D3 capsule should enable these individuals to attain 25-hydroxyvitamin D blood levels above the desired range of 50 ng/mL.

**Item # 01418**

Please refer to website for allergen information.

### Vitamin D3 Liquid Emulsion 2,000 IU
- **1 ounce**
- Retail: $28
- **Four-bottle Member Price:** $18.75 ea.

For those rare individuals who have difficulty absorbing enough vitamin D3 from powdered capsules, this liquid emulsion of vitamin D can be used.

**Item # 00864**

*If you have a thyroid condition or are taking antithyroid medications, do not use without consulting your healthcare practitioner.*

To order any of these high-potency vitamin D3 supplements, call 1-800-544-4440 or visit www.LifeExtension.com

CAUTION: Individuals consuming more than 2,000 IU/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxyvitamin D measurement. Do not exceed 10,000 IU per day unless recommended by your doctor. Vitamin D supplementation is not recommended for individuals with hypercalcemia (high blood calcium levels). People with kidney disease, certain medical conditions (such as hyperparathyroidism or sarcoidosis), and those who use cardiac glycosides (digoxin) or thiazide diuretics should consult a physician before using supplemental vitamin D.

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.
We all have a family member, a friend, or know someone who has experienced the dreaded side effects associated with cancer treatments. Life Extension® asked leading dermatologist Gary Goldfaden, MD, to discuss the unsightly, irritating, and sometimes painful dermatological problems that can accompany cancer treatment to see what can be done about them. This article describes the many side effects of cancer therapies that occur in the skin and what specific nutrients and compounds can be used to expedite a resolution.  >  >
The most common treatment options for cancer patients today are surgery, radiation, and chemotherapy. More than half of all people diagnosed with cancer are treated with radiation therapy. This practice involves exposing the affected area to high-energy rays that kill the cancer cells and keep them from growing and multiplying. Radiation therapy can cause mild to severe skin reactions, including itchiness and redness, peeling and flaking, and even permanent scarring and pigmentation of the treated area.

Chemotherapy uses drugs that target and kill rapidly dividing cells. Since cancer cells divide more rapidly than most cells, they are particularly susceptible to this kind of attack.

However, there are healthy cells that also reproduce very rapidly, making them prime targets for chemotherapy-induced death as well. These include the cells that line the inside of your mouth, the lining of your intestines, your blood cells, platelets, hair follicles, and your skin cells. This accounts for many of the side effects experienced during chemotherapy, including hair loss, nausea, and low blood cell counts.

Skin problems, including rashes, peeling, discoloration, streaking, bruising, extreme dryness, sensitivity, redness, and acne, are also a common result of chemotherapy.

Fortunately, there are safe, effective, natural nutrients that can alleviate these skin-related side effects of cancer treatment: vitamin K1, vitamin D, extract of the European flowering plant Arnica montana (arnica), oats, and concentrated tea extracts. Topically combined, they help to speed the repair and regeneration of damaged skin resulting from the effects of cancer surgery, radiation, and chemotherapy.

Pre- and Post-Surgical Topical Treatment

Topically treating the site before a surgical procedure with powerful antioxidants, such as concentrated tea extracts, along with natural anti-inflammatory, moisturizing compounds contained in oats called avenanthramides, can help strengthen your skin’s natural defenses. Post-operatively, applying the fatsoluble clotting factor vitamin K1 helps to restore damaged skin’s ability to heal from bruising. Topical arnica applied to the wound site can also reduce post-operative bruising and swelling. At the same time, vitamin D helps to speed skin regeneration, thereby minimizing the risk of surgery-induced scarring and skin discoloration.

Support from the Effects of Radiation Therapy

Again, pre-treating the skin site with natural, health-promoting antioxidants prior to radiation therapy can help to ensure a cosmetically favorable post-treatment outcome.

After radiation therapy, the skin’s response usually undergoes three consecutive stages. In the first stage, the patient may experience itching and redness in the affected area. This irritation may be successfully countered through the combined effects of arnica’s anti-inflammatory action and the natural healing effect of vitamin D.

As treatment progresses, second-stage symptoms often develop, including excessive dryness and sensitivity, along with peeling and flaking of the skin. Oats, with their potent moisturizing and anti-inflammatory
properties, act to effectively calm, protect, and heal severely dehydrated skin at this stage.16

In the third and final stage, actual burning of the skin caused by radiation results in scarring17 and unwanted pigmentation. Treating the affected area with vitamin D and natural antioxidants such as concentrated tea extracts18,19 can help accelerate the regenerative process and reduce subsequent scarring.

**Healing Power for Bruising and Ecchymoses**

Chemotherapy can destroy the platelet-forming cells found in your bone marrow. Platelets are responsible for forming clots to halt internal bleeding. As this deterioration progresses and more platelets are lost, even the slightest trauma can provoke massive bruising that may take months to heal.

If the patient’s platelet count drops to extremely low levels (a normal platelet count in a healthy individual is between 150,000-450,000 per microliter of blood), spontaneous bruising may occur without any trauma at all.20 The resulting ecchymoses—the technical term for large, reddish-blue patches of bruised skin—may also be caused by the rupture of small blood vessels. Both of these conditions can be effectively treated with vitamin K1.10,11,21 The compounds found in arnica have been shown to reduce swelling, quell inflammation, and speed the skin’s recovery from hematoma.22-25

Vitamin K1 is also ideal as a treatment for most kinds of vascular injury due to its fat-soluble nature and powerful blood-clotting effects.26 When topically applied, vitamin K1 readily penetrates the skin and travels deep into the inner layer of the skin known as the dermis, where it effectively targets damaged capillaries. Vitamin K1 and arnica also naturally help resolve bruising.26

**Combating “Venous Streaking” and “Extravasation”**

One of the more common side effects of chemotherapy is called venous flare or venous streaking.27 This mild allergic reaction is characterized by a localized redness or rash (often accompanied by itching) that runs along the path of the injected vein. Venous streaking physically resembles but should not be confused with extravasation, the accidental administration of intravenously (IV) infused medicinal drugs into surrounding healthy tissue. Venous streaking may be effectively minimized by applying a combination of natural antioxidants to the injection site—including arnica and vitamin K—both before and after chemotherapy.

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**What You Need to Know**

**Solutions for Skin Reactions to Cancer Treatments**

- Common cancer treatments, including surgery, radiation, and chemotherapy, produce unsightly, irritating, and often painful skin reactions.
- Surgery and radiation inflict physical damage to the skin in the form of trauma, rupture, and burning.
- Chemotherapy, which kills rapidly dividing cancer cells, also destroys healthy cells that divide rapidly—including your skin cells.
- The fat-soluble nutrient vitamin K1 penetrates damaged skin and helps speed the healing of bruises.
- Extract of the European flowering plant Arnica montana exerts powerful anti-inflammatory and anti-itching effects.
- The antioxidants in concentrated tea extracts bolster your skin’s free-radical defenses.
- The anti-inflammatory, moisturizing compounds found in oats called avenanthramides help to soothe traumatized skin and speed healing.
- Oats also act as gentle astringents and exfoliants, clearing away excess dead skin cells.
- Vitamin D helps to accelerate skin regeneration.
**Extravasation** refers to the escape of a chemotherapy drug into the extravascular space, either by leakage from a vessel or by direct infiltration. Extravasation is a more severe kind of dermal injury that can result in long-term pain and swelling. A little-used but effective antidote for chemotherapy extravasation injury is the topical application of a 70% DMSO solution with a white cotton swab to the affected area. Any excess DMSO should be removed with a white cotton cloth or tissue. Treatment may be repeated every 3-4 hours and may be needed for four to eight weeks to completely resolve the extravasation injury.28

**Soothing Dry, Sensitive, Fragile, and Peeling Skin**

Dry, rough, flaky skin is often a side effect of chemotherapy drugs for two main reasons: 1) the drugs destroy new skin cells; and 2) the drugs interfere with the normal function of your skin's naturally moisturizing and protective oil and sweat glands.29 Extreme dehydration may manifest in affected areas, resulting in a range of side effects, from painful cracks that may or may not bleed, to intense itching, redness, and inflammation.

As a major controlling factor in skin cell growth and replacement, vitamin D can help to counter these effects. The rate at which new cells divide, the nature and timing of their changes, as well as their transit time to the skin's surface, are all triggered and controlled by the presence of vitamin D.30,31 The powerful antioxidant and anti-inflammatory effects of oats can also help to reduce redness and irritation.

**Countering Steroid-Induced Acne Outbreaks**

Some of the more effective and commonly used agents employed as part of the cancer treatment regimen are steroids—a class of hormones that unfortunately may lead to an outbreak of acne. This happens because steroids increase the activity of oil glands in the skin. This is where oats come in. In addition to quelling inflammation, oats act as a natural astringent. They effectively draw excess oil out of the skin and help clear clogged pores. They also act as a natural exfoliant that gently rubs away dead skin cells and other debris as they increase blood circulation to aid skin regeneration.32,33

**Summary**

The most common cancer treatments, including surgery, radiation, and chemotherapy, produce unsightly, irritating, and often painful skin reactions. Surgery and radiation inflict physical damage to the skin in the form of trauma, rupture, and burning. Chemotherapy, which kills rapidly dividing cancer cells, also destroys healthy cells that divide rapidly—including skin cells. The fat-soluble nutrient vitamin K1 restores the skin's diminished healing ability caused by chemotherapy's attack of blood platelets. Extract of the European flowering plant Arnica montana exerts

The anti-inflammatory, moisturizing compounds found in oats called avenanthramides help to soothe traumatized skin and speed regeneration.
a powerful anti-inflammatory and anti-itching effect. The antioxidants in concentrated tea extracts bolster your skin’s free-radical defenses. The anti-inflammatory, moisturizing compounds found in oats called avenanthramides help to soothe traumatized skin and speed regeneration. Oats also act as gentle astringents and exfoliants, clearing away excess dead skin cells. Vitamin D helps to accelerate skin regeneration. When topically combined, they effectively protect skin prior to cancer treatment and speed post-treatment healing and recovery.

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

References

Weak, brittle bones increase the risk of injury for many aging humans. Bone injuries, such as fractures, splinters, and bruises, can be extraordinarily painful, and may result in months of uncomfortable rehab or long-term disability. In order to protect yourself from potentially life-altering problems, Life Extension® has formulated an exciting product made with chelated calcium and collagen called KoAct™ to maintain bone strength and mineral density.

KoAct™ allows for greater flexibility...so your bones can absorb energy, reducing the risk of age-related injuries. Additional plant extracts are included for their bone-protective minerals and polyphenols.

A bottle of Bone Strength Formula with KoAct™ retails for $42. If a member buys four bottles, the price is reduced to $28.50 per bottle.

Contains corn.

To order Bone Strength Formula with KoAct™, call 1-800-544-4440 or visit www.LifeExtension.com

Four capsules of Bone Strength Formula with KoAct™ provide:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collagen (from 3,000 mg KoAct™ Calcium Collagen Chelate)</td>
<td>2,700 mg</td>
</tr>
<tr>
<td>Calcium (from 3,000 mg KoAct™ Calcium Collagen Chelate and calcium fructoborate)</td>
<td>300 mg</td>
</tr>
<tr>
<td>Vitamin D3 (as cholecalciferol)</td>
<td>1,000 IU</td>
</tr>
<tr>
<td>Magnesium (as magnesium citrate)</td>
<td>100 mg</td>
</tr>
<tr>
<td>Silica [from standardized Bamboo (Bambusa vulgaris) extract (stem)]</td>
<td>5 mg</td>
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<tr>
<td>Dried Plum (Prunus domestica) extract (fruit) [standardized to 50% polyphenols (50 mg)]</td>
<td>100 mg</td>
</tr>
<tr>
<td>Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)</td>
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</table>

If you need extra bone support, ask your healthcare professional how Bone Strength Formula with KoAct™ can be part of a comprehensive nutritional program in conjunction with proper resistance exercise. Life Extension offers many mineral formulas that may complement Bone Strength Formula with KoAct™ to ensure optimal mineral intake.

KoAct™ is a trademark of AIDP, Inc. FruiteX B® and OsteoBoron® are registered trademarks of VDF FutureCeuticals, Inc., U.S. Patent #5,962,049.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Red spots. Abrasions. Swollen, purple blotches, and scars. Even minor incidents can cause major cosmetic problems.

When you were younger, these problem areas disappeared in a matter of days. Now they seem to last for weeks. And they crop up in more places than ever before: hands, arms, legs, feet, back, buttocks.

The fact is that as you age, your skin grows thinner and more fragile. The result? Age-related imperfections, blemishes, discoloration, areas of raised skin, and other stubborn eyesores become more frequent—and lasting.

That’s why Life Extension® asked renowned dermatologist Gary Goldfaden, MD, to formulate new Healing Formula All-in-One Cream. It brings together nature’s most powerful skin protectors, revitalizers, and healing agents to offset the visible impact of minor trauma to aging skin, including:

- **VITAMIN K1.** Prized for decades by dermatologists to help minimize bruising, scarring, and blemishes—even after cosmetic procedures.1-5
- **ARNICA MONTANA.** Extract of a European subalpine flower that’s been clinically shown to help bruised or scarred skin.6 Arnica is rich in phenols (plant-based compounds) called **sesquiterpene lactones** that penetrate7,8 your skin’s outer layer to deliver deep healing.9 It also contains the essential oil **thymol** to moisturize and protect.
- **OATS.** Used since the days of the Romans, oats contain **avenanthramides**, naturally occurring compounds with proven anti-itching and soothing properties.10,11
- **VITAMIN D.** As **cholecalciferol**, its quenching action locks in moisture, helping to counter the unsightly effects of your skin’s gradually declining capacity to renew itself.

The result is a unique formula delivering a blend of high-potency, synergistic ingredients to preserve and protect your skin’s healthy-looking, vibrant glow.

A 1 oz jar of Healing Formula All-in-One Cream retails for $53. If a member buys two jars, the cost is just $34.07 per jar.
Milk thistle extract has long been thought of as one of nature’s most potent weapons to support human health, but until recently, the technology hasn’t been available to fully harness this plant’s potential. Among the compounds waiting to be unlocked are a slew of nourishing antioxidants and flavonolignans valued for their role in ensuring healthy liver function.¹

Life Extension® has uncovered an advanced extraction technology that has enabled scientists to isolate silymarin constituents and to test their efficacy against various cell lines. Among the compounds tested, a silymarin constituent called isosilybin B proved to be the most efficient in maintaining healthy cell division.²

**Optimized Milk Thistle** is the first milk thistle extract to contain standardized, high potencies of **silymarin, silibinin, and isosilybin B**—providing the full spectrum of milk thistle’s liver and prostate protective compounds. Each capsule of this advanced formula provides:

- **Milk Thistle** (Silybum marianum) Extract (seed) 900 mg
  - [std. to 80% Silymarin 720 mg), 30% Silibinin (270 mg), and 4.5% Isosilybin B complex (40.5 mg)]

A 100-capsule bottle of **Optimized Milk Thistle** retails for $42. If a member buys four bottles, the cost is reduced to only $28.50 per bottle—a savings of nearly one third! Each bottle will last a healthy person for at least three months.

Compare the price of **Optimized Milk Thistle** to commercial silymarin supplements, and members will see that this new formula is available at one of the lowest costs per milligram—with standardized concentrations of **silibinin** and **isosilybin B** not found in other milk thistle extracts!

Reference
Contains rice.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.*
The anatomy of the female urinary tract differs greatly from men, resulting in the need for additional nutritional support for women.

A wealth of published studies indicates that cranberry polyphenols may help to support a healthy urinary tract.1-5 Of particular importance is the flavonoid content of the cranberry, including anthocyanins and proanthocyanidins. These natural compounds exert powerful antioxidant effects that can reduce oxidative stress.

Recent clinical data suggest that the proanthocyanidins found only in cranberries also possess unique molecular features that specifically promote urinary system health.6-8

**A Synergistic Compound Available Only in Europe—Until Now**

In a significant advance, Life Extension® has identified a unique compound available overseas but little-known in the United States that provides a synergistic complement to the whole cranberry’s phytonutrient profile.

UTIRose™ is derived from *Hibiscus sabdariffa*, a species native to Europe, Asia, and Africa. Scientific analysis has shown that this species’ flower and calyx (the green floral envelope surrounding the blossom) are rich in active polyphenols, including flavonoids, sambubiosides, and proanthocyanidins.

Of special importance is a flavonoid found in *Hibiscus sabdariffa* called gossypetin (3,5,7,8,3’-4’-hexahydroxy flavone), which has been shown to provide support for urinary system health.9

Life Extension® uses a unique, patented process in the manufacture of Optimized Cran-Max® with UTIRose™. Each daily serving supplies the complete phenolic profile of the whole cranberry plus hibiscus polyphenols in a standardized, highly absorbable, concentrated form. Two capsules of Optimized Cran-Max® with UTIRose™ contain:

- **UTIRose™** (Hibiscus sabdariffa) extract (flower, calyx) 200 mg
- **Cran-Max®** Cranberry infused whole fruit extract 500 mg

The suggested daily amount of Cran-Max® in this formula alone (500 mg) was demonstrated to provide the anthocyanin equivalent of seven 8 oz glasses of Ocean Spray® Cranberry Juice Cocktail.10

The price for one bottle of Optimized Cran-Max® with UTIRose™ containing 60 vegetarian capsules is $18. If a member buys four bottles, the price is reduced to $12 per bottle.

**References**
4. BMJ. 2001;322:3-5.

To order Optimized Cran-Max® with UTIRose™, call 1-800-544-4440 or visit www.LifeExtension.com

Cran-Max® registered trademark of BDM Technologies, LLC. UTIRose™ is a trademark of Burgundy Botanical Extract. Bio-Shield® is a registered trademark of Bio-Nutra Technologies, LLC.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Turns out, the advice you got as a child to “eat your greens” could pay major dividends as an adult. Scientists have recently identified extracts from green vegetables like broccoli, cabbage, and Brussels sprouts that help maintain healthy hormone levels. Having optimal hormone levels is essential to any anti-aging strategy. In addition, many of these extracts contain glucosinolates, isothiocyanates, carnosic acid, and carnosol – bioactive compounds that have a wide variety of favorable effects on estrogen metabolism and cell division.1-4

**Triple Action Cruciferous Vegetable Extract with Apigenin** combines a *broccoli Super Concentrate* with *watercress, Indole-3-Carbinol (I3C), rosemary extract, cat’s claw extract, cabbage extract, DIM, and apigenin*, a powerful plant flavonoid found in plants such as parsley and celery, to form the most comprehensive cruciferous vegetable supplement available.5

For those who don’t have the time to consume each of the above vegetables each and every day, **Triple Action Cruciferous Vegetable Extract with Apigenin** is the perfect solution to making sure your body gets the important extracts it needs from these crucial food sources. For those weighing less than 160 pounds, just one vegetarian capsule a day provides optimal potencies. Those weighing over 160 pounds should consider taking two capsules a day. A 60-vegetarian capsule bottle of **Triple Action Cruciferous Vegetable Extract** retails for $24. If a member buys four bottles, the price is reduced to only $16.50 per bottle.

Those who want to obtain the benefits of resveratrol can order **Triple Action Cruciferous Vegetable Extract with Resveratrol**. Each capsule provides 20 mg of resveratrol in addition to the vegetable extracts and retails for $32 per 60-capsule bottle. When a member buys four bottles, the price is reduced to only $22.20 per bottle.

**REFERENCES:**


To order **Triple Action Cruciferous Vegetable Extract**, call 1-800-544-4440 or visit www.LifeExtension.com

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.
For those seeking a high-quality quercetin formula, Life Extension® introduces **Optimized Quercetin**—a new “gold-standard” formula derived from a proprietary food-source blend.

Quercetin is a bioflavonoid with unique qualities that supports cellular health and function. In human cell culture studies, quercetin has been shown to block the manufacture and release of inflammation-causing substances,¹² which can help support a healthy immune response to the seasonally changing environment.

Quercetin also helps promote a healthy cardiovascular system by preserving endothelial integrity³ and supporting healthy blood glucose levels for those already within normal range.⁴

**Optimized Quercetin** contains 250 mg of standardized quercetin plus 250 mg of super food extracts that provide an array of added health benefits. A bottle of 60 vegetarian capsules of **Optimized Quercetin** retails for $18. If a member buys four bottles, the cost is only $12.75 per bottle. ITEM # 01309

References

To order **Optimized Quercetin**, call 1-800-544-4440 or visit [www.LifeExtension.com](http://www.LifeExtension.com)
IS YOUR FOLIC ACID WORKING FOR YOU?

Folate is involved in neurotransmitter synthesis and critical enzymatic reactions throughout the body. By depleting excess homocysteine, folate benefits cardiovascular health and nervous system function.

Those who take ordinary folate supplements, however, may not be experiencing its full spectrum of effects. This is because once ingested, not everyone converts folate to its biologically active form called 5-methyltetrahydrofolate (5-MTHF). Research shows that in a large proportion of the population, genetic enzyme deficiencies prevent the conversion of folate to 5-MTHF, leaving many vulnerable to low blood folate levels (and higher-than-desired homocysteine).

A BIOACTIVE FORM OF FOLATE

A more useful approach is to take the bioactive folate 5-MTHF directly, which has been declassified as a drug and is now available as a dietary supplement. 5-MTHF has been shown to dramatically raise blood serum folate levels compared with folic acid supplementation. This bioactive folate is up to seven times more bioavailable than folic acid. This greater bioavailability is especially important in people who have a genetic enzyme deficiency since it requires no conversion to become metabolically active.

A study of 10 patients with endothelial dysfunction showed complete reversal of endothelial impairment after 5-MTHF supplementation compared with healthy control patients.

People with elevated homocysteine levels have a greater risk of cognitive decline. Unlike folic acid, 5-MTHF is able to cross the blood-brain barrier, which is especially important for people with cognitive difficulties to enhance the synthesis of acetylcholine in the brain—the neurotransmitter associated with memory.

Studies also show that the effectiveness of 5-MTHF can be further enhanced by co-supplementing with methylcobalamin (the active form of vitamin B12), vitamin B6, and riboflavin. 5-MTHF is seven times more bioavailable than regular folic acid.

A bottle containing 100 vegetarian capsules of Optimized Folate providing 1,000 mcg of bioactive 5-MTHF in each capsule retails for $28. If a member buys four bottles, the cost is only $18.75 per bottle.

References
Due to the powerful phenolic compounds found in ginger, this spice has been studied for its benefits for a wide range of ailments and health disorders. While often referred to as a root, ginger is in fact a spice that contains potent antioxidants such as shogaols, zingerone, and gingerols. These strong compounds have been linked to providing relief for dozens of issues, including cough, bronchitis, upper respiratory tract infections, migraine headaches, motion and morning sickness, rheumatoid arthritis, post-surgical pain, flatulence, loss of appetite, diarrhea, upset stomach, stomachache, colic, dyspepsia, and general and chemotherapy-induced nausea. It has even been used topically as an analgesic.

Ginger has been used as a home remedy for thousands of years.

Ginger's History

The health benefits of ginger have a history almost as old as civilization itself. Historians have found references to the use of ginger, known botanically as Zingiber officinale, in the writings of nearly every ancient society, including Chinese, Indian, and Roman. In fact, the ancient Roman Empire first started importing ginger...
nearly two thousand years ago. Due to its alluring smell, great taste, and medicinal properties, the spice became extraordinarily popular in Europe. This rise in demand, combined with the expensive cost of shipping the product from Asia, forced Europeans to find ways to make ginger less expensive and more readily available. They did this by introducing ginger to the West Indies, Mexico, and South America, and then exporting it back to Europe. Since ginger thrives in a tropical climate, it is produced in the United States in Hawaii, Florida, and California. Internationally, it is exported mainly from Jamaica, Fiji, India, China, and Australia.

**GINGER’S BENEFITS**

### Motion Sickness

Many prescription or over-the-counter products on the market that are developed to combat motion sickness or nausea have side effects like drowsiness and dry mouth. Ginger has shown in several studies that it may provide significant relief to the above symptoms without the detrimental side effects.

In one study comparing ginger to a placebo in an attempt to measure its ability to reduce symptoms associated with motion sickness, ginger was measured to be potentially more effective than placebo.

### Morning Sickness

Ginger has been used as a home remedy for thousands of years, with one of the longest known uses as a treatment for morning sickness accompanying pregnancy. Researchers presented a study that finally put this folk remedy to the test. In a double-blind, randomized, placebo-controlled trial, a group of pregnant women ingested 125 mg of ginger extract four times a day for four days. All the women were less than 20 weeks pregnant, and the women who ingested the ginger showed significantly reduced symptoms of morning sickness, compared with women who consumed placebo.

### Inflammation

Ginger contains ultra-potent anti-inflammatory compounds called *gingerols*, which are the substances that many scientists believe are responsible for the reduction in inflammation people experience when they start taking ginger supplements regularly. Case in point, a recent study involving patients who tried conventional drugs to alleviate painful symptoms found that 100% of patients with muscular discomfort experienced relief of pain or swelling when they consumed ginger on a daily basis.

In a compelling study published in *Osteoarthritis and Cartilage*, 29 patients with debilitating arthritis in the knee participated in a
tested whether high-protein meals with added ginger had any beneficial effect.

A team at Siena College in Loudonville, New York, studied this hypothesis on 28 patients with cancer who were receiving chemotherapy for the first time.7 Control group patients ate their normal diets, while another group drank a high-protein shake with ginger twice daily. The results were striking.

Patients taking the high-protein shake with ginger reported significantly fewer instances of nausea, and electrical measurements of the stomach muscles revealed less gastric dysrhythmia, leading the researchers to conclude that high-protein meals with ginger reduced the nausea that follows chemotherapy.7

Colon Cancer Prevention

In a study done by scientists at the University of Minnesota, gingerol exhibited anti-inflammatory and antitumorigenic effects.8 At first, scientists were unsure about why gingerol displayed such effectiveness against colon cancer, but the study revealed that the leukotriene A(4) hydrolase protein (LTA[4]H), whose activity can act as a catalyst for colon cancer cells, is targeted by gingerol.8

The researchers gave a group of specially bred mice an injection of gingerol three times a week before and after injecting human colorectal cancer cells into them. Tumors first appeared 15 days after mice were injected, but only 4 tumors were discovered in the gingerol group, as opposed to 13 in the control mice.

The findings revealed that “gingerol effectively suppressed tumor growth in mice by inhibition of

GINGER TIPS

1. Choose fresh ginger over dried ginger to preserve the high levels of gingerol content.

2. Fresh ginger root should be firm, smooth, and free of bruises and mold.

3. Fresh ginger can be stored in your refrigerator for up to three weeks if left unpeeled.

4. Dried ginger should be kept in a tightly sealed glass container in a dry, cool, and dark place.

5. The center of the ginger root is the most flavorful.

6. When shredding ginger, be sure to shred in the direction of the fibers.
LTA(4)H activity...these findings support the anticancer efficacy of gingerol for the prevention of colorectal cancer.”

**Fights Ovarian Cancer**

While the effectiveness of ginger extracts against inflammation and tumors has been shown above, perhaps ginger has the most promising effect in the fight against ovarian cancer.

At the 97th Annual Meeting of the American Association for Cancer Research, Dr. Rebecca Liu and her team from the University of Michigan made a presentation about gingerol’s ability to kill ovarian cancer cells by inducing apoptosis (programmed cell death) and autophagocytosis (self-digestion).9

The presentation focused on Dr. Liu’s team’s experiments that examined the effects of a whole ginger extract containing 5% gingerol on several different ovarian cancer lines. While traditional chemotherapeutic agents suppress inflammation the same way ginger is purported to, the danger is that cancer cells may become resistant to the drugs. Dr. Liu believes that ginger may be unique in this respect because cancer cells show no sign of becoming resistant to its cancer-fighting properties. Her team’s data showing that exposure to ginger extract caused cell death in all ovarian cancer lines studied bolster this claim.9

**References**


If you have any questions on the scientific content of this article, please call a Life Extension® Health Advisor at 1-866-864-3027.
The adult scalp loses about 100 hairs every day. Starting at the age of 40, hair follicles shrink, causing hair to grow back thinner, or worse, not at all. This devastating hair loss is experienced by half the population. While the prevention and treatment is complex, using a supplement with tocotrienols can be pivotal in addressing the various physiological mechanisms that lead to thinning hair.

Super Absorbable Tocotrienols combats the underlying causes of hair loss, supporting otherwise healthy hair follicles that genetic disposition, advancing age, high concentrations of DHT (the male hormone dihydrotestosterone), and sebum build-up may cause to weaken, degrade or shrink. Super Absorbable Tocotrienols, a natural, orally administered, bio-enhanced tocotrienol complex, can be taken to support youthful hair thickness and growth.

The Most Absorbable Tocotrienol Supplement Available Today

Through a revolutionary, patented delivery system, Super Absorbable Tocotrienols ensures optimal absorption and efficiently delivers the benefits of a unique proprietary complex of phytonutrients (squalene, phytosterols and trace amounts of mixed carotene) naturally extracted together with tocotrienols to support youthful hair growth, hair health and hair density. In a study involving 30 volunteers who took tocotrienol supplements for eight months, nearly all the subjects showed significant improvement in hair thickness and density.1

Those who want to obtain the benefits of this potent hair formula can order Life Extension’s Super Absorbable Tocotrienols. The recommended dosage is one softgel taken two times daily with food. The retail price for a bottle of Super Absorbable Tocotrienols containing 60 softgels is $30, but if a member buys four bottles, the price is reduced to $21 per bottle.

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

Reference:
1. Randomized Clinical Trial of Tocotrienols Supplementation vs. Placebo for Androgenetic Alopecia. Professor Yuen Kah Hay, B., School of Pharmaceutical Sciences, Universiti Sains, Malaysia. Submitted for publication 2009.

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

The proper balance of microflora in the intestines is crucial for health and well-being. Jarrow Formulas® probiotic dietary supplements are designed to maintain a healthy balance of these microflora to maximize your digestive and immune system.*

Jarrow Formulas® is a probiotic pioneer and has a complete line of probiotic products, including the #1 seller in the U.S.† - Jarro-Dophilus EPS®, and the new Ideal Bowel Support™ 299v™, which reduces bloating, gas and intestinal discomfort.*

† #1 in both Dollar Sales and Unit Volume in the Natural Channel, according to SPINS, a market research and consulting firm for the Natural Product Industry (SPINScan Natural, 52 Weeks Ending 2/20/10).

www.Jarrow.com
To order call 1-800-544-4440 or visit www.LifeExtension.com

* 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.
Ginger Naturally Promotes a Healthy Inflammation Response*

Leading phytochemical databases maintained by the USDA and a major U.S. university identify multiple constituents in Gingerforce as modulating the 5-lipoxygenase enzyme.* Recent scientific studies, including one published in the Proceedings of the National Academy of Sciences, suggest that 5-lipoxygenase modulation may serve an important role in supporting normal cell growth and activity in a number of the body’s organ systems.*

Scientific research further supports ginger as an effective prostaglandin modulator, naturally promoting a healthy inflammation response throughout the body.* Ginger promotes fat-digesting bile and stomach-digesting saliva.* The active ingredients of ginger promote the growth of beneficial intestinal microorganisms, which are vital for intestinal health.* Ginger contains at least 12 anti-aging and cardiotoxic constituents that inactivate oxygen free radicals, some of these constituents shown in vitro to be up to 40 times more effective than Vitamin E.*

Gingerforce Supports Stomach, Liver, and Intestinal Health*

New Chapter’s patent-pending Gingerforce features the world’s most potent full-spectrum ginger extract, at least 250 times the concentration of fresh ginger. This premier extract is Potency Assured™ to a minimum of 2.8 mg pungent compounds, and also contains at least 4.3 mg zingiberene, an important and active component of the essential oil of ginger. Because this is a full-spectrum extract, it contains hundreds of naturally occurring beneficial ingredients not similarly present in other extracts.

The Revolutionary New Chapter Supercritical Extraction Process

Our supercritical extraction process is a breakthrough in herbal extraction. It’s the cleanest, purest way to extract the plant’s value and yields a superior extract that’s highly concentrated, super pure and delivers the full spectrum of nature’s powerful phytonutrients.

Gingerforce 60 Softgels Item# 01228
Retail Price: $29.95 Member Price: $22.46
To order Gingerforce, 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. This product is not intended to diagnose, treat, cure, or prevent any disease.
Blood testing provides the ultimate information regarding correctable risk factors that may predispose you to disorders such as cancer, diabetes, cardiovascular disease, and more. Information about general health and nutritional status can also be gained through standard blood analysis. Standing behind the belief that blood testing is an essential component of any program designed to attain optimal health and longevity, Life Extension® offers this innovative and convenient service at a very affordable price. Not only is comprehensive blood testing an important step in safeguarding your health, it is a simple process from virtually anywhere in the United States.

Five Easy Steps:
1. Call 1-800-208-3444 to discuss and place your order with one of our knowledgeable health advisors. (This order form can also be faxed to 1-866-728-1050 or mailed). Online orders can also be placed at www.lifeextension.com.
2. After your order is placed, you will be mailed either a requisition form to take to your local LabCorp Patient Service Center or a Blood Draw Kit; whichever is applicable (Please note: If a blood draw kit is used, an additional local draw fee may be incurred.)
3. Have your blood drawn.
4. Your blood test results will be mailed directly to you by Life Extension.
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.

It’s that simple! Don’t delay—call today!

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.

**Note:**
- This test requires samples to be shipped to the lab on dry ice for customers using a Blood Draw Kit and will incur an additional $35 charge. If the customer is having blood drawn at a LabCorp facility, this extra charge does not apply.
- **This test is packaged as a kit, requiring a finger stick performed at home.**
This test shows if you are taking the proper amount of DHEA. This test normally costs $100 or more at commercial laboratories.

Cortisol

This test is to measure adrenal function. 

Adrenocorticotropic Hormone (ACTH)*

A pituitary function test useful in evaluating adrenocortical function.

DHEA-Sulfate

This test shows if you are taking the proper amount of DHEA. This test normally costs $100 or more at commercial laboratories.

Dihydrotestosterone (DHT)*

Measures serum concentrations of DHT.

Estradiol

For men and women. Determines the proper amount in the body.

Insulin-Like Growth Factor Binding Protein 3 (IGFBP3)

Elevated levels in hypertensive individuals have been associated with a nine-fold increase of carotid atherosclerosis.

Insulin Fasting*

Can predict those at risk of diabetes, obesity, and heart and other diseases.

Pregnenolone* (LC140707)

Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushings syndrome.

Testosterone (LC004317)

Primarily for women. Determines the proper amount in the body.

Sex Hormone Binding Globulin (SHBG)

This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens.

Somatomedin C (IGF-1)

Indicates growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality.

Total Free Testosterone

Determines whether testosterone replacement should be considered as a therapy for depression, abdominal obesity, low energy, poor mental performance, or loss of libido.

Urinary 2/16 Estrogen Metabolite Ratio

This ratio is relevant as a risk factor for estrogen-sensitive diseases including breast and cervical cancers, osteoporosis, and recurrent respiratory papillomatosis.

Most Popular Single Tests

Hormones

Cortisol (LC004051)

This test is to measure adrenal function.

Adrenocorticotropic Hormone (ACTH)* (LC004440)

A pituitary function test useful in evaluating adrenocortical function.

DHEA-Sulfate (LC004697)

This test shows if you are taking the proper amount of DHEA. This test normally costs $100 or more at commercial laboratories.

Dihydrotestosterone (DHT)* (LC500142)

Measures serum concentrations of DHT.

Estradiol (LC004515)

For men and women. Determines the proper amount in the body.

Insulin-Like Growth Factor Binding Protein 3 (IGFBP3) (LC140152)

Elevated levels in hypertensive individuals have been associated with a nine-fold increase of carotid atherosclerosis.

Insulin Fasting* (LC004333)

Can predict those at risk of diabetes, obesity, and heart and other diseases.

Pregnenolone* (LC140707)

Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushings syndrome.

Progesterone (LC004317)

Primarily for women. Determines the proper amount in the body.

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.

Somatomedin C (IGF-1) (LC010363)

Indicates growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality.

Total Free Testosterone (LC140103)

Determines whether testosterone replacement should be considered as a therapy for depression, abdominal obesity, low energy, poor mental performance, or loss of libido.

Urinary 2/16 Estrogen Metabolite Ratio (LC73000)

This ratio is relevant as a risk factor for estrogen-sensitive diseases including breast and cervical cancers, osteoporosis, and recurrent respiratory papillomatosis.

Cardiac Risk

Lp-PLA2 (PLAC Test)* (LC141275)

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.

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 predicting heart attack and stroke.

Apolipoprotein Assessment (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 folate 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.

VAP™ 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.

Member Health

PSA (Prostate-Specific Antigen) (LC010322)

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)

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.

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.

Signature of Life Extension Member

X

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Phone your order to: 1-800-208-3444 Fax your order to: 1-866-728-1050

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L-Lysine Powder
L-Tyrosine Tablets
Mega L-Glutathione Capsules
N-Acetyl Cysteine Capsules
Optimized Carnitine with GlycoCarn®
PharmGABA
Super Carnosine Capsules
Taurine Capsules
Tryptophane® Tryptophane
Taurine Capsules
(Also available with Probiotics)
NeuroProtection Complex
(Optimized) Tryptopane® Plus
Arginine Capsules
Acetyl-L-Carnitine-Arginate
Acetyl-L-Carnitine
ArthroMax™ with Theaflavins
AMINO ACIDS
Vinpocetine
Optimized Carnitine with GlycoCarn®
Optimized Ashwagandha Extract
Glycine Powder
GABA Powder
Ginkgo Biloba Certified Extract™
Glucosamine Chondroitin Capsules
Carnosoothe w/PicroProtect
Cognitex Basics
Cognitex with Pregnenolone & CDP Choline Capsules
Chondrox
Chondroitin Sulfate
Super Carnosine Capsules
Super Carnosine Capsules
Saccharomyces Boulardii+mos
Super Ginkgo Extract
Bone & Joint Health
ArthroMax™ with Theaflavins
Bone-Up™
Bone Restore™
Bone Strength Formula w/KoAct™
Chondroitin Sulfate
Chondrox
Fast Acting Joint Formula
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Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arminate
CDP Choline Capsules
Cognitex with NeuroProtection Complex
Cognitex with Pregnenolone & NeuroProtection Complex
Cognitex Basics
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DAME-Ginkgo
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin with B5 and BHA
Lecithin Granules
Methylcobalamin Loezenges
Optimized Ashwagandha Extract
Phosphatidyserine Capsules
Rhodiola Extract
Super Ginkgo Extract
Vinpocetine
DIGESTIVE
Agave Digestive-Immune Support
Bromelain Powder
Carnosoothe w/PicroProtect
Digest RC™
Enhanced Super Digestive Enzymes (also available with Probiotics)
Florastor
Intact Digest
Life Flora™
Natural Esophaguard
N-Zimes™
Pancreatin
Primal Defense
Regiment™
Sacchomyces Boulardii+mos
DURK AND SANDY PRODUCTS
Blast™
Dual-C
Inner Power™
Memory Upgrade™
EYE CARE
Bilberry Extract
Blackcurrant Freeze Dried Extract
Brite Eyes III
Overcast Polarized Sunglasses
Solarshied Sunglasses
Super Zeaxanthin with Lutein & Meso-Zeaxanthin and CSF
(Plus Astaxanthin also available)
Vision Optimizer
FIBER
Apple Pectin Powder
Fiber Food
Hi-Lignan® Nutri-Flax®
WellBetTX PGX® Soluble Fiber Blend
FOOD
Asian Cruciferous Vegetable Soup
Cruciferous Vegetable Soup
HAIR CARE
Dr. Proctor’s Advanced Hair Formula
Dr. Proctor’s Shampoo
Life Extension Shampoo and Conditioner
Super-Absorbable Tocotrienols
HEART HEALTH
Advanced Lipid Control
Aspirin (Enteric Coated)
Cho-Less™
D-Ribose Powder
Endothelial Defense™ with Full-Spectrum Pomegranate™
Fibrinogen Resist
Forskolin
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
Silymarin®
Theflavin Standardized Extract
TMG Powder
TMG Tablets
HERBAL/PHYTO PRODUCTS
Artichoke Leaf Extract
Astaxanthin
Berry Complete
Blackcurrant Juice Concentrate
Blueberry Extract
Blueberry Extract w/Pomegranate
Butterbur Extract w/Standardized Rosmarinic Acid
Calcium D-Glucarate
Cilantro Herbal Extract
Citrus Bioflavonoid
Enhanced Berry Complete with RZD™ Acai
Full-Spectrum Pomegranate™
GrapeSeed Extract with Resveratrol & Pterostilbene
Huperzine A with Natural Vitamin E
Kyoic® Garlic Formula 105
Kyoic® 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
SO3Dyme™ with GliSODIn®
Stevia Extract
Super Bio-Curcumin®
Super Curcumin with Bioperine®
Super Ginkgo Extract
Triple Action Cruciferous Vegetable Extract
Venotone
Whole Grape Extract
HORMONES
7-Keto™ DHEA
DHEA
DHEA Complete
GH Pituitary Support Day Formula
GH Pituitary Support Night Formula
Melatonin
Melatonin Timed Release
Natural Estrogen with Pomegranate Extract
Pregnenolone
ProFem Cream
Pure IGF
Super Miraforte with Standardized Lignans
IMMUNE ENHANCEMENT
Agave Digestive-Immune Support
AHCC® (Active Hexose Correlated Compound)
Buffered Vitamin C Powder
Echinacea
Enhanced Life Extension Whey Protein
126 Hyperimmune Egg
Immune Protect with PARACTIN®
Lactoferrin
Lifesheld™ Immunity™
Maitake SX-Fraction
Norwegian Shark Liver Oil
Primal Defense™
ProBoost™ Thymic Protein A
Pure Gar™
Sambus® Guard
Theracaps Capsules
Thymic Immune Factors
Ultimate Flora Advanced Immunity
Vitamin C with DiHydroquercetin
Zinc Loezenges with Vitamin C
INFLAMMATORY REACTIONS
Artho-Immune Joint Support
ArthroMax™ with Theaflavins
Barlean’s Kids DHA
Boswellia
Boswellia™ Topical Cream
Bromelain (Specially-coated)
Coromega Kids Brain and Body (DHA)
DHA 240
Emulsified Norwegian Cod Liver Oil
Emulsified Super Twin EPA/DHA
Fast Acting Joint Formula
Ginger Force
Kril Oil
5-LOXIN®
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Natural Relief 1222™ Cream
Serrafiazyme
SODzyme™ with GliSODIn® and Wolfberry
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Tart Cherry
Udo’s Choice Oil
Zyflamend Easy
LIVER HEALTH
Branch Chain Amino Acids
N-Acetyl Cysteine
Optimized Milk Thistle (Silymarin)
PhosChol® (Nutrasal)
SAme
Silymarin
MINERALS
Biosil
Bone Restore
Bone Strength Formula w/KoAct™
Bone-Up™
Boron Capsules
Calcium Citrate with D3
Products

Chromium Ultra
Copper
Dr. Strum’s Intensive Bone Formula
Iodoral
Iron Protein Plus
Magnesium
Magnesium Citrate
Mineral Formula for Men
Mineral Formula for Women
Only Trace Minerals
Optimized Chromium w/Crominex® 3+
OptiZinc
Sea-Iodine™
Se-Methylselenocysteine
Selenium
Se-Methylselenocysteine
Stromium
Vanadyl Sulfate
Zinc/Vitamin C Lozenges

MITOCHONDRIAL SUPPORT
Acetyl-L-Carnitine
Acetyl-L-Carnitine-Argetnine
Mitochondrial Basics w/BioPQQ™
Mitochondrial Energy Optimizer w/BioPQQ™
Optimized L-Carnitine with GlycoCarn®
Super Absorbable CoQ10™ with d-Limonene
Super Alpha Lipoic Acid with Biotin
Super R-Lipoic Acid
Super Ubiquinol CoQ10® with Enhanced Mitochondrial™ Support

MOOD RELIEF
L-Theanine
5 HTP
Natural Stress Relief
Optimized TryptoPure™ Plus
Stabilum® 200
SAME
St. John’s Wort Extract
Tryptopure™ L-Tryptophan

MOUTH CARE
Advanced Oral Hygiene
Dr. Tung’s Tongue Cleaner
Life Extension Mouthwash w/Pomegranate
Life Extension Toothpaste
Mist Oral III™ with CoQ10

MULTIVITAMIN
Children’s Formula Life Extension Mix
Comprehensive Nutrient Pack
Life Extension Booster
Life Extension Mix™ Powder
Life Extension Mix™ Tablets
Life Extension Mix™ w/o Copper Capsules
Life Extension Mix™ w/o 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
Life Extension One-Per-Day
Life Extension Two-Per-Day
Super Booster Softgels w/Advanced K2 Complex
Vital Greens Mix

PET CARE
Life Extension Cat Mix
Life Extension Dog Mix

PROSTATE & URINARY HEALTH
Better WOMAN®
Optimized Cran-Max® with UTIRose™ 6-LOXIN®
(Water-Soluble) Pumpkin Seed Extract
Super Saw Palmetto with Beta-Sitosterol
Super Saw Palmetto/Nettle Root Formula
w/Beta-Sitosterol
Ultra Natural Prostate Formula

SKIN CARE
Anti-Aging Mask
Anti-Glycation Serum
Antioxidant Rejuvenating Foot Cream
Antioxidant Rejuvenating Foot Scrub
Antioxidant Rejuvenating Hand Cream
Antioxidant Rejuvenating Hand Scrub
Anti-Redness & Blemish Lotion
Cellulite Suppress™ Formula
Corrective Cleaning Mask
DermaWhey
Dual-Action MicroDerm Abrasion
Essential Plant Lipids Reparative Serum
Face Master® Platinum
Face Rejuvenating Antioxidant Cream
Enhanced FernBlock® w/Sendara™
Fine Line-Less
Hair Suppression Formula
Hyaluronic Acid
Hydrating Anti-oxidant Face Mist
Hydroderm®
Lavilin Underarm Deodorant
Lifting & Tightening Complex
Melatonin Cream
Mild Facial Cleanser
NeaPAC w/Aloe Vera
Neck Rejuvenating Antioxidant Cream
New Face Solution
Peel Off Cleansing Mask
Pigment Correcting Cream
(Ultra) Rejuvenex®
Rejuvenex® Body Lotion
Rejuvenex® Factor
Rejuvenating Serum
Skin Lightening Serum
Skin Restoring Ceramides w/Lipowheat™
Skin Stem Cell Serum
Sun Protection Spray
Total Sun Protection Cream
Triple Action Under Eye Rejuvenator
Ultra Rejuvenex®
Ultra Rejuvenex® Night w/Progesterone
Ultra Rejuvenex® Night w/o Progesterone
Ultra Lip Plumper
Ultra Wrinkle Relaxer
Under Eye Refining Serum
Under Eye Rescue Cream
Vitamin C Serum
Vitamin D Lotion
Vitamin K Healing Cream

SOY
Natural Estrogen w/Pomegranate
Soy Protein Concentrate
Super Absorbable Soy Isoflavones
Ultra Soy Extract

SPECIAL PURPOSE FORMULA
Anti-Alcohol Antioxidants w/HepatoProtection Complex
Benfotiamine w/Thiamine
Breast Health Formula
Butterbur Extract w/Standardized Rosmarinic Acid
Chlorella
Chlorophyllin w/Zinc
Coriolus Super Strength
CR Mimetic Longevity Formula
DermaVia™
Cinsulin® w/InSea™ and Crominex® 3+
B6
European Leg Solution Diosmin 95
Fem Dophilus
Femmenessence MacaPause®
GlucOFit™
Ideal Bowel Support 299V
Lustre™
Maitake SX-Fraction™
Menopause Solutions
Migra-ease™
Natural Female Support
Organic Total Body Cleanse
Pecta-Sol®
Potassium Iodide
POQ Caps with BioPOQ™
Prelox® Natural Sex for Men®
Pyridoxal 5’-Phosphate
Rosmarinic Acid Extract

SPORTS PERFORMANCE
Creatine Capsules
Creatine Powder
Enhanced Life Extension Protein
DMG (N, N-dimethylglycine)
Inosine
L-Glutamine Capsules
L-Glutamine Powder
Octacosanol

VITAMINS
Ascorbic Acid Powder
Ascorbyl Palmitate Capsules
B1
B2
B12
Beta-Carotene
Biotin Capsules
Biotin Powder
Buffered Vitamin C Powder
Complete B Complex
Essential Fat-Soluble Nutrient
Folic Acid + B12
Gamma E Tocopherol w/Sesame Lignans
Gamma E Tocopherol/Tocotrienols
Inositol Capsules
Inositol Powder
Mega Lycopene Extract
Methylcobalamin
MK-7
No-Flush Niacin
Optimized Folate
PABA Capsules
Super Ascorbate C Capsules
Super Ascorbate C Powder
Super K w/Advanced K2 Complex
Tocotrienols w/Sesame Lignans
Vitamin A Nutrisorb
Vitamin B3 (Niacin) Capsules
Vitamin B5
Vitamin B12 Tablets
Vitamin C
Vitamin D
Vitamin D3
Vitamin D3 w/Sea-Iodine™
Vitamins D and K w/Sea-Iodine™
Vitamin E
Vitamin K1
WEIGHT MANAGEMENT
Alli® Refill Pack
Belly Slim & Tone
Calorie Control Weight Management Formula
7-Keto DHEA
DHEA Complete
Fucosanthin Slim™
HCA
Integra-Lean® Irvingia
LuraLean® Caps Special Propolmann
Particle Size
Optimized Irvingia w/Phase 3™ Calorie Control Complex
Optimized Saffron with Satireal®
Natural Appetite Control
Natural Glucose Absorption Control
Prelox® Natural Sex for Men®

ALLERGEN-FREE VITAMINS
(Made Without the Following Ingredients)
Color
Flavor
Flavoring
Flavoring Extracts
Grain
Lactose
Wheat
Corn
Soy
Non-GMO
Organic

OPTIMIZED FOLATE
Optimized Folate

OPTIMIZED CHROMIUM WITH CROMINEX® 3+
Optimized Chromium with Crominex® 3+

OPTIMIZED SAW PALMETTO/NETTLE ROOT FORMULA
Optimized Saw Palmetto/Nettle Root Formula

OPTIMIZED ESSENTIAL OMEGA-3 FATTY ACIDS
Optimized Omega-3 Fatty Acids

OPTIMIZED MCT OIL
Optimized MCT Oil

OPTIMIZED IRVINGIA WITH PHASE 3™ CALORIE CONTROL COMPLEX
Optimized Irvingia with Phase 3™ Calorie Control Complex

OPTIMIZED SAW PALMETTO/NETTLE ROOT FORMULA
Optimized Saw Palmetto/Nettle Root Formula

OPTIMIZED IRVINGIA WITH PHASE 3™ CALORIE CONTROL COMPLEX
Optimized Irvingia with Phase 3™ Calorie Control Complex

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Optimized Irvingia with Phase 3™ Calorie Control Complex

OPTIMIZED IRVINGIA WITH PHASE 3™ CALORIE CONTROL COMPLEX
Optimized Irvingia with Phase 3™ Calorie Control Complex
<table>
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<tr>
<th>No.</th>
<th>Product Description</th>
<th>Qty</th>
<th>Retail Price</th>
<th>Member Price</th>
<th>Total</th>
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<tr>
<td>0049</td>
<td>ACETYL-L-CARNITINE - 500 mg, 100 caps</td>
<td>4 bottles</td>
<td>120 caps</td>
<td>56.00</td>
<td>$42.00</td>
</tr>
<tr>
<td>0078</td>
<td>ACETYL-L-CARNITINE - 4 bottles of 100 caps</td>
<td>4 bottles</td>
<td>100 caps</td>
<td>116.64</td>
<td>139.98</td>
</tr>
<tr>
<td>01038</td>
<td>ACETYL-L-CARNITINE ARGINATE - 100 caps</td>
<td>4 bottles</td>
<td>100 caps</td>
<td>59.00</td>
<td>44.25</td>
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<tr>
<td>01039</td>
<td>ACETYL-L-CARNITINE ARGINATE - 4 bottles of 100 caps</td>
<td>4 bottles</td>
<td>100 caps</td>
<td>203.96</td>
<td>152.97</td>
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<tr>
<td>01308</td>
<td>ADVANCED LIPID CONTROL - 60 veg. caps</td>
<td>4 bottles</td>
<td>60 veg. caps</td>
<td>80.00</td>
<td>64.00</td>
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<td>01300</td>
<td>ADVANCED LIPID CONTROL - 4 bottles of 60 veg. caps</td>
<td>4 bottles</td>
<td>60 veg. caps</td>
<td>108.00</td>
<td>81.00</td>
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<tr>
<td>01417</td>
<td>AGAVE DIGESTIVE IMMUNE SUPPORT - 360 grams of powder</td>
<td>3 bottles</td>
<td>120 caps</td>
<td>110.40</td>
<td>88.32</td>
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<tr>
<td>00681</td>
<td>AIVC - 500 mg, 30 caps</td>
<td>4 bottles</td>
<td>30 caps</td>
<td>174.20</td>
<td>130.65</td>
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<tr>
<td>46925</td>
<td>ALL* REFILL PACK - 60 mg, 120 caps</td>
<td>4 bottles</td>
<td>120 caps</td>
<td>69.95</td>
<td>58.00</td>
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<tr>
<td>00457</td>
<td>ALPHA-LIPIDIC ACID w/BIOTIN (SUPER) - 250 mg, 60 caps</td>
<td>3 bottles</td>
<td>60 caps</td>
<td>110.00</td>
<td>90.00</td>
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<tr>
<td>01440</td>
<td>ANTI-ALCOHOL ANTIOXIDANTS W/HEPATOPRO - 100 caps</td>
<td>2 bottles</td>
<td>100 caps</td>
<td>26.00</td>
<td>19.50</td>
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<tr>
<td>01406</td>
<td>ARGinine/ORNithine POWder - 4 bottles of 100 caps</td>
<td>4 bottles</td>
<td>100 caps</td>
<td>92.00</td>
<td>69.00</td>
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<tr>
<td>00105</td>
<td>APPLE PECTIN POWDER - 227 grams</td>
<td>4 bottles</td>
<td>56.00</td>
<td>84.55</td>
<td>58.88</td>
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<td>01012</td>
<td>ARGinine CAPs - 800 mg, 200 caps</td>
<td>3 bottles</td>
<td>200 caps</td>
<td>93.00</td>
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<td>ARGinine/ORNithine CAPs - 500/250, 100 caps</td>
<td>3 bottles</td>
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<td>16.00</td>
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<td>ARGinine/ORNithine POWder - 150 grams</td>
<td>2 bottles</td>
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<td>ARGinine/ORNithine POWder - 4 bottles of 100 caps</td>
<td>4 bottles</td>
<td>100 caps</td>
<td>15.98</td>
<td>12.78</td>
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<td>01317</td>
<td>ARTHROMAX™ w/THEAFLAVINS - 120 veg. caps</td>
<td>4 bottles</td>
<td>120 veg. caps</td>
<td>44.00</td>
<td>35.20</td>
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<tr>
<td>01404</td>
<td>ARTHRO-IMMUNE JOINT SUPPORT - 60 veg. caps</td>
<td>3 bottles</td>
<td>60 veg. caps</td>
<td>30.00</td>
<td>24.00</td>
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<tr>
<td>00919</td>
<td>ARTICHOKE LEAF EXTRACT - 500 mg, 180 veg. caps</td>
<td>2 bottles</td>
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<td>28.00</td>
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<tr>
<td>00086</td>
<td>ASCORBIC ACID POWder - 8 oz of powder</td>
<td>3 bottles</td>
<td>240 caps</td>
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<td>ASCORBIC ACID POWder - 454 grams</td>
<td>2 bottles</td>
<td>220 caps</td>
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<td>ASCORBIL PALMITATE - 500 mg, 100 caps</td>
<td>2 bottles</td>
<td>100 caps</td>
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<td>00888</td>
<td>ASHWAGANDHA EXTRACT (OPTIMIZED) - 60 veg. caps</td>
<td>1 bottle</td>
<td>60 veg. caps</td>
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<td>01066</td>
<td>ASPRIN - 81 mg, 300 enteric coated tablets</td>
<td>1 bottle</td>
<td>300 enteric coated tablets</td>
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<tr>
<td>00708</td>
<td>ASTAXANTHIN - 2 mg, 30 softgels</td>
<td>2 bottles</td>
<td>60 softgels</td>
<td>10.25</td>
<td>6.15</td>
</tr>
</tbody>
</table>

* These products are not 25% off retail price.

**SUB-TOTAL OF COLUMN 1**
**Buyers Club Order Form**

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* Not for sale to wholesalers or retail stores.

**SUB-TOTAL OF COLUMN 3**

**SUB-TOTAL OF COLUMN 4**
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<td>COSMESIS MILD FACIAL CLEANSER - 8 oz</td>
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<td>COSMESIS MILD FACIAL CLEANSER - 2 bottles of 8 oz</td>
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**SUB-TOTAL OF COLUMN 5**

**SUB-TOTAL OF COLUMN 6**

*Not eligible for member discount or member renewal product credit.*
**LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS**

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<td>DIGESTIVE ENZYMES (ENHANCED SUPER)- 100 veg. caps</td>
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<td>DIGESTIVE ENZYMES w/PROBIOTICS (ENHANCED SUPER)- 100 veg. caps</td>
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<td>EMULSIFIED SUPER TWIN EPA/DHA - 12 fl. oz</td>
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<td>ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™ - 60 softgels</td>
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<td>EPA/DHA (Mega) - 120 softgels</td>
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<td>ESSENTIAL FAT-SOLUBLE NUTRIENTS - 30 softgels</td>
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<td>GH PITUITARY SUPPORT DAY FORMULA - 120 vegetarian tabs</td>
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<td>GH PITUITARY SUPPORT NIGHT FORMULA - 120 veg. caps</td>
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**SUB-TOTAL OF COLUMN 7**

**SUB-TOTAL OF COLUMN 8**

MARCH 2011

* Due to license restrictions, this product is not for sale to wholesalers outside of the United States of America and Canada.

** Can only be sold in the United States.

† Member pricing not valid on this item.
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<td>L-GLUTATHIONE (MEGA) - 250 mg, 60 caps</td>
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<td>L-GLUTATHIONE (MEGA) - 4 bottles of 60 caps</td>
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<td>01091</td>
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<td>GRAPE EXTRACT w/RESVERATROL (WHOLE) - 4 bottles of 60 veg. caps</td>
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<td>GREEN TEA EXTRACT (MEGA) - lightly decaffeinated - 100 veg. caps</td>
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<td>HYDRODERM® - 2 - 1 oz bottles</td>
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<td>INOSINE - 500 mg, 60 caps</td>
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<td>INOSINE - 4 bottles of 60 caps</td>
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<td>INOSITOL CAPSULES - 500 mg, 100 caps</td>
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<td>INOSITOL CAPSULES - 1000 mg, 360 caps</td>
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<td>INOSITOL POWDER - 4 bottles</td>
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<td>INTAKE-DIGEST™ - 8 fl oz</td>
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<td>IRON PROTEIN PLUS - 4 bottles of 100 caps</td>
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<td>IRVINGIA w/PHASE 3™ - 120 veg. caps</td>
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<td>240.00</td>
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**SUB-TOTAL OF COLUMN 9**

**MARCH 2011**

**LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS**

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<td>JABR-DOPHILUS EPS™ - 60 veg. caps</td>
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<td>K w/ADVANCED K2 COMPLEX (SUPER) - 90 softgels</td>
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<td>NK0 KRILL OIL - 60 softgels</td>
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<td>KYOLIC® GARLIC FORMULA 102 - 350 mg, 200 caps</td>
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<td>KYOLIC® GARLIC FORMULA 105 - 200 caps</td>
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<td>KYOLIC® RESERVE - 600 mg, 120 caps</td>
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<td>LIFE EXTENSION CAT MIX - 100 grams of powder</td>
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<td>LIFE EXTENSION DOG MIX - 100 grams of powder</td>
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<td>LIFE EXTENSION MIX™ - 4 bottles of 315 veg. tablets</td>
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<td>00155</td>
<td>LIFE EXTENSION MIX™ - 10 bottles of 315 veg. tablets</td>
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<td>00156</td>
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<td>LIFE EXTENSION MIX™ w/EXTRA NIAIN - 315 tablets</td>
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<td>LIFE EXTENSION MIX™ w/EXTRA NIAIN - 10 bottles of 315 veg. tablets</td>
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<td>LIFE EXTENSION MIX™ w/EXTRA NIAIN - 10 bottles of 315 veg. tablets</td>
<td>695.00</td>
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**SUB-TOTAL OF COLUMN 10**

To order call: 1.954.766.8433 or 1.800.544.4440
LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

To order online visit: www.lifeextension.com

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<td>MIGRA-EZ™ (BUTTERBUR) - 60 softgels</td>
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<td>S-LOXIN™ - 75 mg, 100 veg. caps</td>
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<td>MELATONIN CAPSULES - 10 mg, 60 caps</td>
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<td>00352</td>
<td>MELATONIN LOZENGES - 3 mg, 60 dissolve-in-mouth lozenges</td>
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<td>MELATONIN TIME RELEASE - 300 mcg, 100 veg. caps</td>
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<td>MELATONIN TIME RELEASE - 4 bottles of 100 veg. caps</td>
<td>22.52</td>
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**SUB-TOTAL OF COLUMN 11**

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<td>NATTOKINASE - 60 softgels</td>
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<td>NATURAL BP MANAGEMENT - 60 tablets</td>
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<td>NATURAL ESOPHAGUARD - 10 softgels</td>
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<td>00712</td>
<td>NATURAL ESTROGEN w/POMEGRANATE EXTRACT - 60 caplets</td>
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<td>01221</td>
<td>NATURAL FEMALE SUPPORT - 30 veg. caps</td>
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<td>01471</td>
<td>NATURAL GLUCOSE ABSORPTION CONTROL - 60 veg. caps</td>
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<td>NATURAL SLEEP - 3 mg, 60 veg. caps</td>
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<td>NATURAL SLEEP - 4 bottles of 60 veg. caps</td>
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**SUB-TOTAL OF COLUMN 12**
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<td>PILL CUTTER/GRINDER</td>
<td>$11.95</td>
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**To order call: 1.954.766.8433 or 1.800.544.4440**

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### Buyers Club Order Form

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<td>PYRIDOXAL 5'-PHOSPHATE - 100 mg, 60 veg. caps</td>
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<td><strong>Q. R</strong></td>
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<td>REGIMINT* - 60 enteric-coated caps</td>
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<td>SACCHAROMYCES BOULARDI+MOIS - 30 veg. caps</td>
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<td>SAMBU GUARD - 175 ml</td>
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**SUB-TOTAL OF COLUMN 15**

**SUB-TOTAL OF COLUMN 16**

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**These products are not 25% off retail price.**

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MARCH 2011
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Many people think that only joints are affected by inflammation. The truth is that the body’s natural inflammatory 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. Research at leading medical institutions, including human clinical trials, has demonstrated a unique herbal formulation’s ability to promote a safe, natural and healthy response to inflammation.*

Zyflamend® is the #1-selling herbal in the U.S. for healthy inflammation response. It contains hundreds of bioactive constituents from ten of the most researched botanicals that promote a healthy inflammatory response and provide multiple health benefits: heart health, healthy aging, joint health, and bone health.*

Zyflamend for Heart Health

Recent research suggests that the key factor in predicting heart health is gauging the amount of inflammation in the arteries. C-reactive protein is a blood marker used to assess inflammation and heart health.

Early data from a human clinical study conducted at Columbia University suggests that daily supplementation with Zyflamend promotes healthy levels of C-reactive protein.*

In data presented at the 2008 meeting for the Society for Integrative Oncology, researchers reported the following analysis of data from a Zyflamend human clinical study: “A statistically significant reduction in serum C-reactive protein was... observed after 18 months.”

Maintaining a healthy cardiovascular system is strongly linked to a healthy inflammation response—Zyflamend is the first choice for promoting heart health.*

© 2010 New Chapter, Inc. 1 According to 2010 SPINS Data

Omega-3 Is Important for Cardiovascular Health

The body needs fatty acids to survive and is able to make all but two of them: linoleic acid (L.A.) in the omega-6 family, and alpha-linolenic acid (A.L.A) in the omega-3 family. These two fatty acids must be supplied by the diet and are therefore considered essential fatty acids (EFAs).

Omega-3 fatty acids, found in cold-water fish (and fish oil), perilla oil, and flaxseed oil, are essential elements of a healthy diet. While the polyunsaturated fats known as omega-6 fatty acids are essential to life, most Americans and citizens of other Western nations consume far too many omega-6 polyunsaturated fatty acids and not enough omega-3 polyunsaturated fatty acids. In fact, some Western diets consist of 20 parts of omega-6 to only one part of omega-3. For optimum health, the ratio of omega-6 to omega-3 fatty acids should be between 11 and 4:1.1 The severe imbalance that occurs with most people contributes to the development of long-term health problems.

Life Extension’s Super Omega-3 is a premium, scientifically-validated fish oil concentrate, derived from sustainable sources, that contains a proprietary, full-spectrum blend of synergistic nutrients to provide scientifically-validated cardioprotective health benefits.

Super Omega-3 from Life Extension® uses a patented EPA/DHA extraction process that results in a pure, stable, and easy-to-tolerate fish oil extract. While most fish oil is distilled to decrease contaminants such as mercury and PCBs, the Pure™ fish oil used in Super Omega-3 is produced with a patented method that purifies the oil with a highly advanced distillation process to reduce pollutants to virtually undetectable levels. The result is an improved fish oil that exceeds the standards set by international rating agencies.


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

*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.
Is 100 the new 80?

In 1907 when Russian scientist and Nobel laureate Eli Metchnikoff observed rural populations in Bulgaria that were exceptionally long lived, he knew it warranted investigation. The diets of these rural people contained large quantities of milk fermented with lactic acid bacteria.

In his 3rd book, The Prolongation of Life: Optimistic Studies, Metchnikoff published findings on the potential life-lengthening properties of probiotic bacteria.

As Metchnikoff came to discover, the majority of our immunity begins in the intestines. When we have good intestinal health, we are far more able to fight off infection and invading microorganisms. What Metchnikoff devoted years of research to is now something that we take for granted: Probiotics do so much more than simply restore regularity.

Keys to Longevity and Vitality Supported by Theralac®

Theralac achieves the benefits Metchnikoff detailed in his research, and much more:

- Produces abundant lactic acid which cleanses the small intestine and colon
- Up regulates both cellular and humoral immune systems
- Aids in production of Butyric acid, helping to regulate peristaltic action
- Produces specific metabolites hydrogen peroxide and acidiophilin, that play a key role in a healthy GI Tract
- Is a “Hormone Harmonizer,” maintaining estrogen and progesterone levels
- Helps to maintain cholesterol and glycemic levels already in normal range
- Aids in improved nutrient absorption

A Different World.

Metchnikoff’s subjects lived in an entirely different world: 100 years ago they did not have many of the terrible offshoots of our modern society wreaking havoc with their bodies and digestive tracts:

- processed foods
- chlorinated water
- rampant pollution
- plastics (BPA) pollution
- diet soda, trans fats
- EMF and microwaves

The most powerful, medical strength probiotic, Theralac, is needed today when mere fermented foods worked 100 years ago.

The 2 capsules per week needed for maintenance is less than $3 per week at MSRP. You really should take: Theralac.

Theralac® 30 capsules
Retail: $44.95 Item# 01038
Call for LEF Member Pricing
800-544-4440

Recommended 9 separate times in The Blaylock Wellness Report

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

RejuveneX® FACTOR

Expertly Formulated With Advanced Anti-Aging Ingredients

RejuveneX® Factor incorporates nutrients with proven therapeutic value, resulting in more noticeable skin firmness and elasticity, smoother skin tone, and vibrant texture and volume:

- **POMEGRANATE** demonstrates some of the most potent antioxidant properties of any plant.¹
- **MATRIXYL™ 3000** restores youthful tone and texture by nourishing collagen and reducing sagginess.
- **CERAMIDE-2**, together with Ceraphyl® NGA, helps prevent dehydration even when the moisture level in your skin diminishes with age.²
- **GRAPE SEED EXTRACT** contains powerful phenolic compounds that help promote the elasticity, flexibility, youthfulness, and health of your skin.³

RejuveneX® Factor is formulated with the QuSome® advanced efficacy delivery system that enables these ingredients to penetrate the skin’s lower layers for greater nourishment and extended protection.

More Active Ingredients Than Other Anti-Aging Skin Creams

With 25 active ingredients, RejuveneX® Factor is the world’s most nutritionally complete skin care formula. RejuveneX® Factor contains multiple antioxidants and other ingredients that have been scientifically documented to keep skin youthful, including:

- **GREEN AND WHITE TEA EXTRACTS** help keep your skin looking youthful by providing protection against oxidative stress.

These antioxidants help combat the visible aging effects associated with glycation—reducing visible signs of aging by as much as 75%.⁴

- **VITAMIN C** in ascorbyl phosphate form quenches skin-damaging free radicals and nourishes the skin’s collagen strands.
- **HYALURONIC ACID** to help the skin retain moisture.
- **ALPHA LIPOIC ACID**, a potent and versatile antioxidant that helps reduce the appearance of premature wrinkling of the skin and improve skin texture.
- **BETA-GLUCAN**, which has been shown to penetrate deep into the skin and deliver significant skin benefits as a long-lasting, film-forming moisturizer, is essential to retaining youthful-looking skin. Beta-glucan’s ability to penetrate the epidermis to reach the dermis (the layer where wrinkles form) makes this ingredient essential for any skin care regimen. It has also been shown to increase skin firmness and nourish collagen.
- **VITAMIN A** improves the appearance of wrinkles associated with natural aging.
- **VITAMIN E** in both alpha and gamma tocopherol forms helps protect against environmentally induced oxidation in the skin’s outer layer.
- **RNA** (ribonucleic acid) is critical for healthy skin rejuvenation.

A 1.7-fl.-oz. (50-mL) pump of RejuveneX® Factor retails for $65. If a Life Extension® member buys four bottles, the price is reduced to just $41.25 per bottle.

RejuveneX® is formulated with ingredients shown to dramatically improve the appearance of dry, creased, or damaged skin.

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

References:

Matrisyl® 3000 is a trademark of Sederma, Inc. Ceraphyl® is a registered trademark of International Specialty Products. QuSome® is a registered trademark and patented by Biozone Laboratories, Inc.
NO REAL HEALTHCARE COST CRISIS (Page 7)

*Life Extension®* has long warned that corrupt healthcare legislation will *bankrupt* the United States with *hyper-inflated* sick-care costs. Here we detail how commonsense changes to the law can avert this financial catastrophe.

CAN BLUEBERRY EXTRACTS HALT METABOLIC SYNDROME? (Page 28)

Almost 25% of the American population endures the deadly *metabolic syndrome*—the co-occurrence of *insulin resistance*, *hypertension*, *obesity*, and *abnormal blood lipid* profiles. Find out how blueberry extracts help *halt* this lethal pandemic.

HOW TO MANAGE YOUR ANXIETY SAFELY (Page 40)

According to the National Institute of Mental Health, **40 million** Americans suffer from some form of *anxiety disorder*. In an exclusive excerpt from his latest book, psychiatrist Henry Emmons outlines proven *natural* strategies to safely manage anxiety.

HOW CURCUMIN PROTECTS AGAINST CANCER (Page 52)

As mainstream oncology misguidedly focuses on toxic, single-agent treatments, a wealth of compelling data puts *curcumin* at the forefront of *multimodal* cancer prevention.