

HIDDEN EPIDEMIC OF CHRONIC KIDNEY DISEASE

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The ULTIMATE Source For New Health And Medical Findings From Around The World

May 2010

Why Estrogen *Balance* is Critical for Aging Men

**There's More to
Pomegranate than
Just the Fruit**

**New *Blood Test*
Reveals Risk of
Cardiac Death**

**Overlooked
Benefits of
*N-Acetyl Cysteine***

**Lou
FERRIGNO**
Secrets to Ageless Strength



Achieve Multiple Health Benefits From Highly Absorbable Curcumin

How Much Curcumin Are You Absorbing?

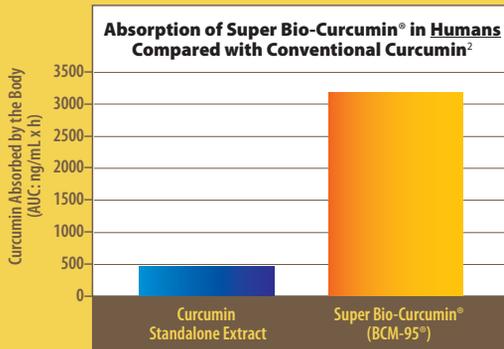


Chart 1. Super Bio-Curcumin® (BCM-95®) showed 6.9 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with conventional curcumin (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over 8 hours).

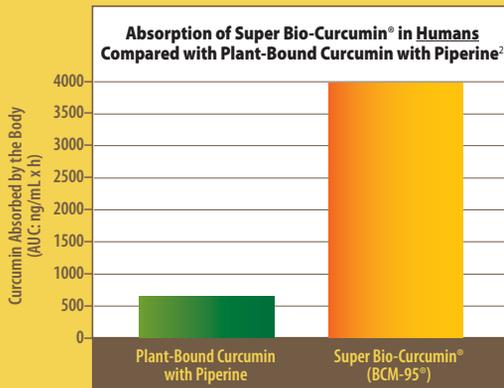


Chart 2. Super Bio-Curcumin® (BCM-95®) showed 6.3 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with plant-bound curcumin with piperine (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over 8 hours).

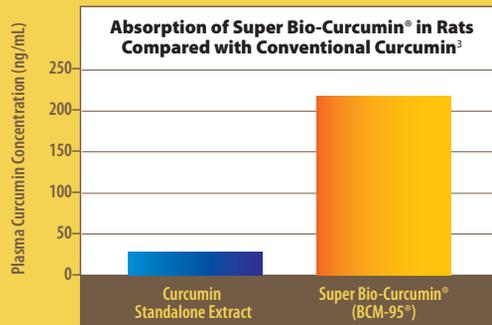


Chart 3. Bioavailability in rats fed with BCM-95® is 7.8 times higher than conventional curcumin.

Curcumin and other *turmeric* constituents are impressing scientists around the world with their remarkable health benefits, such as suppressing inflammatory factors, fighting free radicals, and promoting healthy DNA function. The problem is that curcumin is *poorly* absorbed into the bloodstream.

Super Bio-Curcumin® has been shown to **absorb up to seven times better** than conventional curcumin. This patent-pending formula thus represents the most cost-effective way to supplement with this critical nutrient.^{1,2}

The remarkable absorption studies charted to the left reveal that just one 400 mg capsule a day of this turmeric compound can provide *curcumin* blood levels equivalent to ingesting **2,500–2,800 mg** of commercial curcumin supplements.

Not only does this novel turmeric formulation provide far greater *peak* blood levels, but the curcumin also remains in the bloodstream almost **twice as long** compared with conventional supplements.

What's more, this enhanced absorption delivery complex provides other beneficial turmeric compounds in addition to standardized *curcumin*.

SUPER BIO-CURCUMIN® WITH BCM-95®



ITEM #00407

Life Extension's **Super Bio-Curcumin®** contains the patent-pending BCM-95® turmeric compound. A bottle containing 60 **Super Bio-Curcumin® with BCM-95®** capsules retails for \$30. If a member buys four bottles, the price is reduced to just **\$19.88** per bottle. Each bottle will last most members two months.

References:

1. *Spice India*. 2006 Sept;19(9):11-5.
2. A novel bioenhanced preparation of curcuminoids. Study submitted for publication, 2007.
3. Bioavailability study of BCM-95® in rats. Orcas International Inc. 2006.

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.

Contains rice.

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.

REPORTS



22 HIDDEN EPIDEMIC OF CHRONIC KIDNEY DISEASE

Researchers have only recently uncovered the *epidemic* of chronic kidney disease striking aging Americans. In some cases, up to 60% of kidney function may be lost before standard testing reveals a problem. The encouraging news is that there are proven methods to diagnose kidney disease early, and natural interventions that protect against this widespread killer—including many nutrients Life Extension® members already take.



38 THERE'S MORE TO POMEGRANATE THAN JUST FRUIT

From heart disease and obesity to cancer prevention, the benefits of the pomegranate fruit have been thoroughly documented. Now scientists are discovering unique properties in the flower and seed of the pomegranate plant. These findings are of particular importance to those suffering chronic inflammatory conditions as well as excess glucose and lipid blood levels.



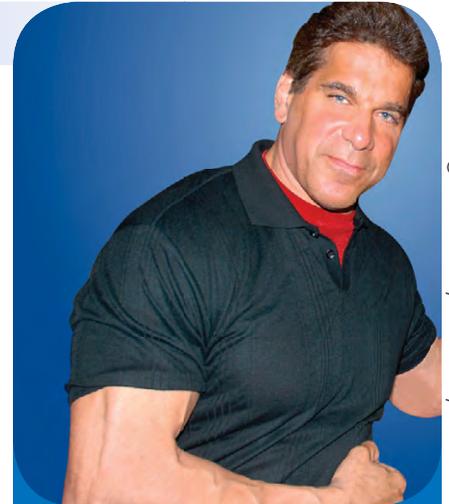
50 NEW BLOOD TEST REVEALS RISK OF CARDIAC DEATH

Imagine you could determine a significant measure of your risk of death from cardiac arrest with a simple, inexpensive blood test. In a major advance, this technology is now available for at-home use. The key lies in a previously unobtainable, scientifically validated blood marker called the *omega-3 index*. Learn how the **Omega Score™** could save your life.



64 AN OVERLOOKED NUTRIENT THAT SAVES LIVES

Forty years of clinical research confirm the power of *N-acetyl cysteine* to protect against various forms of pulmonary disease. Unfortunately, pharmaceutical companies co-opted it years ago for use in patented drugs. Overlooked is the ability of this little-known nutrient to combat many of today's leading causes of death.



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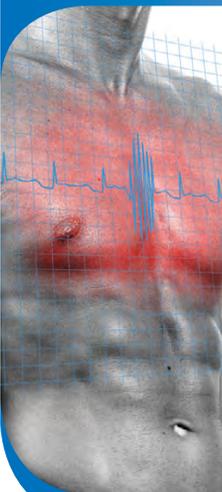
78 ON THE COVER

LOU FERRIGNO: GREAT STRENGTH WITH ADVANCING AGE

World-class bodybuilder, star of the classic TV series *The Incredible Hulk* and the film *Hercules*, personal trainer to Chuck Norris and the late Michael Jackson—Lou Ferrigno's achievements are truly "Herculean."

In this month's cover story, he reveals the keys to ageless strength, from the Mediterranean diet to his supplement regimen.

DEPARTMENTS



7 AS WE SEE IT—Why Estrogen Balance is Critical to Men's Health

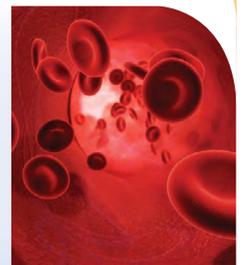
Life Extension® has long warned of the lethal dangers of estrogen imbalance in aging men. A new study in the *Journal of the American Medical Association* confirms a strong link to male mortality based on estrogen blood levels. Fortunately, most male Life Extension members test their estrogen blood levels annually and take steps to maintain optimal balance.

IN THE NEWS 17

Chocolate wards off stroke; Mediterranean diet protects the aging brain; low CoQ10 levels linked to chronic fatigue; vitamin D combats Crohn's disease; men who drink tea have slimmer waistlines; green tea fights fibroid tumor growth.

PROFILE 87

Dr. Keith Black, author of *Brain Surgeon: A Doctor's Inspiring Encounters with Mortality and Miracles*, discusses brain cancer's causes and offers strategies for its prevention.





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The Latest Advance in

CoQ10 Technology

Life Extension® was the first to introduce **coenzyme Q10** to the United States way back in **1983**. Since then, we have consistently introduced more **potent** and better **absorbable** forms of this critical nutrient.

The **new Super Ubiquinol with Enhanced Mitochondrial Support™** contains an organic compound called **PrimaVie® shilajit** that research shows **doubles** levels of **CoQ10** in the **mitochondria**.¹

Shilajit has been shown to help restore and sustain **cellular energy**. The latest studies reveal that when **shilajit** is **combined** with **CoQ10**, **cellular energy** gains substantially increase.

In a breakthrough preliminary study, the combination of **CoQ10** and **shilajit** produced a **56%** increase in cellular energy production in the **brain—40% better** than **CoQ10** alone. In **muscle** there was a **144%** increase, or **27% better** than **CoQ10** alone.²

Researchers have found that **shilajit** works to boost **CoQ10's** beneficial effects by:

1. Stabilizing **CoQ10** in its superior **ubiquinol** form, thereby *prolonging* its action at the cellular level.^{3,4}
2. Facilitating more efficient *delivery* of **CoQ10** into the **mitochondria**, resulting in greater cellular energy output.⁵⁻⁹

Scientific analysis shows that **shilajit** itself is rich in **essential** compounds that promote mitochondrial metabolism. Part of **shilajit's** beneficial effects derives from its ability to help the mitochondria convert **fats** and **sugars** into adenosine triphosphate, or **ATP**—the body's main source of energy.⁵⁻⁹

PrimaVie® is a registered trademark of Natreon, Inc.
Kaneka QH® is a registered trademark of Kaneka Corporation.

References:

1. Systemic CoQ level in animals: Part II. Unpublished study. Natreon, Inc.; 2007.
2. *Pharmacologyonline*. 2009;1:817-25.

3. *Pharmacologyonline*. 2009;2:690-8.
4. *Electronic Journal of Biotechnology*. 2008 Jul 15;11(3).
5. Ghosal S. *Shilajit in Perspective*. Alpha Science International Limited; 2006.

6. *Sci Total Environ*. 1987 Apr;62:347-54.
7. *Environ Sci Technol*. 2002 Jul 15;36(14):3170-5.
8. *Environ Sci Technol*. 2002 May 1;36(9):1939-46.
9. *Environ Sci Technol*. 2009 Feb 1;43(3):878-83.

The **New 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}

The retail price for 60 100-mg softgels of **Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™** is **\$62**. If a member buys four bottles, the price is reduced to **\$42** per bottle. **Item #01426**

The retail price for 100 50-mg softgels of **Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™** is **\$58**. If a member buys four bottles, the price is reduced to **\$39.75** per bottle. **Item #01425**

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Item #01426

Item #01425

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.

Sam Baxas, MD, head of the Baxamed Medical Center for Youth Restoration in Basel, Switzerland, has developed cell therapy and growth hormone therapies for various diseases, including Parkinson's disease and arthritis.

Ricardo Bernales, MD, is a board-certified pediatrician and general practitioner in Chicago, IL, focusing on allergies, bronchial asthma, and immunodeficiency.

Thomas F. Crais, MD, FACS, a board-certified plastic surgeon, was medical director of the microsurgical research and training lab at Southern Baptist Hospital in New Orleans, LA, and currently practices in Sun Valley, ID.

John Crisler, DO, is an osteopathic physician and president of The All Things Male Center for Men's Health in Lansing, MI. Dr. Crisler is a distinguished leader in the field of anti-aging medicine for his new, advanced testosterone replacement therapy protocols that have changed the way physicians all over the world treat their patients.

William Davis, MD, is Medical Director of Milwaukee Heart Scan and developer of the web-based initiative, Track Your Plaque, the only heart disease prevention program that uses the new CT heart scans to detect, track, and control coronary plaque.

Martin Dayton, MD, DO, practices at the Sunny Isles Medical Center in North Miami Beach, FL. His focus is on nutrition, aging, chelation therapy, holistic medicine, and oxidative medicine.

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Carmen Fusco, MS, RN, CNS, is a research scientist and clinical nutritionist in New York City who has lectured and written numerous articles on the biochemical approach to the prevention of aging and degenerative diseases.

Norman R. Gay, MD, is proprietor of the Bahamas Anti-Aging Medical Institute in Nassau, Bahamas. A former member of the Bahamian Parliament, he served as Minister of Health and Minister of Youth and Sports. He is a three-time chairman of the Executive Committee of the PanAmerican Health Organization in Washington, DC.

Mitchell J. Ghen, DO, PhD, holds a doctorate in holistic health and anti-aging, and serves on the faculty of Medicine at the Benemerita Universidad Autonoma De Puebla, Mexico, as a Professor of Cellular Hemopoetic Studies. He is the author of *The Ghen and Rains Guide to Compounding Pharmaceuticals* and *The Advanced Guide to Longevity Medicine*.

Gary Goldfaden, MD, is a clinical dermatologist and a lifetime member of the American Academy of Dermatology. He is the founder of Academy Dermatology of Hollywood, FL, and COSMESIS Skin Care. He specializes in natural approaches to aging and rejuvenation of the skin.

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Philip Lee Miller, MD, is founder and medical director of the Los Gatos Longevity Institute in Los Gatos, CA. His practice is dedicated to anti-aging medicine, focusing on bioidentical natural hormone replacement, nutritional medicine, complex lipid disorders, and stress management. He is a diplomate of the American Board on Anti-Aging Medicine.

Michele G. Morrow, DO, FAAFP, is a board-certified family physician who merges mainstream and alternative medicine using functional medicine concepts, nutrition, and natural approaches. Dr. Morrow is an accomplished clinician, medical researcher, author, and lecturer.

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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.

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Frank Eichorn, MD, is a Urologist specializing in prostate cancer since 10 years. He has a private practice in Bad Reichenhall, Germany and is prostate cancer consultant at the Urologische Klinik Castringius, Planegg, Munich. In his integrative approach to prostate cancer he is working together with an international network of experts to improve treatment outcome for prostate cancer patients with special focus on natural and translational medicine.



Deborah F. Harding, MD is founder of the Harding Anti-Aging Center. She is triple board-certified in Internal Medicine, Sleep Disorder Medicine, and Anti-Aging Medicine. She also earned the Cenegenics certification in Age Management Medicine. She is a faculty member of the new University of Central Florida Medical School.



Steven B. Harris, MD, is president and director of research at Critical Care Research, a company that grew out of 21st Century Medicine in Rancho Cucamonga, CA. Dr. Harris participates in groundbreaking hypothermia, cryothermia, and ischemia research. His research interests include antioxidant and dietary-restriction effects in animals and humans.



Stanley W. Jacob, MD, is Gerlinger Distinguished Professor, Department of Surgery, Oregon Health and Science University. He has authored 175 scientific articles and 15 books, and holds 3 patents, including the initial patent on the therapeutic implications of dimethyl sulfoxide (DMSO).



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 award-winning PBS 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.



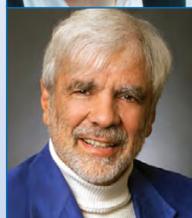
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TRIPLE ACTION CRUCIFEROUS Vegetable Extract with Apigenin



ITEM #01468



ITEM #01469

Scientists have identified specific extracts from *cruciferous vegetables*—such as broccoli, cauliflower, cabbage and Brussels sprouts—that help maintain healthy hormone levels. Maintaining optimal hormone balance is essential to any anti-aging strategy. **Triple Action Cruciferous Vegetable Extract** combines these plant extracts into the most comprehensive food-based, plant compilation for cell protection yet.

I3C (indole-3-carbinol) and **DIM (di-indolyl-methane)** favorably modulate estrogen metabolism and induce liver detoxification enzymes to help neutralize potentially harmful estrogen metabolites and xenoestrogens (potentially toxic, estrogen-like environmental chemicals).¹⁻⁴

Extracts of **broccoli**, **watercress**, and **rosemary** provide *glucosinolates*, *isothiocyanates*, *carosic acid*, and *carosol*—bioactive compounds that have a multitude of favorable effects on estrogen metabolism and cell division.⁵⁻⁸ **Apigenin**, a powerful plant flavonoid found in plants such as **parsley** and **celery**, is also added to the formula to boost cell protection,⁹ while 25 mg of a natural source of benzyl isothiocyanate (BITC), are included to maintain cell health.¹⁰

For those weighing less than 160 pounds, just one capsule a day provides optimal potencies. Those weighing over 160 pounds should consider taking two capsules a day. A 60-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**.

Triple Action Cruciferous Vegetable Extract provides the following concentrates in just one capsule:

Broccoli Super Concentrate	400 mg
[standardized to 4% glucosinolates (16 mg)]	
Watercress 4:1 extract	50 mg
Indole-3-Carbinol (I3C)	80 mg
Rosemary Extract	50 mg
Cat's Claw Extract	50 mg
Cabbage Extract	25 mg
DIM (di-indolyl-methane)	14 mg
Apigenin	25 mg

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**.

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

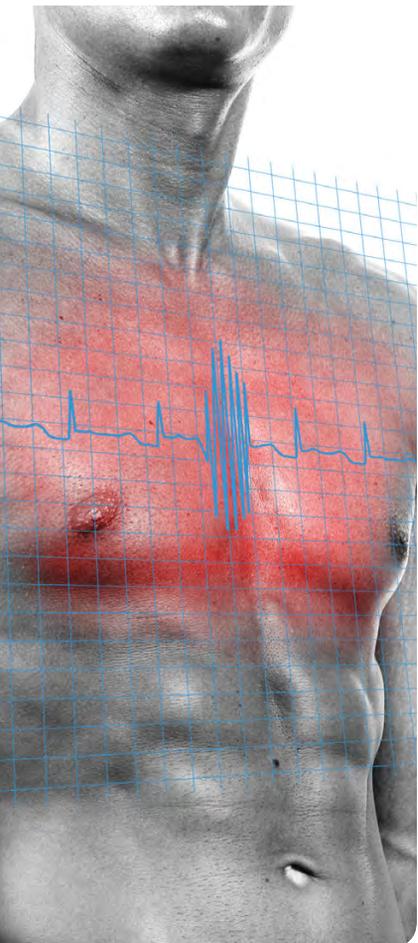
Contains yeast and corn.

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Why Estrogen Balance is Critical to Aging Men



BY WILLIAM FALOON



When we started offering comprehensive **blood test** panels back in **1996**, men did not understand why we were checking their **estrogen** levels. Back in those days, estrogen was considered a hormone of importance *only* to women.

We tested estrogen based on published data indicating that when estrogen levels are unbalanced, the risk of degenerative disease in aging men skyrockets.¹⁻⁷ Of concern to us 14 years ago were reports showing that excess estrogen contributes to the development of **atherosclerosis**.^{8,9} Human clinical studies conducted more than a decade later confirmed our suspicions. Men with even slightly elevated estrogen levels doubled their risk of **stroke** and had far higher incidences of **coronary artery disease**.¹⁰⁻¹² Our early observations also revealed that men presenting with **benign prostate enlargement** or **prostate cancer** had higher blood estrogen levels (and often low free testosterone blood levels).¹³⁻¹⁶ Subsequent clinical studies help confirm our early observations.¹⁷⁻²¹

Insufficient estrogen, on the other hand, predisposes men to **osteoporosis** and **bone fracture**.^{22,23}

The fact that **99%** of men today have no idea what their **blood estrogen levels** are helps explain the epidemic of **age-related disease** that is bankrupting this nation's medical system.

AS WE SEE IT

New Study Published in the *Journal of the American Medical Association*

Conventional doctors tend to ignore hard science until it appears in their own medical journals.

A study published in the *Journal of the American Medical Association (JAMA)* measured blood estradiol (a dominant estrogen) in **501** men with chronic heart failure. Compared to men in the balanced estrogen quintile, men in the lowest estradiol quintile were **317%** more likely to die during a 3-year follow-up, while men in the highest estradiol quintile were **133%** more likely to die.²⁴

The men in the balanced quintile—with the fewest deaths—had serum **estradiol** levels between **21.80** and **30.11** pg/mL. This is virtually the ideal range that *Life Extension*[®] has long recommended male members strive for.

The men in the highest quintile who suffered **133%** increased death rates had serum estradiol levels of **37.40** pg/mL or above. The lowest estradiol group that suffered a **317%** increased death rate had serum estradiol levels under **12.90** pg/mL.

The dramatic increase in mortality in men with unbalanced estrogen (i.e., estradiol levels either too high or too low) is nothing short of astounding. It uncovers a gaping hole in conventional

cardiology practice that is easily correctable.

This study revealing the lethal dangers of estrogen imbalance was published in conventional medicine's *Bastille* of knowledge—the *Journal of the American Medical Association*. Physicians no longer have a basis to question male **Life Extension**[®] members who take aggressive approaches to maintain their **serum estradiol** levels in *optimal* ranges.

Low Estradiol and Testosterone Predict Mortality in Aging Men

Sales of **testosterone replacement drugs** have surged more than 20-fold in response to studies linking low testosterone to a host of common maladies.

In a recent study of **3,014** men aged 69-80 years, serum levels of testosterone and estradiol were measured during a mean follow-up of 4.5 years. Men with low testosterone had **65%** greater all-cause mortality, while men with low estradiol suffered **54%** more deaths.²⁵

Those men low in **estradiol and testosterone** were almost **twice** as likely to die (a **96%** increase in mortality) compared to men in the optimal ranges.²⁵

This large study of aged men corroborates prior published reports linking imbalances of

testosterone and/or estradiol with greater incidences of degenerative disease and death.²⁶⁻³⁶

How Do Men Naturally Make Estrogen?

Women synthesize most of their estrogen in their **ovaries** and other reproductive tissues.

Since men lack this female anatomy, they need to produce estrogen through a process involving an enzyme called *aromatase* that transforms **testosterone** into **estradiol**.

Aging men sometimes have too much *aromatase* activity, which causes their testosterone to convert to excess estradiol. This results in *depletion* of vital testosterone while *spiking* estradiol to unsafe ranges.

Some men lack *aromatase* and suffer an estrogen deficit. Other men produce so little endogenous testosterone that there is not enough to convert into estrogen, which causes low levels of both **free testosterone and estradiol**.

Fortunately, no matter what the underlying cause, aging men can easily achieve *optimal free testosterone and estradiol* serum levels.

Free testosterone is the unbound form that is biologically available to cell receptor sites throughout the body. Measuring **free testosterone** blood levels is the most accurate way of assessing testosterone status in aging men.

How Aging Men Can Control Their Estrogen Levels

An epidemic problem we at *Life Extension* observe in aging male members is insufficient free testosterone, i.e., less than **15-20** pg/mL of serum. When accompanied by excess estradiol (over **30** pg/mL of serum), this can signal excess *aromatase* enzyme activity.

Excess *aromatase* robs men of their **testosterone** while exposing them to higher than desirable **estradiol**.³⁷ *Aromatase* can be suppressed with *absorbable* forms of **chrysin** (a plant flavonoid) and/or **lignans** such as those extracted from the Norway spruce tree (HMRLignan™).³⁸⁻⁴²

If these nutrients fail to reduce estradiol adequately, then we suggest that men ask their doctor to prescribe an *aromatase-inhibiting* drug like **Arimidex®** in the very low dose of **0.5 mg** twice a **week**.

When *aromatase* is properly suppressed, **estradiol** levels are reduced to safe ranges, while **free testosterone** often increases, since less testosterone is being aromatized into estradiol.

Why Some Men Need Topical Testosterone Creams

Most **testosterone** in a man's body emanates from the testes. Aging results in a *decline* in testicular output, thus necessitating the topical application of a **testosterone cream** to restore this vital hormone to youthful levels. Ideal **free serum testosterone** levels for most aging men are between **20-25** pg/mL.

As you may surmise, a man who produces too little testosterone risks a lethal deficiency of both **free testosterone** and **estradiol**.

That's because men need testosterone to synthesize estradiol in their bodies. In the presence of *insufficient* testosterone production, some aging men are vulnerable to low free testosterone and low estradiol that according to the latest study almost doubles their risk of dying over a 4.5 year period!²⁵

Critical Importance of Blood Testing

Today's conventional physicians prescribe **blood tests** to check glucose, cholesterol, and triglycerides, but rarely check their male patients' **free testosterone** and **estradiol** levels.

When looking at the horrifically high **mortality** rates associated with *imbalances* of these critical hormones, it becomes strikingly apparent that a significant number of heart attacks, strokes, bone fractures, and other degenerative diseases are easily preventable.

One reason these hormone blood tests are not normally prescribed is their high retail cost,

and the fact that many insurance companies refuse to pay for them.

As a member of the **Life Extension Foundation®**, you don't have to be victimized by conventional medical ignorance, high prices, or insurance company indifference.

Annual Blood Test Super Sale

An all-inclusive blood test panel that includes **free testosterone** and **estradiol** can retail for **\$1,000** at commercial labs. During the annual **Blood Test Super Sale**, Life Extension members obtain these same tests for only **\$199**.

If your blood test result reveals an imbalance of **free testosterone** and/or **estradiol**, you are in a position to initiate immediate corrective action. Not only can restoring youthful hormone balance *save* your life, but men (and women) often experience an enhancement in their *quality* of life after their hormones are adjusted to optimal ranges.



AS WE SEE IT

A complete description of the **Male and Female Blood Test Panels** appears on the next page. As you'll readily see, these panels contain many important tests (such as homocysteine, C-reactive protein, and DHEA) that mainstream doctors seldom check for.

When you order these tests, a requisition form is sent listing blood drawing stations in your local area. Appointments are usually not necessary, meaning you can have your blood drawn at your convenience.

To order a comprehensive Male and/or Female Blood Test Panel, just call **1-800-208-3444**. It is the single most important step you can take to ensure your continued good health.

For longer life,



William Faloon

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MALE AND FEMALE BLOOD TEST PANELS

Unlike commercial blood tests that evaluate only a narrow range of risk factors, Life Extension's **Male and Female Blood Test Panels** measure a wide range of blood markers that predispose people to common age-related diseases. Just look at the **huge** numbers of parameters included in the **Male and Female Blood Test Panels**:

MALE PANEL

LIPID PROFILE

Total Cholesterol
LDL (low-density lipoprotein) calculated
HDL (high-density lipoprotein)
Triglycerides

CARDIAC MARKERS

C-Reactive Protein (high sensitivity)
Homocysteine

HORMONES

DHEA-S
Free Testosterone
Total Testosterone
Estradiol (an estrogen)
***TSH** (thyroid function)

**NEW
&
IMPROVED
.....
NOW
INCLUDES
TSH!**

METABOLIC PROFILE

Glucose
Kidney function tests: creatinine, BUN, uric acid, BUN/creatinine ratio
Liver function tests: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase
Blood minerals: calcium, potassium, phosphorus, sodium, chloride, iron
Blood proteins: albumin, globulin, total protein, albumin/globulin ratio

COMPLETE BLOOD COUNT (CBC)

Red Blood Cell count including: hemoglobin, hematocrit, MCV, MCH, MCHC, RDW
White Blood Cell count including: lymphocytes, monocytes, eosinophils, neutrophils, basophils
Platelet count

CANCER MARKER

PSA (Prostate Specific Antigen)

FEMALE PANEL

LIPID PROFILE

Total Cholesterol
LDL (low-density lipoprotein) calculated
HDL (high-density lipoprotein)
Triglycerides

CARDIAC MARKERS

C-Reactive Protein (high sensitivity)
Homocysteine

HORMONES

Progesterone
DHEA-S
Free and Total Testosterone
Estradiol (an estrogen)
***TSH** (thyroid function)

**NEW
&
IMPROVED
.....
NOW
INCLUDES
TSH!**

METABOLIC PROFILE

Glucose
Kidney function tests: creatinine, BUN, uric acid, BUN/creatinine ratio
Liver function tests: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase
Blood minerals: calcium, potassium, phosphorus, sodium, chloride, iron
Blood proteins: albumin, globulin, total protein, albumin/globulin ratio

COMPLETE BLOOD COUNT (CBC)

Red Blood Cell count including: hemoglobin, hematocrit, MCV, MCH, MCHC, RDW
White Blood Cell count including: lymphocytes, monocytes, eosinophils, neutrophils, basophils
Platelet count

Non-member retail price: \$400 • Everyday member price: \$269

Blood Test Super Sale member price: \$199 • Enjoy these savings until June 7, 2010

To obtain these comprehensive **Male** or **Female** Panels at these **low prices**,
call 1-800-208-3444 to order your requisition forms.

Then—at your convenience—you can visit one of the blood-drawing facilities provided by LabCorp in your area.

*If you plan to use the results of these blood tests to assist in a medically supervised weight loss program, consider adding the Thyroid add-on panel for \$36.

A **TSH** (thyroid stimulating hormone) test is now included in the comprehensive Male and Female Panels, but those with weight problems should know their precise levels of free T3 and free T4.



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SUPER BOOSTER

with the most effective form of Vitamin K2, Gamma Tocopherol, Ginkgo, and much more!

Despite abundant scientific validation, many people still do not take vital nutrients because they don't want to swallow so many pills. This problem has been solved with a one-per-day softgel that includes multiple health-promoting nutrients in just one supplement. The **Life Extension® Super Booster** contains critical oil-based nutrients that cannot be incorporated into dry-powder based formulas like the **Life Extension Mix™**. The **Super Booster** has been upgraded to provide higher doses of the most effective form of **vitamin K** known as **menaquinone-7**. Just one **Super Booster** softgel provides:

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

- **Sesame Lignans** Sesame lignans augment the antioxidant effects of both alpha- and gamma-tocopherol. In a human study conducted at Life Extension, gamma tocopherol plus sesame lignans was 25% more effective in suppressing measurements of free-radical damage than gamma tocopherol and tocotrienols.

- **Vitamin K2** **Vitamin K1** from dietary plant sources is poorly absorbed and only a small fraction gets into the bloodstream. **Vitamin K2** is absorbed much more efficiently. Scientific studies show **K2** provides superior benefits for the bones, arteries, and other tissues. The **MK-4** form of vitamin K2 is the most rapidly absorbed and is now routinely used in Japan to maintain healthy bone density. **MK-4**, however,

Just one softgel of Super Booster supplies:

Gamma tocopherol	230 mg
Ginkgo extract	120 mg
Chlorophyllin	100 mg
Vitamin K2 (as menaquinone-7)	100 mcg
Vitamin K2 (as menaquinone-4)	1000 mcg
Vitamin K1	1000 mcg
Sesame lignans	20 mg
Lycopene	10 mg
Lutein	2 mg
Se-methylselenocysteine	67 mcg
Selenomethionine	67 mcg
Sodium selenite	67 mcg
Vitamin B12	300 mcg
Vitamin C	90 mg
Ascorbyl palmitate	50 mg
Zinc	10 mg
Mixed tocopherols	130 mg

only remains active in the blood for a few hours. The **MK-7** form of K2, on the other hand, remains bioavailable to the human body over a sustained **24-hour period**. Super Booster now provides more **MK-7** than ever before — to keep calcium in the bone and out of the arteries.

- **Lycopene** Evidence suggests that people who ingest the carotenoid lycopene enjoy healthier prostate function. Lycopene also helps guard against LDL oxidation.

- **Lutein** The carotenoid lutein helps maintain healthy cell division, supports the macula of the eye, and protects the endothelial lining of the arteries.

- **Ginkgo** Hundreds of studies substantiate the multifaceted effects of *Ginkgo biloba* in promoting healthy circulatory and neurological function.

- **Chlorophyllin** Scientific studies indicate that chlorophyllin may protect against environmentally induced damage to DNA.

- **Selenium** Some scientific evidence suggests that consumption of selenium may reduce the risk of certain forms of cancer. However, the FDA has determined that this evidence is limited and not conclusive. Selenium's effects in boosting glutathione are well-established.

A bottle of 60 Super Booster softgels retails for \$42. If a member buys four bottles, the price is reduced to just **\$28.50** per bottle.

The **Super Booster** saves consumers **huge dollars** by combining a wide variety of costly nutrients into one daily softgel. If you add up the price of the individual ingredients contained in the **Super Booster**, you would spend **two to three times more** for this potency if taken separately.



Item #01380

To order
Super Booster, call
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 or visit
www.LifeExtension.com

Caution: Those individuals currently taking anticoagulants such as Coumadin® (warfarin) should consult their personal physician before taking supplemental vitamin K.

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Contains soybeans, peanuts, and sesame.

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.

RESVERATROL ^{PLUS} PTEROSTILBENE IN ONE FORMULA!

In 2003, the **Life Extension Foundation**® introduced a purified **resveratrol** supplement that was later documented to favorably alter some of the changes in gene expression that cause us to age.

In 2009, CBS News **60 Minutes** featured an in-depth report on the multiple benefits that resveratrol may confer in slowing and even reversing certain aspects of aging.

What differentiates **Life Extension**®'s resveratrol: It provides 100% **standardized trans-resveratrol** plus a full spectrum of natural compounds from the grape that have demonstrated remarkable biological properties. Most products currently on the market contain varying quantities of **trans-** and **cis-resveratrol**, and fail to provide enough **trans-resveratrol** for optimal results. In addition, **Life Extension** has added **pterostilbene**, which researchers have found works in a **synergistic** fashion with resveratrol to activate one's "longevity genes."

Research funded by Life Extension has shown that a combination of low-dose (20 mg) **resveratrol** plus **grapeseed extract** induced many of the favorable **gene expression** changes seen in **calorie-restricted** animals. Other studies, however, have indicated that **higher doses** may be needed to obtain all of resveratrol's positive benefits including:

- **Improved Insulin Sensitivity**
- **Enhanced Mitochondrial Function**
- **Reduced Expression of Inflammatory Factors**
- **Protection Against the Toxic Effects of a High-Fat Diet**

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Life Extension has meticulously evaluated published studies on **resveratrol** and **pterostilbene** to establish doses people might need to take to duplicate these remarkable laboratory findings. The results of Life Extension's analysis yield a wide range of potentially effective doses of resveratrol and pterostilbene.

Highest Potency Resveratrol

The resveratrol *potency* you choose may be based on your current state of health and/or your desire to personally reach the upper limits of a healthy human life span. Life Extension offers a wide range of standardized **trans-resveratrol** potencies in combination with **pterostilbene** (which also favorably alters gene expression), **quercetin**, and other grape phytonutrients.

Optimized Resveratrol with Pterostilbene and the **new Calorie Restriction Mimetic Formula** provide the highest dosage of **trans-resveratrol** as well as a broad array of grape polyphenols, quercetin and **pterostilbene**.

All these Resveratrol Products are fortified with Pterostilbene!



Item #01413

Resveratrol with Pterostilbene

Provides **20 mg** of **trans-resveratrol** plus 120 mg of quercetin to facilitate resveratrol absorption. Pterostilbene content (125 mcg) equivalent to over **5 cups of blueberries**. Recommended dosage is 1 capsule daily with or without food. Each bottle contains 60 vegetarian capsules. Contains corn.

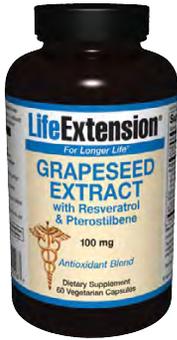
Retail Price: \$24

FOUR-BOTTLE MEMBER PRICE:

>> \$16.50 PER BOTTLE

(See each product description for amount of pterostilbene.)

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.



Item #01411

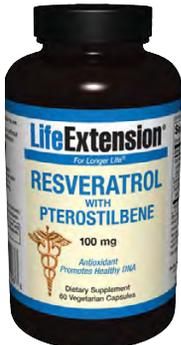
GrapeSeed Extract with Resveratrol & Pterostilbene

Provides **20 mg** of *trans*-resveratrol plus 100 mg of grapeseed extract. Pterostilbene content (125 mcg) equivalent to over **5 cups** of **blueberries**. Recommended dosage is 1 capsule daily with or without food. Each bottle contains 60 vegetarian capsules. Contains rice.

Retail Price: \$36

FOUR-BOTTLE MEMBER PRICE:

>> \$25.50 PER BOTTLE



Item #01410

Resveratrol with Pterostilbene

Provides **100 mg** of *trans*-resveratrol plus 120 mg of quercetin to facilitate resveratrol absorption. Pterostilbene content (250 mcg) equivalent to over **10 cups** of **blueberries**. Recommended dosage is 1 capsule daily with or without food. Each bottle contains 60 vegetarian capsules. Contains corn.

Retail Price: \$36

FOUR-BOTTLE MEMBER PRICE:

>> \$24 PER BOTTLE



Item #01409

Optimized Resveratrol with Pterostilbene

Provides in one capsule **250 mg** of *trans*-resveratrol, 85 mg of grape plant polyphenols plus quercetin. Pterostilbene content (500 mcg) equivalent to over **20 cups** of **blueberries**. Recommended dosage is 1 capsule daily with or without food. Each bottle contains 60 vegetarian capsules. Contains corn.

Retail Price: \$46

FOUR-BOTTLE MEMBER PRICE:

>> \$31 PER BOTTLE

The Most Potent RESVERATROL-PTEROSTILBENE Formula

Among the most promising of **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

Calorie Restriction Mimetic Formula includes **resveratrol**, higher levels of **pterostilbene** and **quercetin** plus, **grape seed polyphenols**, and **black tea extract** to provide broad-spectrum gene expression support in one nutritional compound.

Two capsules of **Calorie Restriction Mimetic Formula** provide:

Trans-Resveratrol	250 mg
Trans-Pterostilbene	3 mg
Quercetin	150 mg
Black tea extract	300 mg
Grape seed polyphenols	50 mg



Item #01419

Each bottle contains 60 vegetarian capsules of the new **Calorie Restriction Mimetic Formula**.

Retail Price: \$36

FOUR-BOTTLE MEMBER PRICE:

>> \$24.75 PER BOTTLE

1. *Cell*. 2006 Dec 15;127(6):1109-22.
2. *Endocrinology*. 2008 Jan;149(1):84-92.
3. *Crit Care Med*. 2004 Oct;32(10):2097-103.
4. *J Agric Food Chem*. 1999 Apr;47(4):1416-21.
5. *Arch Pharm Res*. 2002 Oct;25(5):561-71.
6. *Nutr Cancer*. 1999;35(1):80-6.
7. *Anticancer Agents Med Chem*. 2006 Sep;6(5):389-406.
8. *Nature*. 2006 Nov 16;444(7117):337-42.

To order these **Resveratrol products** or the new **Calorie Restriction Mimetic Formula**, call **1-800-544-4440** or visit **www.LifeExtension.com**



Vital Greens Plant Foods In a Convenient Powder Blend

We try to eat healthfully, but getting enough **plant foods** each day can be a challenge for many people.

The new **Vital Greens Mix** is a blend of **organic** whole plant foods that provide diverse benefits ranging from protecting DNA integrity and maintaining immune function to suppressing vascular risk factors and restoring healthy intestinal flora.

Some of the ingredients in the new **Vital Greens Mix** superfood include:

- **Chia**, a rich source of protein, fiber, vitamins, minerals, and alpha-linolenic acid (an omega-3 precursor). Recent research at the University of Toronto has shown that regular **chia** intake may help maintain healthy **blood pressure** and **C-reactive protein** levels, both of which are well-known markers of cardiovascular disease.¹
- **Green Grasses and Sprouts** to provide a full array of **chlorophyll-rich**, nutrient-dense natural “green” foods that help **detoxify** and maintain **youthful DNA integrity**. In addition, clinical trials with *chlorella* supplements demonstrate that daily use of this green food may *support healthy immunity and wound healing*.^{2,3}
- **Probiotics** to sustain **healthy bacterial balance** in the gut, which may support overall *immune and digestive health*.
- A **mushroom blend** combining *maitake*, *shiitake* and *cordyceps* extracts to support **immune health** and provide adaptogenic benefits for balance and resistance.



Item #01098

Each serving provides:

Chia Seed (organic)	3000 mg
Chlorella (organic)	1000 mg
Spirulina (organic)	1000 mg
Acerola (organic)	750 mg
Wheat Grass (organic)	430 mg
Maitake Mushroom Extract (organic)	400 mg
Wheat Sprout (organic)	300 mg
Barley Malt (organic)	300 mg
Probiotic Blend (<i>Lactobacillus acidophilus</i> , <i>Lactobacillus casei</i> , <i>Lactobacillus plantarum</i> , <i>Lactobacillus rhamnosus</i> , <i>Bifidobacterium breve</i> , <i>Bifidobacterium longum</i>)	300 mg
Shiitake Mushroom (organic)	300 mg
Cordyceps Mushroom Extract (organic)	300 mg
Dulse (organic)	250 mg
Beet Juice (organic)	250 mg
Barley Grass (organic)	200 mg
Brown Rice Bran (organic)	200 mg
Cilantro (organic)	200 mg
Suma (organic)	150 mg
Flower Pollen Extract (organic)	120 mg

Life Extension®'s Vital Greens Mix is a great way to start off a meal. It induces some immediate satiety while providing beneficial plant foods that help neutralize mutagenic components of modern diets.

Each scoop of **Life Extension's Vital Greens Mix** provides a daily dose of nutrient-dense foods and herbal extracts. The retail price of a 30-serving jar of this organic superfood is \$48. When a member buys four jars, the price is reduced to only **\$33 per jar**.

To order the new **Vital Greens Mix**, call **1-800-544-4440** or visit **www.LifeExtension.com**

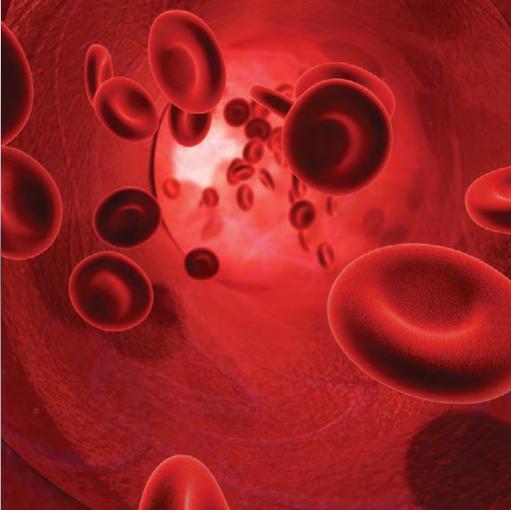
REFERENCES:

1. *Diabetes Care*. 2007 Nov;30(11):2804-10.
2. *CMAJ*. 2003 Jul 22;169(2):111-7.

3. *Altern Ther Health Med*. 2001 May-Jun;7(3):79-91.

Contains milk, wheat, gluten, rice, corn, and barley.

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.



IN THE NEWS

Chocolate May Be Beneficial Against Strokes

Recent research done by St. Michael's Hospital, University of Toronto points to the possibility that eating chocolate may reduce stroke risk. The author of the study, Gustavo Saposnik, says there is limited evidence, but after reviewing three previous studies, eating a bar of chocolate once a week can help cut the risk of stroke and lower the risk of death by stroke.*

One of the studies involving 44,489 people found that those who ingested one serving of chocolate a week were 22% less likely to have a stroke than those who didn't eat chocolate. A separate study found that 1,169 people who ate 50 grams of chocolate once a week were 46% less likely to die following a stroke than people who didn't eat chocolate.

While the evidence is compelling that chocolate may help against strokes, future research needs to be done to determine what particular element of chocolate is the most beneficial. "This is something that requires further investigation," Saposnik says.

—Jon Finkel

* Available at: http://www.usatoday.com/news/health/2010-02-12-chocolate12_ST_N.htm. Accessed February 15, 2010.



Mediterranean Diet May Be Brain-protective

A presentation at the American Academy of Neurology's 62nd Annual Meeting revealed the finding of Nicolaos Scarmeas, MD, MSc that consuming a Mediterranean diet may help preserve memory and learning ability by protecting against cerebrovascular disease.*

Dr. Scarmeas' team performed magnetic resonance imaging (MRI) scans on the brains of 712 New York residents. Dietary assessments administered an average of 5.8 years earlier were evaluated for Mediterranean diet adherence.

Two hundred thirty-eight subjects had at least one infarct revealed by MRI. Men and women whose adherence to a Mediterranean diet was among the top one-third of participants had a 36.1% lower probability of infarct compared to those whose adherence was lowest, and those in the middle third had a 21% lower risk.

"In this study, not eating a Mediterranean-like diet had about the same effect on the brain as having high blood pressure," Dr. Scarmeas stated.

Editor's note: This is one of numerous studies to suggest that a Mediterranean diet is one of the healthiest eating patterns.

—Dayna Dye

* American Academy of Neurology 62nd Annual Meeting. Presented by: Scarmeas N. "Mediterranean diet (MeDi) and subclinical cerebrovascular disease."

Coenzyme Q10 Levels Reduced in Chronic Fatigue Syndrome

In an article published in *Neuroendocrinology Letters*, researchers from Belgium and Poland report that plasma coenzyme Q10 levels are significantly lower in individuals with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS), a chronic disease characterized by extreme fatigue and inflammatory, autonomic and neuropsychiatric symptoms.*

The study compared plasma CoQ10 levels of 58 men and women diagnosed with ME/CFS to 22 healthy control patients. A significant reduction in CoQ10 levels was observed among ME/CFS patients compared with the control group. As many as 44.8% of these patients had levels that were less than the lowest CoQ10 value detected in healthy controls. Increased CoQ10 levels predicted a reduction in CFS symptoms.

“This is the first study which shows that ME/CFS is accompanied by significantly reduced plasma concentrations of CoQ10 and that lowered plasma CoQ10 is related to specific symptoms of ME/CFS, such as fatigue, autonomic and neurocognitive symptoms,” the authors announce.

Editor’s note: As coenzyme Q10 is involved in the production of energy, the finding is not surprising. *Life Extension* has long suggested CoQ10 supplements to those with CFS.

—Dayna Dye

* *Neuroendocrinol Lett.* 2009;30(4).

Multinutrient Supplement Protects Age-related Decline in Activity

An article published in *Experimental Biology and Medicine* reveals that administering a combination of nutrients to mice delays the decline in activity that occurs with aging.*

C. David Rollo and colleagues used a formula consisting of vitamins B1, B3, B6, B12, C, D, and E, folic acid, beta-carotene, acetyl-L-carnitine, alpha-lipoic acid, bioflavonoids, chromium picolinate, garlic, ginger root extract, *Ginkgo biloba*, ginseng, green tea extract, L-glutathione, magnesium, manganese, melatonin, N-acetyl cysteine, potassium, rutin, selenium, cod liver oil, CoQ10, and flax seed oil. While mice that did not receive the nutrients experienced a greater than 50% reduction in daily movement by 24 months of age, those that received the supplements maintained youthful levels of activity. Unsupplemented mice experienced increased declines in mitochondrial function and in brain signaling chemicals related to movement.

“Dietary cocktails can powerfully ameliorate biomarkers of aging and modulate mechanisms considered ultimate goals for aging interventions,” the authors conclude.

Editor’s note: Long time Life Extension members who use Life Extension Mix have been reaping the benefits of multinutrient supplementation for years. The formula is continually updated in light of new research findings, so that those who choose to use it have the best opportunity to attain optimal health and longevity.

—Dayna Dye

* *Exp Biol Med.* 2010 Jan;235(1).



Vitamin D Supplements May Protect Against Crohn’s Disease

Research published in the January 22, 2010 issue of the *Journal of Biological Chemistry* describes how vitamin D could help protect against Crohn’s disease, an inflammatory bowel disease that is believed to be caused by defective innate immune regulation of intestinal bacteria.*



Researchers at McGill University in Montreal discovered that vitamin D acts on the beta defensin gene, which encodes an antimicrobial peptide. The vitamin also affects the NOD2 gene, which informs cells of the presence of invading microorganisms. Defects in the NOD2 gene mean that the body cannot defend itself effectively against intestinal tract invaders.

“This discovery is exciting, since it shows how an over-the-counter supplement such as vitamin D could help people defend themselves against Crohn’s disease,” noted coauthor Marc J. Servant. “We have identified a new treatment avenue for people with Crohn’s disease or other inflammatory bowel diseases.”

Editor’s note: This study adds yet another disease to the growing list of conditions that could be prevented or treated with inexpensive vitamin D supplements.

—Dayna Dye

* *J Biol Chem.* 2010 Jan 22;285(4).



Men Who Drink Tea Have Trimmer Waistlines

Men who drink more than two cups of tea daily have trimmer waistlines than men who drink coffee or no coffee or tea, according to a study presented at the First International Congress on Abdominal Obesity.* Excess fat around the midsection has been linked with an increased risk of heart disease and diabetes.

Scientists examined the relationship between coffee and tea drinking in 3,823 participants in the 2003-2004 US National Health and Nutrition Examination Survey. Coffee consumption was not associated with abdominal obesity in men or women. In men, consuming sugar in tea was associated with a 1-inch smaller waistline, while artificial sweeteners were linked with a nearly 2-inch larger waistline. Women who used milk in tea had an average two-thirds of an inch smaller waistline. Women who used artificial sweeteners had an average 1-inch larger waistline.

—Elizabeth Wagner, ND

* Available at: <http://www.webmd.com/diet/news/20100129/drinking-tea-may-trim-mens-waistlines>. Accessed February 17, 2010.

Vitamin D May Combat Asthma

A new study published in the *American Journal of Respiratory and Critical Care Medicine* claims that insufficient amounts of vitamin D may make asthma worse for those suffering from the lung condition. The study, which was performed at the Department of Medicine, National Jewish Health in Denver, Colorado, involved nonsmoking adult asthmatics and the relationship between asthma treatments and vitamin D levels.¹

Fifty four people were enrolled in the study and it showed that vitamin D levels were related to a person's score on a standard breathing test. The relationship was consistent throughout the tests: the lower the vitamin D levels, the lower their performance.

In an interview with E. Rand Sutherland, MD, MPH, the chief of the pulmonary division at National Jewish Health, for WebMD Health News, Dr. Sutherland states, "Our findings suggest that vitamin D levels influence a number of important features of asthma, including lung function, bronchospasm, and therapeutic response to steroids."²

—Jon Finkel

1. *Am J Respir Crit Care Med*. 2010 Jan 14.

2. Available at: <http://www.webmd.com/asthma/news/20100128/vitamin-d-may-ease-asthma>. Accessed February 15, 2010.



Green Tea Compound Reduces Fibroid Growth in Laboratory Studies

Researchers at Meharry Medical College report that epigallocatechin gallate (EGCG), a flavonol contained in green tea, helped reduce the growth of cultured fibroid tumor cells, as well as fibroid tumors in female mice.*

A team led by Ayman Al-Hendy, MD, PhD administered varying concentrations of EGCG or no EGCG to rat leiomyoma (fibroid tumor) cells for up to 7 days. Cells treated with the highest concentrations grew more slowly and were less crowded than those treated with lower concentrations.

In another experiment, female mice implanted with fibroid tumor cells were given 1.25 milligrams EGCG per day or no EGCG for 8 weeks. Tumor weight was lower and tumor volume was smaller in the EGCG-treated mice compared with those that did not receive the compound.

"We conclude that EGCG and green tea extract may have potential as oral agents for the prevention or treatment of uterine leiomyoma," the authors write.

Editor's note: Like vitamin D and omega-3 fatty acids, green tea has emerged as an effective preventive or treatment for a variety of conditions.

—Dayna Dye

* *Am J Obstet Gynecol*. 2010 Mar;202(3):289.



LARGEST SELECTION OF VITAMIN D SUPPLEMENTS

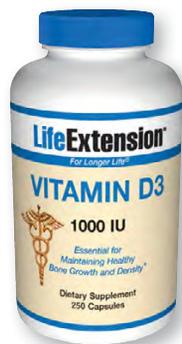
More studies have been published over the past four years supporting the health benefits of **vitamin D** than possibly any other compound.

The good news for consumers is that vitamin D is a very **low cost** supplement.

The objective of taking a vitamin D supplement is to achieve **25-hydroxyvitamin D** blood levels of **50 ng/mL** (and higher).

Life Extension's® exclusive analysis of over 13,000 **vitamin D** blood tests reveals that the minimum intake for most aging people should be around **7,000 IU** a day. Some individuals need **10,000 IU** of vitamin D daily.

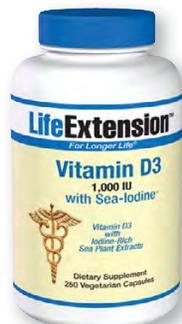
You can choose the right dose of **vitamin D3** for you from the large selection of vitamin D3 supplements below. Remember to factor in that you may be getting **1,000-3,000 IU** of vitamin D in multi-nutrient formulas you already take.



■ **Vitamin D3 1,000 IU • 250 capsules**
Retail: **\$12.50**

Four bottle Member Price: **\$8.44**

Commercial companies offered only **400 IU** vitamin D products when Life Extension long ago introduced this **1,000 IU** version. For most people, this 1000 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**
Contains soybeans, corn, and rice.



■ **Vitamin D3 1,000 IU with Sea-Iodine* 250 vegetarian capsules**

Retail: **\$22**

Four bottle Member Price: **\$15**

Most people do not ingest enough vitamin D and iodine, especially those seeking to reduce their salt intake. Combining **vitamin D3** and **iodine** into one capsule makes taking these two nutrients economical and convenient. **Item# 01371**

Due to the source of the kelp, this product may contain fish and shellfish. Contains rice and corn.

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



■ **Vitamin D3 5,000 IU • 60 capsules**
Retail: **\$11**

Four bottle Member Price: **\$7.43**

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**
Contains rice.



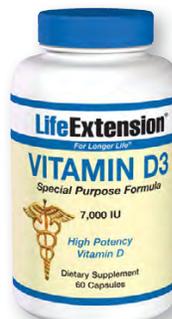
■ **Vitamin D3 5,000 IU with Sea-Iodine* 60 vegetarian capsules**

Retail: **\$14**

Four bottle Member Price: **\$9.38**

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 make taking these two nutrients economical and convenient. **Item# 01372**

Due to the source of the kelp, this product may contain fish and shellfish. Contains rice and corn.



■ **Vitamin D3 7,000 IU • 60 capsules**
Retail: **\$14**

Four bottle Member Price: **\$9.45**

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**
Contains corn and rice.



■ **Vitamin D3 Liquid Emulsion 2,000 IU • 1 ounce**
Retail: **\$28**

Four bottle Member Price: **\$18.75**

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**

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.

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



Green Tea Extract

Large volumes of published **scientific findings** validate the multiple health benefits of **green tea**.

The active constituents in green tea are **polyphenols**, with **epigallocatechin-3-gallate (EGCG)** being the most powerful. The antioxidant activity of **EGCG** is about **25-100 times** more potent than **vitamins C and E**.

When Life Extension® introduced the first standardized **green tea extract** in **1993**, the supplement was very expensive. As more research was published about green tea's multifaceted benefits, more companies competed to make **higher-potency** extracts at lower prices.

The good news for consumers is that they can obtain **high-potency standardized** green tea extract capsules at a fraction of the prices charged just five years ago.

The Life Extension Foundation Buyers Club offers **98% green tea extracts** in either a **lightly caffeinated** or **decaffeinated** form. These **98%** extracts are standardized to provide high potencies of critical **EGCG**, the most important **polyphenol** found in green tea. Each capsule of **Mega Green Tea Extract** provides more polyphenols than are found in five cups of green tea.

These highly-concentrated **Mega Green Tea Extract Caps** contain **725 mg** of either **lightly caffeinated** or **decaffeinated** 98% standardized green tea extracts. The retail price for a **100-capsule bottle** of **Mega Green Tea Extract** is **\$28**.

If a member buys four bottles of 725-mg **Mega Green Tea Extract** capsules, the price is reduced to **\$19.88 per bottle**.

To order **Mega Green Tea Extract**,
call **1-800-544-4440**
or visit **www.LifeExtension.com**

Item #00953

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.



Item #00954



BY JULIUS GOEPP, MD

Innovative Strategies to Combat Kidney Disease

You may be surprised to learn that until **2002**, no standard definition for **chronic kidney disease** (CKD) existed within the medical community.¹ Before then, conflicting classifications had created a state of confusion as to how many Americans were afflicted with this progressive, life-threatening condition.

Once proper categorization of the various phases of CKD was established, the stark and daunting scale of this **modern epidemic** emerged.

We now know that as many as **26 million** Americans currently suffer from some form of chronic kidney disease.^{2,3} Aging individuals are especially vulnerable.⁴

Yet public awareness of the threat remains low. When you consider that the risk of cardiovascular *mortality* in CKD sufferers is **30 times** that of the general population,⁵ the steady increase in kidney disease rates seen today amounts to a public health *disaster* hidden in plain sight.

Life Extension[®] has long emphasized the need for vigilance through **regular testing** (at least once a year) to monitor kidney health. In addition to the standard tests for **creatinine**, **albumin**, and **BUN/creatinine ratio**, certain individuals should *insist* their doctor test for **cystatin-C**, a largely overlooked blood marker which provides a far more **precise** measure of renal function. Optimal levels are less than **.91 mg/L**.

Individuals should also keep a record of their test results. Once any sign of disease is detected (such as an increase in creatinine), it is *imperative* that immediate steps be taken to halt its progress, as kidney function can decline precipitously and may be irreversible. Fortunately, many **Life Extension**[®] members are already taking a variety of nutrients that support kidney health.

In this article, you will discover the most recent scientific advances in our understanding of how CKD unfolds, the specific risk factors that contribute to its progress, and how you can bring them under control.

You will also learn of **safe, low-cost, natural interventions** that have been shown to stop CKD in its tracks, long before end-stage renal disease (ESRD) renders dialysis or kidney transplant the only option. > >



Pyridoxamine or Pyridoxal-5-Phosphate: Potent Kidney Defense

Since the formation of *advanced glycation end-products* (AGEs) is such a well-established factor in the onset and progression of kidney disease, nutrients that have been conclusively shown to mitigate the effects of these lethal agents constitute a front line, low-cost intervention.

A formidable AGE antagonist is the vitamin B6 compound **pyridoxamine**. A plethora of research confirms its power to halt formation of AGEs.⁶⁻⁸ Evidence has also emerged that pyridoxamine drastically limits formation of equally deadly *advanced lipoxidation end products* (ALEs)—another deadly catalyst for kidney disease.⁹⁻¹¹

A team of biochemists at the University of South Carolina were able to show that pyridoxamine *traps* the reactive molecules formed during lipid (fat) peroxidation and helps to “chaperone” them harmlessly into the urine.^{10,12}

Their colleagues subsequently found that neutralizing AGEs and ALEs can prevent kidney disease and lipid profile abnormalities in diabetic rats.¹³ They found that rats supplemented with pyridoxamine had lower levels of albumin (protein) in their urine, lower

plasma levels of the waste product *creatinine*, and less dramatically elevated blood lipids than the placebo treated animals, all directly related to the reduction of AGE/ALEs.

They subsequently examined whether similar results could be obtained in obese animals that had *not yet developed diabetes*.¹⁴ Three groups of animals were studied:

1. lean (healthy) rats
2. obese rats without treatment
3. obese rats treated with pyridoxamine.

As expected, AGE and ALE formation underwent a **two- to threefold increase** in obese untreated rats compared to lean animals. Conversely, those increases were entirely absent in obese animals treated with pyridoxamine. Treated animals also experienced a smaller increase in plasma triglycerides, cholesterol, and creatinine levels, compared with the obese untreated rats.¹⁴

In an equally compelling development, *hypertension* in animals treated with pyridoxamine also resolved, as did thickening of blood vessel walls. Untreated animals displayed urinary evidence of renal disease (albuminuria) that in contrast had been nearly normalized in supplemented animals. This provides powerful evidence of pyridoxamine’s **multi-targeted** protective effect against CKD.¹⁴

In 2004, the same research team made a landmark discovery: while studying the relative effects of pyridoxamine along with a variety of additional natural antioxidants on the progression of kidney disease in diabetic rats, they decided to examine how these natural compounds stacked up against **enalapril**, a standard pharmaceutical intervention used to prevent CKD.⁹ Enalapril is an **ACE inhibitor**, one of a class of drugs commonly used to control blood pressure and kidney disease.

They found that pyridoxamine therapy was the **most effective** at preventing progression of kidney disease, followed by vitamin E and lipoic acid. Enalapril, the prescription drug, proved to be the least effective intervention. Pyridoxamine also limited lipid profile abnormalities and formation of AGEs and ALEs, offering a far broader spectrum of preventive effects than enalapril.⁹

Researchers at the University of Miami advanced these findings by treating diabetic mice with both pyridoxamine *and* enalapril.¹⁵ Again they found that pyridoxamine alone provided substantial benefit, cutting albuminuria and damage to the glomeruli. *Combining* enalapril with pyridoxamine reduced kidney disease mortality in these animals as well, leading the researchers to suggest that the ACE-inhibitor (enalapril)/pyridoxamine combination might be useful.

A convincing body of research on pyridoxamine therapy in *humans* with CKD has also emerged in recent years. In 2007, a team of researchers at Harvard set out to determine optimal interventions to halt the progression of kidney disease in diabetics.¹⁶ They conducted two 24-week multicenter placebo-controlled trials in patients with known *diabetic nephropathy*—treatment of which is known to delay the onset of end-stage renal disease in diabetics. Doses of pyridoxamine ranged from **50 to 250 mg** twice daily.

Pyridoxamine significantly inhibited the rise in blood levels of the waste product creatinine, one of the key biomarkers of kidney dysfunction and a predictor of kidney failure. Urinary levels of inflammatory cytokines were also significantly lower in the treated group compared to controls.

Pyridoxamine has been firmly established as a front line, safe, low-cost intervention in CKD caused or exacerbated by AGEs and ALEs. Further, this natural vitamin B6 compound has been shown to significantly improve outcomes of experimental kidney transplants and other forms of kidney disease.¹⁷⁻¹⁹

It therefore borders on the *criminal* that in January of 2009, the FDA classified this potent, entirely safe CKD therapeutic as a drug, putting it out of reach for many Americans suffering from this deadly condition. No one should be forced to bear the *outrageous* burden of costly pharmaceuticals and their toxic side effects when a perfectly safe alternative exists.

Fortunately, there is another equally safe option available—another *form* of **vitamin B6** known as *pyridoxal-5-phosphate (P5P)* that also exerts potent anti-AGE effects. It has been shown to prevent the progression of diabetic kidney disease in pre-clinical models.²⁰ In fact, as far back as 1988, P5P was used by a German research group to reduce blood lipids in humans with chronic kidney disease.²¹

Four Complementary Kidney Protectors

Coenzyme Q10

Because of the tremendous blood flow and high concentration of metabolic toxins continuously circulating through the kidneys, they are the site of extraordinary *oxidative stress*, which is known to contribute to progressive kidney damage and its complications, such as high LDL and increased cardiovascular disease risk.²²

Coenzyme Q10 (CoQ10) fortifies the body's natural antioxidant capacity and reduces levels of oxygen free radicals, indicating its important defense against CKD. As it happens, CoQ10 has been used experimentally to control hypertension and kidney disease in laboratory animals *since the early 1970s*.^{23,24}

Strategies to Combat Kidney Disease

- It is imperative that aging individuals receive regular **blood tests** to monitor kidney health. In addition to standard **creatinine, albumin, and BUN/creatinine ratio** testing, **cystatin-C** levels should also be measured, as this constitutes a far more accurate bio-marker of renal function.
- The high-pressure and toxin-rich environment involved in renal function renders these delicate, highly complex organs especially vulnerable to damage, dysfunction, and disease.
- **High blood pressure, elevated blood sugar, NSAIDs, certain medications, and high-protein diets** are the most common threats to kidney health.
- Nutrients such as **pyridoxal-5-phosphate (P5P)** fight AGEs and ALEs.
- **CoQ10, silymarin, resveratrol, and lipoic acid** are also clinically supported, potent interventions.
- Omega-3 fatty acids help quell inflammation, contributing to enhanced kidney health.
- A host of additional nutrients complement these actions, including folic acid (folate) and vitamins C and E.



Human studies have shown that CoQ10 levels substantially decline, while markers of oxidation such as *malondialdehyde* are dramatically *elevated*, in kidney disease patients with even mild renal dysfunction.⁴¹ These decreased CoQ10 levels also make circulating *lipoproteins* (such as LDL) more vulnerable to oxidative damage, which in turn increases risk for further cardiovascular damage, adding to the renal burden and substantially increasing the risk of kidney disease.²⁵

A team of European researchers published compelling evidence in 2001 of how effective such a nutritional intervention can be, studying a group of patients with established kidney disease.²⁶ Subjects received antioxidant therapy with vitamin C, E, and riboflavin (vitamin B2) for one month before the addition of 2 months of CoQ10 therapy. Prior to supplementation, CoQ10 values in blood were just one-quarter of normal levels; they increased to nearly **four times** the reference level following supplementation. The study was too brief to demonstrate any change in kidney function, but evidence from animal trials that same

year showed that when CoQ10 levels were increased in tissues of diabetic rats, a reversal of markers of oxidative stress in kidney, heart, and liver resulted.²⁷

By 2004, definitive demonstration of CoQ10 in human kidney disease patients was demonstrated by researchers working with transplant recipients.²⁸ Such individuals undergo tremendous oxidative stress and typically have marked disturbances in lipid profiles as a result. The European group provided their patients with CoQ10 supplements of **30 mg** three times per day for four weeks, and monitored levels of oxidation factors (such as *malondialdehyde*), levels of natural antioxidant enzymes in the body, and lipid profiles.²⁸

Significant improvements were seen after just four weeks, with reduction in LDL, increase in beneficial HDL, and a decrease in presence of inflammatory cells. These results suggest a potentially dramatic improvement in both quality of life and survival rates for patients whose disease has progressed to the point of kidney failure requiring transplantation or dialysis. They also bode well for those with early-stage kidney disease.

Understanding Kidney Disease

The kidney ranks among the most complex and delicately evolved of all the major organs, making it particularly vulnerable to damage and dysfunction. As the body's primary filtration system, it must "process" roughly **200 quarts** of blood per day, rendering about 2 quarts of waste products and water.²⁹

The fundamental structural unit of the kidney is the **nephron**. These high-pressure filtering mechanisms govern the removal of waste products and toxins, control blood pressure and volume, and regulate levels of electrolytes and metabolites in the blood. A healthy kidney contains approximately **800,000 to 1 million** nephrons.

Housed within each nephron is a front-line filtration element called the **glomerulus**, a miniscule capillary coil. (The two together resemble an incandescent light bulb containing a convoluted filament.) The **endothelial cells** of the glomerular capillaries act as the direct physical exchange between the kidney and the bloodstream. Waste products and water are combined to form urine, while blood cells and protein remain in the circulatory system.

The kidney's tight control of water and mineral flow, and its role in maintaining healthy blood pressure and mineral balance, rely on the optimal functioning of nephrons and glomeruli. For this reason, one of the primary markers of kidney function is the **glomerular**

filtration rate (GFR), a measure of the volume of fluid the kidney is able to process at any given time.

The glomerular filtration rate; plasma concentrations of the waste substances **creatinine, urea, and nitrogen** (blood urea nitrogen or BUN); and levels of protein in the blood and urine are the most commonly used measures to determine the presence of CKD. Rapidly rising creatinine usually signals imminent kidney failure. There should be *no* protein in the urine if your kidneys are functioning optimally.

It should be noted that BUN and creatinine *may not increase above the normal range until 60% of total kidney function is lost*. This is why certain aging individuals should ask their doctors to test for **cystatin-C** in the blood. Cystatin-C is a protein produced by virtually all cells and tissues in the body. Because it is formed freely and at a near-constant rate—as opposed to albumin, which may fluctuate with dietary protein intake—plasma cystatin-C serves as a more accurate biomarker of renal function.³⁰

CKD may be categorized in one of 5 stages. Stage 1, the mildest, is defined only by the persistent presence of protein in urine (GFR may be normal); in each successively higher stage, GFR declines, until Stage 5 is reached, defining **end-stage renal disease** (ESRD), or kidney failure.³¹ ESRD is irreversible and results in death without dialysis or kidney transplant.³²



Animal studies have also shown that CoQ10 can protect kidney tissue from numerous **nephrotoxic drugs**, including *gentamicin*, a powerful antibiotic with a notorious propensity for causing kidney damage.^{33,34} These findings are significant both because they offer protection in patients who might be exposed to such drugs, and because of what they teach us about CoQ10's potent ability to combat the extreme oxidant stress that the kidney faces as it deals with a variety of foreign chemicals.

Silymarin

Silymarin is extracted from milk thistle (*Silybum marianum*), a plant rich in the flavonolignans silychristin, silydianin, silybin A, silybin B, isosilybin A and isosilybin B, which are collectively known as the **silymarin complex**.

This safe, natural compound has a long history as a traditional therapy for liver and kidney conditions.^{35,36} It has been used in Western medical practice for more than a quarter of a century as the treatment of choice for the serious kidney injury resulting from severe mushroom poisoning, owing to its potent antioxidant and nephron-protective effects.³⁷ In fact, we've known since 1979 that kidney injury by mushroom

poisoning in animals pre-treated with silymarin can be almost entirely prevented.³⁸ These effects make it a natural choice for protection against drug-induced kidney damage, since so many drugs can act like poisons, exerting extreme oxidant stress on kidney tissue.

Mushroom poisons (mycotoxins) are among the most deadly natural toxins known. Their *kidney* toxicity is surpassed only by some of the most aggressive chemotherapy agents. Physicians have therefore looked to silymarin as a potential "renoprotective" agent for patients undergoing chemotherapy.

Silymarin is also protective against several classes of nephrotoxic drugs, in particular *cisplatin* and *Adriamycin*[®], two of the most potent chemotherapeutic drugs—but also two of the most *damaging* to the kidney owing to oxidative damage and severe inflammation.³⁹⁻⁴¹ Researchers around the world have found that silymarin and its components reduce and often entirely prevent the kidney damage caused by these drugs.⁴²⁻⁴⁵

Silymarin's ability to protect against the oxidative stress produced by potent drugs suggests that it may be useful in protecting against more subtle, chronic injury by free radicals, particularly those generated by chronic blood glucose elevations. German researchers,

for instance, have found that silymarin could entirely prevent injury to renal cells incubated with elevated glucose concentrations while *blocking* production of oxidative stress markers.⁴⁶

Silymarin's protective power also extends to *ischemia/reperfusion injury* (restoration of blood supply following restriction of blood flow). Turkish researchers demonstrated that they could completely prevent visible and functional damage to kidney structures exposed to this kind of injury by pre-treating animals with silymarin.^{47,48} Studies such as these have huge implications for the general population, because they suggest that by maintaining optimal antioxidant function through *supplementation*, we may be able to prevent much (if not *most*) of the chronic oxidative damage to which our kidneys are exposed daily.

Resveratrol

The considerable advance in our understanding of the cyclical relationships between oxidative stress, endothelial dysfunction, inflammation, atherosclerosis, and chronic kidney disease points to **resveratrol** as an intervention in the chain of events that ultimately lead to renal failure.⁴⁹

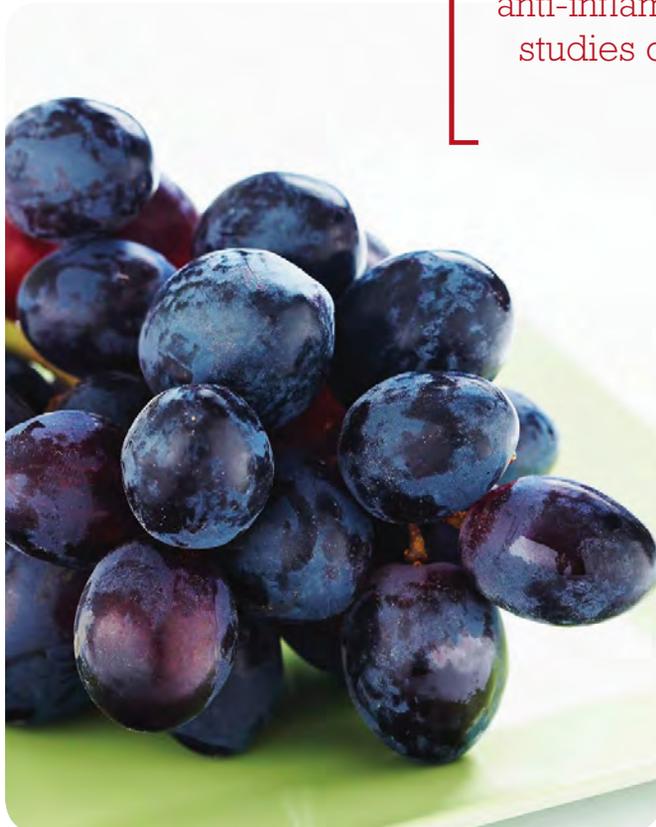
Italian researchers are among the leaders in resveratrol research, and early in this century one

group published remarkable research demonstrating the impact of resveratrol on preserving kidney structure and function in rats exposed to ischemia/reperfusion injury.^{50,51}

Japanese and Indian urologists followed that up in 2005 and 2006 with reports detailing the mechanisms by which resveratrol combats oxidative damage following reperfusion, markedly reducing kidney dysfunction.⁵²⁻⁵⁶ Overwhelming bacterial infections (**sepsis**) are a common cause of kidney failure in the intensive care unit and following surgery or trauma. Turkish physiologists demonstrated that resveratrol can reduce or prevent both kidney and lung injury in septic rats.⁵⁷

Resveratrol's unmatched antioxidant and anti-inflammatory potential has been tapped in studies of its ability to prevent drug-induced kidney damage as well. Nephrotoxicity in rats exposed to the antibiotic **gentamicin** was significantly reduced and more rapid healing of injured kidney tissue was attained using resveratrol, with dramatic reduction in markers of oxidant injury.⁵⁸ A team of toxicologists in Brazil demonstrated its kidney protective power against **cisplatin**, the powerful chemotherapy

Resveratrol's unmatched antioxidant and anti-inflammatory potential has been tapped in studies of its ability to prevent drug-induced kidney damage as well.



agent responsible for so much drug-induced kidney damage.⁵⁹ Finally, Indian pharmacologists were successful in protecting animal kidneys from damage caused by another common chemotherapy and immune suppressant drug **cyclosporine A** by pre-treating the animals with resveratrol.⁵⁶

Since diabetes is the leading cause of kidney disease—and because the damage it inflicts is largely mediated by free radical production resulting from destructive alteration of proteins by glucose (glycation)—researchers have explored resveratrol as a preventive in diabetic kidney damage. Promising work has come from Indian pharmacologists, who've shown that they could significantly attenuate kidney damage in rats with experimentally induced diabetes—even 4 weeks *after* the diabetes was induced!⁶⁰ In the researchers' own words, "***The present study reinforces the important role of oxidative stress in diabetic kidney disease and points towards the possible antioxidative mechanism being responsible for the renoprotective action of resveratrol.***"

Risks to Kidney Health

Given the toxic, high-pressure conditions involved in renal function and the delicacy of the kidney's structural components, it comes as no surprise that an array of near-constant internal *and* external insults may take a severe toll on the glomeruli and other parts of the kidney. Their incremental damage and destruction leads to the progressive decline in renal function seen in aging humans.

These internal and external insults include:

- **Hypertension.** Over time, chronic high blood pressure inflicts damage to the *endothelial* cells lining the kidney's blood vessels, including those within the glomeruli. The result is a familiar cascade of events that leads to the thickening of blood vessel walls and reduction in blood flow seen in **atherosclerosis**. Reduced blood flow is in turn directly translated into lower GFR. Pressure damage to the glomeruli also diminishes their filtration capacity, permitting large protein molecules such as *albumin* to pass into urine instead of remaining in circulation. (This is why *urine albumin* levels are used to detect kidney disease.)
- **Elevated serum glucose.** Diabetes is now the leading cause of CKD.⁶¹ Experts predict even greater increases in CKD if rates of diabetes incidence continue to rise steeply.⁶² It should be noted, however, that high blood sugar poses a threat to kidney health *even in non-diabetic individuals*. Chronic exposure to glucose degrades and destroys kidney cells through the formation of *advanced glycation end products* (AGEs)—molecules generated through the pathologic binding of glucose to proteins in the body. AGEs cause primary structural proteins in the cells to cross-link and become non-functional, increasing **oxidative stress**, inflammation, and directly damaging kidney tissue.⁶³⁻⁶⁶ It has been established that even **early-stage** insulin resistance is associated with CKD.⁶⁷
- **Excess fatty tissue.** Body fat contributes to the development of CKD through production of inflammatory cytokines specific to adipose (fatty) tissue called **adipokines**. Along with **AGEs** and oxidative stress, adipokines exacerbate the inflammation commonly found in people with CKD.⁶⁷ For this reason, *metabolic syndrome*—co-occurring insulin resistance, hypertension, and abdominal obesity—represents a perfect storm for the development of CKD. A 2007 study found that metabolic syndrome occurs in 30.5% of individuals with stage 4 or stage 5 chronic kidney disease.⁶⁸ Metabolic syndrome increases the risk of chronic kidney disease, even *before* diabetes manifests.⁶⁹
- **Protein over-consumption.** Ingesting an excessive amount of protein, particularly meat, may tax the kidneys to the point of distress. The extraordinary increase in individuals adhering misguidedly to high-protein diets in order to lose weight has had the unintended consequence of boosting rates of kidney damage and disease. Meat consumption also results in high AGE production and the consequent inflammatory injury to kidney tissue.⁶⁹ A prudent approach to dietary protein is thus encouraged by most experts, particularly in people who already have some degree of CKD.
- **Drugs.** The *nephrotoxic* side effects of many commonly used medications comprise another significant causative factor in CKD. Chief among the mechanisms by which drugs cause kidney damage are oxidative stress and adverse alterations in cellular energy management. So-called “analgesic nephropathy” involves destruction of the active regions of the kidney by over-use of pain relievers, usually used in combinations of two or more, including the common over-the-counter medication acetaminophen (Tylenol®) as well as non-steroidal anti-inflammatory medications (NSAIDs) including high-dose aspirin, and ibuprofen (Advil®, Motrin®).⁷⁰⁻⁷³ Chemotherapy agents have also been shown to significantly impair renal function.^{74,75} Please note that acetaminophen inflicts kidney damage via a different mechanism than pain relieving drugs like ibuprofen.



Lipoic Acid

Like resveratrol, *lipoic acid* is a powerful antioxidant with few known side effects.⁷⁶ Lipoic acid has been successfully employed in the laboratory to block the oxidative damage caused by ischemia/reperfusion injury, thereby opening the door to another effective treatment for this common cause of acute kidney failure.⁷⁷ For example, in 2008 researchers showed that they could reverse *all* adverse effects on renal function and lab abnormalities produced following experimental ischemia/reperfusion injury in animals.⁷⁸

Lipoic acid has been comprehensively studied worldwide for its power to prevent or mitigate drug-induced kidney damage. We know that lipoic acid is an effective kidney-protective agent against damage inflicted by **Adriamycin**[®],^{79,80} the immunosuppressive drug **cyclosporine A**,^{76,81,82} and even against acute toxic doses of the pain reliever **acetaminophen**.⁸³ In studies of protection against cyclosporine toxicity, lipoic acid also helped to normalize **blood lipid abnormalities**.⁸²

Nephrologists at Georgetown University are examining lipoic acid in the context of diabetic kidney disease. Their results show it can improve renal



function in diabetes by lowering sugar levels.⁸⁴ They have also recently demonstrated that lipoic acid lowers protein loss in urine and improves kidney structure and function in diabetic laboratory animals by reducing oxidative stress.⁸⁴

In yet another compelling study, Korean researchers recently showed that they could improve kidney patients' responses to the vasodilator (blood vessel relaxer) *nitric oxide* (NO) by supplementing them with lipoic acid.⁸⁵ Loss of endothelial responsiveness to NO is a cause of vascular disease in diabetics, and a chemical called *asymmetric dimethylarginine* (ADMA) is a sensitive marker and predictor of cardiovascular outcome in patients with end-stage renal disease. Fifty patients on hemodialysis were treated with lipoic acid **600 mg per day** for 12 weeks. Levels of the marker ADMA remained unchanged in the control group, but fell significantly in the lipoic acid group, suggesting that lipoic acid may reduce the risk of cardiovascular complications in this group of patients.

Overcoming CKD-Induced Fatigue

L-carnitine, an amino acid-derived nutrient crucial to cellular energy management, can play a vital role in kidney disease prevention and management.^{86,87} Carnitine **deficiency** is itself a known *causative* factor in the development of kidney disease. Conversely, patients with kidney disease frequently develop carnitine deficiency, especially those on dialysis. Carnitine therapy is known to lead to improvements in many kidney-disease-associated complications including **cardiovascular disease, anemia, decreased exercise tolerance, weakness, and fatigue**.⁸⁷

As noted earlier, CKD sufferers are at very high risk for developing cardiovascular complications, including heart attacks and heart failure. This is thought to be in part related to massive oxidative stress induced by kidney disease, and partly to *inadequate* energy management in cardiac tissues induced by carnitine deficiency.⁸⁸ The frequent result of these interrelated factors is a massive deterioration in energy, exercise tolerance, quality of life—and perhaps even longevity.⁸⁹

As early as 1998 scientists in Kentucky discovered that supplementation with L-carnitine could improve patient-reported general health, vitality, and physical function in people on dialysis.⁹⁰ In 2001, research by clinicians at Los Angeles Medical Center showed that L-carnitine, given intravenously to dialysis patients, could reduce fatigue and preserve exercise capacity.⁹¹ A literature review by nephrologists at Vanderbilt University in 2003 indicated that L-carnitine supplementation should be used to improve red blood cell count in dialysis patients whose anemia doesn't



respond to therapy with the hormone erythropoietin.⁹² Finally, more data from Italy demonstrate that L-carnitine supplements can help suppress levels of the inflammatory marker *C-reactive protein*, potentially reducing cardiovascular risk in dialysis patients.⁹³

Additional Nutrients that May Benefit CKD

Folic acid is well known for its capacity to reduce levels of the metabolite *homocysteine*, which is strongly associated with cardiovascular disease and dramatically elevated in individuals with kidney disease or kidney failure.⁹⁴⁻⁹⁷

Omega-3 fatty acids have been shown to help correct cardiovascular risk factors⁹⁸⁻¹⁰⁰ and to improve kidney function in patients with established kidney disease.^{101,102} Research published in 2009 suggests that diets rich in omega-3s may actually *prevent* kidney disease.^{103,104}

Through powerful antioxidant effects, **vitamin E** may help prevent CKD onset, and **vitamins E and C** may mitigate development of cardiovascular and other complications in patients with chronic kidney disease.¹⁰⁵⁻¹¹⁰

Summary

Chronic kidney disease (CKD) is rapidly approaching epidemic proportions, with up to **26 million** Americans suffering from some form of kidney disease. Kidneys must filter **200 quarts** of blood every day. The high-pressure and toxin-rich environment to surrounding renal function renders these delicate, highly complex organs especially vulnerable to damage, dysfunction, and disease.

High blood pressure, elevated blood sugar, NSAIDs (such as ibuprofen), **certain medications**, and **high-protein diets** are the most common threats to kidney health. The potentially lethal insults they inflict include oxidative stress, production of advanced glycation and lipoxidation end products (AGEs and ALEs), inflammation, and an excessive filtration burden that taxes renal function over time.

Nutrients such as **pyridoxal-5-phosphate (P5P)** fight AGEs and ALEs. **CoQ10, silymarin, resveratrol**, and **lipoic acid** are also clinically supported, potent interventions. Omega-3 fatty acids help quell inflammation, contributing to enhanced kidney health. A host of additional nutrients complement these actions, including folic acid (folate) and vitamins C and E. ●

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

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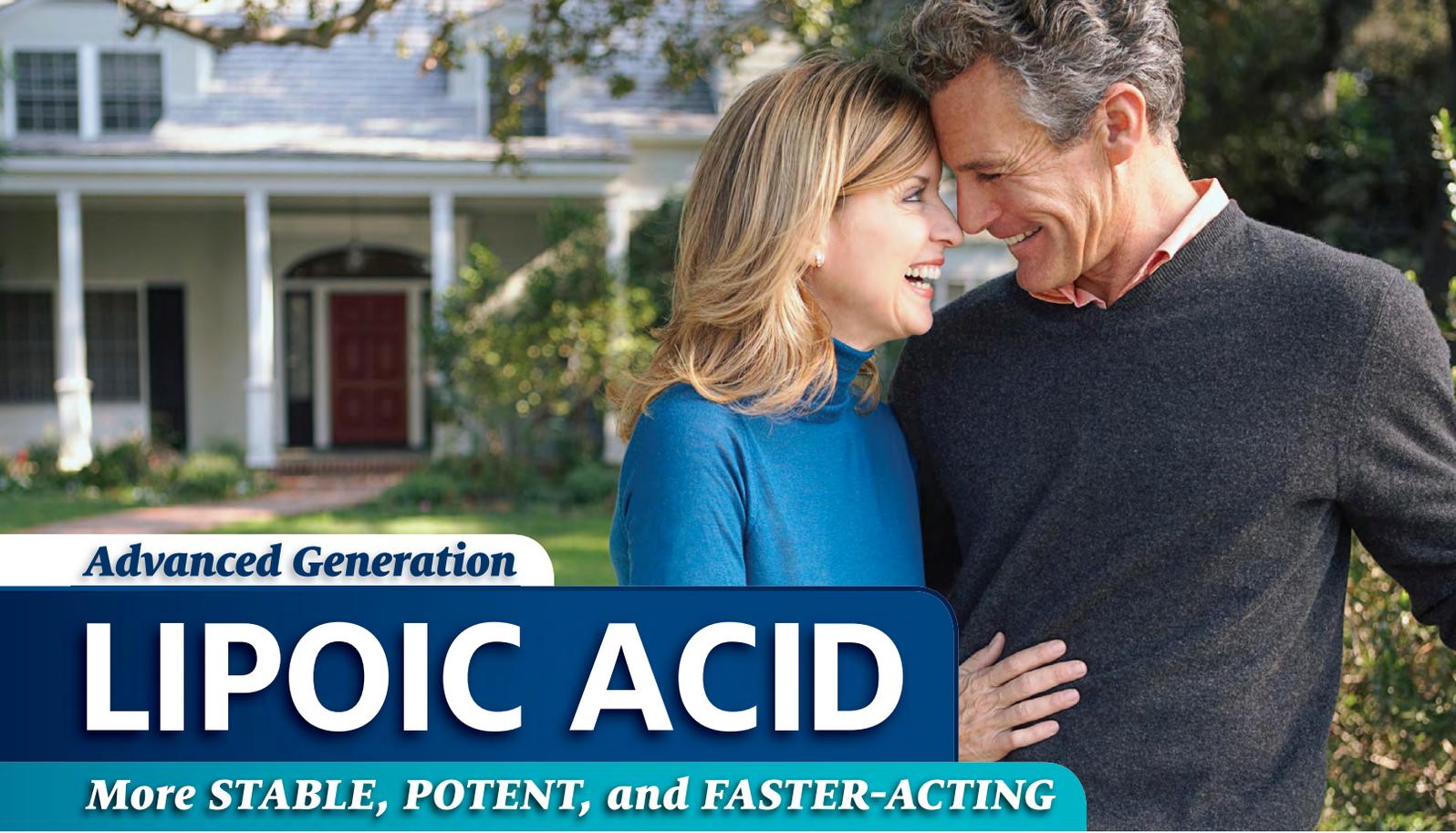


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Dedicated research and development has produced a form of **R-lipoic acid** that is being hailed as the “next-generation” antioxidant powerhouse.

Life Extension’s **Super R-Lipoic Acid** has demonstrated superior bioavailability, stability, and potency for a variety of health benefits. This breakthrough converts the biologically active “R” form of lipoic acid to sodium-R-lipoic acid, which in a recent human study achieved **10–30 times** higher peak blood levels than pure R-lipoic acid.¹

Not only does this lipoic acid formulation reach higher peak blood levels,² it also achieves them sooner, up to **12 times** faster than R-lipoic acid, ensuring rapid uptake from the plasma into the tissues.¹ A recent study showed that oral ingestion of **Super R-Lipoic Acid** reached peak plasma concentrations within just **10–20 minutes** of supplementation.²

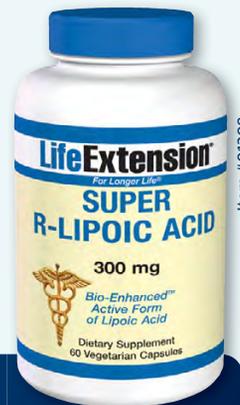
What’s more, unlike other forms of lipoic acid, **Super R-Lipoic Acid** is more stable in the body. The increased stability of this enhanced formulation is the reason for its greater absorption and bioavailability compared with R-lipoic acid.



POWERFUL ANTIOXIDANT PROTECTION

The superior antioxidant effects of **R-lipoic acid** are already well known for supporting healthy mitochondrial function. **Super R-Lipoic Acid** provides more potent benefits for preserving youthful cellular energy levels.

A bottle of **Super R-Lipoic Acid** containing 60 capsules retails for \$49. If a member buys four bottles, the cost is only **\$33.75 per bottle**. Each capsule contains **300 mg** of stabilized, Bio-Enhanced® **sodium-R-lipoic acid** supplying **210 mg** of **R-lipoic acid**.



To order **Super R-Lipoic Acid**, call **1-800-544-4440** or visit **www.LifeExtension.com**

Bio-Enhanced® is a registered trademark of GeroNova Research, Inc.

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Contains soybeans and rice.

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.

3 WAYS TO BENEFIT FROM CALORIE RESTRICTION



1

EAT LESS

Controlled studies in primates reveal that *modest* calorie reduction (only **30%**) yields a **huge** reduction in the risk of issues associated with aging. For example, a recent study in *Science* showed that modest calorie restriction in primates provided a 50% improvement in cardiovascular support.¹ Studies on humans show that a calorie reduction of only **20%** dramatically improves biomarkers associated with longevity.²⁻⁴

For those who find it difficult to ingest **20-30%** fewer calories, consider one or more of the following natural approaches:

1. **Pinolenic acid** is a polyunsaturated fatty acid derived from pine nuts. It stimulates secretion of the hunger-suppressing hormones **cholecystinin** (CCK) and **glucagon-like peptide-1** (GLP-1). Human studies showed that participants taking pinolenic acid reduced their food intake by **36%**⁵...more than enough to accomplish *modest* calorie restriction. Pinolenic acid is the active ingredient in a supplement called **Natural Appetite Control**. Those seeking to reduce daily calorie intake should take **three** capsules of **Natural Appetite Control** before most meals.

Natural Appetite Control was developed for adults seeking to lower their calorie intake and maintain a successful, long-term weight management program. Each softgel of **Natural Appetite Control** provides **1,000 mg** of standardized extract of Korean pine nuts containing the highest concentration of pinolenic acid found in any pine nut species, which stimulate the release of two of the body's most powerful hunger-suppressing hormones.

A bottle of 90 softgels of **Natural Appetite Control** retails for \$28. If a member buys four bottles, the price is reduced to **\$18.90** per bottle. Contains soybeans and tree nuts.

Item # 00891



Item #00891

NOTE: Supplements should be taken in conjunction with a healthy diet and regular exercise program. Results may vary.

2. Ingest **six grams** of **soluble fiber** before each meal. Studies show that pre-meal fiber intake helps induce early satiety. One or more of the following low-cost fiber supplements can be used:

Fiber Food is a natural bulk-producing soluble fiber consisting of psyllium, guar gum, and apple pectin that is available both in capsule and powder forms.

A bottle of 200 capsules of **Fiber Food Capsules** retails for \$15. If a member buys four bottles, the price is reduced to **\$9.38** per bottle. Contains corn. **Item # 00229**

A bottle of 300 grams of **Fiber Food Powder** retails for \$15. If a member buys four bottles, the price is reduced to **\$9.38** per bottle. Contains corn. **Item # 00228**

CocoaGold™ with Beta-Glucan

This combination powder provides **standardized cocoa extract** plus oat **beta-glucans**. The **CocoaGold™** polyphenols support healthy insulin sensitivity, while **beta-glucan** fiber delays **carbohydrate** absorption. **Beta-glucans** have a slower and more sustained effect on blood glucose and energy.

A jar of 180 grams of **CocoaGold™ with Beta-Glucan** retails for \$20. If a member buys four jars, the price is reduced to **\$13.50** per jar. Contains tree nuts (cocoa beans), gluten, and corn. **Item # 01285**



Item #00229



Item #00228



Item #01285

To order the new **CALORIE RESTRICTION MIMETIC FORMULA**

or any of the other supplements that help protect against chronically bloated bloodstreams, call **1-800-544-4440** or visit **www.LifeExtension.com**

2

REDUCE THE EFFECT OF EXCESS CALORIES

Famine prevailed throughout most of mankind's evolutionary history. Those who efficiently absorbed and stored scarce calories are our direct ancestors. With abundant quantities of calorie-dense foods, it is no wonder that problems associated with excess food intake are so prevalent in modern-day societies.

Excess consumption of dietary fat and carbohydrate results in rapid spikes in levels of fat (triglyceride) and sugar (glucose) in the blood. Regrettably, many people are not aware of the age-accelerating consequences of **postprandial overload**. Elevated levels of post-meal blood fat (triglycerides) and blood sugar (glucose) *accelerate* the aging process in our cardiovascular system.

Ingested foods are broken down by *digestive enzymes* before they are *absorbed* into the bloodstream.

Green and black tea polyphenols target the fat-digesting enzyme *lipase*. **Theaflavins** from **tea polyphenols** have been shown in experimental studies to help reduce the post-meal impact of ingested fat calories in a dose-dependent manner.⁶

Most of us eat too many refined *carbohydrates* that add to the calorie burden. The enzymes *amylase*, *glucosidase*, and *sucrase* break down ingested carbohydrates to smaller starch and sugar particles. Nutrients such as **white kidney bean** (targets amylase activity),⁷⁻⁸ **InSea™** (targets amylase and glucosidase activity),⁹ **Irvingia** (targets amylase activity)¹⁰⁻¹¹ and **L-arabinose** (targets sucrase activity)¹² have been shown in published scientific studies to help reduce the metabolic impact of ingested carbohydrate calories from dietary starch and/ or sugar. These *nutrients* are all contained in the new **Optimized Irvingia** formula.

Optimized Irvingia with Phase 3™ Calorie Control Complex contains *Green Tea Phytosome Extract* to slow down the breakdown and absorption of dietary fat, **Phase 2® White Kidney Bean** extract to moderate *alpha-amylase* activity, **InSea2™** seaweed extract, which can help support a *slowing* of the rate of carbohydrate absorption from the intestines, *Irvingia gabonensis* extract for *leptin sensitivity* support, and **Phase 3™ Sucrase Modulator** to reduce the number of absorbed calories from sugar. Directions are to take two capsules before the two heaviest meals of the day. A bottle of **120** capsules of **Optimized Irvingia with Phase 3™ Calorie Control Complex** retails for \$78. If a member buys four bottles, the price is reduced to **\$54 per bottle**. Contains soybeans, tree nuts, yeast, and corn. **Item # 01492**



Item #01492

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Integra-Lean® Irvingia is protected by U.S. Patent No. 7,537,790. Other patents pending. InSea2™ is a trademark of innoVactiv™. Phase 2 and Phase 3 are used under license.

3

CONTROL YOUR GENE EXPRESSION

Restricting the amount of calories allowed into your blood stream *increases* healthy life span via several mechanisms. Cardiovascular support can be maintained by blunting the post-meal surge of glucose, insulin, triglycerides, and inflammatory-inducing compounds that engorge the bloodstream following eating binges.

Scientists, however, are focused on an even more important mechanism to explain how *calorie restriction* so radically extends life span. They have uncovered favorable alterations in **gene expression** in response to reduced calorie intake. It turns out that caloric restriction slows aging by **activating** beneficial "youth" genes while disabling detrimental "senescence" genes.

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

Among the most promising of these **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.¹³⁻²⁰ In particular, they help "mimic" caloric restriction's favorable impact on **genes** that influence the aging process.¹³⁻²⁰

Genes have the capacity to directly affect life span by regulating a broad spectrum of aging factors. Calorie restriction exerts a beneficial effect on the *activity* of **gene expression**, supporting healthy cellular function through numerous physiological pathways.²¹ Compounds that mimic caloric restriction bring about favorable changes in *gene expression* and improve the primary *biomarkers* of aging.²²

Those taking high-dose vitamin D, along with coenzyme Q10 and fish oil are already favorably altering many of their gene expression patterns. A new **Calorie Restriction Mimetic Formula** includes **resveratrol**, **pterostilbene**, **quercetin**, **grape seed polyphenols**, and **black tea extract** to provide even broader-spectrum gene expression support in one nutritional compound. Two capsules of the new **Calorie Restriction Mimetic Formula** provides:

Trans-Resveratrol	250 mg
Trans-Pterostilbene	3 mg
Quercetin	150 mg
Black tea extract	300 mg
Grape seed polyphenols	50 mg

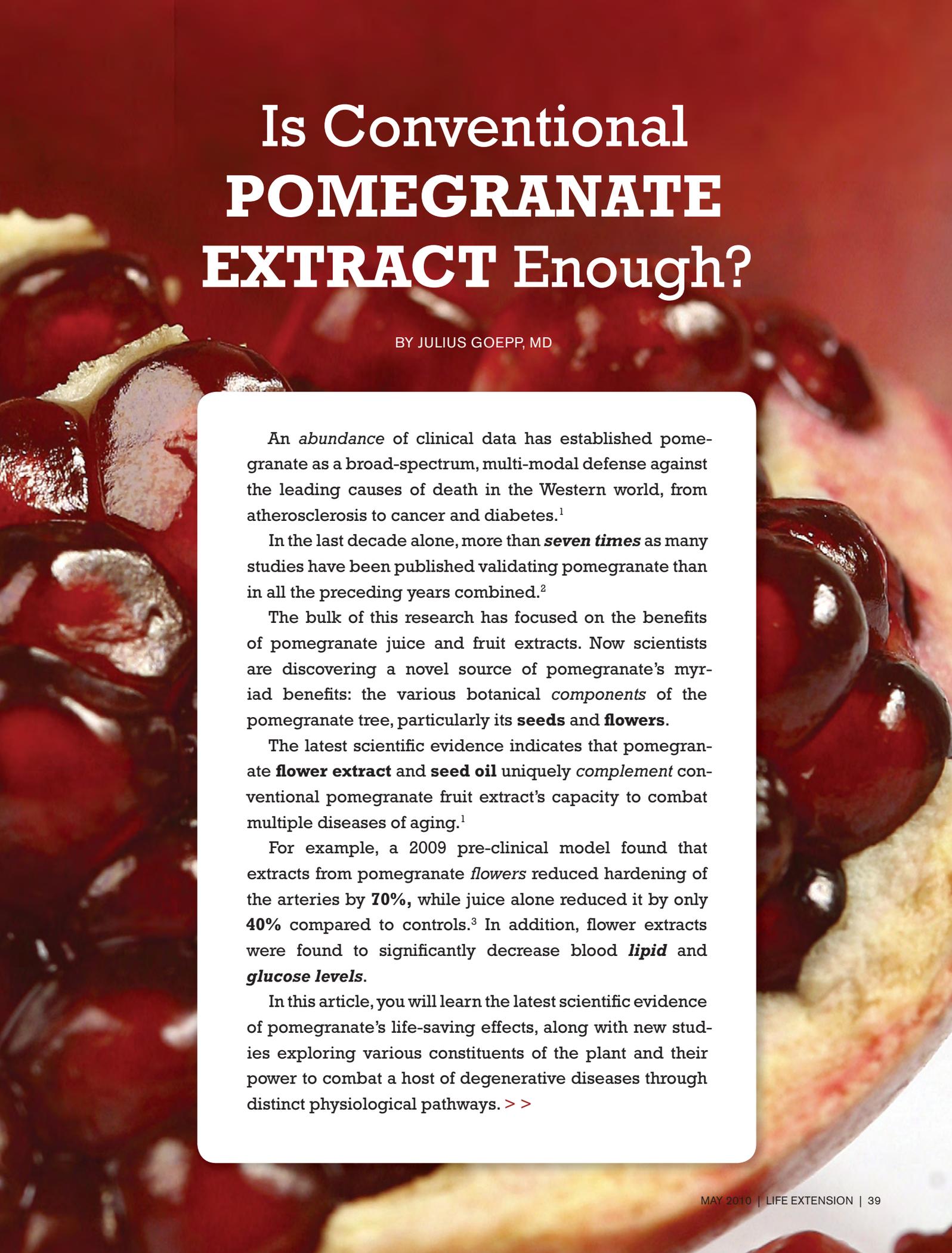


Item #01419

A bottle containing 60 vegetarian capsules of the new **Calorie Restriction Mimetic Formula** retails for \$36. If a member buys four bottles, the cost per bottle is reduced to **\$24.75**. **Item # 01419**

While the new **Calorie Restriction Mimetic Formula** can enable aging individuals to *simulate* many of the beneficial **gene expression** effects associated with caloric restriction, **Life Extension** members are still urged to reduce their pathologic calorie burden by following steps #1 and #2 as outlined herein.





Is Conventional **POMEGRANATE EXTRACT** Enough?

BY JULIUS GOEPP, MD

An *abundance* of clinical data has established pomegranate as a broad-spectrum, multi-modal defense against the leading causes of death in the Western world, from atherosclerosis to cancer and diabetes.¹

In the last decade alone, more than **seven times** as many studies have been published validating pomegranate than in all the preceding years combined.²

The bulk of this research has focused on the benefits of pomegranate juice and fruit extracts. Now scientists are discovering a novel source of pomegranate's myriad benefits: the various botanical *components* of the pomegranate tree, particularly its **seeds** and **flowers**.

The latest scientific evidence indicates that pomegranate **flower extract** and **seed oil** uniquely *complement* conventional pomegranate fruit extract's capacity to combat multiple diseases of aging.¹

For example, a 2009 pre-clinical model found that extracts from pomegranate *flowers* reduced hardening of the arteries by **70%**, while juice alone reduced it by only **40%** compared to controls.³ In addition, flower extracts were found to significantly decrease blood **lipid** and **glucose levels**.

In this article, you will learn the latest scientific evidence of pomegranate's life-saving effects, along with new studies exploring various constituents of the plant and their power to combat a host of degenerative diseases through distinct physiological pathways. > >

Conventional Pomegranate Extracts: Polyphenols Provide Degenerative Disease Defense

The polyphenolic content of pomegranate juice and pulp have historically aroused the greatest scientific interest. In particular, the formidable antioxidant capacity of their *ellagitannin* content has been credited with much of pomegranate's health-promoting power.^{4,5}

Recent analysis has further clarified pomegranate's underlying mechanisms of action, most notably in the area of **beneficial gene expression**—inhibiting pro-inflammatory **nuclear factor-kappaB (NF-kB)**⁴ and downregulating production of cancer-stimulating androgen receptors in prostate cells.⁵ Pomegranate's unique role in upregulating expression of *paraoxonase-1 (PON-1)*, an enzyme required for artery-cleansing *high-density lipoprotein* (HDL) to function optimally, has also generated substantial scientific interest.^{6,7} (See sidebar on page 30.)

Pomegranate's clinically validated cardioprotective effects have prompted some to label it the “heart-healthy” juice.⁸ Its flavonoid content *inhibits* oxidative damage to low-density lipoprotein (LDL), helping to protect blood vessels against atherosclerosis.⁹ Pomegranate polyphenols exert anti-inflammatory effects that further protect blood vessels from damage, reduce the size and number of atherosclerotic lesions, prevent thickening of arterial walls, and lower blood pressure.⁸

Polyphenols and other components in pomegranate juice exert beneficial effects that extend beyond the cardiovascular system. Numerous phytochemicals in pomegranate juice—*ellagic acid* in particular—have been shown to disrupt cancer development at multiple stages.^{2,10,11} Another polyphenol unique to pomegranate is *punicalagin*, which converts into molecules known to slow prostate cancer cell growth.⁴ These act by inhibiting pro-inflammatory NF-kB, a cytokine implicated in the development of numerous forms of cancer.^{4,12-14}

Scientists have also focused on pomegranate's antimicrobial potential. Polyphenols contained in the juice inhibit the growth of a number of pathogenic (disease-causing) bacteria, fungi, and parasites.¹⁵⁻¹⁷

Pomegranate Flower Extract: Preventing Metabolic Syndrome

The global epidemic of *metabolic syndrome* and its associated pathologies—obesity, type 2 diabetes, and cardiovascular disease—has lent new urgency to the discovery of anti-diabetic agents with low toxicity suitable for long-term use.¹⁸ New research points to extract of the *pomegranate flower* as an attractive, safe, low-cost intervention.

In 2006, Chinese scientists discovered a **previously unknown polyphenol** in pomegranate **flower extract** that combats weight gain, impaired glucose control, and systemic inflammation. They gave it the name *pomegranatate*.¹⁹



Pomegranate bloom.

Indian researchers have demonstrated the capability of flowers from male pomegranate plants to influence blood sugar in normal and experimentally diabetic rats.²⁰

In 2005, researchers in Australia demonstrated that 6 weeks of supplementing obese diabetic rats with pomegranate flower extracts prevented blood sugar increases following a glucose-laden meal—but had no such effect in normal rats.²¹

Yet another profound anti-diabetic activity emerged: pomegranate flower extract enhanced **gene expression** of the vital transcription factor **PPAR-gamma**, which regulates cellular responses to energy intake. (See sidebar on page 30.) It also *normalized* expression of a glucose-transporting protein in heart muscle, enabling the diabetic animals' hearts to better utilize energy from sugar.²¹ Together these effects suggest a viable molecular pathway for improved *insulin sensitivity*—an important step in preventing diabetic complications (and slowing aging).

The same researchers convincingly demonstrated that extracts of pomegranate flower reduce **cardiac muscle triglyceride** content in diabetic rats, simultaneously lowering triglyceride and total cholesterol levels in the blood.²² Normalization of these vital lipid parameters occurred through upregulated expression of **PPAR-alpha**, the gene transcription factor that controls how cells take up and utilize fatty acids. These twin findings have profound implications: drug companies have spent millions in the effort to find a pharmaceutical that could induce these effects. As a dual **PPAR-alpha and PPAR-gamma** activator, pomegranate **flower extract** offers potential realization of that effort through a safe, low-cost, natural intervention.²³

The same team of researchers reported that pomegranate flower extract significantly reduced heart muscle fibrosis (thickening and stiffening) in obese diabetic rats.²⁴ Cardiac fibrosis ranks among the more deadly complications of diabetes, resulting in gradually diminishing cardiac output and heart failure. Six weeks of oral treatment with the flower extract reduced the amount of inflexible collagen protein in the animals' left ventricles and around their coronary arteries.

These results were attained via alterations in gene expression, in this case through downregulation of genes that produce the stiffening proteins collagen and fibronectin. Pomegranate flower extract also reduced heart muscle signaling of **endothelin-1**, a vasoconstrictor (blood vessel-narrowing) peptide implicated in cardiac fibrosis. Additionally, the extract reduced gene expression of the inflammatory regulatory molecule NF-kB,²⁴ which plays an important role in controlling the inflammation and metabolic alterations associated with obesity.²⁵



What You Need to Know

Pomegranate's Multi-Modal Effects

- The comprehensive health benefits of pomegranate juice and pulp have been well documented in combating a range of degenerative diseases.
- Less well known are the significant benefits conferred by other botanical *components* of the pomegranate plant. The **synergistic** action of pomegranate's constituents may be superior to that of its juice/pulp alone.
- Extracts of pomegranate flowers provide unparalleled protection against type 2 diabetes and many of the metabolic consequences of obesity.
- Pomegranate seed oil offers potent chemoprevention against breast, prostate, and other common human cancers.
- All three components of the pomegranate plant have multi-modal effects, and there is evidence that these effects synergize to produce final results more potent than the sum of their parts.
- Whole-fruit, flower, and seed oil extracts of pomegranate offer unrivalled protection against the three top killers of American adults: cardiovascular disease, type 2 diabetes, and cancer.

Inflammation is the target of another newly discovered component of pomegranate flowers—**punicanolic acid**, a member of the **triterpene** family of beneficial essential oil molecules. In laboratory studies, punicanolic acid inhibits production of the potent inflammatory mediator TNF-alpha,²⁶ which is found at increased levels in overweight and obese people and contributes to insulin resistance.²⁷

Natural Lipid and Glucose Control: PON and PPAR Activators

Polyphenols in pomegranate **juice** increase the activity of the vital paraoxonase (PON) enzymes PON-1 and PON-2. PON-1 supports artery-cleansing HDL by stabilizing its molecular complex against oxidation and breakdown and helping cellular scavengers (macrophages) remove oxidized cholesterol from tissue.^{6,41} PON-2 exerts similar antioxidant protection at the cellular level rather than in the blood.⁶

Pomegranate juice polyphenols work by increasing gene expression of both PON enzymes, while also preventing PON-1 inactivation and increasing the stability of its binding to HDL cholesterol.^{6,7,41} Other components of the pomegranate tree, including its flowers and seeds, have displayed similar effects, particularly on PON-2.³

These additional botanical constituents also affect another set of intracellular protein complexes: peroxisome proliferator-activated receptors (PPAR) alpha and gamma.^{18,23} Both are *transcription factors* that regulate how and when genes become activated. Between them they tightly regulate fatty acid uptake and storage, glucose metabolism, and inflammation.²³

Drugs in the family of **fibrates** (**gemfibrozil**, **fenofibrate**, and others) are synthetic PPAR-alpha activators that can help improve lipid profiles, while drugs in the **thiazolidinedione** family (such as **rosiglitazone**) are synthetic PPAR-gamma activators that help lower blood glucose.^{43,44} Both categories of drugs, however, cause **significant adverse side effects**. To date, efforts to develop a drug that activates both PPARs (a clearly desirable action) have failed.²³ A recent explosion of data on the pomegranate flower suggests that this component of the pomegranate tree possesses these dual PPAR-alpha/gamma activator properties, a finding with profound implications for treatment of diabetes and its complications.^{21,23,24}

The inflammation observed in obese and overweight people not only adds to insulin resistance. It also underlies the increased risk of cardiovascular disease seen in obese individuals and in animal models of type 2 diabetes. The condition is characterized by substantially elevated blood sugar levels, LDL, very low-density lipoprotein (VLDL), triglycerides, and oxidized fats. At the same time, beneficial HDL and cellular antioxidant systems are found to be depressed in such individuals.

Oral administration of pomegranate flower extract *reversed* all of these conditions in a laboratory rat model of type 2 diabetes, highlighting its potential utility for aging individuals at risk for diabetes and its cardiovascular complications.²⁸ The extract also helps ameliorate fatty liver disease,²⁹ the most common cause of liver function abnormalities in people with obesity and type 2 diabetes.

Pomegranate flower extract is a potent inhibitor of the digestive enzyme **alpha-glucosidase**.³⁰ Alpha-glucosidase breaks complex carbohydrates into their simple sugar components for absorption into the blood. Inhibiting its action *slows* the rate at which free sugar is absorbed into the bloodstream.

The practical effect of this beneficial action was apparent in an animal model: in diabetic rats fed a carbohydrate-rich meal, oral administration of the flower extract markedly lowered plasma glucose levels during the postprandial (after-meal) period.³⁰ This is a vitally important finding, because postprandial blood sugar elevations contribute greatly to the tissue damage caused by high glucose levels (**glycation**). Postprandial sugar spikes are also responsible for excessive insulin release that can cause a subsequent drop in glucose levels, triggering inappropriate hunger and further eating.





Pomegranate seeds.

Additional multi-targeted effects of pomegranate flower extract are emerging rapidly: phenolic compounds from the flowers exhibit numerous anti-atherosclerotic effects even in non-diabetic animal models, reducing the size and number of atherosclerotic plaques by up to **70%**.³

Pomegranate Seed Oil: A Potent Cancer Fighter

Cutting-edge research has uncovered numerous life-saving modes of action for **pomegranate seed oil**, most notably in the area of chemoprevention.² Other roles for pomegranate seed oil include facilitating repair of aging skin, immune function modulation, and inflammation reduction.^{2,31-33}

The data on pomegranate seed oil's cancer fighting potential is most compelling in tissues of the male and female reproductive systems. Pomegranate seed oil is a potent inhibitor of *aromatase*, the enzyme that produces estrogen from testosterone, and **17-beta-hydroxysteroid dehydrogenase type 1**, which is responsible for the conversion of estrone to potent estradiol. This enzymatic *blockade* contributes to pomegranate seed oil's ability to inhibit growth of estrogen-dependent breast cancer cells in culture. It also reduces the cancer cells' invasiveness (ability to cross barriers). A separate mechanism is also clearly at work here, because the oil also increases cellular suicide (apoptosis) even in cancer cells that lack estrogen receptors.³⁴

Cancer cells need to grow new blood vessels to support their rapid growth and tissue invasion (*angiogenesis*). They typically do this by ramping up production of a variety of growth factors, including **vascular endothelial growth factor (VEGF)** and **inflammatory interleukins**.

Pomegranate seed oil powerfully inhibits production of VEGF while upregulating production of migratory inhibitory factor (MIF) in breast cancer cells. In a laboratory model of vessel growth, these modulations translated into a significant decrease in new blood vessel formation.³⁵ Pomegranate seed oil's capacity to block breast cancer development was also demonstrated in an organ culture model of mouse breast cancer.³⁶ Treating the glands with the oil prior to exposure to a powerful carcinogen resulted in an astonishing **87%** reduction in the number of cancerous lesions compared with controls—substantially greater protection than has been previously reported for derivatives of pomegranate juice.

As with flower extracts, pomegranate seed oil contains a number of unique chemical constituents with potent biological effects. *Punicic acid* is an omega-5 polyunsaturated fatty acid that inhibits both estrogen-dependent and estrogen-independent breast cancer cell proliferation in lab cultures.³⁷ Punicic acid also induced apoptosis at rates up to **91%** higher than those in untreated cell cultures—effects which appear to be related to fundamental regulation of cancer cell signaling pathways.³⁷



Another common malignancy that often depends on sex hormones for its growth is prostate cancer, a leading cause of cancer-related mortality in American men, accounting for more than 29,000 deaths each year.³⁸ Because of its slow rate of growth and appearance later in life, prostate cancer has been identified as an ideal target for nutritional chemoprevention.¹⁰

Pomegranate seed oil sharply inhibits proliferation of a number of human prostate cancer lines through changes in the cell growth cycle and also by inducing *apoptosis* (cell death). At the same time, it has been shown to powerfully suppress cancer cell invasion.³⁹ Pomegranate oil also acts in *synergy* with other pomegranate components, suppressing prostate cancer proliferation and metastatic potential more effectively than each component individually.⁴⁰

Summary

An abundance of data supports the power of pomegranate extract as a broad-spectrum, multimodal defense against multiple diseases of aging. It has been shown to inhibit pro-inflammatory **nuclear factor-kappaB (NF-kB)**, downregulate production of certain cancer-stimulating androgens, and upregulate expression for the **paraoxonase** molecular complex associated with artery-cleansing HDL.

The most recent research suggests that the various *botanical components* of the fruit tree may be required to obtain pomegranate's full protective benefit, in particular its **flowers** and **seeds**.

Extracts from **pomegranate flower** have been shown to suppress signaling of **endothelin-1**, a blood vessel-narrowing peptide implicated in **cardiac fibrosis** (abnormal thickening of the heart valves) and to

help arrest the onset of **metabolic syndrome** as well as its associated pathologies of obesity, type 2 diabetes, and heart disease.

Pomegranate **seed oil** offers further promise as a powerful anti-cancer agent, with particular potential in combating breast and prostate cancers.

There is now solid published data to support the value of supplementing with **pomegranate fruit extract**, along with **pomegranate flower** and **seed oil** extracts. ●

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

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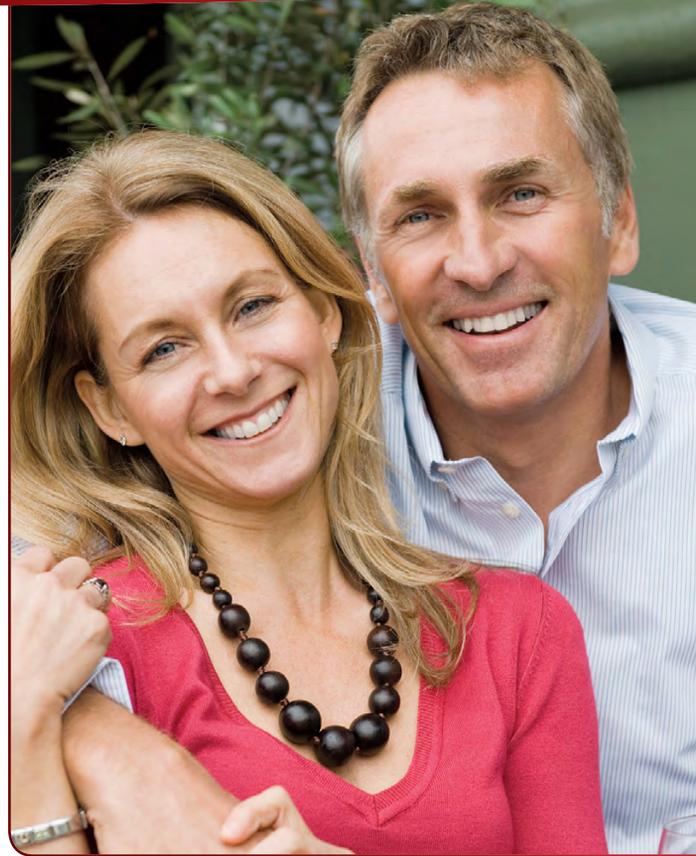
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MITOCHONDRIAL ENERGY OPTIMIZER is designed to counteract age-related structural and functional changes by providing the following unique ingredients:

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- **LUTEOLIN** Systemic inflammation is involved in most undesirable consequences of aging. Culprits behind **chronic inflammatory** reactions are pro-inflammatory **cytokines**, such as **interleukin-1** and **tumor necrosis factor alpha**. *Luteolin* is a super-potent plant extract that has been shown to modulate these dangerous inflammatory cytokines.⁶⁻¹¹
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UTIRose[™] (<i>Hibiscus sabdariffa</i>) extract (flower, calyx)	200 mg
Cran-Max[®] Cranberry infused whole fruit extract	500 mg

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NEW ENHANCED

Few nutritional sources have gained as much scientific validation as **pomegranate**.¹ 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**.



FULL-SPECTRUM POMEGRANATE FORMULA

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,²⁻⁴ **Full-Spectrum Pomegranate**[™] *augments* these polyphenols with newly discovered biologically *active* compounds from other parts of the pomegranate plant.

These little-known nutrients include: **punicalonic acid**, a member of the **triterpene** family of essential oils that provides cellular support to help with inflammation;⁵ and **pomegranate**, to combat age-related metabolic changes.⁶

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**.



Endothelial Defense[™] with Full-Spectrum Pomegranate[™]

The *endothelium* is the inner lining of the blood vessel that regulates arterial health. Maintaining its youthful integrity supports overall *cardiovascular* health as humans age.

In 2007, **Life Extension**[®] introduced **Endothelial Defense**[™] with **GliSODin**[®]. This formula supplied two potent nutrients to support endothelial health: *standardized* pomegranate and an orally active form of **superoxide dismutase**.

A year later, Endothelial Defense[™] was improved with the addition of standardized **cocoa** polyphenols. All three of these components (pomegranate, SOD, cocoa) have been clinically shown to help with blood flow and age-related changes in endothelial function.⁷⁻¹³ Life Extension now introduces an *additional* option for individuals seeking nutritional support for aging arteries. The new **Endothelial Defense**[™] with **Full-Spectrum Pomegranate**[™] provides the added benefit of Life Extension's *next-generation* **pomegranate flower extract** and **seed oil** blend.

One softgel of Full-Spectrum Pomegranate[™] contains:

POMELLA[®] Pomegranate **400 mg**
(*Punica granatum*) Extract (fruit)
[std. to 30% punicalagins (120 mg)]

PomComplete[™] Pomegranate **137.5 mg**
(*Punica granatum*) Blend [flower extract and
seed oil (standardized to 22% (30 mg) punical 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.

Contains soybeans.

Item #01423



Endothelial Defense[™] with Full-Spectrum Pomegranate[™]

A bottle containing 60 softgels of **Endothelial Defense**[™] with **Full-Spectrum Pomegranate**[™] retails for \$58. If a member buys four bottles, the price is reduced to just **\$40.50** per bottle.

Contains soybeans, tree nuts (cocoa beans), and wheat. Contains gluten.

Item #01497



Scientific Studies Reveal These Vascular Benefits...

1. Pomegranate Supports Healthy Blood Flow

In a group of aging humans with risk factors for cardiovascular events, pomegranate or placebo was ingested on a daily basis. After twelve months, blood flow through the carotid arteries **improved 44%** in the pomegranate group, whereas carotid blood flow worsened by 9% in the placebo group.⁷ (Both groups continued taking conventionally prescribed medications.)

In another similar group, pomegranate or placebo was ingested daily. After only three months, coronary artery blood flow **improved by 18%** in the pomegranate group, but **worsened by 17%** in the placebo group.⁸ A standardized pomegranate extract is one of the three active components of **Endothelial Defense™**.

2. Cocoa Helps with Endothelial Function

Endothelial function can be evaluated by using a sensitive ultrasound test to assess blood flow velocity. In a controlled human study, arterial blood flow **improved by 37%** following ingestion of standardized cocoa polyphenols and this persisted about eight hours. This same study showed a **36% decrease** in undesirable platelet activation in the cocoa polyphenol groups.⁹

The cocoa polyphenols appear to exert their beneficial effect by enhancing endothelial nitric oxide. The age-related depletion of nitric oxide is considered a major impediment to healthy arterial blood flow. A standardized cocoa polyphenol extract is the second active component of **Endothelial Defense™**.

3. SOD Protects Against Nitric Oxide Degradation

Aging results in a reduction of our body's production of the critical antioxidant called *superoxide dismutase* (SOD). One consequence of SOD depletion is excess degradation of endothelial nitric oxide.

An orally active superoxide dismutase (SOD) called **GLiSODin®** has been clinically proven to support healthy arterial function and structure...while boosting levels of the body's most powerful antioxidant enzymes (SOD and catalase).¹⁰⁻¹³

Studies show that carotid artery thickness increases by 0.04 mm every 10 years. However, a 2007 **GLiSODin®** study suggested that **2.8 years** of supplementation may turn back the clock on 10 years of age-related changes due to carotid artery wall thickening.¹² The third ingredient of **Endothelial Defense™** formula is the patented **GLiSODin®** in the identical dose used in the successful human study.

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

Superoxide Dismutase/Gliadin Complex (GLiSODin®) [SOD (Superoxide Dismutase) Enzyme Activity = 500 IU]	500 mg
POMEELLA® Pomegranate (Punica granatum) Extract (fruit) [std. to 30% punicalagins (120 mg)]	400 mg
Pomegranate (Punica granatum) 5:1 Extract (fruit)	100 mg
PomComplete™ Pomegranate (Punica granatum) Blend [flower extract and seed oil (standardized to 22% [30 mg] punicic acid)]	137.5 mg
CocoaGold™ Cocoa (Theobroma cacao L.) Extract (bean) [standardized to 45% polyphenols (50 mg)]	112 mg

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OPTIMIZE Your OMEGA-3 Status

Personalized Blood Test Reveals a Novel Cardiac Risk Factor

BY JULIUS GOEPP, MD

Suppose you could assess with precision your personal risk for *sudden cardiac death*—then reduce it substantially in a matter of weeks.

You would be able to take immediate steps to lower your risk of sudden heart attack, *without* the need for drugs. You would even be able to determine whether the steps you've taken to induce favorable physiological alterations in your body have been effective *and adjust them accordingly*.

Thanks to a team of pioneering scientists, this improbable medical scenario is now a reality.

Just as *hemoglobin A1c* provides a snapshot of long-term glucose intake to assess diabetes risk, a revolutionary **omega-3 index** now provides a clear picture of the percentage of EPA/DHA omega-3 fatty acids in your blood to estimate your risk of a major cardiac event, including sudden cardiac death, heart attack, and fatal ischemic heart disease.

In this article, you will learn about **Omega Score™**, a novel analytic technology that assesses multiple markers of cardiovascular disease risk. You will discover how a revolutionary, low-cost at-home blood test may furnish you with a tailored assessment of how much omega-3 is in your whole blood, serum, and red blood cells. You also will find out how to adjust *your* omega-3 supplementation for optimal cardiovascular protection. > >

Optimal Cardiac Defense

No cardioprotective dietary interventions have received more clinical validation than EPA and DHA.¹⁻⁵ These widely recognized essential omega-3 fatty acids (derived from marine sources, primarily algae and fish) have been shown to safely *suppress* **pro-inflammatory cellular signaling molecules** and enzymes implicated in virtually all facets of cardiovascular disease and mortality, including:

- **Interleukin 1-beta** (IL-1 β): Docosahexaenoic acid (DHA) targets IL-1 β ,⁶ a pro-inflammatory cytokine known to upregulate expression of **adhesion factors** in endothelial cells, which in turn contributes to **atherosclerosis**.⁷ (In cytokine blood panel readings, the optimal reference range for IL-1 β is **<2.9 pg/mL**.)
- **Cyclooxygenase-2** (COX): Eicosapentaenoic acid (EPA) and DHA quench gene expression of **cyclooxygenase**,⁸ an enzyme involved in the production of various **prostaglandins** that contribute to chronic inflammation and cardiovascular disease.^{1,9}
- **Leukotriene B4** (LTB4): A cytokine synthesized from the pro-inflammatory omega-6 **arachidonic acid** and **5-lipoxygenase**. DHA *displaces* arachidonic acid from cells, inhibiting LTB4-induced vascular adhesion and inflammation of arterial and cardiac tissues.¹⁰

- **Tumor necrosis factor-alpha** (TNF- α): A cytokine known to contribute to system-wide inflammation. It stimulates production of vasoconstricting (vessel-narrowing) **endothelin-1**, a protein that can induce high blood pressure and long-term cardiovascular damage.¹¹ EPA and DHA *blunt* the body's inflammatory response to TNF- α .¹² (The healthy reference range for TNF- α is **<8.1 pg/mL**.)
- **Thromboxane** (TxB2): A potent hypertensive lipid synthesized from omega-6 fatty acids. In addition to boosting blood pressure, TxB2 plays a central role in potentially lethal blood clot formation.^{1,13} Its activity is *suppressed* in the presence of EPA/DHA.

Through these and other multi-targeted mechanisms of action, EPA and DHA provide virtually unrivalled heart health defense. They can prevent and even *reverse* cardiovascular disease by increasing levels of artery-cleansing HDL in the blood.¹⁴ They reduce harmful **triglyceride** and **very-low density lipoprotein (VLDL)** cholesterol levels. They have also been shown to slow disease progression and reduce mortality in aging humans already afflicted with cardiovascular disease, and to prevent **sudden cardiac death** in people previously without symptoms.^{1,2,15-17}

While sufficient dietary intake of these essential fatty acids is crucial, researchers have further established that it is the **ratio** of omega-3 to less desirable omega-6 fatty acids—not their total concentration in the red blood cell membrane—that correlates with



cardiovascular disease risk. The higher the amount of omega-3 relative to omega-6 in an aging individual's total fatty acid composition, the greater the benefit, and vice versa.¹⁸

But not everyone metabolizes essential fatty acids in a reliable fashion. A host of factors may affect the actual levels of these important nutrients in whole blood and red blood cell membranes, resulting in widespread variation in those levels. In other words, simply eating a healthy diet, or even supplementing with health-promoting nutrients, often may not confer the benefits you are hoping for if your body isn't processing the nutrients efficiently. Some people may require more, while others might get by with less supplementation.

This may be one reason why, despite the widely publicized benefits of EPA and DHA, nearly **100,000** Americans died from omega-3 deficiency in 2009.^{19,20} In fact, a study published in 2009 ranked omega-3 dietary deficiency among the **top ten preventable causes of death**.¹⁹ Many times that number will likely suffer debilitating heart attacks, strokes, and neurological or cognitive damage as a result of sub-optimal omega-3 status.²¹⁻²⁴

Determining Individualized Cardiovascular Disease Risk: The Omega Score™

Increasing EPA and DHA intake *may* increase omega-3 in cell membranes and circulating lipids, while simultaneously lowering the concentration of less beneficial omega-6 fats.^{1,25} However, there has been no simple way for aging individuals to determine with precision whether they have actually *attained* an optimal omega-3 to omega-6 ratio in their own bodies.

Until now.

The **Omega Score™** was developed by Bruce Holub, PhD, and his colleagues in the Department of Human Health and Nutritional Sciences at the University of Guelph, Ontario. It combines cutting-edge analytic technology with clinically validated measures that correlate established risk factors for cardiovascular disease to the lipid composition of human blood. The results are obtained from a simple finger stick blood sample you do at home, then simply send in your sample to the lab.

Omega Score™ results provide a *complete* profile of an individual's whole-blood fatty acid composition. This is known as the **omega-3 index**. Using these results, specific scores and ratios are calculated automatically. They are then correlated with known risk factors for various kinds of cardiovascular disease, based on the most recent scientific research. As you



What You Need to Know

Omega-3 and Cardiac Risk

- Omega-3 fatty acids combat cardiovascular disease through a host of interrelated mechanisms, including the suppression of pro-inflammatory cytokines, elevation of beneficial HDL, and reduction of triglycerides and VLDL.
- The ratio of omega-3 to omega-6 fatty acids in blood and cell membranes strongly influences cardiovascular disease risk factors.
- Until recently there was no good way of determining how much omega-3 your body was metabolizing and absorbing into the blood.
- A new at-home test called the Omega Score™ allows for convenient determination of your own individual omega-3 status and your risk of developing or dying from cardiovascular disease.
- This breakthrough technology enables you to establish several key indices of cardiovascular risk, including risk of sudden cardiac death, risk for developing heart disease, risk of fatal ischemic heart disease, and risk of sudden heart attack.
- The Omega Score™ can be repeated as required to help you track your progress as you use supplements and lifestyle changes to minimize your risks.

may know, recent research suggests that omega-3 levels may be among the best predictors of future coronary heart disease, providing stronger correlations to the risk of sudden cardiac death than traditional indicators.

With this information in hand, you can estimate your own cardiovascular risk profile *and* monitor changes in your risk status as you adjust your omega-3 intake along with other lifestyle changes.

Dr. Holub's breakthrough technology began with the simple insight that measurements of omega-3s in the blood correlate with cardiovascular risk in a number of striking ways. He knew from the scientific literature that it is the relative contribution of each fatty acid (as a percent of total fats) that is vital in cardiovascular disease risk calculation, as opposed to the *absolute* concentration of any one fatty acid.²⁶⁻²⁸ Holub realized he could use this information to construct customized risk profiles that would be specific to each individual—*without* the need for time-consuming and expensive blood draws and lab analysis.

For example, Holub knew that the risk of coronary heart disease was **34% lower** in men who had

DHA percentages significantly greater than the population mean, and **31% lower** for those whose total omega-3 percentages were significantly greater than the mean.^{18,29,30} Older adults whose total EPA plus DHA percentages were significantly higher than the population mean had a **70%** reduction in risk of fatal heart attacks.³¹ Studies in the scientific literature had validated the idea that measurement of serum fatty acid composition could be used in assessing both intake of omega-3s and overall cardiac risk.^{27,32-34}

In late 2009, Dr. Holub and colleagues published their own study, demonstrating that they could accurately assess cardiovascular disease risk based on the ratios of various omega-6 and omega-3 fatty acids in a very large sample of subjects.¹⁸ The strong correlation between these ratios and cardiovascular risk provided them with another valuable tool for assessing an individual's cardiovascular status.

Dr. Holub and his colleagues realized that their own work as well as that of other researchers now provided sufficient information to develop *a comprehensive cardiovascular risk assessment tool*.

OMEGA-3 STATUS: AT-RISK POPULATIONS

The capacity to metabolize and absorb EPA and DHA varies from one individual to the next. The right amount of omega-3 for one person might be entirely insufficient for another, rendering it difficult to determine whether you are obtaining the full cardioprotective benefit. Testing allows aging individuals to establish baseline cardiovascular disease risk levels, and then optimize their omega-3 status with additional intake. Re-testing after four weeks is recommended to monitor your progress.

Some groups of people are at high risk for omega-3 deficiency—and cardiovascular disease. Vegetarians, especially vegans, typically have difficulty obtaining optimal EPA and DHA levels, since these omega-3s are absent from plant-derived foods. Flax seeds and oil contain the omega-3 alpha-linolenic acid (ALA), which is converted only very slowly in the body to EPA and DHA.⁵¹ For these reasons, people who eat little or no cold water fish may especially wish to determine their omega-3 status.

Surprisingly, individuals who consume high quantities of fish may also suffer from sub-optimal omega-3 status. Our increasingly industrialized food chain now produces a substantial portion of its harvest from mega fish-farms, where the unnatural diet of soy and

grain meal the fish are given greatly diminishes the omega-3 content of their flesh. Fish obtain and concentrate omega-3 fatty acids by consuming natural sources of these fats. The original source of EPA and DHA is from marine algae and phytoplankton. Small fish consume the algae and phytoplankton, then larger fish consume them, then even larger fish consume them and thus the EPA and DHA become concentrated at higher levels of the food chain. Farmed fish are completely dependent on their feed—if it does not contain EPA and DHA, the fish will not contain it in the levels found in wild fish.

Disturbingly, it seems more and more farm raised fish are coming up short in quantities of important EPA and DHA fatty acids. According to a 2008 sampling survey of farmed fish, **tilapia** (the fastest growing and most widely farmed fish) and **catfish** have much lower concentrations of omega-3s, very high ratios of omega-6 to omega-3, and high saturated and mono-unsaturated fat to omega-3 ratios.⁵² The study's authors noted that "marked changes in the fishing industry during the past decade have produced widely eaten fish that have fatty acid characteristics that are generally accepted to be inflammatory by the health care community."



The following test parameters are included in the Omega Score™ blood test.

Risk of Sudden Cardiac Death

Your risk of *sudden cardiac death* can be estimated from the **Omega-3 Whole Blood Score**, which measures omega-3 fatty acid content as a percentage of your total whole-blood fatty acid composition. This marker is based in part on the groundbreaking work of a team of Harvard researchers. They found that people with total omega-3 levels above **6.1%** in their blood had a compelling **90%** reduction in risk of sudden cardiac death compared with those whose omega-3s were **4.3%** or less of their total fatty acids.³⁵ People with omega-3 levels between **4.3** and **5.2%** attained some benefit, with a **48%** reduction in risk, while those whose scores were between **5.2** and **6.1%** had an **81%** risk reduction.

Users of the Omega Score™ will see their own Omega-3 Whole Blood Scores plotted on a graph that places them in the appropriate risk category for sudden cardiac death: Very High, High, Moderate, or Low, corresponding to the risk reductions identified by the Harvard researchers.

Risk for Developing Heart Disease

Your overall risk for *developing heart disease* can be estimated from the **Omega-3 Serum Equivalence Score**.

Based on work by researchers at the Department of Veteran Affairs Medical Center in San Francisco, this score provides a simple two-way assessment of an individual's overall risk for heart disease.²⁹ They used the total omega-3 content of serum (blood without the cellular components) to determine a risk cut-off for the development of heart disease, and found that a value of greater than **7.2%** omega-3s resulted in a risk reduction of **32%** compared with those whose value was **5.0%** or lower.

Users of the Omega Score™ will see their own Omega-3 Serum Equivalence Score plotted on a graph that places them in the appropriate risk category for development of heart disease: Risk (5.0 or lower), or Low Risk (7.2 or higher), corresponding to the values determined by the VA researchers.

Risk of Fatal Ischemic Heart Disease

Your risk of *dying from ischemic heart disease* (heart attack) can be estimated from the **EPA+DHA Serum Equivalence Score**, which represents the total percent of fatty acids comprised of EPA and DHA in serum. This score is based on research from the Cardiovascular Health Research Unit at the University of Washington in Seattle.³¹ They found a **70%** reduction in the risk of death from ischemic heart disease (heart attack) for people with total EPA and DHA values of **4.6%** or greater, when compared with those whose total values were less than **3.5%**.

Users of the Omega Score™ test will see their own EPA + DHA Serum Equivalence Score plotted on a graph that places them in the appropriate risk category for fatal ischemic heart disease: Risk (less than 3.5) or Low Risk (greater than 4.6), corresponding to the values determined by the Washington research group.

Risk of Sudden Heart Attack

Your risk for *having a sudden myocardial infarction* (MI, or heart attack) can be estimated from the **Omega-3 Index Red Blood Cell Equivalence Score**. Based on research from the Lipid and Diabetes Research Center, Mid America Heart Institute at the

Your risk of dying from *ischemic heart disease* (heart attack) can be estimated from the **EPA + DHA Serum Equivalence Score**.



University of Missouri Kansas City School of Medicine, this test takes into account the fact that red blood cell fatty acid composition reflects intake of EPA + DHA over time (analogous to the way that hemoglobin A1c reflects long-term blood sugar levels).^{36,37} These researchers found that people whose total EPA + DHA in red blood cells (the Omega-3 Index) was greater than or equal to 8% had the greatest degree of protection against sudden cardiac death, whereas an index of less than or equal to 4% was associated with the least.

Users of the Omega Score™ will see their own Omega-3 Index plotted on a graph that places them in the appropriate risk category for sudden myocardial infarction: Very High Risk (less than 4), High (4-6), Moderate (6-8), and Low Risk (greater than 8), corresponding to values determined by the Kansas City researchers.

Critical Ratios

Dr. Holub's own work demonstrated that the omega-6: omega-3 ratio is closely and inversely correlated with total omega-3 levels.¹⁸ That is, the lower the omega-6:omega-3 ratio, the higher the total proportion of fatty acids represented by beneficial omega-3s. Holub's group found that an omega-6:omega-3 ratio of less than 4.5 corresponded with total omega-3s of greater than 7.2%, at which level significant protection against developing heart disease results.^{18,29} Your Omega Score™ report will include this vital ratio calculated from your own fatty acid composition.

The *arachidonic acid* (AA) to EPA ratio is another important measurement of risk for atherosclerosis and its consequences.³⁸ AA is an omega-6 fatty acid that

is metabolized into dangerous mediators of inflammation, including leukotrienes and prostaglandins, while EPA tips the scale in the direction of anti-inflammatory activity, so EPA helps downregulate these pro-inflammatory agents. A lower AA:EPA ratio is correlated with reduced risk for cardiovascular diseases.³⁹

The average American male has a dangerously high ratio of **16.2**, whereas the maximum recommended AA:EPA ratio is **5**.¹⁸ By contrast, Japanese men, whose diets are rich in omega-3s through fish consumption, generally possess AA:EPA ratios of **1.7**,¹⁸ reflecting a substantially lower risk of chronic inflammation.³³

Supplementation with EPA can have a powerful effect on the important AA:EPA ratio, in one study dropping it from a concerning 23.7 at baseline in people with coronary artery disease to a remarkable 4.9.⁴⁰ And a falling AA:EPA ratio was strongly correlated in reduction in gene expression of the inflammatory mediator IL-1 β in patients with coronary artery disease.⁴¹ Finally, supplementation with EPA suppressed triglyceride synthesis in liver cells and reduced liver fat accumulations in lab animals on a high-fat high-sugar diet.⁴² Together these results compellingly demonstrate the importance of knowing (and responding to) the AA:EPA ratio.

Your Omega Score™ report will include your own AA:EPA ratio, allowing you to determine and track your risk for systemic inflammation, a primary cardiovascular disease risk marker.

Convenient At-Home Blood Sampling

This novel, convenient technology does not require a trip to a blood-drawing lab. You obtain the blood specimen yourself by finger stick at home, then send the sample in to the lab for testing. Your result, complete

HOW MUCH OMEGA-3 SHOULD YOU INGEST?

It is by now widely recognized that the typical North American diet is *replete* with omega-6 fats (most commonly in the form of vegetable oil) and *solely* lacking in omega-3s.^{43,44} The Canadian government's department of public health, typically more forward-thinking than organized medicine in this country, has taken the step of recommending a ratio of omega-6 to omega-3 not greater than **4:1** for optimal cardiovascular health. Yet the typical American diet hovers at a ratio of roughly **8:1**.¹

EPA and DHA may reverse the potentially deadly effects of this egregious dietary imbalance in as little as **three weeks**. In fact, individuals ingesting 2,000-4,000 mg for that interval have experienced significant improvements across a range of key cardiovascular risk factors, including platelet aggregation (clotting potential), lower triglycerides, improved endothelial function, and reduced blood viscosity ("thickness").^{1,2,45} Research indicates that in some patients on lipid-lowering statin drugs, the addition of omega-3 may reduce levels of LDL and VLDL cholesterol while maintaining a better safety profile than adding additional drugs.^{1,46} By favorably influencing electrical conduction in heart tissue, EPA and DHA supplements can also reduce cardiovascular disease mortality, especially sudden cardiac death.^{1,3,47}

You may think of a regular heart rate as a sign of good health, but in healthy humans, heart rates should undergo slight variations. For this reason, low variability in heart rate is predictive of increased risk for coronary heart disease, death, and arrhythmias (irregular heart beat).⁴⁸ In adult heart attack survivors, 4 grams of combined EPA and DHA per day was able to restore heart rate variability to normal levels.⁴⁹ And endothelial dysfunction, the complex result of years of elevated cholesterol, inflammation, and structural remodeling of tissue, is improved in large arteries by 3-4 grams/day of combined omega-3 supplements.⁵⁰

These benefits save lives. For example, in people with established coronary artery disease, ingestion of fish oil concentrate containing 55% EPA/DHA (6 grams/day for 3 months, followed by 3 grams/day for 21 months) substantially slowed progression of cardiovascular disease. These individuals also had fewer heart attacks and strokes compared to controls.¹⁵

Finally, in one of the largest of its kind, a European *prevention* study of **2,836** subjects showed that supplementation of **less than 1 gram/day** of EPA and DHA over 3.5 years in patients who'd already suffered one heart attack reduced the mortality rate from cardiovascular disease by **an average of 30%**.¹⁶

with graphic illustrations of your risk categories, will arrive in the mail.

Most first-time users of the Omega Score™ who are not already taking adequate levels of fish oil can expect to find themselves with higher-than-desirable risk levels.¹⁸ They may then take steps under the guidance of a healthcare practitioner or registered dietician to address their cardiovascular disease risk and monitor the changes they are making. Those who are already taking fish oil will discover if the amounts they are taking are providing them with the greatest possible risk reductions. Some people will find they either need to adjust their dose or their ratios of oils to obtain greater health benefits.

If your numbers reflect anything other than the lowest risk category, a high-quality fish oil supplement is recommended. Repeat the test in 4 weeks and adjust your supplementation accordingly to reduce your cardiovascular risk to the lowest possible level. Of course, because your metabolism and lifestyle change over time, it is important to repeat the test periodically to detect any undesirable reversals that would increase your cardiovascular disease risk.





How to Obtain Your Omega Score™

To order the Omega Score™ test, just call **1-800-208-3444**. You will receive a test kit in the mail. Simply collect a sample and return it in the pre-paid envelope. You will receive your test results by mail. The retail price is \$175. As an introductory offer for **Life Extension®** members only, the price is being reduced to \$98 until June 7, 2010.

Summary

Omega-3 fatty acids combat cardiovascular disease through a host of interrelated mechanisms, including the suppression of pro-inflammatory cytokines, elevation of beneficial HDL, and reduction of triglycerides and VLDL. The ratio of omega-3 to omega-6 fatty acids in blood and cell membranes strongly influences cardiovascular disease risk factors. Until recently there was no good way of knowing your omega-3 status and the risk that it represents. A new at-home test called the Omega Score™ allows for convenient determination of your individual omega-3 status and your risk of developing or dying from cardiovascular disease. This breakthrough technology enables you to establish several critical threats to your health, including risk of sudden cardiac death, risk for developing heart disease, risk of fatal ischemic heart disease, and risk of sudden heart attack. With this revolutionary analytic technology, aging individuals can optimize their omega-3 status and minimize their risk of cardiovascular disease. ●

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

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A Multi-Faceted Approach to HEALTHY BODY Weight

It's not your fault! Public health agencies blame gluttonous behavior and lack of physical activity as the sole reasons for today's **obesity epidemic**. Ignored are a plethora of age-related **metabolic** changes that predispose us to weight gain, even when we try to cut back on caloric intake.

The good news is that you don't have to do it alone. Scientists have identified *natural compounds* that function via *multiple* mechanisms to combat the underlying factors involved in excess accumulation of body fat.

Phase 3™ Sucrase Modulator

A recent study in the journal *Science* concluded that in primates a **calorie-restricted diet** can delay disease onset and age-related mortality.¹ While *Life Extension®* readers understand the benefits of calorie restriction, that doesn't make it any easier to cut back on one of the major calorie culprits in the American diet: *refined sugar*.

Sucrase is an enzyme that breaks down sucrose in the digestive tract for *absorption* into the bloodstream. **Phase 3™** is a new, patented compound that functions as a beneficial modulator of sucrase. By delaying the rapid absorption of sucrose, **Phase 3™** can help support the healthy release of insulin and sugar into the bloodstream in response to sucrose ingestion that so readily converts to body fat. **Phase 3™** contains a natural substance found in plants called **L-Arabinose** that provides an important new weapon in the battle to reduce the number of absorbed calories from sugar.

Green Tea Phytosome Cellular Energy Enhancer

The ability of **green tea extracts** to inhibit the breakdown and absorption of dietary fat has been the subject of research studies across the globe. Mounting scientific research has documented the **metabolic effects** of **green tea** polyphenols. A proprietary **phytosome complex** has shown an ability to increase the absorption of green tea polyphenols into the bloodstream better than conventional tea extracts — resulting in peak plasma levels of the critical green tea polyphenol *epigallocatechin-3-gallate*.²

Participants in a human clinical trial showed an average weight loss of **30 pounds** and a **10%** reduction in waist circumference in **90 days** when 300 mg/day of this new **green tea phytosome** was taken in conjunction with a reduced-calorie diet.² The *placebo* group that followed the same reduced-calorie diet lost only **9.9 pounds** and only **5%** of their waist size.



The Alpha-Amylase Enzyme

Aging reduces our ability to utilize the **carbohydrates** (and fats) that constitute what most would consider part of a healthy diet. The result is that as we grow older, our bloodstreams become chronically *bloated* with **glucose** and **triglycerides** in direct contrast to the youthful metabolic profile we have in our younger years. Emerging scientific research suggests that the alpha-amylase enzyme plays an undesirable role in the digestion of dietary carbohydrates and subsequent absorption of calories from starch and sugar.

A natural bean extract (*Phaseolus vulgaris*) moderates *alpha-amylase* activity. In a human trial in which all overweight participants were placed on a 2,000–2,200-calorie, carbohydrate-rich diet, those taking *Phaseolus vulgaris* lost **6.5 pounds** and **1.2 inches** in waist size in only **30 days** compared with **0.8 pounds** and **0.2 inches** in the placebo group.³

The Alpha-Glucosidase Enzyme

Another intestinal enzyme that enables carbohydrate absorption is **alpha-glucosidase**. A patented seaweed extract (**InSea™**) has demonstrated the ability to help maintain healthy levels of both *alpha-glucosidase* and *alpha-amylase*. When given to laboratory animals, this seaweed extract reduced after-meal (postprandial) **glucose** elevations by up to **90%** compared with non-supplemented animals.⁴

Remember, young healthy individuals rapidly convert ingested fats-sugars into energy. Age-related changes decrease our **metabolic capacity** to efficiently utilize dietary fats-sugars. It is thus paramount for aging people to reduce their *absorption* of excess calories. By taking nutrients before each meal that reduce the activity of carbohydrate-fat digesting enzymes, the calorie burden is significantly reduced.

To order Optimized Irvingia with Phase 3™ Calorie Control Complex, call 1-800-544-4440 or visit www.LifeExtension.com

Leptin Sensitivity

Fat cells (adipocytes) secrete a hormone called *leptin* that tells our brain we have eaten enough. *Leptin* can also facilitate the breakdown of stored *triglycerides* in our adipocytes via the process of *lipolysis*. Heavy individuals have startlingly high blood levels of leptin, indicating that their cells have become *resistant* to the *leptin* that is supposed to prevent them from putting on so many fat pounds.

An extract from a West African food called *Irvingia gabonensis* has been shown to help support *leptin sensitivity* in overweight people. In a recently published study, *Irvingia* demonstrated beneficial effects upon leptin blood levels, followed by weight loss and inches off the waistline.⁵ In addition to supporting healthy *leptin sensitivity*, *Irvingia* has demonstrated the following beneficial effects on key aspects of metabolism:

- **Glycerol-3-phosphate dehydrogenase** is an enzyme involved in the complex biochemical process that converts ingested starch and sugar calories to stored body fat. *Irvingia* has been shown in studies involving fat cells to reduce the activity of *glycerol-3-phosphate dehydrogenase*,⁶ which may help reduce the impact of starch and sugar calories on body fat.

- Scientific research on fat cells suggests that *Irvingia* has **alpha-amylase-inhibiting** properties⁷ (like *InSea*^{2™} and *Phaseolus vulgaris*), which can help support a *slowing* of the rate of carbohydrate absorption from the intestines and a reduction of the caloric impact of starchy and sugary foods.⁸

- **Adiponectin** is a hormone involved in helping to maintain insulin sensitivity on the membranes of energy-producing cells. Big fat cells produce *less* adiponectin, and overweight people need to be especially concerned about maintaining healthy levels of adiponectin to support insulin sensitivity and metabolic fitness. Scientific data suggests that *Irvingia* helps support healthy adiponectin levels.⁶

Optimized Irvingia with Phase 3™ Calorie Control Complex

In reviewing the remarkable effects demonstrated by these *natural compounds*, one might think that any one of them might be a solution to their weight problem. The reality is that aging individuals often fall victim to *many molecular factors* that can sabotage the best weight-loss programs.

Optimized Irvingia formula provides a combination of nutrients that combat *age-related* fat accumulation via the following eight distinct mechanisms:

1. Delaying *digestion and absorption* of sucrose.
2. Enhancing *resting energy expenditure* at the cellular level.
3. Slowing the absorption of *dietary fat* from the intestines.
4. Moderating *alpha-amylase enzyme activity* to reduce carbohydrate absorption in the bloodstream.
5. Reducing *alpha-glucosidase enzyme activity* to further slow the absorption of starches and sugars into the bloodstream.
6. Supporting *leptin sensitivity* to reduce hunger and stimulate lipolysis.
7. Supporting youthful levels of *adiponectin* to help maintain healthy insulin sensitivity.
8. Moderating *glycerol-3-phosphate dehydrogenase enzyme activity* to reduce the amount of ingested starches that are converted to triglycerides and stored as fat.

Contains soybeans, tree nuts, yeast, and corn.

Two capsules of **Optimized Irvingia with Phase 3™**
Calorie Control Complex provide:

Phase 3™ L-Arabinose and chromium complex550 mg
(supplying 475 mg L-Arabinose and
100 mcg Chromium in a food bound state)
Green Tea Phytosome (decaffeinated) extract 150 mg
Phase 2® *Phaseolus vulgaris* white kidney bean extract 445 mg
InSea™ seaweed extract125 mg
Irvingia gabonensis extract 150 mg

Summary of Human Studies with Optimized Irvingia Ingredients

Ingredient	Study	Treatment vs Placebo
Green Tea Phytosome Extract	100 overweight subjects placed on a hypocaloric diet (men: 1,850 calories; women: 1,350 calories) randomized to receive 300 mg/day of green tea phytosome extract or placebo for 90 days ²	<u>Weight loss</u> 30.1 pounds vs. 9.9 pounds <u>Waist size reduction</u> 10% vs. 5% (14% vs. 7% in men)
Phase 2® White Kidney Bean Extract	60 overweight subjects placed on a 2,000-2,200 calorie, carbohydrate-rich diet and randomized to either 445 mg/day of white kidney bean extract or placebo for 30 days ³	<u>Weight loss</u> 6.5 pounds vs. 0.8 pounds <u>Waist size reduction</u> 1.2 inches vs. 0.2 inches
Integra-Lean® Irvingia Gabonensis Extract	102 overweight subjects randomized to either 150 mg of Irvingia twice daily or placebo for 10 weeks ⁵	<u>Weight loss</u> 28 pounds vs. 1.5 pounds <u>Waist size reduction</u> 6.4 inches vs. 2.1 inches
Phase 3™	50 non-diabetic subjects were used to study the suppression effects of L-Arabinose and chromium on capillary glucose ⁹	Consuming LA-Cr simultaneously with a 70 gram sucrose challenge suppressed the glucose response an average of -20% compared to control over four different time periods.

Note: Supplements should be taken in conjunction with a healthy diet and regular exercise program. Results may vary.



Item #01492

Directions are to take two capsules before the two heaviest meals of the day. A bottle of **120** capsules of **Optimized Irvingia with Phase 3™** **Calorie Control Complex** retails for \$78. If a member buys four bottles, the price is reduced to **\$54 per bottle**.

InSea™ is a trademark of InnoVactiv, Inc. Integra-Lean® Irvingia is protected by U.S. Patent No. 7,537,790. Other patents pending. Phase 2® and Phase 3™ are used under license.

Caution: This product is designed to target several critical factors involved in age-related weight gain. Those who ingest more calories than what their body has the metabolic capacity to utilize will not see results. This is because some people are ingesting so many excess calories that no matter how much their metabolic rate is increased, or how much improvement occurs in their post-meal blood sugar and serum triglyceride levels, or how much youthful insulin sensitivity and other body fat-regulating systems are restored, they are overwhelming the metabolic capacity to utilize these calories. This will result in excess calories being stored in adipocytes. One cannot consume limitless calories and expect to shed fat pounds by taking drugs, nutrients, and/or hormones that demonstrate weight-loss effects in clinical studies.

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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.



Heart Healthy **SUPER** **Omega-3**

Fish Oil Blend with Sesame Lignans and a MORE Concentrated Olive Fruit Extract

A Comprehensive Essential Fatty Acid Formula

An abundance of scientific research substantiates the wide-ranging health benefits, including promoting a healthy heart, of **omega-3 fatty acids** in fish oil and **monounsaturated fatty acids-polyphenols** in olive fruit.¹⁻⁹

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.

Sesame Lignans Enhance Fish Oil's *In Vivo* Effects

The *unstable* nature of fatty acids like fish oil limits their biological efficacy in the body. Scientific studies show that when **sesame lignans** are supplemented with fish oil, the beneficial effects are augmented.¹⁰

Sesame lignans help guard against **lipid peroxidation**, thereby extending the stability of **DHA** in the body. These **lignans** also direct fatty acids toward pathways which can help with inflammatory reactions. **Super Omega-3** provides standardized **sesame lignans** to enhance the overall benefits of the improved EPA/DHA fish oil blend.

New Higher Potency Standardized Olive Fruit

To emulate a Mediterranean diet, **Super Omega-3** provides a standardized **olive fruit extract** to deliver the polyphenol **hydroxytyrosol**, a powerful antioxidant that protects normal **LDL** from oxidation and counters dangerous free radicals.¹¹⁻¹⁴ Research shows that a combination of olive oil and fish oil supplements helps with inflammation better than a placebo or fish oil alone.¹⁵ Therefore, Super Omega-3 provides the equivalent polyphenol content of **6 ounces of Extra Virgin Olive Oil**.

Super Omega-3 provides a new, higher concentration **olive fruit extract** standardized for **hydroxytyrosol**, **tyrosol** and **oleuropein** polyphenols. Research shows the value of **oleuropein** in favorably altering gene expression, delaying senescence in specialized skin cells, and helping maintain normal platelet activation.

Life Extension's **Super Omega-3** is a fish oil concentrate that contains a *full-spectrum blend* of *synergistic* nutrients, providing a product of the utmost quality to produce optimal effects.

Super Omega-3 is certified to contain no detectable levels of mercury, arsenic, lead, cadmium, and other toxic metals by the International Fish Oil Standards (IFOS™). This product meets or exceeds IFOS™ standards for PCBs, dioxins, and other contaminants, and thus has received its highest 5-star rating.

IFOS™ certification mark is a registered trademark of Nutrasource Diagnostics, Inc. These products have been tested to the quality and purity standards of the IFOS™ program conducted at Nutrasource Diagnostics, Inc.

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go-3

EPA/DHA

Two softgels should be taken twice daily with meals. A bottle of 120 softgels of **SUPER OMEGA-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract** retails for \$32. If a member buys four bottles, the price is reduced to **\$21 per bottle**. If **10 bottles** are purchased, the price per bottle is reduced to only **\$18.68**. *Item# 01482*

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

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

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

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

Upgraded Formula!

Just four softgels of **SUPER OMEGA-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract** provide:

EPA Pure+™ Extract	1400 mg
(eicosapentaenoic acid)	
DHA Pure+™ Extract	1000 mg
(docosahexaenoic acid)	
Olive Fruit Extract	600 mg
[standardized to 1.5% hydroxytyrosol (9 mg), 0.7% oleuropein (4.2 mg), 0.5% verbascoside (3 mg) and 0.23% tyrosol (1.4 mg)]	
Sesame seed lignan extract	20 mg



Item #01482

Item #01484



The
**OVERLOOKED
COMPOUND**
THAT SAVES LIVES

BY JULIUS GOEPP, MD



N-ACETYL CYSTEINE

For more than three decades, a safe, low-cost compound has provided millions of people relief from the coughing, wheezing, and thick phlegm associated with cold and flu. Of course, pharmaceutical companies long ago *co-opted* it for profit by incorporating it into various patented drugs.

The sad consequence is that most aging individuals have never heard of it. Even many doctors remain unaware of its potential role as a frontline defense against some of today's most deadly public health threats, including:

- ***Acetaminophen toxicity and acute liver failure:*** the number one cause of acute liver failure in the United States.¹
- ***Influenza:*** whose victims are primarily aging individuals—***three quarters*** of all flu-related deaths occur in the elderly.²
- ***Chronic obstructive pulmonary disease:*** the fourth-leading cause of death in the United States (includes **emphysema** and **chronic bronchitis**).²
- ***Helicobacter pylori:*** the bacterial culprit behind stomach ulcers, and a potentially lethal pathogen closely linked to malignant gastric cancer, the second most *frequent* cause of cancer death worldwide.³

Fortunately, renewed clinical interest in its broad-spectrum benefits is yielding fresh data on promising interventions for this safe, effective compound.

In this article, you will discover the latest research on ***N-acetyl cysteine*** (NAC), a readily available, inexpensive amino-acid derivative with four decades of scientific validation. You will learn of its role in restoring intracellular levels of one of the body's most powerful antioxidant defenses, ***glutathione*** (GSH). You will also find out how **600-1,800 mg** of NAC daily may act as an effective intervention against a constellation of chronic, degenerative diseases, including impaired glucose control and cancer. > >

An Underutilized Intervention

NAC is a slightly modified version of the sulfur-containing amino acid cysteine. When taken internally, NAC replenishes intracellular levels of the natural antioxidant glutathione (GSH), helping to restore cells' ability to fight damage from reactive oxygen species (ROS).

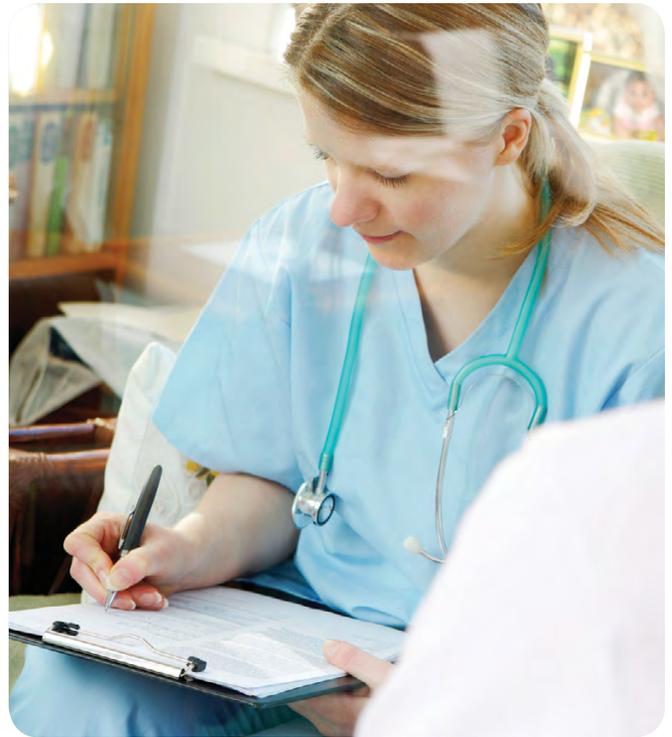
NAC has been used in conventional medicine for more than 30 years, primarily as a mucolytic (mucus-thinner) inhaled to manage conditions such as **cystic fibrosis**, in which mucous is abnormally thick and tenacious. While there is little in the scientific literature to support its use as an inhalant, NAC administered in this form remains highly popular among experienced pulmonary specialists.^{4,5}

NAC given intravenously or orally, on the other hand, saves lives every year as a treatment for acute poisoning with *acetaminophen*-containing pain-relieving drugs. Acetaminophen is sold as Tylenol® and combined with other drugs to create analgesic compounds, including Vicodin® and Percocet®.⁶ Overdoses with acetaminophen are the number one cause of acute liver failure in the United States.⁶⁻⁸ Too much acetaminophen overwhelms the body's glutathione reserves, which creates widespread and irreversible liver damage. NAC quickly restores protective levels of glutathione, averting catastrophe.⁷

Beyond this particular application, NAC has remained a relatively obscure and poorly understood compound until quite recently. Scientists all over the world are now beginning to understand just how vital **glutathione metabolism** really is, and how many disease states involve glutathione deficiency.⁹ According to Stanford University's Dr. Kondala R. Atkuri, "NAC has been used successfully to treat glutathione deficiency in a wide range of infections, genetic defects and metabolic disorders, including HIV infection and COPD. Over two-thirds of 46 placebo-controlled clinical trials with **orally** administered NAC have indicated beneficial effects of NAC measured either as trial endpoints or as general measures of improvement in quality of life and well-being of the patients."⁹

Multitargeted Regulation of Gene Expression

Much of NAC's beneficial activity derives from its capacity to modulate expression of genes for myriad signaling molecules in the inflammatory response.¹⁰⁻¹² NAC inhibits expression of pro-inflammatory cytokines following exposure to bacterial cell components and infection with influenza A virus.^{13,14} NAC suppresses the "master signaling molecule" *nuclear factor-*



kappaB (NF- κ B), which in turn prevents activation of multiple inflammatory mediators.^{15,16} NAC also regulates the gene for COX-2, the enzyme that produces pain- and inflammation-inducing prostaglandins in a wide array of chronic conditions.¹⁷

NAC's ability to replenish the intracellular glutathione supply and mitigate oxidative damage is a separate and equally powerful mechanism that affords protection against DNA damage and cancer development, even in smokers.¹⁸ NAC's inhibition of inflammatory cytokine production is another mechanism credited with cancer reduction in various body tissues.¹⁹

Gene expression modifications induced by NAC may also help reduce the acute oxidant-provoked inflammatory response following exercise, making vigorous activity safer and even more beneficial.²⁰ Finally, obesity-associated insulin resistance, which arises from production of inflammatory signaling molecules in fat cells, can be sharply mitigated by NAC through regulation of their genes.^{21,22}

The recent explosion of scientific evidence for NAC's multi-targeted health benefits is matched only by the willful ignorance of the mainstream medical community. Some even question its safety, despite nearly 40 years of use in a variety of clinical conditions, which have established the safety of this compound, even at very high doses and for long-term treatments.¹⁸ One study demonstrated the safety of **1,800 mg per day** for 142 days, while another study demonstrated the safety of **2,800 mg per day** for 3 months.²³

Here is a selection of the most compelling information about NAC from the global scientific community—information that should convince even skeptical mainstream physicians.

Potent Influenza Protection

H5N1 influenza, or bird flu, is a lethal and potentially pandemic infection that produces the massive release of inflammatory mediators aptly called the “cytokine storm.”²⁴ Other more common forms of influenza also act by triggering massive cytokine releases that inflame vulnerable lung tissue. In early 2010, it was discovered that NAC offers dual protection against bird flu. It inhibits both virus replication and expression of pro-inflammatory molecules in cells infected with H5N1 virus, holding out the promise of effective protection in the event of a global avian flu pandemic.¹³

NAC has also proven effective against seasonal influenza and flu-like illnesses. In a large study of older adults who took **600 mg twice daily** for 6 months, only **25%** of those experienced influenza-like episodes, compared with **79%** in the placebo group.²⁵ Even those with flu symptoms experienced a significant reduction in illness severity and length of time confined to bed. All subjects tolerated the treatment well. The study’s lead author, Dr. Silvio de Flora, commented that “*Administration of N-acetyl cysteine during the winter, thus, appears to provide a significant attenuation of influenza and influenza-like episodes, especially in elderly high-risk individuals.*”²⁵

Influenza is a complex disease with multiple targets, most notably inflicting damage to lung tissue through extreme oxidative stress and inducing genes for a large variety of inflammatory mediators.^{26,27} At the microscopic level the destruction is *vivid*. The influenza virus causes such intracellular turmoil that the term “cell boiling” has been used to describe the devastation.²⁸ But pretreatment of cells with NAC significantly offsets these effects, reducing the oxidative and inflammatory burden within lung tissue through multiple mechanisms.^{26,28-30}

NAC has now been shown to protect laboratory mice from lethal influenza infection, synergistically enhancing the effects of several common antiviral medications.^{31,32} And a nutrient mixture containing NAC, green tea extract, certain amino acids and micronutrients had powerful antiviral effects in cultured cells, rivaling those of prescription flu drugs such as *amantadine* and *oseltamivir* (Tamiflu®).^{33,34} The NAC-based mixture actually affected viral replication for a longer period than did the drugs.³⁴

N-Acetyl Cysteine’s Broad-Spectrum Benefits

- Long relegated to infrequent use in unusual circumstances, the amino acid-derived compound N-acetyl cysteine (NAC) has drawn increased scientific attention.
- NAC replenishes levels of the intracellular antioxidant glutathione (GSH), which is often deficient with advancing age and in chronic illness.
- NAC also regulates expression of scores of genes in the pathways that link oxidative stress to inflammation.
- These dual effects give NAC a unique role in the prevention and treatment of many common diseases, both acute and chronic.
- NAC can protect against avian influenza and more common seasonal flu symptoms.
- NAC reduces the frequency and duration of attacks of chronic obstructive pulmonary disease (COPD) and may slow the clinical course of idiopathic pulmonary fibrosis (IPF).
- NAC protects tissues from the effects of exercise-induced oxidative stress, adding value and safety to your workout.
- NAC improves insulin sensitivity in people with some of the most difficult-to-treat metabolic disorders.
- NAC blocks cancer development at virtually every step in the process, and through multiple mechanisms, making it an important cancer chemopreventive agent.
- NAC fights the stomach infection *Helicobacter pylori* on two fronts, inhibiting the organism’s growth while reducing production of inflammatory cytokines that can lead to gastritis and cancer.
- Though most individuals gain benefits from **600-1,800 mg/day**, clinical studies have found that doses of up to **2,000 mg/day** are safe and effective. A recent study demonstrated the safety of **2,800 mg/day** for 3 months in patients with COPD.²³

NAC AND PULMONARY ARTERIAL HYPERTENSION: A REAL RISK?

N-acetyl cysteine (NAC) produces numerous beneficial effects in many human tissues both by supporting natural antioxidant systems and by favorably affecting expression of genes involved in the inflammatory response. A 2007 study in laboratory mice, however, has raised a *theoretical* concern that chronic NAC administration in those animals might produce a condition called pulmonary arterial hypertension.⁷⁶ Here is a review of that study and some reassuring facts:

The Issue

Pulmonary arterial hypertension (PAH) is an elevation in blood pressure in the arteries leading from the heart to the lungs. It is one of the consequences of *chronic hypoxia* (lack of sufficient oxygen) that occurs in a number of chronic cardiovascular and pulmonary (lung) diseases. It also arises in people with obstructive sleep apnea.⁷⁷⁻⁷⁹ It is a rare condition, but when it occurs it can be difficult to detect and may be fatal if untreated.⁷⁹ Its causes remain unclear, but they seem to involve signaling molecules produced during hypoxia; some of those molecules include those involved in detecting and responding to oxidative stress.⁸⁰

The Concern

Scientists at the University of Virginia School of Medicine were studying the molecular signaling involved in hypoxia-related development of PAH when they observed what seemed to be a concerning finding: mice treated with NAC over periods of 3 weeks were developing PAH that mimicked the effects of chronic hypoxia.⁷⁶ The scientists were not studying the effects of NAC itself; they were simply using it to measure other nitrogen-related transfer reactions in blood. And the doses they used correspond to a human dose of about **20 grams** (20,000 mg) per day—far above any known supplement recommendation. Nevertheless, parts of their report were cited in one commentary as raising “the concern that chronic NAC therapy may induce similar vascular pathology in patients.”⁸¹

Is this a realistic concern, or is it a laboratory anomaly? Here’s the evidence to date.

The Evidence

The Virginia team’s mouse study was published in 2007. Now, nearly 3 years later, there has not been a single additional publication connecting NAC therapy with PAH in either animals or humans. In reality, a substantial amount of science both before and after the 2007 report suggests just the opposite—that NAC may be instrumental in reducing, not increasing, the oxidant-induced blood vessel changes that occur in PAH. Here are the highlights:

- In one of the original animal studies demonstrating that oxidative stress contributes to development of PAH induced by hypoxia, NAC actually reduced the heart and lung changes that lead to PAH, in part by reducing toxic peroxide molecules.⁸⁰
- NAC, given before and at the beginning of experimental hypoxia, was effective at preventing PAH, including deadly heart muscle changes, in laboratory rats.⁸²
- NAC protects experimental animals’ lungs from the acute lung injury caused by a variety of mechanisms involving hypoxia, oxidant stress, and inflammation, through its joint antioxidant and anti-inflammatory actions.^{83,84}
- A study of human volunteers revealed that NAC supplements at **1,800 mg/day** increased the healthy respiratory response to hypoxia,⁸⁵ which normally declines strongly with age and may contribute to PAH.⁸⁶ Although this study was cited by the Virginia group as supporting their concern about NAC inducing PAH, no such evidence is presented in the human study, and in fact the authors conclude that NAC treatment “may be useful for elderly subjects and for patients who have other conditions with an oxidative shift... such as coronary heart disease and malignant diseases.”⁸⁵

The Recommendation

There have been no further publications supporting this one-time observation made in an animal model using doses 10-20 times those suggested for long-term human supplementation. No human study has uncovered any evidence for a similar effect in humans. By contrast, there have been numerous studies demonstrating human benefit from NAC supplementation at moderate doses (**1,200-1,800 mg per day**) over the course of nearly 4 decades. At this point the known benefits of NAC appear to outweigh any potential risks. As with all supplementation, people should communicate clearly with their healthcare providers about how supplements and medications might work jointly to influence their health.



In the words of prolific medical theorist Mark F. McCarty, *“The most foolproof way to promote survival in epidemics of potentially lethal influenza is to target... intracellular signaling pathways which promote viral propagation or lung inflammation.”*³⁰ McCarty goes on to cite NAC’s benefits as a multitargeted supplement with precisely those attributes. NAC at doses of **600 mg** twice daily may significantly reduce the risk of a devastating bout of influenza.

Lung Disease Defense

Chronic obstructive pulmonary disease (**COPD**), which includes chronic bronchitis and chronic emphysema, is a rapidly growing problem with global impact.³⁵ COPD is the result of years of oxidative damage to delicate lung tissue, with resultant chronic inflammatory changes.³⁶ The disease is worsened by air pollution and cigarette smoking, but is by no means limited to people with those exposures. Over time, victims’ damaged airways may become colonized with dangerous bacteria, leading to chronic infection and still more inflammation in a vicious cycle. Current treatment consists mainly of anti-inflammatory steroids and lung-opening medications used in asthma, with the addition of antibiotics when infection threatens.

With its ability to reduce oxidative stress and simultaneously quash chronic inflammatory changes, NAC is emerging as a game-changing therapy in COPD. A randomized pilot study of adults with acute exacerbation of chronic bronchitis and positive bacterial

culture in the sputum demonstrated that **600 mg of NAC twice daily** led to a near doubling of the rate of bacterial eradication compared with standard therapy, while reducing the number and duration of acute exacerbations and improving quality of life.³⁵ NAC treatment of patients with moderate-to-severe COPD improved their physical performance on lung function tests, especially after exercise.³⁷

Patients with advanced COPD frequently require low-dose oxygen therapy because of their lung damage. In many cases, however, oxidative stress induced by the disease has already rendered them glutathione deficient, so they have diminished protection against ongoing oxidation.³⁸ NAC administration at doses of 1,200-1,800 mg/day along with low-dose oxygen powerfully *counteracts* this oxidative stress. At doses of **1,800 mg per day**, it has been shown to completely prevent further protein oxidation.³⁸ A dose of **600 mg twice daily** over a 2-month period rapidly reduced exhaled hydrogen peroxide, a measure of oxidative burden in COPD sufferers.³⁹

In one study utilizing a dose of just **600 mg per day** for 10 weeks, NAC disrupted the molecular relationship between oxidative stress and inflammation, protecting lung tissue.³⁶ When NAC is added to inhaled corticosteroids, still further reductions in inflammatory parameters are found.⁴⁰

Emphysema can be the unfortunate endpoint of advanced COPD, with lung tissue breaking down and losing much of its ability to exchange oxygen and carbon dioxide. Animal studies show that NAC attenuates COPD-related lung damage and emphysema by

supporting expression of important protective genes in the cells lining the lung.⁴¹

Another devastating chronic lung condition called idiopathic *pulmonary fibrosis* (IPF) also involves increased oxidative burden and a deficiency of glutathione in lung tissue and fluids.⁴² This progressive disease has a poor prognosis, even when treated with standard corticosteroids and powerful prescription anti-inflammatory drugs.^{43,44} The median survival is only about 3 years regardless of therapy.⁴⁵

Oral NAC supplements now offer a ray of hope for IPF sufferers. NAC significantly increases lung glutathione levels in both animal and human studies of IPF.^{42,46} Given as an aerosol treatment, NAC may delay disease progression, and at doses of **600 mg three times daily** preserves lung vital capacity and gas exchange better than standard therapy alone.^{43,44}

In summary, evidence suggests that NAC may offer benefits at doses of **600 mg 2-3 times daily** for people who have, or are at risk for, chronic lung conditions such as COPD and IPF (idiopathic *pulmonary fibrosis*).

Reduce Exercise-Induced Oxidative Stress

Health-conscious people know that regular moderate exercise is vital to maintaining the integrity of the human body. Of course, everything has its price, and the rapid increase in metabolic activity during exercise produces some unwanted side effects.²⁰ These include an increase in oxidative stress that can overwhelm the body's antioxidant defense mechanisms and lead to tissue damage and abnormal activity of certain immune



system cells.^{47,48} Exercise also increases plasma levels of inflammatory cytokines such as TNF-alpha and various interleukins.⁴⁹ The solution, of course, is not to reduce your exercise regimen, but rather to look for ways to *optimize* the way your body handles those metabolic challenges.

NAC, with its powerful antioxidant and gene-regulating powers, is an excellent means of maintaining good exercise performance and limiting the damage caused by oxidative stress in the process. Supplementation with NAC (2,000 mg daily for 3 days, followed by 800 mg prior to exercise) in strenuously exercising adults lowered key interleukin levels to undetectable amounts and abolished the exercise-induced TNF-alpha response.⁴⁹ And in patients with severe COPD, NAC supplementation improved exercise endurance time by **25%** compared with placebo, while significantly reducing levels of oxidative molecules released by stimulated immune cells.⁵⁰ NAC supplementation also dramatically curtailed production of oxidized proteins in this group of highly oxidant-stressed chronically ill patients.

In vigorously exercising men, **1,800 mg per day** of NAC prevented the expected decline in intracellular antioxidant levels and increased activity of the enzyme responsible for recycling and restoring glutathione to normal levels, protecting cells from oxidative stress.⁵¹ And in mice, NAC supplementation significantly protected brain tissue against exercise-induced oxidative changes.⁵² NAC also preserves normal levels of vital lymphocytes, which can decline after vigorous exercise.^{48,53-55}

Regular supplementation with NAC at up to **1,800-2,000 mg per day** may be an effective means of optimizing exercise performance while minimizing the effects of exercise-induced metabolic stress.

Bring Glucose Levels Under Control

Oxidative stress and inflammation are closely linked to insulin resistance and rising blood glucose levels. These effects are not limited to those with diabetes, but in fact are found even in obese, non-diabetic people and those with metabolic syndrome.⁵⁶ There are multiple steps in the cascade of events leading from oxidation to damaged insulin receptors and insulin resistance, so it makes sense to seek a supplement that can target many of those steps independently.^{57,58} NAC is emerging as one such multi-targeted supplement.⁵⁶

Over time, chronic high blood sugar initiates a downward spiral by helping generate *advanced glycation end-products* (AGEs) that then *impair* normal responses to insulin, perpetuating elevated sugar

levels. NAC *reverses* those effects in laboratory models.²² Increasing blood sugar levels in laboratory animals triggers a pro-inflammatory response in fat tissue—*also* effectively reduced by NAC.²¹ In an experiment that recreates a common human dietary trend, rats were given a diet high in the sweetener fructose, which produced increased blood pressure, plasma insulin levels, and triglyceride levels. Yet all of these dangerous physiological alterations were *inhibited* by NAC.⁵⁹

Human studies of NAC to improve insulin sensitivity have recently appeared, especially in a group of people typically very difficult to treat. Profound insulin resistance is seen in women with *polycystic ovary syndrome* (PCOS), along with a variety of other metabolic disturbances. One study showed that NAC at **1,200 mg per day** along with **1,600 mg** of the amino acid **arginine** promoted a trend toward normal ovulatory cycles and substantially improved insulin sensitivity.⁶⁰ A short-term study showed that 1,800 mg of NAC daily helped improve insulin sensitivity in women with PCOS.⁶¹

Virtually all Americans consume too many calories and are at risk for at least some degree of insulin resistance. Daily supplementation with NAC at **1,200 to 1,800 mg per day** may help to reduce the impact and slow the damage wrought by AGEs.

Cancer Prevention

The strong and growing links between oxidative stress, inflammation, and cancer make NAC a natural go-to compound for cancer chemoprevention. True to form, NAC has multiple anti-cancer activities acting at multiple targets to provide layers of cancer protection against a large variety of cancer types. NAC induces programmed cell death (apoptosis) in multiple types of human cancer cells.⁶² In human gastric cancer cells, NAC not only induces apoptosis, but also stops DNA synthesis, preventing cancer the cells from replicating.⁶³ In melanoma cells, NAC inhibits NF-kB, preventing expression of signaling molecules needed by the cancer for growth.⁶⁴ NAC inactivates and promotes destruction of c-Src, a chemical control molecule that is overproduced in many human cancers, providing a completely unique means of slowing or stopping tumor development.⁶⁵ Finally, NAC protects DNA from breakage induced by ionizing radiation, but does not prevent cell destruction by radiation.⁶⁶ That's a vital finding because it means that NAC might allow radiation therapy to effectively kill cancer cells while minimizing the risk of so-called secondary cancers that could otherwise arise as side effects of the radiation.

Animal studies strengthen the case for NAC still further. NAC protects mice from cigarette smoke-induced



lung cancers and other lung changes, a finding with enormous implications not only for current smokers but for ex-smokers and people exposed to second-hand smoke.⁶⁷ NAC protects rats from chemically-induced liver cancers immediately following tumor initiation.⁶⁸ This early interference with cancer development bodes well for NAC as a chemopreventive agent in the many human toxin-related cancers.

Human studies are similarly encouraging, even in the most challenging patient groups such as smokers. A randomized, double-blind chemoprevention trial of NAC **600 mg twice daily** for 6 months vs. placebo in otherwise healthy smokers showed a significant reduction in formation of damaged or oxidized DNA segments, telltale early markers of cancer development in lung fluid.⁶⁹ The same study also demonstrated reductions in abnormal, pre-cancerous cell changes in the mouths of supplemented smokers. These effects support the scientists' conclusion that NAC can reduce tobacco smoke carcinogenicity in humans.

Colon cancer is another malignancy with strong links to oxidative stress and inflammation. Preliminary studies in humans show a **40%** reduction in colorectal polyps in patients given **600 mg per day** of NAC, compared with controls.⁷⁰ In a group of people with a previous history of pre-cancerous colonic polyps, **800 mg per day** of NAC for 12 weeks significantly reduced the proliferative index, indicating a decreased risk of colon cancer.⁷¹

Supplementing with **600-1,200 mg per day** of NAC appears to be an entirely appropriate means of adding to your general cancer-prevention strategy.



Gastritis, Ulcers, Cancer, and *Helicobacter pylori*

Helicobacter pylori is a bacterium that colonizes various regions of the stomach and upper part of the small intestine. *H. pylori* infection produces major oxidative stress on tissues already vulnerable to extremes of pH and other chemical challenges, and the resulting inflammation produces pain and promotes development of gastric and esophageal cancers.¹⁹ NAC is an obvious candidate for fighting *H. pylori* infections, both because of its powerful ability to interfere with the oxidant-inflammation connection, and also because of its potential to break down some of the gastric mucous layer beneath which the organism hides.⁷²

NAC fights *H. pylori* in at least two ways. It markedly inhibits growth of *H. pylori* both in culture dishes and in live mice, helping to reduce the total load of organisms present.⁷² But NAC also powerfully regulates gene expression in stomach lining cells, reducing hydrogen peroxide production induced by *H. pylori*, and decreasing activation of NF- κ B and subsequent release of inflammatory cytokines.^{19,73} In human trials NAC improves eradication rates of *H. pylori* produced by standard treatment with antacids and antibiotics, when given at doses of **1,200 mg** per day.^{74,75}

People who have gastritis or gastroesophageal reflux disease (GERD) may be infected with *H. pylori* and may benefit from supplementation with **1,200 mg** per day of NAC, especially during co-treatment with drugs to eradicate the organism.

Summary

N-acetyl cysteine is a broad-spectrum compound traditionally under-utilized in conventional medicine. A burst of new clinical research reveals that NAC exerts dual effects, functioning both as a powerful antioxidant that replenishes cellular antioxidant systems (glutathione in particular) and also as a potent modulator of gene expression, regulating inflammation at multiple, fundamental levels. It has been shown to be an effective intervention against influenza, chronic lung diseases, cancers, insulin resistance, and gastritis caused by *H. pylori*. NAC's further value is shown in its ability to mitigate otherwise inevitable metabolic and immunological disturbances caused by exercise. ●

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

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MEGA SILYMARIN

with Isosilybin B



Triple Standardized Milk Thistle Extract

Milk thistle extract has long been valued for its role in ensuring healthy liver function, and it is also a powerful antioxidant.^{1*}

Milk thistle extract consists of silibinin and other similar compounds. Until recently, scientists focused their research on **silibinin**, as it was the most abundant and biologically active ingredient found in milk thistle extract.

Highly advanced extraction technology has now 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*}

Mega Silymarin with Isosilybin B 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 Extract (*Silybum marianum*) (seed)
[standardized to 80% Silymarin by UV (720 mg),
30% Silibinin by HPLC (270 mg), and
4.5% Isosilybin B complex by HPLC (40.5 mg)]

900 mg



Item #00702

To order Mega Silymarin
with Isosilybin B,
call 1-800-544-4440
or visit
www.LifeExtension.com

A 100-capsule bottle of **Mega Silymarin with Isosilybin B** 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.

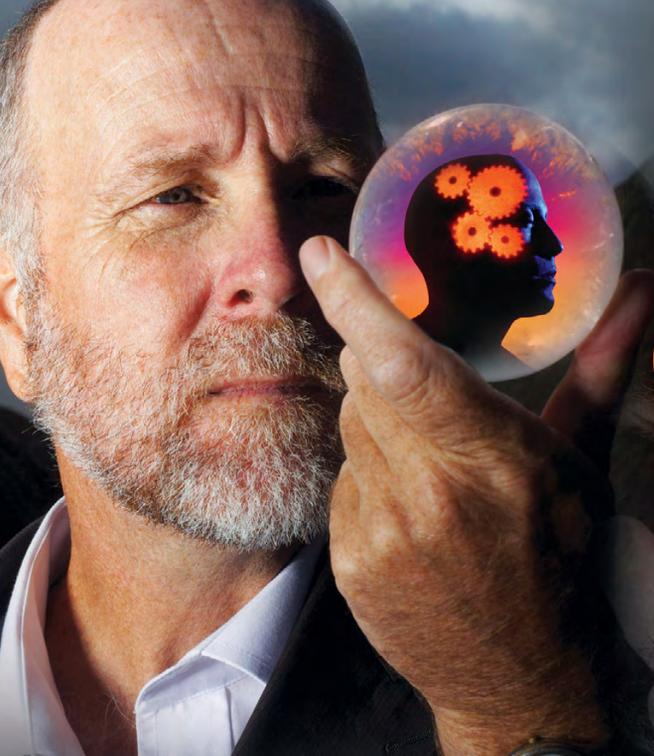
Compare the price of **Mega Silymarin with Isosilybin B** to commercial silymarin supplements, and members will see that this new formula is available at one of the lowest costs per milligram—with potent, standardized concentrations of **silibinin** and **isosilybin B** not found in other milk thistle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

Reference

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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.



FIGHT BACK AGAINST BRAIN AGING WITH COGNITEX



Diminished levels of neurotransmitters and other brain compounds profoundly affect cognition and memory in aging adults. **Cognitex** was developed in **1982** to increase brain levels of **acetylcholine** — a neurotransmitter that enables neurons to communicate. Over the years, **Cognitex** has been improved with the addition of nutrients used in **Europe** to protect and enhance neurological function.

Cognitex with Pregnenolone & NeuroProtection Complex provides the following **scientifically validated** nutrients to provide broad-spectrum neurological support:

- ❑ **Uridine-5'-monophosphate (UMP)** is a phosphatide building block of RNA-DNA that is critical to optimal brain function and the health of neuronal cell membranes. Naturally found in the milk of nursing mothers, UMP is essential not only for the growth and development of infant brains, but also for healthy cognitive function in aging adults.
- ❑ **Sharp-PS® GOLD**, a rich **phosphatidylserine** compound bound to **DHA**, promotes already-normal neuronal cell membrane function and structure.
- ❑ **Alpha-glyceryl phosphoryl choline (A-GPC)** boosts acetylcholine, a critical neurotransmitter that declines with age.
- ❑ **Vinpocetine** enhances circulation and oxygenation to brain cells, improves neural electrical conductivity, and protects against neuron-destroying excitotoxicity.
- ❑ **Phospholipid-grape seed extract** bound together results in a compound that is better absorbed into the bloodstream where it improves blood vessel tone and elasticity, thus enhancing blood circulation and oxygen flow to the brain.
- ❑ **Wild blueberry extract** protects against free-radical damage in the brain and helps maintain fluid balances already within the normal range.
- ❑ **Sensoril® ashwagandha extract** helps alleviate mental fatigue by inhibiting an enzyme (acetylcholinesterase) that degrades acetylcholine in the aging brain.
- ❑ **Proprietary NeuroProtection Complex Blend** contains standardized extracts of **hops, ginger, and rosemary** — proven to help with inflammation.
- ❑ **Pregnenolone** is a hormone that may be especially beneficial to the brain.

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

Caution: Cognitex is also available *without* pregnenolone for those with existing steroid hormone-sensitive cancer.

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Just three softgels of Cognitex provide the following nutrients:

Alpha-Glyceryl Phosphoryl Choline (A-GPC)	600 mg
Phosphatidylserine-DHA (PS-DHA)	100 mg
[Sharp-PS® GOLD Conjugated Phosphatidylserine-DHA]	
Pregnenolone	50 mg
Vinpocetine	20 mg
Phospholipid-Grape Seed Extract	150 mg
Wild Blueberry Extract	150 mg
<i>(Vaccinium angustifolium)</i>	
Sensoril® Ashwagandha Extract	125 mg
<i>(Withania somnifera)</i>	
Uridine-5'-Monophosphate (disodium)	50 mg
Proprietary NeuroProtection Complex Blend	125 mg
Perlucan® Hops Extract (<i>Humulus lupulus</i>)	
Ginger (<i>Zingiber officinale</i>) Extract	
Rosemary (<i>Rosmarinus officinalis</i>) Extract	



Item #00921



Item #00922

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

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

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.



TAP THE POWER OF N-Acetyl Cysteine

For more than **forty years**, the antioxidant compound **N-acetyl cysteine** or NAC has been recognized for its role in supporting bronchial and respiratory health.¹⁻¹⁰ Today, a *burst* of renewed scientific interest has yielded fresh insights into its role in supporting overall health.

At the core of N-acetyl cysteine's power is its ability to support healthy cellular levels of **glutathione** (GSH), a nutrient utilized by all cells for protection against free radical damage and insults from foreign compounds.

N-acetyl cysteine directly contributes to glutathione production and stimulates enzymes involved in maintaining glutathione, providing critical energy and support for cell function across multiple systems of the body.

Over **thirty** placebo-controlled clinical trials involving cellular glutathione have indicated beneficial effects of oral **N-acetyl cysteine** on health, quality of life, and well being.¹¹

Aside from its role in glutathione synthesis, N-acetyl cysteine serves as a highly *bioavailable* nutrient in its own right. Upon ingestion, it is readily absorbed and promotes direct cellular protection throughout the body via multiple physiological pathways.¹²⁻²¹ It provides immune support,⁵⁻⁸ helps liver cells to efficiently metabolize lipids and neutralize free radicals,²² and has been shown to supply nutritional support to neurons in the presence of oxidative stress.²³

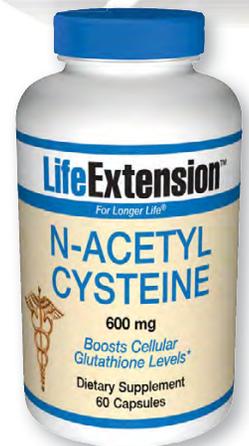
Individuals seeking support for system-wide health with **Life Extension® N-Acetyl Cysteine** may choose to ingest between **600-1,800 mg per day**.

The retail price for a bottle containing **60 600 mg capsules of N-Acetyl Cysteine** is \$14. If a member buys four bottles, the price is reduced to just **\$10.13 per bottle**.

Caution: Those who supplement with NAC should drink six to eight glasses of water daily in order to prevent cysteine renal stones. Cysteine renal stones are rare but do occur.

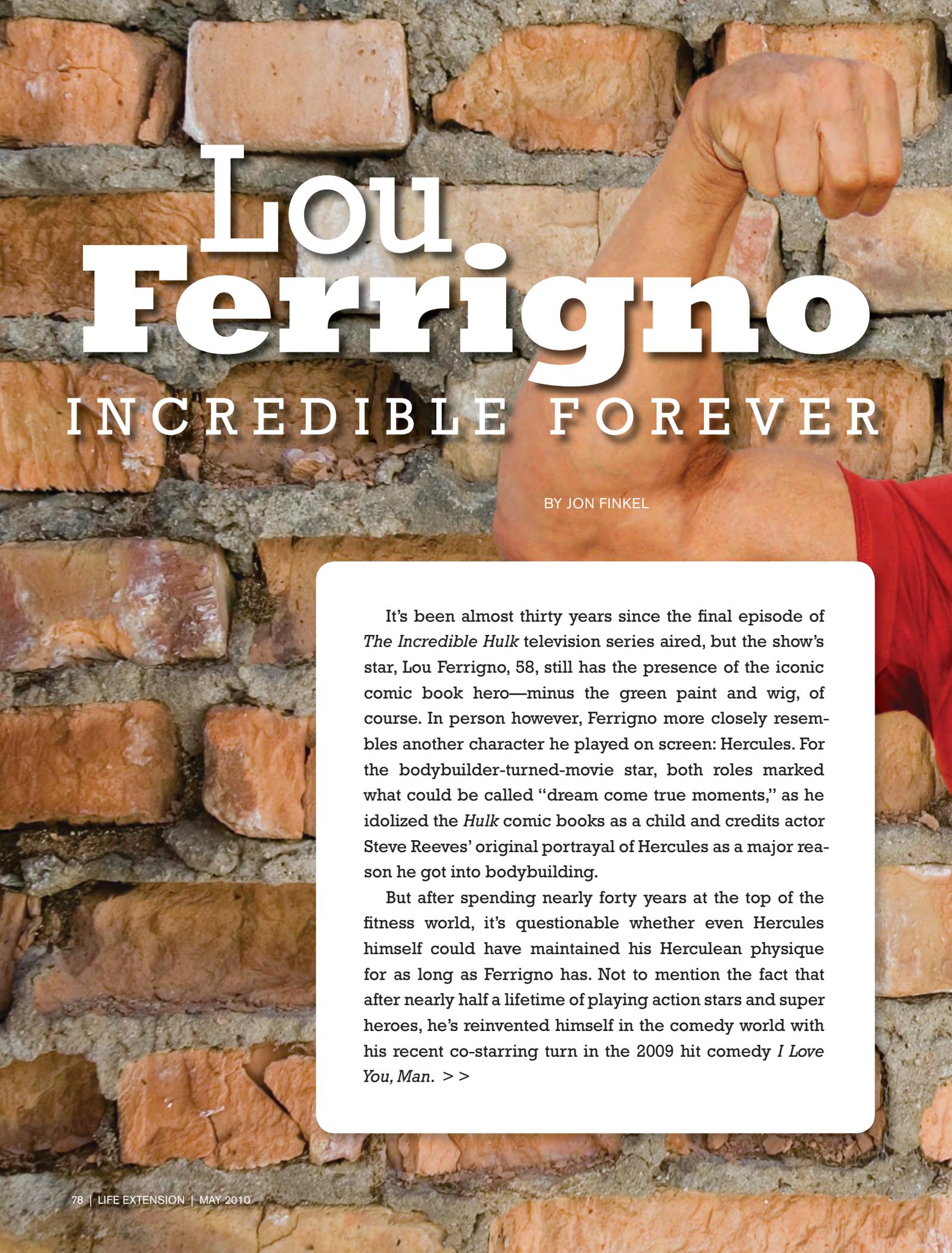
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Item #00215

**To order N-Acetyl Cysteine,
call 1-800-544-4440
or visit www.LifeExtension.com**

A photograph of Lou Ferrigno flexing his right arm against a brick wall. He is wearing a red t-shirt. The background is a wall of reddish-brown bricks with grey mortar. The text is overlaid on the image.

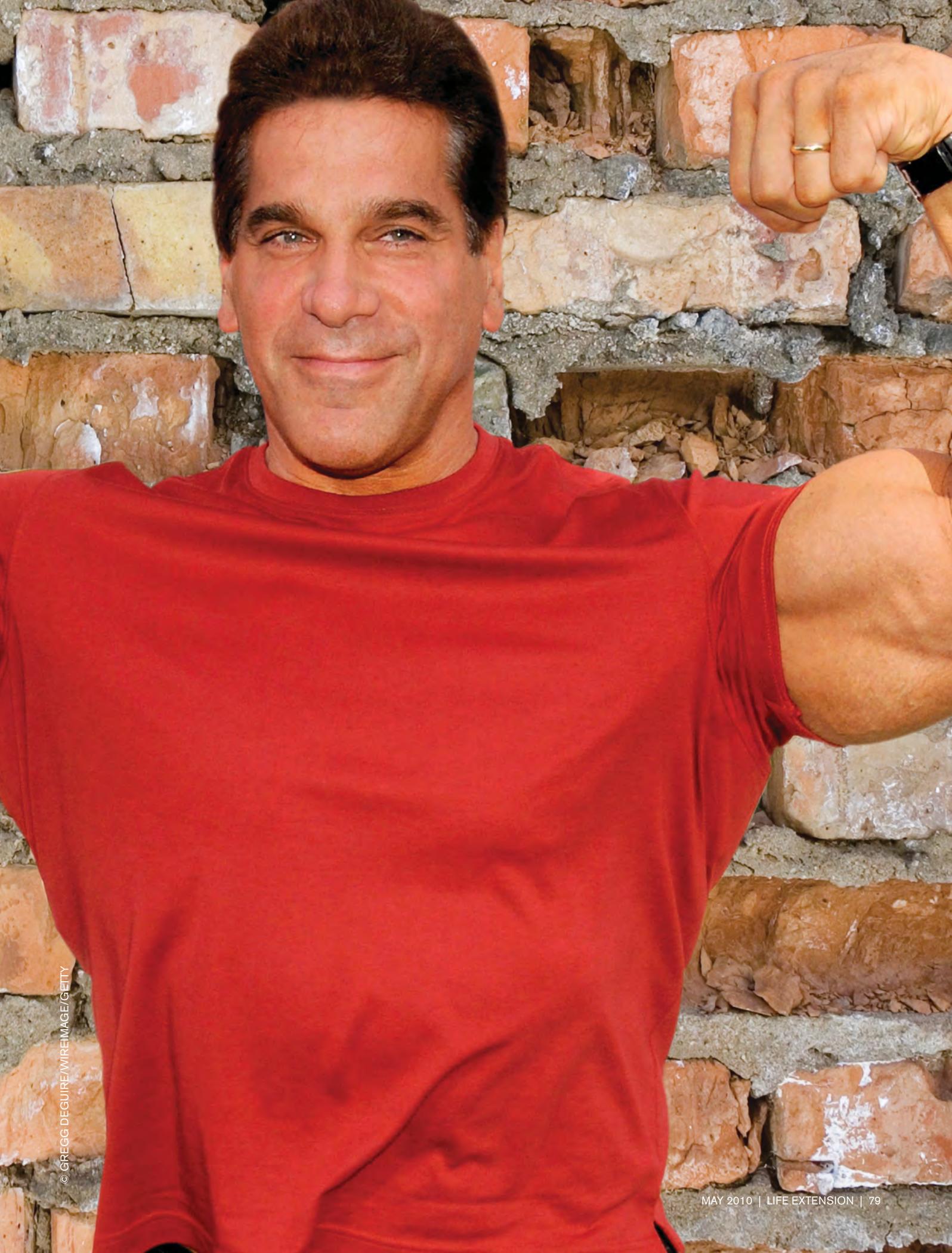
Lou Ferrigno

IN CREDIBLE FOREVER

BY JON FINKEL

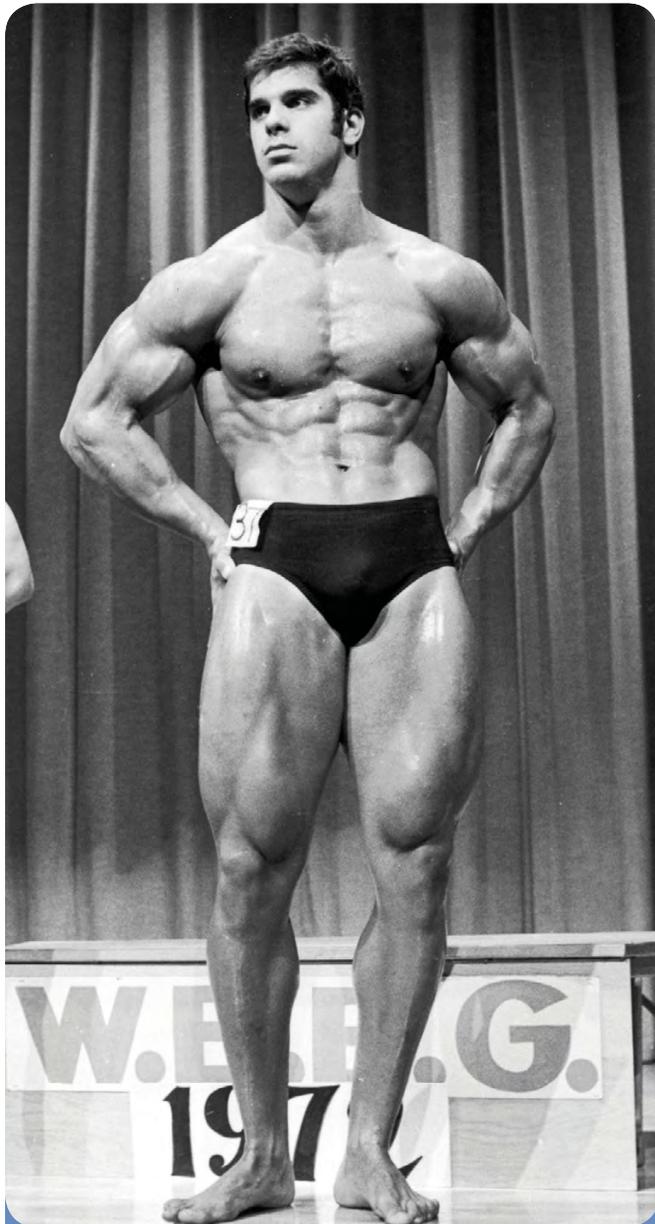
It's been almost thirty years since the final episode of *The Incredible Hulk* television series aired, but the show's star, Lou Ferrigno, 58, still has the presence of the iconic comic book hero—minus the green paint and wig, of course. In person however, Ferrigno more closely resembles another character he played on screen: Hercules. For the bodybuilder-turned-movie star, both roles marked what could be called “dream come true moments,” as he idolized the *Hulk* comic books as a child and credits actor Steve Reeves' original portrayal of Hercules as a major reason he got into bodybuilding.

But after spending nearly forty years at the top of the fitness world, it's questionable whether even Hercules himself could have maintained his Herculean physique for as long as Ferrigno has. Not to mention the fact that after nearly half a lifetime of playing action stars and super heroes, he's reinvented himself in the comedy world with his recent co-starring turn in the 2009 hit comedy *I Love You, Man*. > >



What's at the core of Ferrigno's success? The answer is simple: a commitment to healthy living. Standing at 6'5" and still weighing a rock solid 250 pounds, Ferrigno is a walking testament to a life spent devoted to nutrition and fitness.

"I have a tremendous passion for fitness," Ferrigno says. "And now as I age, I want to maintain what I have. I like being lean and light."



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1972: American bodybuilder and actor Lou Ferrigno, later star of 'The Incredible Hulk,' flexing his muscles as a teenage contestant in the Mr. America contest, New York City.

TRIMMING DOWN

For someone who competed against Arnold Schwarzenegger in the Mr. Olympia bodybuilding contest in 1974 at a staggering 285 pounds, being light is a relatively unique concept. However, like most people, Ferrigno has had to make various adjustments as he's aged, one of them is learning to control his appetite.

"The difficult thing for me now as I get older is to eat enough to satisfy my hunger without overeating," Ferrigno says. "I eat three times a day and maybe a snack at night."

This is a far cry from the 8,000 to 10,000 calories a day he would consume when he was competing for bodybuilding titles. Still, just as important as eating less is eating smart, and Ferrigno's personal eating regimen is based on his own version of the much publicized Mediterranean diet.

"Go back to the days of the Romans and Greeks," Ferrigno says. "They just had fruits and vegetables. They didn't have fried foods or heavy dressings. I eat the way they ate, focusing on fruits, vegetables, fish, and some meat. I avoid butter, salt, foods high in fat and sodium as well. Everybody wants the easy way out, but you need to have discipline. I probably eat half as much as I used to."

Ferrigno, who has been a personal trainer for some of the biggest stars in entertainment, including Chuck Norris, Mickey Rourke, and the late Michael Jackson, preaches discipline as well as balance when it comes to eating well to maintain a healthy lifestyle.

"You really need to eat balanced," Ferrigno says. "Too many people skip breakfast, have a quick lunch and then eat a big dinner. That's not the way to do it. You have to be consistent with your eating."

CONSISTENCY IS KEY

Consistency is a word you hear a lot when you talk to Ferrigno—consistent eating, consistent exercising, consistent living. It's no wonder then that while he may not be as strong as he was ten or twenty years ago, his commitment to healthy living has kept him in such tremendous condition that he can still go almost rep for rep in the weight room when he lifts with his son, Lou Jr., who is only two years removed from being a linebacker on the University of Southern California's football team.

In fact, as he approaches 60, nearly everyone Ferrigno works out with at the Gold's Gym in Venice Beach, California, a.k.a. the Mecca of Bodybuilding, is younger than he is, but that doesn't stop him from throwing around weights usually reserved for men half his age.



FERRIGNO'S FAVORITE SUPPLEMENTS

Multivitamin
Vitamin D
Vitamin E
Calcium
Magnesium

“Exercising as you get older becomes more and more about having proper form,” Ferrigno says. “I have no injuries in my upper body because I have always focused on perfect form. As I get older, I feel more comfortable and more efficient. I feel better than ever.”

Ferrigno also focuses more on cardio now because he acknowledges that as he’s gotten older, it takes a little longer to recuperate. “I make sure I get a full stretch, too,” he says. “And I don’t lift as many sets. You only need to do body parts two or three days a week to see the benefits of an exercise program. Personally, I like to challenge myself, so I’ll create different short term goals to try and meet. It keeps me focused.”

In addition to changing his workouts to fit his goals, Ferrigno has also beefed up his supplement regimen to reflect his current health strategy.

“My workouts have adapted to the change in my body and the change in my goals,” Ferrigno says, “but the supplements that I take haven’t changed that much over the years. I still take a multivitamin every day

and I take vitamin E, calcium, and magnesium. One of the things that I’ve added is vitamin D to help prevent osteoporosis and to boost my immune system. The supplements are good for my heart, good for my skin, and they help prevent future health problems.”

Whether he’s winning Mr. America and Mr. Universe titles, playing for the Toronto Argonauts of the Canadian Football League, competing in the World’s Strongest Man contest, becoming a deputy for the Los Angeles Sheriff’s Department, or pursuing successful careers in television, film, and theater, Ferrigno has always managed to surpass expectations by keeping his core commitment to healthy living, which is why he’s not only the Incredible Hulk, he’s the seemingly Ageless Hulk as well. ●

Learn more about Lou Ferrigno at www.louferrigno.com



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“ I have always focused on perfect form. As I get older, I feel more comfortable and more efficient. I feel better than ever. ”

NEW ENHANCED

Ultra Natural Prostate FORMULA

A huge percentage of men
over age 50 suffer from
prostate-induced discomforts.

Ultra Natural Prostate Formula contains the most scientifically substantiated nutrients to help protect the prostate gland and maintain its healthy function.

Now included in the formula is a standardized **European pumpkin seed oil extract** rich in **delta-7 sterols** and **fatty acids** to support a healthy prostate.¹ A supercritical CO₂ extraction technology supplies optimal amounts of these key phytonutrients to *complement* the fatty acid composition of saw palmetto. It is sourced from a unique variety of pumpkin cultivated specifically to yield **higher ratios** of these compounds than pumpkins grown for commercial use.

The nine additional active ingredients in **Ultra Natural Prostate Formula** are:

- **Saw palmetto extract.** A number of normal biological events in aging men affect the prostate gland. Saw palmetto has been shown to interfere with DHT activity in the prostate, inhibit alpha-adrenergic receptor activity (to support normal urinary flow), and help control inflammatory actions in the prostate gland.²⁻⁴ A novel DeepExtract™ extraction technology ensures the most desirable and complete profile of saw palmetto available.
- **HMRLignan™** Norway spruce and **ActiFlax™** flax lignan extracts. Standardized *lignans* from Norway spruce and flax seeds convert to **enterolactone** that is then absorbed into the bloodstream where it provides significant biological effects. **Enterolactone** has demonstrated anti-estrogen and anti-DHT effects that are of particular importance for the aging prostate gland.⁵⁻⁷
- **5-LOXIN® boswellia extract.** Published studies show that normal aging and poor diet cause levels of a dangerous enzyme (*5-lipoxygenase*) to increase, which can affect prostate cells. 5-LOXIN® is a patented extract from the boswellia plant that has been shown to suppress *5-lipoxygenase* in addition to other pro-inflammatory factors.⁸⁻¹⁰

Now with More Potent
Saw Palmetto and Pumpkin
Seed Oil Extracts



- **Nettle root extract** (*Urtica dioica*). Testosterone converts to estrogen at higher rates as men age. Prostate cells are sensitive to estrogen's growth stimulatory effects. Nettle root helps support prostate cells against excess estrogen levels.¹¹
- **Pygeum**. Normal aging results in levels of certain prostaglandins increasing in the prostate gland. *Pygeum africanum* extract helps suppress these prostaglandins, keeping the prostate gland placid and promoting prostate comfort.¹²
- **Beta-sitosterol**. The most biologically active constituent of pygeum is beta-sitosterol. Beta-sitosterol from other plant sources is also included in this prostate support formula.¹³
- **Cernitin**[®]. This European pollen extract has been shown to relax smooth muscle tone of the urethra, counteract DHT, and help regulate inflammatory reactions.¹⁴⁻¹⁷
- **Boron**. In addition to helping protect bones, this mineral has been shown to slow elevation of prostate-specific antigen (PSA)—a benefit seeming to occur as a result of boron's positive effect on the presence of protein-degrading enzymes in the prostate gland.^{18,19}
- **Lycopene**. This carotenoid, associated with the tomato's red color, helps maintain healthy DNA gene function in prostate cells.²⁰⁻²⁴

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

USPlus[®] Saw Palmetto (CO ₂ DeepExtract™)	320 mg
Cernitin[®]	252 mg
5-LOXIN[®]	70 mg
Pumpkin seed oil (<i>Cucurbita pepo</i>) extract (standardized to 85% total fatty acids)	200 mg
Stinging nettle root extract (<i>Urtica dioica</i>)	240 mg
Pygeum extract	100 mg
Lycopene	10 mg
Phytosterol complex (standardized to 26.6% beta-sitosterol)	678 mg
HMRlignan™ Proprietary blend of Norway Spruce and ActiFlax™ Flax Lignan extracts	20.15 mg
Boron	3 mg

Ultra Natural Prostate Formula provides scientifically validated standardized plant extracts that have been shown to promote healthy prostate function. No other prostate protection formula provides such a broad array of nutrients to support the multiple factors involved in maintaining a healthy prostate gland. Contains soybeans.

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



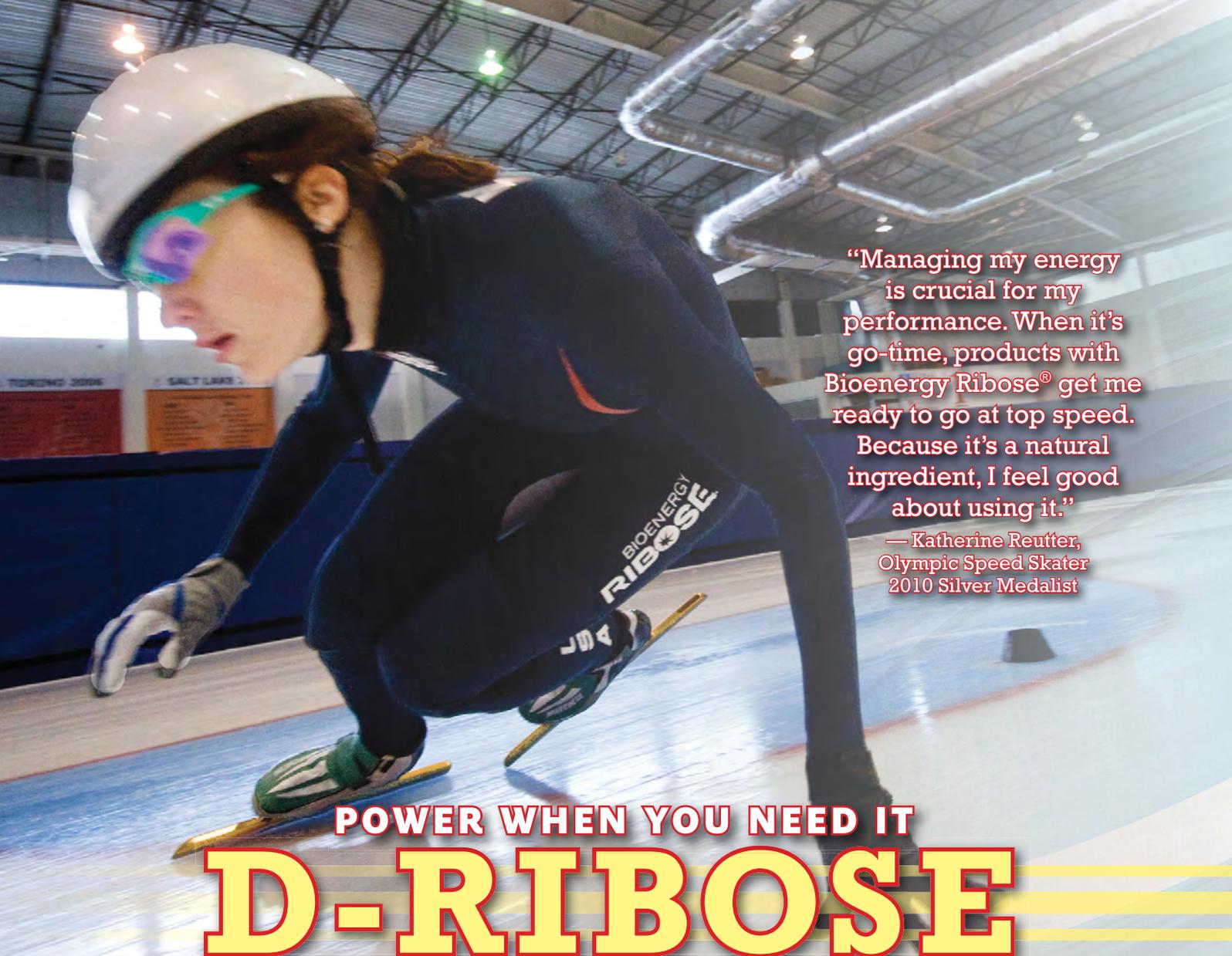
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“Managing my energy is crucial for my performance. When it’s go-time, products with Bioenergy Ribose® get me ready to go at top speed. Because it’s a natural ingredient, I feel good about using it.”

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2010 Silver Medalist

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D-RIBOSE

CAPS AND POWDER

The Energizer of Choice for Olympic Athletes

Many people striving for peak performance—or just concerned about heart health in general—are unaware that depletion of cellular energy in heart and muscle tissue can affect *normal* daily function.

The primary energy source for all cellular processes is a molecule known as ATP (adenosine triphosphate). Healthy, active cells constantly replenish their supply of ATP to produce vital cellular energy. However, under conditions of strenuous exercise, stress, injury, or aging, critical body tissues such as heart and skeletal muscles may not replenish ATP as quickly.

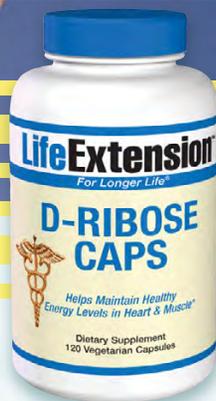
D-ribose, a carbohydrate molecule found in every living organism, facilitates the production of ATP.¹ In studies of healthy athletes, as well as those who have suffered *injury* to the heart muscle, supplying fatigued muscle cells with D-ribose quickly restored ATP levels to normal.²⁻⁴

D-Ribose Caps and **D-Ribose Powder** can help speed energy recovery, increase energy reserves, and maintain youthful energy levels in heart and muscle tissue.

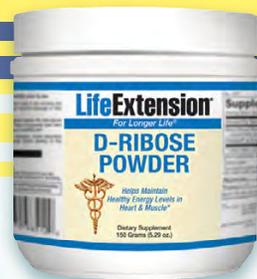
- For healthy adults seeking to optimize their physical performance or simply restore everyday energy and strength, the recommended daily dose of six capsules of **D-Ribose Caps** taken with food supplies **5,100 mg** of patented **Bioenergy RIBOSE®**, a premium patented brand of ribose studied in many clinical trials and recommended by leading cardiologists.
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— Shannon Bahrke,
Olympic Freestyle Mogul Skier
2010 Bronze Medalist



ITEM #00973



ITEM #00972

A bottle containing 120 capsules of **850 mg D-Ribose Caps** retails for \$32. If a member buys four bottles, the price is reduced to just **\$21.60** per bottle. A jar containing 30 servings of **5,000 mg D-Ribose Powder** retails for \$27.50. If a member buys four jars, the price is reduced to just **\$18.56** per jar.

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

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1. *EMBO Rep.* 2006 Mar;7(3):276-82.
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Caution: D-ribose can actually lower blood sugar levels. Therefore, people with insulin-dependent diabetes should check with their health care practitioner before taking it. D-ribose should be taken with meals, or mixed into juice, milk, or fruit, to offset the blood glucose-lowering effect.

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This product may not need to be taken every day. Some people keep it on hand for special occasions when the need to support optimal immune health arises.

References

* *Clin Exp Immunol.* 2008. Sep;153 Suppl 1:3-6.

To order **i26[®] Hyperimmune Egg**
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WELLNESS PROFILE

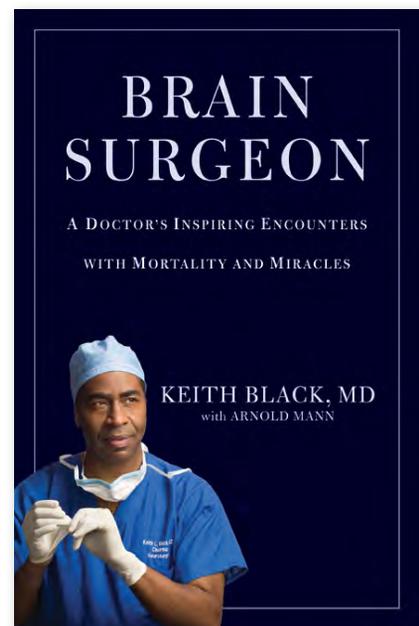
Dr. Keith Black Beating the Tumor Terrorists

BY STEPHEN LAIFER

According to Dr. Keith Black, Al Qaeda are not the only terrorists we need to be on the alert for. Black, a neurosurgeon at Cedars-Sinai Medical Center in Los Angeles, likens a brain tumor to a guerrilla fighter—attacking stealthily on several simultaneous fronts.

“It acts more like a terrorist organization than a biological adversary,” writes Black in his recent book, *Brain Surgeon: A Doctor’s Inspiring Encounters with Mortality and Miracles* (Wellness Central, 2009). A brain tumor is “constantly changing and constantly shifting its guerrilla strategies,” Black explains. “In response, we constantly adjust our own attacks, striving to outsmart the tumor, pushing back the survival frontier, winning for the patient whatever time we can.”

It’s a perpetual battle in a larger, more insidious war. Point of fact, brain tumors are on the rise, and each year more than 200,000 people in the United States are diagnosed with brain cancer. In an especially worrying trend, brain tumors are currently the leading cause of solid tumor cancer death in children and young adults under the age of 20. The survival rate for those with a malignant tumor is a scant 32%.



WELLNESS PROFILE

Black, who has appeared on the cover of *Time* magazine as one of America's Heroes of Medicine, serves as chairman of the Department of Neurosurgery and Director of the Maxine Dunitz Neurosurgical Institute at Cedars-Sinai. He is foremost among a group of approximately 3,000 neurosurgeons at work in the US today. Unfortunately, only 50 of them specialize in brain tumors, which means Black typically undertakes a heavy schedule of more than 250 surgeries a year.

Chemical Culprits

Based on his observations and long experience with his own patients, Black believes a primary reason for the sharp increase in brain tumors can be found in our environment. "It's very well known that the risk of onset and development of cancer is a combination of one's genetics—the natural ability of one's body to neutralize toxins in the environment—offset by the quantity of exposure

to those toxins," he explains. "A classic example is the guy who lives to 105 while smoking two packs of cigarettes and drinking every day." Black says this man's genetics have allowed him to detoxify the damage from smoke and alcohol, and still remain healthy. "On the flip side, you can have a patient who has had much less environmental exposure to toxins, and still gets cancer."

Over the past decade, Black and his colleagues examined a number of such relationships and their correlations with occupational risks. In at least one area, their conclusions match the statistics: regardless of any predisposed genetic "protections," people who work in plastics factories have a much higher incidence of brain cancer because of exposure to vinyl chloride, a known carcinogen used in manufacturing products such as pipes, wire coatings, car parts, and house wares. Manufacturing plants release vinyl chloride into the air or water, but it can also leak into the environment after improper

disposal. People who work in these plants or live in close proximity are known to have an increased risk for brain cancer.

Textiles workers are also at risk because they may be exposed to acrylonitrile, which is used in the production of synthetic rubber and acrylic fibers. When burned during production, the material releases fumes of hydrogen cyanide and other chemicals. The Department of Health and Human Services recently determined that acrylonitrile may be a risk factor for cancer.

Of course, not everyone works in or lives near a plastics plant. Black believes the evidence is equally strong behind a number of other suspected environmental factors. "Studies have looked at people who live close to golf courses, and their increased brain cancer risk due to the nitrates in pesticides," he says.

Toxic waste dumps have also been implicated, as well as power lines. "There are definite correlations, particularly in neighborhoods near large transformers. You tend to see clusters of cancer in these communities."

Eating Hazards

Consumption of foods high in nitrates and other preservatives can play a role in causing brain tumors as well. Preserved meats like hot dogs, bacon, and cured ham fall under this category. Nitrates were originally used to help prevent the growth of bacteria that cause botulism and other food-borne illnesses. These nitrates would break down, forming nitrites. Eventually, nitrites themselves were added directly to the meat to speed up the curing process. Nitrites continue to be used in cooked meats to maintain the traditional pink color and cured flavor.





WELLNESS PROFILE

As this patient's generation grows older, Black feels we will see rising cancer rates in people exposed to the same high levels of toxins in their earlier years.

Cell Damage

Cell phone use is a more high-tech threat that has been implicated in causing brain tumors for the past decade. "Studies from Switzerland and Sweden show a clear correlation between use of cell phones and brain cancer," says Black, who points to one study showing that people exposed to over 2,000 hours of cell phone use—about an hour a day over ten years—have increased tumor risk of 250% from microwave radiation. "With cell phones, however, you have articles published on both sides," he counters. "Other studies don't support these claims."

Given the ubiquitous presence of cell phones, why isn't this better publicized? Black explains the problem is one of time—or lack thereof: cell phones have only been around for a decade. "Cancer typically takes 20-30 years between exposure to an environmental toxin and development of a tumor. In other areas this is well correlated: we know for a fact that if you start smoking cigarettes in your teens, we don't expect to find lung cancer when you're 25. We expect to find it when you're 45 or 55."

Black says children and teens are more at risk from a cell phone's microwave radiation. "Their skulls are thinner, and the radiation penetrates deeper and has higher impact because the brain is in a

Nitrites contribute to the formation of potentially dangerous carcinogens in the body which can result in malignant tumor growth. As far back as 1995, a citizen petition submitted to the FDA called for the government to "label hot dogs that contain nitrites with a cancer risk warning." The petition was based on "accumulating scientific information on excess risks of childhood brain tumors... from the consumption of hot dogs containing nitrite preservatives."

And it's not just the foods themselves. Black is equally concerned about people who microwave their food in plastic wrap. "That's extremely worrisome, because the plastic can go right into the food," he warns. Here again, the primary culprit is vinyl chloride—which, after being microwaved, breaks down and enters food directly.

Editor's comments: *If you do consume foods containing preservatives such as nitrate or nitrite, taking several grams of vitamin C, about 100 mg of chlorophyllin, and/or cruciferous vegetable extracts might help neutralize the carcinogenic potential of these foods.*

Bad Air

People can avoid or reduce nitrate intake by monitoring their diet, but it's not quite that simple when it comes to reducing exposure to air pollution. "We are specifically suspicious of air particulate matter, nanoparticles

in air pollution that can cross directly into the brain and cause tumors," says Black, adding that firemen, for example, have a proven increased risk of brain cancer from breathing fire engine diesel fumes in the station.

For commuters, Black says the risk is equally great. "We speculated that nanoparticles in automobile exhaust have a causal relationship with brain tumors. In the lab, we then found that even the brain cells of laboratory mice undergo a transition to suggest preconditions to converting to cancer when subjected to the type of air found on and around freeways—after just a few short months of exposure."

In his book, Black describes firsthand experience with one of his own cancer patients battling a tumor likely caused by air pollution. That patient spent his childhood and young adult life in the 1960s in Riverside, California, 50 miles inland from Los Angeles. Prevailing winds blew all of LA's exhaust fumes and airborne waste toward Riverside, which at the time had some of the worst air quality in the country. "His description made me cringe," says Black, "but it was only one of many contributing factors in his history."

"... children and teens are more at risk from a cell phone's microwave radiation."



much more dynamic state, with nerve cells dividing much faster than an adult's." Indeed, Black points out that in laboratory models the most effective way to induce brain cancer is to expose a pregnant rat to an environmental toxin. "The mother doesn't get cancer, but the embryo does."

We haven't had enough time yet for a definitive 20-30 year study of people's cell phone habits. "What will those studies ultimately show when kids who have been using cell phones begin to get evaluated?" Black wonders. "The evidence we have now paints a very worrying picture."

Again, Black experienced this firsthand with the death of his close friend Johnny Cochrane, who was O.J. Simpson's attorney. Black believes that Cochrane's brain cancer, a malignant glioma—what he calls "the Osama bin Laden of tumor terrorists"—was the result of frequent cell phone use, based on the fact that the tumor developed on the side of the head against which Cochrane held his phone. Interviewed in May, 2008 on *Larry King Live*, Black summed up opinions on both sides of the fence: "I think if we look at the evidence that we have now, it's difficult to say that cell phones have a *direct* link to brain cancer, but it's also difficult to say that they're safe." His ultimate advice is to be informed. "If you elect to use a cell phone, precautions like earpieces are not unwise," he urges.

Editor's comments: *All electronic devices emit dangerous **electromagnetic fields** (EMFs). If anyone questions this, just buy a Gauss meter and see how high the needle jumps (indicating greater EMF activity) when you are close to any electronic device. Be it a cell phone or a land line phone, distance is the key to avoiding EMF exposure. Just use the speaker phone option on your cell phone and land line, keep the phone about 12 inches from your head, and you will not suffer high EMF exposure.*

A Constant Battle

At first, it would seem impossible to win a war against an enemy that fights on so many different fronts, but there is evidence that the tide is turning. "We are actually making advances in our ability to treat brain cancer," Black says. One of the more promising recent studies at Cedars-Sinai involves enlisting our own immune system. "There is a theory that we are developing cancer all the time, but if our immune system is able to recognize that cancer, it can eradicate it. We're currently working on a therapeutic vaccine, and have shown in clinical trials that we can teach the immune system to fight cancer." Made with a key component of our immune system called dendritic cells, the vaccine "reveals" bad proteins to the body's killer T-cells. White blood cells then attack the cancer once they're given the "scent."

Nutrition is another powerful ally. "The mechanism of cancer is consistent among different types of tumors, so antioxidants seem to be beneficial in brain cancer as well," says Black. "If you have a strong healthy immune system, you're probably more resistant to developing cancer in the first place. Supplements that boost the immune system are beneficial. Also, if you eat foods free of preservatives or nitrates, your body has

to expend less energy detoxifying those agents. Try to eat a lot of fruit, vegetables, and fresh organic foods without added hormones."

In addition to this, Black himself incorporates omega-3 fish oil and a general multivitamin. He also meditates and exercises regularly to reduce stress. It's a multi-pronged approach. "But remember, cancer acts like a terrorist," he points out. "You have to fight it on multiple fronts." ●

To contact Dr. Keith Black, visit www.cedars-sinai.edu/1088.html.

Avoiding Brain Tumors

Brain tumors are on the rise. As with any cancer, you can take steps to reduce your risk. The first step is to understand what those risks are and how they apply to you.

Environmental factors can play a large part in determining your cancer risk. Living in a community with poor air quality, living near a toxic waste dump or living near power lines and transformers have been known to increase risk.

Be proactive! Commit to quitting smoking and exercising more. "Eat a lot of fruit, vegetables and fresh organic foods without added hormones," advises Black. "Antioxidants and supplements that boost the immune system are beneficial."

Restrict the amount of food toxins (e.g., nitrates, preservatives) that you put into your body.

Use earpieces or hands-free kits for cell phones, avoid plastic wrap on food (particularly when microwaving), and limit use of pesticides, particularly around small children.

Lastly, stay on top of the latest medical developments: the more you know, the better prepared you will be if you develop brain cancer.

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Maintaining eye health is a major concern as we age.

As we get older our eyes become vulnerable to a variety of insults that can cause **irritation, dry eye,** and **structural dysfunctions**. Applying lubricating eye drops can alleviate eye discomfort.

Life Extension®'s **Brite Eyes** formula provides the best daily eye drops without irritation.

Brite Eyes contains two proven **lubricants** (*hydroxymethylcellulose and glycerin*) that are FDA-approved for ophthalmic use. Unlike conventional eye drop formulas, these **lubricants** are 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

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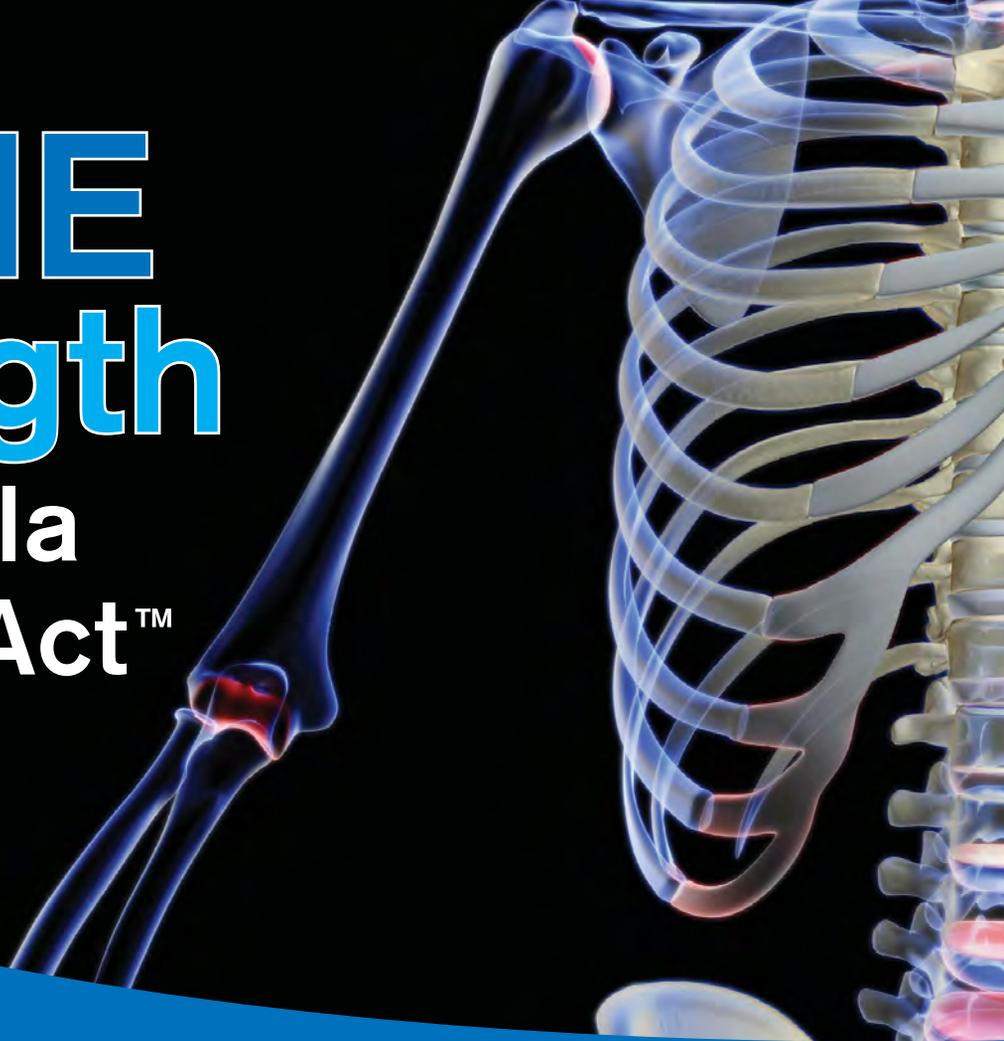
The retail price for a box containing two 5-ml vials of **Brite Eyes III** is \$34. If a member buys four boxes, the price is reduced to **\$24 per box**.



ITEM #00893

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The use of diets high in **collagen** to improve bone health dates back to ancient cultures. Now, Life Extension® brings you an exciting patent-pending formulation of chelated **calcium and collagen** called **KoAct™** to help 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 have also been added for their bone-protective minerals and polyphenols.

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Silica [from standardized Bamboo (<i>Bambusa vulgaris</i>) extract (stem)].....	5 mg
Dried Plum (<i>Prunus domestica</i>) extract (fruit).....	100 mg
[standardized to 50% polyphenols (50 mg)]	
Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)	3 mg

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Item #01211

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 - Diet and Nutrition
 - Erectile Dysfunction
 - Radiation Therapy
 - The Current State of Immunotherapy
 - 2010: What Works & What's Worthless
- Round-Table Discussions: watch and hear speakers' multi-disciplinary approach to actual clinical cases
 - Opportunities to interact with speakers after their presentations
- Ask the Experts: question-and-answer sessions with participating faculty and other experts and conference attendees
 - Exhibits from participating supporters and other members of the prostate cancer community
 - Support group meetings will be held all throughout the conference – courtesy of US TOO and Women Against Prostate Cancer
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FACULTY

William Aronson, Duke Bahn, Marc Botnick, Richard Lam, Mark Moyad, John Mulhall, Charles Myers, Mack Roach III, Mark Scholz, Stephen Strum and Nicholas Vogelzang

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 Homocysteine
 C-Reactive Protein (high-sensitivity)
 Progesterone
 Free Testosterone
 Total Testosterone
 TSH for thyroid function

NEW & IMPROVED
NOW INCLUDES TSH!
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Pregnenolone and Total Estrogen
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- THYROID ADD-ON PANEL (LCTHYROID)** \$36
Free T3 & Free T4. LE strongly recommends adding these important thyroid tests to the Male or Female Life Extension Panels, especially for those interested in weight loss.
- VITAMIN D (25-OH) (LC081950)** \$35.25
 This test is used to assess vitamin D status in your body.
- OMEGA SCORE™™™ (LCOMEGA)** **NEW**
\$98
 Provides valuable information on your risk of developing heart disease, sudden heart attack, and cardiac death. The Omega Score™™ also includes your AA:EPA ratio, allowing you to determine and track a major factor in total body inflammation.

For the past 30 years, the Life Extension Foundation has stated that the most important step one can take to prevent disease cannot be found in a bottle of pills. The true cornerstone of any preventive health care program is annual blood screening. Proactive blood screening can help you greatly reduce your risk of disorders such as heart and kidney disease, stroke, liver conditions, anemia, and diabetes. Plus it's particularly valuable in helping you prevent and treat symptoms associated with hormone imbalance, such as fatigue, memory impairment, bone loss, weight gain, and depression. Blood testing remains one of the most important things you can do for yourself and your loved ones. More than any other measure, annual blood testing holds tremendous potential to protect both yourself and your loved ones.

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 Total Cholesterol Cholesterol/HDL Ratio
 HDL Cholesterol Estimated CHD Risk
 LDL Cholesterol Glucose
 Triglycerides
LIVER FUNCTION PANEL
 AST (SGOT) Total Bilirubin
 ALT (SGPT) Alkaline phosphatase
 LDH
KIDNEY FUNCTION PANEL
 BUN BUN/Creatinine Ratio
 Creatinine Uric Acid
BLOOD PROTEIN LEVELS
 Total Protein Globulin
 Albumin Albumin/Globulin Ratio
BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE
 Red Blood Cell Count Monocytes
 White Blood Cell Count Lymphocytes
 Eosinophils Platelet Count
 Basophils Hemoglobin
 Polys (Absolute) Hematocrit
 Lymphs (Absolute) MCV
 Monocytes (Absolute) MCH
 Eos (Absolute) MCHC
 Baso (Absolute) Polynucleated Cells
 RDW
BLOOD MINERAL PANEL
 Calcium Sodium
 Potassium Chloride
 Phosphorus Iron
- LIFE EXTENSION THYROID PANEL (LC304131)** \$56.25
 TSH, T4, Free T3, Free T4
- FEMALE HORMONE RE-TEST PROFILE* (LCRTF)** \$187.50
 CBC/Chemistry Profile, DHEA-S, Total Estrogen, Pregnenolone, Total and Free Testosterone, Progesterone, and TSH. Continual monitoring of hormone levels is necessary for women seeking to maintain optimal blood level values.
- MALE HORMONE RE-TEST PROFILE* (LCRTM)** \$206.25
 CBC/Chemistry Profile, DHEA-S, DHT, Estradiol, PSA, Pregnenolone, Total and Free Testosterone, and TSH. Continual monitoring of hormone levels is necessary for men seeking to maintain optimal blood level values.
- DR. LICHTEN COMPREHENSIVE THYROID PANEL (LICHTEN02)** \$283.50
 TSH, T4, Free T3, Reverse T3, Thyroid antibodies, Thyroid peroxidase antibodies, Red cell magnesium, vitamin D(25-OH).
- DR. LICHTEN CARDIAC RISK FACTORS* (LICHTEN05)** \$147
 Homocysteine, C-Reactive Protein, Ferritin, Fibrinogen, ABO, and Rh blood typing.
- DR. LICHTEN COMPREHENSIVE MALE PANEL (LICHTEN01M)** \$501
 Male Life Extension Panel PLUS:
 IGF-1, FSH, LH, TSH, Free T4, Cortisol, Fasting Insulin, Sex Hormone Binding Globulin, and Hemoglobin A1C.
- DR. LICHTEN COMPREHENSIVE FEMALE PANEL (LICHTEN01F)** \$501
 Female Life Extension Panel PLUS:
 IGF-1, FSH, LH, TSH, Free T4, Cortisol, Fasting Insulin, Sex Hormone Binding Globulin, and Hemoglobin A1C.

POPULAR SINGLE TESTS

- OSTEOCALCIN* (LC010249)** \$68.25
 A valuable aid in identifying risk of developing osteoporosis.
- DPD CROSS LINK TEST (LC511105)** \$59.25
 A urine test used as a tool to assess the true rate of bone turnover.
- IGF-1 (LC010363)** \$56.25
 Indicates growth hormone secretion levels. Low levels have been associated with atherosclerosis as well as all-cause mortality.
- INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN 3 (IGFBP3) (LC140152)** \$35.25
 Elevated levels in hypertensive individuals have been associated with nine-fold increase of carotid arteriosclerosis.
- DHEA-SULFATE (LC004697)** \$45.75
 This test shows if you are taking the proper amount of DHEA.
- DIHYDROTESTOSTERONE (DHT)* (LC500142)** \$74.25
 Measures serum concentrations of DHT.
- ESTRADIOL (LC004515)** \$24.75
 For men and women. Determines the proper amount in the body.
- FREE-PSA (INCLUDES TOTAL PSA)* (LC480780)** \$45.75
 Recommended to determine if an elevated PSA is indicative of prostate cancer.
- FREE AND TOTAL TESTOSTERONE (LC140103)** \$74.25
 Determines whether testosterone replacement should be considered as a therapy for depression, abdominal obesity, low energy, poor mental performance, or loss of libido.
- PROGESTERONE (LC004317)** \$41.25
 Primarily for women. Determines the proper amount in the body.
- PREGNENOLONE* (LC140707)** \$87
 Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.
- SEX HORMONE BINDING GLOBULIN (SHBG) (LC082016)** \$24.75
 This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens.
- URINARY 2/16 ESTROGEN METABOLITE RATIO (LCU73000)** \$128
 The ratio is relevant as a risk factor for estrogen-sensitive diseases including breast and cervical cancers and osteoporosis.

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

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

ORDER LIFESAVING BLOOD TESTS FROM VIRTUALLY ANYWHERE IN THE US!

TERMS AND CONDITIONS

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

Signature of Life Extension Member _____

X _____

Life Extension Foundation Members only _____

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Expiration Date /

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LifeExtension
NATIONAL DIAGNOSTICS, INC.

1100 West Commercial Blvd.,
Ft. Lauderdale, FL 33309

Phone your order to: **1-800-208-3444**

Fax your order to: **1-866-728-1050**

Products

AMINO ACIDS

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Branched Chain Amino Acids
D, L-Phenylalanine Capsules
GABA Powder
Glycine Capsules
Glycine Powder
Arginine Capsules
L-Arginine Free Base Powder
Arginine/L-Ornithine Capsules
L-Carnitine Capsules
L-Carnitine Powder
L-Cysteine Capsules
L-Glutathione, L-Cysteine & C
L-Glutamine Capsules
L-Glutamine Powder
L-Lysine Capsules
L-Lysine Powder
L-Methionine Powder
L-Tyrosine Powder
L-Tyrosine Tablets
Mega L-Glutathione Capsules
N-Acetyl Cysteine Capsules
Optimized Carnitine with GlycoCarn®
PharmaGABA
Super Carnosine Capsules
Taurine Capsules
Tryptopure® Tryptophan
(Optimized) Tryptopure® Plus

BONE & JOINT HEALTH

ArthroMax™ with Theaflavins
Bone-Up™
Bone Restore™
Bone Strength Formula w/KoAct™
Chondroitin Sulfate
Chondrox
Fast Acting Joint Formula
Glucosamine Chondroitin Capsules

BRAIN HEALTH

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
CDF Choline Capsules
Cognitex with NeuroProtection Complex
Cognitex with Pregnenolone &
NeuroProtection Complex
DMAE
DMAE-Ginkgo
DMAE Powder (37% DMAE)
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin with B5 and BHA
Lecithin Granules
Methylcobalamin Lozenges
Optimized Ashwagandha Extract
Phosphatidylserine 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
NutraFlora (FOS) Powder
N-Zimes™
Pancreatin
Papain Powder
Primal Defense
Regimint™

DURK AND SANDY PRODUCTS

Blast™
Dual-C
Inner Power™
Memory Upgrade

EYE CARE

Bilberry Extract
Blackcurrant Freeze Dried Extract
Brite Eyes III
Lutein Plus Powder
Overxcast Polarized Sunglasses
Solarshield Sunglasses
Super Zeaxanthin with Lutein &
Meso-Zeaxanthin
(Plus Astaxanthin also available)
Vision Optimizer

FIBER

Apple Pectin Powder
Chitosan
Enhanced Fiber Food Powder
Hi-Lignan® Nutri-Flax®
SlimStyles® PGX
WellBetX PGX® Soluble Fiber Blend

HAIR CARE

Dr. Proctor's Advanced Hair Formula
Dr. Proctor's Shampoo
Healthy Hair Spray
Life Extension Shampoo and Conditioner
Super-Absorbable Tocotrienols

HEART HEALTH

Advanced Lipid Control
Cho-Less
D-Ribose Capsules
D-Ribose Powder
Endothelial Defense™ w/Full-Spectrum
Pomegranate™
Enhanced CoQ10 with Brewer's Yeast
Fibrinogen Resist
Forskolin
Homocysteine Resist
Low Dose Aspirin (Enteric Coated)
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
Sytrinol™
Theaflavin Standardized Extract
TMG Powder
TMG Tablets
Vascular Protect

HERBAL/PHYTO PRODUCTS

Artichoke Leaf Extract
Astaxanthin
Berry Complete
Blackcurrant Juice Concentrate
Blueberry Extract
Blueberry Extract w/Pomegranate
and CocoaGold™
Butterbur Extract w/Standardized
Rosmarinic Acid
Calcium D-Glucarate
Chloroplex
Cilantro Herbal Extract
Citrus Bioflavonoid
CocoaGold™
Grapeseed Extract with Resveratrol &
Pterostilbene
Green Tea Leaves
Hesperidin Complex Powder
Huperzine A with Natural Vitamin E
Kyolic® Garlic Formula 105
Kyolic® Reserve
Lycopene
Mega Green Tea Extract
Mega Green Tea Extract (Decaffeinated)
Mega Lycopene
Mega Silymarin with Isosilybin B
Nutrim
Optimized Ashwagandha Extract
Phyto-Food

Pomegranate Extract
Pomegranate Extract with CocoaGold™
(Full-Spectrum) Pomegranate™
Pomegranate Juice Concentrate
ProGreens®
Pure-Gar™
Pycnogenol
Optimized Quercetin
Resveratrol with Pterostilbene
Rhodiola Extract
Rosmarinic Acid Extract
Rutin Powder
Silymarin
SODzyme™ with GliSODin®
Stevia Extract
Super Bio-Curcumin®
Super Curcumin with Bioperine®
Super Polyphenol Extracts w/CocoaGold™
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
i26 Hyperimmune Egg
Immune Protect with PARACTIN®
Lactoferrin
Maitake SX-Fraction
Norwegian Shark Liver Oil
Primal Defense™
ProBoost™ Thymic Protein A
Pure Gar™
Sambu® Guard
Theralac Capsules
Thymic Immune Factors
Ultimate Flora Advanced Immunity
Vitamin C with Dihydroquercetin
Zinc Lozenges with Vitamin C

INFLAMMATORY REACTIONS

Arthro-Immune Joint Support
ArthroMax™ with Theaflavins
Barlean's Kids DHA
Boswella
Boswella™ 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
Korean Angelica
5-LOXIN®
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Natural Relief 1222™ Cream
PhosphOmega™ Krill Oil
Perilla Oil
Serrafazyme
Shark Cartilage
SODzyme™ with GliSODin® and Wolfberry
Super Omega-3 EPA/DHA with Sesame
Lignans & Olive Fruit Extract
Udo's Choice Oil
Zyflamend Easy

Products

LIVER HEALTH

Branch Chain Amino Acids
HepatoPro
Mega Silymarin with Isosilybin B
N-Acetyl Cysteine
S-AMe
Silymarin

MINERALS

Biosil
Bone Restore
Bone Strength Formula w/KoAct™
Bone-Up™
Boron Capsules
Calcium Citrate with D3
Chromium Ultra
Copper
Iodoral
Iron Protein Plus
Magnesium
Magnesium Citrate
Mineral Formula for Men
Mineral Formula for Women
Only Trace Minerals
OptiZinc
Sea-Iodine™
Selenium
Se-Methylselenocysteine
Vanadyl Sulfate
Zinc/Vitamin C Lozenges

MISCELLANEOUS

Blood Pressure Monitor Arm Cuff Medium
Cell Sensor Gauss Meter™
Empty Gelatin Capsules
The Capsule Filler Machine
The Pill Cutter and Grinder

MITOCHONDRIAL SUPPORT

Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Mitochondrial Energy Optimizer
Optimized 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
Natural Stress Relief
Optimized Tryptopure™ Plus
S-AMe
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
MistOral III™ with CoQ10

MULTIVITAMIN

Children's Formula Life Extension Mix
Comprehensive Nutrient Pack
Life Extension Booster
Life Extension Mix™ Capsules
Life Extension Mix™ Powder
Life Extension Mix™ Tablets
Life Extension Mix™ w/o Copper Capsules
Life Extension Mix™ w/o Copper Powder
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

BetterWOMAN®
Optimized Cran-Max® with UTIRose™
5-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 Facial Mist
Antioxidant Rejuvenating Foot Cream
Antioxidant Rejuvenating Foot Scrub
Antioxidant Rejuvenating Hand Cream
Antioxidant Rejuvenating Hand Scrub
Anti-Redness & Blemish Lotion
Cellulite Suppress™ Formula
Corrective Clearing Mask
DHEA Skin Creme
Derma Whey
Dual-Action MicroDerm Abrasion
Essential Plant Lipids Reparative Serum
Face Master® Platinum
Face Rejuvenating Antioxidant Cream
Enhanced FernBlock® with Sendara™
Fine Line-Less
Hair Suppress Formula
Healing Mask
Hyaluronic Facial Moisturizer
Hydroderm®
Lavilin Underarm Deodorant
Life Extension Sun Protection Spray
Lifting & Tightening Complex
Melatonin Cream
Mild Facial Cleanser
NaPCA 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 Stem Cell Serum
Total Sun Protection Cream
Triple Action Under Eye Rejuvenator
Ultra Rejuvenex®
Ultra RejuveNight® w/ Progesterone
Ultra RejuveNight® w/o Progesterone
Ultra Lip Plumper
Ultra Wrinkle Relaxer
Under Eye Refining Serum
Under Eye Rescue Cream
Vitamin C Serum
Vitamin K Healing Cream

SOY

Natural Estrogen w/Pomegranate
Soy Power Powder
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
CocoaGold w/Beta Glucan
Coriolus Versicolor Super Strength
Enhanced Cinsulin® w/Glucose Management Proprietary Blend
EDTA
(European Leg Solution) Diosmin95
Fem Dophilus
GlucoFit™
Lustre™

Maitake SX-Fraction™
Menopause Solutions
Migra-eeze™
Natural Female Support
Pecta-Sol®
Potassium Iodide
Prelox® Natural Sex for Men®
Pyridoxamine
Rosmarinic Acid Extract

SPORTS PERFORMANCE

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

VITAMINS

Ascorbic Acid Powder
Ascorbyl Palmitate Capsules
Ascorbyl Palmitate Powder
B1
B2
B12
Beta-Carotene
Biotin Capsules
Biotin Powder
Buffered Vitamin C Powder
Calcium Ascorbate Powder
Complete B Complex
Eligen® B12
Folic Acid + B12
Folic Acid powder
Gamma E Tocopherol w/Sesame Lignans
Gamma E Tocopherol/Tocotrienols
Inositol Capsules
Inositol Powder
Liquid Emulsified Vitamin A
Mega Lycopene Extract
Methylcobalamin
MK-7
No-Flush Niacin
Optimized Folate
PABA Capsules
PABA Powder
Super Ascorbate C Capsules
Super Ascorbate C Powder
Super K w/Advanced K2 Complex
Tocotrienols w/Sesame Lignans
Vitamin B1 Powder
Vitamin B2 Powder
Vitamin B3 (Niacin) Capsules
Vitamin B5 Powder
Vitamin B6
Vitamin B12 Powder
Vitamin C
Vitamin D
Vitamin D3
Vitamin D3 w/Sea-Iodine™
Vitamin E Succinate
Vitamin K1

WEIGHT MANAGEMENT

Alli® Refill Pack
Belly Slim & Tone
Chitosan
CitriChrome
7-Keto DHEA
DHEA Complete
Enhanced Fiber Food
Fucoxanthin Slim™
HCA
Integra-Lean® Irvingia
Optimized Irvingia w/Phase 3™ Calorie Control Complex
Life Mix
Natural Appetite Control
SlimStyles® PGX Natural Weight Loss
Stevia Liquid Extract
Super CLA Blend w/Guarana and Sesame Lignans
Super CLA Blend w/Sesame Lignans
Udo's Choice Wholesome Fast Food Blend
WellBetX PGX® Soluble Fiber Blend

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail	Member Price	Qty	Total
A					
00449	ACETYL-L-CARNITINE - 500 mg, 100 caps	\$56.00	\$42.00		
	ACETYL-L-CARNITINE - 4 bottles of 100 caps	186.64	139.98		
00788	ACETYL-L-CARNITINE ARGINATE - 100 caps	59.00	44.25		
	ACETYL-L-CARNITINE ARGINATE - 4 bottles of 100 caps	203.96	152.97		
01308	ADVANCED LIPID CONTROL - 60 veg. caps	30.00	22.50		
	ADVANCED LIPID CONTROL - 4 bottles of 60 veg. caps	108.00	81.00		
01300	ADVANCED ORAL HYGIENE - 60 veg. mint lozenges	20.00	15.00		
	ADVANCED ORAL HYGIENE - 4 bottles of 60 veg. mint lozenges	72.00	54.00		
01417	AGAVE DIGESTIVE-IMMUNE SUPPORT - 360 grams of powder	30.00	22.50		
	AGAVE DIGESTIVE-IMMUNE SUPPORT - 4 bottles of powder	108.00	81.00		
00681	AHCC - 500 mg, 30 caps	48.98	36.74		
	AHCC - 4 bottles of 30 caps	174.20	130.65		
46925	ALLI® REFILL PACK - 60 mg, 120 caps	69.95	58.00		
00261	ALL-IN-ONE WEIGHT LOSS FORMULA - 300 caps	59.95	44.96		
	ALL-IN-ONE WEIGHT LOSS FORMULA - 2 bottles of 300 caps	110.00	82.50		
	ALL-IN-ONE WEIGHT LOSS FORMULA - 4 bottles of 300 caps	174.00	130.50		
00457	(SUPER) ALPHA-LIPOIC ACID w/BIOTIN - 250 mg, 60 caps	37.00	27.75		
	(SUPER) ALPHA-LIPOIC ACID w/BIOTIN - 4 bottles of 60 caps	128.00	96.00		
01420	ANTI-ALCOHOL ANTIOXIDANTS W/HEPATOPRO - 100 caps	18.00	13.50		
	ANTI-ALCOHOL ANTIOXIDANTS W/HEPATOPRO - 4 bottles of 100 caps	64.00	48.00		
00105	APPLE PECTIN POWDER - 227 grams of powder	14.75	11.06		
	APPLE PECTIN POWDER - 4 bottles of powder	55.00	41.25		
01012	ARGININE CAPS - 800 mg, 200 caps	26.50	19.88		
	ARGININE CAPS - 4 bottles of 200 caps	93.00	69.75		
01039	ARGININE/ORNITHINE CAPS - 500/250 mg, 100 caps	16.00	12.00		
	ARGININE/ORNITHINE CAPS - 4 bottles of 100 caps	58.00	43.50		
00038	ARGININE/ORNITHINE POWDER - 150 grams of powder	22.95	17.21		
	ARGININE/ORNITHINE POWDER - 4 bottles of powder	76.00	57.00		
01025	(L)-ARGININE FREE-FORM POWDER - 100 grams of powder	15.98	11.99		
	(L)-ARGININE FREE-FORM POWDER - 4 bottles of powder	57.24	42.93		
00040	(L)-ARGININE HCL - 1 kilogram of powder	118.00	88.50		
	(L)-ARGININE HCL - 4 bottles of powder	432.00	324.00		
01303	ARTHRONAX™ w/THEAFLAVINS - 120 veg. caps	44.00	33.00		
	ARTHRONAX™ w/THEAFLAVINS - 4 bottles of 120 veg. caps	160.00	120.00		
01404	ARTHRO-IMMUNE JOINT SUPPORT - 60 veg. caps	30.00	22.50		
	ARTHRO-IMMUNE JOINT SUPPORT - 4 bottles of 60 veg. caps	108.00	81.00		
00919	ARTICHOKE LEAF EXTRACT - 500 mg, 180 veg. caps	28.00	21.00		
	ARTICHOKE LEAF EXTRACT - 4 bottles of 180 veg. caps	101.52	76.14		
00086	(SUPER) ASCORBATE C POWDER - 8 oz of powder	26.99	20.24		
	(SUPER) ASCORBATE C POWDER - 4 bottles of powder	99.48	74.61		
00080	ASCORBIC ACID POWDER - 16 oz of powder vitamin C	38.00	28.50		
	ASCORBIC ACID POWDER - 4 bottles of powder vitamin C	139.72	104.79		
00082	ASCORBYL PALMITATE CAPSULES - 500 mg, 100 caps	22.50	16.88		
	ASCORBYL PALMITATE CAPSULES - 4 bottles of 100 caps	80.00	60.00		
00083	ASCORBYL PALMITATE POWDER - 100 grams of powder	32.00	24.00		
	ASCORBYL PALMITATE POWDER - 4 bottles of powder	120.00	90.00		
00888	(OPTIMIZED) ASHWAGANDHA EXTRACT - 60 veg. caps	10.00	7.50		
	(OPTIMIZED) ASHWAGANDHA EXTRACT - 4 bottles of 60 veg. caps	36.00	27.00		
00892	(LOW DOSE) ASPIRIN ENTERIC COATED - 81 mg, 500 tablets	10.00	7.50		
	(LOW DOSE) ASPIRIN ENTERIC COATED - 4 bottles of 500 tablets	36.00	27.00		
00708	ASTAXANTHIN - 2 mg, 30 softgels	10.25	7.69		

SUB-TOTAL OF COLUMN 1

No.		Retail	Member Price	Qty	Total
B					
01040	BELLY SLIM & TONE - 6 fl oz	\$42.00	\$31.50		
	BELLY SLIM & TONE - 4 bottles of 6 fl oz	152.00	114.00		
00920	BENFOTIAMINE W/ THIAMINE - 100 mg, 120 caps	19.95	14.96		
	BENFOTIAMINE W/ THIAMINE - 4 bottles of 120 caps	74.40	55.80		
00925	(MEGA) BENFOTIAMINE - 250 mg, 120 veg. caps	30.00	22.50		
	(MEGA) BENFOTIAMINE - 4 bottles of 120 veg. caps	108.00	81.00		
01206	BERRY COMPLETE - 30 veg. caps	21.00	15.75		
	BERRY COMPLETE - 4 bottles of veg. caps	74.68	56.00		
00664	BETA-CAROTENE - 25,000 IU, 100 softgels	10.98	8.24		
	BETA-CAROTENE - 4 bottles of 100 softgels	39.32	29.49		
00088	BETA-CAROTENE POWDER - 100 grams of powder	27.00	20.25		
	BETA-CAROTENE POWDER - 4 bottles of powder	100.00	75.00		
00653	BETTERWOMAN -40 caps	40.00	30.00		
	BETTERWOMAN - 4 bottles of 40 caps	152.00	114.00		
00497	BILBERRY EXTRACT - 100 mg, 100 caps	28.00	21.00		
	BILBERRY EXTRACT - 4 bottles of 100 caps	100.00	75.00		
*01006	BIOSIL™ - 5 mg, 30 veg. caps	18.95	15.16		
*01007	BIOSIL™ - 30 fl ml	29.99	23.99		
00102	BIOTIN CAPSULES - 600 mcg, 100 caps	7.50	5.63		
	BIOTIN CAPSULES - 4 bottles of 100 caps	26.00	19.50		
00145	BIOTIN POWDER - 30 grams of powder	12.50	9.38		
	BIOTIN POWDER - 4 bottles of powder	44.00	33.00		
01037	BLACKCURRANT FREEZE DRIED EXTRACT - 60 veg. caps	21.95	16.46		
01034	BLACKCURRANT JUICE CONCENTRATE - 12 fl. oz	17.95	13.46		
01008	BLAST™ - 600 grams of powder	26.95	20.21		
70000	BLOOD PRESSURE MONITOR-ARM CUFF (medium)	99.95	64.97		
70001	BLOOD PRESSURE MONITOR-WRIST (travel size)	69.95	45.47		
01214	BLUEBERRY EXTRACT - 60 veg. caps	22.50	16.88		
	BLUEBERRY EXTRACT - 4 bottles of 60 veg. caps	80.00	60.00		
01338	BLUEBERRY EXTRACT w/POMEGRANATE & COCOAGOLD™ - 60 veg. caps	30.00	22.50		
	BLUEBERRY EXTRACT w/POMEGRANATE & COCOAGOLD™ - 4 bottles of 60 veg. caps	108.00	81.00		
00811	BONE RESTORE - 150 caps	22.50	16.88		
	BONE RESTORE - 4 bottles of 150 caps	78.00	58.50		
01211	BONE STRENGTH FORMULA w/KOACT™ - 120 caps	42.00	31.50		
	BONE STRENGTH FORMULA w/KOACT™ - 4 bottles of 120 caps	152.00	114.00		
00313	BONE-UP® - 240 caps (hydroxyapatite complex)	24.95	18.71		
	BONE-UP® - 4 bottles of 240 caps	90.00	67.50		
01079	BOOSTER - 60 softgels	48.00	36.00		
	BOOSTER - 4 bottles of 60 softgels	176.00	132.00		
01380	(SUPER) BOOSTER w/ADVANCED K2 COMPLEX - 60 softgels	42.00	31.50		
	(SUPER) BOOSTER w/ADVANCED K2 COMPLEX - 4 bottles of 60 softgels	152.00	114.00		
00621	BORON CAPS - 3 mg, 100 caps	5.95	4.46		
	BORON CAPS - 4 bottles of 100 caps	21.00	15.75		
00202	BOSWELLA - 100 caps	38.00	28.50		
	BOSWELLA - 4 bottles of 100 caps	120.00	90.00		
00258	BOSWELLA TOPICAL CREAM - 4 oz jar	15.00	11.25		
	BOSWELLA TOPICAL CREAM - 4 jars	52.00	39.00		
00253	BRANCHED CHAIN AMINO ACIDS - 90 caps	19.50	14.63		
	BRANCHED CHAIN AMINO ACIDS - 4 bottles of 90 caps	68.00	51.00		
00999	BREAST HEALTH FORMULA - 60 veg. caps	34.00	25.50		
	BREAST HEALTH FORMULA - 4 bottles of 60 veg. caps	120.00	90.00		
00893	BRITE EYES III - 2 vials, 5 ml each	34.00	25.50		
	BRITE EYES III - 4 boxes	128.00	96.00		

SUB-TOTAL OF COLUMN 2

No.		Retail	Member Price	Qty	Total
00136	BROMELAIN POWDER - 100 grams of powder	\$21.00	\$15.75		
	BROMELAIN POWDER - 4 bottles of powder	75.00	56.25		
01203	(SPECIALLY COATED) BROMELAIN - 500 mg, 60 enteric coated tablets	21.00	15.75		
	(SPECIALLY COATED) BROMELAIN - 4 bottles of 60 tablets	76.00	57.00		
00884	BUTTERBUR EXT. W/ STANDARDIZED ROSMARINIC ACID - 60 softgels	44.00	33.00		
	BUTTERBUR EXT. W/ STANDARDIZED ROSMARINIC ACID - 4 bottles of 60 softgels	158.40	118.80		
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00146	CALCIUM ASCORBATE POWDER - 300 grams of powder	\$24.00	\$18.00		
	CALCIUM ASCORBATE POWDER - 4 bottles of powder	88.00	66.00		
00058	CALCIUM CARBONATE POWDER - 1 kilogram of powder	13.95	10.46		
	CALCIUM CARBONATE POWDER - 4 bottles of powder	52.00	39.00		
01015	CALCIUM CITRATE - 300 caps	24.00	18.00		
	CALCIUM CITRATE - 4 bottles of 300 caps	85.00	63.75		
00535	CALCIUM D-GLUCARATE - 200 mg, 60 caps	18.00	13.50		
	CALCIUM D-GLUCARATE - 4 bottles of 60 caps	60.00	45.00		
00149	CALCIUM/MAGNESIUM POWDER - 1 kilogram of powder	21.00	15.75		
	CALCIUM/MAGNESIUM POWDER - 4 bottles of powder	75.00	56.25		
01419	CALORIE RESTRICTION MIMETIC FORMULA - 60 veg. caps	36.00	27.00		
	CALORIE RESTRICTION MIMETIC FORMULA - 4 bottles of 60 veg. caps	132.00	99.00		
00118	CAPSULE FILLER MACHINE FOR "00" CAPSULES	12.00	9.00		
	CAPSULE FILLER MACHINE FOR "00" CAPSULES - 4 machines	45.00	33.75		
00613	CAPSULE FILLER MACHINE FOR "0" CAPSULES	12.00	9.00		
	CAPSULE FILLER MACHINE FOR "0" CAPSULES - 4 machines	45.00	33.75		
00916	(OPTIMIZED) CARNITINE w/GLYCOCARN® - 60 veg. caps	29.00	21.75		
	(OPTIMIZED) CARNITINE w/GLYCOCARN® - 4 bottles of 60 veg. caps	104.40	78.30		
01041	L-CARNITINE CAPSULES - 500 mg, 30 caps	15.00	11.25		
	L-CARNITINE CAPSULES - 4 bottles of 30 caps	52.80	39.60		
00051	L-CARNITINE POWDER - 100 grams of powder	85.00	63.75		
	L-CARNITINE POWDER - 4 bottles of powder	295.00	221.25		
01258	CARNOSSOOTHIE w/PICROPROTECT™ - 60 veg. caps	29.95	22.46		
	CARNOSSOOTHIE w/PICROPROTECT™ - 4 bottles of 60 veg. caps	108.00	81.00		
01287	(SUPER) CARNOSINE CAPS - 500 mg, 90 caps	66.00	49.50		
	(SUPER) CARNOSINE CAPS - 4 bottles of 90 caps	240.00	180.00		
01011	CELLULITE SUPPRESS™ FORMULA - 6 fl. oz	58.00	43.50		
	CELLULITE SUPPRESS™ FORMULA - 4-6oz bottles	208.00	156.00		
00390	CDP CHOLINE CAPS - 250 mg, 60 caps	36.00	27.00		
	CDP CHOLINE CAPS - 4 bottles of 60 caps	136.00	102.00		
00998	CELL SENSOR-EMF DETECTION/MEASUREMENT METER	39.95	29.95		
01370	CHILDREN'S FORMULA MIX - 100 chewable tablets	18.00	13.50		
	CHILDREN'S FORMULA MIX - 4 bottles of 100 chewable tablets	64.00	48.00		
00216	CHITOSAN - 250 mg, 180 caps	28.00	21.00		
	CHITOSAN - 4 bottles of 180 caps	100.00	75.00		
	CHITOSAN - 10 bottles of 180 caps	230.00	172.50		
00369	CHITOSAN - 500 mg, 180 caps	55.00	41.25		
	CHITOSAN - 4 bottles of 180 caps	200.00	150.00		
00550	CHLORELLA - 500 mg, 200 tablets	23.50	17.63		
	CHLORELLA - 4 bottles of 200 tablets	84.00	63.00		
01048	CHLOROPHYLLIN w/ZINC - 100 mg, 100 caps	24.00	18.00		
	CHLOROPHYLLIN w/ZINC - 4 bottles of 100 caps	80.00	60.00		
01045	CHLOROPLEX - 100 caps	28.00	21.00		
	CHLOROPLEX - 4 bottles of 100 caps	98.00	73.50		
	CHLOROPLEX - 12 bottles of 100 caps	256.00	192.00		
01359	CHO-LESS - 90 capsules	32.50	24.38		
00142	CHOLINE BITARTRATE - 300 grams of powder	17.75	13.31		
	CHOLINE BITARTRATE - 4 bottles of powder	64.00	48.00		

SUB-TOTAL OF COLUMN 3

No.		Retail	Member Price	Qty	Total
00541	CHOLINE CHLORIDE - 16 oz liquid	\$14.95	\$11.21		
	CHOLINE CHLORIDE - 4 bottles of 16 oz liquid	56.00	42.00		
00364	CHONDROITIN SULFATE CONCENTRATE - 400 mg, 60 tablets	19.95	14.96		
	CHONDROITIN SULFATE CONCENTRATE - 4 bottles of 60 tablets	72.00	54.00		
00169	CHROMIUM - 200 mcg polynicotinate, 365 caps	28.00	21.00		
	CHROMIUM - 4 bottles of 365 caps	104.00	78.00		
01071	CHROMIUM ULTRA - 100 veg. caps	24.00	18.00		
	CHROMIUM ULTRA - 4 bottles of 100 veg. caps	84.00	63.00		
00551	CILANTRO HERBAL EXTRACT - 1 oz	12.00	9.00		
	CILANTRO HERBAL EXTRACT - 4 bottles of 1oz	44.00	33.00		
01267	(ENHANCED) CINSULIN® w/GLUCOSE MGMT PROP BLEND - 90 veg. caps	32.00	24.00		
	(ENHANCED) CINSULIN® w/GLUCOSE MGMT PROP BLEND - 4 bottles of 90 veg. caps	120.00	90.00		
00223	CITRICHROME - 90 caps	22.95	17.21		
	CITRICHROME - 4 bottles of 90 caps	80.00	60.00		
00069	CITRUS BIOFLAVONOID - 100 caps	15.99	11.99		
	CITRUS BIOFLAVONOID - 4 bottles of 100 caps	59.28	44.46		
00818	(SUPER) CLA BLEND w/SESAME LIGNANS - 1000 mg, 120 softgels	36.00	27.00		
	(SUPER) CLA BLEND w/SESAME LIGNANS - 4 bottles of 120 softgels	132.00	99.00		
	(SUPER) CLA BLEND w/SESAME LIGNANS - 10 bottles, 120 softgels	263.30	197.48		
00819	(SUPER) CLA BLEND w/GUARANA & SESAME -120 softgels	42.00	31.50		
	(SUPER) CLA BLEND w/GUARANA & SESAME - 4 btls of 120 softgels	153.32	114.99		
00863	COCOAGOLD™ - 130 mg, 60 veg. caps	12.50	9.38		
	COCOAGOLD™ - 4 bottles of 60 veg. caps	44.00	33.00		
01285	COCOAGOLD™ w/BETA-GLUCAN POWDER - 180 grams	20.00	15.00		
	COCOAGOLD™ w/BETA-GLUCAN POWDER - 4 jars of 180 grams	72.00	54.00		
00050	COD LIVER OIL - 12 fl oz (355 ml) (Emulsified)	14.58	10.94		
	COD LIVER OIL - 4 bottles of 12 fl oz (355 ml)	49.08	36.81		
00293	COD LIVER OIL - 100 softgels (Emulsified)	9.95	7.46		
	COD LIVER OIL - 4 bottles of 100 softgels	37.52	28.14		
00922	COGNITEX w/PREGNENOLONE & NEUROPROTECTION COMPLEX - 90 softgels	74.00	55.50		
	COGNITEX w/PREGNENOLONE & NEUROPROTECTION COMPLEX - 4 btls of 90 softgels	266.40	199.80		
	COGNITEX w/PREGNENOLONE & NEUROPROTECTION COMPLEX - 12 btls of 90 softgels	768.00	576.00		
00921	COGNITEX w/α PREGNENOLONE w/NEUROPROTECTION COMPLEX - 90 softgels	72.00	54.00		
	COGNITEX w/α PREGNENOLONE w/NEUROPROTECTION COMPLEX - 4 bottles of 90 softgels	256.00	192.00		
	COGNITEX w/α PREGNENOLONE w/NEUROPROTECTION COMPLEX - 12 bottles of 90 softgels	744.00	558.00		
00110	COMPLETE B-COMPLEX - 180 caps	21.50	16.13		
	COMPLETE B-COMPLEX - 4 bottles of 180 caps	72.00	54.00		
01374	COMPREHENSIVE NUTRIENT PACK - 30-day supply	189.00	141.75		
	COMPREHENSIVE NUTRIENT PACK - 120-day supply	684.00	513.00		
00119	COPPER CAPSULES - 2 mg, 100 caps	8.95	6.71		
	COPPER CAPSULES - 4 bottles of 100 caps	32.36	24.27		
00208	(ENHANCED) COQ10 (with Brewer's Yeast) - 30 mg, 100 caps	32.00	24.00		
	(ENHANCED) COQ10 (with Brewer's Yeast) - 4 bottles of 100 caps	108.00	81.00		
	(ENHANCED) COQ10 (with Brewer's Yeast) - 10 bottles of 100 caps	245.00	183.75		
00949	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 50 mg, 60 softgels	25.00	18.75		
	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 4 bottles of 60 softgels	88.00	66.00		
	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 10 bottles of 60 softgels	200.00	150.00		
00950	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 100 mg, 100 softgels	66.00	49.50		
	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 4 bottles of 100 softgels	240.00	180.00		
	(SUPER ABSORBABLE) COQ10™ w/ d-LIMONENE - 10 bottles of 100 softgels	560.00	420.00		

SUB-TOTAL OF COLUMN 4

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail	Member Price	Qty	Total
C CONTINUED					
01226	(SUPER UBIQUINOL) COQ10 - 100 mg, 60 softgels	\$56.00	\$42.00		
	(SUPER UBIQUINOL) COQ10 - 4 bot of 60 softgels	208.00	156.00		
	(SUPER UBIQUINOL) COQ10 - 10 bot of 60 softgels	480.00	360.00		
01426	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -100 mg, 60 softgels	62.00	46.50		
	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -4 bot of 60 softgels	224.00	168.00		
	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -10 bot of 60 softgels	520.00	390.00		
01425	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -50 mg, 100 softgels	58.00	43.50		
	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -4 bot of 100 softgels	212.00	159.00		
	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -10 bot of 100 softgels	500.00	375.00		
01427	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -50 mg, 30 softgels	20.00	15.00		
	(SUPER UBIQUINOL) COQ10 w/ENH MITOCHONDRIAL SUPPORT™ -4 bot of 30 softgels	72.00	54.00		
01053	CORIOLUS VERSICOLOR SUPER STRENGTH - 600 mg, 150 veg. caps	99.95	74.96		
00857	COROMEGA CHILD BRAIN & BODY - (Lemon Lime) 30 packets	25.00	18.75		
	COROMEGA CHILD BRAIN & BODY - (Lemon Lime) 4 boxes of 30 packets	90.00	67.00		
80118	COSMESIS ANTI-AGING MASK - 2 oz bottle	66.60	49.95		
	COSMESIS ANTI-AGING MASK - 2-2 oz bottles	117.22	87.92		
80134	COSMESIS ANTI-GLYCATION SERUM - 1 oz bottle w/BLUEBERRY & POMEGRANATE EXTRACTS	24.00	18.00		
	COSMESIS ANTI-GLYCATION SERUM - 2-1 oz bottles w/BLUEBERRY & POMEGRANATE EXTRACTS	45.60	34.20		
80133	COSMESIS ANTIOXIDANT FACIAL MIST - 2 oz bottle	29.95	22.46		
	COSMESIS ANTIOXIDANT FACIAL MIST - 2-2 oz bottles	56.90	42.68		
80132	COSMESIS ANTIOXIDANT FACIAL MIST - 4 oz bottle	39.95	29.96		
	COSMESIS ANTIOXIDANT FACIAL MIST - 2-4 oz bottles	76.00	57.00		
80127	COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2 oz jar	39.95	29.96		
	COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2-2 oz jar	76.00	57.00		
80128	COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2 oz jar	52.95	39.71		
	COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2-2 oz jar	93.20	69.90		
80117	COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2 oz jar	59.00	44.25		
	COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2-2 oz jars	106.00	79.50		
80121	COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2 oz jar	52.95	39.71		
	COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2-2 oz jars	93.20	69.90		
80105	COSMESIS ANTI-REDNESS & BLEMISH LOTION - 1 oz	69.95	52.46		
	COSMESIS ANTI-REDNESS & BLEMISH LOTION - 2-1 oz bottles	123.12	92.34		
80120	COSMESIS CORRECTIVE CLEARING MASK - 2 oz jar	59.95	44.96		
	COSMESIS CORRECTIVE CLEARING MASK - 2-2 oz jars	105.52	79.14		
80108	COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 oz	71.60	53.70		
	COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 2-1 oz bottles	126.00	94.50		
80123	COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 oz jar	65.00	48.75		
	COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2-2 oz jars	114.40	85.80		
80107	COSMESIS FINE LINE-LESS - 1 oz	69.95	52.46		
	COSMESIS FINE LINE-LESS - 2-1 oz bottles	123.12	92.34		
80131	COSMESIS HAIR SUPPRESS FORMULA - 4 oz bottle	53.75	40.31		
	COSMESIS HAIR SUPPRESS FORMULA - 2- 4 oz bottles	94.60	70.95		
80115	COSMESIS HEALING MASK - 2 oz bottle	59.95	44.96		
	COSMESIS HEALING MASK - 2-2 oz bottles	105.52	79.14		
80109	COSMESIS HYALURONIC FACIAL MOISTURIZER - 1 oz	52.95	39.71		
	COSMESIS HYALURONIC FACIAL MOISTURIZER - 2 bottles of 1 oz	93.20	69.90		
80110	COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 1 oz	52.95	39.71		
	COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 2 btl of 1 oz	93.20	69.90		
80103	COSMESIS LIFTING & TIGHTENING COMPLEX - 1 oz	69.95	52.46		
	COSMESIS LIFTING & TIGHTENING COMPLEX - 2 bottles of 1 oz	123.12	92.34		
80135	COSMESIS MELATONIN CREAM - 1 oz jar	28.00	21.00		
	COSMESIS MELATONIN CREAM - 2 - 1 oz jars	46.00	34.50		

SUB-TOTAL OF COLUMN 5

No.		Retail	Member Price	Qty	Total
80114	COSMESIS MILD FACIAL CLEANSER - 8 oz	\$52.95	\$39.71		
	COSMESIS MILD FACIAL CLEANSER - 2 bottles of 8 oz	93.20	69.90		
80122	COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2 oz jar	59.00	44.25		
	COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2-2 oz jars	106.00	79.50		
80119	COSMESIS PEEL OFF CLEANSING MASK - 2 oz bottle	59.95	44.96		
	COSMESIS PEEL OFF CLEANSING MASK - 2-2 oz bottles	105.52	79.14		
80111	COSMESIS PIGMENT CORRECTING CREAM - 1/2 oz	69.95	52.46		
	COSMESIS PIGMENT CORRECTING CREAM - 2 bottles of 1/2 oz	123.12	92.34		
80106	COSMESIS REJUVENATING SERUM - 1 oz	69.95	52.46		
	COSMESIS REJUVENATING SERUM - 2 bottles of 1 oz	123.12	92.34		
80112	COSMESIS SKIN LIGHTENING SERUM - 1/2 oz	79.95	59.96		
	COSMESIS SKIN LIGHTENING SERUM - 2 bottles of 1/2 oz	140.72	105.54		
80130	COSMESIS SKIN STEM CELL SERUM - 1 oz	69.00	51.75		
	COSMESIS SKIN STEM CELL SERUM - 2 bottles of 1 oz	128.00	96.00		
80116	COSMESIS ULTRA LIP PLUMPER - 1/3 oz	59.95	44.96		
	COSMESIS ULTRA LIP PLUMPER - 2 bottles of 1/3 oz	105.52	79.14		
80101	COSMESIS ULTRA WRINKLE RELAXER - 1 oz	89.95	67.46		
	COSMESIS ULTRA WRINKLE RELAXER - 2 bottles of 1 oz	159.52	119.64		
80113	COSMESIS UNDER EYE REFINING SERUM - 1/2 oz	69.95	52.46		
	COSMESIS UNDER EYE REFINING SERUM - 2 bottles of 1/2 oz	123.12	92.34		
80104	COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz	69.95	52.46		
	COSMESIS UNDER EYE RESCUE CREAM - 2 bottles of 1/2 oz	123.12	92.34		
80129	COSMESIS VITAMIN C SERUM - 1 oz bottle	79.95	59.96		
	COSMESIS VITAMIN C SERUM - 2-1 oz bottles	140.72	105.54		
80102	COSMESIS VITAMIN K HEALING CREAM - 1 oz	74.95	56.21		
	COSMESIS VITAMIN K HEALING CREAM - 2 bottles of 1 oz	131.92	98.94		
00862	CRAN-MAX® - 500 mg, 60 veg. caps	17.50	13.13		
	CRAN-MAX® - 4 bottles of 60 veg. caps	60.00	45.00		
01424	(OPTIMIZED) CRAN-MAX® with UTIROSE™ - 60 veg. caps	18.00	13.50		
	(OPTIMIZED) CRAN-MAX® with UTIROSE™ - 4 bottles of 60 veg. caps	64.00	48.00		
00609	CREATINE CAPS MICRONIZED - 120 caps	10.95	8.21		
	CREATINE CAPS MICRONIZED - 4 bottles of 120 caps	37.00	27.75		
00610	CREATINE POWDER MICRONIZED - 500 grams of powder	29.00	21.75		
	CREATINE POWDER MICRONIZED - 4 bottles of powder	106.52	79.89		
01096	CREATINE-WHEY-GLUTAMINE POWDER - 1 kg vanilla	45.00	33.75		
	CREATINE-WHEY-GLUTAMINE POWDER - 4 bottles of powder	168.00	126.00		
00912	(SUPER) CURCUMIN W/BIOPERINE® - 800 mg, 60 caps	20.75	15.56		
	(SUPER) CURCUMIN W/BIOPERINE® - 4 bottles of 60 caps	74.72	56.04		
00407	(SUPER BIO) CURCUMIN® - 400 mg, 60 veg. caps	30.00	22.50		
	(SUPER BIO) CURCUMIN® - 4 bottles of 60 veg. caps	106.00	79.50		
00126	CYSTEINE ANHYDROUS POWDER - 300 grams of powder	28.50	21.38		
	CYSTEINE ANHYDROUS POWDER - 4 bottles of powder	105.00	78.75		
00064	(L) CYSTEINE CAPSULES - 500 mg, 60 caps	18.95	14.21		
	(L) CYSTEINE CAPSULES - 4 bottles of 60 caps	65.24	48.93		
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01313	DERMA WHEY- 400 mg, 60 caps	\$65.00	\$48.75		
	DERMA WHEY- 4 bottles of 60 caps	236.00	177.00		
00856	(BARLEAN'S KID'S) DHA (Fruit Punch Flavor)- 8 fl. oz	22.00	16.50		
	(BARLEAN'S KID'S) DHA (Fruit Punch Flavor)- 4 bottles of 8 fl. oz	80.00	60.00		
00995	DHA 240 - 240 mg, 60 softgels	19.00	14.25		
	DHA 240 - 4 bottles of 60 softgels	68.00	51.00		
00658	7-KETO® DHEA METABOLITE - 25 mg, 100 caps	28.00	21.00		
	7-KETO® DHEA METABOLITE - 4 bottles of 100 caps	96.00	72.00		
01271	7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps	40.00	30.00		
	7-KETO® DHEA METABOLITE - 4 bottles of 60 veg. caps	144.00	108.00		

SUB-TOTAL OF COLUMN 6

No.		Retail	Member Price	Qty	Total
00607	DHEA - 25 mg dissolve in mouth 100 tablets pharmaceutical-grade	\$14.00	\$10.50		
	DHEA - 4 bottles of 100 tablets pharmaceutical-grade	47.00	35.25		
01250	DHEA COMPLETE - 60 veg. caps	48.00	36.00		
	DHEA COMPLETE - 4 bottles of 60 veg. caps	172.80	129.60		
00335	DHEA - 25 mg, 100 caps	15.00	11.25		
	DHEA - 4 bottles of 100 caps	50.00	37.50		
00454	DHEA - 15 mg, 100 caps	12.00	9.00		
	DHEA - 4 bottles of 100 caps	40.00	30.00		
00882	DHEA - 50 mg, 60 caps	16.00	12.00		
	DHEA - 4 bottles of 60 caps	56.00	42.00		
00883	DHEA - 100 mg, 60 caps	22.50	16.88		
	DHEA - 4 bottles of 60 caps	76.00	57.00		
01058	DHEA SKIN CREME - 1.7 oz pump	29.99	22.49		
01358	DIGEST RC - 30 tablets	19.95	14.96		
	DIGEST RC - 4 boxes of 30 tablets	68.00	51.00		
01272	(ENHANCED SUPER) DIGESTIVE ENZYMES - 100 veg. caps	18.95	14.21		
	(ENHANCED SUPER) DIGESTIVE ENZYMES - 4 bottles of 100 veg. caps	64.00	48.00		
01273	(ENHANCED SUPER) DIGESTIVE ENZYMES w/PROBIOTICS - 100 veg. caps	24.00	18.00		
	(ENHANCED SUPER) DIGESTIVE ENZYMES w/PROBIOTICS - 4 bottles of 100 veg. caps	88.00	66.00		
00114	DILAURYL THIODIPROPIONATE POWDER - 100 grams of powder	22.00	16.50		
	DILAURYL THIODIPROPIONATE POWDER - 4 bottles of powder	80.00	60.00		
*01042	(EUROPEAN LEG SOLUTION) DIOSMIN95 - 600 mg, 30 veg. tabs	20.00	15.00		
	(EUROPEAN LEG SOLUTION) DIOSMIN95 - 4 bottles of 30 veg. tabs	72.00	54.00		
00034	D,L-PHENYLALANINE CAPSULES - 500 mg, 100 caps	18.75	14.06		
	D,L-PHENYLALANINE CAPSULES - 4 bottles of 100 caps	64.00	48.00		
00033	D,L-PHENYLALANINE PLUS POWDER - 100 grams of powder	26.00	19.50		
	D,L-PHENYLALANINE PLUS POWDER - 4 bottles of powder	86.00	64.50		
00257	DMAE BITARTRATE - 150 mg, 200 caps	14.00	10.50		
	DMAE BITARTRATE - 4 bottles of 200 caps	42.00	31.50		
00022	DMAE POWDER (37% DMAE) - 100 grams of powder	24.00	18.00		
	DMAE POWDER (37% DMAE) - 4 bottles of powder	80.00	60.00		
00197	DMAE-GINKGO CAPSULES - 100 caps	36.00	27.00		
	DMAE-GINKGO CAPSULES - 4 bottles of 100 caps	120.00	90.00		
	DMAE-GINKGO CAPSULES - 8 bottles of 100 caps	220.00	165.00		
00059	DMG - 125 mg dimethylglycine, 60 tablets	18.50	13.88		
	DMG - 4 boxes of 60 tablets	68.00	51.00		
01052	DNA PROTECTION FORMULA - 60 veg. caps	28.00	21.00		
	DNA PROTECTION FORMULA - 4 bottles of 60 veg. caps	100.80	75.60		
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA - 2 oz	39.95	29.96		
	DR. PROCTOR'S ADVANCED HAIR FORMULA - 4 bottles	128.00	96.00		
00320	DR. PROCTOR'S HAIR FORMULA SHAMPOO - 8 oz bottle	24.95	18.71		
	DR. PROCTOR'S HAIR FORMULA SHAMPOO - 4 bottles	88.00	66.00		
00376	DR. TUNG'S TONGUE CLEANER	8.45	6.34		
	DR. TUNG'S TONGUE CLEANERS - 4 quantity	32.20	24.15		
00899	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 2.4 net oz jar	39.95	29.96		
	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 4 jars of 2.4 net oz	155.80	116.85		
00240	DUAL-C - 90 caps	12.00	9.00		
	DUAL-C - 4 bottles of 90 caps	42.00	31.50		
E					
00388	ECHINACEA - 250 mg, 60 caps	\$14.35	\$10.76		
	ECHINACEA - 4 bottles of 60 caps	50.00	37.50		
01024	EDTA - 500 mg, 100 caps	17.50	13.13		

* 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 and cannot be sold into the health food retail store channel.

† Member pricing not valid on this item.

SUB-TOTAL OF COLUMN 7

No.		Retail	Member Price	Qty	Total
01403	ELIGEN® B12 - 100 mcg 30 veg tablets	\$28.00	\$21.00		
	ELIGEN® B12 - 4 bottles of 30 veg tablets	100.00	75.00		
01497	ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™ - 60 softgels	58.00	43.50		
	ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™ - 4 bottles of 60 softgels	216.00	162.00		
01297	ENDOTHELIAL DEFENSE™ w/GLISODIN® and COCOAGOLD™ - 60 veg. caps	54.00	40.50		
	ENDOTHELIAL DEFENSE™ w/GLISODIN® AND COCOAGOLD™ - 4 bottles of 60 veg. caps	192.00	144.00		
00048	(EMULSIFIED SUPER TWIN) EPA/DHA - 12 fl. oz.	22.45	16.84		
00625	(MEGA) EPA/DHA - 120 softgels	19.95	14.96		
	(MEGA) EPA/DHA - 4 bottles of 120 softgels	72.00	54.00		
F					
†01054	FACE MASTER® PLATINUM	\$199.00	\$199.00		
00965	FAST-ACTING JOINT FORMULA - 30 caps	39.00	29.25		
	FAST-ACTING JOINT FORMULA - 4 bottles of 30 caps	144.00	108.00		
20053	FEM DOPHILUS® - 30 caps	24.95	18.71		
20055	FEM DOPHILUS® - 60 caps	35.95	26.96		
*01311	(ENHANCED) FERNBLOCK® w/SENDARA™ - 30 veg. caps	39.00	29.25		
	(ENHANCED) FERNBLOCK® w/SENDARA™ - 4 bottles of 30 veg. caps	140.00	105.00		
00229	FIBER FOOD CAPS - 200 caps	15.00	11.25		
	FIBER FOOD CAPS - 4 bottles of 200 caps	50.00	37.50		
	FIBER FOOD CAPS - 10 bottles of 200 caps	119.00	89.25		
00228	FIBER FOOD - 300 grams of powder	15.00	11.25		
	FIBER FOOD - 4 bottles of powder	50.00	37.50		
	FIBER FOOD - 10 bottles of powder	119.00	89.25		
01307	(ENHANCED) FIBER FOOD POWDER - 453 grams of powder	34.00	25.50		
	(ENHANCED) FIBER FOOD POWDER - 4 jars of powder	120.00	90.00		
00718	FIBRINOGEN RESIST FORMULA (NATTOKINASE) - 30 veg. caps	49.00	36.75		
	FIBRINOGEN RESIST FORMULA (NATTOKINASE) - 4 bottles of 30 caps	176.00	132.00		
00873	FLAXSEED POWDER (HI-LIGNAN NUTRI-FLAX) - 16 oz powder	9.95	7.46		
01200	FLORASTOR® - 250 mg, 50 caps	55.15	41.36		
01312	(OPTIMIZED) FOLATE (5-METHYLTETRAHYDROFOLATE) - 100 veg. caps	28.00	21.00		
	(OPTIMIZED) FOLATE (5-METHYLTETRAHYDROFOLATE) - 4 bottles of 100 veg. caps	100.00	75.00		
00347	FOLIC ACID + B12 CAPSULES - 200 caps	10.50	7.88		
	FOLIC ACID + B12 CAPSULES - 4 bottles of 200 caps	38.00	28.50		
00148	FOLIC ACID POWDER - 30 grams of powder	16.00	12.00		
	FOLIC ACID POWDER - 4 bottles of powder	55.00	41.25		
00300	FORSKOLIN - 10 mg, 60 caps of elemental forskolin	15.00	11.25		
	FORSKOLIN - 4 bottles of 60 caps of elemental forskolin	50.00	37.50		
00993	FUCOXANTHIN-SLIM™ - 90 softgels	44.00	33.00		
	FUCOXANTHIN-SLIM™ - 4 bottles of 90 softgels	156.00	117.00		
G					
00127	GABA POWDER - 100 grams of powder	\$23.75	\$17.81		
	GABA POWDER - 4 bottles of powder	90.00	67.50		
00559	GAMMA E TOCOPHEROL/TOCOTRIENOLS - 60 softgels	42.00	31.50		
	GAMMA E TOCOPHEROL/TOCOTRIENOLS - 4 bottles of 60 softgels	148.00	111.00		
00759	GAMMA E TOCOPHEROL w/SESAME LIGNANS - 60 softgels	32.00	24.00		
	GAMMA E TOCOPHEROL w/SESAME LIGNANS - 4 bottles of 60 softgels	116.00	87.00		
00612	GELATIN CAPSULES - Set of 1000 empty caps size "0"	15.00	11.25		
	GELATIN CAPSULES - 4 Sets	56.00	42.00		
00117	GELATIN CAPSULES - Set of 1000 empty caps size "00"	19.00	14.25		
	GELATIN CAPSULES - 4 Sets	72.00	54.00		
01301	GH PITUITARY SUPPORT DAY FORMULA - 120 vegetarian tabs	48.00	36.00		
	GH PITUITARY SUPPORT DAY FORMULA - 4 bottles of 120 veg. tabs	176.00	132.00		
01302	GH PITUITARY SUPPORT NIGHT FORMULA - 120 veg. caps	25.00	18.75		
	GH PITUITARY SUPPORT NIGHT FORMULA - 4 bottles of 120 veg. caps	90.00	67.50		
00778	GINKGO BILOBA CERTIFIED EXTRACT™ - 120 mg, 365 caps	46.00	34.50		
	GINKGO BILOBA CERTIFIED EXTRACT™ - 2 bottles of 365 caps	87.00	65.25		

SUB-TOTAL OF COLUMN 8

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail	Member Price	Qty	Total
G CONTINUED					
00504	(SUPER) GINKGO EXTRACT - 120 mg, 100 caps	\$29.00	\$21.75		
	(SUPER) GINKGO EXTRACT - 4 bottles of 100 caps	106.00	79.50		
01032	(PANAX RED) GINSENG - 60 veg. caps	29.99	22.49		
00756	(MEGA) GLA WITH SESAME LIGNANS - 60 softgels	19.50	14.63		
	(MEGA) GLA WITH SESAME LIGNANS - 4 bottles of 60 softgels	72.00	54.00		
00345	(L) GLUTAMINE CAPSULES - 500 mg, 100 caps	14.95	11.21		
	(L) GLUTAMINE CAPSULES - 4 bottles of 100 caps	54.00	40.50		
00141	(L)-GLUTAMINE POWDER - 100 grams of powder	19.00	14.25		
	(L)-GLUTAMINE POWDER - 4 bottles of powder	67.52	50.64		
00522	GLUCOSAMINE/CHONDROITIN CAPSULES - 100 caps	38.00	28.50		
	GLUCOSAMINE/CHONDROITIN CAPSULES - 4 bottles of 100 caps	128.00	96.00		
00512	GLUCOFIT™ (COROSOLIC ACID) - 100 softgels	28.00	21.00		
	GLUCOFIT™ (COROSOLIC ACID) - 4 bottles of 100 softgels	100.00	75.00		
00113	GLUTATHIONE, C & CYSTEINE - 750 mg, 100 caps	18.00	13.50		
	GLUTATHIONE, C & CYSTEINE - 4 bottles of 100 caps	64.00	48.00		
00314	(MEGA) L-GLUTATHIONE - 250 mg, 60 caps	35.95	26.96		
	(MEGA) L-GLUTATHIONE - 4 bottles of 60 caps	129.44	97.08		
00795	GLYCINE CAPSULES - 1000 mg, 100 caps	12.00	9.00		
	GLYCINE CAPSULES - 4 bottles of 100 caps	43.20	32.40		
00128	GLYCINE POWDER - 300 grams of powder	18.00	13.50		
	GLYCINE POWDER - 4 bottles of powder	64.00	48.00		
01091	(WHOLE) GRAPE EXTRACT w/RESVERATROL - 60 veg. caps	36.00	27.00		
	(WHOLE) GRAPE EXTRACT w/RESVERATROL - 4 bottles of 60 veg. caps	136.00	102.00		
01411	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE-100 mg, 60 veg. caps	36.00	27.00		
	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE-4 bottles of 60 veg. caps	136.00	102.00		
00203	GREEN TEA LEAVES - 300 grams of powder	15.00	11.25		
	GREEN TEA LEAVES - 4 bottles of powder	50.00	37.50		
00953	(MEGA) GREEN TEA EXTRACT - lightly caffeinated - 100 veg. caps	28.00	21.00		
	(MEGA) GREEN TEA EXTRACT - 4 bottles of 100 veg. caps	106.00	79.50		
00954	(MEGA) GREEN TEA EXTRACT - decaffeinated - 100 veg. caps	28.00	21.00		
	(MEGA) GREEN TEA EXTRACT - 4 bottles of 100 veg. caps	106.00	79.50		
H					
00230	HCA - 90 caps	\$18.00	\$13.50		
	HCA - 4 bottles of 90 caps	62.00	46.50		
01405	HEALTHY HAIR SPRAY - 5 fl. oz (150 ml) 1 bottle	35.00	26.25		
	HEALTHY HAIR SPRAY - 4 bottles of 5 fl. oz	128.00	96.00		
00656	HEPATOPRO - 900 mg, 60 softgel	49.50	37.13		
	HEPATOPRO - 4 bottles of 60 softgel	188.00	141.00		
00138	HESPERIDIN COMPLEX POWDER - 300 grams of powder	19.00	14.25		
	HESPERIDIN COMPLEX POWDER - 4 bottles of powder	65.00	48.75		
00873	HI-LIGNAN NUTRI-FLAX - 16 oz powder	9.95	7.46		
00800	HOMOCYSTEINE RESIST - 100 caps	24.00	18.00		
	HOMOCYSTEINE RESIST - 4 bottles of 100 caps	86.40	64.80		
00067	HOODIA GORDONII - 60 caps	14.00	10.50		
00627	HUPERZINE A W/NATURAL VITAMIN E - 50 mcg, 60 caps	27.95	20.96		
	HUPERZINE A W/NATURAL VITAMIN E - 4 bottles of 60 caps	96.00	72.00		
00661	HYDRODERM® - 1 oz bottle	79.95	59.96		
	HYDRODERM® - 2 - 1 oz bottles	130.66	98.00		
I					
01060	i26 HYPERIMMUNE EGG - 140 grams of powder	\$49.99	\$42.00		
00955	IMMUNE PROTECT W/PARACTIN® - 30 veg. caps	29.50	22.13		
	IMMUNE PROTECT W/PARACTIN® - 4 bottles of 30 veg. caps	106.20	79.65		
01049	INNERPOWER™ W/SWEET STEVIA - Tropical Flavor Powder	42.00	31.50		
00155	INOSINE CAPSULES - 500 mg, 60 caps	22.95	17.21		
	INOSINE CAPSULES - 4 bottles of 60 caps	84.00	63.00		

SUB-TOTAL OF COLUMN 9

No.		Retail	Member Price	Qty	Total
00140	INOSINE POWDER - 100 grams of powder	\$52.00	\$39.00		
	INOSINE POWDER - 4 bottles of powder	180.00	135.00		
00109	INOSITOL CAPSULES - 500 mg, 100 caps	14.99	11.24		
	INOSITOL CAPSULES - 4 bottles of 100 caps	55.16	41.37		
00410	INOSITOL CAPSULES - 1000 mg, 360 caps	48.00	36.00		
	INOSITOL CAPSULES - 4 bottles of 360 caps	175.00	131.25		
00108	INOSITOL POWDER - 100 grams of powder	18.00	13.50		
	INOSITOL POWDER - 4 bottles of powder	67.52	50.64		
01021	INTACT™ DIGEST - 8 fl oz	29.95	22.46		
	INTACT™ DIGEST - 4 - 8 fl oz bottles	112.00	84.00		
01292	INTEGRA-LEAN® IRVINGIA - 150 mg, 60 veg. caps	56.00	42.00		
	INTEGRA-LEAN® IRVINGIA - 4 bottles of 60 veg. caps	192.00	144.00		
01002	IODORAL - 180 caps	50.00	37.50		
00563	IRON PROTEIN PLUS - 300 mg, 100 caps	24.00	18.00		
	IRON PROTEIN PLUS - 4 bottles of 100 caps	88.00	66.00		
01492	(OPTIMIZED) IRVINGIA W/PHASE 3™ - 120 veg. caps	78.00	58.50		
	CALORIE CONTROL COMPLEX				
	(OPTIMIZED) IRVINGIA w/PHASE 3™ - 4 bottles of 120 veg. caps	288.00	216.00		
	CALORIE CONTROL COMPLEX				
J, K					
00056	JARRO-DOPHILUS EPS™ - 60 veg. caps	\$19.95	\$14.96		
01224	(SUPER) K WITH ADVANCED K2 COMPLEX - 90 softgels	26.00	19.50		
	(SUPER) K WITH ADVANCED K2 COMPLEX - 4 bottles of 90 softgels	92.00	69.00		
01050	NKO KRILL OIL - 60 softgels	33.95	25.46		
00316	KYOLIC® GARLIC FORMULA 102 - 350 mg, 200 caps	23.95	17.96		
	KYOLIC® GARLIC FORMULA 102 - 4 bottles of 200 caps	82.00	61.50		
00214	KYOLIC® GARLIC FORMULA 105 - 200 caps	22.95	17.21		
	KYOLIC® GARLIC FORMULA 105 - 4 bottles of 200 caps	73.00	54.75		
00789	KYOLIC® RESERVE - 600 mg, 120 caps	24.75	18.56		
	KYOLIC® RESERVE - 4 bottles of 120 caps	85.80	64.36		
L					
00513	LACTOFERRIN (APOLACTOFERRIN) CAPS - 300 mg, 60 caps	\$40.00	\$30.00		
	LACTOFERRIN (APOLACTOFERRIN) CAPS - 4 bottles of 60 caps	144.00	108.00		
00017	LAVILIN UNDERARM DEODORANT - 12.5 grams of cream	15.00	11.25		
	LAVILIN UNDERARM DEODORANT - 4 jars of cream	55.00	41.25		
01003	LIFE EXTENSION CAT MIX - 100 grams of powder	15.00	11.25		
	LIFE EXTENSION CAT MIX - 4 bottles of powder	48.00	36.00		
00544	LIFE EXTENSION DOG MIX - 100 grams of powder	19.50	14.63		
	LIFE EXTENSION DOG MIX - 4 bottles of powder	64.00	48.00		
00010	LIFE EXTENSION HAIR CONDITIONER - 16 oz bottle	6.00	4.50		
	LIFE EXTENSION HAIR CONDITIONER - 4 bottles	18.00	13.50		
00020	LIFE EXTENSION LECITHIN GRANULES - 16 oz. jar	15.00	11.25		
	LIFE EXTENSION LECITHIN GRANULES - 4 jars	50.00	37.50		
00019	LIFE EXTENSION LECITHIN w/B5 AND BHA - 16 oz. jar	15.00	11.25		
	LIFE EXTENSION LECITHIN w/B5 AND BHA - 4 16 oz. 4 jars	50.00	37.50		
01455	LIFE EXTENSION MIX™ - 315 tablets	98.00	73.50		
	LIFE EXTENSION MIX™ - 4 bottles of 315 tablets	344.00	258.00		
	LIFE EXTENSION MIX™ - 10 bottles of 315 tablets	695.00	521.25		
01457	LIFE EXTENSION MIX™ w/EXTRA NIACIN - 315 tablets	98.00	73.50		
	LIFE EXTENSION MIX™ w/EXTRA NIACIN - 4 bottles of 315 tablets	344.00	258.00		
	LIFE EXTENSION MIX™ w/EXTRA NIACIN - 10 bottles of 315 tablets	695.00	521.25		
01454	LIFE EXTENSION MIX™ - 490 caps	110.00	82.50		
	LIFE EXTENSION MIX™ - 4 bottles of 490 caps	392.00	294.00		
	LIFE EXTENSION MIX™ - 10 bottles of 490 caps	850.00	637.50		
01456	LIFE EXTENSION MIX™ POWDER - 14.81 oz of powder	98.00	73.50		
	LIFE EXTENSION MIX™ POWDER - 4 bottles of powder	344.00	258.00		
	LIFE EXTENSION MIX™ POWDER - 10 bottles of powder	720.00	540.00		

SUB-TOTAL OF COLUMN 10

No.		Retail	Member Price	Qty	Total
01465	LIFE EXTENSION MIX™ - 315 tablets without copper	\$98.00	\$73.50		
	LIFE EXTENSION MIX™ - 4 bottles of 315 tablets without copper	344.00	258.00		
	LIFE EXTENSION MIX™ - 10 bottles of 315 tablets without copper	695.00	521.25		
01467	LIFE EXTENSION MIX™ w/EXTRA NIACIN 315 tablets w/o copper	98.00	73.50		
	LIFE EXTENSION MIX™ w/EXTRA NIACIN 4 bottles of 315 tablets w/o copper	344.00	258.00		
	LIFE EXTENSION MIX™ w/EXTRA NIACIN 10 bottles of 315 tablets w/o copper	695.00	521.25		
01464	LIFE EXTENSION MIX™ - 490 caps without copper	110.00	82.50		
	LIFE EXTENSION MIX™ - 4 bottles of 490 caps without copper	392.00	294.00		
	LIFE EXTENSION MIX™ - 10 bottles of 490 caps without copper	850.00	637.50		
01466	LIFE EXTENSION MIX™ POWDER - 14.81 oz of powder without copper	98.00	73.50		
	LIFE EXTENSION MIX™ POWDER - 4 bottles of powder without copper	344.00	258.00		
	LIFE EXTENSION MIX™ POWDER - 10 bottles of powder without copper	720.00	540.00		
01279	LIFE EXTENSION MOUTHWASH w/POMEGRANATE - 16 oz bottle	18.50	13.88		
	LIFE EXTENSION MOUTHWASH w/POMEGRANATE - 4 -16 oz bottle	68.00	51.00		
01401	LIFE EXTENSION ONE-PER-DAY - 60 veg. tablets	19.95	14.96		
	LIFE EXTENSION ONE-PER-DAY - 4 bottles of 60 veg. tablets	72.00	54.00		
00011	LIFE EXTENSION SHAMPOO - 16 oz bottle	6.00	4.50		
	LIFE EXTENSION SHAMPOO - 4 bottles	19.00	14.25		
01278	LIFE EXTENSION TOOTHPASTE MINT FLAVOR - 4 oz	9.50	7.13		
	LIFE EXTENSION TOOTHPASTE MINT FLAVOR - 4, 4 oz tubes	34.68	26.00		
01416	LIFE EXTENSION TWO-PER-DAY - 60 veg. tablets	9.95	7.46		
	LIFE EXTENSION TWO-PER-DAY - 4 bottles of 60 veg. tablets	36.00	27.00		
01415	LIFE EXTENSION TWO-PER-DAY - 120 veg. tablets	18.95	14.21		
	LIFE EXTENSION TWO-PER-DAY - 4 bottles of 120 veg. tablets	68.00	51.00		
00263	LIFE FLORA™ - 300 mg, 120 caps	20.50	15.38		
	LIFE FLORA™ - 4 bottles of 120 caps	75.00	56.25		
00032	LIFE MIX - 1 lb can of powder	25.00	18.75		
	LIFE MIX - 4 cans of powder	90.00	67.50		
00294	LIQUID EMULSIFIED VITAMIN A DROPS - 20,000 IU per drop	27.00	20.25		
	LIQUID EMULSIFIED VITAMIN A DROPS - 4 bottles	96.00	72.00		
00939	5-LOXIN® - 75 mg, 100 veg. caps	19.50	14.63		
	5-LOXIN® - 4 bottles of 100 veg. caps	69.00	51.75		
01013	L-LYSINE CAPSULES - 620 mg, 100 caps	9.00	6.75		
	L-LYSINE CAPSULES - 4 bottles of 100 caps	32.00	24.00		
00129	L-LYSINE POWDER - 300 grams of powder	16.00	12.00		
	L-LYSINE POWDER - 4 bottles of powder	55.00	41.25		
01017	LUSTRE™ - 90 tablets	17.50	13.13		
	LUSTRE™ - 4 bottles of 90 tablets	62.00	46.50		
01014	LUTEIN PLUS - 150 grams of powder	25.00	18.75		
	LUTEIN PLUS - 4 bottles of powder	88.00	66.00		
01028	LYCOPENE - 10 mg, 60 softgels	24.98	18.74		
00455	(MEGA) LYCOPENE EXTRACT - 15 mg, 90 softgels	35.00	26.25		
	(MEGA) LYCOPENE EXTRACT - 4 bottles of 90 softgels	120.00	90.00		
M					
01044	MAGNESIUM CAPS - 500 mg, 100 caps	\$9.50	\$7.13		
	MAGNESIUM CAPS - 4 bottles of 100 caps	32.00	24.00		
00502	MAGNESIUM CITRATE CAPS - 160 mg, 100 caps	9.00	6.75		
	MAGNESIUM CITRATE CAPS - 4 bottles of 100 caps	30.00	22.50		
00057	MAGNESIUM OXIDE POWDER - 1 kilogram of powder	14.00	10.50		
	MAGNESIUM OXIDE POWDER - 4 bottles of powder	52.52	39.39		
00704	MAITAKE™ SX-FRACTION - 90 veg. tablets	49.95	37.46		
00547	MELATONIN - 300 mcg, 100 caps	5.75	4.31		
	MELATONIN - 4 bottles of 100 caps	20.00	15.00		

SUB-TOTAL OF COLUMN 11

No.		Retail	Member Price	Qty	Total
00328	MELATONIN CAPSULES - 500 mcg, 200 caps	\$16.00	\$12.00		
	MELATONIN CAPSULES - 4 bottles of 200 caps	56.00	42.00		
00329	MELATONIN CAPSULES - 1 mg, 60 caps	5.00	3.75		
	MELATONIN CAPSULES - 4 bottles of 60 caps	18.52	13.89		
00330	MELATONIN CAPSULES - 3 mg, 60 caps	8.00	6.00		
	MELATONIN CAPSULES - 4 bottles of 60 caps	27.52	20.64		
00333	MELATONIN CAPSULES - 3 mg, 60 time-release caps	10.50	7.88		
	MELATONIN CAPSULES - 4 bottles of 60 time-release caps	37.52	28.14		
00331	MELATONIN CAPSULES - 10 mg, 60 caps	28.00	21.00		
	MELATONIN CAPSULES - 4 bottles of 60 caps	96.00	72.00		
00332	MELATONIN LOZENGES - 3 mg, 60 dissolve-in-mouth lozenges	8.00	6.00		
	MELATONIN LOZENGES - 4 bottles of 60 dissolve-in-mouth lozenges	27.52	20.64		
00546	MELATONIN TIME RELEASE - 300 mcg, 100 caps	6.25	4.69		
	MELATONIN TIME RELEASE - 4 bottles of 100 caps	22.52	16.89		
00540	MELATONIN TIME RELEASE - 750 mcg, 60 caps	5.75	4.31		
	MELATONIN TIME RELEASE - 4 bottles of 60 caps	20.00	15.00		
01009	MEMORY UPGRADE - 600 grams powder	26.95	20.21		
01047	MENOPAUSE SOLUTIONS - 120 tablets	49.95	37.46		
00536	METHYLCOBALAMIN - 1 mg, 60 dissolve-in-mouth lozenges (vanilla)	9.95	7.46		
	METHYLCOBALAMIN - 4 bottles of 60 dissolve-in-mouth lozenges	32.00	24.00		
00537	METHYLCOBALAMIN - 5 mg, 60 dissolve-in-mouth lozenges (vanilla)	32.00	24.00		
	METHYLCOBALAMIN - 4 bottles of 60 dissolve-in-mouth lozenges	100.00	75.00		
	METHYLCOBALAMIN - 10 bottles of 60 dissolve-in-mouth lozenges	230.00	172.50		
00130	L-METHIONINE POWDER - 100 grams of powder	22.00	16.50		
	L-METHIONINE POWDER - 4 bottles of powder	75.00	56.25		
00709	MIGRA-EEZE (BUTTERBUR) - 60 softgels	29.50	22.13		
	MIGRA-EEZE (BUTTERBUR) - 4 bottles of 60 softgels	105.32	79.00		
00623	MINERAL FORMULA FOR MEN - 100 caps	15.00	11.25		
	MINERAL FORMULA FOR MEN - 4 bottles of 100 caps	50.00	37.50		
	MINERAL FORMULA FOR MEN - 12 bottles of 100 caps	130.00	97.50		
00624	MINERAL FORMULA FOR WOMEN - 100 caps	15.00	11.25		
	MINERAL FORMULA FOR WOMEN - 4 bottles of 100 caps	50.00	37.50		
	MINERAL FORMULA FOR WOMEN - 12 bottles of 100 caps	130.00	97.50		
01315	(SUPER) MIRAFORTE w/STANDARDIZED LIGNANS - 120 caps	62.00	46.50		
	(SUPER) MIRAFORTE w/STANDARDIZED LIGNANS - 4 bottles of 120 caps	224.00	168.00		
01368	MITOCHONDRIAL ENERGY OPTIMIZER - 120 caps	86.00	64.50		
	MITOCHONDRIAL ENERGY OPTIMIZER - 4 bottles of 120 caps	312.00	234.00		
00803	MISTORAL III w/COQ10 - 2 fl oz bottle	28.00	21.00		
	MISTORAL III w/COQ10 - 4 bottles	101.32	75.99		
00065	MK-7 - 90 mcg, 60 softgels	28.00	21.00		
	MK-7 - 4 bottles of 60 softgels	100.00	75.00		
00451	MSM (METHYL-SULFONYL-METHANE) - 1000 mg, 100 caps	14.00	10.50		
	MSM (METHYL-SULFONYL-METHANE) - 4 bottles of 100 caps	47.80	35.85		
N					
00215	N-ACETYL CYSTEINE CAPSULES - 600 mg, 60 caps	\$14.00	\$10.50		
	N-ACETYL CYSTEINE CAPSULES - 4 bottles of 60 caps	54.00	40.50		
00168	NAPCA W/ALOE VERA - 8 fl oz bottle	10.00	7.50		
	NAPCA W/ALOE VERA - 4 bottles	36.60	27.45		
00066	NATTOKINASE - 60 softgels	24.98	18.74		
00718	NATTOKINASE (FIBRINOGEN RESIST FORMULA) - 30 caps	49.00	36.75		
	NATTOKINASE (FIBRINOGEN RESIST FORMULA) - 4 bottles of 30 caps	176.00	132.00		
00891	NATURAL APPETITE CONTROL - 90 softgels	28.00	21.00		
	NATURAL APPETITE CONTROL - 4 bottles of 90 softgels	100.80	75.60		

SUB-TOTAL OF COLUMN 12

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail	Member Price	Qty	Total
N CONTINUED					
00984	NATURAL BP MANAGEMENT - 60 tablets	\$42.00	\$31.50		
	NATURAL BP MANAGEMENT - 4 bottles of 60 tablets	151.20	113.40		
00913	NATURAL ESOPHAGUARD - 10 softgels	19.95	14.96		
	NATURAL ESOPHAGUARD - 2 boxes of 10 softgels	38.00	28.50		
00712	NATURAL ESTROGEN w/POMEGRANATE EXTRACT - 60 caplets	38.00	28.50		
	NATURAL ESTROGEN w/POMEGRANATE EXTRACT - 4 bottles of 60 caplets	132.00	99.00		
01221	NATURAL FEMALE SUPPORT - 30 veg. caps	28.00	21.00		
	NATURAL FEMALE SUPPORT - 4 bottles of 30 veg. caps	96.00	72.00		
00698	NATURAL RELIEF 1222™ - 2 oz tube	28.00	21.00		
	NATURAL RELIEF 1222™ - 4, 2 oz tubes	100.00	75.00		
00990	NATURAL SLEEP - 3 mg, 60 caps	12.99	9.74		
	NATURAL SLEEP - 4 bottles of 60 caps	40.00	30.00		
00277	NATURAL SLEEP MELATONIN - 5 mg, 60 caps	18.00	13.50		
	NATURAL SLEEP MELATONIN - 4 bottles of 60 caps	64.00	48.00		
00987	NATURAL STRESS RELIEF - 30 veg. caps	28.00	21.00		
	NATURAL STRESS RELIEF - 4 bottles of 30 veg. caps	96.00	72.00		
01000	NEW FACE SOLUTION - 1.7 oz bottle	54.00	40.50		
	NEW FACE SOLUTION - 4 bottles of 1.7 oz	196.00	147.00		
00096	NIACIN (B-3) CAPSULES - 1000 mg, 100 caps	12.75	9.56		
	NIACIN (B-3) CAPSULES - 4 bottles of 100 caps	48.00	36.00		
00372	NIACIN (B-3) CAPSULES - 500 mg, 100 caps	7.65	5.74		
	NIACIN (B-3) CAPSULES - 4 bottles of 100 caps	26.60	19.95		
00373	NO-FLUSH NIACIN - 800 mg, 100 caps	19.00	14.25		
	NO-FLUSH NIACIN - 4 bottles of 100 caps	68.00	51.00		
00262	NUTRAFLORA - 500 grams of powder	46.00	34.50		
	NUTRAFLORA - 4 bottles of powder	160.00	120.00		
01035	NUTRIM POWDER - 170 grams powder	25.95	19.46		
00523	N-ZIMES® - 270 caps	23.90	17.93		
	N-ZIMES® - 4 bottles of 270 caps	88.00	66.00		
O					
00104	OCTACOSANOL - 8000 mcg, 60 caps	\$17.99	\$13.49		
	OCTACOSANOL - 4 bottles of 60 caps	62.96	47.22		
01483	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT - 60 softgels	18.00	13.50		
	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT - 4 bottles of 60 softgels	64.00	48.00		
01482	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT - 120 softgels	32.00	24.00		
	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT - 4 bottles of 120 softgels	112.00	84.00		
	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT - 10 bottles of 120 softgels	249.00	186.75		
01484	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (ENTERIC COATED) - 120 softgels	34.00	25.50		
	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (ENTERIC COATED) - 4 bottles of 120 softgels	124.00	93.00		
	(SUPER) OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (ENTERIC COATED) - 10 bottles of 120 softgels	280.00	210.00		
00717	ONLY TRACE MINERALS - 90 caps	15.00	11.25		
	ONLY TRACE MINERALS - 4 bottles of 90 caps	50.00	37.50		
00915	OPTIZINC® - 30 mg, 90 veg. caps	5.95	4.46		
	OPTIZINC® - 4 bottles of 90 veg. caps	20.00	15.00		
00043	L-ORNITHINE CAPSULES - 500 mg, 100 caps	24.95	18.71		
	L-ORNITHINE CAPSULES - 4 bottles of 100 caps	80.00	60.00		
P					
00107	PABA CAPS - 500 mg, 100 caps	\$13.99	\$10.49		
	PABA CAPS - 4 bottles of 100 caps	49.32	36.99		
SUB-TOTAL OF COLUMN 13					

No.		Retail	Member Price	Qty	Total
00106	PABA POWDER - 100 grams of powder	\$15.00	\$11.25		
	PABA POWDER - 4 bottles of powder	55.00	41.25		
00073	PANCREATIN - 500 mg, 50 caps	11.99	8.99		
	PANCREATIN - 4 bottles of 50 caps	43.96	32.97		
00137	PAPAIN POWDER - 100 grams of powder	24.00	18.00		
	PAPAIN POWDER - 4 bottles of powder	80.00	60.00		
00923	PEAK ATP® WITH GLYCOCARN® - 60 tablets	59.00	44.25		
	PEAK ATP® WITH GLYCOCARN® - 4 bottles of 60 tablets	224.00	168.00		
00342	PECTA-SOL - One-month supply modified citrus pectin	99.95	74.96		
	PECTA-SOL - Four-month supply modified citrus pectin	382.80	287.10		
00872	PGX FIBER POWDER (SLIMSTYLES) - 6.4 oz powder	22.95	17.21		
00673	(WELLBETX) PGX SOLUBLE FIBER BLEND -180 caps	34.95	26.21		
00865	PHARMAGABA™ - 60 chewable tablets	29.95	22.46		
	PHARMAGABA™ - 4 bottles of 60 chewable tablets	108.00	81.00		
00131	L-PHENYLALANINE POWDER - 100 grams of powder	28.00	21.00		
	L-PHENYLALANINE POWDER - 4 bottles of powder	100.00	75.00		
00368	PHOSPHATIDYLSERINE CAPS - 100 mg, 100 caps	54.00	40.50		
	PHOSPHATIDYLSERINE CAPS - 4 bottles of 100 caps	192.00	144.00		
01050	PHOSPHOMEGA™ KRILL OIL - 60 softgels	33.95	25.46		
01016	PHYTO-FOOD - 80 grams of powder	46.00	34.50		
	PHYTO-FOOD - 4 bottles of powder	172.00	129.00		
00614	PILL CUTTER/GRINDER	11.95	8.96		
00561	POLICOSANOL - 10 mg, 60 tablets	24.00	18.00		
	POLICOSANOL - 6 bottles of 60 tablets	108.00	81.00		
00994	(SUPER) POLYPHENOL EXTRACT w/ COCOAGOLD™ - 30 veg caps	24.00	18.00		
	(SUPER) POLYPHENOL EXTRACT w/ COCOAGOLD™ - 4 bottles of 30 veg. caps	84.00	63.00		
01423	(FULL-SPECTRUM) POMEGRANATE™ - 30 softgels	24.00	18.00		
	(FULL-SPECTRUM) POMEGRANATE™ - 4 bottles of 30 softgels	84.00	63.00		
00956	POMEGRANATE EXTRACT - 30 veg. caps	19.50	14.63		
	POMEGRANATE EXTRACT - 4 bottles of 30 veg. caps	70.20	52.64		
01256	POMEGRANATE EXTRACT w/ COCOAGOLD™ - 30 veg caps	24.00	18.00		
	POMEGRANATE EXTRACT w/ COCOAGOLD™ - 4 bottles of 30 veg caps	84.00	63.00		
00957	POMEGRANATE JUICE CONCENTRATE - 16 oz. liquid	25.95	19.46		
	POMEGRANATE JUICE CONCENTRATE - 4 bottles of 16 oz liquid	96.00	72.00		
00577	POTASSIUM IODIDE - 1 box, 14 tablets	6.95	5.21		
	POTASSIUM IODIDE - 4 boxes, 14 tablets	21.00	15.75		
00302	PREGNENOLONE CAPSULES - 50 mg, 100 caps	24.00	18.00		
	PREGNENOLONE CAPSULES - 4 bottles of 100 caps	76.00	57.00		
00700	PREGNENOLONE CAPSULES - 100 mg, 100 caps	26.00	19.50		
	PREGNENOLONE CAPSULES - 4 bottles of 100 caps	90.00	67.50		
*01373	PRELOX® NATURAL SEX FOR MEN® - 60 tablets	50.00	37.50		
	PRELOX® NATURAL SEX FOR MEN® - 4 bottles of 60 tablets	180.00	135.00		
00571	PRIMAL DEFENSE® - 900 mg, 90 caplets	49.95	37.46		
	PRIMAL DEFENSE® - 4 bottles of 90 caplets	194.00	145.50		
01019	PRIMAL DEFENSE® - 180 caplets	78.95	59.21		
00525	PROBOOST THYMIC PROTEIN A™ - 4 mcg, 30 packets	72.00	54.00		
	PROBOOST THYMIC PROTEIN A™ - 4 boxes	280.00	210.00		
00869	PRO FEM CREAM - 2 oz jar, Progesterone Cream	26.00	19.50		
	PRO FEM CREAM - 4, 2 oz jars, Progesterone Cream	96.00	72.00		
01020	PROGREENS® - 15 stick pack	22.50	16.88		
00396	PRO M - 500 mg, 100 caps	28.00	21.00		
	PRO M - 4 bottles of 100 caps	104.00	78.00		
*01495	(ULTRA NAT) PROSTATE FORMULA w/ 5-LOXIN® STAND. LIGNANS-60 softgels	38.00	28.50		
	(ULTRA NAT) PROSTATE FORMULA w/ 5-LOXIN® STAND. LIGNANS-4 bot of 60 softgels	140.00	105.00		
	(ULTRA NAT) PROSTATE FORMULA w/ 5-LOXIN® STAND. LIGNANS-12 bot of 60 softgels	384.00	288.00		
SUB-TOTAL OF COLUMN 14					

No.		Retail	Member Price	Qty	Total
01092	(ENHANCED LIFE EXTENSION) PROTEIN (VANILLA) - 1 kg. of powder	\$38.00	\$ 28.50		
	(ENHANCED LIFE EXTENSION) PROTEIN (VANILLA) - 4 bot of powder	144.00	108.00		
01093	(ENHANCED LIFE EXTENSION) PROTEIN (CHOCOLATE) - 1 kg of powder	38.00	28.50		
	(ENHANCED LIFE EXTENSION) PROTEIN (CHOCOLATE) - 4 bot of powder	144.00	108.00		
01094	(ENHANCED LIFE EXTENSION) PROTEIN (NATURAL) - 1 kg of powder	38.00	28.50		
	(ENHANCED LIFE EXTENSION) PROTEIN (NATURAL) - 4 bot of powder	144.00	108.00		
01095	(ENHANCED LIFE EXTENSION) PROTEIN (BERRY) - 1 kg of powder	38.00	28.50		
	(ENHANCED LIFE EXTENSION) PROTEIN (BERRY) - 4 bot of powder	144.00	108.00		
00290	(DESIGNER WHEY) PROTEIN - Vanilla 2 lbs of powder	41.95	31.46		
	(DESIGNER WHEY) PROTEIN - 4 bottles of Vanilla powder	152.00	114.00		
00282	(DESIGNER WHEY) PROTEIN - Chocolate 2 lbs of powder	41.95	31.46		
	(DESIGNER WHEY) PROTEIN - 4 bottles of Chocolate powder	152.00	114.00		
00283	(DESIGNER WHEY) PROTEIN - Natural 2 lbs of powder	41.95	31.46		
	(DESIGNER WHEY) PROTEIN - 4 bottles of Natural powder	152.00	114.00		
01056	PURE-GAR® - 200 caps	24.95	18.71		
	PURE-GAR® - 4 bottles of 200 caps	84.00	63.00		
01209	(WATER-SOLUBLE) PUMPKIN SEED EXTRACT - 60 veg. caps	20.00	15.00		
	(WATER-SOLUBLE) PUMPKIN SEED EXTRACT - 4 bottles 60 veg. caps	72.00	54.00		
01210	(WATER-SOLUBLE) PUMPKIN SEED EXT w/SOY ISOFLAVONES - 60 veg. caps	22.00	16.50		
	(WATER-SOLUBLE) PUMPKIN SEED EXT w/SOY ISOFLAVONES - 4 bottles 60 veg.	80.00	60.00		
01031	PYCNOGENOL® - 60 veg. caps	86.95	65.21		
01207	PYRIDOXAMINE CAPS - 50 mg, 60 veg. caps	22.00	16.50		
	PYRIDOXAMINE CAPS - 4 bottles of 60 veg. caps	79.20	59.40		
Q, R					
01309	(OPTIMIZED) QUERCETIN - 250 mg, 60 veg. caps	\$18.00	\$13.50		
	(OPTIMIZED) QUERCETIN - 4 bottles of 60 veg. caps	68.00	51.00		
01030	RED YEAST RICE (Bluebonnet)- 600 mg, 60 veg. caps	16.95	12.71		
00979	RED YEAST RICE (Nature's Plus)- 600 mg, 60 veg. caps	23.20	17.40		
00060	RED YEAST RICE EXTENDED RELEASE (Nature's Plus)- 30 veg. tablets	20.55	15.41		
00605	REGIMINT® - 60 enteric-coated caps	19.95	14.96		
	REGIMINT® - 4 bottles of 60 caps	74.68	56.01		
00448	REJUVENEX® BODY LOTION - 6 oz tube	24.00	18.00		
	REJUVENEX® BODY LOTION - 4 tubes	79.20	59.40		
	REJUVENEX® BODY LOTION - 8 tubes	136.00	102.00		
00918	REJUVENEX® FACTOR - 1.7 oz Airless pump bottle	65.00	48.75		
	REJUVENEX® FACTOR - 2 bottles	120.00	90.00		
	REJUVENEX® FACTOR - 4 bottles	220.00	165.00		
	REJUVENEX® FACTOR - 8 bottles	399.28	299.46		
01220	(ULTRA) REJUVENEX® - 2 oz jar	52.00	39.00		
	(ULTRA) REJUVENEX® - 2 jars	96.00	72.00		
	(ULTRA) REJUVENEX® - 4 jars	176.00	132.00		
	(ULTRA) REJUVENEX® - 8 jars	319.44	239.38		
00676	(ULTRA) REJUVENIGHT (DREAM CREAM) - 2 oz jar	39.95	29.96		
	(ULTRA) REJUVENIGHT (DREAM CREAM) - 4 jars	144.00	108.00		
00706	(ULTRA) REJUVENIGHT w/PROGESTERONE - 2 oz jar	42.00	31.50		
	(ULTRA) REJUVENIGHT w/PROGESTERONE - 4 jars	152.00	114.00		
01413	RESVERATROL w/PTEROSTILBENE - 20 mg, 60 veg. caps	24.00	18.00		
	RESVERATROL w/PTEROSTILBENE - 4 bottles of 60 veg. caps	88.00	66.00		
01410	RESVERATROL w/PTEROSTILBENE - 100 mg, 60 veg. caps	36.00	27.00		
	RESVERATROL w/PTEROSTILBENE - 4 bottles of 60 veg. caps	128.00	96.00		
01409	(OPTIMIZED) RESVERATROL w/PTEROSTILBENE - 250 mg, 60 veg. caps	46.00	34.50		
	(OPTIMIZED) RESVERATROL w/PTEROSTILBENE - 4 bottles of 60 veg. caps	165.32	124.00		
00889	RHODIOLA EXTRACT - 250 mg, 60 veg. caps	11.75	8.81		
	RHODIOLA EXTRACT - 4 bottles of 60 veg. caps	42.32	31.74		

SUB-TOTAL OF COLUMN 15

No.		Retail	Member Price	Qty	Total
00972	(D) RIBOSE POWDER - 150 grams of powder	\$27.50	\$20.63		
	(D) RIBOSE POWDER - 4 jars of 150 grams	99.00	74.25		
00973	(D) RIBOSE CAPS - 120 veg. caps	32.00	24.00		
	(D) RIBOSE CAPS - 4 bottles of 120 veg. caps	115.20	86.40		
01208	(SUPER) R-LIPOIC ACID - 300 mg, 60 veg. caps	49.00	36.75		
	(SUPER) R-LIPOIC ACID - 4 bottles of 60 veg. caps	180.00	135.00		
00070	RNA CAPSULES - 500 mg, 100 caps	17.95	13.46		
	RNA CAPSULES - 4 bottles of 100 caps	64.64	48.48		
00143	RNA POWDER - 100 grams of powder	24.00	18.00		
	RNA POWDER - 4 bottles of powder	80.00	60.00		
00917	ROSMARINIC ACID EXTRACT - 60 veg. caps	38.00	28.50		
	ROSMARINIC ACID EXTRACT - 4 bottles of 60 veg. caps	144.00	108.00		
00139	RUTIN POWDER - 100 grams of powder	15.50	11.63		
	RUTIN POWDER - 4 bottles of powder	55.00	41.25		
S					
* 00573	SAMBU GUARD - 175 ml	\$17.49	\$13.99		
00358	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 20 enteric coated tablets	18.95	14.21		
	SAME (S-ADENOSYL-METHIONINE) - 8 boxes of 20 enteric coated tablets	132.80	99.60		
00453	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 50 enteric coated tablets	45.00	33.75		
	SAME (S-ADENOSYL-METHIONINE) - 4 bottles of 50 enteric coated tablets	156.00	117.00		
00557	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 20 enteric coated tablets	35.00	26.25		
	SAME (S-ADENOSYL-METHIONINE) - 6 boxes of 20 enteric coated tablets	168.00	126.00		
01043	SEA-IODINE™ - 1000 mcg, 60 veg. caps	8.00	6.00		
	SEA-IODINE™ - 4 bottles of 60 veg. caps	28.80	21.60		
00046	SELENIUM - 2 oz dropper bottle	9.45	7.09		
	SELENIUM - 4 bottles of 2 oz bottle	36.00	27.00		
00567	SE-METHYSELENOCYSTEINE - 200 mcg, 100 caps	12.00	9.00		
	SE-METHYSELENOCYSTEINE - 4 bottles of 100 caps	44.00	33.00		
00318	SERRAFLAZYME - 100 tablets	18.00	13.50		
	SERRAFLAZYME - 4 bottles of 100 tablets	64.00	48.00		
00339	SHARK-A CARTILAGE - 750 mg, 270 caps	68.00	51.00		
	SHARK-A CARTILAGE - 4 bottles of 270 caps	255.00	191.25		
00284	SHARK LIVER OIL (NORWEGIAN) - 1000 mg, 30 softgels	18.00	13.50		
	SHARK LIVER OIL (NORWEGIAN) - 4 bottles of 30 softgels	64.00	48.00		
00184	SILYMARIN - 100 mg, 50 caps	9.25	6.94		
	SILYMARIN - 4 bottles of 50 caps	33.00	24.75		
00702	(MEGA) SILYMARIN WITH ISOSILYBIN B - 100 caps	42.00	31.50		
	(MEGA) SILYMARIN WITH ISOSILYBIN B - 4 bottles of 100 caps	152.00	114.00		
00872	SLIMSTYLES PGX® - 6.4 oz powder	22.95	17.21		
00961	SODZYME® W/GLISODIN® AND WOLFBERRY - 90 veg. caps	28.00	21.00		
	SODZYME® W/GLISODIN® AND WOLFBERRY - 4 bottles of 90 veg. caps	96.00	72.00		
00657	SOLARSHIELD SUNGLASSES - 1 pair smoke color	12.99	9.74		
	SOLARSHIELD SUNGLASSES - 2 pair smoke color	23.00	17.25		
00785	(ULTRA) SOY EXTRACT - 675 mg, 600 caps	349.00	261.75		
	(ULTRA) SOY EXTRACT - 4 bottles of 600 caps	1260.00	945.00		
00304	SOY POWER POWDER - 300 grams of powder	31.50	23.63		
	SOY POWER POWDER - 4 bottles of powder	114.00	85.50		
00286	SOY PROTEIN POWDER (concentrated soy protein) - 16 oz of powder	12.00	9.00		
	SOY PROTEIN POWDER - 4 bottles of powder	42.50	31.87		
00432	STEVIA EXTRACT - 100 packets, 1 gram each	9.95	7.46		
	STEVIA EXTRACT - 4 boxes of 100 packets	36.00	27.00		
00351	ST. JOHN'S WORT EXTRACT - 300 mg, 60 caps	10.98	8.24		
	ST. JOHN'S WORT EXTRACT - 4 bottles of 60 caps	40.00	30.00		

SUB-TOTAL OF COLUMN 16

Buyers Club Order Form

To order call: 1.954.766.8433 or 1.800.544.4440

No.		Retail	Member Price	Qty	Total
00327	ST. JOHN'S WORT EXTRACT (PLANETARY) - 600 mg, 60 tablets	\$16.75	\$12.56		
	ST. JOHN'S WORT EXTRACT (PLANETARY) - 4 bottles of 60 tablets	55.40	41.55		
00971	SUN PROTECTION SPRAY W/BETA GLUCAN - SPF30 - 6 oz bottle	14.95	11.21		
	SUN PROTECTION SPRAY W/BETA GLUCAN - SPF30 - 4 bottles, 6 oz	54.00	40.50		
00747	(OVERCAST POLARIZED) SUNGLASSES - gray color, large	27.00	20.25		
	(OVERCAST POLARIZED) SUNGLASSES - 2 pairs, gray color	42.00	31.50		
00748	(OVERCAST POLARIZED) SUNGLASSES - gray color, medium	27.00	20.25		
	(OVERCAST POLARIZED) SUNGLASSES - 2 pairs, gray color	42.00	31.50		
00758	SUPER ABSORBABLE SOY ISOFLAVONES - 60 caps	28.00	21.00		
	SUPER ABSORBABLE SOY ISOFLAVONES - 4 bottles of 60 caps	100.00	75.00		
01408	SUPER SAW PALMETTO/NETTLE ROOT W/BETA-SITOSTEROL 60 softgels	28.00	21.00		
	SUPER SAW PALMETTO/NETTLE ROOT w/BETA-SITOSTEROL 4 bottles of 60 softgels	104.00	78.00		
	SUPER SAW PALMETTO/NETTLE ROOT w/BETA-SITOSTEROL One-year supply	288.00	216.00		
01407	SUPER SAW PALMETTO W/BETA-SITOSTEROL - 30 softgels	15.00	11.25		
	SUPER SAW PALMETTO W/BETA-SITOSTEROL - 12 bottles of 30 softgels	144.00	108.00		
00578	SUPER SELENIUM COMPLEX - 200 mcg, 100 caps	12.00	9.00		
	SUPER SELENIUM COMPLEX - 4 bottles of 100 caps	40.00	30.00		
	SUPER SELENIUM COMPLEX - 12 bottles of 100 caps	108.00	81.00		
00674	SYTRINOL™ - 60 softgels	32.00	24.00		
	SYTRINOL™ - 4 bottles of 60 softgels	112.00	84.00		
T					
TAL • SHI™ COSMETICS • For information please call 1-800-544-4440 or visit www.lifeextension.com					
00199	TAURINE CAPSULES - 1000 mg, 50 caps	\$8.95	\$6.71		
	TAURINE CAPSULES - 4 bottles of 50 caps	32.00	24.00		
00133	TAURINE POWDER - 300 grams, powder	20.00	15.00		
	TAURINE POWDER - 4 bottles of powder	67.52	50.64		
01304	THEAFLAVIN STANDARDIZED EXTRACT - 30 veg. caps	18.00	13.50		
	THEAFLAVIN STANDARDIZED EXTRACT - 4 bottles of 30 veg. caps	64.00	48.00		
00555	(L) THEANINE - 100 mg, 60 caps	24.00	18.00		
	(L) THEANINE - 4 bottles of 60 caps	82.00	61.50		
01038	THERALAC - 30 caps	44.95	33.71		
00224	THYMIC IMMUNE FACTORS - 100 caps	18.00	13.50		
	THYMIC IMMUNE FACTORS - 4 bottles of 100 caps	56.00	42.00		
00668	(METABOLIC ADVANTAGE) THYROID FORMULA - 100 caps	17.95	13.46		
00349	TMG - 50 grams of powder	14.00	10.50		
	TMG - 4 bottles of powder	44.00	33.00		
00359	TMG TABLETS - 500 mg, 180 tablets	18.00	13.50		
	TMG TABLETS - 4 bottles of 180 tablets	62.00	46.50		
00366	TOCOTRIENOLS - 50 mg, 60 softgel caps	39.95	29.96		
	TOCOTRIENOLS - 4 bottles of 60 softgel caps	144.00	108.00		
00781	TOCOTRIENOLS WITH SESAME LIGNANS - 60 softgels	38.00	28.50		
	TOCOTRIENOLS WITH SESAME LIGNANS - 4 bottles of 60 softgels	144.00	108.00		
01400	(SUPER-ABSORBABLE) TOCOTRIENOLS - 60 softgels	30.00	22.50		
	(SUPER-ABSORBABLE) TOCOTRIENOLS - 4 bottles of 60 softgels	112.00	84.00		
01274	TOTAL SUN PROTECTION CREAM W/BETAGLUCANS - SPF 30, 4 oz Tube & PHOTO-AGING RECOVERY COMPLEX	28.00	21.00		
	TOTAL SUN PROTECTION CREAM W/BETAGLUCANS - 4-4 oz Tubes & PHOTO-AGING RECOVERY COMPLEX	100.80	75.60		
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT- 60 veg. caps	24.00	18.00		
	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT-4 bot 60 veg. caps	88.00	66.00		
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL -60 veg. caps	32.00	24.00		
	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL - 4 bottles	118.40	88.80		

SUB-TOTAL OF COLUMN 17

No.		Retail	Member Price	Qty	Total
01046	TRIPLE ACTION UNDER EYE REJUVENATOR - 0.5 oz pump	\$24.00	\$18.00		
	TRIPLE ACTION UNDER EYE REJUVENATOR - 4 boxes	88.00	66.00		
00866	TRYPTOPURE® L-TRYPTOPHAN - 500 mg, 90 veg. caps	38.00	28.50		
	TRYPTOPURE® L-TRYPTOPHAN - 4 bottles of 90 veg. caps	136.00	102.00		
01202	(OPTIMIZED) TRYPTOPURE® PLUS - 90 veg. caps	40.00	30.00		
	(OPTIMIZED) TRYPTOPURE® PLUS - 4 bottles of 90 veg. caps	144.00	108.00		
00036	L-TYROSINE POWDER - 100 grams of powder	22.50	16.88		
	L-TYROSINE POWDER - 4 bottles of powder	80.00	60.00		
00326	L-TYROSINE TABLETS - 500 mg, 100 tablets	12.50	9.38		
	L-TYROSINE TABLETS - 4 bottles of 100 tablets	45.68	34.26		
00035	L-TYROSINE PLUS POWDER - 100 grams of powder	28.00	21.00		
	L-TYROSINE PLUS POWDER - 4 bottles of powder	98.00	73.50		
U					
* 00310	UDO'S CHOICE® - 17 oz liquid (omega fatty acids)	\$27.49	\$21.99		
* 00311	UDO'S CHOICE® - 1000 mg, 180 caps	33.79	27.03		
* 00322	UDO'S CHOICE® WHOLESOME FAST FOOD - 1 lb bottle	27.49	21.99		
01061	ULTIMATE FLORA ADVANCED IMMUNITY - 30 caps	29.99	22.49		
V					
00213	VANADYL SULFATE - 7.5 mg, 100 tablets	\$15.00	\$11.25		
	VANADYL SULFATE - 4 bottles of 100 tablets	50.00	37.50		
01018	VASCULAR PROTECT - 120 vegetarian caps	48.00	36.00		
	VASCULAR PROTECT - 4 bottles of 120 vegetarian caps	180.00	135.00		
00252	VELVET DEER ANTLER - 250 mg, 30 caps	36.00	27.00		
	VELVET DEER ANTLER - 4 bottles of 30 caps	136.00	102.00		
00408	VENOTONE - 60 caps	18.95	14.21		
	VENOTONE - 4 bottles of 60 caps	64.00	48.00		
00427	VINPOCETINE - 5 mg, 100 tablets	18.00	13.50		
	VINPOCETINE - 4 bottles of 100 tablets	56.00	42.00		
01033	VISION OPTIMIZER - 90 caps	29.95	22.46		
01098	VITAL GREENS MIX - 319.5 grams of powder	48.00	36.00		
	VITAL GREENS MIX - 4 jars of powder	176.00	132.00		
00091	VITAMIN B1 CAPS - 500 mg, 100 caps	16.99	12.74		
	VITAMIN B1 CAPS - 4 bottles of 100 caps	60.68	45.51		
00090	VITAMIN B1 POWDER - 100 grams of powder (Thiamin)	18.00	13.50		
	VITAMIN B1 POWDER - 4 bottles of powder	67.52	50.64		
00093	VITAMIN B2 CAPS - 100 mg, 100 caps	12.99	9.74		
	VITAMIN B2 CAPS - 4 bottles of 100 caps	47.52	35.64		
00092	VITAMIN B2 POWDER - 30 grams of powder	10.50	7.88		
	VITAMIN B2 POWDER - 4 bottles of powder	37.52	28.14		
00096	VITAMIN B3 (NIACIN) - 1000 mg, 100 caps	12.75	9.56		
	VITAMIN B3 (NIACIN) - 4 bottles of 100 caps	48.00	36.00		
00372	VITAMIN B3 (NIACIN) - 500 mg, 100 caps	7.65	5.74		
	VITAMIN B3 (NIACIN) - 4 bottles of 100 caps	26.60	19.95		
00094	VITAMIN B3 POWDER - 300 grams of powder	15.00	11.25		
	VITAMIN B3 POWDER - 4 bottles of powder	56.00	42.00		
00098	VITAMIN B5 CAPS - 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88		
	VITAMIN B5 CAPS - 4 bottles of 100 caps	37.52	28.14		
00097	VITAMIN B5 POWDER - 100 grams of powder	15.25	11.44		
	VITAMIN B5 POWDER - 4 bottles of powder	55.00	41.25		
00556	VITAMIN B6 CAPS - 250 mg, 100 caps	12.50	9.38		
	VITAMIN B6 CAPS - 4 bottles of 100 caps	44.00	33.00		
00099	VITAMIN B6 POWDER - 100 grams of powder	24.50	18.38		
	VITAMIN B6 POWDER - 4 bottles of powder	88.00	66.00		
00361	VITAMIN B12 TABLETS - 500 mcg, 100 dissolve-in-mouth tablets	8.75	6.56		
	VITAMIN B12 TABLETS - 4 bottles of 100 dissolve-in-mouth tablets	29.00	21.75		

SUB-TOTAL OF COLUMN 18

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No.		Retail	Member Price	Qty	Total
00144	VITAMIN B12 POWDER - 100 grams of powder	\$12.00	\$9.00		
	VITAMIN B12 POWDER - 4 bottles of powder	42.52	31.89		
00927	VITAMIN C WITH DIHYDROQUERCETIN - 1000 mg, 250 tablets	25.50	19.13		
	VITAMIN C WITH DIHYDROQUERCETIN - 4 bottles of 250 tablets	93.00	69.75		
00084	(BUFFERED) VITAMIN C POWDER - 454.6 grams of powder	23.95	17.96		
	(BUFFERED) VITAMIN C POWDER - 4 bottles of powder	88.00	66.00		
00864	VITAMIN D - 2000 IU, 1 fl oz	28.00	21.00		
	VITAMIN D - 4 bottles of 1 fl oz	100.00	75.00		
00251	VITAMIN D3 CAPS - 1000 IU, 250 caps	12.50	9.38		
	VITAMIN D3 CAPS - 4 bottles of 250 caps	45.00	33.75		
00713	VITAMIN D3 CAPS - 5000 IU, 60 caps	11.00	8.25		
	VITAMIN D3 CAPS - 4 bottles of 60 caps	39.60	29.70		
01418	VITAMIN D3 CAPS - 7000 IU, 60 caps	14.00	10.50		
	VITAMIN D3 CAPS - 4 bottles of 60 caps	50.40	37.80		
01371	VITAMIN D3 w/SEA-IODINE - 1000 IU, 250 veg. caps	22.00	16.50		
	VITAMIN D3 w/SEA-IODINE - 4 bottles of 250 veg. caps	80.00	60.00		
01372	VITAMIN D3 w/SEA-IODINE - 5000 IU, 60 veg. caps	14.00	10.50		
	VITAMIN D3 w/SEA-IODINE - 4 bottles of 60 veg. caps	50.00	37.50		
00063	VITAMIN E CAPS (NATURAL) - 400 IU, 100 caps	18.75	14.06		
	VITAMIN E CAPS (NATURAL) - 4 bottles of 100 caps	69.00	51.75		
	VITAMIN E CAPS (NATURAL) - 10 bottles of 100 caps	150.00	112.50		
00062	VITAMIN E POWDER (SYNTHETIC) - 300 grams of powder	28.95	21.71		
	VITAMIN E POWDER (SYNTHETIC) - 4 bottles of powder	100.00	75.00		
01225	(LOW-DOSE) VITAMIN K2 (MK-7) - 45 mcg, 90 softgels	18.00	13.50		
	(LOW-DOSE) VITAMIN K2 (MK-7) - 4 bottles of 90 softgels	64.00	48.00		
Z					
00986	(SUPER) ZEAXANTHIN W/LUTEIN & MESO-ZEAXANTHIN - 60 softgels	\$22.00	\$16.50		
	(SUPER) ZEAXANTHIN W/LUTEIN & MESO-ZEAXANTHIN - 4 bottles	79.20	59.40		
01286	(SUPER) ZEAXANTHIN W/LUTEIN & MESO-ZEAXANTHIN PLUS ASTAXANTHIN - 60 softgels	42.00	31.50		
	(SUPER) ZEAXANTHIN W/LUTEIN & MESO-ZEAXANTHIN PLUS ASTAXANTHIN - 4 bottles of 60 softgels	152.00	114.00		
00152	ZINC GLUCONATE POWDER - 100 grams of powder	8.00	6.00		
	ZINC GLUCONATE POWDER - 4 bottles of powder	27.50	20.62		
00061	ZINC LOZENGES WITH VITAMIN C - 75 lozenges	9.50	7.13		
	ZINC LOZENGES WITH VITAMIN C - 4 bottles of 75 lozenges	27.00	20.25		
01051	ZYFLAMEND - 120 softgels	60.95	45.71		
01029	ZYFLAMEND EASYCAPS - 180 caps	31.95	23.96		

SUB-TOTAL OF COLUMN 19

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When you join the Life Extension Foundation®, we update you on the latest published medical research by sending you FREE books. Our most impressive publication is the 1,666-page *Disease Prevention and Treatment* protocol book that contains novel therapies to treat 133 common diseases of aging. *Disease Prevention and Treatment* is the only book that combines conventional and alternative therapies in order to implement a treatment regimen for fighting the multiple processes involved in degenerative disease.

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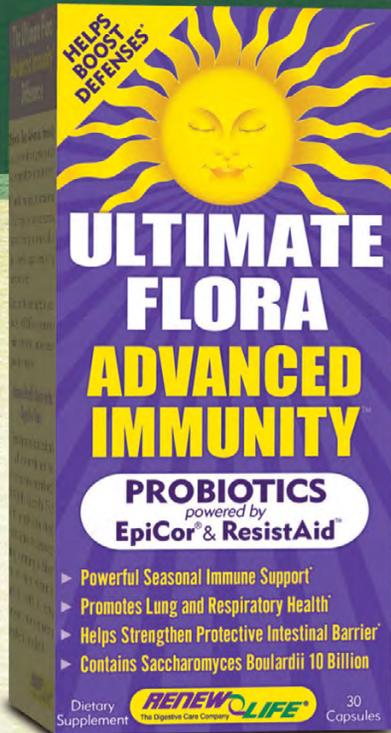
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Ultimate Flora Advanced Immunity™ from ReNew Life is a specially formulated probiotic that provides a unique two-part approach to enhancing immunity.* Three clinically proven natural ingredients—EpiCor® immunogen, *S. boulardii* beneficial probiotic yeast and ResistAid™ LAG—work synergistically to promote a balanced immune system and enhance the body's natural defenses during peak seasons.*

EpiCor® Immunogen

A natural derivative of *S. cerevisiae* (brewer's yeast), EpiCor is comprised of beta-glucan, mannan oligosaccharide (MOS) and additional beneficial metabolites with immune-supporting vitamins, minerals, amino acids and potent antioxidants.*

EpiCor has been shown to activate key immune cells in the body, specifically targeting the lungs and respiratory system to promote optimal immune function during peak seasons such as spring and winter.*

Saccharomyces boulardii Probiotic Yeast

The 10 billion cultures of *Saccharomyces boulardii* in Ultimate Flora Advanced Immunity™ stimulate optimal immune function by strengthening the protective intestinal barrier and promoting the growth of beneficial microflorae in the gut.*

One of the most promising natural immune-enhancing components, *S. boulardii* is a non-pathogenic yeast that has been utilized worldwide as a probiotic to support immune defenses as well as to relieve occasional diarrhea and digestive upset.* Unlike the thousands of species of microorganisms that inhabit the human digestive tract normally,

S. boulardii is a transient yeast and must be obtained through supplementation. Upon ingestion, *S. boulardii* passes through the intestines and exerts its beneficial effects throughout the entire gastrointestinal tract.*

ResistAid™ LAG

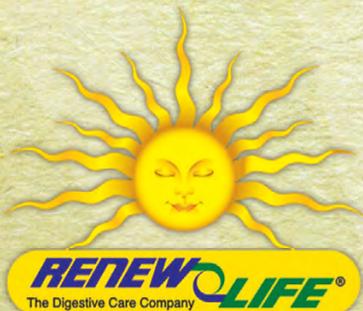
ResistAid is a uniquely effective natural antioxidant that contains Arabinogalactan, the key component of the immune-enhancing herb *Echinacea*.* Found in a more bioactive form in ResistAid, arabinogalactan exhibits a stimulatory effect on the human immune system by helping to increase beneficial immune cell populations.*

Research has shown that supplementation with LAG can increase the number of immune-defending white blood cells and in turn enable the immune system to more effectively cope with seasonal and everyday stress.* The potent antioxidant capacity of ResistAid is attributed to its high levels of beneficial plant compounds known as polyphenols.*

Now you can obtain the natural benefits of each of these uniquely powerful ingredients in a single daily supplement. It's the most advanced probiotic available for optimal immune system and respiratory function.*

Ultimate Flora Advanced Immunity™

- Advanced natural seasonal immune support*
- Enhances respiratory and intestinal immunity*
- Helps strengthen protective intestinal lining*
- 10 billion cultures *S. Boulardii* probiotic
- Potent antioxidant properties
- No fillers or binders



To order Ultimate Flora Advanced Immunity, call 1-800-544-4440 or visit www.lef.org **LifeExtension**

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

How Theralac® Benefits Life Extension Members.

**THANK YOU,
LIFE EXTENSION
MEMBERS!**

Thank you, Life Extension Members for telling your family and friends about **Theralac**. We are pleased Theralac has helped so many of you!

For those who have tried Theralac you know this probiotic **restores peace within your intestinal tract FAST**. Making comfort down deep requires the action of a powerful probiotic that rapidly restores a healthy microbial balance.

When probiotics are in control, a **state of eubiosis** exists and life is good: **effective digestion, absorption, and regularity prevail**. When probiotics are lacking, a

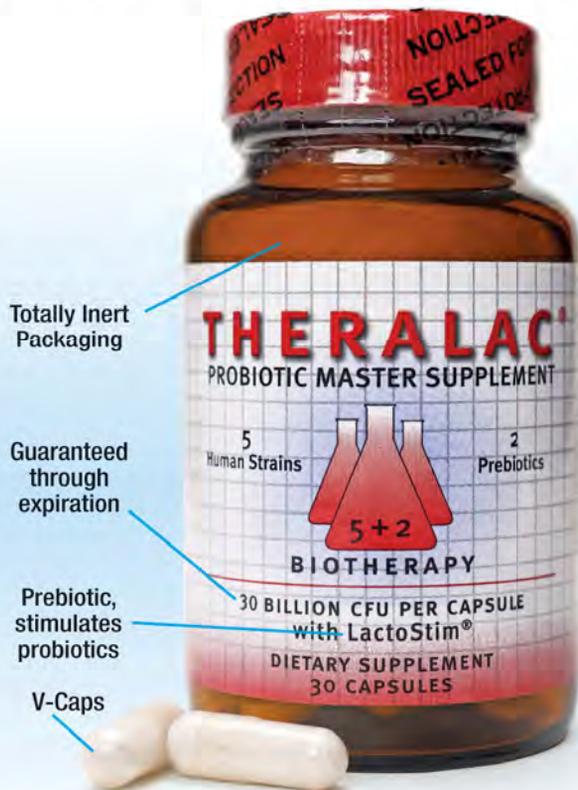
state of **dysbiosis**, often results: an unhealthy condition characterized by indigestion, cramping, bloating and discomfort.

Theralac's Rescue Plan: Just take **one or two Theralac capsules daily** and you will feel it working in less than a week, **guaranteed**. When you get back to feeling comfortable inside, back off to a maintenance dose of 2 capsules/week and save money! Theralac's patented formulation makes this value added benefit possible.



Theralac works better than other probiotics because it **delivers FIVE clinically proven strains** at a therapeutic dose of **30 billion CFU*** alive and deep into the intestinal tract. Studies show that Theralac's probiotic strains **adhere to and colonize mucosal surfaces** where they competitively exclude undesirable microorganisms (see theralac.com for references).

Leading doctors now recommend Theralac in their publications: Dr. Russell Blaylock in *The Blaylock Wellness Report* and Gary Huffnagle, PhD, in *The Probiotics Revolution*.



Recommended 8 separate times in The Blaylock Wellness Report

Call *Life Extension* now to order Theralac and feel the benefits for yourself. Theralac is **guaranteed** through expiration and protected by 2 US patents.

Theralac, 30 capsules Item# 01038 Retail price: \$44.95 Call for LEF Member Pricing

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Does Your Pharmacy Care if You Live or Die?

Today's chain pharmacies have become drug-dispensing assembly lines. They fill whatever your doctor prescribes or insurance covers, regardless of what is best for your individual needs.

At **Life Extension Pharmacy™** we do things differently. We take advantage of our partnership with the Life Extension Foundation® for intimate knowledge of the peer-reviewed scientific literature about the prescription drugs you take ... including drug interactions, side effects, lower-cost alternatives, and, in some cases, safer and more effective ways to use your medications. It's our mission to preserve **your health and save you money.**

Our Independent Thinking

As well as offering advice on the safety and effectiveness of your prescriptions, our team of pharmacists also explains how they can work synergistically with nutrient and hormone supplements to keep you healthy.

Consider the anti-coagulant drug **Coumadin®** (warfarin) as an example. While most doctors advise patients who are taking **Coumadin®** to avoid vitamin K supplements and vitamin K-containing foods, recent research demonstrates that **Coumadin®** plus low-dose vitamin K supplements (around **45 mcg** a day) can achieve more stable measurement of blood clotting time (the INR test). Even more important is that Coumadin®'s horrendous **side effects** (accelerated atherosclerosis and bone loss) may be preventable in the presence of stable vitamin K levels in the body.

Another problem occurs with drugs prescribed to treat **prostate cancer** (such as **Lupron®**) that deplete the body of **testosterone**. Through our collaboration with the Life Extension Foundation, we can advise patients on the specific steps they should take to protect against the lethal "**Androgen Deprivation Syndrome.**"

Another example is the statin drug **Crestor®**. This high-priced medication is flying out of pharmacies across the country. But should it be? Recent studies reveal that it's not right for everyone who is taking it. Visit www.LifeExtensionRx.com/crestor for our in-depth analysis on the latest Crestor® study.

Tailored Services

So keep this in mind... the **Life Extension Pharmacy™** puts your **welfare first**. If a lower-cost drug may work better for you than an expensive brand name, we're going to recommend it. Combining the Life Extension Foundation's nutraceutical expertise with our pharmacists' in-depth knowledge of pharmaceuticals and customized prescription compounding, **Life Extension Pharmacy™** is committed to helping you get the very best results from your therapy.

Simvastatin 40-mg (90 Tablets)

CVS Price \$154.99	Life Extension Rx Price \$21.23*	% Saved 86%
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Glyburide 5-mg (90 Tablets)

CVS Price \$33.59	Life Extension Rx Price \$13.06*	% Saved 61%
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* Prices as of March 15, 2010. Prices subject to change.

Saving Your Money & Your Health

Life Extension Pharmacy™ offers a range of ways to save you money including low-cost compounded drugs, life-saving prescription drugs at greatly discounted prices, and practical suggestions on how to conserve your health care dollars. To see how much we can save you, look at our prices for the statin **simvastatin** and the antidiabetic drug **glyburide** compared with CVS in the table above!

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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.



WHAT'S INSIDE

LifeExtension[®] Magazine

WHY ESTROGEN BALANCE IS CRITICAL FOR AGING MEN



A study in the *Journal of the American Medical Association* confirms that too much (or too little) estrogen increases a man's risk of death. Most male **Life Extension**[®] members test their blood estrogen level regularly and take the necessary steps to achieve optimal balance.

NEW BLOOD TEST REVEALS RISK OF CARDIAC DEATH



A new at-home blood test called the **Omega Score**[™] enables you to evaluate your *omega-3 status*. The results reveal a measure of your risk of cardiac arrest. Find out how easy it is to assess your personal **Omega Score**[™].

POMEGRANATE IS MORE THAN JUST A FRUIT



The benefits of pomegranate fruit are well known, but scientists have recently uncovered unique properties in the pomegranate *flower* and *seed* that are of particular interest to those suffering chronic inflammatory conditions as well as excess glucose and lipid blood levels.

HIDDEN EPIDEMIC OF CHRONIC KIDNEY DISEASE



Researchers have uncovered the *epidemic* of chronic kidney disease striking aging Americans. The encouraging news is that there are proven methods to diagnose kidney disease early and protect against this widespread killer.

PLUS

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LOU FERRIGNO'S SECRET TO MAINTAINING STRENGTH
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