**EPIDEMIC DENIAL ABOUT OBESITY** 

# LIGENTAL Www.lef.org

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**July 2011** 

# Lose Weight by Inhibiting Cellular Fat Storage

CLUSTER OF ADIPOCYTES

Human Data Support Calorie Restriction Benefit

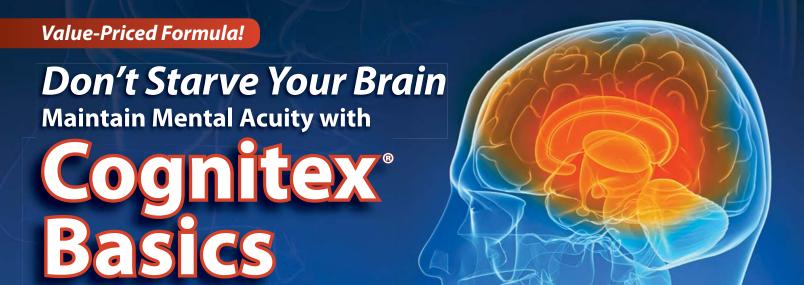
California's Absurd Label Law for DHEA

**Potent Anti-Cancer Effects of Citrus Pectin** 



#### PLUS-

**Astaxanthin's Broad-Spectrum Benefits Blueberries Inhibit Fat Formation** 



## Shocking data just released reveal that someone in America develops an agerelated brain disorder **every 70 seconds!**<sup>1</sup>



Within 20 years an astounding **71 million** aging individuals will be at risk for cognitive problems. <sup>1</sup>

Thankfully, new research indicates that some of the factors behind this alarming trend may lie within your control. The key

is to maintain a steady supply of special **nutrients** clinically shown to support brain health as you age.

#### **FOOD FOR THOUGHT**

A healthy adult brain has about 100 billion nerve cells. <u>Each</u> cell requires specific dietary support for optimum performance. *Most aging individuals, however, are unwittingly starving their brains of these critical nutrients*.

You may be one of them.

The reason? Healthy dieting. Many of the foods you should rightfully avoid to protect against cardiovascular disease—eggs, red meat, cheese—contain these vital brain-boosting nutrients.

To remedy this *deficiency*, **Life Extension**® developed the comprehensive Cognitex® formula back in **1982** to provide optimal support for the aging brain.

**Cognitex® Basics** is a simplified, <u>low-cost</u> formula featuring <u>two</u> important compounds missing from a healthy diet—for maximum cognitive support *and* lifelong mental power. These two nutrients are:

#### 1. ALPHA-GPC: A PRESCRIPTION DRUG IN EUROPE

The neurotransmitter *acetylcholine* is critically involved in memory, cognition, sleep, and motor control. The nutrient **Alpha-GPC** (alpha-glyceryl phosphoryl choline) is an acetylcholine "precursor." Your brain needs it to produce optimal amounts of acetylcholine. Owing to the clinical studies validating its brain-supporting power, **Alpha-GPC** is

sold as an expensive *prescription drug* in Europe. The suggested serving of two softgels of **Cognitex® Basics** supplies **600 mg** of **Alpha-GPC**.

#### 2. AN FDA-SUPPORTED BRAIN HEALTH PROMOTER

Found in human milk, **phosphatidylserine** is essential in helping brain neurons support memory and promoting healthy nerve cell division and repair. Research shows it can benefit people of all ages. So much so that since 2003, the FDA has recognized that phosphatidylserine consumption may reduce the risk of dementia <u>and</u> cognitive dysfunction in the elderly.<sup>2</sup> The suggested daily serving of **Cognitex**® **Basics** provides **100 mg** of phosphatidylserine.

Age-related cognitive decline is often referred to as a "senior moment", "brain fog", or "drawing a blank." These problems lie in store for anyone who lives long enough. Taking precautionary measures can yield huge neurological health dividends in the future.

A bottle containing 60 softgels of **Cognitex® Basics** retails for \$38. If a member buys four bottles, the price is reduced to just **\$26.25** per bottle. Contains soybeans.



Item #01421

#### Two softgels of Cognitex® Basics provide:

Sharp-GPC™ Active Alpha-Glyceryl ......... 600 mg Phosphoryl Choline (A-GPC) Sharp-PS® Phosphatidylserine ............. 100 mg

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

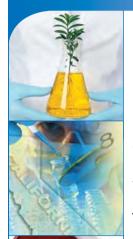
Sharp-PS® is a registered trademark and Sharp-GPC™ Active is a trademark of Enzymotec Ltd. **References:** 

- http://www.alz.org/national/documents/report\_alzfactsfigures2010.pdf. Accessed September 25, 2010.
- www.fda.gov/Food/LabelingNutrition/LabelClaims/QualifiedHealthClaims/ucm073006. htm. Accessed September 28, 2010.

### **LifeExtension**°

Volume Seventeen / Number Seven ■ July 2011

#### REPORTS



#### AS WE SEE IT: EPIDEMIC DENIAL ABOUT OBESITY

Nearly two-thirds of Americans are now medically classifiable as overweight or obese. Yet 30% of overweight individuals believe they're at a healthy weight, and 70% of obese individuals feel they're simply overweight. Scientists have discovered a novel blend of plant extracts that can safely induce significant fat loss in humans.

#### CALIFORNIA DECREES ABSURD LABEL LAW FOR

A plethora of medical evidence substantiates the safety and efficacy of **DHEA** and **pregnenolone**. That has not stopped relentless governmental assaults on your right to obtain them. The latest comes from the state of California, where alarmist warning labels are now law.



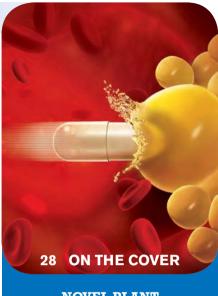
Celebrity physician Dr. Oz recently touted astaxanthin as 'The #1 Supplement You've Never Heard of That You Should Be Taking." Life Extension® members have been taking it for years to combat eye fatigue. An abundance of fresh scientific evidence reveals astaxanthin may also combat cancer, heart disease, and more.

#### 66 ANTI-CANCER POWER OF CITRUS PECTIN

Cancer cells must communicate with one another in order to proliferate and metastasize. Avante-garde researchers are finding that a specific form of *modified citrus pectin* disrupts their lines of communication, slowing cancer's progress and improving prognosis.

#### **76 HUMAN DATA SUPPORT CALORIE RESTRICTION'S BENEFITS**

For the past 76 years, scientific studies have confirmed the pro-longevity effects of calorie restriction. Most people erroneously believe adhering to a reduced calorie diet while staying optimally nourished is nearly impossible. Find out how easy it really is-and the latest supportive human data.



**NOVEL PLANT** EXTRACTS BLOCK FAT **CELL STORAGE** 

Official warnings about the dire consequences of obesity have done little to help Americans lose weight. Even most doctors remain ignorant of the cellular mechanisms behind age-related weight gain. In a major advance, two cutting-edge plant extracts have been identified that target the pathways involved in fat cell storage.



#### DEPARTMENTS

#### 21 IN THE NEWS

CoQ10 supplementation improves endothelial function: fish oil enhances effects of tamoxifen; high C-reactive protein levels associated with memory decline; and more.

#### **85 SUPERFOODS: THE AWESOME APPLE**

"An apple a day keeps the doctor away" isn't just a phrase-it's a medical fact. Apples contain triterpenoids, compounds with potent anti-cancer activity, especially in preventing cancers of the breast, colon, and liver.

#### 89 PROFILE: DR. LIFE

At 59 years old, fitness celebrity Dr. Jeffry Life was obese and pre-diabetic, with high cholesterol and low energy. Today, at a robust 72, the former Grand Champion in the 1998 Body-for-LIFE Contest boasts a rock-hard physique and the know-how to apply the principles of body transformation to his medical practice. Here he reveals the cornerstones of his fitness regime, including supplementation with vitamin D3, CoQ10, saw palmetto, lycopene, and French maritime pine bark extract and hormone replacement.

### LifeExtension®

Volume Seventeen / Number Seven ■ July 2011

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## THE ULTIMATE TWO-PER-DAY TABLET

The following table compares the daily dosage of key nutrients included in both the Life Extension® Two-Per-Day Tablet and Centrum®'s Daily Tablet:

SAMPLE INGREDIENT COMPARISON		TENSION ER-DAY	CENTRUM°
Vitamin C	500	mg	60 mg
Vitamin D	2,000	IU	400 IU
Vitamin B1	75	mg	1.5 mg
Vitamin B2	50	mg	1.7 mg
Vitamin B6	75	mg	2 mg
Vitamin B12	300	mcg	6 mcg
Niacin (as niacinamide)	50	mg	20 mg
Pantothenic acid	100	mg	10 mg
Vitamin E	200	IU (natural)	30 IU (synthetic
Natural Folate	400	mcg	400 mcg
Zinc	30	mg	11 mg
Selenium	200	mcg	55 mcg
Lutein	5	mg	(none)*
Lycopene	2	mg	(none)*
Biotin	300	mcg	30 mcg
Boron	3	mg	75 mcg
Chromium	200	mcg	35 mcg
Molybdenum	100	mcg	45 mcg
Magnesium	100	mg	50 mg
Manganese	2	mg	2.3 mg
lodine	150	mcg	150 mcg
Potassium	25	mg	80 mg
Vitamin A (preformed)	500	IU	1,015 IU
Vitamin A (as beta-carotene)	4,500	IU	2,485 IU
Choline (as bitartrate)	20	mg	(none)
Inositol	50	mg	(none)
PABA	30	mg	(none)
Calcium	12	mg	200 mg

Contains soybeans, rice, and corn.

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

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

The box on this page reveals how much more potent the **Two-Per-Day** formula is compared to the leading commercial multi-vitamin. Few consumers realize that commercial supplements

often contain the cheapest form of nutrients that don't provide optimal benefits. For example, the 30 IU of synthetic vitamin E contained in Centrum® may provide relatively little vitamin E to the bloodstream. The 200 IU of <u>natural</u> vitamin E contained in Two-Per-Day provides about **14 times** more vitamin E activity than does Centrum® because <u>natural</u> vitamin E is <u>twice</u> as bioavailable as synthetic.



Compared to Centrum\*,

Two-Per-Day Tablets

provide about:

Item #01515

- 5 times more Vitamin D
- 8 times more Vitamin C
- 7 times <u>more</u> Vitamin E
- 10 times <u>more</u> Biotin
- 40 times more Boron
- 4 times more Selenium
- 37 times more Vitamin B6
- 50 times more Vitamin B1
- 50 times more Vitamin B12
- More than <u>twice</u> as much niacin, zinc, and many other nutrients

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

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

To order Life Extension Two-Per-Day Tablets, call 1-800-544-4440 or visit www.LifeExtension.com

<sup>\*</sup> Centrum\* no longer contains significant amounts of lycopene nor lutein.

### **LifeExtension**®

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# Rock Solid Block Solid Control Contr

**Feeble bones** severely hamper quality of life and put aging humans at risk for injury due to possible breaks or fractures.

Bone Restore combines critical bone boosting nutrients into one superior formula.

Bone Restore includes highly absorbable forms of calcium, a bioavailable form of boron, along with vitamin D3, magnesium, zinc, manganese, and silicon.

**Bone Restore** comes in fast-release capsules, making the minerals and other nutrients immediately available for absorption into the bloodstream.

The retail price for 150 capsules of **Bone Restore** is \$22.50. If a member buys four bottles, the price is reduced to just **\$14.63** per bottle.

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

Contains corn.

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Item #00811

**IfeExtension** 

BONE

**Highly-Absorbable Calcium** 1,200 mg (as DimaCal® dicalcium malate, TRAACS® calcium glycinate chelate, calcium fructoborate)

Vitamin D3	1,000 IU
Magnesium	340 mg
Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)	3 mg
Zinc	2 mg
Manganese	1 mg
Silicon	5 mg

# An Epidemic of Denial



BY WILLIAM FALOON



About **65%** of Americans are now overweight or obese, and this excess weight costs our nation an estimated \$93 billion in annual medical bills.<sup>1</sup>

According to a recent survey, about 30% of overweight individuals think they are normal size, and 70% of Americans classified as obese felt they were simply overweight.<sup>2</sup> Since it has become "normal" to carry excess body fat, we understand why so many are in a state of denial regarding their corpulence.

The problem is that **excess body fat** is more than a cosmetic issue. The words **overweight** and **obese** are medical terms. They mean a person's **surplus body fat** increases risks of illnesses like cancer, <sup>3-9</sup> diabetes, <sup>10-12</sup> heart disease, <sup>13-18</sup> and stroke. <sup>19-23</sup>

A study by the Organization for Economic Cooperation and Development predicts that by the year 2020 nearly 75% of the American population will be overweight or obese.<sup>24</sup> This exploding epidemic has led to the shocking prediction that in less than nine years, half of all Americans will be either pre-diabetic or suffer full-blown type 2 diabetes.<sup>25</sup>

Our early warning of an out-ofcontrol health care crisis caused by so many overweight Americans is turning into a stark reality.

The challenge facing most people is how to remove surplus body fat stores.

There is encouraging news. In a series of meticulously conducted studies, researchers have demonstrated that a novel blend of plant extracts can simultaneously attack the fundamentals of obesity and induce significant fat loss in humans.

Scientists long ago discovered that people gain weight because their bodies accumulate too many **bloated fat cells** (adipocytes). 26,27 Up until now, however, little could be done to reverse this deadly trend of adipocyte expansion.

#### **Medical Establishment Remains Light Years Behind**

When doctors are asked what can be done to avert the impending diabetes/obesity epidemic, the pathetic answers (such as eat less and exercise) reveal that mainstream medicine has little idea how to solve this problem.

At a medical conference I spoke at regarding this issue, I told the physicians that doctors are committing malpractice if they fail to take aggressive actions to reduce every overweight patient's fat mass. It would be like observing a large melanoma lesion on a patient's skin and letting the patient walk out of the office without doing something about it.

Most medical disorders can be traced to surplus fat mass. This can range from an infection (related to obesity-induced immune suppression) to crippling arthritis.<sup>28-35</sup> Obesity has been shown to impede the activity of natural killer cells, a type of white blood cell that reduces viral spread by killing infected cells.<sup>29,36-38</sup> In fact, obesity has been shown to increase the risk for complications of the dreaded H1N1 influenza infection.39,40

I tell doctors that common symptoms their patients present with are often caused by excess body weight and that it is impossible to optimally treat these patients without helping them to shed fat pounds. My objective is to enlighten physicians about the power of their prescription pads to introduce medications (such as

> acarbose41,42 and metformin<sup>43-46</sup>) that can safely help facilitate weight loss.

> To fully inform physicians about the weapons at their disposal, I often give them a copy of our Life Extension® Weight Loss Guide that discusses the use of certain prescription medications, hormones, nutrients, and lifestyle changes that have clinically demonstrated benefits.

It is imperative that physicians don't fall into the same lethal state of denial that overweight individuals have. Doctors are seeing so many obese patients in their office that they too often overlook the obvious necessity to implement aggressive fat loss interventions.





#### What Causes Fat to Accumulate on our Bodies?

Few people understand what is happening in their bodies as they accumulate fat pounds. To state it in the simplest terms, we become overweight because:

1. Fat cells (adipocytes) become bloated in our bodies from storage of surplus calories from food as body fat,

and

2. Fat cells become *dysfunc-tional*, resulting in metabolic derangements including impairments in burning of fatty acids for energy.<sup>48</sup>

There are many reasons why we accumulate dysfunctional, bloated adipocytes as we age, especially in the abdominal area. The ultimate target of any *obesity reversal* program is to target bloated, dysfunctional fat cells.

Interventions focused upon bloated, dysfunctional adipocytes have been attempted by indirect methods, such as speeding up *metabolic rate* to burn excess fat mass stored in the body. Scientists have found limited success when employing certain *adipocyte*-

**reducing** approaches—yet the obesity epidemic worsens each year nonetheless.

The problem has been that up until now, little has been available to *directly* target critical mechanisms responsible for bloated, dysfunctional adipocytes.

#### Herculean Effort Leads to Discovery of <u>Anti-Adipocyte</u> Plant Extracts

A group of scientists screened over one thousand plant extracts with the objective of identifying ones able to:

- 1. Reduce the differentiation of pre-adipocytes into bloated, dysfunctional adipocytes (fat storage cells).
- 2. Reduce excessive fatty acid uptake of existing adipocytes.
- 3. Enhance lipolysis—the breakdown of stored fat in adipocytes.

Extensive testing uncovered two **plant extracts** that function via <u>multiple mechanisms</u> to <u>reverse</u> the metabolic dysfunction associated with bloated fat cells.<sup>49</sup>

### New Study Confirms Overweight People Die Sooner

The lethal impact of carrying surplus fat pounds may seem obvious. Until recently, however, no one could point to a study that did not have confounding flaws such as including those with pre-existing heart disease, cancer, etc.

A pooled analysis involving **1.46 million** men and women was published in the *New England Journal of Medicine* that measured risk of dying with body mass index (BMI).<sup>47</sup> Those with pre-existing illness and smokers were excluded.

The findings showed that compared with women of normal weight during the study period:

- Overweight women (BMI between 25.0 and 29.9) were 13% more likely to die;
- Moderately obese women (BMI between 30.0 and 34.9) were 44% more likely to die;
- Severely obese women (BMI between 35.0 and 39.9) were
   88% more likely to die;
- Morbidly obese women (BMI between 40.0 and 49.9) were
   151% more likely to die.

The body weight/risk of dying pattern was similar for men. The lowest mortality risks were for the people who had a body mass index (BMI) of **20** to **24.9**.

The "body mass index" or BMI is based on how much someone weighs in relationship to their height. The BMI is not a completely accurate mortality predictor as a large waist circumference even in those in the normal BMI range can increase one's risk of early death.

In one of the laboratory tests. fat accumulation in cells was inhibited by a remarkable 48.5% when treated with one of these plant extracts compared to control cells. The other component of this dual plant extract was shown to reduce fat accumulation in cells by a stunning 65.9% compared with control. 49

When measuring the breakdown of stored fat (lipolysis), 55.8% more fat was broken down in adipocytes using one of the components of this dual plant extract compared to control. 49

These in vitro studies showed the potent efficacy of these plant extracts to reduce fat accumulation in cells and promote fat burning (breakdown) in adipocytes. The next step was to study the effects of this novel blend of plant extracts in the whole animal (in vivo) model.49

#### **Using these Plant Extracts** to Prevent Obesity in Rats

A group of healthy young adult rats were fed a high-fat diet for eight weeks. As expected, those that did not take the plant extracts (the control group) rapidly gained weight.

The rats taking the plant extracts showed a reduced body weight gain of 700% compared to the controls at the end of eight weeks.<sup>49</sup> These were the same **plant** extracts that blocked fat accumu**lation** by **48.5**% and **65.9**% in the cellular model.

This study showed that these plant extracts decreased dietinduced obesity in young adult rats.49

The final and obvious question is what effect these plant extracts will have on aging **humans** who are already overweight or obese...which represents the majority of the adult American population today!

#### A Key Human **Clinical Study**

Humans accumulate surplus fat because of multiple changes that occur as a result of normal aging—in addition to poor lifestyle choices. When simplistic methods to reduce body fat are utilized, the results often prove disappointing.

As you will learn in this month's issue, scientists have identified many of the factors that conspire to cause unwanted weight gain and preclude it from being removed.

What has us most excited are the brand new findings showing that a novel blend of two plant extracts functions via six different mechanisms to:

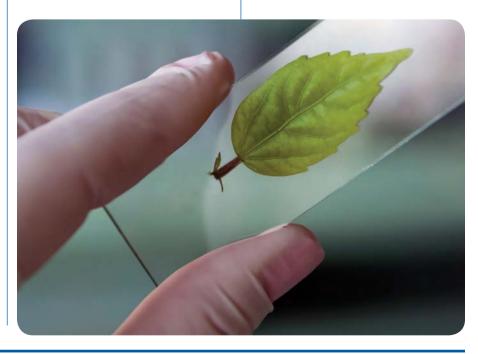
- Target progenitor fat cells (pre-adipocytes) to keep them from producing dysfunctional fat cells:
- Reduce fat accumulation (adipogenesis) in adipocytes;
- Break down excess fat (lipolysis) in existing adipocytes.

These cellular anti-fat functions are critical for weight loss success, though most dieters don't vet understand this.

In this key human clinical study using these plant species, 60 obese adults were recruited and divided into two groups. One arm of 30 patients functioned as the placebo while a second group of 30 patients received the two plant extracts. Both groups followed a 2,000 calorie-a-day diet and were asked to walk 30 minutes five days a week.50

After eight weeks the group receiving this novel blend of two plant extracts experienced statistically significant improvements in many parameters including:50

- Reduction of **4.05 inches** in the abdomen—which was 2 times greater than the placebo arm.
- Reduction in **body mass index** (BMI) of **2.05**—which was **3.9 times** greater than placebo.
- Reduction in total body weight of 11.4 pounds—which was 3.7 times greater than the placebo arm.



What impressed the researchers who conducted this randomized, double-blind, placebo-controlled study was that noticeable reduction in waist and hip circumference, as well as body weight. occurred within the first 14 days!

The dual plant extract group also showed significant reduction in the waist-to-hip ratio, 2.2 times greater than the placebo group. This is important because improvements in the waist-hip ratio indicate the more dangerous visceral belly fat is being lost.

Also impressive was the trend toward improvement in the hormone adiponectin in the group taking the plant extracts.<sup>50</sup> A higher level of adiponectin is encouraging because this hormone is known to improve insulin sensitivity<sup>51-55</sup> and potentially protect cardiovascular health. 56-59

Trends toward reduced levels of glucose and cholesterol in the dual plant extract arm reflect improved status of fat metabolism and reduced body fat stores.<sup>50</sup>

#### A Second, Key **Human Study**

The findings from the trial described above indicate significant weight loss as well as improvement in several metabolic parameters with a natural plantbased product. Contrast this fact with many FDA-approved weight loss drugs subsequently withdrawn because of lethal side effects.

The plant species used in these studies have been consumed by humans for thousands of years, and no known adverse effects have been shown. Unlike natural plant extracts, weight loss drugs comprise synthetic chemicals with little or no history of human use.

The findings from the first study described are supported by a second, similarly designed trial.

In the second human study, 60 obese subjects were evaluated at baseline. They were then divided into three groups that consisted of a placebo arm, an active arm receiving one plant extract, and another active arm that received a dual plant extract.49

All participants followed a 2,000 calorie-per-day diet and were asked to walk for 30 minutes five times a week for 8 weeks.

After eight weeks the group receiving the dual plant extract experienced statistically significant changes in their abdominal circumference, total body weight, and their hip circumference similar to those seen in the first study mentioned above.49

These confirmatory findings indicate that this novel dual plant extract may enable aging humans to safely shed unwanted body fat stores.

Obesity arises from the increased size of individual adipocytes (fat cells) due to enhanced lipid (fat) accumulation. It worsens as adipocytes transform into dysfunctional, bloated adipocytes.

This novel blend of plant extracts has been shown in cell cultures to reduce the ability of progenitor fat cells (pre-adipocytes) to transform into bloated fat cells.49 Cell data also shows that components of this dual plant extract reduce the amount of fatty acids taken up by adipocytes and facilitates the breakdown of fat stored in existing adipocytes.<sup>50</sup>

When tested in obese human study subjects, this dual plant extract induced noticeable effects at 14 days and significant benefits at eight weeks compared with placebo.

There has never been a formulation available that directly functions via these specific antiadipocyte mechanisms. The first article in this month's issue describes in molecular detail how this new dual plant extract can help aging people remove excess body fat stores.

#### Chronically **Bloated Bloodstreams** an Obesity Culprit

Another culprit involved in age-related weight gain is that our bloodstreams become chronically bloated with glucose, insulin, and triglycerides.60-64 One reason for this is that aging people lose their sensitivity to insulin.

#### **Physicians Urged** to Recognize Today's **Obesity Epidemic**

As I was writing this editorial, a commentary appeared in the Journal of the American Medical Association (JAMA) discussing the difficulties of examining obese patients because of the thick layer of adipose (fat) tissue that envelopes their vital tissues. It suggested that physicians better educate themselves in order to ensure good care of obese patients.67

The JAMA article opened up by stating, "The notion of the standard 70 kilogram (154 pound) patient is outdated."

The sad fact is that this deadly epidemic is spreading across all ages including onethird of 9-month-olds who are already obese or overweight.68

As **glucose** accumulates in the bloodstream, the pancreas secretes insulin to reduce blood glucose. (Type 2 diabetes results when the pancreas can no longer produce enough insulin to control blood sugar levels as cells throughout the body lose sensitivity to insulin.) In the presence of high fasting insulin (hyperinsulinemia), sustained weight loss can become difficult to achieve.

A diet high in unhealthy fats and simple carbohydrates results in chronically elevated blood triglyceride levels. These triglycerides further impair insulin sensitivity and contribute to glucose dysregulation and elevated insulin levels.65

Life Extension's longstanding position is that diabetes and obesity prevention begins by eating less calories. Futhermore, blocking the negative impact of excess amounts of simple carbohydrate and fat calories by taking certain nutrients and/or drugs before heavy meals can also reduce the calorie burden.

Further steps to improve systemic insulin sensitivity can result in a reversal of metabolic derangements associated with obesity, including the insulin resistance observed in the majority of patients with type 2 diabetes mellitus.

Study subjects taking the new dual plant extract showed reductions in triglyceride and glucose blood levels.50 This indicates these plants are functioning across a broad spectrum of biological activities to correct underlying metabolic imbalances that predispose aging humans to weight gain.



#### A Powerful New Weapon...

According to the US Department of Agriculture, Americans consumed an extra 331 calories each day in the year 2006, compared with 1978. That translates into roughly 34 pounds of stored body fat.66

Virtually everyone consumes excess calories that they could cut out without depriving themselves. It is not unreasonable for a doctor to ask an overweight patient to determine which calories are the least important and to delete these from one's normal diet. Examples are eliminating bread and butter before a meal or a dessert after a meal if these are not vital to achieving satiety. Once one gets used to cutting calories that are not that important, it is easy to stay away from them over the long term. An article in this month's issue by the founders of the CR Way Program sheds new light on the multiple benefits that occur when humans reduce their calorie burdens.

A problem most in the Western world face is that they consume too many calories even when trying to cut back. This is why it is so important for anyone seeking to lose weight (and live longer) to reduce the number of ingested calories that make it into the bloodstream. Fortunately, there are nutrients and safe medications that neutralize enzymes in the digestive tract that break down food for rapid absorption into the bloodstream. We urge any overweight member to take nutrients and/or medications before meals that impede calorie absorption to lower blood glucose, insulin, and triglycerides.

You might think that cutting back a bit on how much you eat and impeding absorption of fats and carbohydrates would induce considerable weight loss.

For some individuals, significant weight loss will occur. For most overweight and obese individuals, however, they need to improve calorie utilization at the cellular level and mobilize their surplus fat stores in order to achieve a safe body weight.

Fortunately, a novel dual plant extract technology has been developed that functions to inhibit the development of bloated, dysfunctional adipocytes, impede the uptake of fatty acids into adipocytes, and facilitate the breakdown of stored lipids in existing adipocytes.

The dual plant extract described in the first article in this month's issue provides a powerful new weapon for those seeking to achieve healthier body weight, especially when it comes to reducing stubborn visceral fat that accumulates in the bellies of so many aging individuals.

For longer life,



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HESVERATROL ergistic Grape-Berry Active 250 mg



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#### **Cutting-Edge Support for Healthy Glucose Metabolism**

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

#### An Extract Clinically Validated by the USDA!

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

Scientists at the **US Department of Agriculture** have been quietly studying it *for more than a decade*.<sup>12</sup> Government experts have been amazed by compelling *in vitro* results documenting its ability to induce a **twenty-fold** increase in sugar metabolism.<sup>3</sup>

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

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



#### Standardized for Purity and Safety

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

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



#### **Carb Blockers from the Sea**

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

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

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

#### **Better Glucose Absorption** with Novel Chromium Complex

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

- Normal cellular glucose absorption<sup>6-10</sup>
- Healthy endothelial function<sup>11,12</sup>
- Healthy lipid and triglyceride levels<sup>13-16</sup>
- Normal cellular energy production<sup>17,18</sup>

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

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

A bottle containing 90 vegetarian capsules of CinSulin® with InSea2™ and Crominex® 3+ retails for \$38. If a member buys four bottles, the price is reduced to just **\$25.50** per bottle. Contains rice.



Item #01503

#### To order CinSulin® with InSea<sup>2™</sup> and Crominex® 3+

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

#### **For Those Who Want Only Extra Chromium**

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

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



Item #01504

CinSulin® is a registered trademark of Tang-An Medical Ltd., manufactured under US patent #6,200,569. InSea<sup>2™</sup> a trademark of innoVactiv™ Crominex® 3+ is a registered trademark of Natreon, Inc.

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# 6 Experience 6 Confidence 6 Con

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

Fortunately, Life Extension® has created Natural Stress Relief, a calming formula made with lemon balm and L-theanine, two ingredients clinically proven to help with anxiety, insomnia, and overall mood.<sup>13</sup>

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

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

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

Each vegetarian capsule of **Natural Stress Relief** provides:

300 mg of Cyracos<sup>®</sup> lemon balm extract 200 mg of Suntheanine<sup>®</sup> L-Theanine

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

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

BEWARE OF IMITATIONS The L-theanine used in the new Natural Stress Relief is Suntheanine®, the only pure form of L-theanine available worldwide and the only form protected by 40 internationally recognized patents and scientifically proven in clinical studies to be safe and efficacious. Independent laboratory analysis has verified that certain other products on the market claiming to contain "L-theanine" are only half L-theanine, the other half being a different form of theanine known as "D-theanine" that has not been scientifically evaluated in published studies. Suntheanine® is a registered trademark of Taiyo International, Inc. Use of Suntheanine® is protected by US Trademark Registration No. 2,548.957. Cyracos® is a registered trademark of Naturex, Inc.

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Contains rice.



To order Natural Stress Relief with Lemon Balm and L-Theanine, call 1-800-544-4440 or visit www.LifeExtension.com

#### **Comprehensive Pomegranate Protection!**

# POMEGRANATE FORMULA

Few nutritional sources have gained as much scientific validation as **pomegranate**.<sup>1</sup>

The vast majority of research has focused on extracts from the *fruit*. Only recently have scientists identified the synergistic action of compounds specific to other parts of the pomegranate—most notably its **seeds** and **flowers**.

#### The Next-Generation Pomegranate Formula

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

Full-Spectrum Pomegranate<sup>™</sup> 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,<sup>2-4</sup> Full-Spectrum Pomegranate<sup>™</sup> augments these polyphenols with newly discovered biologically active compounds from other parts of the pomegranate plant.

These little-known nutrients include: *punicanolic acid*, a member of the **triterpene** family of essential oils that provides cellular support to help with inflammation,<sup>5</sup> and *pomegranatate*, to combat age-related metabolic changes.<sup>6</sup>

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

One softgel of **Full-Spectrum Pomegranate**™ contains:

POMELLA® Pomegranate400	mg
(Punica granatum) Extract (fruit) [std. to 30%	
punicalagins (120 mg)]	
PomComplete™ Pomegranate137.5	mg
(Punica granatum) Blend [flower extract and	
seed oil (standardized to 22% (30 mg) punicic acid)]	

#### Full-Spectrum Pomegranate™

A bottle containing 30 softgels of **Full-Spectrum Pomegranate™** retails for \$24. If a member buys four bottles, the price is reduced to just \$15.75 per bottle. **Item# 01423** 

Contains soybeans.



To order Full-Spectrum Pomegranate™, call 1-800-544-4440 or visit www.LifeExtension.com

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POMELLA® extract is covered under U.S. Patent 7,638,640 and POMELLA® is a registered trademark of Verdure Science, Inc.
Isocell SA, France is the owner of U.S. Patents Nos. 6,045,808 and 6,426,881 and trademark of Glisodin®.



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**HISTORIC BRAND PRICE:** 

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**LOW-COST GENERIC EQUIVALENT:** 

Anastrozole 1 mg #30 **\$59.99** 

**HISTORIC BRAND PRICE:** 

Cozaar<sup>®</sup> 50 mg #30 \$80.61

**LOW-COST GENERIC EQUIVALENT:** 

Losartan 50 mg #30 \$15.83







#### IN THE NEWS

#### Antioxidants May Protect the Body from CT Radiation

At the Society of Interventional Radiology's 36th Annual Meeting, Kieran J. Murphy, MD, reports that a combination of antioxidants consumed prior to medical imaging studies involving ionizing radiation could help protect against their damaging effects.\*

Dr. Murphy and his colleagues tested the effects of antioxidants on blood samples drawn from two volunteers. Vitamin C and glutathione were administered to the samples prior to irradiation and DNA damage was assessed. Additional samples were tested with higher concentrations of vitamin C prior to receiving diagnostic doses of ionizing radiation. The subjects then were given vitamin C, glutathione, and uric acid orally for five days during which blood was drawn daily and subjected to CT radiation, and DNA injury to white blood cells was evaluated.

The researchers observed a reduction in DNA injury in blood treated with vitamin C and glutathione compared with control samples. Oral administration of the antioxidants also resulted in a reduction in DNA injury.

Editor's note: These findings indicate that when X-rays and CT scans are medically necessary, consumption of high doses of vitamin C and glutathione precursors like cysteine and SAMe hours and days before may confer some protection against the DNA-damaging, carcinogenic effects of ionizing radiation.

—D. Dye

Society of Interventional Radiology's 36th Annual Scientific Meeting, April, 2011, Chicago.

#### Low Coenzyme Q10 Associated with **Increased Breast Cancer Risk**

An article published in the journal Cancer Epidemiology, Biomarkers and Prevention reveals an association between decreased levels of CoQ10 and a greater risk of breast cancer in women.\*

The investigation involved participants in The Shanghai Women's Health Study. Robert V. Cooney at the University of Hawaii and his colleagues matched 340 women with breast cancer to 653 subjects who were free of the disease. Plasma samples were analyzed for coenzyme Q10 and tocopherols.

Women with higher CoQ10 also had higher plasma alpha- and gamma-tocopherol levels. After excluding patients diagnosed within a year of blood draw, a significant relationship was observed between declining plasma CoQ10

levels and increased breast cancer risk. There was a 90% greater risk of breast cancer among those whose levels were among the lowest one-fifth of participants compared to those whose levels were among the thirdfifth and higher.

-D. Dve

Cancer Epidemiol Biomarkers Prev. 2011 Apr 5.



#### **IN THE NEWS**

#### Omega-3 Fatty Acids Protect Against Obesityrelated Disease

An article published in the European Journal of Clinical Nutrition reveals a protective effect for high omega-3 fatty acid intake against the development of diseases related to obesity, including cardiovascular disease and diabetes.\*

Zeina Makhoul, PhD, and colleagues evaluated data from 330 Yup'ik Eskimos. Omega-3 fatty acid intake among the Yup'iks averages twenty times higher than most Americans.

Triglycerides, glucose, insulin, leptin, and C-reactive protein were measured in the participants' blood samples, and dietary questionnaire responses were analyzed for the intake of the omega-3 fatty acids EPA and DHA. Among subjects with lower blood levels of EPA and DHA, having a high body mass index was correlated with high triglycerides and C-reactive protein, both of which are associated with an increased risk of cardiovascular disease and possibly diabetes. "The new finding was that obesity did not increase these risk factors among study participants with high blood levels of omega-3 fats," senior author Alan Kristal, DrPH, revealed.

Editor's note: The researchers recommend that a clinical trial be conducted to help confirm whether increased omega-3 fatty acids reduce obesity's effect on triglycerides and inflammation.

—D. Dye

Eur J Clin Nutr. 2011 Mar 23.



#### **Greater Levels of Some Antioxidants Associated with Lower Risk of Metabolic Syndrome**

A report published online in the Journal of Nutrition reveals the results of a study that found a lower risk of metabolic syndrome among those with higher serum levels of vitamin C and carotenoids.\*

May A. Beydoun of the NIA and her associates evaluated data from up to 11,845 men and women enrolled in NHANES 2001-2006. Anthropometric measurements and blood pressure were assessed upon enrollment, and blood samples were analyzed for the antioxidant nutrients retinol, retinyl esters, carotenoids, vitamin C and vitamin E, as well as glucose, lipids, C-reactive protein, and other factors.

Participants with metabolic syndrome had significantly lower vitamin D and higher total homocysteine levels. Having higher serum carotenoids or vitamin C was associated with a lower adjusted risk of metabolic syndrome in men and women, while retinol and retinyl esters were associated with a protective effect only in men.

Editor's note: Metabolic syndrome is a cluster of risk factors that increase the risk of developing diabetes and/or cardiovascular disease.

-D. Dye

\* J Nutr. 2011 Mar 30.

#### Reduced Vitamin D Levels Linked to **Arterial Stiffness**

A presentation by Ibhar Al Mheid, MD, at the annual American College of Cardiology meeting revealed the finding of a protective effect for vitamin D against arterial stiffness and impaired blood vessel relaxation.\*

Dr. Al Mheid, along with Arshed Quyyumi, MD, evaluated data from participants in the Emory/Georgia Tech Predictive Health Institute's Center for Health Discovery and Well Being. Endothelial function was evaluated via brachial artery flow-mediated dilation. and microvascular function and arterial stiffness were assessed. Blood samples were analyzed for serum 25-hydroxyvitamin D, a form of the vitamin that reflects dietary intake and skin production.

Reduced levels of vitamin D correlated with increased arterial stiffness and vascular function impairment. Among those whose vitamin D levels were normalized over a six month period, vascular health improved and blood pressure measurements declined. "We found that people with vitamin D deficiency had vascular dysfunction comparable to those with diabetes or hypertension," Dr. Al Mheid observed.

**Editor's note:** "We are hoping to conduct a study where we have participants take a defined regimen of vitamin D," Dr. Al Mheid stated.

-D. Dve

Annual American College of Cardiology meeting, April 2, 2011.



#### Higher Vitamin D Levels Associated with Reduced Risk of Macular Degeneration **Among Women**

The results of a study reported in a recent issue of the journal Archives of Ophthalmology suggest that having a high level of vitamin D could be protective against the development of early agerelated macular degeneration (AMD), a leading cause of vision loss in adults.\*

The study involved 1.313 women participants in the Carotenoids in Age-Related Eve Disease Study (CAREDS). Serum samples were analyzed for 25-hydroxyvitamin D. Dietary questionnaires administered upon enrollment were analyzed for vitamin D intake from food and supplements.

Although no significant association was found between vitamin D and early macular degeneration risk in the entire group, when subjects younger than 75 years of age were analyzed, a protective association emerged. Intake of vitamin D from food and supplements was also found to be protective against early disease in participants under the age of 75.

Editor's note: "The take-home message from this study is that having very low vitamin D status (25-hydroxyvitamin D blood concentrations lower than 38 nanomoles per liter [15 ng/mL]) may be associated with increasing your odds of developing age-related macular degeneration," Dr. Millen concluded.

—D. Dve

Arch Opthalmol. 2011 Apr; 129(4):481-9.

#### **IN THE NEWS**

#### Marker of Inflammation Associated with Memory Decline

A presentation at the American Academy of Neurology's annual meeting in Honolulu revealed the finding of researchers at the University of California, San Francisco, of a link between higher levels of C-reactive protein (CRP, a marker of inflammation) and memory loss in older individuals.\*

Joel H. Kramer, PsyD, and his associates compared 76 men and women who had detectable levels of C-reactive protein to 65 adults of a similar age with undetectable levels. Word list tests evaluated the participants' verbal recall, and magnetic resonance imaging of the brain measured the volume of the medial temporal lobe, including the hippocampus, entorhinal cortex, and parahippocampal cortex.

Men and women with detectable CRP levels had smaller medial temporal lobes and decreased verbal recall compared to those whose levels were undetectable. "These findings support our working model by associating brain inflammation with alterations in brain structure and cognition," the authors write.

Editor's note: It is not known whether the increased inflammation revealed by CRP is a cause of the memory loss observed in this study or if it indicates the presence of another disease process. If confirmed as a causative factor in cognitive decline, simple treatments could be used to combat the condition.

-D. Dve

\* American Academy of Neurology annual meeting, April 13, 2011, Honolulu.

#### **Blueberries Inhibit Fat Formation**

In addition to numerous other recently revealed benefits, blueberries may confer an inhibitory effect on the development of adipocytes (fat cells) according to research presented at the recent Experimental Biology 2011 meeting in Washington, DC.\*

Texas Woman's University graduate student Shiwani Moghe, MS, reported the results of an experiment in which three doses of blueberry polyphenols were administered to pre-adipocyte tissue cultures derived from mice. The tissue cultures were analyzed for polyphenols' effect on adipocyte differentiation, which is the process by which unspecialized cells acquire

the features of adipocytes that synthesize and store fat.

Moghe found a dose-dependent effect of blueberry polyphenols on adipocyte differentiation. Compared to control cultures that did not receive polyphenols, those that received the low, middle, and high dose showed a 27%, 63%, and 74% reduction in lipid content, without any significant difference in lipid breakdown observed.

Editor's note: "Determining the best dose for humans will be important," Dr. Moghe remarked. "The promise is there for blueberries to help reduce adipose tissue from forming in the body."

-D. Dve

<sup>\*</sup> Experimental Biology 2011 meeting, April, 2011, Washington, DC.

#### IN THE NEWS

# Coenzyme Q10 Supplementation Improves Endothelial Function

An article published in the journal *Atherosclerosis* reports a benefit for supplementation with CoQ10 on endothelial function in patients with ischemic left ventricular systolic dysfunction, a cause of heart failure.\*

Researchers divided 56 men and women diagnosed with ischemic left ventricular systolic dysfunction to receive 300 mg of coenzyme Q10 per day or a placebo for eight weeks. Endothelial function was evaluated via brachial artery flow-mediated dilation, prior to and following the treatment period, and blood samples were analyzed to determine mitochondrial function, markers of oxidative stress, and other factors.

Participants who received CoQ10 experienced improvements in endothelial function, which correlated with increased mitochondrial function. No effects on blood pressure, lipids, glucose, C-reactive protein, or oxidative stress were observed in association with CoQ10 supplementation, which suggests that the benefit observed in this study is due to CoQ10's positive effects on mitochondrial function.

**Editor's note:** Endothelial dysfunction, which describes the malfunctioning of the cells that line the blood vessels, is a key event in the development of cardiovascular disease.

—D. Dye

\* Atherosclerosis. 2011 February 17.

#### Fish Oil Pumps Up Responses to Breast Cancer Drug Tamoxifen

Researchers at Fox Chase Cancer Center in Philadelphia, Pennsylvania, have found that omega-3 fatty acids, which are found in fish, may be a safe and beneficial booster for tamoxifen therapy.\*

Jose Russo, MD, director of the Breast Cancer Research Laboratory at Fox Chase, recently presented the new findings at the AACR 102<sup>nd</sup> Annual Meeting 2011. Russo worked in collaboration with a team led by Andrea Manni, MD, from Pennsylvania State University. Together, they induced mammary tumors in rats and then divided the animals into four groups.

They fed the groups either a 17% fish oil diet, with or without tamoxifen, or a 20% corn oil diet, with or without tamoxifen, for eight weeks. They then analyzed gene expression patterns in the tumors. Omega-3 fatty acids produced a greater expression of genes related to cellular specialization, or differentiation, compared to corn oil. The combination of fish oil and tamoxifen reduced the expression of genes linked to tumor growth and spreading.

"If a tumor was being treated with tamoxifen, the addition of an omega-3 fatty acid diet seemed to make the tumor,

at least at the molecular level, more benign and less aggressive and responsive to tamoxifen," Russo said.

Editor's note: This is a very important study in support of fish oil as adjuvant therapy with tamoxifen for breast cancer. This also supports Life Extension®'s long-held belief that an overabundant intake of omega-6 PUFAs has negative health effects. The traditional American diet contains copious levels of omega-6 PUFAs in comparison with omega-3 PUFAs.

—J. Finkel

\* http://www.medicalnewstoday.com/articles/221608.php. Accessed April 19, 2011.

#### Reduced Vitamin D Levels Could Help Explain High Blood Pressure in African Americans

An article published online in the *Journal of General Internal Medicine* provides one explanation for the greater incidence of hypertension that occurs among African Americans in comparison with Americans of European descent.\*

Ken Fiscella, MD, and colleagues compared data from 5,156 Caucasian and 1,984 adult African American participants in the National Health and Nutrition Examination Survey (NHANES) 2001-2006. Blood pressure was measured upon enrollment and serum samples were analyzed for 25-hydroxyvitamin D levels.

An average 4.0 mmHg adjusted increase in systolic blood pressure was observed in African Americans in comparison with Caucasian subjects. While 25% of the Caucasian population had vitamin D levels that were among the highest one-fifth of participants, only 2% of African Americans had levels this high. However, when the lowest fifth was analyzed, 61% of African Americans had levels that were in this range, compared to 11% of Caucasians.

Editor's note: "We believe that simple interventions such as taking vitamin D supplements might have a positive impact on racial disparities," Dr. Fiscella stated.

-D. Dye

\* J Gen Intern Med. 2011 Apr 21.

## MitochondrialBasics

#### with BioPQQ™

**Energy to burn.** It's more than just a phrase. It's the key to a healthy life span.

Behind every process your body needs to survive and thrive 3. Acetyl-L-carnitine arginate. Fats are shuttled into the are the cellular energy generators known as *mitochondria*. Their function is so crucial that a growing number of scientists now believe mitochondrial longevity may determine overall longevity in aging humans.1-5 That's why Life Extension® has remained at the forefront in identifying innovative compounds that specifically support mitochondrial health.

In addition to the more comprehensive Mitochondrial **Energy Optimizer with BioPQQ™** and standalone **PQQ** products, we now offer a one capsule per day formula for individuals seeking a simplified, low-cost option called Mitochondrial Basics with BioPQQ™.

The reason? We want all members to have access to targeted nutrients required to support mitochondrial function and the generation of healthy new mitochondria.

#### **Three Premium Compounds** in One Low-Cost Formula

The new Mitochondrial Basics with BioPQQ™ brings together cutting-edge mitochondrial energizers, including the most exciting nutrient to emerge in recent years called pyrroloquinoline quinone or PQQ. The three ingredients in value-priced Mitochondrial Basics with BioPQQ™ are:

- 1. PQQ. This breakthrough micronutrient has recently been shown to trigger *mitochondrial biogenesis*—the growth of new mitochondria in aging cells! PQQ also activates genes involved in protecting the delicate structures within the mitochondria.7-10
- 2. R-lipoic acid. The detrimental effects of free radicals comprise one of the chief obstacles to optimal mitochondrial energy production. Published studies confirm R-lipoic acid's power to promote mitochondrial bioenergetics while simultaneously blunting free radical activity. 11-16 Mitochondrial Basics with BioPQQ™ contains the superior Bio-Enhanced® R-lipoic acid and is in a proprietary microencapsulated form for better absorption.

mitochondria for metabolic combustion by the amino acid **carnitine**. The *acetylated* form of carnitine helps to facilitate more efficient utilization of fats than carnitine alone.

Life Extension® members continue to enjoy access to a full range of targeted supplements clinically shown to optimize energy production in the mitochondria. Just one capsule a day of Mitochondrial Basics with BioPQQ™ supplies:

**BioPQQ™.....10 mg** R-lipoic acid .....100 mg Acetyl-L-carnitine .....250 mg arginate dihydrochloride

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PQQ can also be obtained as a low-cost standalone or in the Mitochondrial Energy Optimizer with BioPQQ™ formula.

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  - Contains soybeans.

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OCHONDRIAL BASICS

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# Which VITAMIN D is Right for You?



Study after study confirms the vital importance of maintaining optimal levels of **vitamin D** for broad-spectrum health benefits. Research often indicates that a blood level of 50 ng/mL of **25-hydroxyvitamin D** is ideal.

Because people have individual requirements, Life Extension® has created the largest selection of **vitamin D** supplements available to ensure that you achieve your **vitamin D3** goals.

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



#### Vitamin D3 1,000 IU 250 capsules

Retail: \$12.50

Four-bottle Member Price: \$8.44 ea.

Commercial companies offered only **400** IU vitamin D products when Life Extension long ago introduced this **1,000** IU version. For most people, this 1,000 IU potency is *insufficient* to attain optimal vitamin D blood levels. For smaller individuals who obtain **2,000-3,000** IU in their multinutrient formulas (and children), this potency of vitamin D may be suitable. **Item # 00251** 

Please refer to website for allergen information.



#### Vitamin D3 5,000 IU with Sea-Iodine™\* 60 vegetarian capsules

Retail: \$14

Four-bottle Member Price: \$9.38 ea.

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

Item # 01372

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

CAUTION: Individuals consuming more than 2,000 IU/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxyvitamin D measurement. Do not exceed 10,000 II 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 medi-



#### Vitamin D3 5,000 IU 60 capsules

Retail: \$11

Four-bottle Member Price: \$7.43 ea.

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

Item # 00713

Please refer to website for allergen information.



#### Vitamin D3 7,000 IU 60 capsules

Retail: \$14

Four-bottle Member Price: \$9.45 ea.

Some individuals (such as those weighing more than 180 pounds) may require higher potencies of vitamin D. When combined with 1,000-3,000 IU obtained from multinutrient 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

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#### Vitamin D3 Liquid Emulsion 2,000 IU 1 ounce

Retail: \$28

Four-bottle Member Price: \$18.75 ea.

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

Item # 00864

cal 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.

#### **Next-Generation Formula**

#### Enhanced Berry Complete with RZD™ Açaí



#### **Another Breakthrough in Antioxidant Defense!**

In 2008, **Life Extension**® introduced *Berry Complete*, a unique, high-potency blend of extracts from Nature's most powerful free radical fighters. The antioxidant strength of just *one* capsule equaled **more than** 50% of the recommended five daily servings of fruits and vegetables.

Today, we introduce an *even more* powerful antioxidant formula. A single capsule of the new **Enhanced Berry Complete with RZD™ Açaí** delivers an antioxidant value equivalent to **more than 100%** of the recommended daily fruit and vegetable intake.

It is also the <u>first</u> antioxidant formula to use a cutting-edge extraction technology called *Radiant Zone Drying™*. This patented process delivers the most *complete* nutritional profile of the **açaí berry**—for a breakthrough in antioxidant defense.

#### **ORAC: A Measure of Antioxidant Power**

To measure the antioxidant strength of various foods, scientists use what is known as the ORAC index. While berries score higher than most fruits and vegetables, açaí boasts one of the *highest* ORAC values known to modern science.

Unfortunately, most commercial products containing açaí do not reflect the full nutritional content of the fruit. Only a *fraction* of its phenolic content survives industrial processing, handling, and storage.

**RZD**<sup>™</sup> extraction technology allows for <u>optimal</u> delivery of açaí polyphenols, including highly beneficial *anthocyanins*, *proanthocyanidins*, and *flavonoids*, along with **essential fatty acids** and other vital compounds.

Why should this matter to you? It's <u>more</u> than a matter of antioxidant potency. In 2010, a team of researchers reported for the first time that **açaí**, **blueberry**, and

**strawberry** polyphenols may provide targeted support for cellular metabolic processes that promote neural and cognitive health in the aging brain.<sup>6</sup> But you need the *complete* polyphenolic profile to get the benefit.

Each vegetarian capsule of Enhanced Berry Complete with RZD™ Açaí <u>also</u> contains standardized extracts of high-ORAC value foods including:

Blackcurrant Grape
Blackberry Cranberry
Elderberry Prune
Wild blueberry Strawberry
Wild bilberry Pomegranate
Sweet cherry Black soybean hull
Tart cherry Blue corn

Tart cherry Raspberry

with Res

Item #01406

**ENHANCED** 

BERRY COMPLETE

RZD™ Açai

Enhanced Berry Complete with RZD™ Açaí gives you a convenient way to obtain a broad spectrum of seasonal, hard-to-find, highly perishable foods, for optimal antioxidant value.

A bottle containing 60 vegetarian capsules of **Enhanced Berry Complete** with RZD™ Açaí retails for \$29. If a member buys four bottles, the cost is just \$19.50 per bottle.

Contains soybeans. Contains corn.

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# SHED POUNDS BY INHIBITING CELLULAR FAT STORAGE

ILLUSTRATION OF ADIPOCYTES.

#### BY KIRK STOKEL

Health authorities are warning about the devastating consequences of **obesity**, yet doctors remain in the dark about what <u>causes</u> people to accumulate so many fat pounds as they age.

Through a series of well-designed studies, scientists investigating certain plant extracts found they can block fat storage at the *cellular* level.

In a significant scientific advance, a potent *new* weapon has been identified to help safely induce weight loss.

This article describes how a novel dual plant extract favorably modulates <u>six</u> pathways that fat cells use to trigger weight gain.

When tested on humans in a placebocontrolled study, those taking this *dual plant extract* lost **4.05 inches** of abdominal fat and dropped **11.4 pounds** after eight weeks...with weight loss observed as early as <u>14</u> days.<sup>1</sup> >> Cells that store fat are called **adipocytes**. They are deposited throughout our bodies.<sup>2,3</sup>

As we age, **adipocytes** tend to expand and congregate in areas that are cosmetically unsightly and detrimental to our health.

Of greatest concern are the **adipocytes** that deposit deep in our abdomens. This "visceral fat" represents more than fat stored on our waistlines. Visceral fat is chemically active tissue that churns out a torrent of pro-inflammatory cytokines.<sup>4</sup>

Those with bulging belly fat suffer constant bombardment from toxic cytokines that trigger the *meta-bolic syndrome* and its deadly consequences.<sup>5,6</sup>

This widespread problem led scientists to seek out **plant extracts** that specifically interfere with **adipocyte fat storage** in our abdominal anatomy.

#### **How Unwanted Fat Storage Occurs**

Excess calories transform to fat deposits in **adipocytes**<sup>7</sup> through a multi-step process known as *adipogenesis*.

When fewer calories are consumed, fat is *released* from adipocytes to meet the body's energy needs.<sup>8,9</sup> This is known as *lipolysis*.

A *dual plant extract* has been studied based on its ability to simultaneously *inhibit* adipogenesis (fat storage) and *enhance* **lipolysis** (fat breakdown and release).

Like any other cell, **adipocytes** develop from undifferentiated *stem cells*. Premature, developing fat cells are called *pre-adipocytes*. When you ingest more calories than your body needs, "young" pre-adipocytes respond by maturing into "adult" adipocytes.<sup>7,10-12</sup>

"Adult" adipocytes take up **excess fatty acids** from your bloodstream and begin expanding. It is this process of fatty acid uptake and adipocyte *expansion* that ultimately results in obesity and its pathologic consequences. *Every* excess calorie contributes to the maturation and growth of fat cells in this way. Past a certain point, adipocytes distend and become bloated, much in the same way your belly does.

Not all adipocytes are the same. While fat cells distribute throughout your body, those that store in your abdomen—producing so-called **visceral fat** or **belly fat**—are more than just storage "containers."

Belly fat cells are chemically *active*. They form fatty tissue capable of releasing detrimental pro-inflammatory **cytokines**.<sup>4</sup>

In obese individuals, the mass of excess *visceral* fat deposits generates a pro-inflammatory flood of cytokines. This cytokine release then incites a cascade of

harmful effects that, if left unchecked, contributes to the onset of multiple degenerative diseases.<sup>5,6</sup>

So unwanted body fat storage happens when *pre-adipocyte* stem cells <u>mature</u> in order to <u>store</u> excess dietary fat (adipogenesis) while the ability to break down stored fat (lipolysis) diminishes.

#### **Combating Surplus Body Fat Storage**

Searching for natural interventions that would effectively inhibit fat accumulation (*adipogenesis*) and enhance fat burning (*lipolysis*), scientists evaluated more than a *thousand* plants for evidence that would meet this criteria.<sup>13</sup>

<u>Two</u> plants whose extracts demonstrated significant biological effects were:

- **1.** *Sphaeranthus indicus* flower (*S. indicus*)<sup>13</sup>
- **2. Mangosteen** fruit (*Garcinia mangostana*). <sup>13</sup>

In the laboratory, *S. indicus* and *mangosteen* extracts powerfully <u>impeded</u> *adipogenesis*.

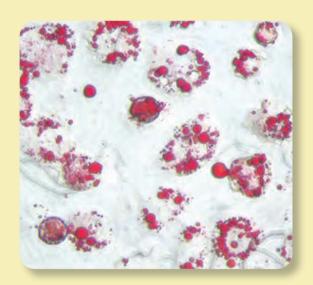


Sphaeranthus indicus.

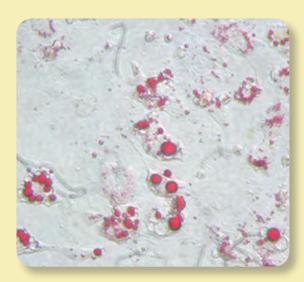


Mangosteen fruit.

When cells were treated with S. indicus alone, fat storage was inhibited by as much as 65%, compared with control cells. Photographs (below) show a markedly visible difference between the two cell groups. The control cells show a bloated, "foamy" appearance, bulging with fat droplets, compared to the smaller, more naturally contoured cells treated with the S. indicus extract.13



Control adipocyte cells not treated with S. indicus display lipid accumulation.



Adipocyte cells treated with S. indicus inhibited fat accumulation.



#### **Inhibiting Cellular** Fat Storage

- An obesity epidemic continues to rage in this country, with more than two-thirds of the American population overweight or obese.
- Conventional medicine has yet to offer any safe, long-term, practical solution.
- Cutting-edge researchers continue to identify novel natural weight loss-inducing agents.
- Among the most recent is a dual plant extract containing extracts of the flower S. indicus and the mangosteen fruit, both native to Asia.
- When combined, the resulting dual extract **blend** was found to favorably influence **six** distinct biomolecular pathways by which fat cells trigger weight gain. In placebo-controlled clinical trials involving obese subjects, this dual extract safely induced total weight loss of 11.4 pounds, a decline of 2.05 in body mass index (BMI), and a reduction of 4.05 inches in harmful visceral fat after just eight weeks.1

Each of these extracts <u>also</u> enhanced lipolysis (or fat burning), by as much as **56**% compared to control cells.<sup>13</sup>

Having identified these unifying properties in the two extracts, the researchers set out to determine if they would exhibit enhanced effects when used *in combination*.

They found that the *S. indicus* and *mango-steen* extracts favorably modulate the activity of <u>six</u> genomic pathways involved in fat cell formation and breakdown.<sup>13</sup>

Remarkably, these extracts reduced **gene expression** that <u>promotes</u> adipogenesis while favorably influencing a gene involved in desirable lipolysis.

The box on this page shows how these plant extracts, used alone and in combination, positively modulated the markers involved in **unwanted cellular fat accumulation** by *inhibiting* **adipogenesis** and *promoting* **lipolysis**.

Given these observations, researchers recognized that this novel blend of plant extracts could result in significant weight loss via three distinct mechanisms:

- 1. Preventing "young" fat cells (pre-adipocytes) from developing into "mature" fat cells (adipocytes);
- 2. Reducing the amount of fatty acids adipocytes could absorb;
- **3.** Speeding breakdown of bloated adipocytes' existing fat stores.

The next step was to determine if these plant extracts would induce weight loss in experimental animals and—more importantly—obese humans.

#### **Preventing Obesity in Rodents**

When young adult rats are fed a **high-fat diet** they rapidly gain weight—just as humans often do.

To investigate the effects of the **plant extracts** that worked in cell studies, scientists fed a group of young adult rats a high-fat diet. Half the rats received the **dual plant extract** while the other half served as the **control** group.<sup>13</sup>

#### How These Plant Extracts Combat Adipocyte Overload

The novel blend of *S. indicus* and *mangosteen* extracts <u>inhibit</u> expansion of new fat cells while promoting <u>breakdown</u> of lipids in existing adipocytes. Laboratory studies demonstrate the following molecular mechanisms that enable these <u>two</u> plants to combat adipocyte overload:

- 1. Adipocyte differentiation-related protein (ADRP): Stimulates lipid accumulation and lipid droplet formation in fat cells. <sup>13,14</sup> Reducing levels of ADRP is considered a novel strategy for preventing or reducing dangerous fat accumulation, especially in the liver. <sup>12,13,15,16</sup>
- 2. Adipocyte fatty acid binding protein 4: Also known as aP2, this transports fatty acids into fat cells for storage. Increased levels of aP2 are associated with lipid profile abnormalities that lead to atherosclerosis; they may also be an independent risk factor for metabolic syndrome and cardiovascular disease.<sup>8,11,17-25</sup>
- **3. Perilipin:** A protein that coats lipid droplets in adipocytes, thereby protecting their fat contents from being broken down. Inhibiting perilipin thus *promotes* lipolysis, contributing to a reduction in adipocyte fat content. 9,26-28
- 4. Plasminogen activator inhibitor-1 (PAI-1): Produced primarily by endothelial (artery-lining) cells, PAI-1 plays a key role in blood clot formation

- and breakdown.<sup>29</sup> It is *also* secreted by adipose tissue.<sup>30</sup> High levels of PAI-1 thus correlate directly with abdominal obesity, body weight, and body mass index or BMI.<sup>31</sup> In the presence of this novel plant extract blend, PAI-1 levels were ultimately found to decline significantly.<sup>1</sup>
- 5. PPAR-gamma (peroxisome proliferator-activated receptor-gamma): A primary metabolic "sensor" that triggers adipogenesis in the presence of excess calories.<sup>32</sup> Reducing PPAR-gamma activity helps prevent fat cells from becoming bloated and dysfunctional. <sup>7,9,14,33-36</sup>
- **6. Beta-3-adrenergic receptor** (β**3AR**): Gene expression for this recently discovered receptor was increased by the dual plant extract. It regulates fat breakdown (lipolysis) when an energy boost is needed. Switching on the beta-3 receptor spontaneously and dramatically increases fat cells' energy expenditure, burning up unused fat in the process.<sup>6,37-41</sup>

Researchers have demonstrated that the <u>six</u> genomic pathways involved in fat cell formation and breakdown (described above) are favorably modulated when exposed to *S. indicus* and *mango-steen* extracts.<sup>17</sup> This provides a scientific basis to explain the **anti-obesity** effects observed in human clinical trials.

At the end of eight weeks, the control group rapidly gained weight. The rats fed a high-fat diet and given the dual plant extract, on the other hand, reduced body weight gain by an impressive 700%.13

This is not surprising considering these same **plant** extracts blocked fat accumulation by 48.5% and 65.9% in the cellular model. 13

This study demonstrated that these plant extracts decrease diet-induced obesity in young adult rats. The real challenge, however, is whether these same plant extracts are effective in humans who are already obese.

#### **Weight Loss Findings in Humans**

Human weight loss studies comprise an active arm that received the potentially effective fat-reducing agent and a similar group that received an inactive

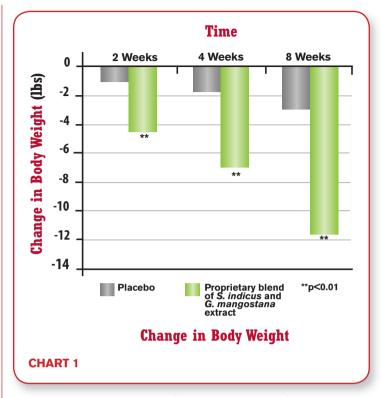
To evaluate the effects of these two *plant extracts*, 60 obese adults were recruited and divided into two groups. One arm of 30 patients functioned as the placebo group while a second group of 30 patients received **800 mg per day** of a combination of the two plant extracts. Both groups followed a 2,000-calorieper-day diet and were asked to walk 30 minutes five days a week.

At the end of **eight weeks**, the group receiving the two plant extracts showed the following improvements:1

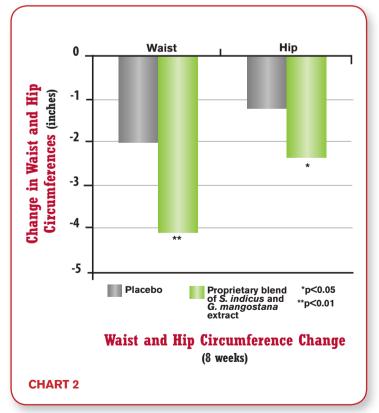
- 1. Reduction in total body weight of 11.4 pounds. This was **3.7 times** greater than the placebo group.
- **2.** Reduction of **4.05 inches** in the **abdomen**. This was **2 times** greater than the placebo group.
- **3.** Reduction in **body mass index** (BMI) of **2.05**. A decrease **3.9 times** greater than the placebo group.

This was a randomized, double-blind, placebocontrolled study, the kind the FDA mandates before it approves new drugs. The charts on this page reveal the magnitude of the weight loss and belly fat reduction that occurred in the group receiving the dual plant extract compared to placebo. (See Charts 1 and 2)

In addition to the favorable results seen at eight weeks, researchers were impressed with the reduction in waist and hip circumference, as well as lost body weight that occurred within the first 14 days! In fact after only two weeks, the average weight reduction was 4.6 pounds.1



Adapted from: FASEB J. April 2011; 25:(Meeting Abstract Supplement) 601.9. Presented at Experimental Biology 2011, Washington, DC. April 10, 2011 - Program No. 601.9, Poster No. A278.



Adapted from: FASEB J. April 2011; 25:(Meeting Abstract Supplement) 601.9. Presented at Experimental Biology 2011, Washington, DC. April 10, 2011 - Program No. 601.9. Poster No. A278.

At eight weeks, the dual plant extract group showed reduction in the waist-to-hip ratio that was **2.2 times greater** than the placebo group. This is an important improvement as it indicates dangerous vis**ceral** belly fat is being lost.

These findings are supported by a second, similarly designed trial involving 60 obese subjects. They were divided into three groups that consisted of a placebo arm, an active arm receiving one plant extract, and another active arm that received a **dual plant extract**. All participants followed a 2,000-calorie-per-day diet and were asked to walk for 30 minutes five times a week for 8 weeks.13

After **eight weeks** the group receiving the **dual** plant extract experienced statistically significant changes in their abdominal circumference, total body weight, and hip circumference similar to those seen in the first study mentioned above.13

These confirmatory findings indicate that this novel dual plant extract may enable aging humans to safely shed unwanted body fat stores. No major adverse events or side effects were reported in either study.

#### **Protection against Coronary Thrombosis**

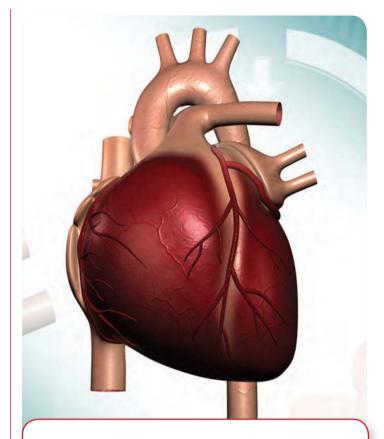
Most sudden death heart attacks occur when a blood clot forms in a coronary artery, choking off oxygenated blood to a portion of the heart muscle.

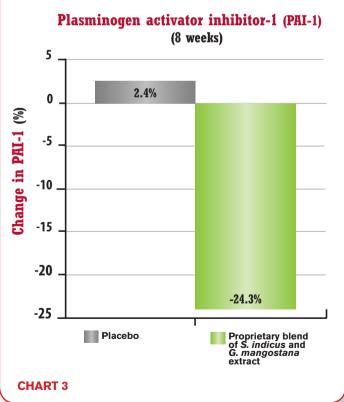
A protein called plasminogen activator inhibitor-1 (PAI-1) inhibits the normal breakdown of arterial blood clots.<sup>29</sup> High levels of PAI-1 are observed in obese individuals and are associated with increased heart attack risk.30,31

When studying the dual plant extract, researchers measured serum levels of plasminogen activator inhibitor-1 (PAI-1). Those receiving the dual plant extract showed a 24.3% reduction in dangerous PAI-1 levels, while the placebo group showed a 2.4% increase.1 (See Chart 3)

Those supplemented with the dual plant extract had a 60% drop in triglyceride levels compared to baseline.1

Subjects given the dual plant extract increased levels of the key metabolic hormone adiponectin.1 Adiponectin regulates how much sugar is in your bloodstream and how quickly your body breaks down fat. In terms of fat loss, high adiponectin levels are desirable. Higher levels of adiponectin are associated with decreased deposits of body fat and a reduced susceptibility to diabetes and metabolic syndrome.42





Adapted from: FASEB J. April 2011; 25:(Meeting Abstract Supplement) 601.9. Presented at Experimental Biology 2011, Washington, DC. April 10, 2011 - Program No. 601.9, Poster No. A278.

The dual plant extract group showed trends toward reduced **glucose** and **cholesterol**, which are expected to occur in response to loss of belly fat and body weight.1

The loss of **visceral fat** in the dual extract group— **4.05** inches, amounting to twice the decline observed in the placebo group—is compelling.1 This is important because visceral fat releases a storm of proinflammatory cell-signaling molecules. Excess visceral fat is a known risk factor for a number of serious health threats, ranging from systemic inflammation to increased risk of **hypertension**, **atherosclerosis**, type 2 diabetes, and coronary artery disease. 43-45

Taken together, these findings indicate markedly reduced vascular disease risk in obese individuals taking **800 mg a day** of this *dual plant extract*.

# Summary

**Obesity** arises from the increased size of individual adipocytes (fat cells) due to enhanced lipid (fat) accumulation. It worsens as greater numbers of pre-adipocytes transform into dysfunctional, bloated adipocytes.

The novel blend of **plant extracts** described in this article favorably influences six distinct pathways by which fat cells trigger weight gain.

In cell culture, these plant extracts reduce the ability of progenitor fat cells (pre-adipocytes) to transform into bloated fat cells. These studies also show that components of this **dual plant extract** reduce the amount of fatty acids taken up by adipocytes (adipogenesis) and facilitate the breakdown (lipolysis) of fat stored in existing adipocytes.

In a placebo-controlled clinical trial involving obese humans, this blend of S. indicus and mangosteen *plant extracts* safely induced weight loss of 11.4 pounds, along with a decline of 2.05 in body mass index (BMI) and a reduction of 4.05 inches in harmful visceral fat.1

While our medical establishment has failed to offer any safe, long-term, practical solutions for today's obesity epidemic, natural agents are now available that substantively augment the effects of a sensible weight loss program.

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

# **Potent Anti-Diabetic Properties**

Long prized in traditional Ayurvedic medicine for their weight loss-inducing properties, scientists confirmed that extracts from Sphaeranthus indicus (S. indicus) and the mangosteen fruit (Garcinia mangostana) exert an anti-diabetic effect in humans.

S. indicus has been used for centuries to combat diabetic symptoms, protect the liver, quell inflammation, boost mood, and aid in digestion.46

Diabetic lab animals treated with S. indicus extracts exhibit substantial reductions in blood glucose, along with enhanced liver and pancreatic function. 47,48 In insulin-resistant mice, S. indicus extracts lower blood sugar and triglyceride levels while facilitating more efficient uptake of glucose in muscle tissue.49 Diabetic animals treated with S. indicus exhibit significantly lower levels of tissue oxidation,50 a major underlying factor in most life-threatening diabetic complications. 48,49

The **mangosteen** is an edible fruit that grows throughout South Asia. Like S. indicus, parts of the fruit and its juice have been used for centuries to combat diabetes and obesity. One vital mechanism is its ability to block the critical metabolic enzyme alpha-amylase that breaks down starches into sugar.51 Alpha-amylase blockers limit the spike in blood glucose levels that would normally follow a carbohydrate-rich meal. Mangosteen extracts also inhibit enzymes involved in synthesizing fat molecules.33 It is this combination of blocking sugar uptake and blocking fat production that accounts in part for its weight loss-inducing properties.

Mangosteen extracts have an additional, noteworthy benefit. They have been shown to effectively limit the inflammation that typically accompanies fat cell accumulation. 6,52 This inflammation contributes directly to insulin resistance. In one compelling study, levels of the inflammatory marker C-reactive protein declined significantly<sup>53</sup> in obese individuals consuming mangosteen juice after only 8 weeks.



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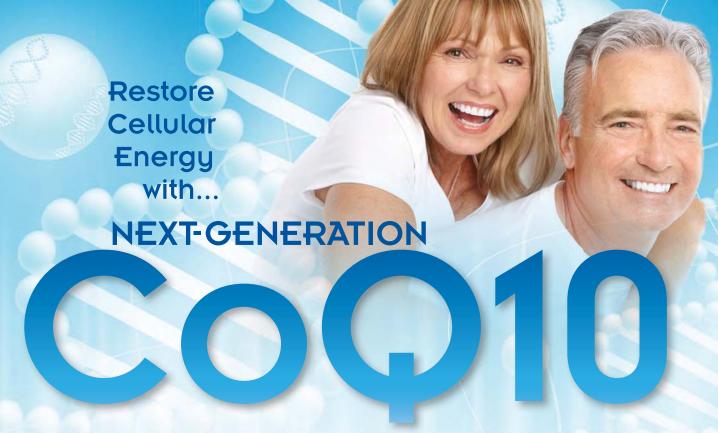
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Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™ contains PrimaVie® shilajit that <u>doubles</u> levels of CoQ10 in the mitochondria.¹

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

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

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

# Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™

Combining <u>ubiquinol</u> **CoQ10** with **shilajit** generates a powerful synergy that supports more youthful cellular energy production than CoQ10 alone.<sup>2,4,5</sup>

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# Take a Bite Out of your Appetite

People who struggle with weight loss often point to several "Achilles' heels" that sabotage their efforts to keep off the pounds: eating between meals, grazing at night, and a constant desire to snack, are among the most common.

The fantastic news is that a proprietary extract of saffron, called Satiereal®, is clinically proven to deal with nearly all of the above issues. In fact, women involved in Satiereal® studies experienced the following amazing results¹-6:

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

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

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

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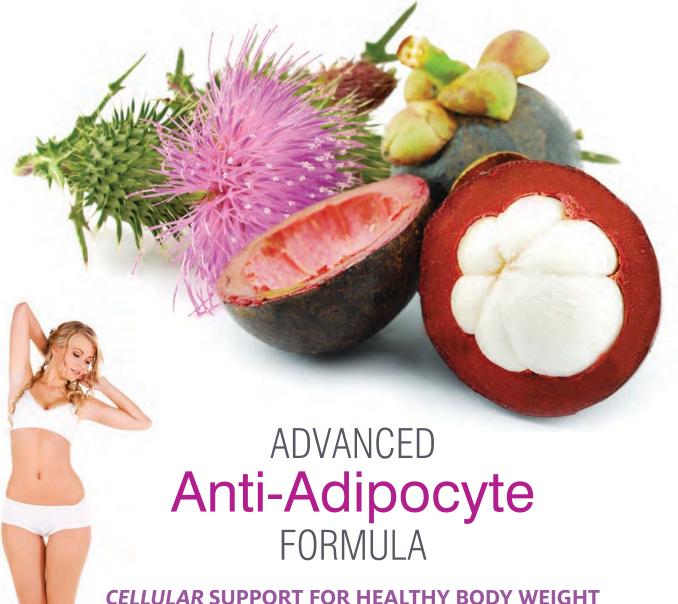
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The fact that Satiereal® induced significant reductions (100%) in the desire to snack, but with only moderate weight loss, is further support for the multi-pronged approach needed to effectively manage weight that has long been espoused by Life Extension®.



If you're struggling to maintain healthy body weight, you're not alone. Up to 65% of Americans face the same challenge.1 Even a modest increase in fat pounds can have an impact on overall health, especially when it's stubborn belly or visceral fat.

The problem is that conventional methods to combat age-related changes that predispose us to weight gain have proven ineffective. Adjustments in diet and lifestyle alone are often not enough. But there's hope . . .

# State-of-the-Art **Dual Plant Extract Technology**

To help maturing individuals deal effectively with this serious health issue, Life Extension® introduces

a brand new, clinically validated solution: Advanced Anti-Adipocyte Formula with AdipoStat.

AdipoStat is the first dietary intervention to support healthy body weight using these innovative approaches.<sup>2</sup> Through multiple pathways, it targets the mechanisms by which fat-storing cells or *adipocytes* become bloated and metabolically dysfunctional.

This widely overlooked cellular condition leads to excess fat accumulations in the belly and throughout your body.

After careful scientific analysis of over **1,000** plant extracts, 2 researchers identified the two species included in AdipoStat that target adipocytes: Sphaeranthus indicus flower (S. indicus) and the mangosteen fruit (Garcinia mangostana).

Optimal results were shown in studies when these two plant extracts were combined.

# Three Ways to Fight Fat Cell Derangements

**AdipoStat** functions via the following mechanisms to support healthy body weight:<sup>2</sup>

- **1. AdipoStat** targets adipocyte (fat cell) creation.
- **2. AdipoStat** impedes adipocyte growth (adipogenesis).
- **3. AdipoStat** induces fat in adipocytes to break down (lipolysis).

# **Success in Clinical Trials**

**AdipoStat**'s performance in clinical studies indicates it can safely deliver impressive results.

In a key study, 30 adults with difficulty maintaining healthy body weight ingested **800 mg per day** of **AdipoStat** while following a 2,000-calorie-per-day diet and were asked to walk just 30 minutes five days a week. A group of equal size was given placebo. <sup>3</sup>

After just eight weeks, the AdipoStat group:

- Lost 4.05 inches of harmful belly fat—2.0 times the placebo group.
- Experienced a 2.05 drop in body mass index (BMI)—3.9 times over placebo.
- Shed 11.4 pounds of total body weight—3.7 times over placebo.

These improvements began to emerge after just <u>14</u> days.<sup>3</sup>
After eight weeks, the **AdipoStat** group saw a noticeable drop in **waist-to-hip ratio**,<sup>3</sup> indicating they experienced **fat loss** in the **abdominal** area, where excess fat mass is associated with serious health issues.

They <u>also</u> exhibited favorably elevated levels of a hormone called *adiponectin*.<sup>2</sup> Adiponectin sends command signals that determine how big your fat cells get, how much they break down (*lipolysis*), and how often they are produced (*adipogenesis*).<sup>4</sup>

A second human clinical trial yielded similar results, confirming **AdipoStat's** beneficial effects.<sup>2</sup>

# The **New AdipoStat Formulas**

There are two ways you can easily incorporate **AdipoStat** into your daily supplement program.

The first option is to take **AdipoStat** by itself. The daily dose of <u>one</u> capsule of **Advanced Anti-Adipocyte Formula** taken 30 minutes before each of the two heaviest meals of the day provides:

The second option enables consumers to obtain the same dose of **AdipoStat** along with the highly popular **Integra-Lean**® (*Irvingia gabonensis*). **Irvingia** operates via additional mechanisms to combat surplus fat storage, including inhibition of *glycerol-3-phosphate dehydrogenase*,<sup>5</sup> an enzyme involved in the conversion of glucose and triglycerides into adipocyte fat storage.

The Advanced Anti-Adipocyte Formula with AdipoStat and Integra-Lean® supplies 800 mg of AdipoStat and 300 mg of proprietary *Irvingia* extract in the same suggested daily serving of <u>one</u> vegetarian capsule before each of the two heaviest meals.



# Advanced Anti-Adipocyte Formula with AdipoStat

Item # 01510

A bottle containing **60** vegetarian capsules of **Advanced Anti-Adipocyte Formula with AdipoStat** retails for \$35. If a member buys four bottles, the price is reduced to just **\$24** per bottle.



Advanced Anti-Adipocyte Formula with AdipoStat and Integra-Lean® African Mango Irvingia Item # 01509

A bottle containing 60 vegetarian capsules of Advanced Anti-Adipocyte Formula with AdipoStat and Integra-Lean® African Mango Irvingia retails for \$39. If a member buys four bottles, the price is reduced to just \$27 per bottle.

Integra-Lean® Irvingia is protected by U.S. Patent No. 7,537,790. Other patents pending.

AdipoStat is a proprietary ingredient derived from natural plant extracts exclusively distributed by InterHealth N.I.

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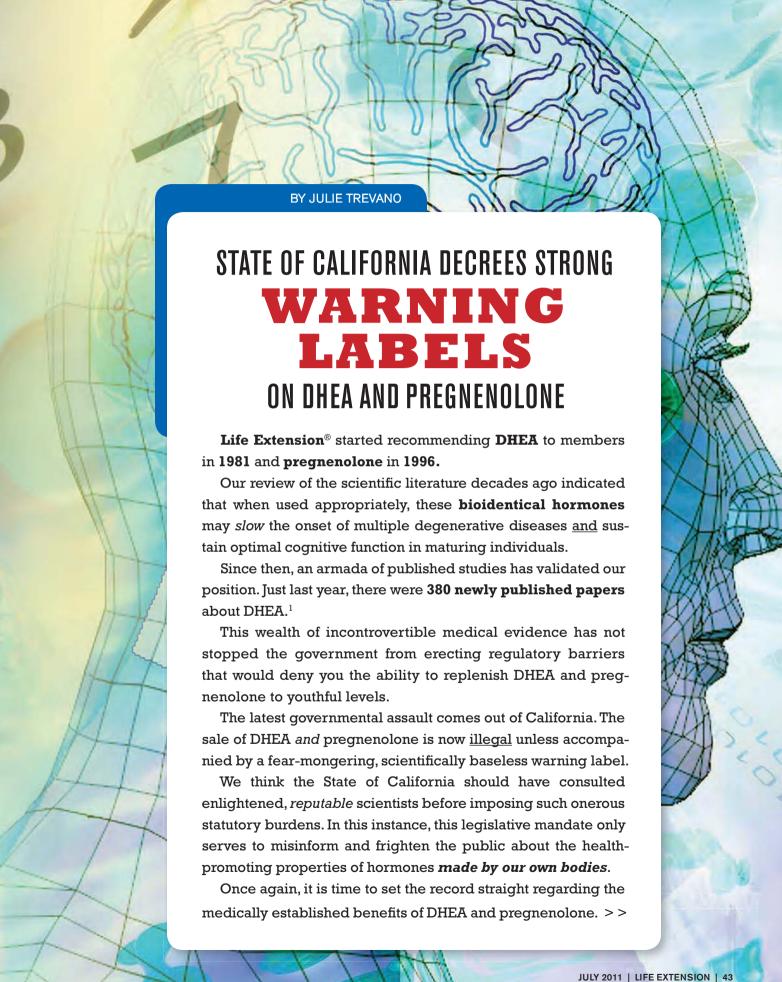
# To order either of the new Advanced Anti-Adipocyte Formulas

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

Caution: These products are 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 understanding so many excess calories that no matter how much their metabolic apacity to utilize these calories. This will result in excess calories should be added to the solution of the product of the solution of t

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







The infinite wisdom of elected lawmakers in California has spawned a questionable dictate. While few if any of these legislators have any direct experience with DHEA or pregnenolone, they nonetheless have issued a decree that all labels must carry a warning. The warning is so strong that novices who read these labels will fear DHEA and pregnenolone and not use them. That's too bad since hard science substantiates both the safety and efficacy of these natural hormones.

Life Extension's medical experts reviewed California's label information, and our assessment of the peer-reviewed literature differs in certain important respects from the conclusions reached by State legislators.

The law, Section 110423(b) of the California Health and Safety Code, states, "The sale or distribution of dietary supplements containing steroid hormone precursors is prohibited unless the product label for the dietary supplements clearly, and conspicuously contains the following warning:

**WARNING: NOT FOR USE BY INDIVIDUALS** UNDER THE AGE OF 18 YEARS. DO NOT USE IF PREGNANT OR NURSING, Consult a physician or licensed qualified healthcare professional before using this product if you have, or have a family history of, breast cancer, prostate cancer, prostate enlargement, heart disease, low "good" cholesterol (HDL), or if you are using any other dietary supplement, prescription drug, or over-thecounter drug. Do not exceed recommended serving. Exceeding recommended serving may cause serious adverse health effects. Possible side effects include acne, hair loss, hair growth on the face (in women), aggressiveness, irritability, and increased levels of estrogen. Discontinue use and call a physician or licensed qualified healthcare professional immediately if you experience rapid heartbeat, dizziness, blurred vision, or other similar symptoms. KEEP OUT OF REACH OF CHILDREN.

Separate cautions for pregnenolone must now include the statements that: "Pregnenolone may affect levels of other hormones, such as progesterone, estrogen, testosterone, and/or DHEA. Do not take this product if you have a history of seizures. Do not take this product if you have breast cancer, prostate cancer, or other hormone-sensitive diseases." And the caution for DHEA now must read, "Do not use DHEA if you are at risk for or have been diagnosed as having any type of hormonal cancer, such as prostate or breast cancer."

The published literature on DHEA and pregnenolone as supplements paints a rather different picture.

# Supplementation with DHEA and/or Pregnenolone— The Scientific Truth

# **Cancer Risk**

Both pregnenolone and DHEA are "parent" hormones of the sex hormones estrogen, progesterone, and testosterone. Taking pregnenolone or DHEA supplements, therefore, may indeed raise levels of those sex hormones; in fact, that is considered one of the desired effects. Mainstream physicians, however, continue to express concern about boosting sex hormone levels late in life, citing the theoretical risk of hormone-dependent malignancies such as breast and prostate cancers.

The truth, as always, is more nuanced. Important work by Harvard urologist Abraham Morgentaler and others has revealed that low testosterone levels increase prostate cancer risk.<sup>2,3</sup> Morgentaler himself has become a strong proponent of supplementation with testosterone in older men.3 He was also the lead researcher on a study demonstrating that DHEA supplementation in rats enhanced total testosterone levels without producing any deleterious changes in prostate tissue.4

Similar theoretical risks apply for breast cancer. But no increased risk of breast cancer has been demonstrated in large studies of combinations of natural estradiol and progesterone (the natural products of DHEA and/or pregnenolone).5 Furthermore, natural progesterone alone may reduce cancer risk, again suggesting that boosting sex hormone levels with precursors such as DHEA and pregnenolone is safe.6 One recent animal study demonstrates a direct anti-cancer effect of DHEA in obese rats.7

To date, no study has convincingly shown an increase in human hormone-dependent cancer risk as a result of DHEA or pregnenolone supplementation.8 Naturally, any individual who is known to have cancer of any kind should consult with his/her physician when using any new supplement or medication.

# **Heart Disease or Low HDL**

One of the most perplexing features of the California label requirement is the caution about a family history of heart disease or low high-density lipoprotein (HDL) cholesterol.

DHEA is in fact known to *decrease* cardiovascular risk factors by improving vascular remodeling in the face of high blood pressure, improving insulin sensitivity and reducing obesity, and increasing HDL levels. 9-12 No studies have been published demonstrating that pregnenolone raises any cardiovascular risk factors.

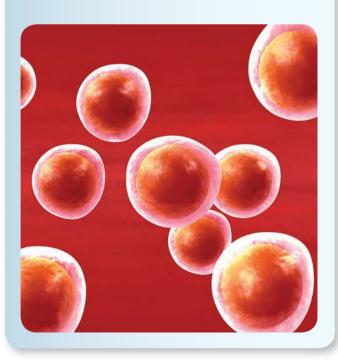
# Rapid Heartbeat, Dizziness, or Blurred Vision

The California label requirement explicitly warns against continuing supplementation in the face of rapid heartbeat, dizziness, blurred vision, or other "similar symptoms." This, like the general cardiovascular precaution, is mystifying in the face of the published literature.

There are no published, peer-reviewed articles suggesting that either DHEA or pregnenolone supplements are associated with rapid heartbeat, tachycardia, or atrial or ventricular fibrillation. In fact, men with atrial fibrillation were shown in one study to have abnormally low DHEA levels.13

# **Erroneous Regulation of DHEA** and Pregnenolone

- A California law requires strict labeling for two commonly used supplements, DHEA and pregnenolone.
- Both have a longstanding track record of delaying or reversing multiple diseases of aging and cognitive impairment.
- Both also have impeccable safety profiles, as attested by the experience of millions of users over more than a decade.
- The label requirements reflect a concern about the theoretical risk of hormone-dependent cancers, despite a complete lack of peer-reviewed scientific evidence supporting this claim.
- Other risks mentioned in the label do not even have a sensible theoretical basis, such as those for cardiovascular disease, visual disturbances. or vertigo.
- As with all supplements and medications, prudence suggests careful monitoring of one's state of health, discussion of any new symptoms with a healthcare provider, and discontinuation of any treatment that produces unwelcome effects.



### What is DHEA?

Dehydroepiandrosterone (DHEA) is the most common adrenal steroid hormone in the body.25 It is naturally produced from cholesterol (as are all steroid hormones) in a variety of tissues, most notably the adrenal glands. DHEA is the "parent" hormone of both the androgens and the estrogens (male and female hormones, respectively).26 Like the sex hormones themselves, natural levels of DHEA decline with advancing age. That decline creates an increased vulnerability to chronic illnesses such as the metabolic syndrome, osteoporosis, and cardiovascular disease.25 Low DHEA levels are also strongly associated with susceptibility to falls and fractures, and even with earlier death in men.27,28

DHEA has long been used as a natural supplement to restore blood levels to those found in younger adults. Levels of sex hormones rise beneficially during supplementation, while levels of stress-related cortisol drop.29,30 As a result, we typically see improvements in muscle strength and bone mineral density, with a reduction in body fat mass.31,32 Indeed, there is now substantial support for DHEA supplementation in adrenal insufficiency, hypopituitarism, osteoporosis, systemic lupus, depression and schizophrenia.33 Importantly, DHEA supplementation in women aged 70-79 also improved sexual desire, arousal, activity, and satisfaction, while also improving menopausal symptoms in younger women.34,35

Perhaps the most impressive benefits of DHEA supplementation are in the realm of cognitive function. Both DHEA and pregnenolone are socalled "neurosteroids," which protect brain cells from damage by both acute injury and chronic stimuli.36-38 Daily supplements of 25 mg DHEA can increase cognitive scores and prevent deterioration of scores for activities of daily living.<sup>39</sup> And many studies have verified the importance of DHEA supplements for improving clarity of thinking and a general sense of well-being. 25,26,37



Similarly, there is no published report of either DHEA or pregnenolone in association with any visual disturbance or glaucoma. Just two reports exist on age-related macular degeneration and DHEA levels. The older one suggests that higher DHEA levels might be associated with increased risk, but the more recent article demonstrates a protective effect of higher DHEA levels. 14,15 And a single French study demonstrated that higher DHEA levels are associated with reduced risk of cataracts.16

Just one study, from 1998, shows in an animal study that pregnenolone produces an excitatory effect on nerve cells in the inner ear, where balance is maintained.<sup>17</sup> This could produce a theoretical risk of dizziness or vertigo, but no report of such an effect in humans has been published.

### Virilization

Because both DHEA and pregnenolone boost natural levels of testosterone as well as estrogen, there is some concern that women who take the supplements might express more masculine traits such as male pattern baldness, hair growth on the face, and aggressive behaviors. In practice, however, these effects appear infrequently and are mild and reversible when they do occur. 18,19

A sensible recommendation for anyone taking DHEA or pregnenolone is to monitor oneself for any of these mild side effects, and to discontinue use or reduce dose if those effects outweigh the benefits of continued supplementation.

### **Seizure History**

Some of the beneficial neurosteroid effects of pregnenolone result from an increased activity of brain cells. But in people with known seizure disorders (epilepsy), and in animal studies where the steroid is directly injected into the brain, this effect can lower the seizure threshold and make a seizure more likely.<sup>20-24</sup> There are no published studies, however, suggesting an increased risk of seizures from pregnenolone supplementation in humans without a prior seizure history.

# Summary

California's warning label requirement significantly overstates any risks associated with DHEA and pregnenolone as supplements. Despite the dire wording on the required label, there remains no convincing evidence that either supplement, taken at recommended doses, increases cancer risks in humans.



The other risks mentioned in the required warning label either occur rarely or are reversible (hair growth), occur in well-defined populations who should avoid using the supplements (seizure patients), or have no credible basis in the peer-reviewed literature (cardiovascular risk, lipid disturbances, vision disturbances, dizziness).

On the other hand, millions of people worldwide have been using both supplements for more than two decades, during which time no serious adverse events have ever been reported in the world literature or in the FDA's intense adverse event monitoring system.<sup>11</sup>

Readers should understand that the cautions on labels of DHEA and pregnenolone supplements reflect an "abundance of caution" on the part of the California rule-makers...or perhaps the wishes of pharmaceutical lobbyists who fear too many people are protecting themselves against age-related disease by maintaining youthful hormone balances.

The overwhelming evidence in the global, peerreviewed literature suggests exactly the opposite, namely that these supplements are safe and effective when used as directed by health-conscious adults. •

# What is Pregnenolone?

Like DHEA, pregnenolone is a naturally produced steroid hormone that acts as a "parent" to a variety of other hormones, including the sex steroids and hormones vital for controlling blood mineral content and metabolism. Pregnenolone is also a potent neurosteroid, protecting brain cells from age-related damage and preserving their function.36 In fact, pregnenolone is being explored for use in acute management of brain injury and stroke.40,41

Normal brain tissue contains large amounts of pregnenolone, and animal studies reveal that the steroid enhances development of new brain cells.42,43 In humans, pregnenolone supplementation produces significant improvements in both depression and schizophrenia.44-47 And pregnenolone shows promise in mitigating memory loss and even some of the abnormal structural findings in Alzheimer's disease.48-50

Pregnenolone also has calming, anti-stress effects in humans, attributed to its ability to modulate brain receptors for certain neurotransmitters. Remarkably, when used in conjunction with the common anti-anxiety drug diazepam (Valium®), pregnenolone reduced the sedative side effects without affecting the anti-anxiety effects.51

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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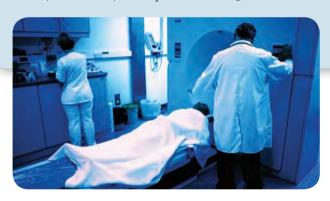
# What Germany Knows That California Doesn't

Here is an example of a published abstract of a study on DHEA from a German scientific journal. Apparently, the authors at the Department Trauma Surgery. University Hospital of Essen in Germany know something that the California authorities don't know. First of all, the study states that "DHEA...is free of major side effects...." Secondly, they point out that DHEA may be a significant therapy for trauma and that "several data demonstrate the beneficial effect of DHEA in situations of critical illness including trauma hemorrhage and sepsis. Accordingly DHEA improved the survival rate and clinical situation in several animal models of trauma hemorrhage and systemic inflammation."

Dehydroepiandrosterone (DHEA): a steroid with multiple effects. Is there any possible option in the treatment of critical illness?52 Curr Med Chem. 2010;17(11):1039-47.

Oberbeck R, Kobbe P.

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### **ABSTRACT**

DHEA is the major circulating steroid in human blood and it is a central intermediate in the metabolic pathway of sex steroid hormone formation. Although the specific effect of DHEA is still unclear it was demonstrated that DHEA modulates several physiologic processes including metabolism and cardiovascular function. Furthermore, a profound immunomodulatory effect of DHEA was reported. Several data demonstrate the beneficial effect of DHEA in situations of critical illness including trauma hemorrhage and sepsis. Accordingly DHEA improved the survival rate and clinical situation in several animal models of trauma hemorrhage and systemic inflammation. This effect was paralleled by profound changes of immunologic parameters, organ function, and heat shock protein production. Therefore, it was claimed that DHEA may be a new alternative/additive in the treatment of trauma and sepsis. In line, DHEA is a frequently used drug in the field of anti-aging medicine, it is an over-thecounter drug in several countries, and it was reported that DHEA medication is free of major side effects. Therefore, DHEA could easily be used in a clinical trial investigating its effects in critical ill patients. This article reviews the reported effects of DHEA on the base of the literature with the specific focus on trauma and sepsis/critical illness including its clinical perspectives.

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If **exfoliation** isn't a regular part of your skin care regimen, it should be. Your skin's dead, hardened outer layer not only *worsens* the appearance of wrinkles, age spots, scars, and blemishes—it *also* gradually destroys skin health, clogging pores and preventing the release of natural oils that normally preserve natural softness and luster as you age.

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Under the supervision of a certified dermatologist, a spray of micro-fine crystals continuously removed by vacuum scours away dead skin cells and restores your skin's youthful glow.

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Now you can enjoy these beautifying, age-defying effects at home, at a fraction of the cost of microdermabrasion or other costly exfoliation procedures.

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Item #01482

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# A Comprehensive Fatty Acid Formula

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

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

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

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

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

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

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

Item #01484

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

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

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

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

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

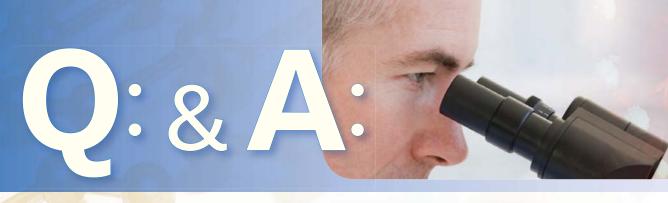
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Supportive but not conclusive evidence shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease.

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# WHAT DO THESE TWO DHEA STUDIES HAVE IN COMMON?

# 1 STUDY

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

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

# 2 STUDY

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

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

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

# LIFE EXTENSION® DHEA WAS USED IN BOTH STUDIES!

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

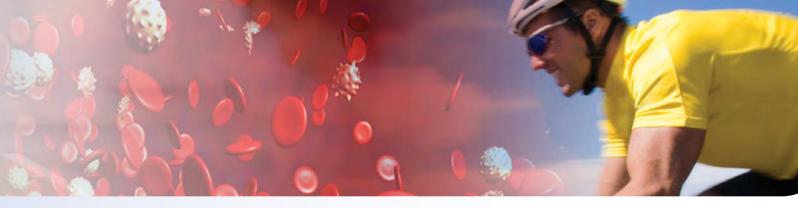
In the first of the two studies sponsored in part by the National Institutes of Health, researchers sought to determine the effect of DHEA replacement in DHEA-deficient elderly individuals. They randomized 56 men and women to receive either 50 mg/day of Life Extension's DHEA before bedtime or a placebo.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

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

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

### References:

- Am J Physiol Endocrinol Metab.
   2006 Nov;291(5):E1003-8.
- 2. JAMA. 2004 Nov;292(18):2243-8.



# **CHOOSE THE DOSE THAT'S RIGHT FOR YOU:**



# DHEA 15 mg, 100 Capsules, Item #00454

DHEA 25 mg, 100 Capsules,

Item #00335

While published studies show the greatest benefit occurs when 50–75 mg of DHEA is consumed each day, some women only need a low dose of DHEA. Just one of these 15-mg capsules a day is all some women need to bring DHEA levels back to youthful levels. A bottle containing 100 15-mg capsules of DHEA retails for \$12; if a member orders four bottles, the price is reduced to just \$7.50 per bottle. Contains rice.

The minimum dose of DHEA for most healthy



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

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

aging people is 25 mg a day, though optimal
doses are 50–100 mg daily. These 25-mg
Capsules are a popular way to consume
the precise amount of DHEA your body
may need. A bottle containing 100 25-mg
Capsules of DHEA retails for \$15; if a member

60 100-mg vegetarian capsules of 7DHEA, along with a special antioxidate blend, retails for \$40; if a member of four bottles, the price is reduced to compare the price

orders four bottles, the price is reduced to just **\$9.38 per bottle**. Contains rice.



# DHEA 25 mg, 100 Dissolve-in-Mouth Tablets, Item #00607

A bottle containing 100 **25-mg dissolve-in-mouth** tablets of **DHEA**retails for \$14; if a member orders four bottles, the price is reduced to just **\$8.81 per bottle**. Contains corn.



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

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

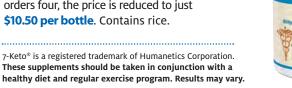


LifeExtension

DHEA

# DHEA 50 mg, 60 Capsules, Item #00882

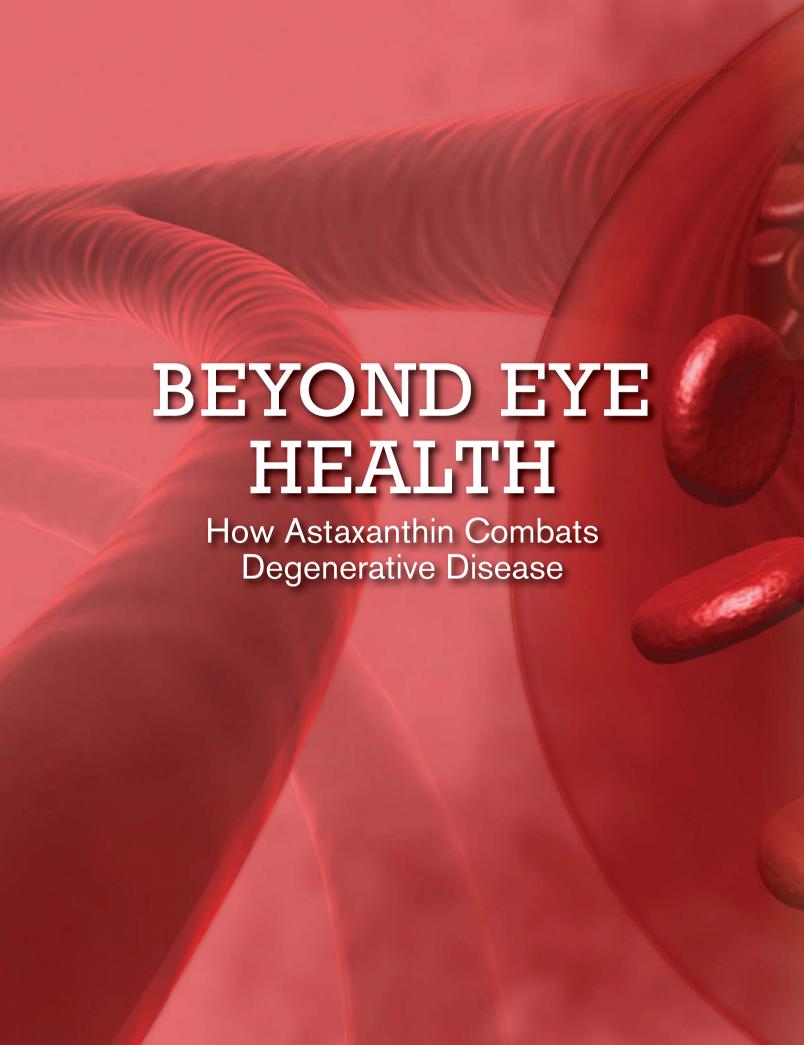
The optimal daily dose of DHEA for most people is 50 mg. These economical 50-mg capsules enable most people to conveniently consume the optimal dose of DHEA in just one capsule. A bottle containing 60 **50-mg** capsules of **DHEA** retails for \$16; if a member orders four, the price is reduced to just \$10.50 per bottle. Contains rice.

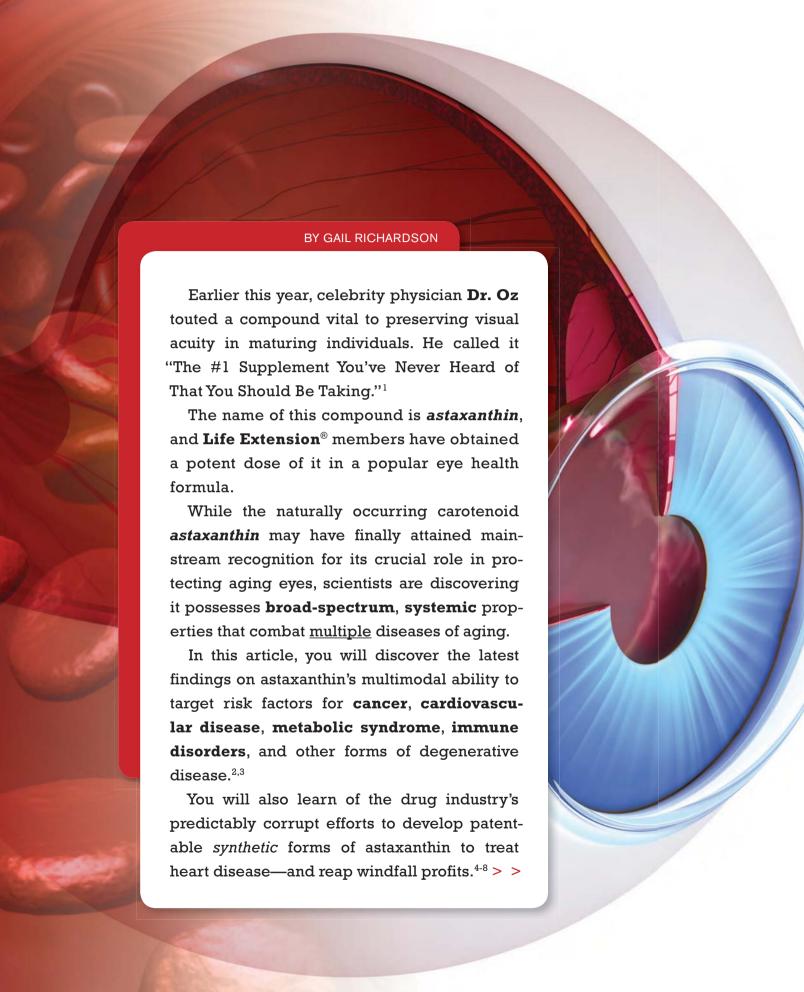


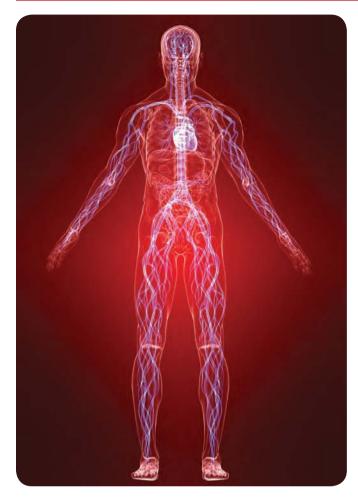


# DHEA 100 mg, 60 Capsules, Item #00883

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







Astaxanthin is a red-orange carotenoid pigment derived from microalgae, fish, and crustaceans. <sup>2,13</sup> Scientists have repeatedly demonstrated that high consumption of carotenoids is protective against many oxidative stress-induced, age-related conditions. <sup>14</sup> Astaxanthin stands out among the carotenoids for its exceptional antioxidant capabilities. <sup>2-4,15-19</sup> Researchers estimate that astaxanthin's antioxidant activity ranks up to ten times as high as other carotenoids. <sup>2</sup> Astaxanthin is also unique among the antioxidants in that it spans both layers of the cell membrane, allowing it to trap free radicals outside and inside the cell. <sup>19-21</sup>

In addition to its formidable antioxidant capability, astaxanthin provides direct anti-inflammatory, immune-boosting, and DNA-protective effects.<sup>5,22-29</sup>

Together these capabilities give astaxanthin the kind of multi-targeted actions modern humans need to protect themselves against the onslaught of chronic, age-related diseases, all of which involve oxidative stress, inflammation, and their consequences.<sup>30</sup> Its underlying mechanisms of action effectively *slow* physiological processes associated with onset of degenerative disease.<sup>10-12</sup>

# Fighting Metabolic Syndrome

At the root of many age-related chronic conditions lies the cluster of disorders known as the metabolic syndrome, which includes insulin resistance, obesity, elevated triglycerides, low high-density lipoprotein (HDL), and hypertension. Astaxanthin lowers blood sugar and reduces insulin resistance.<sup>31</sup> It also scavenges the oxygen free radicals that damage lipids and reduce insulin sensitivity, while preserving the capacity of the pancreas to produce more of its own insulin.<sup>32</sup>

Astaxanthin has been shown to potently reduce harmful triglycerides and raise levels of HDL in both animal and human studies, 31,33 while reducing the size of individual fat cells in an animal model of metabolic syndrome. 31 Animal studies show that astaxanthin also blocks the massive weight gain and elevation in blood lipids triggered by a high-fat diet. 34 Astaxanthin also proved capable of lowering blood pressure and increasing insulin sensitivity in rats. 35

# **Anti-Cancer Mechanisms**

Astaxanthin's multiple mechanisms of action make it an ideal candidate for prevention and adjuvant treatment of many different kinds of cancer. By quenching free radical production in oxidatively stressed tissues, astaxanthin can prevent the DNA damage that is required to initiate many forms of cancer.<sup>28</sup> By subduing inflammatory mediators such as COX-2 and NF-kB,36 astaxanthin may prevent cancer promotion, the step that allows potentially cancerous cells to blossom into full-blown tumors. By supporting healthy intercellular communication, astaxanthin improves tissue resistance to cancers.<sup>15</sup> And by impairing enzymes like matrix metalloproteinases (MMPs) that cancer cells use to break down tissue barriers, astaxanthin can help prevent tumor invasion and metastatic spread.<sup>36</sup>

Astaxanthin has shown beneficial effects in preventing colon, breast, and bone cancers in a variety of animal models.<sup>37-39</sup> In humans, astaxanthin not only reduces markers of DNA damage and inflammation, but it also enhances immune function of the kind that destroys nascent cancer cells before they can grow up into dangerous tumors.<sup>28</sup> Laboratory studies demonstrate that astaxanthin has multiple beneficial effects on the immune system, boosting function of natural killer cells that patrol for abnormally developing cells that could turn cancerous.<sup>29,40,41</sup>

# **Targeting Cardiac Risk Factors**

Heart disease and stroke are among the leading killers of older adults; like cancer, these diseases have origins in oxidative stress and inflammation.<sup>5</sup> Astaxanthin's powerful antioxidant characteristics are producing compelling results in cardioprotection and improving vascular health.30

In laboratory studies, astaxanthin improves endothelial function, allowing arteries to respond normally to stimuli that get them to relax. 42,43 That effect helps normalize blood pressure, especially in animals bred to be hypertensive. 44,45 Astaxanthin also reduces the number of inflammatory cells that infiltrate into developing atherosclerotic plaques, the dangerous accumulations of cholesterol and damaged tissue that ultimately reduce blood flow.46

Astaxanthin promotes the strength of the heart muscle's "squeeze," which may help the heart to maintain normal blood flows both before and after

an injury to the tissue.23 This effect may help the heart muscle limit the size of the area that is injured when blood flow is too low.7 By battling the effects of advanced glycation end products (AGEs), the dysfunctional proteins that form in the presence of high blood sugar, astaxanthin may help prevent cardiovascular damage in diabetes.47

Even after a vascular "event" such as a heart attack or stroke, astaxanthin helps mitigate the damage by reducing the burst of oxygen free radicals generated in the destructive "ischemia-reperfusion" injury. 48-50 That kind of injury actually accounts for much of the long-term loss of function following those vascular events.<sup>51</sup>

Human studies of astaxanthin have demonstrated reduced markers of oxidative stress and inflammation, along with improvements in the way blood flows through vessels.30 An astaxanthin supplement reduced systolic blood pressure in older adults with metabolic syndrome.52 A human trial to investigate astaxanthin's effects on arterial stiffness is underway.<sup>53</sup>

# **Astaxanthin**

- Astaxanthin has long been shown to defend aging eyes against the threat of cataracts, agerelated macular degeneration, and glaucoma.
- New research has shed light on its capacity to target multiple degenerative diseases, including metabolic syndrome, cardiovascular disease, cancer, cognitive decline, and deteriorating immune function.
- Astaxanthin also supports stomach, eye, and skin health.



# **Enhanced Cognition and Memory**

Astaxanthin is becoming known in scientific circles as "a potent candidate for brain food," 54 with the potential for slowing or stopping chronic neurodegenerative conditions like Alzheimer's and Parkinson's diseases. Astaxanthin protects neurons by preventing oxidative damage and quenching free radicals that injure brain cells in these conditions.<sup>54</sup> Additionally, it works by blocking the inflammation and excitatory neurotransmitter release that further contribute to those neurodegenerative diseases.<sup>55</sup> Astaxanthin also modifies gene expression, upregulating genes for natural antioxidant systems<sup>24</sup> while downregulating those for inflammatory cytokines; this has been shown to help prevent brain cell death induced by the amyloidbeta. 56,57 A recent human study found that astaxanthin reduced the accumulation of a toxic dementia-related metabolite in the red blood cells of healthy older adults.58

Astaxanthin's powerful antioxidant properties also make it protective against acute ischemia-reperfusion injury to the brain following a stroke.<sup>59</sup> It also mitigates the more chronic damage caused by sustained low-level impairments in blood flow such as those seen in micro-infarct dementia. Both animal and



human studies indicate that these effects translate into improved memory and information-processing capacity in aging brains. 44,49 Animal studies further demonstrate an intriguing anti-anxiety effect.60

# **Immune Support**

The aging immune system gradually loses its ability to produce protective antibodies against invading organisms. The aging immune system also has a propensity to produce harmful autoimmune reactions. 61 Astaxanthin boosts antibody production in response to invading microbes.<sup>62</sup> Astaxanthin also favorably modifies the way various immune system cells respond in the face of an attack, which has the potential to make infections both less likely and less serious.63-65 Human studies demonstrate enhanced immune responses in humans supplemented with astaxanthin.28

# **Better Physical Performance**

Astaxanthin may help you capture the benefits of regular moderate exercise, which in turn can improve your cardiovascular, metabolic, cognitive, and immunologic health. Astaxanthin can limit the impact of the cardiac and skeletal muscle damage that accumulates with strenuous exercise, potentially allowing for a longer, more comfortable workout.<sup>66</sup> It improves muscle cells' ability to use fat as a fuel source, making them more efficient and helping to burn body fat. 67,68 Those enhancements can lead to improved exercise endurance and reduced fatigue as well.<sup>67,69</sup>

# **Gastric Health**

The clinical importance of astaxanthin's multi-targeted immune-modulating effects is clearly evident in the ways that astaxanthin fights off the bacterium called Helicobacter pylori (H. pylori). About half the world's population is infected with this pathogen, which produces a spectrum of stomach disorders ranging from chronic gastritis and ulcers to gastric cancer.70

Astaxanthin mitigates the inflammation associated with H. pylori infection of the stomach. 70 Animal studies indicate that astaxanthin inhibits the growth of *H. pylori* in the stomach.<sup>70,71</sup> Astaxanthin has proven its efficacy in reducing symptoms of gastroesophageal reflux (heartburn, or GERD), especially in people with H. pylori infections.72

# Astaxanthin and Drug Company Profiteering

The emerging body of research supporting astaxanthin's broad-spectrum benefits has not escaped Big Pharma's notice. As of this writing, efforts are underway to develop patentable *synthetic* versions of astaxanthin to treat various forms of cardiovascular disease. The best known of these, **Cardax**, provides yet another example of the drug industry's corrupt, cynical maneuvering to put profits over the public health. Cardax (disodium disuccinate astaxanthin) is simply a "pro-drug," an *inactive* parent molecule that disintegrates into astaxanthin following ingestion.9

In other words, drug makers hope to charge a premium for an inactive form of a natural, safe, low-cost nutrient, and then let patients' bodies act on the drug to convert it **back** into that same nutrient.

# Astaxanthin and Ocular Disease Prevention

Loss of vision is a terrifying reality for millions of aging Americans. Three major age-associated causes of blindness are cataracts, age-related macular degeneration, and glaucoma. All of these are associated with chronic oxidative damage, and most involve some degree of inflammation.<sup>73</sup> That makes powerful antioxidants such as astaxanthin of natural interest to prevention-oriented physicians.<sup>74</sup>

Astaxanthin decreases UV light-induced fat oxidation in cells of the human lens, which can help prevent

cataract formation.<sup>71</sup> That antioxidant effect helps prevent retinal damage.<sup>75</sup> Astaxanthin also inhibits the pro-inflammatory nuclear factor-kappaB (NF-kB) signaling pathway in the eye.<sup>76,77</sup> Early, preventive treatment with a combination of antioxidants including **astaxanthin**, **lutein**, **zeaxanthin**, **vitamin C**, **vitamin E**, **zinc**, and **copper** in humans at risk for age-related macular degeneration demonstrated improvement in vision near the important central part of the retina.<sup>78</sup> Astaxanthin also helped reduce markers of inflammation and cell death in an animal model of glaucoma.<sup>79</sup>

Another promising application of astaxanthin is the prevention of eye fatigue or *asthenopia*, particularly in people who work long hours viewing a computer screen. In a study of 26 individuals who work at computer terminals, those who were randomly selected to receive astaxanthin each day for one month had a **54**% reduction in complaints of eye fatigue, along with improvements in accommodation (your eyes'

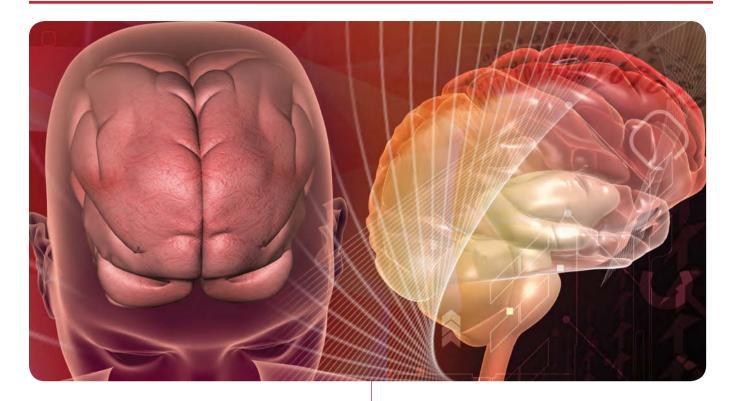
ability to change optical power to focus on objects at different distances). 80 A similar study showed that one month of astaxanthin reduced eye fatigue and increased accommodation power in healthy subjects. 81 Researchers believe that astaxanthin may help fight eye fatigue in part by increasing blood flow to the retina. 82

### **Natural UV Protection**

A lifetime of exposure to ultraviolet (UV) light can trigger wrinkles and skin sagging, and it also dramatically increases the risk of skin cancer. Preliminary

laboratory findings suggest that astaxanthin may represent a potential sun-protective agent that can be taken internally to block the damaging effects of UV radiation.<sup>83</sup>

Human skin cells in culture rapidly accumulate astaxanthin following treatment, and their vulnerability to UV light-induced oxidative damage is sharply reduced. Hat effect is accompanied by increased activity of cellular antioxidant systems and reduced cell membrane damage, while production of wrinkle- and sag-inducing skin enzymes is markedly reduced. It is little wonder that astaxanthin has been praised as promoting "beauty from within" in recent press releases.



# Summary

Astaxanthin has long been shown to protect aging eves from cataracts, age-related macular degeneration, and glaucoma. More recent scientific findings indicate astaxanthin as a multimodal intervention for numerous forms of degenerative disease. These include cardiovascular disease, cancer, metabolic syndrome, cognitive decline, age-related immune dysfunction, stomach and eve conditions, and skin damage. Astaxanthin is safe in a wide range of doses. As little as **4-6 mg** per day has been shown to effectively support eye health. Between 6 and 18 mg are indicated for management of metabolic syndrome. As much as 40 mg per day mitigates *H. pylori*-induced gastritis, with no side effects reported at any of these doses. 18,33,78,85

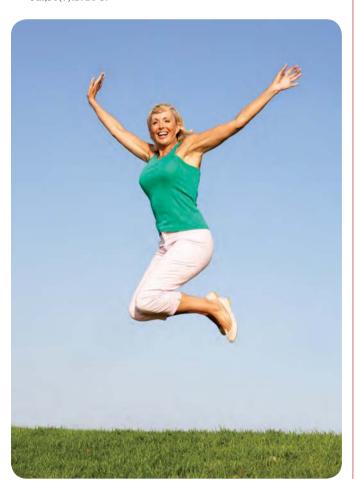
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Extracts of French Maritime Pine bark and bilberry have long been shown to promote healthy blood flow in multiple areas of the body.<sup>2-6</sup> The new **Eye Pressure** Support with Mirtogenol® formula may support healthy blood flow within the tiny vessels (microvasculature) of your eyes, helping to promote healthy fluid pressure inside the ocular chamber.

A daily serving of just one vegetarian capsule of Life Extension®'s new Eye Pressure Support formula contains 120 mg of Mirtogenol®, delivering optimal amounts of both Mirtoselect® European bilberry fruit extract and Pycnogenol® dried French Maritime pine extract.

A bottle containing 30 vegetarian capsules of Eye Pressure Support with Mirtogenol® retails for \$38. If a member buys 4 bottles, the price is only \$25.50 per bottle.

Mirtogenol® is a registered trademark of Hornhag Research, Ltd. Mirtoselect\* is a registered trademark of Indena, S.p.A., Milan, Italy.

Pycnogenol\* is a registered trademark of Horphag Research, Ltd.

Pycnogenol® is protected by U.S. patents #5,720,956 and #6,372,266 and other international patents.

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FORMULA ...



Item # 01514

To order Eye Pressure Support with Mirtogenol® call 1-800-544-4440 or visit www.LifeExtension.com

Contains rice.

# **Ultimate Ocular Support** With a Potent Dose of Astaxanthin



Item # 01586

A natural carotenoid called *astaxanthin* may play an important part in proper eye care and prevention. 1-8 Not only does astaxanthin help prevent eye fatigue and improve visual acuity—studies suggest that its properties may also hold important applications in promoting cardiovascular health, enhancing athletic endurance, and beautifying the skin.

Super Zeaxanthin contains three plant extracts to help maintain macular density, a berry extract to assist with night vision, and a potent dose of astaxanthin to protect the eye and other tissues from oxidative damage.

# **Maintain Macular Density**

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

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

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

# Combat "Eye Fatique"

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

Super Zeaxanthin contains a potent dose of astaxanthin, a carotenoid found in red algae. Studies show that taking astaxanthin with other carotenoids protects against free radical induced DNA damage, repairs UVA-irradiated cells, and inhibits inflammatory cell infiltration. 9-12 Astaxanthin also helps support vascular health within the eye and improves visual acuity.<sup>4,8</sup> Its fat-soluble nature offers protection to sensitive cells inside the eye.13

# **Enhanced Night Vision!**

Falling down is responsible for 70% of accidental deaths in older people.<sup>14</sup> Poor lighting conditions are often the culprit.

Fortunately, **C3G** derived from **black currant** supports eyesight in **dark** conditions by promoting the healthy function of delicate structures within the retina that support night vision.15

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

# Comprehensive Ocular Protection in One Daily Capsule

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

> OptiLut®, Lutein Plus® and MZ®......38 mg Marigold (*Tagetes erecta*) Extract (flower) [free lutein equivalent 10 mg] Zeaxanthin & Meso-zeaxanthin blend ......3.75 mg [micronized zeaxanthin, OptiLut\*, Lutein Plus\* and MZ® Marigold Extract (flower)] Natural Astaxanthin ...... 6 mg (AstaREAL® and Zanthin® CO2 extracts of Haematococcus pluvialis algae) [from European black currant (Ribes nigrum) extract (fruit)]

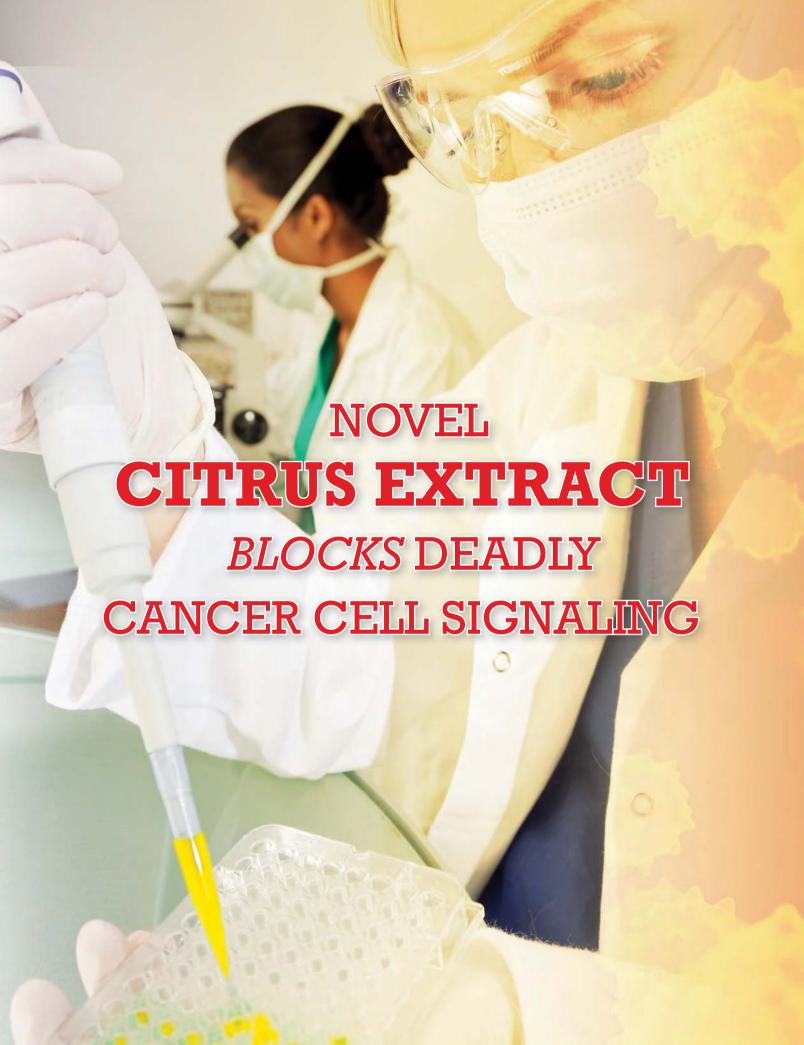
The retail price for a bottle containing 60 softgels of **Super Zeaxanthin with** Lutein, Meso-zeaxanthin Plus Astaxanthin and C3G is \$42. If a member buys four bottles, the price is reduced to just **\$28.50** per bottle.

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

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### BY MICHAEL HOLTZ

Cancer cells must <u>communicate</u> with one another in order to infiltrate nearby tissues and to metastasize to distal areas of the body, where they often inflict their lethal effects.

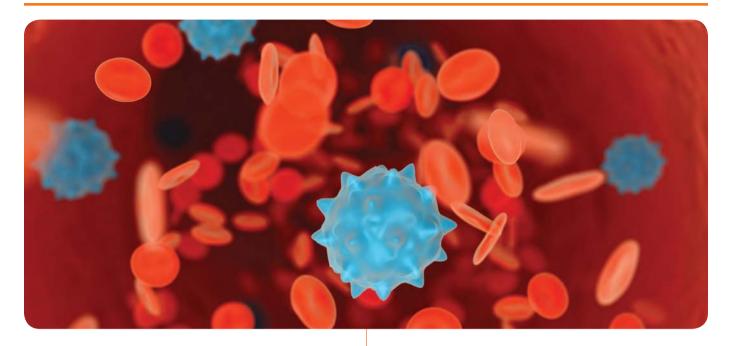
Conventional oncology has largely overlooked the critical role that *signaling* between cancer cells plays in enabling uncontrolled tumor proliferation.

As single-target interventions, chemotherapy and radiation kill rapidly dividing normal cells, healthy tissue, and malignant cancer cells indiscriminately.

Suppose instead you could disrupt cancer cells' lines of communication sufficiently to slow and prevent their proliferation, leaving healthy cells untouched?

Avant-garde cancer researchers are finding that a proprietary form of *citrus pectin* possesses this capability.

In this article you will learn of the mechanisms by which cancer cells "coordinate" their growth and spread through cell-to-cell signaling. You will find up-to-date scientific data detailing how *modified citrus pectin* or MCP may act to thwart malignant proliferation and tumor growth, improving prognosis and quality of life in cancer patients. In one notable study, 70% of prostate cancer patients treated for 12 months with MCP experienced significant slow-down in the rise of prostate-specific antigen or PSA concentrations in the blood<sup>1</sup>—an indicator of improvement in their prognosis! >>



### Galectins—Cancer Communicators

Living cells use hormones, cytokines, and other chemical **signals** to communicate with other cells and send long-distance messages through the bloodstream. Up close, cells use proteins and fat molecules on their surfaces to notify one another of their presence and to provide instructions about how, when, and where to grow.

Cancer cells use similar methods to communicate, but their communication networks are corrupt. The signals that cancer cells transmit are for the destruction of normal tissue and may ultimately trigger clusters of cancer cells to migrate and/or metastasize into other tissues—often with lethal effects. Numerous stages of cancer progression involve recognition of specific carbohydrates by cell surface proteins in that corrupt communications network.2

One of these types of cell surface proteins necessary for cancer cells to communicate is called galectins. Recent research reveals that galectins are utilized by malignant tumors<sup>3</sup> and that they also act as a sort of molecular "glue," causing cancer cells to aggregate, or clump together.<sup>4,5</sup>

When a sufficient number of cancer cells have aggregated or clumped together, some can break off and travel through the bloodstream, setting up footholds in tissues far from the site of the original cancer in the process called *metastasis*.<sup>6,7</sup> Metastatic spread is one of the hallmarks of advanced cancer, and once it occurs, a patient's chances of survival are sharply reduced. Galectins are involved at each step in aggregation, invasion, and metastasis.5,8-10

Galectins help cancer cells fight off our best chemotherapy, making the cells resistant to apoptosis, or programmed cell death.9 Finally, galectins are emerging as vital players in producing inflammation, often a necessary step in cancer promotion.<sup>5,11,12</sup>

Given their multiple roles in cancer development, it is clear why galectins have become exciting new targets for drug development. 13,14 If we could interfere with galectins on cancer cell surfaces, we would have a powerful means of disrupting their coordinated attacks on our bodies. And indeed, there is tremendous interest in the world of Big Pharma to bring out new anti-galectin drugs. 12 As always, though, we can expect that such drugs will be a) expensive, b) slow to reach the market, and c) targeted only at one specific target in the complex array of galectin-based communications.

# **Modified Citrus Pectin (MCP)—Jamming Cancer Communications Naturally**

Intact citrus pectin molecules are long-chain, branched polysaccharides made from individual galacturonic acid molecules strung together. Galacturonic acid is the oxidized form of galactose. The galectins that make cancer cells so dangerous act by binding to galactose molecules on one another's surface membranes. So, by introducing a large number of reduced molecular weight chains of pectin molecules into the body, we can essentially "coat" the galectins with innocuous galactose molecules connected to nothing more dangerous than the pectin used to prepare jelly. 15

That coating of modified citrus pectin, in turn, prevents galectins from interacting with one another and helping cancer cells to aggregate, adhere, and metastasize. 15,16 Since galectins also provoke expression of the protease enzymes that allow tissue invasion, we can expect that pectin treatment would reduce cancers' ability to invade tissue as well.<sup>17</sup> A proprietary form of modified citrus pectin (MCP) was shown to interrupt and reduce the metastatic process by reducing migration, adhesion, and invasion in both the androgen-independent prostate cancer PC-3 line, and in the aggressive breast cancer triple negative cell line, MDA-MB-231.18

Scientists have recently found that this proprietary form of MCP possesses immune enhancement properties. Specifically, MCP enhances natural killer (NK) cell activation and activity. This is important as it sheds light on the mechanisms of MCP. Not only is the cancer cell being bound to the MCP and presented to the immune system, but the immune system is dramatically enhanced and stimulated by the MCP.<sup>19</sup>

In 2009 it was shown for the first time that galactose-containing portions of pectin molecules do indeed bind to the human galectin known as galectin-3,20 which regulates cell growth, cell adhesion, cell proliferation, angiogenesis, and apoptosis.9

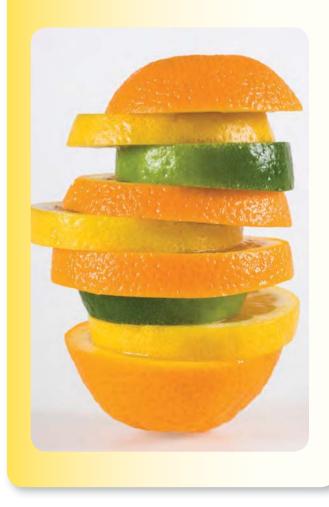
But naturally occurring, unmodified pectin molecules are bulky and difficult to absorb in the digestive tract, and they prefer to bind to one another rather than to molecules such as galectins. In order for pectin molecules to be biologically useful in our battle against cancer, they have to be modified. Specifically, they need to be reduced in size and complexity, to form shorter-chain, less highly branched molecules that offer multiple sites where their galactose components are available for binding to galectins on cancer cells.

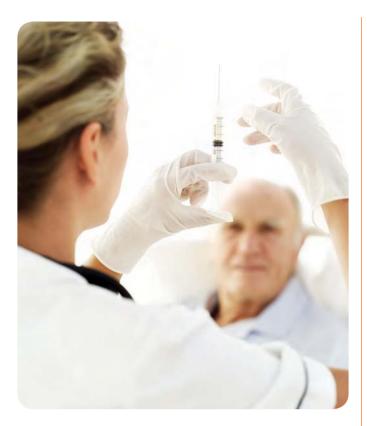
A proprietary formulation of modified citrus pectin that is reduced in size is turning the cancer-fighting world upside down.<sup>20</sup> MCP is prepared from the pith of citrus peel that would otherwise go to waste. 15 MCP production can be accomplished in a "green" fashion, minimizing its carbon footprint even while producing a health-giving end product.<sup>21</sup>

Citrus fruit has the highest pectin content of most common foods. Its modification by a non-GMO (not genetically modified) enzyme controlled by heat and pH treatment produces relatively short-chain, nonbranched pieces of the larger pectin molecule.6 MCP is rich in the galactose-containing sub-units that bind to galectin-3, the primary galectin involved in cancer promotion, adhesion, and metastasis. 6,15 Let's examine the world literature on this remarkable cancer-fighting compound.

# **Blocking Cancer Cell** Communication

- Cancer cells must communicate with one another to invade, colonize, and proliferate in healthy tissue.
- A proprietary form of citrus pectin may disrupt this inter-cellular communication, potentially slowing metastasis and improving quality of life in cancer patients.
- So-called **modified citrus pectin** may retard tumor growth, induce selective cell death for specific cancers, and inhibit the development of tumor-feeding vasculature.
- This novel capability indicates its potential value as part of a multitargeted, natural cancer-preventive regimen.





MCP's Multi-targeted Effects on Tumor Growth, Progression, and Metastasis

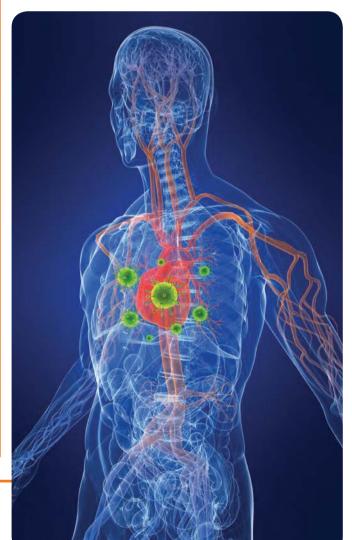
It has been nearly two decades since the first studies demonstrating that MCP is capable of preventing metastasis in experimentally induced cancers. Mice that had been injected with human melanoma (skin cancer) cells had very high rates of colonization of their lungs with the deadly metastases; that effect was strongly inhibited when the cells were pre-treated with MCP.<sup>22</sup> That astonishing result was shown to be caused by binding of tumor galectins by the MCP, which interfered with cell-to-cell recognition. A subsequent study showed that similar treatment also inhibited melanoma cells' ability to anchor themselves to a growth medium, similar to the way metastatic tumors establish themselves in previously healthy tissue.<sup>6</sup>

Compelling studies in other animal models have shown similar (and even superior) results. In one case, 15 out of 16 control rats injected with prostate cancer cells developed lung metastases, while only 7 out of 14 given a 0.1% solution of MCP developed lung metastases.<sup>16</sup> The animals that did suffer metastases had significantly fewer in the treated than in the control groups. Interestingly, in that early study, the MCP appeared to have no effect on the growth of the primary tumors, a finding that would be challenged as we learned more about MCP.

To illustrate that point, let's look at a study of human colon cancer cells implanted into mice (a standard human colon cancer model).<sup>23</sup> The mice were given MCP in their drinking water at low or high doses. By the 20th day of the study, a significant reduction in tumor size was detected in both groups. compared with control animals. In fact, the low-dose group had an average 38% reduction in tumor size. and an impressive 70% reduction was found in the high-dose group. That was the first demonstration that MCP might actually reduce the size of primary tumors. in addition to its ability to prevent metastases.<sup>23</sup>

Several more recent studies have now confirmed the powerful anti-metastatic effect of MCP in a variety of common cancers. 15,24,25

As scientific interest in MCP increased, so did the level of our detailed understanding of its mechanisms of action (like most nutrients, MCP has more than a single biological target). It was found that tumor growth, angiogenesis (new blood vessel formation), and spontaneous metastases were all significantly reduced by MCP given orally.2 These effects were traced to MCP-related inhibition of galectin-3, the ubiquitous tumor-associated recognition and adhesion molecule. Remarkably, MCP not only inhibits



#### **Modified Citrus Pectin Protects Kidneys**

In addition to its role in cancer proliferation, adhesion, and metastasis, galectin-3 is also known to be upregulated in acute kidney injury. Since modified citrus pectin is known to bind with galectin-3, scientist investigated its effects in acute kidney injury.<sup>30</sup>

Mice consumed either regular water or MCPsupplemented water for one week before undergoing experimentally induced kidney injury. All the animals demonstrated weight loss and kidney enlargement following the injury, although these changes were lessened in the group that received MCP. Microscopic examination of kidney tissue showed that MCP reduced renal cell proliferation.30

Two weeks later, during the recovery phase, the MCP-treated mice displayed decreased galectin-3 expression, along with decreases in kidney fibrosis, pro-inflammatory cytokine production, and apoptosis.<sup>30</sup>

These findings suggest that MCP is protective against experimental nephropathy and may represent a novel approach to reducing kidney injury over the long term.



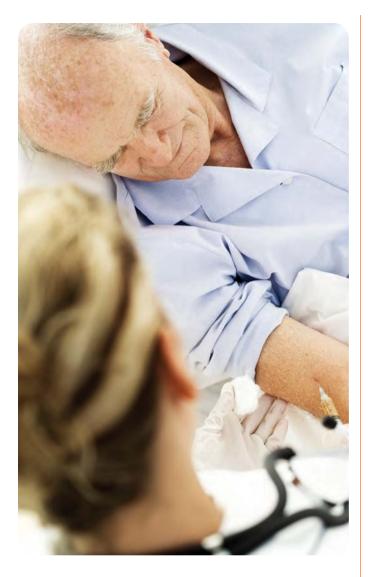
galectin-3 activity directly, but it also inhibits cells' movement towards the galectin-3.2 That inhibition of so-called chemotaxis (movement toward or away from a stimulus) has profound implications in cancer care; it illustrates how MCP can prevent both local and distant spread of malignant tumors.

MCP was also used to challenge a common perception among scientists that tumor embolism (spread of tumor by chunks breaking off and floating through the bloodstream) was the result of the tumor simply lodging in small blood vessels.<sup>26</sup> Scientists at the University of Missouri noticed that a significant number of breast and prostate cancer cells slid easily through the tiny capillaries in the lung, failing to lodge there, and instead wound up in other, more distant, tissues.26 That showed that something else was going on to attract the cells to their final destination. By treating the cells with MCP, the researchers found that they could drastically reduce the adhesion of tumor cells to blood vessel lining in those final tissues. That demonstrated the important role of galectin-3 as an adhesionpromoting molecule—and the promise of MCP as an adhesion-preventing, anti-metastatic treatment.

Human studies of MCP have been similarly revealing. Doctors closely monitor men with known prostate

cancer following surgery or other treatment, tracking the amount of time it takes for the cancer marker prostate-specific antigen (PSA) to double its concentration in the blood. The shorter the doubling time, the worse the prognosis. Seventy percent of men treated orally with a MCP preparation for 12 months experienced a significant increase in their PSA doubling time. 1 As in other human studies, subjects tolerated MCP without side effects.

A study of 49 individuals with various solid tumors that were in an advanced stage of progression showed promising results. The study participants consumed 5 grams of modified citrus pectin three times daily for cycles of 4 weeks each. Nearly 21% experienced an overall clinical benefit associated with a stabilization or improvement in quality of life. Eleven patients showed stable disease after two cycles of treatment, and 6 showed stable disease for more than 24 weeks. One patient with metastasized prostate cancer demonstrated a 50% decrease in PSA level following 16 weeks of treatment, along with improved quality of life and decreased pain. The investigators concluded that modified citrus pectin produces positive clinical benefits and improved quality of life in people with advanced solid tumors.27



An important characteristic of MCP is its ability to induce apoptosis in cancer cells. Remember that apoptosis (programmed cell death) is one of nature's ways of keeping incipient cancers under control. Most early cancers actually die off from apoptosis-inducing death pathways before they ever take hold, but successful cancers manage to suppress those pathways to survive. MCP induces apoptosis by blocking galectin-3, which itself has anti-apoptotic functions. By blocking galectin-3, MCP allows nature's own anticancer mechanism to resume its normal function, and the cancer cells die. 13

Recent studies have capitalized on MCP's apoptosisinducing features to help increase tumor response to chemotherapy, a vital step in reducing the amount of dangerous chemicals required.<sup>7</sup> And an exciting paper was published in 2010, revealing that a formulation of MCP could induce apoptosis in human and mouse prostate cancer cells.<sup>29</sup> Scientists are keenly interested in this study, because it showed that MCP could preside at the deaths of both androgen-dependent and androgen-independent prostate cancers. Androgen-dependent cancers can be treated with relatively safe androgen-deprivation therapies, but androgen-independent tumors can be highly resistant to treatment. Thus MCP appears to be an outstanding candidate for suppression of both types of prostate cancers, which are the most common diagnosed cancers in men.<sup>15</sup>

#### **Summary**

Cancer cells rely on the ability to communicate with one another in order to invade, colonize, and proliferate in healthy tissue. A proprietary form of *citrus pectin* has been shown to disrupt this inter-cellular communication, slowing metastasis and improving quality of life in cancer patients. Preliminary studies suggest modified citrus pectin may retard tumor growth, induce selective cell death for specific cancers, and inhibit angiogenesis—the spontaneous growth of blood vessels tumors require to nourish themselves and spread.

If you have any questions on the scientific content of this article, please call a Life Extension®

Health Advisor at 1-866-864-3027.

Dr. Isaac Eliaz, MD, has been researching the anti-cancer and chelation properties of modified citrus pectin for the past 20 years. His work in this field has been published in prestigious journals. Currently, Dr. Eliaz is medical director at Amitabha Medical Clinic in Sebastopol, CA. Dr. Eliaz specializes in integrative medicine and cancer treatment and has been practicing integrative medicine with a specific focus on cancer and chronic illness for 25 years.

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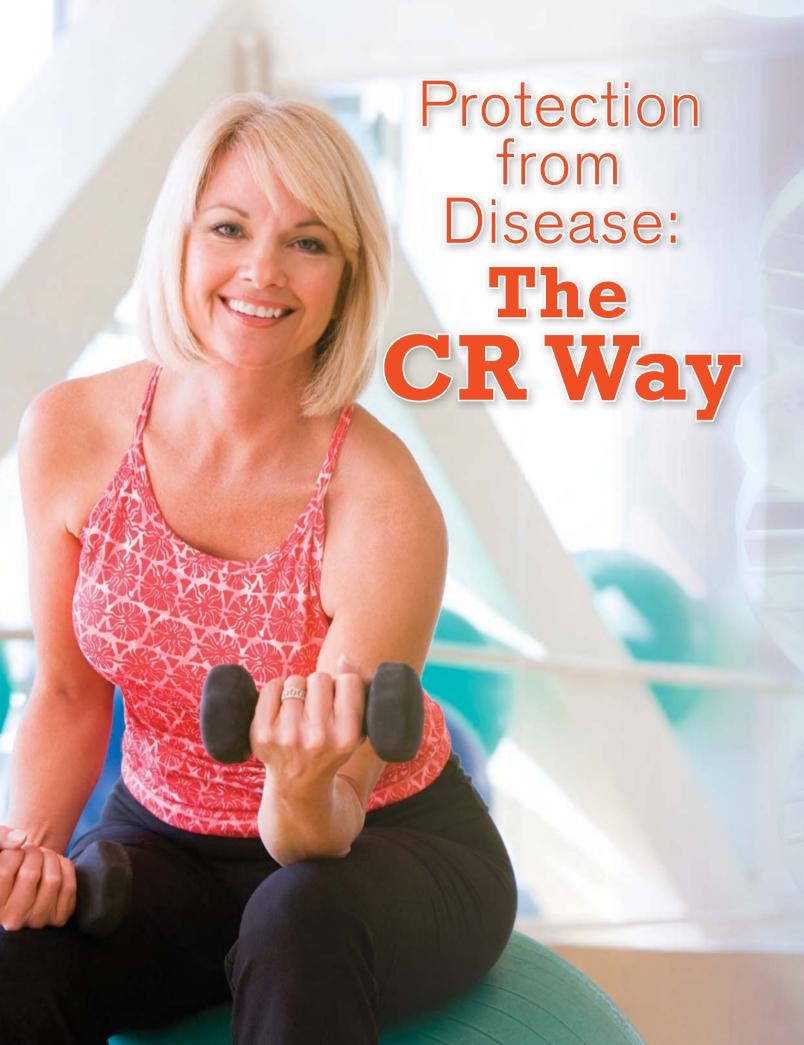
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# BY PAUL MCGLOTHIN AND MEREDITH AVERILL If you are over 65, you have an 80% chance of having at least one chronic disease such as: type 2 diabetes, cancer, or some form of cardiovascular impairment.1 Moreover, you have a 50:50 chance of having two chronic diseases1 that almost certainly seriously compromise your quality of life and cost great expense for medications. Even if you are much younger—in your teens, twenties, or thirties, perhaps—research2,3 shows that you are likely to have already begun the agerelated decline that will lead to disease in many systems—particularly if you eat a standard Western diet and are overweight. But the good news is that both epidemiological studies and clinical trials indicate that calorie restriction, which forms the CR Way's foundation, can prevent and even reverse many chronic diseases. This holistic low-calorie lifestyle is often written about in Life Extension Magazine<sup>®</sup>.4-7 >> JULY 2011 | LIFE EXTENSION | 77

For a long time, gerontologists postulated that humans who followed a nutrient-dense, low-calorie diet would gain the disease protection benefits seen in thousands of animal studies.

A breakthrough came in 2002 from Drs. John Holloszy and Luigi Fontana, when we helped them start studies of humans who had been consistently practicing calorie restriction for six years or more. These individuals maintained daily food intake of **1.780** calories, so they hardly felt deprived.

We spent months working with Dr. Fontana to put together a cohort that met the criteria. So the drama was high when the CR practitioners began arriving at Washington University in Saint Louis School of Medicine to participate in that first human CR study. No one knew if our results would be in line with the animal data or just indicate weight loss and not much else.



Fortunately, Drs. Holloszy and Fontana knew where to find the answer—the cardiovascular system. Dr. Timothy E. Mever from the Cardiovascular Biophysics Lab at Washington University joined them to help analyze our cardiovascular function and artery health.

One of the tests flashed our carotid artery images on a computer screen, allowing the amount of plaque accumulation to be measured. We were tense at first, wondering what Dr. Mever would see, then he exclaimed, "Your arteries are like 30-yearolds'!" yet we were in our fifties at the time.

Soon the study results were reported<sup>8</sup> and Drs. Fontana and Holloszy became heroes for those who want to live longer and better. "It's very clear from these findings that calorie restriction has a powerful, protective effect against diseases associated with aging," Holloszy said. "We don't know how long each individual actually will end up living, but they certainly have a much longer life expectancy than average because they're most likely not going to die from a heart attack, stroke, or diabetes."9 Dr. Fontana added: "These effects are all pretty dramatic. For the first time, we've shown that calorie restriction is feasible and has a tremendous effect on the risk for atherosclerosis and diabetes."9

Over the next few years, results from Washington University and other labs confirmed the astounding disease-prevention effects for humans of a CR diet:

- Slower cardiovascular aging<sup>8</sup>
- Lower blood pressure<sup>8</sup>
- Reduced cholesterol/LDL/ triglycerides<sup>8</sup>
- Less arterial plaque formation 8
- Lower glucose levels 8
- Less inflammation 8
- Lower levels of growth factors—reducing cancer risk8
- Better cognition (Germany)<sup>10</sup>

Building on this research, The CR Way integrates complementary practices that may enhance CR's disease-protection benefits even more. Consider cancer, for example, which is known to be inhibited by calorie restriction. 11 Many forms of cancer cells depend heavily on glucose to fuel their growth.<sup>12</sup> The CR Way offers low-GI (low glycemic index) eating plans to increase the difficulty for cancer cells to get the glucose they need. Malignant tumors also rely on angiogenesis—the formation of new blood vessels, which deliver oxygen and glucose-essential to tumor growth. It is no accident that many



CR Way-recommended foods, especially in the cancerprevention protocol, are anti-angiogenic.

Another disease state addressed by *The CR Way* is obesity. For many, overeating is due to emotions—eating for comfort.<sup>13</sup> To help people feel happier, The CR Way to Happy Dieting<sup>14</sup> makes it easy and fun to follow a low-calorie diet and to let comfort foods go. This multimedia guide offers video, podcasts, meal plans, and food choices so dieters have the tools at their finger tips to help them achieve their weight-loss goals.

The first stop on *The CR Way* to combating obesity or any other disease is one's doctor, who can be a valuable partner in supporting this healthful lifestyle. In fact, many doctors and scientists follow a CR Way lifestyle. While not intended to be a replacement for medical treatment from a physician, the CR Way to Disease Protection does change lives. It is an important benefit of the CR Way to Optimal Health Membership, made available in partnership with the Life Extension Foundation®.

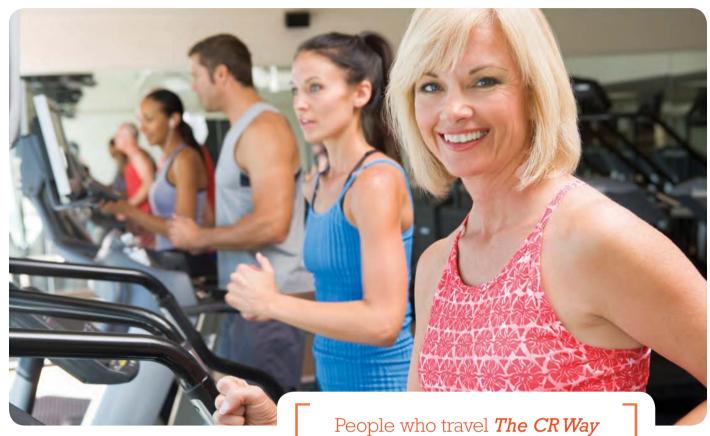
In addition to heart disease, diabetes, cancer, and obesity, The CR Way has been shown to positively affect:

- Alzheimer's disease
- Hearing loss
- Kidney disease
- Macular degeneration
- Migraine headaches
- Osteoarthritis
- Osteoporosis
- Parkinson's disease
- Rheumatoid arthritis
- Sarcopenia (muscle loss)
- Senile dementia

#### Protection from Disease: The CR Way

- Individuals over age 65 have an 80% chance of suffering from at least one chronic disease, and a 50% chance of suffering from two chronic diseases.
- In fact, age-related decline can begin as early as the teenage years.
- One of the most powerful ways to prevent and reverse age-related disease is to follow a calorie-restricted diet-that is, a nutrient-dense, low-calorie diet.
- Research shows that calorie-restricted animals live longer, healthier life spans, while human studies show that calorie-restricted individuals demonstrate physiological markers consistent with younger, disease-free people.
- Scientists believe that calorie restriction may offer benefits for preventing heart disease, cancer, and neurodegenerative disease.
- A program called The CR Way offers an easy-to-follow blueprint for implementing calorie restriction in your own life.
- This comprehensive program helps address many of the factors that cause overeating, such as emotional distress.
- Those who follow The CR Way program report abundant energy, optimistic mood, and vibrant health.





People who travel *The CR Way* want to get the most out of life. They want to enjoy themselves and not be saddled with disease. Or if they do have disease, they want to increase their chances of survival and a good quality of life.

While helping protect against disease, *The CR Way* fills your body with energy and optimism—making it easier to enjoy life more and excel in the things that matter to you. •

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

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

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

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

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

#### **Comprehensive Calorie Management**

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

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

#### Life-Saving Importance of Taking Calorie Control Weight Management Formula <u>Before</u> Heavy Meals

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

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

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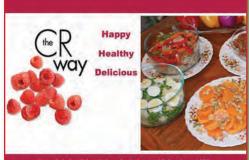
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#### NutriBase CR Way Edition Advanced Dietary Software



Paul McGlothin & Meredith Averill

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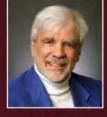
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BY CARLEY EDER

# The Awesome Apple

The apple peel has been shown to contain triterpenoids, compounds that possess strong anti-cancer activity, especially in preventing breast, colon, and liver cancer.

In the past few years, hard science has begun to prove that the phrase "an apple a day keeps the doctor away" isn't just a saying—it may be a fact. With its overwhelming load of powerful nutrients, antioxidants, fiber, and phytochemicals in every bite, the simple apple has been rising among nutritionists and scientists alike for its health potency. In addition, the apple peel has been shown to contain

triterpenoids, compounds that possess strong anti-cancer activity, especially in preventing breast, colon, and liver cancer. The meat of the apple and the peel work together to help fight off many common debilitating illnesses and health problems, including lung cancer, cardiovascular disease, asthma, excess weight, Alzheimer's, and dementia. In this article, we'll learn how cutting-edge studies are proving the apple's value as a health-enhancing fruit on an almost daily basis.

#### **SUPER FOODS**

#### **A Brief History**

There are over 7,500 types of apples (Malus domestica). A majority of them have been cultivated since the Iron Age, but historians have found evidence that apples were first farmed by humans in ancient Egypt. Apples were a favorite food of the ancient Greeks and Romans, with the Romans eventually bringing the apples to England. The apple was then brought to the United States by the Pilgrims in 1620, and almost four hundred vears later, the United States produces approximately one-third of the world's apple crop, with China being the world's largest producer.<sup>1</sup>

#### **Apples and Cancer Prevention**

There have been many studies showing that the consumption of apples can be beneficial in lowering the risk of several cancers, but research groups have recently shown it has a strong impact in reducing the risk of lung cancer. In the Nurses' Health Study and the Health Professionals' Follow-up Study, fruit and vegetable intake was linked to a 21% reduced risk of lung cancer in women.2 Of the fruits and vegetables examined, very few of them had a significant effect individually, however apples were one of the fruits specifically associated with a decreased risk of lung cancer.

Furthermore, a recent Finnish study that involved 10,000 men and women showed a strong relationship between higher intake of flavonoids and lower growth of lung cancer. Apples were the main source of flavonoid intake among the sample population, thus it was concluded that flavonoids from apples were most likely responsible for the lowered risk of the disease.<sup>2</sup>

Apples have also shown the ability to reduce the risk of breast cancer, according to a research study by Cornell University food scientists. The researchers treated a group of rats with a known mammary carcinogen, and after feeding them apple extracts, the number of tumors was reduced by 25% with the equivalent of just one apple a day and up to 61% with three apples a day.3 While consuming three apples a day may not be practical, supplementing with some of the nutrients found in apples, like quercetin and apple pectin, may provide a similar benefit. In fact, the high quercetin content of apples may be responsible for many of its health benefits, as quercetin is a known free radical scavenger that helps prevent disease.

#### Heart Health, and the Power of Pectin

Apples may prevent cardiovascular disease and promote heart health by lowering cholesterol and improving the function of blood vessels. In a large study of postmenopausal women, a direct correlation was found between the high level of flavonoids and the lowered risk of heart disease, with apples being the individual flavonoid-rich food contributing most to the results.<sup>2</sup>

Fiber is another component of apples that helps contribute to lowering the risk of heart disease. An average apple contains about 5 grams of fiber, and researchers have found that for every 10 grams of fiber added to the diet, there is a 14% reduction in heart illness.<sup>4</sup> The reason apples are so potent in this area is due to their high pectin content. Pectin is a natural fiber found in fruits, and apples are the number one source for it.



#### **APPLE TIPS**

- While most varieties of apples are available all year round, the freshest apples are available September through November.
- When selecting the proper apple, choose apples that are firm, undented, have a shiny skin, and a fresh fragrance.
- A bruised or rotten apple gives off a gas that may cause the spoilage of other foods.
- Golden Delicious apples are considered the best allpurpose apple to use while cooking. Granny Smith and Rome apples are also great for baking, with Red Delicious and Fuji apples being better for salads.
- Once an apple is cut, it will brown on the inside. To prevent this, squeeze some lime, lemon, or orange juice on them right away.
- In general, apples should be stored in a cool, dark place. The best thing to do is place them in a plastic bag and keep them in the crisper drawer of your refrigerator.

#### **SUPER FOODS**

Pectin may also help fight diabetes because it supplies quercetin.<sup>2</sup> Apples are also considered a "negative calorie" food, meaning that at 80 calories per average apple, you are burning more calories ingesting it than they provide.<sup>5</sup>

#### **Bone Protection**

Due to the flavonoid called *phloridzin*, which is found only in apples, French researchers have discovered that eating apples may help to prevent osteoporosis and may increase bone density, especially in post-menopausal women.<sup>6</sup>

#### **Apples and Asthma**

Multiple studies have shown apple consumption to be associated with a decreased risk of asthma. These anti-asthma benefits are directly correlated to the flavonoids found in apples that we have discussed throughout this article. A recent study in Australia involving 1,600 people found that apple and pear intake was associated with a decreased risk of asthma and overall bronchial hypersensitivity. This builds upon information obtained in a previous study in the United Kingdom, where researchers surveyed nearly 600 people with asthma and 900 people without asthma. Apple intake produced a decreased risk of asthma, especially in those individuals who ate two apples per week.2

Perhaps more importantly, pregnant women who eat apples may protect their children from ever developing asthma. In research done by S.M. Willers of Utrecht University in the Netherlands, the diets of 2,000 women were tracked and the lung health of 1,253 of their children

was documented.<sup>7</sup> The apple was the only food that was recorded and eaten by the pregnant women that showed a consistent protective correlation with childhood wheezing or asthma. The children of moms who ate 4 apples or more per week were recorded as having a 53% lower chance of having doctor-confirmed asthma.

#### **Alzheimer's Prevention**

A recent study at Cornell University discovered that the antioxidant quercetin found in apples helps to protect brain cells from oxidative stress. As Life Extension Magazine® readers know, oxidative stress is a tissue-damaging process linked to Alzheimer's and other neurodegenerative disorders. In this particular Cornell study, groups of isolated brain cells of rats were exposed to different levels of quercetin and vitamin C. The cells were then exposed to hydrogen peroxide to help induce the damage that occurs with Alzheimer's. Results showed that the cells treated with quercetin had much less damage than ones treated with

vitamin C or without antioxidants at all, demonstrating that quercetin has an extremely strong effect in battling neurotoxicity.<sup>8</sup>

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- Sesame Lignans Sesame lignans augment the antioxidant effects of both alpha- <u>and</u> gamma-tocopherol. In a human study conducted at Life Extension, gamma tocopherol plus sesame lignans was 25% more effective in suppressing measure-

ments 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.



Item #01580

To order Super Booster, call 1-800-544-4440 or visit www.LifeExtension.com 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, 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 provides a potent dose of **MK-7** 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.

#### Contains corn and sesame.

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

Lyc-O-Mato® is a registered trademark of LycoRed Natural Products Limited.



#### Just one softgel of Super Booster supplies:

Vitamin K2 (as menaquinone-7)	100 mcg
Vitamin K2 (as menaquinone-4)	1000 mcg
Vitamin K1 (as phytonadione)	1000 mcg
Gamma tocopherol	230 mg
Ginkgo extract	120 mg
Chlorophyllin	100 mg
Sesame lignans	20 mg
Lycopene	10 mg
Lutein	2 mg
Selenium (as Se-Methyl L-Selenocysteine)	67 mcg
Selenium (as L-Selenomethionine)	67 mcg
Selenium (as Sodium selenite)	67 mcg
Vitamin B12	300 mcg
Vitamin C	95 mg
Ascorbyl palmitate	50 mg
Zinc	10 mg
Mixed tocopherols	359 mg

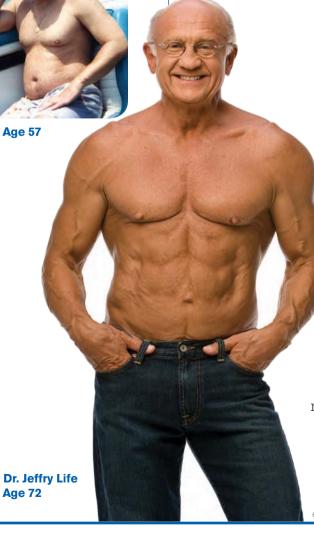


# WELLNESS PROFILE

BY JON FINKEL



At 59 years old, Dr. Jeffry Life felt like a middleaged man tumbling gut first into a limited, lethargic old age. "My joints and muscles ached, I had shortness of breath whenever I climbed just one flight of stairs, my clothes were tight, and my stomach was huge." Physically, Dr. Life was in decline. Internally, the outlook wasn't much better. His cholesterol scores were dangerously high and he was on his way to becoming a type 2 diabetic. He was also suffering from low self-esteem and erectile dysfunction. Then, one day, as Dr. Life describes it, he "took a long, hard look in the mirror...and realized that if [he] didn't begin focusing on his own health, there would be no future."



© TERRY GOOD! AD

#### **WELLNESS PROFILE**

When Dr. Life decided to take control of his health, he wasn't coming from a strong athletic background. He had been a Masters swimmer years before, but he got caught up with his medical practice, and as happens with most people, little by little he started letting his health deteriorate. The first thing he did was revamp his diet, which over the years began trending toward fast food and high-fat, high-carbohydrate meals.

"I put myself on a low-glycemic/ low-fat diet," Dr. Life says. "It was a bodybuilder's diet. They were way ahead of everybody else. It was all about how to gain muscle mass and drop fat. Most people who were exercising were simply following the conventional rules of a low-fat diet, but that isn't the best approach."

Between the exercise and the new diet, Dr. Life began to see results almost right away.

"I was dropping fat pretty rapidly," he says. "I was surprised, really."

In addition to the eating and exercise, Dr. Life began taking supplements to augment his overall health regimen. He took a multivitamin as well as creatine, fish oil, hydroxymethylbutyrate (HMB), and protein shakes.

The routine worked, and Dr. Life became the Grand Champion in the 1998 Body-for-LIFE contest. The *before* and *after* pictures of Dr. Life are remarkable to look at to this day—from bulky and puffy to rock solid and ripped in less than six months.

#### **PASSING IT ON**

Dr. Life was so pleased with the results of his regimen and felt so good that he decided to incorporate the lessons he learned in his own body transformation into his medical practice.

"When I won the contest I was doing family practice in northeast Pennsylvania," Life says. "The patient population was simply not receptive to changing things. It wasn't until I moved to Las Vegas and started doing age management that I found clients who were willing to listen. My patients in Nevada really want to lose body fat. Most try to stick to the program and have certain levels of success. Some are super successful. All have improvements in their health."

One of the staples of the supplement regimen that Dr. Life preaches to his clients is the use of whey protein.

"In my medical practice, I'm big on pretty hefty protein intakes," he explains. "Elderly people don't take in enough protein and they start to become frail. Muscle loss is considered to be part of the aging process, but it doesn't have to be. Aging is not inevitable. You can actually do things that will prevent muscle loss, like take whey. My patients demonstrate this on a daily basis. And I do too. I've put on over 4 pounds of muscle in the past year. People don't realize that one of the main reasons the elderly end up in nursing homes is muscle loss, and this can be corrected."

# THE LIFE PLAN: Recommended Nutraceuticals

- Comprehensive multivitamin and mineral supplement
- Essential fatty acids
- Probiotic supplement
- Vitamin D3
- CoQ10
- Saw palmetto
- Lycopene
- Milk thistle
- Calcium
- French maritime pine bark extract
- L-arginine



RRY GOODLAD

#### **WELLNESS PROFILE**

#### **GETTING STUCK AND BREAKING THROUGH**

Dr. Life stuck with his new program for several years, but at age 64, he hit a plateau—then began sliding back.

"I stopped gaining muscle and started losing energy," he says. "I just thought that I was finally getting older. I was thinking like traditional physicians think, which meant that I figured I had to give in to getting weaker, losing muscle mass, and getting fatter."

The confusing part for Dr. Life was that in order to counter this slide, he began training harder than ever, but he wasn't seeing the results. Around this time, he came across a brochure in Las Vegas about a medical meeting that dealt with the role exercise and nutrition played in correcting hormonal deficiencies.

After attending that meeting, Dr. Life began wondering about his own hormone levels.

"I had my own hormones checked and found out I was profoundly deficient in testosterone and DHEA (and growth hormone)," he said. "I was surprised, but relieved. The deficiencies explained my losing muscle mass, strength, and endurance, and why I was also accumulating body fat and battling low energy levels."

Prior to starting a hormone supplement plan, Dr. Life says he studied up on the concept tremendously. He recalls that at the time it was thought that these hormones put people at greater risk for getting cancer. What he discovered was that the people with the lowest levels of hormones have the greatest risk. The conventional wisdom that he'd heard was wrong.

"Once I started supplementing, within a week, I was feeling better," Dr. Life says. "Two weeks later I was gaining strength again."

#### PRACTICING WHAT **YOU PREACH**

Six years after winning the Body-for-LIFE contest, Dr. Life decided to have some photos taken to prove to his patients that he lived the life he talked about. The photos are almost too striking to believe. Life, now 72-years-old, has the muscle mass of a man half his age.

"It has been 13 years since I started this journey of transformation," Life says. "What's so exciting is that not only do I feel great, I've been able to improve my physique over the years. I have been able to stay lean, reduce my cholesterol levels, reduce inflammation. reduce blood sugar levels, and avoid diabetes."

Even more important is that Dr. Life and his cardiologist believe that had he not entered into this exercise and nutrition program. he would not be here today. But it hasn't been easy.

In the beginning, Dr. Life admits that the physical training was very difficult and he was sore. Once the soreness went away, however, the idea of working out fueled him, and he looks forward to each of his training sessions. The nutrition side is where he really had to make a commitment and stick to it.

"The hardest concept I had to grasp, and that I have to explain to people, is that you can lose body fat and gain muscle mass without starving," he says. "If you starve, vou'll lose both, but it's harder to lose body fat. Coupled with this concept was the idea that I had to get across to people that small, frequent meals are better than two big meals a day."

One of the kevs to Dr. Life's success was that he decided that he had to plan out each and every one of his meals. The easiest way to fall off a healthy eating regimen is to constantly have to figure out what you're going to eat next. When you do this, you're more likely to make a quick, wrong decision.

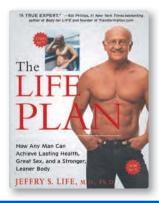
"Planning ahead and having nutritious food on you at all times is the only way to succeed," he says. "When I travel, I carry around a cooler with me of healthy food. If you leave for the day and you don't know where you're going to eat, vou will fail."

When it comes to maintaining your health, failure is not an option, which is why he wrote the book: The Life Plan: How Any Man Can Achieve Lasting Health, Great Sex, and a Stronger, Leaner Body.

The book is the culmination of all that Dr. Life has learned in his quest for health and fitness. Its basic goal is to prevent disease, rather than fix it—a concept that Life Extension® readers are very familiar with.

Editor's note: Dr. Life uses human growth hormone because his blood tests showed he was very deficient. There is conflicting data regarding the use of human growth hormone with some concerns that excess growth hormone elevates insulin-like growth factor-1 and may increase cancer risk. Some who practice calorie restriction seek to reduce excess protein intake in order to lower insulin-like growth factor-1. High protein intake can also impair kidney and/or liver function in patients with pre-existing kidney and/or liver disease.

To order Dr. Life's new book, The Life Plan, call 1-800-544-4440.





Turns out, the advice you got as a child to "eat your greens" could pay major dividends as an adult. Scientists have recently identified extracts from green vegetables like broccoli, cabbage, and Brussels sprouts that help maintain healthy hormone levels. Having optimal hormone levels is essential to any antiaging strategy. In addition, many of these extracts contain glucosinolates, isothiocyanates, carnosic acid, and carnosol – bioactive compounds that have a wide variety of favorable effects on estrogen metabolism and cell division.<sup>1-4</sup>

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

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

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



**Broccoli Super Concentrate** 



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

•	
[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

Contains yeast and corn.

25 mg

#### DEEEDENCES

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**Apigenin** 

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- 5. J Clin Biochem Nutr. 2009 May;44(3):260-5.

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



# Optimized FUCOIDAN

#### **The Japanese Dietary Longevity Factor!**

In recent years, scientific interest has intensified around *fucoidan*, a little-known molecule found *primarily* in edible **seaweeds** native to the Japanese diet. Nearly **900** published studies indicate its power to promote healthy immune function, cell-to-cell communication, and tissue repair.<sup>1-3</sup>

#### The "Okinawan Secret"

Many experts now believe that **fucoidan** is one of the <u>key</u> nutrients responsible for the exceptionally long, healthy lives enjoyed in **Okinawa**, which for decades boasted the world's <u>highest</u> concentration of **centenarians** (individuals at least a *century old*).<sup>4-8</sup>

**Maritech® 926 fucoidan** is sourced from hand-harvested, wild seaweed exclusively from pristine ocean waters of Patagonia (located in the southern tip of South America). A cutting-edge water extraction process ensures **fucoidan's** delicate molecular structure is delivered intact, to provide the critical nutritional benefit of *Undaria pinnatifida*, which is the species of seaweed used in a majority of scientific studies on **fucoidan**.

#### A Full Day's Supply ... In Just One Capsule

A single vegetarian capsule of **Optimized Fucoidan with Maritech® 926** provides **88.5 mg** of standardized *Undaria pinnatifida* extract, equaling the amount of fucoidan typically consumed daily in the traditional Japanese diet. Most people require only one capsule daily, though aging individuals seeking to enhance the benefit may choose to take two per day.

A bottle containing <u>60</u> vegetarian capsules of **Optimized Fucoidan with Maritech**® **926** retails for **\$36**. If a member buys four bottles, the price is reduced to just **\$24.75** per bottle.

#### References

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Item #01513

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FUCOIDAN

To order Optimized Fucoidan with Maritech® 926 call 1-800-544-4440 or visit www.LifeExtension.com

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



Blood testing provides the ultimate information regarding correctable risk factors that may predispose you to disorders such as cancer, diabetes, cardiovascular disease, and more. Information about general health and nutritional status can also be gained through standard blood analysis. Standing behind the belief that blood testing is an essential component of any program designed to attain optimal health and longevity, Life Extension® offers this innovative and convenient service at a very affordable price. Not only is comprehensive blood testing an important step in safeguarding your health, it is a simple process from virtually anywhere in the United States.

#### **Five Easy Steps:**

- Call 1-800-208-3444 to discuss and place your order with one of our knowledgeable health advisors.
   (This order form can also be faxed to 1-866-728-1050 or mailed).
   Online orders can also be placed at www.lifeextension.com.
- After your order is placed, you will be mailed either a requisition form to take to your local LabCorp Patient Service Center or a Blood Draw Kit; whichever is applicable (Please note: If a blood draw kit is used, an additional local draw fee may be incurred.)
- 3. Have your blood drawn.
- 4. Your blood test results will be mailed directly to you by Life Extension.
- 5. Take the opportunity to discuss the results with one of our knowledgeable health advisors by calling 1-800-226-2370; or review the results with your personal physician.

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

#### For Our Local Members:

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

# Bloed Testing The Ultimate Information

#### MOST POPULAR PANELS

			JLAR PA		
		tens	n Member F	•	¢or.
J	COMPREHENSIVE PANELS MALE WEIGHT LOSS PANEL (LCWLM)*	\$299	OVER 40 PARAM		\$35
	CBC/Chemistry Profile DHEA-S Insulin PSA (prostate-specific a	antigon)	CARDIOVASCULA Total Cholesterol		
	Insulin PSA (prostate-specific a Free Testosterone Total Testosterone	antigen)	HDL Cholesterol		
	Estradiol TSH		LDL Cholesterol	Glucose	
	Free T3 Free T4		Triglycerides	Iron	
	C-Reactive Protein (high sensitivity)		LIVER FUNCTION		
$\bigcirc$	FEMALE WEIGHT LOSS PANEL (LCWLF)*	\$299	AST (SGOT) ALT (SGPT)	Total Bilirubin Alkaline Phosphatase	
	CBC/Chemistry Profile DHEA-S	\$233	LDH	Aikaiilie i ilospiiatase	
	Progesterone Insulin		KIDNEY FUNCTION	IN PANEL	
	Free Testosterone Total Testosterone		BUN	BUN/Creatinine Ratio	
	Estradiol TSH Free T3 Free T4		Creatinine BLOOD PROTEIN	Uric Acid	
	C-Reactive Protein (high sensitivity)		Total Protein	Globulin	
_	o nodotivo riotom (mgn donottivity)		Albumin	Albumin/Globulin Ratio	)
$\bigcirc$	MALE LIFE EXTENSION PANEL (LC322582)	\$269		ED AND WHITE BLOOD	
	CBC/Chemistry Profile DHEA-S	_	CELL PROFILE	unt Monograpo	
	Homocysteine TSH for thyroid function Total Testosterone	11	Red Blood Cell Co	unt Monocytes Count Lymphocytes	
	Estradiol		Eosinophils	Platelet Count	
	PSA (prostate-specific antigen)		Basophils	Hemoglobin	
	C-Reactive Protein (high-sensitivity)		Polys (Absolute)	Hematocrit	
	MALE HORMONE ADD-ON PANEL (LCADDM)*	\$155	Lymphs (Absolute) Monocytes (Absol	MCV ute) MCH	
	Pregnenolone and Dihydrotestosterone (DHT)		Eos (Absolute)	MCHC	
	To provide an even more in-depth analysis of		Baso (Absolute)	Polynucleated Cells	
	a man's hormone status, Life Extension has		RDW	DANIEL	
	created this panel as an addition to the Male Life Extension Panel. This panel provides		BLOOD MINERAL Calcium	PANEL Sodium	
	valuable information about a testosterone		Potassium	Chloride	
	metabolite that can affect the prostate, and		Phosphorus	Iron	
	the mother hormone that acts as a precursor		NOTE: CRC/Chemi	stry profile is included in the Mal	e
	to all other hormones.			tension panels and Weight Loss I	
	FEMALE LIFE EXTENSION PANEL (LC322535)	\$269	GENERAL HEALTI	1	
	CBC/Chemistry Profile DHEA-S			C (HBA1C) (LC001453)	\$31
	Estradiol Homocysteine	n		evaluates long-term blood rum glucose sometimes reac	te
	Progesterone TSH for thyroid function Total Testosterone	111	with important p	roteins in the body rendering	ıs
	C-Reactive Protein (high-sensitivity)		them nonfunctio	nal. Since this process, know	n
			as glycation is or	ne of the leading theories of	
$\cup$	FEMALE HORMONE ADD-ON PANEL (LCADDF)* Pregnenolone and Total Estrogens	\$125	should check the	sion® believes everyone ir A1C level	
	To provide an even more in-depth analysis				
	of a woman's hormone status, Life Extension		VITAMIN D (250)		\$47
	has created this panel as an addition to the			to rule out vitamin D ause of bone disease.	
	Female Life Extension Panel. This panel provides valuable information about total			ed to identify hypercalcemia.	
	estrogen status, and the mother hormone that		<u> </u>		
	acts as a precursor to all other hormones.			RGY TEST (LCM73001)	\$174
			allergies for 95 c	es delayed (IgG) food common foods	
$\cup$	LIFE EXTENSION THYROID PANEL (LC304131)	\$75			
	TSH, T4, Free T3, Free T4.		CYTOKINE PANEI		\$399
	MALE HORMONE RE-TEST PROFILE (LCRTM)*	\$275		oha, IL-6, IL-1 beta and IL-8. oteins that modulate the	NEW
$\overline{}$	CBC/Chemistry Profile, DHEA-S, Dihydro-			ponse. This panel is used to	PRICE
	testosterone (DHT), Estradiol, PSA, Pregnenolo Total and Free Testosterone, and TSH. Continua			levels of specific cytokines.	
	monitoring of hormone levels is necessary for		OMEGA SCORE	™** (LCOMEGA)	\$131.25
	seeking to maintain optimal blood level values		Provides valuabl	e information on your risk	ψ101.20
$\overline{}$	FEMALE HORMONE RE-TEST PROFILE (LCRTF)*	\$250	of developing he	art disease, sudden heart	
	CBC/Chemistry Profile, DHEA-S, Total Estroger			iac death. The Omega Iudes your AA:EPA ratio,	
	Pregnenolone, Total and Free Testosterone,		allowing you to d	etermine and track a major	
	Progesterone, and TSH. Continual monitoring			dy inflammation.	
	of hormone levels is necessary for women		O0010* (005H7	VMF 010\ (L01000F1\	¢00

\* This test requires samples to be shipped to the lab on dry ice for customers using a Blood Draw Kit and will incur an additional \$35 charge. If the customer is having blood drawn at a LabCorp facility, this extra charge does not apply.

COQ10\* (COENZYME Q10) (LC120251)

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

This test is used to check the blood level

maintain high levels of this critical antioxidant.

\$99

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

seeking to maintain optimal blood level values.



#### MOST POPULAR SINGLE TESTS

Life Extension M

$\bigcirc$	CORTISOL (LC004051) This test is to measure adrenal function.	\$39
0	ADRENOCORTICOTROPIC HORMONE (ACTH)* (LC004440)  A pituitary function test useful in evaluating adrenocortical dysfunction.	\$91.50
0	DHEA-SULFATE (LC004697) This test shows if you are taking the proper amount of DHEA. This test normally costs \$100 or more at commercial laboratories.	\$61
$\bigcirc$	DIHYDROTESTOSTERONE (DHT)* (LC500142) Measures serum concentrations of DHT.	\$99
0	ESTRADIOL (LC004515) For men and women. Determines the proper amount in the body.	\$33
$\bigcirc$	INSULIN-LIKE GROWTH FACTOR BINDING PROTEIN 3 (IGFBP3) (LC140152) Elevated levels in hypertensive individuals have been associated with a nine-fold increase of carotid arteriosclerosis.	\$47
$\bigcirc$	INSULIN FASTING* (LC004333) Can predict those at risk of diabetes, obesity, and heart and other diseases.	\$42
$\bigcirc$	PREGNENOLONE* (LC140707) Used to determine ovarian failure, hirsutism, adrenal carcinoma, and Cushing's syndrome.	\$116
0	PROGESTERONE (LC004317) Primarily for women. Determines the proper amount in the body.	\$55
$\bigcirc$	SEX HORMONE BINDING GLOBULIN (SHBG) (LC082016) This test is used to monitor SHBG levels which are under the positive control of estrogens and thyroid hormones, and suppressed by androgens	<b>\$33</b>
$\bigcirc$	SOMATOMEDIN C (IGF-1) (LC010363) Indicates growth hormone secretion levels. Low levels have been associated with atherosclerosi as well as all-cause mortality.	<b>\$75</b>
0	TOTAL AND FREE TESTOSTERONE (LC140103) Determines whether testosterone replacement should be considered as a therapy for depressio abdominal obesity, low energy, poor mental performance, or loss of libido.	<b>\$99</b> n,
	URINARY 2/16 ESTROGEN METABOLITE RATIO (LCU73000) This ratio is relevant as a risk factor for estroge sensitive diseases including breast and cervical cancers, osteoporosis, and recurrent respiratory papillomatosis.	

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

Member Pricing	
CARDIAC RISK  Lp-PLA2 (PLAC TEST)* (LC141275)  This test is used to aid in predicting risk for coronary heart disease, and ischemic stroke associated with atherosclerosis. Lp-PLA2 is a cardiovascular risk factor that provides unique information about the stability of the plaque inside your arteries.	\$12!
C-REACTIVE PROTEIN (HIGH-SENSITIVITY) (LC120766)  Measures inflammation factors in arteries. Recent studies indicate that C-reactive protein may be the most accurate risk factor for predicti heart attack and stroke.	<b>\$42</b> ing
APOLIPOPROTEIN ASSESSMENT (APO A1 + APO B + RATIO) (LC216010) This ratio correlates with risk of coronary artery disease and is useful in the presence of borderline elevations of cholesterol.	\$55
FIBRINOGEN* (LC001610) High levels of this blood-clotting factor increase the risk of heart attack and stroke.	\$31
HOMOCYSTEINE (LC706994) Can indicate if you are likely to have a heart attac or stroke. Even if you take folic acid, you still may have dangerously high levels of this artery-clottin metabolic debris that can be lowered with high doses of TMG and vitamin B6.	
VAPTM TEST (LC804500)  The VAP cholesterol test provides a more comprehensive coronary heart disease (CHD) rist assessment than the conventional lipid profile. Direct measurements, not estimations, are provided for total cholesterol, LDL, HDL, VLDL, and cholesterol subclasses.	<b>\$90</b> k
MALE HEALTH PSA (PROSTATE-SPECIFIC ANTIGEN) (LC010322) Can provide an early warning sign for prostate disorders and possible cancer.	\$31
FREE-PSA (INCLUDES TOTAL PSA)* (LC480780) Recommended to determine if an elevated PSA is indicative of prostate cancer.	\$61
BONE HEALTH  OSTEOCALCIN* (LC010249) Osteocalcin is often used as a biochemical marker, or biomarker, for the bone formation	\$91

**DPD CROSS LINK URINE TEST (LC511105)** \$79 The deoxypyridinoline (DPD) urine test can be

well correlated with bone diseases characterized by increased bone turnover, especially osteoporosis.

process. It has been routinely observed that higher serum osteocalcin levels are relatively

used to measure bone re-absorption rates in healthy individuals and in those with enhanced risk of developing metabolic bone diseases. Deoxypyridinoline can be used to monitor therapies (which may include bisphosphonate drugs) in people diagnosed with osteoporosis.

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

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#### **TERMS AND CONDITIONS**

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

Signature of Life Extension Member

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# **Life** Extension

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-Cysteine Capsules

L-Glutathione, L-Cysteine & C

L-Glutamine Capsules L-Glutamine Powder L-Lysine Capsules

L-Lysine Powder L-Tyrosine Tablets

Mega L-Glutathione Capsules N-Acetyl-L-Cysteine Capsules
Optimized Carnitine with GlycoCarn® PharmaGABA

Super Carnosine Capsules Taurine Capsules
Tryptopure® Tryptophan
(Optimized) Tryptopure® Plus

#### **BONE & JOINT HEALTH**

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

#### **BRAIN HEALTH**

BRAIN HEALTH
Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
CDP Choline Capsules
Cognitex® with NeuroProtection Complex
Cognitex® with Pregnenolone &
NeuroProtection Complex
Cognitex® Basics DMAE DMAE-Ginkgo Ginkgo Biloba Certified Extract™

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 N-Zimes™ Pancreatin Primal Defense™

Regimint

Saccharomyces Boulardii+mos Theralac Probiotics

#### **DURK AND SANDY PRODUCTS**

Blast™ Dual-C Inner Power™ Memory Upgrade™

#### **EYE CARE**

Bilberry Extract Blackcurrant Freeze Dried Extract Brite Eyes III

Eye Pressure Support with Mirtogenol® Overxcast Polarized Sunglasses Solarshield Sunglasses Super Zeaxanthin with Lutein & Meso-Zeaxanthin and C3G (Plus Astaxanthin also available) Vision Optimizer

**FIBER**Apple Pectin Powder Fiber Food Hi-Lignan® Nutri-Flax® WellBetX PGX® Soluble Fiber Blend

Asian Cruciferous Vegetable Soup Cruciferous Vegetable Soup

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

#### **HEART HEALTH**

Advanced Lipid Control Aspirin (Enteric Coated)

Cho-Less™ D-Ribose Capsules D-Ribose Capsules
D-Ribose Powder
Endothelial Defense™ with

Full-Spectrum Pomegranate™ Fibrinogen Resist

Forskolin

Homocysteine Resist Natural BP Management Peak ATP® with GlycoCarn®

Policosanol Red Yeast Rice

Super Absorbable CoQ10™ with d-Limonene Super Omega-3 EPA/DHA with Sesame

Lignans & Olive Fruit Extract Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with Enhanced

Mitochondrial™ Support

Sytrinol™

Theaflavin Standardized Extract TMG Powder

TMG Tablets

#### **HERBAL/PHYTO PRODUCTS**

Artichoke Leaf Extract Astaxanthin Berry Complete
Blackcurrant Juice Concentrate Blueberry Extract Blueberry Extract w/Pomegranate Butterbur Extract w/Standardized

Rosmarinic Acid Calcium D-Glucarate Cilantro Herbal Extract Citrus Bioflavonoid

Enhanced Berry Complete with RZD™ Acai Full-Spectrum Pomegranate™

Grapeseed Extract with Resveratrol & Pterostilbene

Huperzine A with Natural Vitamin E Kyolic® Garlic Formula 105

Kyolic® Reserve

Mega Green Tea Extract
Mega Green Tea Extract (Decaffeinated)
Mega Lycopene Extract

Nutrim

Optimized Ashwagandha Extract

Pomegranate Extract

Pomegranate Juice Concentrate

ProGreens® Pure-Gar™ Pycnogenol Optimized Quercetin

Resveratrol with Synergistic Grape-Berry Actives

Rhodiola Extract Rosmarinic Acid Extract

Silymarin

SODzyme™ with GliSODin®

Stevia Extract

Super Bio-Curcumin®

Super Curcumin with Bioperine®

Super Ginkgo Extract

Triple Action Cruciferous Vegetable Extract Venotone

Whole Grape Extract

#### **HORMONES**

7-Keto® DHEA DHEA DHEA Complete

GH Pituitary Support Day Formula GH Pituitary Support Night Formula

Melatonin

Melatonin Timed Release

Natural Estrogen with Pomegranate Extract

Pregnenolone ProFem Cream

Pure IGF

Super Miraforte with Standarized 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 Lifeshield® Immunity™ Maitake SX-Fraction

Maritace SA-Fraction Norwegian Shark Liver Oil Optimized Fucoidan w/Maritech® 926 Primal Defense™

ProBoost™ Thymic Protein A Pure Gar™

Sambu® Guard

Thymic Immune Factors Ultimate Flora Advanced Immunity

Vitamin C with Dihydroquercetin Zinc Lozenges with Vitamin C

#### **INFLAMMATORY REACTIONS**

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 Ginger Force Krill Oil

5-LOXIN® Mega EPA/DHA

Mega GLA with Sesame Lignans

MSM

Natural Relief 1222™ Cream

Serraflazyme

SODzyme™ with GliSODin® and Wolfberry Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract

Tart Cherry Udo's Choice Oil Zyflamend Easy

#### **LIVER HEALTH**

Branch Chain Amino Acids N-Acetyl Cysteine Liver Force Certified European Milk Thistle PhosChol® (Nutrasal) SAMe Silymarin

#### **MINERALS**

Biosil

Bone Restore

Bone Strength Formula w/KoAct®

Bone-Up™ Boron Capsules

Calcium Citrate with D3

Chromium Ultra

Copper

Dr. Strum's Intensive Bone Formula

#### **Products**

Iodoral Iron Protein Plus Magnesium Magnesium Citrate Mineral Formula for Men Mineral Formula for Women Only Trace Minerals Optimized Chromium w/Crominex® 3+

OptiZinc

Sea-Iodine™ Selenium

Se-Methyl L-Selenocysteine

Strontium Vanadyl Sulfate

Zinc/Vitamin C Lozenges

#### **MISCELLANEOUS**

Blood Pressure Monitor Arm Cuff Medium Cell Sensor Gauss Meter<sup>™</sup> CR Way Edition Advanced Dietary Software Empty Gelatin Capsules The Capsule Filler Machine
The Pill Cutter and Grinder

#### MITOCHONDRIAL SUPPORT

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

#### **MOOD RELIEF**

Bioactive Milk Peptides Holy Basil L-Theanine 5 HTP Enhanced Natural Sleep® w/ Melatonin Enhanced Natural Sleep® w/o Melatonin Natural Stress Relief Optimized TryptoPure™ Plus Stabilium® 200 SAMe St. John's Wort Extract
Tryptopure™ L-Tryptophan

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

Toothpaste 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 Tablets
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<sup>™</sup> w/Stevia Powder
Life Extension Mix<sup>™</sup> w/Stevia w/o Copper Powder
Life Extension Mix<sup>™</sup> 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**

Cat Mix 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

Advanced Under Eye Serum with Stem Cells Amber Self MicroDermabrasion Anti-Aging Mask Anti-Glycation Serum

Antioxidant Rejuvenating Foot Cream Antioxidant Rejuvenating Foot Scrub Antioxidant Rejuvenating Hand Cream Antioxidant Rejuvenating Hand Scrub Anti-Redness & Blemish Lotion Cellulite Suppress™ Formula Corrective Clearing Mask

DermaWhey

Dual-Action MicroDerm Abraision Elastin Collagen Body Firming Lotion Essential Plant Lipids Reparative Serum

Face Master® Platinum

Face Rejuvenating Antioxidant Cream Enhanced FernBlock® with Sendara™ Fine Line-Less

Hair Suppress Formula Healing Formula All-in-One Cream Healing Mask

Hyaluronic Facial Moisturizer Hydrating Anti-oxidant Face Mist

Hydroderm®

Lavilin Underarm Deodorant Lifting & Tightening Complex Melatonin Cream

Mild Facial Cleanser NaPCA w/Aloe Vera

Neck Rejuvenating Antioxidant Cream

New Face Solution New Face Solution
Peel Off Cleansing Mask
Pigment Correcting Cream
(Ultra) Rejuvenex®
Rejuvenex® Body Lotion
RejuveneX® Factor
Pointerprise Source

Rejuvenating Serum

Skin Lightening Serum Skin Restoring Ceramides w/Lipowheat™ Skin Stem Cell Serum

Sun Protection Spray Total Sun Protection Cream

Triple Action Under Eye Rejuvenator Ultra Reiuvenex®

Ultra RejuveNight® w/ Progesterone
Ultra RejuveNight® w/o Progesterone
Ultra Lip Plumper
Ultra Wrinkle Relaxer

Under Eye Refining Serum Under Eye Rescue Cream Vitamin Ć Serum Vitamin D Lotion

Vitamin K Healing Cream

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

#### SPECIAL PURPOSE FORMULA

Anti-Alcohol Antioxidants w/HepatoProtection Complex

Benfotiamine w/Thiamine

Breast Health Formula
Butterbur Extract w/Standardized

Rosmarinic Acid Chlorella

Chlorophyllin w/Zinc Cleanse Smart

Coriolus Super Strength CR Mimetic Longevity Formula

Derma-Vits™ Cinsulin® w/InSea2™

and Crominex® 3+

European Leg Solution Diosmin 95 Fem Dophilus

Femmenessence MacaPause®

Flush & Be Fit GlucoFit™

Ideal Bowel Support 299

Lustre™

Maitake SX-Fraction™

Menopause Solutions

Migra-eeze<sup>™</sup>

Natural Female Support Organic Total Body Cleanse

Pecta-Sol®

Potassium Iodide PQQ Caps with BioPQQ™

PteroPure™

Prelox® Natural Sex for Men® Pyridoxal 5' - Phosphate Rosmarinic Acid Extract

#### SPORTS PERFORMANCE

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

L-Glutamine Powder

Octacosanol

#### VITAMINS

Ascorbic Acid Powder Ascorbyl Palmitate Capsules R<sub>2</sub> B12 Beta-Carotene

Biotin Capsules Biotin Powder

Buffered Vitamin C Powder Complete B Complex Essential Fat-Soluble Nutrient

Folic Acid + B12
Gamma E Tocopherol w/Sesame Lignans

Gamma E Tocopherol/Tocotrienols

Inositol Capsules Inositol Powder Mega Lycopene Extract Methylcobalamin MK-7

No-Flush Niacin Optimized Folate PABA Capsules

Super Ascorbate C Capsules Super Ascorbate C Powder Super K w/Advanced K2 Complex Tocotrienols w/Sesame Lignans Vitamin A Nutrisorb Vitamin B3 (Niacin) Capsules

Vitamin B6

Vitamin B12 Tablets Vitamin C Vitamin D Vitamin D3

Vitamin D3 w/Sea-lodine™ Vitamins D and K w/Sea-lodine™

Vitamin E Vitamin K1

#### **WEIGHT MANAGEMENT**

Alli® Refill Pack

Advanced Anti-Adipocyte Formula w/AdipoStat & Integra Lean® Anti-Adipocyte Formula w/AdipoStat

Calorie Control Weight Management Formula 7-Keto DHEA

DHEA Complete Fucoxanthin Slim™ HCA

Integra-Lean® Irvingia LuraLean® Caps Special Propolmannan

Particle Size

Optimized Irvingia w/Phase 3™ Calorie

Control Complex
Optimized Saffron with Satiereal®

Natural Appetite Control
Natural Glucose Absorption Control
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 Each	Member Each	Qty	Total
	A				
00449	ACETYL-L-CARNITINE - 500 mg, 100 caps	\$56.00	\$42.00		
	Buy 4 bottles, price each	46.66	35.00		
00788	ACETYL-L-CARNITINE ARGINATE - 100 caps	59.00	44.25		
	Buy 4 bottles, price each	50.99	38.24		
01308	ADVANCED LIPID CONTROL - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01300	ADVANCED ORAL HYGIENE - 60 veg. mint lozenges	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01417	AGAVE DIGESTIVE-IMMUNE SUPPORT - 360 grams powder	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		
00681	<b>AHCC</b> - 500 mg, 30 caps	59.98	44.99		
	Buy 4 bottles, price each	53.33	40.00		
16925	ALLI® REFILL PACK - 120 caps	69.95	58.00		
00457	ALPHA-LIPOIC ACID W/BIOTIN (SUPER) - 250 mg, 60 caps	37.00	27.75		
	Buy 4 bottles, price each	32.00	24.00		
01440	ANTI-ALCOHOL ANTIOXIDANTS w/HEPATOPRO - 100 caps	26.00	19.50		
	Buy 4 bottles, price each	23.00	17.25		
01510	ANTI-ADIPOCYTE FORMULA w/ADIPOSTAT - 60 veg. caps	35.00	26.25		
0.0.0	Buy 4 bottles, price each	32.00	24.00		
01509	ANTI-ADIPOCYTE FORMULA w/ADIPOSTAT & INTEGRA LEAN® (ADVANCED)	39.00	29.25		
01303	60 veg. caps • Buy 4 bottles, price each	36.00	27.00		
00105	APPLE PECTIN POWDER - 227 grams	14.75	11.06		
00100	Buy 4 bottles, price each	13.75	10.31		
01012	ARGININE CAPS - 800 mg, 200 caps	26.50	19.88		
01012	Buy 4 bottles, price each	23.25	17.44		
01039	ARGININE/ORNITHINE - 500/250, 100 caps	16.00	12.00		
01000	Buy 4 bottles, price each	14.50	10.88		
00038	ARGININE/ORNITHINE POWDER - 150 grams	22.95	17.21		
JUU30					
04.005	Buy 4 bottles, price each	19.00	14.25		
01025	(L)-ARGININE FREE-FORM POWDER - 100 grams	15.98	11.99		
01017	Buy 4 bottles, price each	14.31	10.73		
01317	ARTHROMAX™ w/THEAFLAVINS - 120 veg. caps	44.00	33.00		
04.40.4	Buy 4 bottles, price each	40.00	30.00		
01404	ARTHRO-IMMUNE JOINT SUPPORT - 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
00919	ARTICHOKE LEAF EXTRACT - 500 mg, 180 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.38	19.04		
00086	ASCORBATE C (SUPER) - 8 oz powder	26.99	20.24		
	Buy 4 bottles, price each	24.87	18.65		
08000	ASCORBIC ACID POWDER - 454 grams	38.00	28.50		
	Buy 4 bottles, price each	34.93	26.20		
00082	ASCORBYL PALMITATE - 500 mg, 100 caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
00888	ASHWAGANDHA EXTRACT (OPTIMIZED) - 60 veg. caps	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
	SUB-TOTAL OF COLUMN 1				-

No.		Retail Each	Member Each	Qty	Total
01066	ASPIRIN - 81 mg, 300 enteric coated tablets	\$6.00	\$4.50		
	Buy 4 bottles, price each	5.33	4.00		
00708	ASTAXANTHIN - 2 mg, 30 softgels	10.25	7.69		
	В				
00920	BENFOTIAMINE W/ THIAMINE - 100 mg, 120 veg. caps	\$19.95	\$14.96		
	Buy 4 bottles, price each	18.60	13.95		
00925	BENFOTIAMINE (MEGA)- 250 mg, 120 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01206	BERRY COMPLETE - 30 veg. caps	21.00	15.75		
	Buy 4 bottles, price each	18.67	14.00		
01406	BERRY COMPLETE w/RZD™ ACAI (ENHANCED) - 60 veg. caps	29.00	21.75		
	Buy 4 bottles, price each	26.00	19.50		
00664	BETA-CAROTENE - 25,000 IU, 100 softgels	10.98	8.24		
	Buy 4 bottles, price each	9.83	7.37		
00653	BETTERWOMAN® -40 caps	40.00	30.00		
	Buy 4 bottles, price each	38.00	28.50		
01073	BILBERRY EXTRACT - 100 mg, 100 veg. caps	28.00	21.00		
-	Buy 4 bottles, price each	25.00	18.75		
01512	BIOACTIVE MILK PEPTIDES - 30 caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
1006	BIOSIL™ - 5 mg, 30 veg. caps	18.95	15.16		
01007	BIOSIL™ - 1 fl oz	29.99	23.99		
00102	<b>BIOTIN</b> - 600 mcg, 100 caps	7.50	5.63		
	Buy 4 bottles, price each	6.50	4.88		
00145	BIOTIN POWDER - 30 grams	12.50	9.38		
30110	Buy 4 bottles, price each	11.00	8.25		
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		
<i>/</i> 1/217	Buy 4 bottles, price each	20.00	15.00		
01438	BLUEBERRY EXTRACT w/ POMEGRANATE - 60 veg. caps	30.00	22.50		
71430		27.00	20.25		
01506	Buy 4 bottles, price each  BONE FORMULA (DR. STRUM'S INTENSIVE) - 300 veg. caps	56.00	42.00		
71300	Buy 4 bottles, price each	50.00	37.50		
00811	BONE RESTORE - 150 caps	22.50	16.88		
00011	· · · · · · · · · · · · · · · · · · ·	19.50	14.63		
01211	Buy 4 bottles, price each  BONE STRENGTH FORMULA w/KOACT® - 120 caps	42.00	31.50		
JIZII	Buy 4 bottles, price each	38.00	28.50		
00313	BONE-UP® - 240 caps	24.95	18.71		
JU313	,				
04070	Buy 4 bottles, price each	22.50	16.88		
01379	BOOSTER - 60 softgels	48.00	36.00		
24500	Buy 4 bottles, price each	44.00	33.00		
01580	BOOSTER W/ADVANCED K2 COMPLEX (SUPER) - 60 softgels	42.00	31.50		
20004	Buy 4 bottles, price each	38.00	28.50		
00621	BORON - 3 mg, 100 caps	5.95	4.46		
20202	Buy 4 bottles, price each	5.25	3.94	$\vdash$	
00202	BOSWELLA - 100 caps	38.00	28.50		
20052	Buy 4 bottles, price each	30.00	22.50		
00258	BOSWELLA TOPICAL CREAM - 4 0Z	15.00	11.25		
	Buy 4 jars, price each	13.00	9.75		

#### To order online visit: www.lifeextension.com

## Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01253	BRANCHED CHAIN AMINO ACIDS - 90 veg. caps	\$19.50	\$14.63		
	Buy 4 bottles, price each	17.00	12.75		
00999	BREAST HEALTH FORMULA - 60 veg. caps	34.00	25.50		
	Buy 4 bottles, price each	30.00	22.50		
00893	BRITE EYES III - 2 vials, 5 ml each	34.00	25.50		
	Buy 4 boxes, price each	32.00	24.00		
00136	BROMELAIN POWDER - 100 grams	21.00	15.75		
	Buy 4 bottles, price each	18.75	14.06		
01203	BROMELAIN (SPECIALLY-COATED) - 500 mg, 60 enteric coated tablets	21.00	15.75		
01200	Buy 4 bottles, price each	19.00	14.25		
00884	BUTTERBUR EXT. w/STANDARDIZED ROSMARINIC ACID - 60 softgels	44.00	33.00		
00004		39.60	29.70		
	Buy 4 bottles, price each	39.00	29.70		
01015	<u> </u>	40400	440.00		
01015	CALCIUM CITRATE w/VITAMIN D - 300 caps	\$24.00	\$18.00		
	Buy 4 bottles, price each	21.25	15.94		
00535	CALCIUM D-GLUCARATE - 200 mg, 60 caps	18.00	13.50		
	Buy 4 bottles, price each	15.00	11.25		
01493	CALORIE CONTROL WEIGHT MANAGEMENT FORMULA BLUEBERRY-POMEGRANATE FLAVOR - 402 grams powder	50.00	37.50		
	Buy 4 jars, price each	44.00	33.00		
	Buy 8 jars, price each	40.00	30.00		
00118	CAPSULE FILLER MACHINE FOR "00" CAPSULES	17.95	13.46		
	Buy 4 machines, price each	17.25	12.94		
00613	CAPSULE FILLER MACHINE FOR "0" CAPSULES	17.95	13.46		
	Buy 4 machines, price each	17.25	12.94		
00916	CARNITINE w/GLYCOCARN® (OPTIMIZED) - 60 veg. caps	29.00	21.75		
	Buy 4 bottles, price each	26.10	19.58		
01041	L-CARNITINE - 500 mg, 30 caps	15.00	11.25		
	Buy 4 bottles, price each	13.20	9.90		
01258	CARNOSOOTHE w/PICROPROTECT™ - 60 veg. caps	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01287	CARNOSINE (SUPER) - 500 mg, 90 caps	66.00	49.50		
01201	Buy 4 bottles, price each	60.00	45.00		
01003	CAT MIX - 100 grams powder	15.00	11.25		
01000	Buy 4 bottles, price each	12.00	9.00		
00390	CDP CHOLINE CAPS - 250 mg, 60 caps	36.00	27.00		
00000	Buy 4 bottles, price each	34.00	25.50		
00998	CELL SENSOR-EMF DETECTION METER	39.95	29.95		
01370	CHILDREN'S FORMULA LIFE EXTENSION MIX™ - 100 chewable tablets	18.00	13.50		
01370		16.00	12.00		
00550	Buy 4 bottles, price each  CHLORELLA - 500 mg, 200 tablets	23.50	17.63		
00550	Buy 4 bottles, price each	21.00	15.75		
01549		24.00			
01349	CHLOROPHYLLIN w/ZINC - 100 veg. caps		18.00 15.00		
*01250	Buy 4 bottles, price each	20.00			
	CHO-LESS™ - 90 capsules	32.50	24.38		
00541	CHOLINE CHLORIDE - 16 oz liquid	14.95	11.21		
00364	Buy 4 bottles, price each	14.00	10.50		
00364	CHONDROITIN SULFATE CONCENTRATE - 400 mg, 60 tablets	19.95	14.96		
04040	Buy 4 bottles, price each	18.00	13.50		
01218	CHROMIUM ULTRA - 100 veg. caps	24.00	18.00		
0450:	Buy 4 bottles, price each	21.00	15.75		
01504	<b>CHROMIUM W/CROMINEX® 3+ (OPTIMIZED)</b> - 500 mcg, 60 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
00551	CILANTRO HERBAL EXTRACT - 1 0Z	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
	SUB-TOTAL OF COLUMN 2			<u></u>	
	SUB-TOTAL OF COLUMN 3				

No.		Retail Each	Member Each	Qty	Total
01503	CINSULIN® w/INSEA2™ AND CROMINEX®3+-90 veg. caps	\$38.00	\$28.50		
	Buy 4 bottles, price each	34.00	25.50		
00069	CITRUS BIOFLAVONOID - 100 caps	16.79	12.59		
	Buy 4 bottles, price each	15.56	11.67		
0818	CLA BLEND W/SESAME LIGNANS (SUPER) - 1000 mg, 120 softgels	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
	Buy 10 bottles, price each	26.33	19.75		
00819	CLA BLEND w/GUARANA & SESAME (SUPER)-1000 mg, 120 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.33	28.75		
01078	CLEANSE SMART - 60 caps	31.99	23.99		
00050	COD LIVER OIL (EMULSIFIED) - 12 fl oz (355 ml)	10.97	8.23		
	Buy 4 bottles, price each	10.34	7.76		
00293	COD LIVER OIL (EMULSIFIED) - 100 softgels (Emulsified)	10.97	8.23		
	Buy 4 bottles, price each	10.34	7.76		
00922	COGNITEX w/PREGNENOLONE &	74.00	55.50		
70022	NEUROPROTECTION COMPLEX - 90 softgels		00.00		
	Buy 4 bottles, price each	66.60	49.95		
	Buy 12 bottles, price each	64.00	48.00		
00921	COGNITEX w/o PREGNENOLONE	72.00	54.00		
	w/NEUROPROTECTION COMPLEX - 90 softgels				
	Buy 4 bottles, price each	64.00	48.00		
	Buy 12 bottles, price each	62.00	46.50		
01421	COGNITEX BASICS - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		
00110	COMPLETE B-COMPLEX - 180 caps	21.50	16.13		
	Buy 4 bottles, price each	18.00	13.50		
01575	COMPREHENSIVE NUTRIENT PACK - 30-day supply	189.00	141.75		
01070	Buy 4 bottles, price each	171.00	128.25		
00110				_	-
00119	COPPER CAPSULES - 2 mg, 100 caps	9.91	7.43		
	Buy 4 bottles, price each	8.96	6.72	_	
00949	COQ10™ w/ d-LIMONENE (SUPER ABSORBABLE) - 50 mg, 60 softgels	25.00	18.75		
	Buy 4 bottles, price each	22.00	16.50		
	Buy 12 bottles, price each	20.00	15.00		
00950	COQ10™ w/ d-LIMONENE (SUPER ABSORBABLE) - 100 mg, 100 softgels	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
	Buy 12 bottles, price each	56.00	42.00		
01226	COQ10 (SUPER UBIQUINOL) - 100 mg, 60 softgels	56.00	42.00		
	Buy 4 bottles, price each	52.00	39.00		
	Buy 12 bottles, price each	48.00	36.00		
01426	COQ10 W/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)-100 mg, 60 softgels	62.00	46.50	$\vdash$	$\vdash$
,1 <del>4</del> ∠0					
	Buy 4 bottles, price each	56.00	42.00		
	Buy 12 bottles, price each	52.00	39.00	_	<u> </u>
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT <sup>™</sup> (SUPER UBIQUINOL)-50 mg, 100 softgels	58.00	43.50		
	Buy 4 bottles, price each	53.00	39.75		
	Buy 10 bottles, price each	50.00	37.50		
)1427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)-50 mg, 30 softgels	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
)1431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)-200 mg, 30 softgels	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
	Buy 10 bottles, price each	52.00	39.00		
01053	CORIOLUS SUPER STRENGTH - 600 mg, 150 veg. caps	99.95	74.96		$\vdash$
00857	COROMEGA CHILD BRAIN & BODY - (Lemon Lime) 30 packets	25.00	18.75		
	Buy 4 boxes, price each	22.50	16.75		
	SUB-TOTAL OF COLUMN 4				

No.		Retail Each	Member Each	Qty	Tota
	C CONTINUED				
30140	COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS - 33 oz	\$49.00	\$36.75		
	Buy 2 bottles, price each	42.00	31.50		
30139	COSMESIS AMBER SELF MICRODERMABRASION - 2 OZ	49.00	36.75		
	Buy 2 jars, price each	42.00	31.50		
30118	COSMESIS ANTI-AGING MASK - 2 OZ	72.00	54.00		Г
	Buy 2 bottles, price each	63.36	47.52		
30134	COSMESIS ANTI-GLYCATION SERUM - 1 OZ	33.00	24.75		Н
, , , ,	W/BLUEBERRY & POMEGRANATE EXTRACTS	00.00	20		
	Buy 2 bottles, price each	31.35	23.51		
30133	COSMESIS ANTIOXIDANT FACIAL MIST - 2 oz	32.00	24.00		Н
00100	Buy 2 bottles, price each	30.40	22.80		
30127	COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM - 2 0Z	45.00		_	H
00127		-			
0440	Buy 2 jars, price each	42.80	32.10		H
30128	COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB - 2 0Z	59.00			
	Buy 2 jars, price each	51.92		_	L
30117	COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM - 2 OZ	64.00			
	Buy 2 jars, price each	57.49			_
30121	COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB - 2 0Z	58.00	43.50		
	Buy 2 jars, price each	51.04	38.28		
30105	COSMESIS ANTI-REDNESS & BLEMISH LOTION - 1 0Z	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
30120	COSMESIS CORRECTIVE CLEARING MASK - 2 OZ	64.50	48.38		
	Buy 2 jars, price each	56.76	42.57		
30108	COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM - 1 0Z	74.95	56.21		
	Buy 2 bottles, price each	65.95	49.46		
30123	COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM - 2 OZ	69.50	52.13		Г
	Buy 2 jars, price each	61.16	45.87		
30107	COSMESIS FINE LINE-LESS - 1 0Z	74.50			Н
,0101	Buy 2 bottles, price each	65.56			
30131	COSMESIS HAIR SUPPRESS FORMULA - 4 0Z	59.00		_	Н
00131		51.92			
30137	Buy 2 bottles, price each  COSMESIS HEALING FORMULA ALL-IN-ONE CREAM - 1 oz	-			H
30137		53.00			
	Buy 2 jars, price each	45.43		_	H
30115	COSMESIS HEALING MASK - 2 OZ	64.50	48.38		
	Buy 2 bottles, price each	56.76	42.57		L
30109	COSMESIS HYALURONIC FACIAL MOISTURIZER - 1 0Z	58.00	43.50		
	Buy 2 bottles, price each	51.04	38.28		
30110	COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER - 1 oz	58.00	43.50		
	Buy 2 bottles, price each	51.04	38.28		L
30138	COSMESIS HYDRATING ANTI-OXIDANT FACE MIST - 4 0Z	39.95	29.96		
	Buy 2 bottles, price each	38.00	28.50		
30103	COSMESIS LIFTING & TIGHTENING COMPLEX - 1 OZ	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
30135	COSMESIS MELATONIN CREAM - 1 OZ	33.00	24.75		
	Buy 2 jars, price each	27.10	20.33		
30114	COSMESIS MILD FACIAL CLEANSER - 8 OZ	59.00	44.25	$\vdash$	Т
	Buy 2 bottles, price each	51.92	38.94		
30122	COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM - 2 OZ	64.00	48.00		$\vdash$
, , , , , ,	Buy 2 jars, price each	56.32	42.24		
:0111		_		_	$\vdash$
80111	COSMESIS PIGMENT CORRECTING CREAM - 1/2 0Z	74.00	55.50		
	Buy 2 bottles, price each	65.12	48.84	<u> </u>	$\vdash$
30106	COSMESIS REJUVENATING SERUM - 1 OZ	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		

80130 80116 80101 80113 80104	COSMESIS SKIN LIGHTENING SERUM - 1/2 oz  Buy 2 bottles, price each  COSMESIS SKIN STEM CELL SERUM - 1 oz  Buy 2 bottles, price each  COSMESIS ULTRA LIP PLUMPER - 1/3 oz  Buy 2 bottles, price each  COSMESIS ULTRA WRINKLE RELAXER - 1 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE REFINING SERUM - 1/2 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz  Buy 2 bottles, price each  COSMESIS VITAMIN C SERUM - 1 oz	\$85.00 74.80 74.00 69.00 64.00 56.32 89.95 79.76 74.50 65.56	\$63.75 56.10 55.50 51.75 48.00 42.24 67.46 59.82 55.88 49.17		
80130 80116 80101 80113 80104	Buy 2 bottles, price each  COSMESIS SKIN STEM CELL SERUM - 1 oz  Buy 2 bottles, price each  COSMESIS ULTRA LIP PLUMPER - 1/3 oz  Buy 2 bottles, price each  COSMESIS ULTRA WRINKLE RELAXER - 1 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE REFINING SERUM - 1/2 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz  Buy 2 bottles, price each	74.80 74.00 69.00 64.00 56.32 89.95 79.76 74.50 65.56	56.10 55.50 51.75 48.00 42.24 67.46 59.82 55.88		
80116 80101 80113 80104	COSMESIS SKIN STEM CELL SERUM - 1 oz  Buy 2 bottles, price each  COSMESIS ULTRA LIP PLUMPER - 1/3 oz  Buy 2 bottles, price each  COSMESIS ULTRA WRINKLE RELAXER - 1 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE REFINING SERUM - 1/2 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz  Buy 2 bottles, price each	74.00 69.00 64.00 56.32 89.95 79.76 74.50 65.56 74.50	55.50 51.75 48.00 42.24 67.46 59.82 55.88		
80116 80101 80113 80104	Buy 2 bottles, price each  COSMESIS ULTRA LIP PLUMPER - 1/3 oz  Buy 2 bottles, price each  COSMESIS ULTRA WRINKLE RELAXER - 1 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE REFINING SERUM - 1/2 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz  Buy 2 bottles, price each	69.00 64.00 56.32 89.95 79.76 74.50 65.56 74.50	51.75 48.00 42.24 67.46 59.82 55.88		
80101 80113 80104	COSMESIS ULTRA LIP PLUMPER - 1/3 oz  Buy 2 bottles, price each  COSMESIS ULTRA WRINKLE RELAXER - 1 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE REFINING SERUM - 1/2 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz  Buy 2 bottles, price each	64.00 56.32 89.95 79.76 74.50 65.56 74.50	48.00 42.24 67.46 59.82 55.88		
80101 80113 80104	Buy 2 bottles, price each  COSMESIS ULTRA WRINKLE RELAXER - 1 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE REFINING SERUM - 1/2 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz  Buy 2 bottles, price each	56.32 89.95 79.76 74.50 65.56 74.50	42.24 67.46 59.82 55.88		
80113 80104	COSMESIS ULTRA WRINKLE RELAXER - 1 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE REFINING SERUM - 1/2 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz  Buy 2 bottles, price each	89.95 79.76 74.50 65.56 74.50	67.46 59.82 55.88		
80113 80104	Buy 2 bottles, price each  COSMESIS UNDER EYE REFINING SERUM - 1/2 oz  Buy 2 bottles, price each  COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz  Buy 2 bottles, price each	79.76 74.50 65.56 74.50	59.82 55.88		
80113 80104	COSMESIS UNDER EYE REFINING SERUM - 1/2 oz Buy 2 bottles, price each COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz Buy 2 bottles, price each	74.50 65.56 74.50	55.88		
80104	Buy 2 bottles, price each  COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz  Buy 2 bottles, price each	65.56 74.50		_	
	COSMESIS UNDER EYE RESCUE CREAM - 1/2 oz Buy 2 bottles, price each	74.50	49.17		
	Buy 2 bottles, price each	-			
80129		1	55.88		
80129	COSMESIS VITAMIN C SERUM - 1 OZ	65.56	49.17		
00.20		85.00	63.75		
	Buy 2 bottles, price each	74.80	56.10		
80136	COSMESIS VITAMIN D LOTION - 4 OZ	36.00	27.00		
	Buy 2 bottles, price each	33.66	25.25		
80102	COSMESIS VITAMIN K HEALING CREAM - 1 02	79.50	59.63		
	Buy 2 bottles, price each	69.96	52.47		
00862	CRAN-MAX® - 500 mg, 60 veg. caps	17.50	13.13		
	Buy 4 bottles, price each	15.00	11.25		
01424	CRAN-MAX® with UTIROSE™ (OPTIMIZED) - 60 veg. caps	18.00	13.50		
			12.00		
	Buy 4 bottles, price each	16.00			
	CREATINE CAPSULES - 120 caps	10.95	8.21		
	Buy 4 bottles, price each	9.25	6.94		
	CREATINE POWDER - 500 grams	29.00	21.75		
	Buy 4 bottles, price each	26.63	19.97		
01096	CREATINE WHEY GLUTAMINE POWDER - 1000 grams (vanilla)	45.00	33.75		
	Buy 4 bottles, price each	42.00	31.50		
^01089	CRUCIFEROUS VEGETABLE SOUP - 32 oz. pouch	11.95	8.96		
	Buy 6 pouches, price each	11.25	8.44		
^01090	(ASIAN) CRUCIFEROUS VEGETABLE SOUP - 32 oz. pouch	11.95	8.96		
	Buy 6 pouches, price each	11.25	8.44		
01429	CR MIMETIC LONGEVITY FORMULA - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
**CRWAY	CR WAY OPTIMAL HEALTH PROGRAM SOFTWARE	195.00	195.00		
	CURCUMIN W/BIOPERINE® (SUPER) - 800 mg, 60 caps	26.00	19.50		
	Buy 4 bottles, price each	24.00	18.00		
00407	CURCUMIN® (SUPER BIO) - 400 mg, 60 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	(L) CYSTEINE - 500 mg, 60 caps	18.95	14.21		
00004	· · · · · · · · · · · · · · · · · · ·				
	Buy 4 bottles, price each	16.31	12.23		
04000	D	ф4.4.00	011 04		
	DERMA-VITS™ - 90 caps	\$14.99	\$11.24		
	DERMAWHEY- 400 mg, 60 caps	65.00	48.75		
	Buy 4 bottles, price each	59.00	44.25		
	DHA (BARLEAN'S KID'S) 8 fl. oz (Fruit Punch)	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
00995	<b>DHA 240</b> - 240 mg, 60 softgels	19.00	14.25		
	Buy 4 bottles, price each	17.00	12.75		
00658	<b>7-KETO® DHEA METABOLITE</b> - 25 mg, 100 caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01271	7-KETO® DHEA METABOLITE - 100 mg, 60 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
	DHEA - 25 mg, 100 tablets	14.00	10.50		
	Buy 4 bottles, price each	11.75	8.81		
	SUB-TOTAL OF COLUMN 6	11.75	0.01		

#### To order online visit: www.lifeextension.com

# Buyers Club Order Form

lo.		Retail Each	Member Each	Qty	Tota
01250	DHEA COMPLETE - 60 veg. caps	\$48.00	\$36.00		
	Buy 4 bottles, price each	43.20	32.40		
00335	<b>DHEA</b> - 25 mg, 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
00454	<b>DHEA</b> - 15 mg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	10.00	7.50		
00882	<b>DHEA</b> - 50 mg, 60 caps	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
00883	<b>DHEA</b> - 100 mg, 60 caps	22.50	16.88		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Buy 4 bottles, price each	19.00	14.25		
1358	DIGEST RC - 30 tablets	19.95	14.96		
1330					
	Buy 4 boxes, price each	17.00	12.75		H
1272	DIGESTIVE ENZYMES (ENHANCED SUPER)- 100 veg. caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
1273	DIGESTIVE ENZYMES w/PROBIOTICS (ENHANCED SUPER) - 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
0034	D,L-PHENYLALANINE CAPSULES - 500 mg, 100 caps	18.75	14.06		
	Buy 4 bottles, price each	16.00	12.00		
0257	DMAE BITARTRATE - 150 mg, 200 caps	14.00	10.50		
	Buy 4 bottles, price each	10.50	7.88		
0197	DMAE-GINKGO - 100 caps	36.00	27.00		
,0101	Buy 4 bottles, price each	30.00	22.50		
20050	Buy 8 bottles, price each	27.50	20.63		
00059	DMG - 125 mg, 60 tablets	18.50	13.88		
	Buy 4 boxes, price each	17.00	12.75		
)1547	DNA PROTECTION FORMULA - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
0544	DOG MIX - 100 grams powder	19.50	14.63		
	Buy 4 bottles, price each	16.00	12.00		
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA - 2 OZ	39.95	29.96		
	Buy 4 bottles, price each	32.00	24.00		
00320	DR. PROCTOR'S HAIR FORMULA SHAMPOO - 8 02	24.95	18.71		Н
00020	Buy 4 bottles, price each	22.00	16.50		
00376	DR. TUNG'S TONGUE CLEANER	8.45	6.34		
10370					
0000	Buy 4 bottles, price each	8.05	6.04		
00899	DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE - 2.4 0Z	39.95	29.96		
	Buy 4 jars, price each	38.95	29.21		
00240	DUAL-C - 90 caps	12.00	9.00		
	Buy 4 bottles, price each	10.50	7.88		
	E				
00388	ECHINACEA EXTRACT - 250 mg, 60 caps	\$14.35	\$10.76		
	Buy 4 bottles, price each	12.50	9.38		
01024	<b>EDTA</b> - 500 mg, 100 caps	17.50	13.13		
)1321	ELASTIN & COLLAGEN BODY FIRMING LOTION - 8 fl. oz.	10.00	7.50		
00048	EMULSIFIED SUPER TWIN EPA/DHA - 12 fl. oz.	22.45	16.84		
)1498	ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™ - 60 softgels	56.00	42.00		
0000	Buy 4 bottles, price each	52.00	39.00		H
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® - 60 veg. caps	52.00	39.00		
	Buy 4 bottles, price each	46.00	34.50		L
0625	EPA/DHA (MEGA) - 120 softgels	19.95	14.96		
	Buy 4 bottles, price each	18.00	13.50		Ĺ
1428	ESSENTIAL FAT-SOLUBLE NUTRIENTS - 30 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 - 600 mg, 30 veg. tabs	20.00	15.00		
-	Buy 4 bottles, price each	18.00	13.50		
		38.00	28.50		
)151/			40.00	1	
)1514	EYE PRESSURE SUPPORT w/MIRTOGENOL® - 30 veg. caps				
)1514	Buy 4 bottles, price each	34.00	25.50		

No.		Retail Each	Member Each	Qty	Total
	F				
***01054	FACE MASTER® PLATINUM	\$199.00	\$199.00		
00965	FAST-ACTING JOINT FORMULA - 30 caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
20053	FEM DOPHILUS® - 30 caps	25.95	19.46		
20055	FEM DOPHILUS® - 60 caps	39.95	29.96		
01064	FEMMENESSENCE MACAPAUSE® - 120 veg. caps	34.99	26.24		
01311	FERNBLOCK® w/SENDARA™ (ENHANCED) - 30 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	35.00	26.25		
00229	FIBER FOOD CAPS - 200 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 10 bottles, price each	11.90	8.93		
00718	FIBRINOGEN RESIST™ - 30 veg. caps	49.00	36.75		
	Buy 4 bottles, price each	44.00	33.00		
00873	FLAXSEED POWDER (HI-LIGNAN® NUTRI-FLAX®) - 16 oz powder	9.95	7.46		
01200	FLORASTOR® - 250 mg, 50 caps	55.15	41.36		
01212	FLUSH + BE FIT - 2- week cleanse for women	29.99	22.49		
01312	FOLATE (OPTIMIZED) (L-METHYLFOLATE) 1000 mcg - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
00347	FOLIC ACID + B12 CAPSULES - 200 caps	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		
00300		15.00	11.25		
00000	Buy 4 bottles, price each	12.50	9.38		
01513		36.00	27.00		
01010	Buy 4 bottles, price each	33.00	24.75		
00993	FUCOXANTHIN-SLIM™ - 90 softgels	44.00	33.00		
	Buy 4 bottles, price each	39.00	29.25		
	G	33.00	23.20		
00127	GABA POWDER - 100 grams	\$23.75	\$17.81		
00121	Buy 4 bottles, price each	22.50	16.88		
00559	GAMMA E TOCOPHEROL/TOCOTRIENOLS - 60 softgels	42.00	31.50		
00000	Buy 4 bottles, price each	37.00	27.75		
00759	GAMMA E TOCOPHEROL W/SESAME LIGNANS - 60 softgels	32.00	24.00		
00133	Buy 4 bottles, price each	29.00	21.75		
00117	GELATIN CAPSULES - 1000 empty caps size "00"	19.00	14.25		
00117		18.00	13.50		
01201	Buy 4 bags, price each		36.00		
01301	GH PITUITARY SUPPORT DAY FORMULA - 120 vegetarian tabs  Buy 4 bottles, price each	48.00			
04202	· · · · · · · · · · · · · · · · · · ·	44.00	33.00		
01302	GH PITUITARY SUPPORT NIGHT FORMULA - 120 veg. caps	25.00	18.75		
04000	Buy 4 bottles, price each	22.50	16.88		
01228	GINGER FORCE - 60 softgels	29.95	22.46		
00778	GINKGO BILOBA CERTIFIED EXTRACT™ - 120 mg, 365 caps	46.00	34.50		
00504	Buy 2 bottles, price each	43.50	32.63		-
00504	GINKGO EXTRACT (SUPER)- 120 mg, 100 caps	29.00	21.75		
0.1.000	Buy 4 bottles, price each	26.50	19.88		_
01032	(PANAX RED) GINSENG - 60 veg. caps	29.99	22.49		<u> </u>
00756	GLA WITH SESAME LIGNANS (MEGA) - 60 softgels	19.50	14.63		
	Buy 4 bottles, price each	18.00	13.50		<u> </u>
00345	(L) GLUTAMINE CAPSULES - 500 mg, 100 caps	14.95	11.21		
	Buy 4 bottles, price each	13.50	10.13		_
00141	(L)-GLUTAMINE POWDER - 100 grams	19.00	14.25		
	Buy 4 bottles, price each	16.88	12.66		
00522	GLUCOSAMINE/CHONDROITIN CAPSULES - 100 caps	38.00	28.50		
	Buy 4 bottles, price each	32.00	24.00		
00512	GLUCOFIT™ - 100 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
	SUB-TOTAL OF COLUMN 8				

**SUB-TOTAL OF COLUMN 7** 

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		Retail Each	Member Each	Qty	Tota
	G CONTINUED				
00113	GLUTATHIONE, CYSTEINE & C - 750 mg, 100 caps	\$18.00	\$13.50		
	Buy 4 bottles, price each	16.00	12.00		
00314	L-GLUTATHIONE (MEGA) - 250 mg, 60 caps	39.64	27.03		
	Buy 4 bottles, price each	35.68	26.76		
00795	<b>GLYCINE</b> - 1000 mg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	10.80	8.10		
00128	GLYCINE POWDER - 300 grams	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01091	GRAPE EXTRACT w/RESVERATROL (WHOLE) - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
01411	GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE- 100~mg, 60~veg. caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
00953	GREEN TEA EXTRACT (MEGA) - lightly caffeinated - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	26.50	19.88		
00954	GREEN TEA EXTRACT (MEGA) - decaffeinated - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	26.50	19.88		
	Н				
01074	<b>5 HTP</b> - 100 mg, 60 caps	\$27.95	\$20.96		
00010	HAIR CONDITIONER - 16 OZ	6.00	4.50		
	Buy 4 bottles, price each	4.50	3.38		
00230	<b>HCA</b> - 90 caps	18.00	13.50		
	Buy 4 bottles, price each	15.50	11.63		
01433	HOLY BASIL - 60 softgel caps	31.95	23.96		
01434	HOLY BASIL - 120 softgel caps	51.95	38.96		
01435	HOMOCYSTEINE RESIST - 100 caps	24.00	18.00		
	Buy 4 bottles, price each	21.60	16.20		
00067	HOODIA GORDONII - 60 caps	14.00	10.50		
00627	HUPERZINE A W/NATURAL VITAMIN E - 50 mcg, 60 caps	27.95	20.96		
	Buy 4 bottles, price each	24.00	18.00		
00661	HYDRODERM® - 1 oz	79.95	59.96		
	Buy 2 bottles, price each	65.33	49.00		
01060	i26 HYPERIMMUNE EGG - 140 grams powder	\$49.99	\$42.00		
	i26 hyperimmune egg - 135 capsules	31.99	25.59		
	i26 hyperimmune egg chewables - (vanilla) 45 tablets	31.99	25.59		
01065	IDEAL BOWEL SUPPORT 299V - 30 veg. caps	21.95	16.46		
00955	IMMUNE PROTECT W/PARACTIN® - 30 veg. caps	29.50	22.13		
30300	Buy 4 bottles, price each	26.55	19.91		
01049	INNERPOWER™ - 555 grams powder	42.00	31.50		
00155	INOSINE - 500 mg, 60 caps	22.95	17.21		
00100	Buy 4 bottles, price each	21.00	15.75		
00109	INOSITOL CAPSULES - 500 mg, 100 caps	16.53	12.40		
50109		15.21	11.41		
00410	Buy 4 bottles, price each	48.00	36.00		
JU41U	INOSITOL CAPSULES - 1000 mg, 360 caps				
00108	Buy 4 bottles, price each  INOSITOL POWDER - 100 grams	43.75	32.81		
JU 1U0		18.00	13.50		
11001	Buy 4 bottles, price each	16.88	12.66		
01021	INTACT DIGEST™ - 8 fl oz	35.00	26.25		
	Buy 4 bottles, price each	33.00	24.75		
24000	INTEGRA-LEAN® IRVINGIA - 150 mg, 60 veg. caps	28.00	21.00		
)1292	Buy 4 bottles, price each	24.00	18.00		
			37.50		
01292 01002	IODORAL® - 180 caps	50.00			-
01002	IRON PROTEIN PLUS - 300 mg, 100 caps	24.00	18.00		
	·				

No.		Retail Each	Member Each	Qty	Tota
01492	IRVINGIA W/PHASE 3™ - 120 veg. caps Calorie Control Complex (Optimized)	\$56.00	\$42.00		
	Buy 4 bottles, price each	48.00	36.00		
	J, K				
00056	JARRO-DOPHILUS EPS™ - 60 veg. caps	\$21.95	\$16.46		
01224	K w/ADVANCED K2 COMPLEX (SUPER) - 90 softgels	26.00	19.50		
	Buy 4 bottles, price each	23.00	17.25		
01050	(NKO) KRILL OIL - 60 softgels	33.95	25.46		
00316	KYOLIC® GARLIC FORMULA 102 - 350 mg, 200 caps	23.95	17.96		
	Buy 4 bottles, price each	20.50	15.38		
00214	KYOLIC® GARLIC FORMULA 105 - 200 caps	22.95	17.21		
00211	Buy 4 bottles, price each	18.25	13.69		
00789	KYOLIC® RESERVE - 600 mg, 120 caps	24.75	18.56		
00103		21.45	16.09		
	Buy 4 bottles, price each	21.43	10.09		
20540		<b>#</b> 40.00	φοο οο		
00513	LACTOFERRIN (APOLACTOFERRIN) CAPS - 60 caps	\$40.00	\$30.00		
0001-	Buy 4 bottles, price each	36.00	27.00	_	
00017	LAVILIN UNDERARM DEODORANT - 12.5 grams cream	15.00	11.25		
	Buy 4 jars, price each	13.75	10.31		
00020	LECITHIN - 16 oz. granules	15.00	11.25		
	Buy 4 jars, price each	12.50	9.38		
01538	LIFE EXTENSION MIX™ - 315 veg. tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01555	LIFE EXTENSION MIX™ - 315 tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01557	LIFE EXTENSION MIX™ W/EXTRA NIACIN - 315 tablets	98.00	73.50		
01557	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01554	LIFE EXTENSION MIX™ - 490 caps	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
01556	LIFE EXTENSION MIX™ POWDER - 14.81 oz	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
01565	LIFE EXTENSION MIX™ - 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01567	LIFE EXTENSION MIX™ W/EXTRA NIACIN 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01564	LIFE EXTENSION MIX™ - 490 caps w/o copper	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
01566	* ''	98.00	73.50	$\vdash$	
01000	LIFE EXTENSION MIX™ POWDER - 14.81 oz w/o copper				
	Buy 4 bottles, price each	86.00	64.50		
00000	Buy 10 bottles, price each	72.00	54.00		
00263	LIFE FLORA™ - 300 mg, 120 caps	20.50	15.38		
	Buy 4 bottles, price each	18.75	14.06		
01314	LIFESHIELD® IMMUNITY™ - 60 veg. caps	39.95	29.96		
	SUB-TOTAL OF COLUMN 10			_	

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## Buyers Club Order Form

00939	LIVER FORCE - 30 veg. caps  5-LOXIN® - 75 mg, 100 veg. caps  Buy 4 bottles, price each	\$34.95 19.50	\$26.21	
01013		19.50		
01013	Buy 4 bottles, price each		14.63	
00129		17.25	12.94	
00129	<b>L-LYSINE</b> - 620 mg, 100 caps	9.00	6.75	
	Buy 4 bottles, price each	8.00	6.00	
	L-LYSINE POWDER - 300 grams	16.00	12.00	
	Buy 4 bottles, price each	13.75	10.31	
	LURALEAN® CAPS SPECIAL PROPOLMANNAN PARTICLE SIZE - 120 veg. caps	28.00	21.00	
	Buy 4 bottles, price each	25.00	18.75	
01017	LUSTRE™ - 90 tablets	17.50	13.13	
	Buy 4 bottles, price each	15.50	11.63	
00455	LYCOPENE EXTRACT (MEGA) - 15 mg, 90 softgels	35.00	26.25	
	Buy 4 bottles, price each	30.00	22.50	
	M			
01369	MAGNESIUM CAPS - 500 mg, 100 veg. caps	\$10.00	\$7.50	
	Buy 4 bottles, price each	9.00	6.75	
00502	MAGNESIUM CITRATE - 160 mg, 100 caps	9.00	6.75	
	Buy 4 bottles, price each	7.50	5.63	
00704	MAITAKE™ SX-FRACTION - 90 veg. tablets	49.95	37.46	
00547	MELATONIN - 300 mcg, 100 caps	5.75	4.31	Н
	Buy 4 bottles, price each	5.00	3.75	
	MELATONIN - 500 mcg, 200 veg. caps	18.00	13.50	_
	Buy 4 bottles, price each	16.00	12.00	
	MELATONIN - 1 mg, 60 caps	5.00	3.75	
	Buy 4 bottles, price each	4.63	3.47	
	MELATONIN - 3 mg, 60 caps	8.00	6.00	H
	Buy 4 bottles, price each	6.88	5.16	
	MELATONIN - 3 mg, 60 time-release veg. caps	10.50	7.88	
	Buy 4 bottles, price each	9.38	7.04	
	•	28.00	21.00	
	MELATONIN - 10 mg, 60 caps	24.00	18.00	
	Buy 4 bottles, price each			
	MELATONIN - 3 mg, 60 lozenges	8.00	6.00	
	Buy 4 bottles, price each	6.88	5.16	
	MELATONIN TIME RELEASE - 300 mcg, 100 veg. caps	6.25	4.69	
	Buy 4 bottles, price each	5.63	4.22	
	MELATONIN TIME RELEASE - 750 mcg, 60 veg. caps	5.75	4.31	
	Buy 4 bottles, price each	5.00	3.75	
	MEMORY UPGRADE™ - 600 grams powder	26.95	20.21	L
	MENOPAUSE SOLUTIONS - 120 tablets	49.95	37.46	L
	METHYLCOBALAMIN - 1 mg, 60 lozenges (vanilla)	9.95	7.46	
	Buy 4 bottles, price each	8.00	6.00	<u> </u>
	METHYLCOBALAMIN - 5 mg, 60 lozenges (vanilla)	32.00	24.00	
	Buy 4 bottles, price each	25.00	18.75	
	Buy 10 bottles, price each	23.00	17.25	
00709	MIGRA-EEZE™ (BUTTERBUR) - 60 softgels	29.50	22.13	
	Buy 4 bottles, price each	26.33	19.75	

No.		Retail Each	Member Each	Qty	Total
01517	MILK THISTLE (CERTIFIED EUROPEAN) - 120 veg. caps	\$42.00	\$31.50		
	Buy 4 bottles, price each	38.00	28.50		
00623	MINERAL FORMULA FOR MEN - 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 12 bottles, price each	10.83	8.13		
00624	MINERAL FORMULA FOR WOMEN - 100 caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	Buy 12 bottles, price each	10.83	8.13		
01315	MIRAFORTE w/STANDARDIZED LIGNANS (SUPER) - 120 caps	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
01569	MITOCHONDRIAL BASICS w/BIOPQQ™ - 30 caps	52.00	39.00		
	Buy 4 bottles, price each	46.00	34.50		
01568	MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQTM - 120 caps	94.00	70.50		
	Buy 4 bottles, price each	84.00	63.00		
00803	MIST ORAL III w/C0010 - 2 fl oz	28.00	21.00		
	Buy 4 bottles, price each	25.33	19.00		
00065	MK-7 - 90 mcg, 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01279	MOUTHWASH W/POMEGRANATE - 16 OZ	18.50	13.88		
51215	Buy 4 bottles, price each	17.00	12.75		
00451	* ''	14.00	10.50		
JU43 I	MSM (METHYLSULFONYLMETHANE) - 1000 mg, 100 caps				
	Buy 4 bottles, price each	11.95	8.96		
00215	N-ACETYL-L-CYSTEINE - 600 mg, 60 caps	\$14.00	\$10.50		
50210	Buy 4 bottles, price each	13.50	10.13		
00168	NAPCA W/ALOE VERA - 8 fl oz	10.50	7.88	_	
00100	Buy 4 bottles, price each	9.61	7.21		
00066	NATTOKINASE - 60 softgels	24.98	18.74		
00891	NATURAL APPETITE CONTROL - 90 softgels	28.00	21.00	_	
JU09 I		25.20	18.90		
20004	Buy 4 bottles, price each				
00984	NATURAL BP MANAGEMENT - 60 tablets	42.00	31.50		
20040	Buy 4 bottles, price each	37.80	28.35		
00913	NATURAL ESOPHAGUARD - 10 softgels	19.95	14.96		
	Buy 2 boxes, price each	19.00	14.25		
00712	NATURAL ESTROGEN w/POMEGRANATE EXTRACT - 60 caplets	38.00	28.50		
	Buy 4 bottles, price each	33.00	24.75		
01221	NATURAL FEMALE SUPPORT - 30 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01471	NATURAL GLUCOSE ABSORPTION CONTROL - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
00698	NATURAL RELIEF 1222™ - 2 OZ	28.00	21.00		
	Buy 4 tubes, price each	25.00	18.75		
01084	NATURAL SLEEP® - 3 mg, 60 veg. caps	12.99	9.74		
	Buy 4 bottles, price each	10.00	7.50		
01507	NATURAL SLEEP® (ENHANCED) W/ MELATONIN- 30 caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01511	NATURAL SLEEP® (ENHANCED) W/O MELATONIN - 30 caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
	SUB-TOTAL OF COLUMN 12				

**SUB-TOTAL OF COLUMN 11** 

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No.		Retail Each	Member Each	Qty	Tota
	N CONTINUED				
01085	NATURAL SLEEP MELATONIN® - 5 mg, 60 veg. caps	\$18.00	\$13.50		
	Buy 4 bottles, price each	16.00	12.00		
00987	NATURAL STRESS RELIEF - 30 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01076	NEW FACE SOLUTION - 1.7 oz bottle	54.00	40.50		
	Buy 4 bottles, price each	49.00	36.75		
00373	NO-FLUSH NIACIN - 800 mg, 100 caps	19.00	14.25		Г
	Buy 4 bottles, price each	17.00	12.75		
01035	NUTRIM - 170 grams powder	25.95	19.46		
00523	N-ZIMES™ - 270 caps	23.90	17.93		
00020	Buy 4 bottles, price each	22.00	16.50		
	O	22.00	10.50		-
00104		\$19.83	\$14.87		
JU104	OCTACOSANOL - 8000 mcg, 60 caps				
04.400	Buy 4 bottles, price each	17.35	13.01		
01483	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER) - 60 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01482	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER)- 120 Softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	24.90	18.68		
01484	OMEGA 3 EPA/DHA W/SESAME LIGNANS & -120 enteric coated softgels OLIVE FRUIT EXTRACT (SUPER)	34.00	25.50		
	Buy 4 bottles, price each	31.00	23.25		
	Buy 10 bottles, price each	28.00	21.00		
01501	ONE-PER-DAY - 60 vegetarian tablets	19.95	14.96		
01001	Buy 4 bottles, price each	18.00	13.50		
00717	ONLY TRACE MINERALS - 90 caps	15.00	11.25		
00111	<u> </u>				
00915	Buy 4 bottles, price each	12.50 5.95	9.38 4.46		
00913	OPTIZINC® - 30 mg, 90 veg. caps				
04070	Buy 4 bottles, price each	5.00	3.75		-
01070	ORGANIC TOTAL BODY CLEANSE™ - 14-day supply	34.99	26.24		
00043	L-ORNITHINE - 500 mg, 100 caps	24.95	18.71		
	Buy 4 bottles, price each	20.00	15.00		
	P	1 415 10	l == 1		_
00107	<b>PABA CAPS</b> - 500 mg, 100 caps	\$15.42	\$11.57		
	Buy 4 bottles, price each	13.59	10.19		
00073	PANCREATIN - 500 mg, 50 caps	13.22	9.92		
	Buy 4 bottles, price each	12.12	9.09		
00923	PEAK ATP® WITH GLYCOCARN® - 60 tablets	59.00	44.25		
	Buy 4 bottles, price each	56.00	42.00		
00342	PECTA SOL-C® MODIFIED CITRUS PECTIN - 454 grams powder	99.95	74.96		
	Buy 4 jars, price each	95.70	71.78		
01080	PECTA SOL-C® MODIFIED CITRUS PECTIN - 270 veg. caps	69.95	52.46		
00673	PGX™ SOLUBLE FIBER BLEND (WELLBETX®) -180 caps	34.95	26.21		
00865	PHARMAGABA™ - 60 chewable tablets	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01320	PHOSCHOL® - 900 mg, 100 softgels	69.45	52.09		
00368	PHOSPHATIDYLSERINE CAPS - 100 mg, 100 caps	54.00	40.50		
	Buy 4 bottles, price each	48.00	36.00		
00614	PILL CUTTER/GRINDER	11.95	8.96		
00561	POLICOSANOL - 10 mg, 60 tablets	24.00	18.00		
- 5001	Buy 6 bottles, price each	18.00	13.50		
	SUB-TOTAL OF COLUMN 13				

No.		Retail Each	Member Each	uty	Tota
)1423	POMEGRANATE™ (FULL-SPECTRUM) - 30 softgels	\$24.00	\$18.00		
	Buy 4 bottles, price each	21.00	15.75		
00956	POMEGRANATE EXTRACT - 30 veg. caps	19.50	14.63		
	Buy 4 bottles, price each	17.55	13.16		
00957	POMEGRANATE JUICE CONCENTRATE - 16 oz. liquid	25.95	19.46		
	Buy 4 bottles, price each	24.00	18.00		
00577	POTASSIUM IODIDE - 1 box, 14 tablets	6.95	5.21		
	Buy 4 boxes, price each	5.25	3.94		
1500	PQQ CAPS W/BIOPQQ™ - 10 mg, 30 veg. caps	24.00	18.00		
,,,,,,	Buy 4 bottles, price each	22.00	16.50		
00302		24.00	18.00		$\vdash$
J0002	Buy 4 bottles, price each	19.00	14.25		
0700		26.00	19.50	_	┢
10700	<u> </u>	22.50	16.88		H
04070	Buy 4 bottles, price each			_	-
013/3	PRELOX® NATURAL SEX FOR MEN® - 60 tablets	50.00	37.50		
	Buy 4 bottles, price each	45.00	33.75	_	⊢
0571	PRIMAL DEFENSE™ - 90 caplets	49.95	37.46		_
	Buy 4 bottles, price each	48.50	36.38	_	L
11019		78.95	59.21		
0525	PROBOOST THYMIC PROTEIN A™ - 4 mcg, 30 packets	72.00	54.00		
	Buy 4 boxes, price each	70.00	52.50		
0869	PRO FEM CREAM - 2 fl oz (Progesterone Cream)	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
1020	<b>PROGREENS®</b> - 15 stick pack	22.50	16.88		
1072	PRO M INTERNAL DEODERIZER - 500 mg, 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01495	PROSTATE FORMULA W/ 5-LOXIN® STAND. LIGNANS (ULTRA NAT)-60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		
1092	PROTEIN - VANILLA - (Enhanced Life Extension) -1000 grams powder	38.00	28.50		Г
	Buy 4 bottles, price each	36.00	27.00		
11093	PROTEIN - CHOCOLATE - (Enhanced Life Extension) -1000 grams powder	38.00	28.50		$\vdash$
	Buy 4 bottles, price each	36.00	27.00		
1094	PROTEIN - NATURAL - (Enhanced Life Extension) -1000 grams powder		28.50		$\vdash$
11034	Buy 4 bottles, price each	36.00	27.00		
1095	PROTEIN - BERRY - (Enhanced Life Extension) -1000 grams powder	38.00	28.50	_	⊢
1095					-
0200	Buy 4 bottles, price each	36.00	27.00		
0290	PROTEIN - VANILLA - (Designer Whey) 2 lbs powder	42.49	31.87		
0000	Buy 4 bottles, price each	38.50	28.88		-
10282	PROTEIN - CHOCOLATE - (Designer Whey) 2 lbs powder	42.49	31.87		L
	Buy 4 bottles, price each	38.50	28.88		
0283	PROTEIN - NATURAL - (Designer Whey) 2 lbs powder	42.49	31.87		
	Buy 4 bottles, price each	38.50	28.88		
11508	PTEROPURE™ - 50 mg Pterostilbene 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
11056	PURE-GAR® - 200 caps	24.95	18.71		
	Buy 4 bottles, price each	21.00	15.75		
1075	PURE PLANT PROTEIN - Natural Vanilla 450 grams powder	36.00	27.00		
	Buy 4 jars, price each	33.00	24.75		
1209	PUMPKIN SEED EXTRACT (WATER-SOLUBLE) - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
1210	PUMPKIN SEED EXT w/SOY ISOFLAVONES (WATER-SOLUBLE)- 60 Veg. Caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
1031	PYCNOGENOL® - 60 veg. caps	89.95	67.46		

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## Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Tota
	P CONTINUED				
01217	PYRIDOXAL 5'-PHOSPHATE - 100 mg, 60 veg. caps	\$22.00	\$16.50		
	Buy 4 bottles, price each	19.80	14.85		
	O, R				
01309	QUERCETIN (OPTIMIZED) - 250 mg, 60 veg. caps	\$18.00	\$13.50		
	Buy 4 bottles, price each	17.00	12.75		
01030	RED YEAST RICE (Bluebonnet)- 600 mg, 60 veg. caps	17.50	13.13		
00979	RED YEAST RICE (Nature's Plus)- 600 mg, 60 veg. caps	23.95	17.96		
00060	RED YEAST RICE EXTENDED RELEASE - 30 veg. tablets	21.50	16.13		
00605	REGIMINT - 60 enteric-coated caps	19.95	14.96		
	Buy 4 bottles, price each	18.67	14.00		
00448	REJUVENEX® BODY LOTION - 6 OZ	24.00	18.00		
30110	Buy 4 tubes, price each	19.80	14.85		
	Buy 8 tubes, price each	17.00	12.75		
00918		65.00	48.75		
01500	REJUVENEX® FACTOR - 1.7 oz airless pump				
	Buy 2 bottles, price each	60.00	45.00		
	Buy 4 bottles, price each	55.00	41.25		
24000	Buy 8 bottles, price each	49.91	37.43		
01220	REJUVENEX® (ULTRA) - 2 0Z	52.00	39.00		
	Buy 2 jars, price each	48.00	36.00		
	Buy 4 jars, price each	44.00	33.00		
	Buy 8 jars, price each	39.93	29.95		
00676	REJUVENIGHT (ULTRA) - 2 oz	39.95	29.96		
	Buy 4 jars, price each	36.00	27.00		
00706	REJUVENIGHT w/PROGESTERONE (ULTRA) - 2 oz	42.00	31.50		
	Buy 4 jars, price each	38.00	28.50		
01413	RESVERATROL W/PTEROSTILBENE - 20 mg, 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01410	RESVERATROL W/PTEROSTILBENE - 100 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01430	RESVERATROL W/SYNERGISTIC	46.00	34.50		
	GRAPE-BERRY ACTIVES (OPTIMIZED) - 250 mg, 60 veg. caps	41.00	04.00		
	Buy 4 bottles, price each	41.33	31.00		
00889	RHODIOLA EXTRACT - 250 mg, 60 veg. caps	11.75	8.81		
	Buy 4 bottles, price each	10.58	7.94		
00972	(D) RIBOSE POWDER - 150 grams	27.50	20.63		
	Buy 4 jars, price each	24.75	18.56		
01473	(D) RIBOSE TABLETS - 100 veg. tabs	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
01208	R-LIPOIC ACID (SUPER) - 300 mg, 60 veg. caps	49.00	36.75		
	Buy 4 bottles, price each	45.00	33.75		
00070	RNA CAPSULES - 500 mg, 100 caps	17.95	13.46		
	Buy 4 bottles, price each	16.16	12.12		
00917	ROSMARINIC ACID EXTRACT - 60 veg. caps	59.00	44.25		
	Buy 4 bottles, price each	53.00	39.75		
	S				
01082	SACCHAROMYCES BOULARDII+MOS - 30 veg. caps	\$9.95	\$7.46		
01067	SACCHAROMYCES BOULARDII+MOS - 90 veg. caps	21.95	16.46		
01432	SAFFRON w/SATIEREAL (OPTIMIZED) - 60 veg. caps	36.00	27.00		
00570	Buy 4 bottles, price each	32.00	24.00		
	SAMBU® GUARD - 175 ml	17.49	13.99		
00358	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 20 enteric coated tablets	17.00	12.75		_
	Buy 8 boxes, price each	15.00	11.25		
	SUP-TOTAL OF COLUMN 15	10.00	11.20		

No.		Retail Each	Member Each	Qty	Total
00453	SAME (S-ADENOSYL-METHIONINE) - 200 mg, 50 enteric coated tablets	\$40.00	\$30.00		
	Buy 4 bottles, price each	35.00	26.25		
00557	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 20 enteric coated tablets	32.00	24.00		
	Buy 6 boxes, price each	25.00	18.75		
01055	SAME (S-ADENOSYL-METHIONINE) - 400 mg, 50 enteric coated tablets	72.00	54.00		
	Buy 4 bottles, price each	66.00	49.50		
01043	SEA-IODINE™ - 1000 mcg, 60 veg. caps	8.00	6.00		
	Buy 4 bottles, price each	7.20	5.40		
00046	SELENIUM - 2 oz dropper bottle	9.95	7.46		
	Buy 4 bottles, price each	9.45	7.09		
00567	SE-METHYL L-SELENOCYSTEINE - 200 mcg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
00318	SERRAFLAZYME - 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00011	SHAMPOO - 16 fl oz	6.00	4.50		
	Buy 4 bottles, price each	4.75	3.56		
00284	SHARK LIVER OIL (NORWEGIAN) - 1000 mg, 30 softgels	18.00	13.50		
,020 .	Buy 4 bottles, price each	16.00	12.00		
00184	SILYMARIN - 100 mg, 50 caps	9.25	6.94		
00101	Buy 4 bottles, price each	8.25	6.19		
01502	SKIN RESTORING CERAMIDES w/LIPOWHEAT™ - 30 liquid caps	25.00	18.75		
71002	Buy 4 bottles, price each	23.00	17.25		
00961	SODZYME® w/GLISODIN® AND WOLFBERRY - 90 veg. caps	28.00	21.00		
JU30 I		24.00	18.00		
00657	Buy 4 bottles, price each	12.99	9.74		
00001	SOLARSHIELD SUNGLASSES - 1 pair smoke color	11.50	8.63		
01097	Buy 2 pairs, price each				
J1097	SOY EXTRACT (ULTRA) - 150 veg. caps	87.00	65.25		
00286	Buy 4 bottles, price each	78.00	58.50		
JU200	SOY PROTEIN CONCENTRATE - 16 oz of powder	12.00	9.00		
1000	Buy 4 jars, price each	10.63	7.97		
01099	<b>STABILIUM® 200</b> - 30 caps	30.00	22.50		
00432	STEVIA EXTRACT - 100 packets, 1 gram each	9.95	7.46		
	Buy 4 boxes, price each	9.00	6.75		
00351	ST. JOHN'S WORT EXTRACT - 300 mg, 60 caps	10.98	8.24		
	Buy 4 bottles, price each	10.00	7.50		
00327	ST. JOHN'S WORT EXTRACT (PLANETARY) - 600 mg, 60 tablets	16.75	12.56		
	Buy 4 bottles, price each	13.85	10.39		
)1476	STRONTIUM - 750 mg, 90 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00971	SUN PROTECTION SPRAY W/BETA GLUCAN - SPF30 - 6 oz	14.95	11.21		
	Buy 4 bottles, price each	13.50	10.13		
00747	SUNGLASSES (OVERXCAST POLARIZED) - gray color, large	27.00	20.25		
	Buy 2 pairs, price each	21.00	15.75		
00748	SUNGLASSES (OVERXCAST POLARIZED)- gray color, medium	27.00	20.25		
	Buy 2 pairs, price each	21.00	15.75		
00758	SUPER ABSORBABLE SOY ISOFLAVONES - 60 caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01408	SUPER SAW PALMETTO/NETTLE ROOT W/BETA-SITOSTEROL 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	26.00	19.50		
	Buy 12 bottles, price each	24.00	18.00		

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	S CONTINUED				
01407	SUPER SAW PALMETTO W/BETA-SITOSTEROL - 30 softgels	\$15.00	\$11.25		
	Buy 12 bottles, price each	12.00	9.00		
00578	SUPER SELENIUM COMPLEX - 200 mcg, 100 caps	12.00	9.00		
	Buy 4 bottles, price each	10.00	7.50		
	Buy 12 bottles, price each	9.00	6.75		
00674	SYTRINOL™ - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
	T				
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	1-800-544-4440 or visit www.lifeextension.com				
01062	TART CHERRY - 600 mg, 60 caps	\$18.95	\$14.21		
00199	<b>TAURINE</b> - 1000 mg, 50 caps	8.95	6.71		
	Buy 4 bottles, price each	8.00	6.00		
00133	TAURINE POWDER - 300 grams	20.00	15.00		
	Buy 4 bottles, price each	16.88	12.66		
01304	THEAFLAVIN STANDARDIZED EXTRACT - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00555	(L) THEANINE - 100 mg, 60 caps	24.00	18.00		
55550	Buy 4 bottles, price each	20.50	15.38		
****\n1\n3\b	THERALAC PROBIOTICS - 30 caps	44.95	33.71		
00224	THYMIC IMMUNE FACTORS - 100 caps	18.00	13.50		
00224	Buy 4 bottles, price each	14.00	10.50		
00668	THYROID FORMULA™ (METABOLIC ADVANTAGE) - 100 caps	21.95	16.46		
00349	TMG POWDER - 50 grams	14.00	10.40		
00343	Buy 4 bottles, price each	11.00	8.25		
00359	TMG - 500 mg, 180 tablets	18.00	13.50		
00333		15.50	11.63		
00366	Buy 4 bottles, price each				
00300	TOCOTRIENOLS - (Rice) 50 mg, 60 softgel caps	39.95			
00704	Buy 4 bottles, price each	36.00	27.00		
00781	TOCOTRIENOLS WITH SESAME LIGNANS - 60 softgels	38.00			
04.400	Buy 4 bottles, price each	36.00	27.00		
01400	TOCOTRIENOLS (SUPER-ABSORBABLE) - 60 softgels	30.00	22.50		
04070	Buy 4 bottles, price each	28.00	21.00		
01278	TOOTHPASTE - 4 oz (Mint)	9.50	7.13		
	Buy 4 tubes, price each	8.67	6.50		
01274	TOTAL SUN PROTECTION CREAM W/BETA GLUCAN - 4 OZ	28.00	21.00		
	Buy 4 tubes, price each	25.20	18.90		
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT- 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT W/RESVERATROL -60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	29.60	22.20		
01046	TRIPLE ACTION UNDER EYE REJUVENATOR - 0.5 oz pump	24.00	18.00		
J 1 J T U	Buy 4 boxes, price each	22.00	16.50		
00866	TRYPTOPURE® L-TRYPTOPHAN - 500 mg, 90 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
01202	TRYPTOPURE® PLUS (OPTIMIZED) - 90 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01516	TWO-PER-DAY - 60 veg. tablets	9.95	7.46		
01010	Buy 4 bottles, price each	9.00	6.75		
01515	TWO-PER-DAY - 120 veg. tablets	18.95	14.21	$\vdash$	
01010		-	12.75		
00326	Buy 4 bottles, price each	17.00 12.50	9.38		
	L-TYROSINE - 500 mg, 100 tablets	12.50	9.38		
00320	Buy 4 bottles, price each	11.42	8.57		l

No.		Retail Each	Member Each	Qty	Total
	U				
00310	<b>UDO'S OIL 3-6-9 BLEND</b> - 17 fl oz	\$27.49	\$21.99		
00311	<b>UDO'S 3-6-9 OIL BLEND</b> - 180 caps	33.79	27.03		
00322	UDO'S CHOICE® WHOLESOME FAST FOOD - 16 oz bottle	27.49	21.99		
01061	ULTIMATE FLORA ADVANCED IMMUNITY PROBIOTICS - 30 caps	29.99	22.49		
	V				
00213	VANADYL SULFATE - 7.5 mg, 100 tablets	\$15.00	\$11.25		
	Buy 4 bottles, price each	12.50	9.38		
00252	VELVET DEER ANTLER - 250 mg, 30 caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
00408	VENOTONE - 60 caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01327	VINPOCETINE - 10 mg, 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	14.00	10.50		
01033	VISION OPTIMIZER - 90 caps	29.95	22.46		
01098	VITAL GREENS MIX - 319.5 grams powder	48.00	36.00		
	Buy 4 jars, price each	44.00	33.00		
01219	VITAMIN A NUTRISORB - 0.6 fl oz	27.00	20.25		
00091	<b>VITAMIN B1 CAPS</b> - 500 mg, 100 caps	17.84	13.38		
	Buy 4 bottles, price each	15.93	11.95		
00093	<b>VITAMIN B2 CAPS</b> - 100 mg, 100 caps	12.99	9.74		
	Buy 4 bottles, price each	11.88	8.91		
00096	VITAMIN B3 NIACIN - 1000 mg, 100 caps	12.75	9.56		
	Buy 4 bottles, price each	12.00	9.00		
00372	VITAMIN B3 NIACIN - 500 mg, 100 caps	7.65	5.74		
	Buy 4 bottles, price each	6.65	4.99		
00098	VITAMIN B5 - 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
00556	<b>VITAMIN B6</b> - 250 mg, 100 caps	12.50	9.38		
	Buy 4 bottles, price each	11.00	8.25		
00361	VITAMIN B12 - 500 mcg, 100 lozenges	8.75	6.56		$\vdash$
	Buy 4 bottles, price each	7.25	5.44		
00927	VITAMIN C WITH DIHYDROQUERCETIN - 1000 mg, 250 tablets	25.50	19.13		$\vdash$
	Buy 4 bottles, price each	23.25	17.44		
00084	VITAMIN C (BUFFERED) POWDER - 454.6 grams	23.95	17.96		$\vdash$
	Buy 4 bottles, price each	22.00	16.50		
00864	VITAMIN D3 - 2000 IU, 1 fl oz	28.00	21.00		$\vdash$
00004	Buy 4 bottles, price each	25.00	18.75		
00251	VITAMIN D3 - 1000 IU, 250 caps	12.50	9.38		$\vdash$
00201	Buy 4 bottles, price each	11.25	8.44		
00713	VITAMIN D3 - 5000 IU, 60 caps	11.00	8.25		$\vdash$
00710	Buy 4 bottles, price each	9.90	7.43		
01418	VITAMIN D3 - 7000 IU, 60 caps	14.00	10.50		$\vdash$
01410	Buy 4 bottles, price each	12.60	9.45		
01372	VITAMIN D3 w/SEA-IODINE™ - 5000 IU, 60 veg. caps	14.00	10.50		$\vdash$
01312	Buy 4 bottles, price each	12.50	9.38		
01472	* * * * * * * * * * * * * * * * * * * *	_			$\vdash$
J 141 Z	VITAMINS D AND K w/SEA-IODINE™ - 60 veg. caps	24.00	18.00 16.50		
00063	Buy 4 bottles, price each	22.00			$\vdash$
00063	VITAMIN E (PURE NATURAL) - 400 IU, 100 caps	18.75	14.06		
	Buy 4 bottles, price each	17.25	12.94		
	Buy 10 bottles, price each	15.00	11.25		

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

#### **SUB-TOTAL OF COLUMN 19**

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- \*\*\*Not eligible for member discount or member renewal product credit.
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- <sup>††</sup>Can only be sold in the USA.
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	SUB-TOTAL COLUMN	19	
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	S 2nd DAY AIR add \$7. For Puerto Rico, US Virg DA UPS EXPRESS Flat rate \$17.50, UK Flat rate IR WILL BE ADDED.		
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33599	YOUNGER YOU • by Eric Braverman, MD		\$24.95	\$15.75		
33598	AGELESS • by Suzanne Somers	2006	\$25.00	\$17.50		
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33422	BRAIN LONGEVITY • by Dharma Singh Khalsa, MD, with Cameron Stauth	1997	\$14.95	\$11.21		
33677	DANGEROUS DOSES • by Katherine Eban	2005	\$25.00	\$16.25		
33600	DISEASE PREVENTION AND TREATMENT, EXPANDED FOURTH EDITION (hardcover)	2003	\$49.95	\$37.46		
33000	Price per book when 4 books purchased	2000	\$44.00	\$33.00		
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	MAXIMIZE YOUR VITALITY & POTENCY • by Jonathan Wright, MD		\$14.95	\$11.00		
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# Don't suffer the harsh side effects of antibiotics.

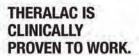
# Take Theralac®.

#### ANTIBIOTICS AND THERALAC WORK HAND IN HAND.

Many people taking antibiotics suffer disruption of their intestinal flora and, consequently, their digestive regularity suffers. Antibiotics reduce the numbers of beneficial probiotic bacteria and may cause undesirable bacteria to flourish.

One particular adverse bacteria, Clostridium difficile, or C. diff., is known to be resistant to antibiotics and can cause severe diarrhea. The best way to stop the

havoc C. diff. wreaks is to overwhelm it with Theralac.



Theralac has been proven in a



clinical study to main-

tain normal intestinal flora while people were on antibiotics.

In a double-blind. placebo-controlled study subjects took the equivalent of two Theralac capsules daily for two weeks while on the powerful antibiotic Augmentin®. The results were amazing! The Theralac group 10 SEPARATE TIMES IN THE BLAYLOCK saw no disrup-WELLNESS REPORT tion of intestinal

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Theralac assists with nutrient absorption and helps regulate peristaltic action. Theralac helps maintain

estrogen, cholesterol and glycemic levels in those already within normal range.

#### LEADING DOCTORS RECOMMEND THERALAC.

Dr. Russell Blavlock, MD, recommends taking 2-4 Theralac capsules daily while on antibiotics, continuing for two weeks following antibiotic therapy. And key doctors of Lyme disease patients rely on Theralac to

> help patients suffering from severe antibiotic associated diarrhea.

So to ensure digestive health while taking antibiotics, order Theralac today by calling 800-544-4440 or

visit LifeExtension.com.

Then take your antibiotics and avoid unintended consequences.

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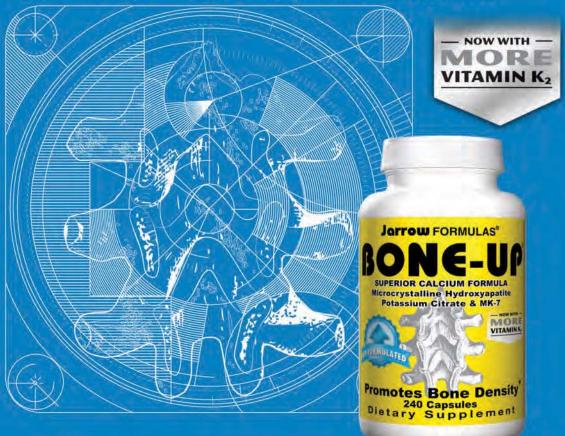
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# Better Bones by Design

2%-4% of your skeleton is "rebuilt" every year as calcium and minerals leave the bone and must be replaced.



# A Complete Multi-Nutrient Bone Health System!

Bone-Up® provides your body with much needed calcium as well as essential nutrients for building strong bones.\* It utilizes the finest source of calcium available: Australian/ New Zealand bovine bone hydroxyapatite from chemical-free, range grazed calves less than two years old.

**Bone-Up**<sup>®</sup> is a clinically-validated formula and an effective addition to any bone health regimen.\* It features added vitamins and minerals that synergistically support healthy bone density and overall bone health\*:

- \* Ossein Microcrystalline Hydroxyapatite (MCHA): Promotes calcium balance.\*
- . Vitamin D3: Converts to calcitriol to enhance calcium absorption.
- MK-7: The more bioavailable form of Vitamin K2, which is needed for building bone matrix and proper calcium distribution.
- . Boron: A trace mineral important in calcium retention.\*
- Manganese, Copper and Zinc: Essential trace minerals involved in the formation of bone.

Jarrow Formulas\* Bone-Up\*, 240 capsules Item # 00313: \$24.95
If a member buys four bottles, the price will be reduced to \$16.88 per bottle.
To order, call (800)544-4440 or visit www.LifeExtension.com

www.Jarrow.com

Jarrow FORMULAS

\* 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.

# Holy Basil

# Supercritical Holy Basil extract promotes natural stress relief and normal cell growth.\*

#### Our Bodies Respond to Stress in Many Ways

Our mind and body respond to stress by releasing a cascade of chemicals and hormones. Cortisol, epinephrine, and norepinephrine, otherwise known as the stress hormones, are instantly launched into production by the adrenal glands, tiny little hormone factories that sit atop the kidneys. The stress hormones work to shift the body's metabolism away from repair and regeneration to energy expenditure. The heart beats faster, blood pressure increases, sugar (glucose) is released rather than metabolized, and digestion shuts down so that blood is kept in the periphery of the body for the muscles to use. This response is known as fight or flight. It is a charged physical state that is incredibly valuable for responding to serious life-threatening situations. The problem is everyday nonlife-threatening events such as losing your keys, arguing with your spouse, or getting a speeding ticket can also unnecessarily trigger it. Over time, the continual stress reactions your body produces to these everyday situations can wear us down. Chronically high levels of cortisol flood the body, contributing to a whole host of stress-related health responses.

#### The Tradition of Holy Basil

Holy Basil, known as *Ocimum sanctum* in Latin, has for thousands of years been revered as *Tulsi* in Ayurvedic medicine. *Tulsi* means "*The Incomparable One*," which is the reality of this majestic herb. When in New Delhi, we visited with the leader of India's Ayurvedic Medical Association. We asked the *vaidya*, or Ayurvedic master, why Holy Basil is considered the Mother Medicine of Nature in his tradition. He replied that it is a *rasayana*, or an herb that on its own nourishes a person's growth to perfect health and enlightenment." We asked why people in the West find that Holy Basil promotes a positive stress response and elevates their spirit, and he replied that, "Holy Basil delivers nutrients to the mind necessary for the experience of enlightenment."

Holy Basil 60 Capsules Item# 01433 Retail: \$31.95 Member Price \$23.96

Holy Basil 120 Capsules Item# 01434 Retail: \$51.95 Member Price \$38.96

To order Supercritical Holy Basil, call 1-800-544-4440 or visit www.LifeExtension.com

#### Scientific Confirmation of Traditional Wisdom

Phytonutrients within Holy Basil are some of the most prized molecules in the plant pharmacy. To make a drug from Holy Basil, pharmaceutical companies could deliver those molecules in an isolated form, but that would no longer be the infinitely complex Holy Basil treasured by traditional medicine. At New Chapter, therefore, we deliver the wisdom of Holy Basil in its most complete herbal form. We are, of course, also respectful of those "prized molecules," but choose to deliver them with the numerous other naturally occurring chemistries to deliver the full intelligence of the herb.

The scientific world is giving heed to these molecules. In the United States, researchers have determined that Holy Basil's "active" molecules promote a healthy inflammation response.\* These "active" molecules' cell protective properties have been studied *in vitro* with respect to cells of the breast, oral cavity, colon, prostate, skin, and liver.\* They have also been studied worldwide for their effect on normal cell growth.\*

The whole is more than the sum of its parts, but the whole must contain the parts. That is why New Chapter's Holy Basil is the only source of this herb that provides both supercritical and hydroethanolic extracts to capture the fullness of this herb in its purest and most concentrated form.

To Enlightenment!



© 2011 New Chapter, Inc.



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

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

turmeric is alike.

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

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

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

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

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

A separate study<sup>3</sup> indicated powerful support for heart health using a comparable extract.

#### **Unrivaled Potency and Absorbability with BCM-95®**

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

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

Absorption studies further demonstrate that just one 400 mg vegetarian capsule per day of Super Bio-Curcumin® supplies the equivalent of 2,500-2,800 mg of commercial curcumin supplements.

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

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

#### References

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

To order **Super Bio-Curcumin**® call 1-800-544-4440 or visit www.LifeExtension.com

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.





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#### WHAT'S INSIDE

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# **LifeExtension**° Magazine



#### 28 NOVEL PLANT EXTRACTS BLOCK FAT CELL STORAGE

Warnings about the consequences of obesity have not helped Americans lose weight. Overlooked are the cellular mechanisms behind weight gain. Two cutting-edge plant extracts target the pathways fat cells use to trigger fat storage.



#### 54 ASTAXANTHIN'S BROAD-SPECTRUM BENEFITS

Dr. Oz recently touted astaxanthin as "The #1 Supplement You've Never Heard of That You Should Be Taking." Life Extension® members have long taken it to combat eye fatigue. New evidence shows it may also combat cancer, heart disease, and more.



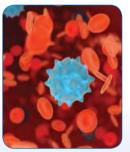
#### 76 HUMAN DATA SUPPORT CALORIE RESTRICTION'S BENEFITS

Most people believe adhering to a nutritious diet low in calories is impossible. Find out how easy it really is—and the latest supportive human data.



# 42 CALIFORNIA DECREES ABSURD LABEL LAW FOR HORMONES

Abundant medical evidence supports the safety of DHEA and pregnenolone. Yet governmental assaults on your right to obtain them persist. In California, alarmist warning labels are now law.



#### 66 ANTI-CANCER POWER OF CITRUS PECTIN

Cancer cells must communicate with one another in order to metastasize. Modified citrus pectin disrupts this communication, slowing cancer's progress.



EPIDEMIC DENIAL ABOUT OBESITY

CoQ10 IMPROVES ENDOTHELIAL FUNCTION
FISH OIL ENHANCES EFFECTS OF TAMOXIFEN
C-REACTIVE PROTEIN MAY IMPAIR MEMORY