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REPORTS

24 REDUCE ALLERGY MISERIES

A targeted **probiotic** and **yeast compound** lowers the allergic response to pollen and other allergens, thus reducing irritating seasonal symptoms. Clinical studies reveal how this **non-drug** approach rebalances immune function and slashes common **allergy** miseries.



36 PLANT COMPOUNDS PROTECT JOINT CARTILAGE

Osteoarthritis drugs do not prevent **cartilage degeneration**. Three **botanical extracts** can help *repair* joint damage and *reduce* cartilage loss.



46 ASTAXANTHIN SLOWS SKIN AGING

In human studies, **astaxanthin** has been shown to *improve* skin wrinkles, elasticity, and moisture while *enhancing* collagen production.



55 RESEARCH UPDATE: CANCER PREVENTION EFFECTS OF LYCOPENE

Recent research demonstrates that **lycopene** can *inhibit* malignant transformation and help *prevent* metastasis. **Life Extension®** introduced the anticancer properties of lycopene in **1985**.



62 NAD+ REDUCES ALZHEIMER'S RISK

Researchers at **Johns Hopkins University School of Medicine** and the National Institute on Aging showed how boosting **NAD+** *improved* cognitive functions and *restored* brain plasticity in a mouse model of Alzheimer's.



72 RECENT KETOGENIC THERAPY CONFERENCES

Carbohydrates and proteins are greatly reduced in a **ketogenic diet**, which requires the primary source of food energy to be **fat** and **ketones** derived from fat. Scientists have discovered that a **ketogenic diet** can be used to treat obesity, diabetes, brain trauma, cancer, Alzheimer's disease, Parkinson's disease, autism, and many other conditions.



7 ON THE COVER

STRIKING 50% REDUCTION IN CARDIOVASCULAR MORTALITY

Last year, the **Journal of the American Medical Association (JAMA)** reported a **50% decline** in **cardiovascular disease** deaths from **1980 to 2014**.

JAMA editors recommended prevention strategies (including **blood tests**) that have long been advocated by **Life Extension®** and other health publications.

DEPARTMENTS



17 IN THE NEWS

Omega-3 improves sleep in lupus patients; high-sugar diet increases heart-disease risk; vitamin D deficiency ups heart-failure risk; and reducing oxidants improves wet AMD.

83 PROFILE: JULIO ANTA: FITNESS WARRIOR

Sixty-year-old martial arts master and teacher Julio Anta credits **Life Extension®** for helping him maintain his good health and strength. Blood tests, supplements, fitness, and a lifelong thirst for learning form the foundation of his success and health.



81 SUPER FOODS: BUCKWHEAT

Buckwheat—which is neither wheat nor grain—is an ideal wheat substitute for the gluten-sensitive. Its phenolic compounds, oxidant reducers, high fiber content, and rutin can protect against cancer and cardiovascular disease and lower blood pressure and cholesterol.



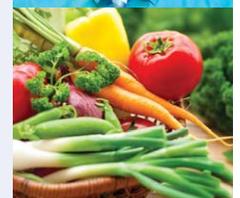
89 ASK THE DOCTOR: DR. SCOTT FOGLE

Dr. Scott Fogle answers questions about the benefits of various lab tests and outlines exciting changes and additions to the **Annual Lab Test Sale**.



99 HEALTHY EATING: ON VEGETABLES

Top chef Jeremy Fox believes that vegetables should be prepared with the same care generally lavished on meat dishes. His new book, *On Vegetables*, is based on that philosophy, and here we present three of his creative recipes.



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BY WILLIAM FALOON

Is Mainstream Medicine Finally Waking Up?

Last year, the **American Medical Association** reported deaths from cardiovascular disease have plummeted **50%** since **1980**.¹

We published our first newsletter in **1980**.

Much of what we recommended in the early **1980s** is now standard medical practice, such as using **aspirin** to prevent **heart attack**.

None of the **prevention** strategies we advocated were without hard-fought battles.

It took a decade of intense legal and political wrangling to keep the **FDA** from banning **coenzyme Q10**. We introduced **CoQ10** to Americans in **1983**.



Perhaps our greatest impact was our **multi-modal** approach to **prevention** of **atherosclerosis**.

While the mainstream focused on single risk factors like **cholesterol**, we advocated for the reduction of all artery-clogging pathologies, such as lowering **homocysteine** and boosting **DHEA**.

We defied conventional dogma that allowed **fasting glucose** to reach **140 mg/dL** before diagnosing **diabetes**, and **blood pressure** to reach **140/90 mmHg** before treating **hypertension**.

The magnitude of lives saved by controlling vascular risk factors has been confirmed in an analysis published in the **Journal of the American Medical Association (JAMA)**.²

This editorial described findings from a study that followed a large group of people over a 16- to 22-year period. The results showed that those who controlled multiple conventional cardiac risk factors had:³

- **70%-85%** lower cardiovascular mortality;
- **40%-60%** lower overall mortality;
- **6-9 years** greater life expectancy.

These studies further validate the **proactive steps** readers of **Life Extension Magazine**® take to slash their cardiovascular risk factors.

As you're about to learn, remarkable **longevity benefits** can be obtained by following commonsense guidelines.

“Recommended dietary patterns focus on meals high in vegetables, fruit, whole grains, seafood, legumes, and nuts; moderate in low-fat and nonfat dairy products; lower in red and processed meat, foods and beverages containing added sugar, and refined grains.”

FDA’s failure to recognize these common-sense approaches to heart attack prevention caused millions of Americans to prematurely lose their lives.

Heart Attacks Used To Be More Common

Heart attacks were common killers of middle-aged men throughout the **1950s** to early **1980s**. Back in those days, corporations felt the financial pain of losing key executives to **heart attacks**.

Victims of coronary artery disease today are increasingly older. This reflects a trend of postponed deaths from heart attacks.

What’s happening is that people who would have succumbed to a heart attack in middle age are now stricken in their later years.

So while cardiovascular disease deaths have plummeted (**50%**) since **1980**, there is an expanding, **aging** population at risk for heart disease. These individuals should initiate actions to neutralize all their vascular risk factors.

It Begins With Blood Tests...

There is now a consensus in conventional and natural medicine.

People of all ages can benefit by reducing their coronary disease risk factors. Doing this also helps protect against stroke, kidney failure, diabetes, and other degenerative conditions.



The FDA’s Previous Ban on Heart Disease Claims

Near the peak of the **heart attack** epidemic, the **FDA** refused to acknowledge the role of unhealthy diet and vascular disease. Here is a warning the FDA published in **1959** making it illegal to claim a benefit to healthier diets:

“The advisability of making extensive changes in the nature of the dietary fat intake of the people of this country has not been demonstrated.

It is therefore the opinion of the Food and Drug Administration that any claim, direct or implied, in the labeling of fats and oils or other fatty substances offered to the general public that they will prevent, mitigate or cure diseases of the heart or arteries is false or misleading, and constitutes misbranding within the meaning of the Federal Food, Drug and Cosmetic Act.”

*Federal Register: December 12, 1959.

Reaffirmed by the FDA in the Federal Register: May 18, 1965.

Last year, the *Journal of the American Medical Association* published an editorial that described findings from a study that followed people over an extended (16- to 22-year) period.

This study showed that when conventional cardiac risk factors were controlled, there were huge reductions (up to **85%**) in cardiovascular mortality and an incredible **6-9 years** of added life expectancy.

The **JAMA** editorial describing this study began by stating:

“Identification and control of cardiovascular disease risk factors are critical components in the prevention of cardiovascular disease.”²

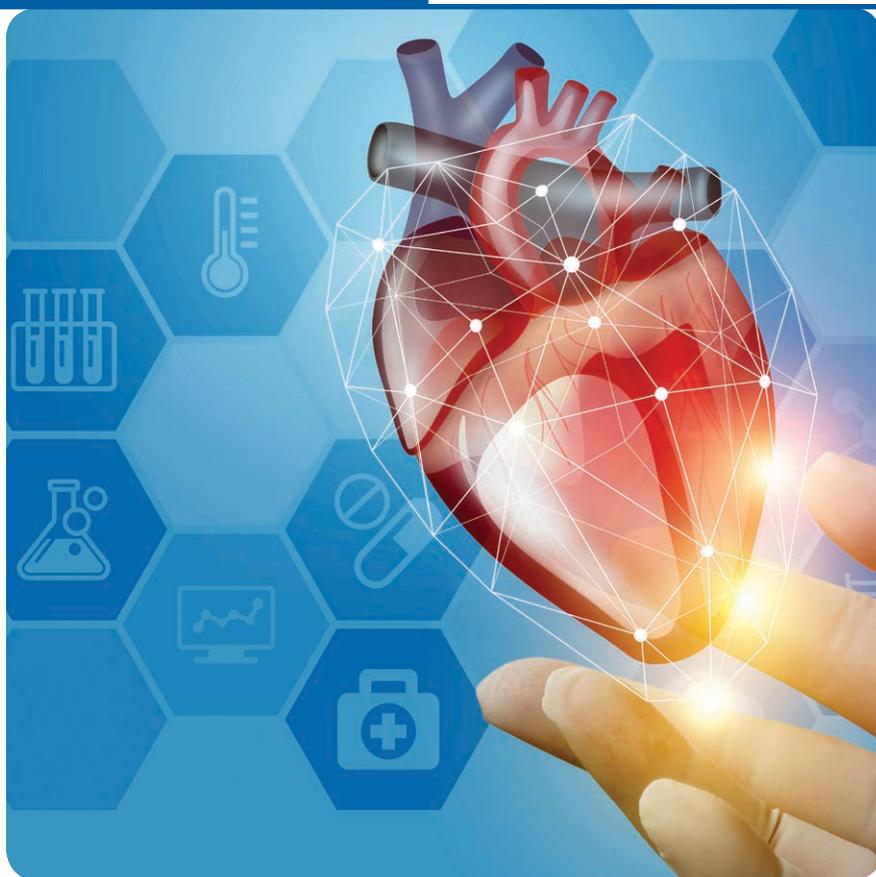
As we mature, there is a marked increase in our **blood markers** of vascular risk.

These **vascular risk markers** are reversible. Waiting for angina pain to manifest, or an ambulance ride to a hospital is absurd in light of proven ways to maintain healthy arterial function.

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An increasing number of **independent** vascular risk factors are recognized in the peer-reviewed scientific literature.

Just one independent risk factor is all it takes to occlude a coronary artery.



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This year, we're providing even greater value to the **Male** and **Female Panels** by adding a test (**ApoB**) that helps determine your very important **particle count** (the number of particles carrying your **cholesterol** around that can form **plaque** in your arteries).

Having a higher ApoB means a higher number of **atherogenic particles** carrying the cholesterol, which may be a stronger heart attack predictor than **LDL cholesterol** itself. The higher your ApoB particle count the higher your **cardiovascular risk**.

The cost of having all these **blood tests** done individually is prohibitive. We make it affordable by combining them all into a comprehensive test panel that retails for **\$400**.

During the once-a-year **Blood Test Super Sale**, the **Male** or **Female Panels** are discounted to **\$199**.

The page on the right lists the tests included in the **Male** and **Female Panels**.

To order these comprehensive blood test panels at these ultra-low prices, call **1-800-208-3444** (24 hours) or log on to LifeExtension.com/labservices

For longer life,

William Faloon, Co-Founder
Life Extension Buyers Club

Quote from JAMA editorial:

"...risk factor control in the clinical setting begins with risk assessment, aims at targeting all risk factors above ideal levels, and moves patients in measured steps toward more ideal cardiovascular health."

"Cardiovascular Risk Factor Control for All", *Journal of the American Medical Association*, July 11, 2017.

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Homocysteine

C-Reactive Protein (high sensitivity)

LIPID PROFILE

Total Cholesterol

LDL (low-density lipoprotein)

HDL (high-density lipoprotein)

Triglycerides

METABOLIC PROFILE

Glucose

Hemoglobin A1c

Kidney function tests: creatinine, BUN, uric acid, BUN/creatinine ratio

Liver function tests: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase

Blood minerals: calcium, potassium, phosphorus, sodium, chloride, iron

Blood proteins: albumin, globulin, total protein, albumin/globulin ratio

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Platelet count

CANCER MARKER

PSA (Prostate Specific Antigen)

HORMONES

Free and Total Testosterone

DHEA-S

Estradiol (an estrogen)

TSH (thyroid function)

Vitamin D (25-hydroxyvitamin D)

■ FEMALE PANEL

CARDIAC MARKERS



Apolipoprotein B (ApoB)

Homocysteine

C-Reactive Protein (high sensitivity)

LIPID PROFILE

Total Cholesterol

LDL (low-density lipoprotein)

HDL (high-density lipoprotein)

Triglycerides

METABOLIC PROFILE

Glucose

Hemoglobin A1c

Kidney function tests: creatinine, BUN, uric acid, BUN/creatinine ratio

Liver function tests: AST, ALT, LDH, GGT, bilirubin, alkaline phosphatase

Blood minerals: calcium, potassium, phosphorus, sodium, chloride, iron

Blood proteins: albumin, globulin, total protein, albumin/globulin ratio

COMPLETE BLOOD COUNT (CBC)

Red Blood Cell count including: hemoglobin, hematocrit, MCV, MCH, MCHC, RDW

White Blood Cell count including: lymphocytes, monocytes, eosinophils, neutrophils, basophils

Platelet count

HORMONES

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Estradiol (an estrogen)

Free and Total Testosterone

DHEA-S

TSH (thyroid function)

Vitamin D (25-hydroxyvitamin D)

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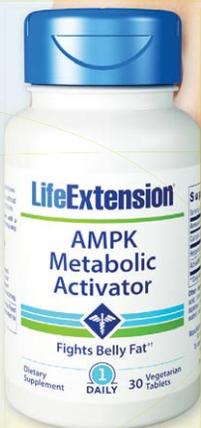
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Healthy People at Risk With High-Sugar Diet

A recent study found changes in fat metabolism that are associated with an increased risk of cardiovascular disease in men who consumed a **high-sugar** diet.*

The study included men with nonalcoholic fatty liver disease (NAFLD) and healthy men with a low amount of liver fat. On a daily basis for 12 weeks, participants were given diets that contained an equal amount of total calories but provided either 650 or 140 of those calories from sugar.

Men with NAFLD who received the high-sugar diet exhibited changes associated with a greater risk of cardiovascular disease. Among men who did not have NAFLD who were given the high sugar diet, liver fat increased and fat metabolism became more like that of individuals with NAFLD.

Editor's Note: "A high intake of sugars produced changes in the lipoprotein metabolism of controls that were characteristic of men with NAFLD," the study authors observe. "These findings indicate that the accumulation of liver fat can influence the plasma lipid and lipoprotein response to dietary sugars, and provide new evidence for a mechanism to explain how sugars may contribute to NAFLD and dyslipidemia (an abnormally high amount of lipids in the blood)."

**Clin Sci (Lond)*. 2017;131(21):2561-73.

Omega-3 Improves Mood, Sleep in Lupus Patients

The 2017 American College of Rheumatology/Association of Rheumatology Health Professionals Annual Meeting was the site of a presentation showing improvements in sleep quality and mood in association with higher intake of **omega-3** fatty acids among lupus patients.*

Using data from the Michigan Lupus Epidemiology and Surveillance program, researchers evaluated possible associations between omega-3 and omega-6 fatty acid intake and patient-reported outcomes in 456 SLE (systemic lupus erythematosus) patients.

Greater omega-3 intake was linked with better sleep and less depression.

"Many SLE patients suffer from symptoms such as poor sleep, fatigue and depression," commented researcher Prae Charoenwoodhipong. "While current treatments have been wonderful at addressing pain, we haven't been able to offer therapies that really help with these other symptoms."

Editor's Note: "Many small studies found that omega-3 supplementation was associated with an improvement in disease activity in lupus patients, but no studies have looked at omega-3 exposure through diet or its impact on patient-related outcomes," Prae Charoenwoodhipong noted. "According to rheumatologists I've worked with, patients with SLE are always asking about what they might be able to do with supplements or their diet to help improve their health."

*2017 American College of Rheumatology/Association of Rheumatology Health Professionals Annual Meeting. 2017 Nov 3-8.

Supplements Effective for Wet Macular Degeneration

An article in the *British Journal of Ophthalmology* concluded that supplementing with oxidant-reducing **nutrients** is effective and affordable for individuals with neovascular (“wet”) age-related macular degeneration (AMD).*

Adnan Tufail and colleagues sought to evaluate the cost effectiveness of two formulas used in the Age-Related Eye Disease Study (AREDS) among patients with intermediate age-related macular degeneration in both eyes or neovascular age-related macular degeneration in one eye. One supplement contained vitamins C and E, zinc, copper, and beta carotene; the second replaced beta carotene with lutein and zeaxanthin.

Their analysis determined that both formulas are cost effective for treating patients with early-stage wet AMD, and were most cost effective for those with the condition in one eye. Patients who received the nutrients would need about eight fewer injections of currently used therapies, and would also experience an increase in quality-adjusted life.

Editor’s Note: The wet form of AMD is characterized by the growth of abnormal blood vessels under the retina that can leak and damage the eyes’ macula, which is responsible for central vision.

**Br J Ophthalmol.* 2017 Aug 23.

Vitamin D Deficiency Linked to Heart-Failure Risk

An article published in *ESC Heart Failure* reports an association between increased heart-failure risk and **vitamin D** deficiency among an older group of men and women.*

Researchers analyzed medical records from 137 subjects aged 60 years and older who were seen at cardiology outpatient clinics. Deficient **25-hydroxyvitamin D** levels, defined as less than **30 ng/mL**, were revealed among **65%** of the subjects.

Among deficient subjects, **78.7%** had an increased risk of heart failure as determined by Health and Aging and Body Composition Heart Failure scores that put them at medium, high, or very high risk in comparison with normal risk.

“The increased risk of HF (heart failure) in this study was present in more than half of the elderly and was significantly associated with vitamin D deficiency (increasing by **12.2 times** the risk of HF),” the authors reported.

Editor’s Note: “Based on the evidence presented in this study, which is supported by the literature, the high percentage of elderly individuals with vitamin D deficiency and its consequences for increased risk of HF suggest a need of dosage recommendations for this vitamin, especially in primary health-care services,” the authors conclude.

* *ESC Heart Fail.* 2018;5(1):63-74.



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Reduce Allergy Symptoms by Balancing Immune Function

Seasonal allergies affect over 50 million adults.^{1,2}

Allergies are the sixth leading cause of chronic illness in America, costing society in excess of \$18 billion annually.¹

During allergy season, people use an assortment of over-the-counter medications for runny noses and itchy eyes.

Certain allergy medications have now been shown to increase the risk of Alzheimer's, among other side effects.³

Most allergy drugs treat symptoms, but do nothing to stop the underlying *cause*—**an out-of-balance immune response**.

This immune imbalance is what causes the body to overreact to harmless substances, and results in annoying allergy symptoms.

A **probiotic** and **yeast compound** have demonstrated robust effects in balancing the immune response and suppressing **allergy** attacks.

When allergy sufferers were given a unique **probiotic** or novel **yeast** compound, results from three different studies revealed:

- **43%** fewer days with nasal congestion,
- **24%** reduction in swollen nasal passages, and
- **31%** reduction in eye symptoms.^{4,6}

For many sufferers of seasonal allergies, this **probiotic** or **yeast** restrained immune overreaction starting in the digestive track.

Getting to the Root of Seasonal Allergies

An allergic reaction occurs when the immune system *overreacts* to something in the environment that is harmless to most people.

When the body perceives a threat from an allergen such as dust or pollen, it swings into defensive action. The result is watering eyes and a runny nose designed to flush out the allergen from the body.



These allergy symptoms are the last in a long domino effect of reactions involving the body's immune-system cells.

Once an allergy attack occurs, most people reach for over-the-counter medications for relief. The problem is that antihistamines, steroids (like Flonase®), and decongestants only provide *temporary relief*.

A better solution is to stop the body from *overreacting* to harmless threats like pollen or dust.

For that to happen we need to restore normal immune **balance**—and that involves *retraining* immune system cells in the **Th2** family.

Th2 cells are also known as *T helper type 2 cells*. Th2 cells play a role in organizing a protective immune response to outside invaders such as allergens.

Balancing the Immune System

When there is an overreaction of Th2 cells to an irritant such as dust or pollen, it forces the immune system into high alert. The result is an allergic reaction, and the body works to protect itself from the perceived threat.

Scientists in Japan and the U.S. have uncovered two compounds that help **restore** normal **Th2 balance** and reduce the immune system's allergic responses.

These two ingredients, **yeast fermentate** and ***Lactobacillus acidophilus* L-92** reduce symptoms by lowering the allergic response to pollen and other allergens.

As a result, this **probiotic** and **yeast** compound can quell allergy symptoms without resorting to anti-inflammatory, antihistamine, or decongestant drugs.

Let's look at the evidence from human clinical studies.

Baker's Yeast Modulates the Immune System

Baker's yeast (*Saccharomyces cerevisiae*) provides the leavening for dough to rise, and the fermentation to brew beer. But it also has the ability to help modulate the immune system.

A special fermented form of baker's yeast called dried **yeast fermentate** has favorable effects on the immune balance (specifically preventing overactive Th2) that is essential for retraining an overactive immune response associated with seasonal allergies.

Because dried yeast fermentate has these immune-balancing benefits, scientists wanted to find out if it would have an impact on allergies. They tested its effects on hay fever and grass pollen—and it proved capable of reducing both the severity and duration of symptoms.



What You Need to Know

Seasonal Allergy Relief

- Seasonal allergies affect millions of people, yet there is no medication that can provide complete symptom relief.
- All available products work near the end of the complex series of steps that lead our immune systems to overreact to something as innocuous as a pollen grain.
- A new approach works to “retrain” the immune system to respond in a more measured way.
- **Yeast fermentate** and *Lactobacillus acidophilus* L-92 have been shown to restore the normal balance between excitable immune cells and cells with a capacity to calm and modulate the hyperactive response.
- This modulation of the immune response significantly reduces symptoms such as runny nose and itchy, watery eyes without resorting to steroids, antihistamines, or decongestants.
- Studies have shown that these supplements reduce medication-symptom scores, indicating that many people could cut back on their reliance on standard allergy medications.

Hay-Fever Allergies

Hay fever, or **allergic rhinitis**, is a type of inflammation in the nose that occurs when the immune system overreacts to allergens in the air. The result is a runny or stuffy nose, sneezing, and red, itchy, watery eyes—symptoms that are similar to a common cold.

In a pilot study, 25 healthy subjects were treated with **dried yeast fermentate (500 mg/day)** or placebo for five weeks during the beginning of the allergy season.⁷

Half of those taking the yeast supplement reported complete absence of seasonal allergies. Once they stopped taking the supplement, the allergy symptoms returned. The placebo group had no change or relief from their symptoms.

One of the causes of hay fever symptoms are antibodies called **IgE**. Based on this study, researchers surmised that **yeast fermentate** helps reduce **IgE**.

IgE causes the body to release chemicals (like histamines) that cause an allergic reaction and produce symptoms that can affect the eyes, nose, throat, lungs, or skin.

Over the course of this five-week study, as the allergy season went into full swing, blood levels of **IgE** steadily increased among placebo recipients indicating heightened allergic responses.

In those subjects taking the **yeast fermentate**, **IgE** levels barely changed, indicating a *reduced allergic reaction*. The conclusion from this study is that yeast fermentate calms allergic responses by stabilizing IgE levels.

Grass-Pollen Allergies

A larger study included 96 people who all had seasonal grass-pollen allergies.⁴ Subjects took **500 mg** of **yeast fermentate** or placebo daily for 12 weeks during the highest pollen-count portion of the year.

Compared to those taking the placebo, the supplemented subjects experienced two significant benefits:

- A decrease in the severity of runny nose and nasal congestion,
- A **43%** reduction in total days with nasal congestion.⁴

They also experienced a decrease in the number of inflammatory white blood cells in their nasal mucus. This objective indicator shows a reduction in the activation of allergy-causing cells.

Reducing the severity of symptoms as well as the number of days with symptoms offers real quality-of-life improvements for those who suffer from seasonal allergies.

Probiotic Improves Seasonal Allergies

Besides yeast fermentate, **probiotics** have also been found to have beneficial effects against allergies. This makes sense, since probiotics are essential for maintaining a healthy gut, where more than **70%** of the immune system resides.

Some probiotics are more effective than others against seasonal allergy symptoms. After comparing 12 strains of probiotics in a laboratory study, one strain in particular stood out for its impact on seasonal allergies: heat-treated *Lactobacillus acidophilus* **L-92** (HT L-92).^{8,9}

Animal studies have shown that this specialized probiotic strain **reduces** the inflammatory **IgE** antibodies as does the yeast fermentate. They also demonstrated significant reductions in substances associated with **Th2**, and increases in cells that bring about better immune balance.^{8,10}

This preliminary data paved the way for three important clinical studies that support the use of heat-treated *Lactobacillus acidophilus* **L-92** for the treatment and prevention of seasonal allergies.

How an Allergic Reaction Occurs

An imbalance in the immune system is the root cause of an allergic reaction.

In the **innate** immune system, specialized white blood cells called **antigen-presenting cells** first identify the harmful substance and mount an initial attack. They then inform the **adaptive** immune system of the specific threat so it can send in the appropriate troops for the job.

When the threat occurs outside of the cells, a type of T helper cell called **Th2** is called into action to neutralize the invaders. But when Th2 becomes **overactive**, it causes the overreaction that is responsible for allergic conditions.

Activated Th2 cells stimulate two kinds of immune cells: eosinophils and B cells.

Eosinophils are white blood cells that release a variety of toxic chemicals aimed at destroying invading organisms. In the case of allergies, these potent “bullets” are fired off in error, and exert their destructive forces on host tissues, where they induce leaky capillaries and promote inflammation.

B cells release specialized antibodies called IgE, which then bind to **mast cells** and **basophils**, which are packed with granules containing signaling molecules such as histamine, leukotrienes, and other mediators of inflammation. These chemicals circulate freely in the body, triggering allergy symptoms.

Exaggerated Th2 dominance is ultimately to blame for allergy symptoms. Targeting Th2 and bringing the immune system back into balance should be the target of any good allergy treatment. Yet most of the available treatments only act **after** Th2 dominance has become established.^{16,17} For example:

- **Antihistamines** block histamine activity – but only *after* the toxic histamine molecules have been released from mast cells.
- **Steroids** (including topical sprays like Flonase®) can suppress inflammation induced by activated eosinophils—but only *after* they have been stimulated by Th2 activity, and the chemical mediators of inflammation are on the loose.
- And **decongestants** act still further down the line, tightening loose capillaries that trigger nasal drainage and watery eyes—but only *after* histamines have taken effect.

The reason **yeast fermentate** and *Lactobacillus acidophilus* **L-92** can be so beneficial against allergies is because they help calm overactive **Th2**, bringing the immune system back into a more balanced state.

Preventing Seasonal Allergies

The first clinical study was conducted in Japan among people with seasonal allergies to Japanese cedar pollen, a potent allergen. The study was conducted over the course of two annual allergy seasons. Subjects received a heat-treated probiotic *Lactobacillus acidophilus* L-92 or a placebo.⁵

In the first allergy season, supplemented subjects experienced a **31% reduction** in their **eye symptom/medication score**—a score representing the combination of symptoms experienced and medications used. A lower score is an improvement because it means reduced itchy and watery eyes and fewer medications.

In the second allergy season, there was also a significant reduction in the total eye symptom/medication score.

This study showed a trend toward lower scores for swelling and color of the membranes lining the nostrils.⁵ Color is an important objective indicator because allergic mucous membranes appear pale, while healthy, non-inflamed ones are pink.

Tackling Year-Round Allergies

The same research group conducted a second study that involved 49 people with year-round hay fever.⁶ This condition can be even harder to manage than seasonal allergies.

For this study, subjects received either a placebo or a heat-treated probiotic *Lactobacillus acidophilus* L-92 every day for eight weeks.⁶

The physician examinations found an approximate **28% improvement** in the color of nasal mucous membranes at week six, and an approximate **24% reduction** in swelling of the nasal membranes at week eight.⁶

In addition, patient-reported symptom/medication scores fell by an approximate **19%** compared with placebo recipients at week eight. There was also a trend for improvement in eye symptoms (like itchiness and redness).

What is the Connection Between Benadryl and Dementia?

Many people reach for anticholinergic drugs like Benadryl® to decrease allergy symptoms. But anyone taking these drugs for long periods of time is risking increasing something far worse.

A recent report published in *JAMA Internal Medicine* shows that taking anticholinergic drugs for long periods is associated with an increased risk of dementia.³

The study tracked almost 3,500 people over age 65 for seven years. The researchers also had access to pharmacy records for both prescription and over-the-counter drugs the participants took for 10 years prior to the start of the study.

The researchers found that the people who used anticholinergic drugs long-term had a much higher risk of developing dementia. Specifically, those who used the drugs for at least three years had a **54%** higher dementia risk than nonusers.

The link should not come as a surprise to doctors and scientists. Anticholinergic drugs are already well-known for side effects that affect short-term memory, reasoning, and confusion.

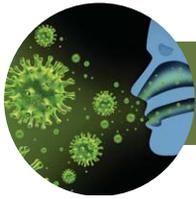
These drugs work by blocking the action of acetylcholine, an important neurotransmitter that plays a role in learning and memory. Individuals already make less acetylcholine as they age, so taking a drug that further reduces it can have disastrous consequences on the brain.

In the end, drugs like Benadryl® don't address the underlying problem. A better alternative is to take ingredients that target the root cause of allergies.

Yeast fermentate and *Lactobacillus acidophilus* L-92 bring the immune system back into a more balanced state, which reduces allergy symptoms naturally.



Figure 1. Current Approaches to Quelling Allergy Symptoms



Exaggerated Immune Response to Allergens - TH2 Dominance



Mast Cell Degranulation and Histamine Release

- Antihistamines (Claritin®, Allegra®, Benadryl®)
- Side Effects: drowsiness, dizziness, sore throat, nausea

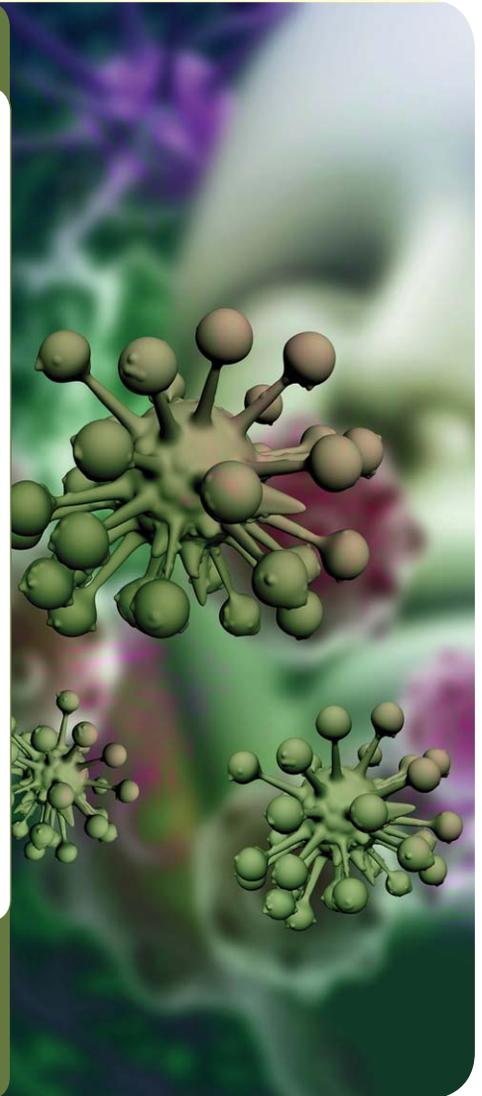
Inflammation

- Steroids (Flonase®)
- Side Effects: sore throat, headaches, cough, nausea, nosebleeds

Nasal Congestion

- Decongestants (Sudafed®)
- Side Effects: may raise blood pressure, dizziness or anxiety

Although the core problem that triggers seasonal allergy symptoms is the over-dominance of Th2 cells under the surface of our mucous membranes, mainstream treatment strategies all focus on the end results, aiming to block histamine effects, to suppress inflammation, and to tighten the leaky blood vessels that produce runny nose and watery eyes. A more basic approach would be to “retrain” T helper cells to rein in the Th2 dominance, downregulating the entire cascade. This approach produces far fewer side effects.



Seasonal Allergy Treatment

The third study was a bit different because it showed the ability of the heat-treated probiotic *Lactobacillus acidophilus* L-92 to alleviate allergy symptoms even if people didn't start taking the supplement until *after* they were exposed to the allergen.

For this study, 80 people with an allergy to cedar pollen were exposed to cedar pollen for three hours before receiving the probiotic.⁹ The study lasted for eight weeks.

Compared with placebo recipients, supplemented patients had a **2.5-fold** improvement in nasal symptoms and a **4.7-fold** improvement in eye symptoms. These findings were considered to be statistically significant.⁹

Taken together, these findings demonstrate important reductions in symptoms of seasonal and year-round allergies, both in runny nose and in itchy eyes.

Eczema Relief

Lactobacillus acidophilus L-92 has also been shown to have favorable effects in another related allergic condition: **eczema** (also called *atopic dermatitis*). Eczema is an allergic response that is characterized by itchy, scaly, weeping lesions on the skin, and it can happen on parts of the body that don't come into direct contact with the allergen.

This skin condition was once primarily a childhood illness, but is becoming more common in adults.^{11,12}

Research has now demonstrated that taking *Lactobacillus acidophilus* L-92 results in a more than **50%** reduction in symptom scores for eczema.^{13,14} One study showed that it helped reduce the spread of the condition from one part of the body to another.¹⁵

Clearly, this supplement's capacity to *restore* equilibrium to an imbalanced immune system is driving improvements in various allergy-related symptoms throughout the body.

Summary

Current tools used against seasonal allergies all focus on the end result of the complex domino effect that produces the symptoms.

A novel approach that is gaining traction among clinicians and scientists is to intervene much earlier in that process, to restore the normal balance between immune system cells that promote reactions to allergens and those that suppress such reactions.

Yeast fermentate and *Lactobacillus acidophilus* L-92 show promise at restoring the disrupted immune balance.

Studies in humans and animals have shown that this “retraining” of the immune system reduces the effects that produce the allergic symptoms. The result is a reduction in symptoms and duration of seasonal allergies—and, ultimately, an improvement in quality of life. ●

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

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Plant Compounds that *Reduce* Joint Cartilage Loss

Osteoarthritis reduces joint mobility, induces persistent pain, and diminishes quality of life.¹⁻³

Drugs aimed at pain relief are only effective in about half of those who use them.⁴

An alternative has been identified with three **botanical extracts** that do more than mask symptoms: ***They may repair damage caused by the disease.***

Osteoarthritis causes **loss of cartilage** that sets off a vicious cycle of **inflammation**. This contributes to destruction of **joint** cartilage and worsening of the condition.

Compelling data reveals how three **plant extracts** can reduce damage to **cartilage** and **bone** in arthritis-afflicted joints while suppressing pain and **inflammation**.⁴⁻⁶

Research findings suggest that early intervention with these botanical combinations may help prevent cartilage damage,⁴⁻⁶ making them a unique way to beneficially modify joint structure and function.

Powerful Pain Relief

Scientists at Central Michigan University set out to study the effects of **cutch tree** (*Acacia catechu*) and **white mulberry** (*Morus alba*) extracts in people with **osteoarthritis**.⁴

The purpose of their study, published in **2017**, was to determine if **cutch tree/white mulberry** extract can alleviate discomfort and improve function in adults with osteoarthritis of the knee. This is one of the most common sites of disabling osteoarthritis.

The study included 135 adults with osteoarthritis of the knee who were randomly assigned to receive one of three treatments:

1. A **placebo**.
2. **Glucosamine (1,500 mg/day)** and **chondroitin (1,200 mg/day)**.
3. **Cutch tree/white mulberry** herbal extracts (**400 mg/day**).

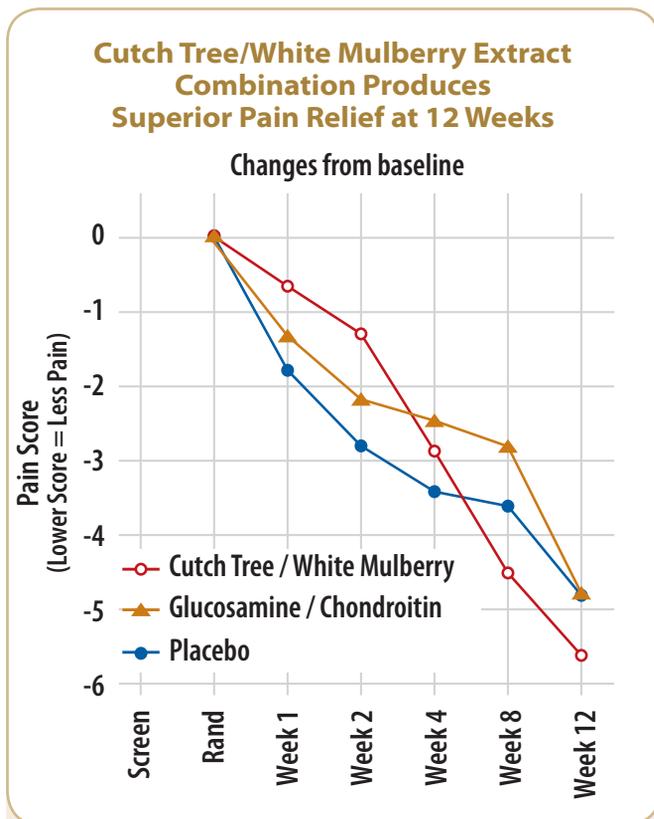


FIGURE 1. All groups experienced significant reductions in knee pain compared with baseline, but the cutch tree/white mulberry extract combination showed significantly greater relief compared with placebo and glucosamine/chondroitin by end of study at Week 12.⁴

All subjects took their assigned capsules for 12 weeks.⁴

Initially, all three treatment plans produced relatively good pain relief, with significant decreases in knee pain over the 12-week period.⁴

But by day 56, subjects taking the **herbal combination** had *significantly greater reduction in pain* compared with placebo or the glucosamine/chondroitin groups (Figure 1 on this page). Overall, the herbal combination group experienced less knee pain and stiffness.⁴

The potential of pain relief is an exciting prospect for anyone suffering from osteoarthritis. But the most exciting finding from this study came from a urine test which indicated that the herbal combination could not only protect against joint damage, but may also be able to *stop the progression of the disease*.

Reducing Osteoarthritis-Induced Joint Damage

To assess the effects of **cutch tree/white mulberry** on joint structure, this same study looked at urinary levels of **C-terminal crosslinking telopeptide (CTX-II)**. This test measures the breakdown product of **collagen** and serves as a useful indirect biomarker of **joint destruction**.⁴

To understand the **CTX-II** marker, it is important to know how osteoarthritic damage degrades joint structure. As cartilage gradually wears down there is a reduction in joint smoothness along with the impact-cushioning that cartilage provides.

In the osteoarthritic process, more **CTX-II** is released as the joint undergoes more damage. Higher levels of **CTX-II** in the urine indicate larger amounts of **joint damage**.⁷⁻⁹

Subjects taking the **cutch tree/white mulberry** extracts showed a significant decrease in their urinary **CTX-II** levels, indicating that the herbal combination was protecting the joint against damage, and could reduce the risk of osteoarthritis progression over time.

In sharp contrast, urinary **CTX-II** levels *rose* sharply in the **placebo** group, and there was little change in the **glucosamine/chondroitin** recipients.⁴

No serious adverse events were reported during the study, and lab tests of metabolic function and toxicity remained normal in all groups.⁴

This study showed that the herbal combination enhanced pain relief, reduced joint stiffness, and, most importantly, contributed to improved joint protection and reduced cartilage breakdown, compared with placebo and glucosamine-chondroitin.

Studies on the individual ingredients give us more insight into how they bring about such dramatic benefits.

Cutch Tree/White Mulberry Reduces Marker of Cartilage Degeneration

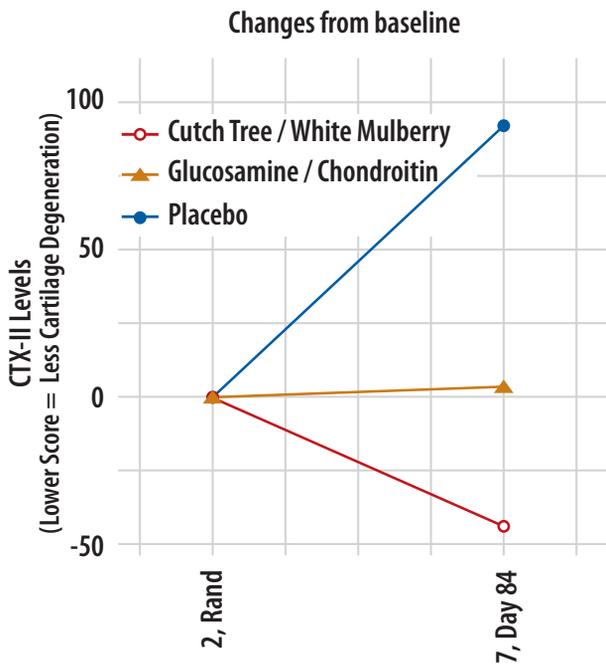


FIGURE 2. There was a statistically significant difference in urinary CTX-II levels between the changes for cutch tree/white mulberry extract combination and placebo after 12-week product use ($P = 0.029$).

Cutch Tree Extracts Cut Inflammation

The **cutch tree** (scientifically, *Acacia catechu*) is a thorny South Asian tree in the same family as beans and other legumes.⁴ The bark and heartwood are rich in **catechin**, a flavonoid molecule that is also found in green tea and has multiple bioactive properties.

One of the most impressive aspects is its **anti-inflammatory** activity. This includes inhibiting major pro-inflammatory signaling molecules such as COX-2, 5-LOX, various interleukins, and tumor necrosis factor-alpha. **Cutch tree** also suppresses the “master inflammatory promoter” complex called **NF-kappaB**.^{4,10}

The FDA has approved the extract as a natural flavoring substance, an indication of its safety and widespread use.⁴

White Mulberry Contributes to Joint Integrity

White mulberry (*Morus alba*) comes from root bark of the tree. It has longstanding status in traditional medical systems for its use against infections, high blood sugar, ulcers, pain, and inflammation.⁴

The root and bark of the mulberry tree is rich in bioactive compounds, particularly flavonoids and stilbenoids, which have been shown to have pain- and inflammation-relieving properties, and help preserve the integrity of joints.^{11,12}

Dual Protection for Joints

While their individual healing properties have been well documented, the *combination* of **cutch tree** and **white mulberry** extracts is relatively new. It is the result of a comprehensive research program that inspected more than **12,000** botanical sources in search of the optimal properties for joint protection.¹³

This dual herbal combination has been extensively evaluated in human, animal, and basic laboratory studies for its ability to fight the inflammation, pain, and, most importantly, joint degradation seen in osteoarthritis.¹³

What You Need to Know

Disease-Modifying Therapy for Osteoarthritis

- Osteoarthritis produces symptoms ranging from mild stiffness and pain to major debilitation, especially in the large joints of the knee and hip.
- No drug or therapy has proven effective at slowing, stopping, or reversing the disease and its progress, and even the best pain relievers are effective only about 50% of the time.
- Extracts from Chinese skullcap, cutch tree and white mulberry have been shown to significantly reduce markers of joint destruction and cartilage degradation in adults with osteoarthritis.
- These extracts provide treatment at the source of the pain, reducing cartilage degradation and preventing bone destruction that could lead to the need for surgical replacement.
- Starting these herbs at the earliest sign of joint pain can provide long-term protective effects against painful, debilitating joint destruction.

The first study described in this article was a **human** study from **2017**.

Additional findings published in early **2017** showed this dual herbal formula was effective in reducing cartilage breakdown in laboratory rats. This study showed:

1. *Reduced breakdown of cartilage.*

Scientists examined the impact of **cutch tree** and **white mulberry** on the breakdown of *proteoglycans*, essential components of the cartilage matrix that cushions and lubricates joints. They found these two plant extracts reduced cartilage breakdown by **31%-54%**, depending on the dose used.⁶ This demonstrated the mixture's cartilage-protecting abilities in the laboratory model, which we've now seen echoed in the **2017 human** study.

2. *Reduced pain sensitivity.*

In a rat model of osteoarthritis, researchers administered the **cutch tree/white mulberry** herbal combination.⁶ Using standard techniques for detecting pain behavior in animals, the researchers found reductions in sensitivity to pain of **17%** in the first week, which rose steadily through week five to a **40%** reduction in sensitivity to pain.⁶

Once again, this echoes the pain relief demonstrated in the human study, with the ability to relieve pain increasing the longer the supplement is used.

3. *Minimized bone damage.*

In addition to this reduction in pain sensitivity, there were significant improvements in joint cartilage integrity. And when the joints were dissected and directly examined by pathologists, bone damage was found

to be minimal in the areas underlying the protective cartilage layer in joints.⁶

Bone damage is what ultimately leads to joint failure and the need for surgical replacement, so this finding got the attention of joint experts and orthopedic surgeons.

The finding of reduced bone and cartilage destruction in arthritis joints represents a *disease-modifying effect* that has never been shown with any of the pain relievers commonly used to treat osteoarthritis, including NSAIDs and opiates. This may represent an advance in the management of arthritis as a potentially *reversible* disorder.

As Effective as Ibuprofen

Finally, another animal study revealed that the herbal combination's pain-relieving properties are strikingly similar to those of another standard pain-reliever: ibuprofen, which is commonly sold in drugstores as Advil®.

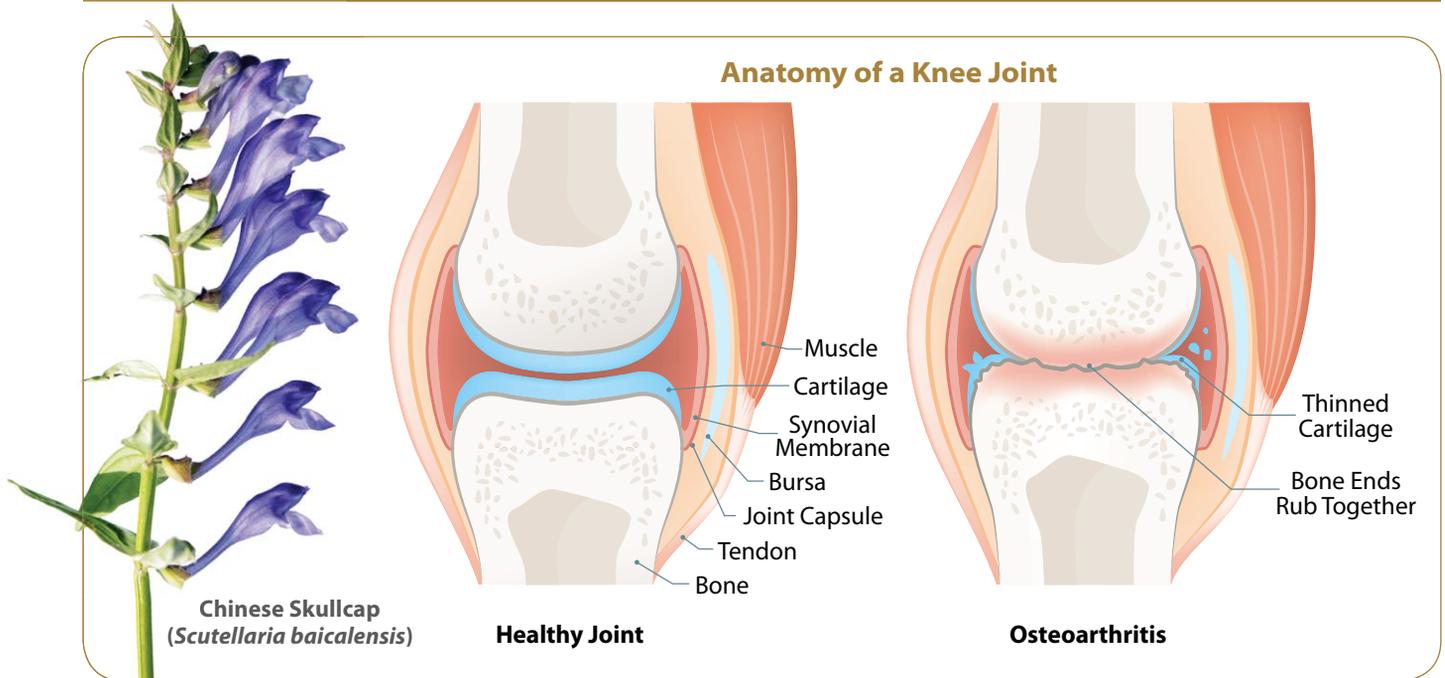
For the study, scientists used a rat model of pain in which a harmless compound (carrageenan) is injected into the paw, inducing temporary pain and swelling. The results of that study confirmed that the **herbal extracts** were superior to no treatment in improving pain and reducing swelling, while the highest doses tested were **similar to ibuprofen** in ability to improve pain and reduce swelling.¹⁴

This study (as well as one other) showed that the **cutch tree/white mulberry** extract combination inhibited the enzymes COX-1, COX-2, and LOX—all of which manufacture pro-inflammatory signaling molecules, demonstrating one important mechanism of action for the supplement combination.^{13,14}



White Mulberry
(*Morus alba*)

Cutch Tree
(*Acacia catechu*)



Additional Support

Chinese skullcap (*Scutellaria baicalensis*) is rich in a compound called **baicalin**, with known anti-inflammatory properties that complement those in **cutch tree**.

Animal and basic lab studies have established that the combination of **Chinese skullcap** and **cutch tree** acts as a dual inhibitor of inflammatory signaling molecule production and activity, and is capable of significantly reducing pain and swelling.^{5,15-19}

One study, conducted by pain-relief experts in Montreal, included 52 subjects (40-75 years old) with osteoarthritis of the knee or hip severe enough to require treatment.²⁰

Subjects were randomly assigned a placebo, **200 mg/day** of **celecoxib**, or one of two doses of the combination **herbal** supplement (**250** or **500 mg/day**). Study subjects were followed-up at 30, 60, and 90 days for pain, stiffness, functional impairment, and physical function using standard measurement scales.

Study results showed that at days 30 and 90, both doses of the dual-action supplement were significantly more effective at **reducing pain** than celecoxib. The higher, **500-mg/day** herbal dose proved superior to celecoxib already at day 30, and was superior to placebo by the 90-day endpoint of the study. By contrast, celecoxib was not significantly more effective than placebo at days 30 or 90.

For **reducing stiffness**, both herbal supplement doses were effective at all time-points compared with baseline measures.²⁰ Similarly, both doses were superior to placebo for stiffness relief at 30 and 90 days, while no changes compared with baseline stiffness were seen in either the placebo or the celecoxib groups.

Functional impairment was significantly reduced in the **500 mg** herb-supplement group compared to celecoxib or placebo at all time-points, with a significant improvement compared with baseline as well, an effect not seen in either the celecoxib or placebo groups.

Finally, scores for physical function were significantly improved compared to baseline for both doses of the herb-supplement combination and for celecoxib at all time-points, while by day 90, the supplement was superior to celecoxib.

Summary

Osteoarthritis brings with it not only pain, soreness, and stiffness, but progressive joint degradation, loss of mobility, and eventually the possibility of a knee or hip replacement.

No current treatments are able to slow or reverse that cartilage breakdown. Pain medications are effective in less than **50%** of osteoarthritis sufferers.

The combination of three healing herbs—**Chinese skullcap**, **cutch tree** and **white mulberry**—has the potential to change the osteoarthritis landscape.

Studies show that each extract provides anti-inflammatory and pain-relieving properties. Together, the herbal combinations have been shown to reduce markers of cartilage degradation and joint destruction.

As with any approach that offers prevention and relief of symptoms, the earlier you start, the better the long-term protective effect.

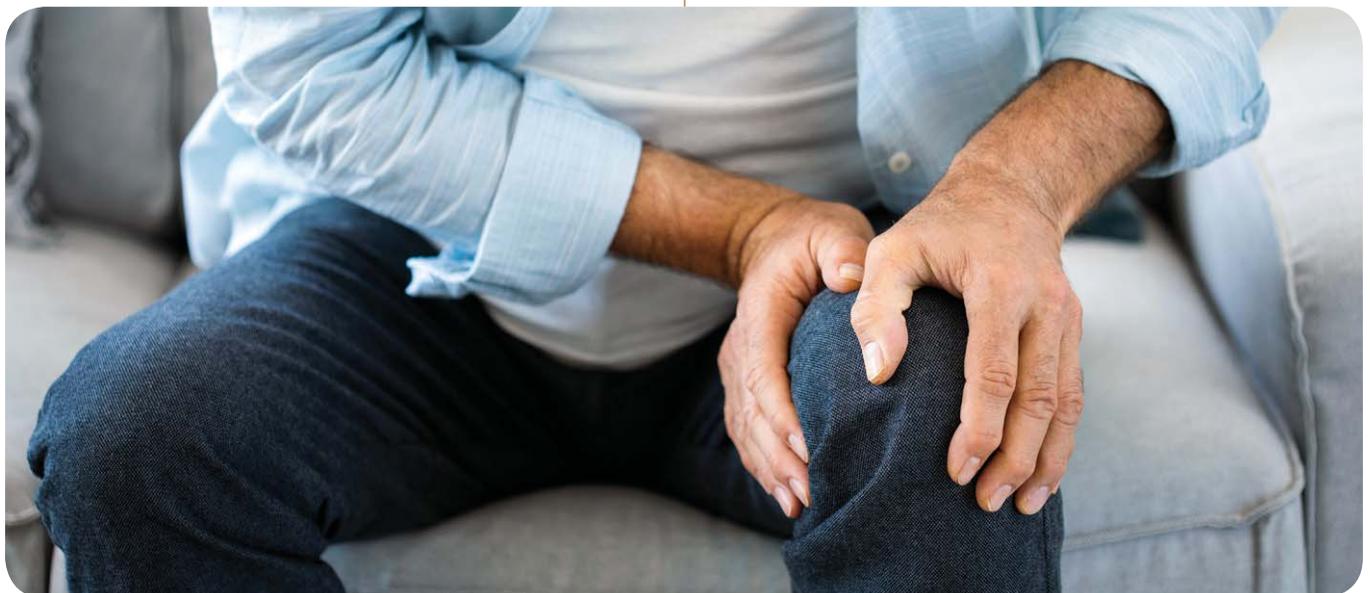
This highlights the importance of not waiting until arthritis pain becomes debilitating. By then the damage has largely been done.

Cartilage degradation can be prevented in vulnerable knee and hip joints. Regular use of these plant extracts may be started as soon as joint stiffness and pain arise—and can potentially ward off years of misery. ●

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

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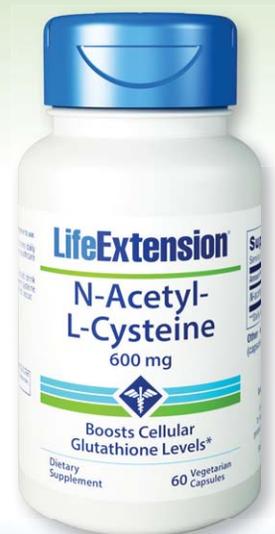


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SLOWS SKIN DETERIORATION

Aging skin is more than a cosmetic issue.

It is a **warning sign** of loss to the skin's *integrity* and *functionality* that can impact our overall health.

Studies published last year show that **astaxanthin**—a carotenoid that gives the vibrant red color to salmon, krill, and shrimp¹⁻³—also helps maintain skin function and structural integrity.^{4,5}

Researchers have identified the ability of astaxanthin to address two different skin concerns:

- **Wrinkles** and loss of moisture from aging skin,⁴ and
- **UV-induced skin damage**, one of the most potent skin-aging accelerators known.⁵

Because of the skin's multiple functions, astaxanthin can play an important supporting role in a nutritional strategy to boost skin health.

New research findings show significant benefit of **oral** astaxanthin in maintaining healthier skin from within.

The Important Function of the Skin

The skin is the body's largest organ, and it has a multitude of important functions.

Our skin acts as an important barrier against infection, it helps maintain the body's hydration and temperature, and it serves as the frontline of immune protection against environmental toxins and microbes.

So while the development of wrinkles and dry, damaged skin may seem to be a cosmetic indication of advancing age, it's really a **warning sign** that this important organ isn't functioning as well as it should be.

When the skin's structure starts to deteriorate, it can compromise our ability to stay properly hydrated as well as the skin's essential barrier function against the external environment.

Astaxanthin has multiple properties that make it a promising candidate for protecting the appearance—and *function*—of the skin.

Astaxanthin Slows Skin Deterioration

A recent study conducted by a research group in Japan showed that astaxanthin can help combat some of the negative effects of two of the main underlying causes of skin aging: UV exposure and air pollution.

Researchers found that treating skin cells in culture with astaxanthin had two skin-protecting actions:

- First, it *suppressed* the production of inflammatory cytokines (signaling molecules) that follows exposure to UV light.⁴
- Second, it reduced the secretion of an *enzyme (MMP-1)*⁴ that increases when skin is exposed to air pollution.⁶ This enzyme breaks down the very structure of skin and contributes to wrinkle formation.^{4,6-9} By reducing MMP-1, astaxanthin may be able to fight wrinkles from multiple causes.⁶

Clinical Trial of Astaxanthin

Based on these encouraging lab results, researchers decided to test astaxanthin's capabilities in a real-world setting. To do so, they gave 65 healthy women either astaxanthin (**6 mg** or **12 mg**) or a placebo every day for 16 weeks.⁴ The results of this human study were published in **2017**.

During this relatively short time, the **placebo** group experienced worsening wrinkles, reduced moisture content, and increases in markers of inflammation in the skin.

In stark contrast, no significant deterioration occurred in the skin of the women taking **astaxanthin**, and they didn't have any increases in inflammatory markers.

This was a *visible* demonstration of astaxanthin's ability to prevent wrinkles and protect skin's important moisture barrier.

What makes these results especially noteworthy is that this study was completed between August and December. These months are when skin deterioration is at its highest in Japan because of shifting factors such as UV light and low humidity.

Astaxanthin's ability to produce impressive results in the face of such major stressors further speaks to its effectiveness.

A Track Record of Success

Previous studies support astaxanthin's anti-aging skin benefits. These studies show that astaxanthin:

- Improves skin wrinkles, skin elasticity, and texture, and boosts skin moisture content while reducing skin water losses.^{10,11}
- Inhibits the underlying processes that produce wrinkles, age spots, and other unsightly pigmented skin areas associated with aging.¹⁰⁻¹³
- Enhances collagen production in skin cells, an action that helps to maintain or restore skin's youthful plumpness and firmness.¹⁴



What You Need to Know

Astaxanthin Promotes Skin Health

- Astaxanthin is a potent oxidative stress-reducing carotenoid molecule that has an impressive reputation for its cancer-fighting abilities.
- Those same properties are showing promise for maintaining skin integrity and function with advancing age.
- New studies show that astaxanthin slows age-related skin deterioration and fights UV-induced damage that can lead to cancer and loss of skin integrity.
- Given its proven body-wide impact, astaxanthin makes a perfect complement to any healthy skin-care routine, and may prove more effective at preventing age-induced skin and systemic problems.

All of these studies make it clear that astaxanthin is not only useful for preventing the visible manifestations of skin aging—but also for protecting some of its critical barrier functions such as water retention.

Additional evidence shows how astaxanthin fights against the damage caused by the most powerful driving force behind skin aging: UV radiation.

Astaxanthin Prevents UV-Induced Skin Damage

Astaxanthin has been shown to help reduce the skin damage and aging caused by UV rays.

Astaxanthin's unique chemical structure makes it a natural *UV-absorber*. It's like a sponge that soaks up that bad stuff so that your skin doesn't have to.

But astaxanthin has other fundamental properties that help reduce the impact of harmful UV rays—and another **2017** study from Japan reveals some details of those actions.⁵



In mice not given astaxanthin, chronic exposure to UV light increased water loss across the skin barrier and accelerated the formation of visible wrinkles.

A closer look on the molecular level revealed that in the top layer of skin (the epidermis), there were increased expressions of *enzymes* that cause skin cells to break down and enhance water loss. And in the bottom layer of skin (the dermis), there were increases in the harmful **MMP-1** enzyme, which could contribute to loss of skin tone and elasticity.⁵

The results were much different in the mice given **astaxanthin**.

In these mice, astaxanthin helped to prevent the UV-induced photoaging and water loss, while suppressing the harmful molecular responses to radiation.⁵ In addition, this study showed that the supplemental astaxanthin reached not only into the dermis, but also made its way into the difficult-to-reach outer layer of the skin, the epidermis.

Taken together, these data show that supplemental astaxanthin is well-absorbed, reaches all skin layers in meaningful amounts, and prevents the effects of UV radiation on the mechanisms that lead to skin structure and moisture losses.⁵

Additional Protection Against UV Damage

Previous studies have shown additional ways that astaxanthin helps protect the skin against UV damage. For example:

- Astaxanthin *prevents* the UV-induced loss of **glutathione**, while *restoring* normal levels of **superoxide dismutase (SOD)**.¹⁵ These are two of the body's natural defenders that help protect against the kind of oxidative stress caused by UV rays.
- Astaxanthin fights the UV-induced increases in numerous types of enzymes that damage the skin and contribute to wrinkles.^{4,16}
- Astaxanthin slows or reduces the UV-induced expression of pro-inflammatory cytokines that contribute to losses of skin integrity.^{13,16}

Summary

Astaxanthin is best known for its cancer-fighting abilities. Now those same properties are showing promise for maintaining skin integrity and function with advancing age.

Recent studies have shown that astaxanthin helps fight the age-induced deterioration of the skin, and reduces the impact of lifelong exposure to UV radiation.

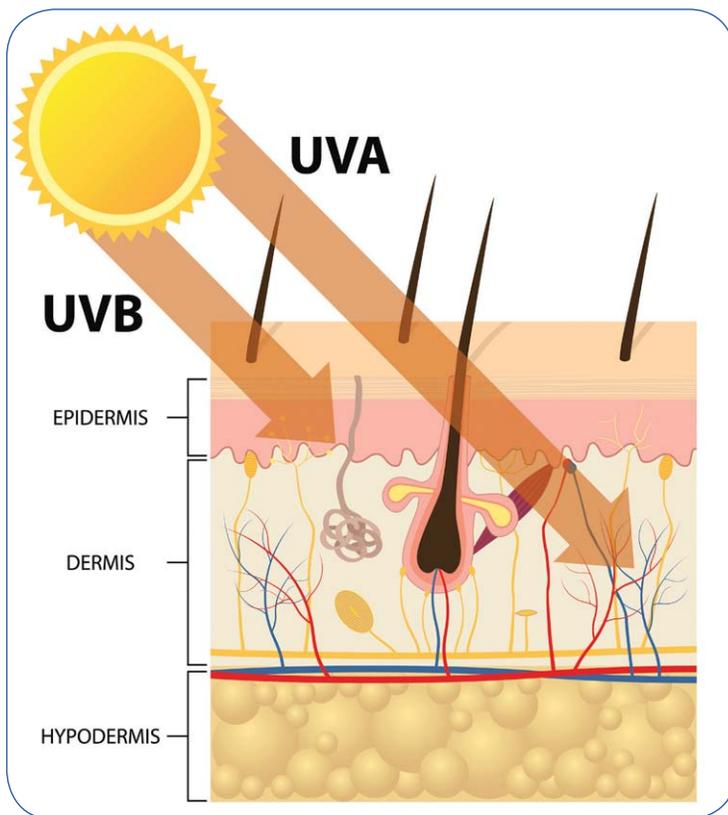
As a result, it has been shown to help maintain skin's youthful appearance—as well as its important barrier functions.

By improving the *function* of the skin, there also has been shown an improvement in the *appearance* of skin—an appealing two-for-one benefit. ●

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

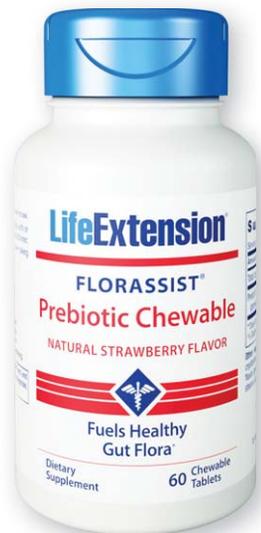
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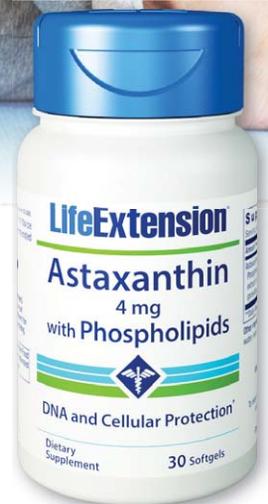
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Lycopene

New Cancer Prevention Studies

BY CECIL BRENTON

Evidence published over **30 years** ago indicated that people who consumed higher amounts of dietary **lycopene** had **lower** site-specific cancer rates.¹⁻⁴

In the past year, an impressive number of studies have been published about how **lycopene** can slow or impede cancer progression.

These new publications point to a variety of roles for lycopene in colorectal, skin, and ovarian cancers, while also shedding new light on its underlying benefits.⁵⁻⁸

These studies show that lycopene directly affects steps involved in cancer development and growth—while also helping prevent tumors from metastasizing.

Cancer remains the second leading cause of death among Americans, affecting more than **21 million** (nearly **9%**) of us at any given time.⁹ That makes chemoprevention with plant extracts like lycopene a necessity for anyone wanting to beat the odds.

Life Extension[®] was the first to introduce the **anticancer** properties of **lycopene** in **1985**. Since then, it has become a popular ingredient in dietary supplements.

Lycopene Fights a Variety of Cancers

Cancer cells share certain properties that make them different from cells in healthy tissue.

For example, cancer cells lose the ability to control normal replication.

Unlike normal cells, most cancer cells continue to replicate out of control even when they encounter normal cells.

Cancer cells are also capable of squeezing through adjoining tissue to cause local invasion or distant metastases.

Lycopene, a carotenoid molecule found in tomatoes, works at all **three** of those cellular and molecular levels, making it a potential weapon against a wide variety of cancers.

Colorectal Cancer

A **2017** review of the literature on lycopene and colorectal cancer showed that lycopene has specific effects on two key aspects of cancer development:⁵

- 1. Proliferation** – the rapid and uncontrolled growth of cells that follows a cancer-inducing mutation, and
- 2. Progression** – the events that must occur to keep a growing ball of malignant cells supplied with blood, and that permit the tumor mass to invade local tissues or to break away and spread to distant parts of the body.

Lycopene's beneficial effects arise in part from its ability to interact with **signaling pathways** that modulate cell growth, replication, and death.⁵

For example, lycopene has the ability to influence the levels of a pro-cancer signal called **insulin-like growth factor-1** (IGF-1).¹⁰ A **human study** showed that **30 mg** of lycopene daily reduced IGF-1 levels by **25%** compared to baseline.¹⁰

In a large case-controlled study that evaluated more than 1,000 individuals, researchers found that people with higher **lycopene** levels had lower risks of developing **colon malignancies**.⁸

Specifically, those with lycopene levels in the highest quarter had a **64% lower** risk of colorectal cancer compared with those in the lowest quarter.

This kind of large, well-designed study adds strength to the evidence for lycopene's role in protecting against colon and rectal cancer.

Ovarian Cancer

Ovarian cancer is a prevalent malignancy of the female reproductive tract.¹¹ Lycopene has been shown to help protect against this deadly cancer, including reducing the growth and spread of tumors.

Researchers in Australia evaluated the impact of lycopene supplementation in mice that were implanted with human ovarian cancer cells.⁷ They found that

lycopene significantly reduced the size and number of tumors in the mice, while also significantly impeding the tumor from spreading. Metastatic cancers are usually fatal, so any therapy that lowers the risk of spreading is a great asset in the fight against cancer mortality.⁷

In addition, lycopene treatment significantly reduced the number of **proliferating** (rapidly growing) cancer cells, thereby slowing the growth of the tumor itself. It also decreased the expression of proteins used in the growth of the cancer cells and in tissue invasion—an important action that further weakens a cancer's ability to force its way into surrounding tissues and to generate deadly metastases.⁷

Finally, when researchers gave tumor-bearing mice lycopene in addition to two common chemotherapy drugs (paclitaxel and carboplatin), the lycopene synergistically **enhanced** the drugs' antitumor effects. This raised the possibility that such therapy might allow for lower doses of the toxic chemotherapy drugs required to achieve a successful remission.⁷

Studies like this demonstrate the potential for thoughtful nutrient supplementation to help overcome this deadly threat to women.





Skin Cancer

Ultraviolet (UV) light-induced skin cancers may yield to the chemopreventive properties of lycopene.⁶

To test this, researchers grew skin cells called *keratinocytes* in culture and then exposed them to UV radiation at levels known to induce cancerous mutations.⁶ As expected, UV-exposed cells began a phase of *hyperproliferation*, meaning they reproduced rapidly while losing their ability to self-destruct (called apoptosis).

But treating the cells with lycopene prior to UV exposure significantly reduced those cancerous changes. That's because lycopene helped reorient the cells' nuclei to more natural rates of replication, while restoring their ability to die off by apoptosis.⁶

This study adds credibility to the emerging idea that one can provide significant skin cancer protection from within—and further suggests the wisdom of regular lycopene supplementation as a means of protecting one's entire body from malignant changes.

In fact, in addition to the types of cancer already mentioned, some previous studies have shown preventive effects of lycopene against prostate and breast cancer, further evidencing the full-body potential of lycopene as a chemopreventive agent.^{10,12-18}

Summary

Lycopene has demonstrated direct effects on the steps involved in tumor development and growth—especially invasion and metastasis.

Evidence published over 30 years ago indicated that people who consumed higher amounts of lycopene from food had lower specific-site cancer rates.¹⁻⁴

In recently published studies, lycopene has been found to combat a variety of cancers, including colorectal, ovarian, and skin cancers.

Lycopene may even enhance the effect of chemotherapy drugs, potentially reducing the dose necessary to achieve a successful remission.

Based on its varied beneficial effects on factors involved in malignant transformations, the evidence for lycopene's anticancer properties continues to expand. ●

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

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NICOTINAMIDE RIBOSIDE

Sharpens Cognition and Reduces Alzheimer's Risk

Neuroscientists at the **Johns Hopkins University School of Medicine** teamed up with researchers at the **National Institute on Aging** to identify core mechanisms that contribute to Alzheimer's disease development.

Their findings, just published in the *Proceedings of the National Academy of Science*, show that supplementation with the **NAD⁺** precursor **nicotinamide riboside** improved **cognitive function** in a mouse model closely resembling **Alzheimer's**.¹

Nicotinamide riboside achieved these impressive results by *restoring* brain **plasticity**. This is how neurons learn and store memory.¹

The mechanisms revealed by this study break new ground in understanding relationships between cell energy utilization and DNA repair mechanisms.

Boosting **NAD⁺** was shown to beneficially alter some of the pathological processes that contribute to brain-cell death in Alzheimer's disease.

The new data demonstrate how an oral supplement proven to increase **NAD⁺** can protect brain structure and function against the scourges of Alzheimer's.

Normalizing Alzheimer's Brain Features

To launch this study, Johns Hopkins researchers first developed a new model of Alzheimer's disease in mice.¹

The mice were genetically modified in ways that impaired their brain cells' ability to **repair DNA**, leaving the cells susceptible to developing a toxic form of protein (**pTau**).¹

PTau accumulation produces dysfunctional "tangles" of cell fragments. This caused the animals to exhibit the major features of Alzheimer's as seen in humans. These pathologies include dysfunction of nerve cell synaptic connections, brain-cell death, and cognitive impairment.^{1,4}

The scientists were exploring the ways that the DNA repair mechanisms in the mice became disabled as a first step in finding a way to overcome the deficit.

They found that the Alzheimer's mice had reduced amounts of **NAD⁺** in their brains.¹

Critical Roles of NAD⁺

NAD⁺ is a coenzyme critical for multiple cellular processes, including mitochondrial health, stem cell self-renewal, and brain-cell stress resistance.^{1,5}

NAD⁺ is required for cells to obtain energy from food, and **NAD⁺** depletion has been observed in aging brains.^{1,6}

As **NAD⁺** levels decline, brain cells lose a critical **DNA repair** function that appears to inflict **Alzheimer's**-like pathologies.¹

These findings provide new insight into how Alzheimer's damages brain cells and how **DNA repair** can be facilitated.

The Latest Discovery

This new study helps confirm that the energy crisis and DNA repair deficits that characterize **brain aging** can be resolved by supplementing mice with **nicotinamide riboside**, a precursor compound that the body rapidly turns into **NAD⁺**.¹

Not only did the supplement quickly restore **NAD⁺** levels in the Alzheimer's animals' brains, it also significantly improved their performance on a wide battery of learning and memory tasks.¹

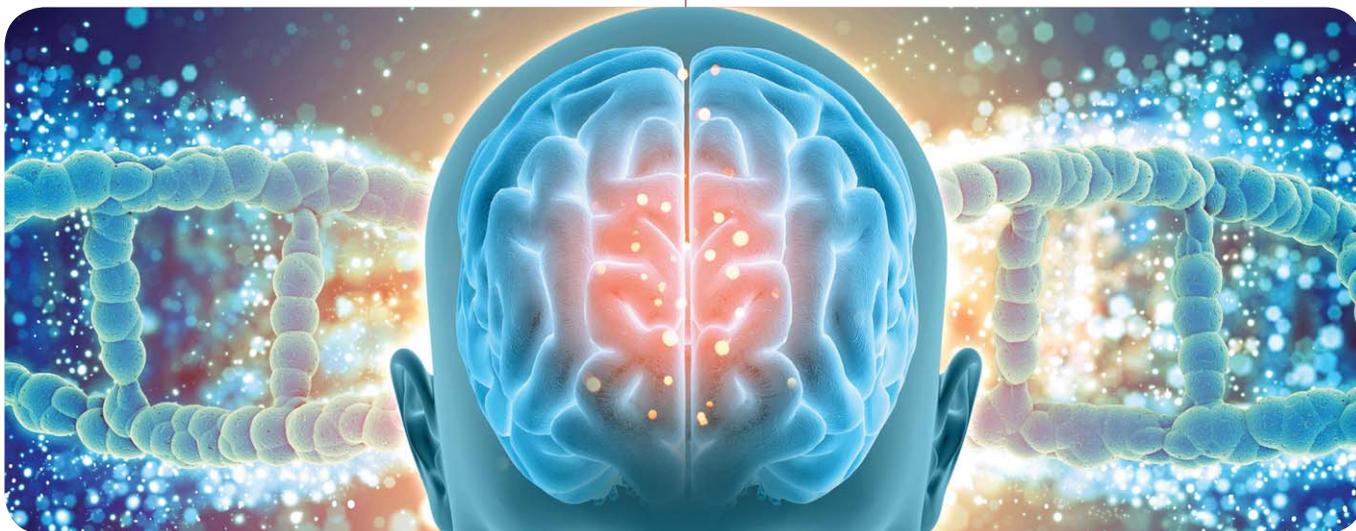
While unsupplemented Alzheimer's-like mice showed a host of learning and memory deficits, especially in spatial tasks, supplemented mice quickly overcame those deficits, returning to correct locations, identifying new ones, recognizing objects, and finding their way through mazes with as much ease as normal, healthy mice.¹

Like human Alzheimer's patients, the unsupplemented Alzheimer's mice had gait problems and poor grip strength, but supplementation with nicotinamide riboside ameliorated those difficulties, while also decreasing anxiety-like behaviors similar to those in human subjects.¹

Examination of the animals' brains revealed that boosting **NAD⁺** restored **neuronal plasticity** to cells in the brain's main memory bank, the hippocampus.¹

Plasticity is the physical cellular event that underlies learning—brain cells must be capable of rapidly changing the number and strength of their connections in order to properly store, retrieve, and augment memories.⁷

Loss of plasticity is a feature of aging and contributes to the observed memory impediments we face as we age, while restoration of plasticity means that we can continue to use our memories in a youthful fashion.¹





How it Works

NAD⁺ has multiple targets and acts by multiple mechanisms to achieve its effects. This is distinctly different from pharmaceuticals, which are usually designed for a single or at most a few narrow targets.

Here are the specific findings that suggest how boosting **NAD⁺** improved functioning in brain cells of Alzheimer's mice in this study, backed up by existing research:¹

- **NAD⁺** decreases brain-cell DNA damage and premature cellular death by activating powerful **sirtuins**, which have multiple anti-aging functions, including promoting DNA repair. Sirtuins consume **NAD⁺**, while nicotinamide riboside supplementation restored cellular **NAD⁺** levels, permitting the repair mechanisms to operate uninhibited.
- **NAD⁺** increased new brain-cell formation crucial to learning and memory, while reducing inflammatory changes that accompany (and probably contribute to) Alzheimer's disease.
- **NAD⁺** decreased formation and accumulation of neurotoxic **pTau** proteins, which are associated with neuronal dysfunction in Alzheimer's and other neurodegenerative diseases.
- **NAD⁺** relieves mitochondrial stresses associated with reduced DNA damage repair, permitting those energy-generating organelles to perform at more youthful levels.

What You Need to Know

Protect Brain Function by Increasing Cellular **NAD⁺**

- New findings in mice show that increasing **NAD⁺** can restore learning, memory, and cognitive functions by boosting cellular energy capabilities and protecting DNA repair mechanisms.
- Mice treated with **NAD⁺** precursors perform better on an entire battery of cognitive tests, and show sharply reduced levels of brain cell-destroying **pTau** proteins.
- Earlier studies have already shown that **NAD⁺** precursors exert powerful epigenetic mechanisms that fundamentally change the expression of genes involved in Alzheimer's disease.

Previous studies have identified still other ways that boosting **NAD⁺** supports brain health and defeats the impacts of aging.

Research shows that **NAD⁺** also sensitizes cells to insulin,⁸ reducing the impact of type II diabetes, which itself is associated with cognitive decline.⁹

In another mouse model of Alzheimer's disease, boosting **NAD⁺** raised levels of the regulatory complex **PGC-1-alpha**. Low levels of PGC-1-alpha have been associated with increased *beta-amyloid* deposition.¹⁰

In addition, boosting **NAD⁺** was shown to protect cells against **excitotoxicity**, a process in which nerve cells become damaged by overstimulation—a known contributor to many neurodegenerative diseases.¹¹

This effect has proven useful in a study of noise-induced hearing loss, in which mice treated with an oral **NAD⁺** precursor had less hearing loss and more intact nerve cells in their cochlea (where sound waves are converted into brain signals that produce hearing).¹²

Summary

Mainstream medicine is making little progress against Alzheimer's disease, the most common cause of dementia among older Americans.

Encouraging new findings about **NAD⁺**, however, offer new hope for **prevention** of Alzheimer's, highlighting the **NAD⁺ precursor's** multitargeted actions.

This latest study shows that **NAD⁺** restoration improves cognitive function of mice with early Alzheimer's.

Boosting **NAD⁺** enables a wide range of cellular events, including improved **DNA repair** and a reduction in toxic **pTau** proteins.

A number of previous studies document the effectiveness of boosting **NAD⁺** in protecting brain functions and improving cognition. ●

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

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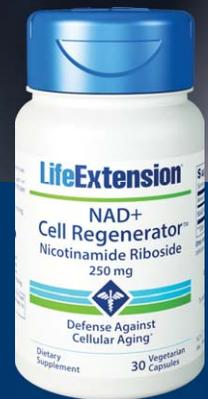
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BY BEN BEST



Recent KETOGENIC THERAPY Conferences

Carbohydrates and **proteins** are greatly reduced in a ketogenic diet, which requires the primary source of food energy to be **fat** and **ketones** derived from fat.

Carbohydrates are sugary foods or starchy foods such as bread, rice, or potatoes, which convert to blood glucose when digested.

For most of human history prior to the advent of agriculture, humans typically relied on fats and ketones rather than carbohydrates as a primary dietary energy source. Any excess energy (calories) ingested from food was converted into body fat.

Frequent food shortages, famine, and starvation resulted in stored body fat (and ketones from fat) being mobilized to meet cellular energy needs.

Agriculture made food availability more reliable, but agriculture resulted in grains (a form of carbohydrates) becoming the primary food source. Within the last century, carbohydrate consumption in the form of simple sugar has also skyrocketed.

In the 1920s, it was discovered that a ketogenic diet (low in carbohydrates and protein) could be used to treat epilepsy. But with the discovery of anti-epileptic drugs in the late 1930s, this form of epilepsy treatment became rare.

In the early 1990s, Charlie Abrahams, the young son of writer/director Jim Abrahams (best known for the film *Airplane!*) developed severe epilepsy. The boy was experiencing up to 100 seizures every day. Charlie received no benefit from surgery or drugs (from which he suffered unpleasant side effects). Against the advice of five expert pediatric neurologists, Abrahams started Charlie on a **ketogenic diet**. Charlie's seizures stopped within days.

To make the benefits of the ketogenic diet more widely known, Abrahams made the movie ... *First do no Harm*, starring Meryl Streep. The film portrayed an epileptic boy who, like Charlie, suffered from seizures and ineffective drug treatments. Abrahams also founded The Charlie Foundation (www.charliefoundation.org) to promote the ketogenic diet for epilepsy.

Since the 1990s, many scientists and physicians who are unafraid to challenge conventional medicine, along with a passionate community of self-experimenters, have discovered that a ketogenic diet can be used to treat obesity, diabetes, brain trauma, cancer, Alzheimer's disease, Parkinson's disease, autism, and many other conditions. The diet has become even more prominent than the Paleo diet, and conferences on the subject have become quite popular.

The following report is based on presentations I have heard at several ketogenic conferences in the past year.

Epilepsy Treatment

Beth Zupec-Kania, RDN, is a former dietitian and nutritionist for The Charlie Foundation. Since the 1990s, she has been helping patients and their families to overcome challenges in implementing a ketogenic diet.



A ketogenic diet derives **80%-90%** of calories from fat,¹ which can be very unpalatable for many people. The diet is deficient in many vitamins and minerals, so supplements are required.² Calcium and vitamin D are particularly important supplements,³ as well as vitamin B6 and magnesium.⁴ Oral citrate (potassium citrate) has been shown to reduce the risk of kidney stones on a ketogenic diet from **6.7%** to **0.9%**.⁵

L-carnitine is required for long-chain fatty acids to enter mitochondria. In some cases, a high-fat diet can deplete L-carnitine to the extent that high-plasma fats become a serious problem.⁶ Ms. Zupec-Kania recommends L-carnitine supplementation when this problem arises, but not otherwise.

Ms. Zupec-Kania cautions against the temptation to use artificial sweeteners in a ketogenic diet, because they have been shown to induce glucose intolerance by altering the microorganisms in the gut.⁷

Cancer Treatment

Dr. Thomas Seyfried (professor at Boston College, Chestnut Hill, Massachusetts) does not accept the prevailing view that cancer is caused by DNA mutations in the cell nucleus.⁸ Instead, Dr. Seyfried believes that cancer is due to defects in the energy-producing mitochondria of cells, and that DNA mutations in the nucleus are a consequence of the defects in mitochondria.⁹



Defects in mitochondria could be due either to damaged mitochondrial DNA^{10,11} or due to damaged mitochondrial membrane components.¹²

Dr. Seyfried points to the fact that nearly all cancer cells are dependent on high rates of **glucose utilization**, regardless of the organ or tissue in which it originates.⁹

Although it is well-known that cancer tissue is heavily infiltrated by macrophages of the immune system, Dr. Seyfried believes that macrophage infiltration of cancerous tumors is not merely a symptom, but is the means by which cancers metastasize to different organs and tissues.¹³

Whether or not Dr. Seyfried is correct in his theories of the origin and spread of cancer, there is consider-

able evidence that a **ketogenic diet** can inhibit cancer growth. Ketones can inhibit cancer-cell growth even when glucose levels are high, prolonging by more than half the survival of mice with metastatic cancer.¹⁴ A ketogenic diet has been shown to improve survival in research animals with cancer of the colon, prostate, and brain.¹⁵

Ketone Versus Insulin Actions

Dr. Benjamin Bikman (associate professor, Brigham Young University, Provo, Utah) contrasts the effects of ketones and insulin.

Dr. Bikman is most interested in the effects of ketones and insulin on the energy-producing organelles in cells: the **mitochondria**. A diet high in carbohydrates increases **insulin** levels in the bloodstream to increase glucose absorption into cells. But mitochondrial function is disrupted by the high levels of insulin.¹⁶ Liver cells exposed to high levels of insulin have smaller mitochondria and reduced mitochondrial energy production.¹⁷



Impaired insulin action (**insulin resistance**, frequently seen in obesity and type II diabetes) results in an increased production of free radicals by mitochondria, which further increases insulin resistance (a vicious cycle).¹⁸ Obese persons have smaller mitochondria in their skeletal muscles, resulting in impaired muscle energy.¹⁹





Ketones, by contrast, protect mitochondria.²⁰ Rats put on a ketogenic diet double the amount of the antioxidant chemical glutathione, which protects mitochondria from free-radical damage.²¹

The mitochondria in the hippocampal area of the brain are significantly increased in rats fed a calorie-restricted ketogenic diet.²² Feeding ketones to mice substantially increases the number of mitochondria and insulin sensitivity.²³

Alzheimer's Disease Treatment

Dr. Mary Newport (neonatologist, St. Petersburg, Florida) specializes in medical care for newborn infants. She became interested in Alzheimer's disease when her husband developed it in his early 50s.



Newport

When Dr. Newport gave her husband nutritional products that are readily converted to **ketones**, first coconut oil, and later MCTs (medium chain triglycerides), her husband's behavior and performance on cognitive tests increased substantially.²⁴

She found that the MCT oil gave higher levels of ketones, but the coconut oil had a more lasting ketogenic effect.

Dr. Newport created a website (www.coconutketones.com) and wrote the book *Alzheimer's Disease: What if There was a Cure* to document her experience and to promote the use of ketones for Alzheimer's disease victims.

Neurons in areas of the brain associated with Alzheimer's disease require insulin to absorb glucose, and those areas show increased markers of Alzheimer's disease (beta-amyloid and tau) when the areas become **insulin resistant**.²⁵ Neurons deprived of energy from glucose due to insulin resistance could be a cause of Alzheimer's disease.

Alzheimer's disease victims frequently develop a strong craving for sweets, which may be a symptom of their brains' inadequate supply of glucose due to brain-cell insulin resistance.²⁶ Ketones can provide glucose-deprived neurons with a source of energy, thereby allowing the neurons to function and survive. Administering ketones to brain slices, or in mouse models of disease, has been shown to reduce telltale signs of Alzheimer's disease²⁷ and Parkinson's disease.²⁸ Ketones also increase blood flow to the brain.²⁹

In a study of human adults with mild cognitive impairment, randomized to low or high carbohydrate diet, the low carbohydrate group showed memory improvement that was associated with elevated blood ketones.³⁰ In a similar study, MCTs improved memory in cognitively impaired humans.³¹

Clinical trials of a ketogenic diet for Alzheimer's disease have been difficult to arrange, more so because most clinical trials are sponsored by drug companies. Nevertheless, there is much scientific evidence that the dietary ketones Dr. Newport administered to her husband would produce the improvements she observed.

Diabetes Treatment

Dr. Eric Westman (associate professor of medicine, Duke University, Durham, North Carolina) has co-founded Heal Clinics (www.healclinics.com) to treat diabetes, obesity, and metabolic syndrome through a ketogenic diet.



Westman

Dr. Westman conducted a clinical trial in which type II diabetics were randomized to either a ketogenic diet or a low-calorie diet. Those on the ketogenic diet had greater reduction in glycated hemoglobin (**-1.5%** versus **-0.5%**), and greater reduction or elimination of diabetic drugs (**95.2%** versus **62%**).³²

Comparisons of a low-carbohydrate diet with a low-fat diet have shown that a low-carbohydrate diet is much more effective in reducing insulin resistance and other markers of metabolic syndrome,³³ and more strongly reduced inflammatory factors.³⁴

Dr. Westman has co-authored a review paper arguing that diabetics can best control blood glucose with a low-carbohydrate diet, whether or not protein is also reduced.³⁵ The paper also argued that although plasma-saturated fatty acids do not correlate with cardiovascular disease, dietary carbohydrates elevate plasma fats more than dietary fats do.³⁵

Nervous System Injury Treatment

Dr. Wolfram Tetzlaff (professor, University of British Columbia, Vancouver, Canada) has studied the effect of a ketogenic diet on central nervous-system injuries in rats.

Young (35-day-old) rats given a ketogenic diet for seven days after traumatic brain injury showed significant improvement in cognitive function and movement ability, but 75-day-old rats did not.³⁶ The reason for the difference is believed to be greater transport of ketones into the brain of young rats compared to old rats.³⁷



The antioxidant effects of ketones are believed to be strong in the early stages of injury, whereas the ability of ketones to substitute for glucose as an energy source is believed to be their main benefit later.³⁸ Dr. Tetzlaff has shown that rats fed a ketogenic diet for 14 weeks following spinal-cord injury show better function and reduced spinal-cord damage.³⁹

The brain's ability to use glucose is impaired after traumatic brain injury, and the longer the brain is deprived of energy, the greater the impairment of cognitive function.⁴⁰ Direct application of ketones to rat neurons has been shown to reduce free-radical damage.²⁰

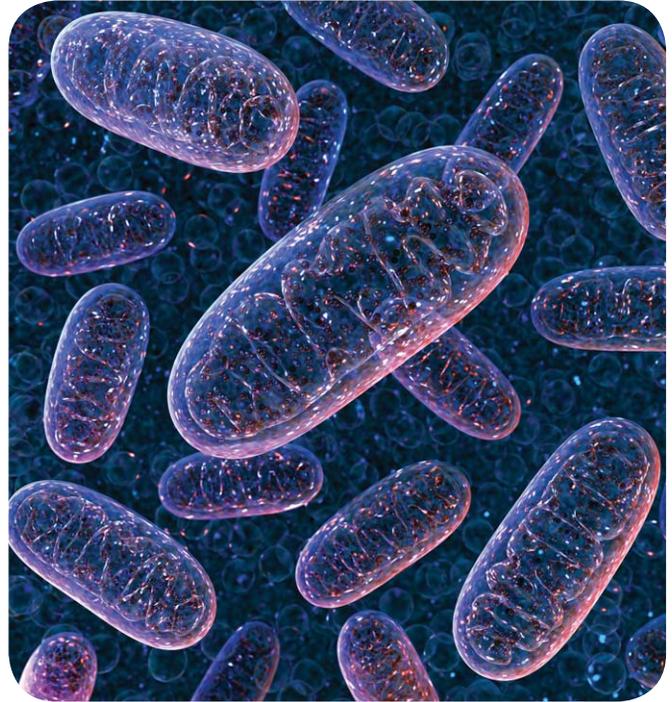
Why a Ketogenic Diet can Prevent Epilepsy

Dr. Susan Masino (professor of applied science, Trinity College, Hartford, Connecticut) is one of many researchers trying to understand why a ketogenic diet can prevent epilepsy.



A clinical trial found that less than half of epileptics had a greater than **50%** reduction of seizures on a ketogenic diet, and **7%** had at least a **90%** reduction of seizures.⁴¹ But it has not been possible to predict which epileptic patients will or will not experience seizure reduction on a ketogenic diet.⁴² If the biological mechanism of the ketogenic diet against epilepsy were understood, it might be possible to achieve the same effect with a drug.⁴³

Low levels of glucose in the brain (hypoglycemia) not compensated by ketones as an energy source results in seizure.⁴⁴ A ketogenic diet not only provides the brain with ketones for energy, but increases energy-producing mitochondria, and reduces free-radical production by mitochondria.⁴⁵ Dr. Masino has shown that a ketogenic diet reduces seizures through an increase in the energy-



producing molecule **ATP**, and an associated increase in the sedative chemical **adenosine**, derived from ATP⁴⁶ and through increased adenosine receptor activity.⁴⁷

Dr. Masino has noted that inflammation is frequently seen in epilepsy.⁴⁸ She has also studied the beneficial effects of a ketogenic diet in animal models of autism.⁴⁹ Epilepsy is common in children with autism.⁴⁹

Ketones for Athletics

Dr. Jeff Volek, RD (professor, Ohio State University, Columbus, Ohio) has challenged the idea that athletes should depend upon or load-up on carbohydrates prior to or during a competition.⁵⁰



The amount of energy that even a thin person has stored as fat is tens of times greater than the amount of energy they have stored as carbohydrate (**glycogen**).⁵⁰ Athletes frequently complain of "hitting the wall" (sudden fatigue) when their glycogen supply has been depleted. Dr. Volek has argued that there will be vastly more energy available if an athlete is adapted to using fat and ketones, rather than carbohydrate for energy.

Use of carbohydrate for energy depends on the **PDH** (pyruvate dehydrogenase) enzyme complex, whereas use of fat for energy depends on the enzyme **PDK** (pyruvate dehydrogenase kinase), which inhibits PDH.⁵¹ Six days of a high-fat/low-carbohydrate diet increases PDK activity five-fold.⁵¹ Full adaptation to

fat and ketone use for energy can require weeks.⁵⁰ Dr. Volek has shown that keto-adapted elite athletes more than double their rate of fat oxidation without a greater depletion of glycogen.⁵²

Critics of Dr. Volek's views point to evidence that athletic performance is only optimized by carbohydrates due to better oxidation economy by carbohydrates.^{53,54} A small New Zealand study of keto-adapted athletes showed that, despite a reduction in performance, the athletes experienced faster recovery, reduced inflammation, and other health benefits which caused the athletes to continue the high-fat/low-carbohydrate diet.⁵⁵

Concluding Remarks

It is a common misconception that eating fat necessarily makes a person fat. Sugar and other carbohydrates cause fatness much more than dietary fat.

Insulin is the ultimate cause of fatness. Carbohydrates raise insulin, which causes glucose and fat to be stored as fat. Dietary fat does not raise blood insulin. Careful examination of scientific reports inducing obesity by a "high-fat diet" typically show a diet high in both fat *and* carbohydrate.

In some persons (especially the obese), intestinal microorganisms cause a high-fat diet to induce chronic inflammation by causing a "leaky gut." But the class of polyphenols known as proanthocyanidins (found in grapes and other foods),⁵⁶ orange juice components,⁵⁷ and omega-3 fatty acids (found in fish oil)⁵⁸ can prevent this inflammation.

Several days or weeks may be required for the body to adapt to using fat and ketones for energy rather than glucose. This period of adaptation can initially involve tiredness and headaches (the "keto flu"). The glucose-insulin roller-coaster of carbohydrate addiction has withdrawal symptoms. It takes time to increase the PDK enzymes and decrease PDH enzymes. Fasting can assist with adaptation.

Ketone is a more efficient fuel than glucose, producing more energy, fewer free radicals, and less inflammation.⁵⁹ Ketone supplementation has been shown to extend the lifespan of nematode worms.⁶⁰ Long-lived mice are more adapted to using fat for energy rather than carbohydrates.⁶¹

The classic ketogenic diet to treat epilepsy is typically **80%-90%** fat, the rest being protein and carbohydrate.⁶² Many people find this diet unpalatable, although a web search for "ketogenic diet recipes" will reveal many strategies for making the diet appealing.

A ketogenic diet can also be made more palatable by using medium-chain triglycerides (MCTs, found in coconut oil) as a source of fat. MCTs can be as effective in controlling epilepsy as the long-chain triglycerides in

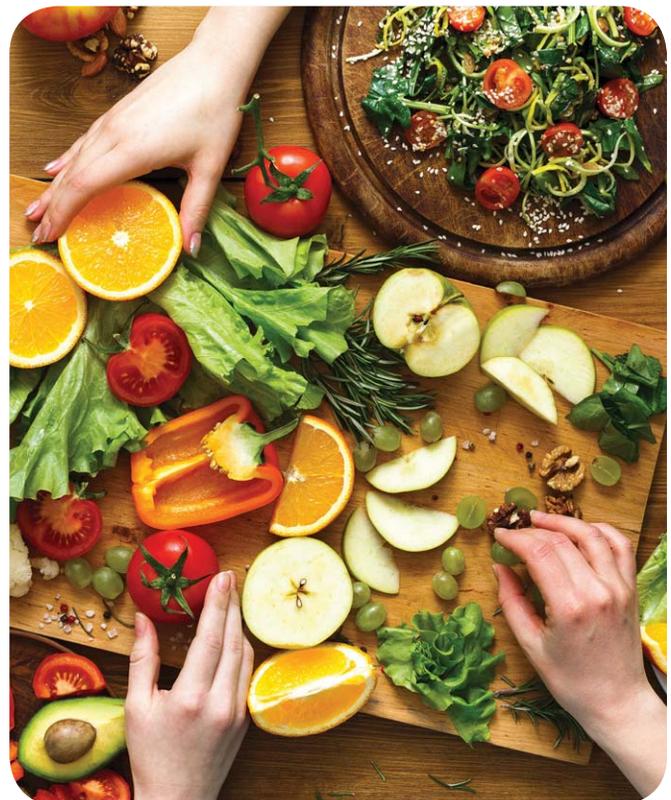
common saturated fats.⁶³ The ten-carbon chain-length MCT is the most effective.⁶⁴

MCTs are rapidly metabolized, are not stored as fat, enter mitochondria without needing L-carnitine, and are more satiating than other forms of saturated fat.⁶⁵ MCTs have been used to assist weight loss.⁶⁵ Unlike long-chain fatty acids, MCTs do not become "ectopic fat" that can cause insulin resistance and inflammation.⁶⁷ MCTs should not be used as cooking oil due to degradation at high temperature.⁶⁶

The Atkins diet, which only restricts carbohydrates without any restriction in the amount of dietary protein or fat, is much more palatable, and can be as effective as the classic ketogenic diet for some epilepsy victims.⁶⁷

Moreover, a 2007 study of four popular weight-loss diets showed that the Atkins diet was more effective than the other three diets.⁶⁸ Contrary to what is commonly believed, dietary protein does not result in much glucose production.⁶⁹

Direct consumption of ketones may be beneficial in some cases. A web search for "ketone supplements" will show there are many products being marketed to enhance athletic performance, promote weight loss, etc. Deep-sea diving Navy SEALs consume ketone supplements to prevent underwater seizures based on experiments on rats in high-pressure containers, showing that ketone supplements protected the rats from seizures.⁷⁰ ●



**If you have any questions on the scientific content
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Buckwheat

BY GARRY MESSICK

Buckwheat, oddly enough, is not a type of wheat or even a cereal grain of any kind, but rather a fruit seed related to rhubarb, knotweed, and sorrel. As a “pseudocereal,” rich in complex carbohydrates, it makes an excellent wheat substitute for those with celiac disease or who are sensitive to gluten.

Buckwheat’s health benefits are many and varied. What follows are a few of the more noteworthy reasons you should add this super food to your diet.

Oxidant Reducers

Present in buckwheat’s hulls and seeds and also in ground buckwheat flour are phenolic compounds and oxidant reducers.¹ These can have a large number of benefits, including support for brain as well as protective effects against cancer and cardiovascular disease.²

Reduced Blood Pressure

Along with its high fiber content, buckwheat contains the phytonutrient rutin,³ an oxidant reducer that supports a healthy circulatory system and helps fight high blood pressure.⁴

Lower Cholesterol

Research shows that buckwheat can have a hand in improving cholesterol levels and inflammation. Consumption has been linked to lower LDL (“bad cholesterol”) but higher levels of HDL (“good cholesterol”).^{3,4}

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Julio Anta

Fitness Warrior

BY JON VANZILE

Julio Anta describes his childhood self as “skinny and sick”—two words that few people would be brave enough to apply to him today.

Since that long-ago time, Anta has channeled his energies into getting fit and, along the way, mastered a bewildering array of martial arts disciplines, including kung fu, jujitsu, Jeet Kune Do, judo, kick boxing, Muay Thai, Krav Maga, and more.

As if that wasn't enough, in late 2017, at the age of 60, he won a gold medal in the NPC South Florida Bodybuilding Championships, and he runs the popular Anta's Fitness and Self-Defense school in Doral, Florida, which he founded 20 years ago.

His secret? It's not a pristine diet—he readily admits his diet is “not perfect” all the time—or any type of performance-enhancing drugs. Instead, Anta credits his success to his lifelong love of learning, his drive to master the things that interest him, and the knowledge he's gained from **Life Extension**® about how to stay healthy into old age.

“I'm a student for life,” he cheerfully says. “I don't have enough lifetimes to learn all the things I want to learn.”



JULIO ANTA



Two Dislocated Shoulders, a Changed Life

Anta was born in New York, where he remembers being the kid who was always picked last when choosing sides for sports. He was small in stature, and he suffered from allergies that were so bad he was sick all the time. Eventually, his family ended up relocating to Miami, hoping to get some relief from the allergies that plagued young Julio.

Even as his allergies improved, Julio remained small for his age and he remembers wanting to change. As a boy, he saw a movie adaptation of Hercules and afterward told his dad, “I want to look like that.” He started lifting weights and begged his parents to put him into judo classes.

In those early years, however, Anta wasn’t especially disciplined. He never stuck with one martial arts discipline long enough to complete black-belt training, instead jumping around from discipline to discipline. And while he did log long hours in the gym, his career

as a bodybuilder didn’t exactly get off to a blazing start. During an early competition, he dislocated both shoulders. Not only did he have to lay off weight training after the injury, he was told he could no longer do martial arts.

Outside of the gym, Anta already had some of the life lessons he would carry forward. During a stint in the Marines, he had learned about leading by example, remarking that the drill sergeants in the Marines were “all over you, but they could outdo you in everything.” He was also working as a corrections officer in a prison, where he was surrounded by guys who pumped iron all day.

Slowly, Anta began to put his life back on track. Despite the warning to stay away from martial arts, he started to pursue them in a more careful, more disciplined way. As he remembered it, martial arts were one way to protect himself in a dangerous job.

“I’d see these inmates working out, and these guys were huge,” he said. “They were always asking me why I never got hurt. So I wanted

to find a martial art that was more functional in case I got attacked.”

This led him to hung gar kung fu, a specialized type of Shaolin kung fu. At the age of 40, he received his black belt in hung gar, and, within months, started teaching it in his own dojo in Doral even as he kept his day job in the prison.

Like many people who find their mission later in life, once Anta got started on this path, he seemed unstoppable. He began attending martial arts conferences, quickly learning new styles and expanding his school to teach all sorts of self-defense and novel conditioning techniques, including kettle bells and heavy ropes. Meanwhile, he moved back into weightlifting and began once again to contemplate competing for the gold medals that had alluded him in his younger years.

“Martial arts and fitness are one,” he said, describing the philosophy behind his school. “A stereotypical black belt is an overweight guy with a big belly. I didn’t want that. I called my school ‘Martial Arts and Fitness’ to bring those worlds together.”

Mastering the Art of Living

In conversation, Anta comes across more as an enthusiastic student than the teacher and sensei he is to his students. He describes himself as “obsessed” with the things that motivate him. “I’m obsessed with working out. I’m obsessed with martial arts. In my marriage, I told my wife I’m obsessed with her.”

He also believes in leading by example, which means openly acknowledging that he faces the same challenges and difficulties everybody faces.

“The diet before my competition was 12 weeks of hell, honestly,” he said. “After the competition, I ate junk food. Sometimes I’ll have a day of junk, or a meal of junk. It’s OK. Because after, I go right back. When I pray, I pray for wisdom and the discipline to follow through.”

He also relies on **Life Extension** to help him maintain his good health and strength as the years roll by. Every morning, Anta starts his day with a dose of apple-cider vinegar with lemon as a way to cleanse his system. Fifteen minutes to an hour later, he makes a smoothie that begins with **Life Extension** vegetarian protein blended with fruits, morninga, and healthful ingredients like almond milk and cinnamon.

On days he trains, he follows his workout with a lunch of lean protein like chicken or fish, plus a salad or sweet potato. Dinner is similar, and only rarely includes any type of red meat. If he does snack, it’s on a protein bar or peanuts.

When it comes to supplementation, Anta avoids the “typical” bodybuilding supplements like creatine and beta-alanine. Instead, he focuses on supplements that

can help reduce the risk of common health conditions and maintain his energy.

This means he relies on **Life Extension**’s Ultra Prostate Formula to help prevent benign prostatic hyperplasia, a common condition among men aged 60 and over, and **CHOL-Support™** to help keep his cholesterol in a safe range. He also takes milk thistle extract to protect his liver and uses **Life Extension** toothpaste to promote oral health.

Aside from trusting **Life Extension** for its extensive research, he also relies on regular blood testing to monitor his blood levels of important nutrients. This type of comprehensive testing, which goes far beyond what is typically offered in a doctor’s office, is the only way

to keep careful track of blood levels of nutrients and monitor risk factors like homocysteine.

“Blood tests are important,” he said. “After a blood test showed I was low in magnesium and vitamin D, I added those to my supplement list. Now my blood test results are good.”

Ultimately, Anta says he has no plans to slow down any time soon. “I don’t even think about retiring,” he said. ●

For more information, visit Julio Anta’s website at <http://www.doralkungfu.com/>

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BY SCOTT FOGLE, ND



New Annual Lab Test Sale

Dr. Scott Fogle is the Executive Director of Clinical Information and Laboratory Services at **Life Extension**[®], where he oversees the company's laboratory division and scientific and medical information. In this interview, **Dr. Fogle** outlines the exciting changes and additions to **Life Extension's** Annual Lab Test Sale, and explains the benefits of various tests.

LE: Why is the Annual Blood Test Sale now being called the Annual Lab Test Sale?

SF: We are changing the name because we now offer so many tests other than blood tests alone. Since we now offer urine, saliva, fecal, and DNA tests, calling it the "Blood Test Sale" confused some of our customers.

LE: Last year you introduced some breakout new tests.

SF: During last year's annual sale we introduced several new tests—such as the Neurotransmitter Panel, Adrenal Stress Profile - Saliva, Food Safe Allergy Combo Panel, DNA Genetic Cancer Risk Profile, and the ApoE Genetic Test for Alzheimer's and Cardiac Risk—and all were very successful. The Neurotransmitter Panel and the Food Safe Allergy Combo Panel were the most popular.

LE: Are any new genetic tests being offered this year?

SF: Yes, we launched three of them just before the Annual Lab Test Sale, and the most popular by far has been the **DNA Weight Management Panel**. Everyone knows how challenging it can be to lose weight. What is special about this genetic test is that it identifies what diet plan is likely to provide the best results based on your unique DNA.

This test helps take the guesswork out of dieting by looking at your genes. For example, based on your results, a report might have this specific suggestion: *Eat a diet low in carbohydrates, particularly low in refined carbohydrates, instead of a low fat, Mediterranean, or any other type of diet.*

LE: Does the test also predict your genetic potential for weight gain and weight-loss regain?

SF: It does, which is beneficial to know. It helps people understand why they may struggle more than others with weight loss and with gaining it back after a diet. It lets them know that they need to have a more focused plan and to maximize the other important results from the report to get the best weight-loss results and to keep it off.

LE: Does this test include any insights into the best exercise program for your genetic type?

SF: Yes, it tells you whether endurance or strength will help give you better results. It also reveals how your HDL, blood pressure, weight, and insulin sensitivity will respond to exercise.

It essentially helps you customize your own weight-loss program. After all, what better way to figure

NAME/ID: SAMPLE PATIENT
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SAMPLE REPORT

SUMMARY

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Vitamin D p. 26	STAY BALANCED
Vitamin E p. 27	STAY BALANCED

EXERCISE

Endurance Training p. 30	ENHANCED BENEFIT
Strength Training p. 31	LESS BENEFICIAL
Aerobic Capacity (VO2max) p. 31	TYPICAL
Muscle Power p. 32	ENHANCED MUSCLE POWER
Achilles Tendinopathy p. 32	TYPICAL
Weight Loss Response To Exercise p. 33	EXERCISE STRONGLY RECOMMENDED
Blood Pressure Response To Exercise p. 33	EXERCISE STRONGLY RECOMMENDED
HDL (Good) Cholesterol Response To Exercise p. 34	NORMAL BENEFIT
Loss Of Body Fat Response To Exercise p. 34	NORMAL BENEFIT
Insulin Sensitivity Response To Exercise p. 34	ENHANCED BENEFIT

YOUR BODY AND WEIGHT

Obesity p. 37	AVERAGE
Weight Loss-regain p. 37	MORE LIKELY TO GAIN WEIGHT BACK
Metabolism p. 38	NORMAL
Adiponectin Levels p. 38	POSSIBLY LOW

METABOLIC HEALTH FACTORS

Elevated LDL Cholesterol p. 40	ABOVE AVERAGE
Decreased HDL Cholesterol p. 41	ABOVE AVERAGE
Elevated Triglycerides p. 42	ABOVE AVERAGE
Elevated Blood Sugar p. 43	AVERAGE

DNA Weight Management Panel

out what is likely to work best for you than asking your own genes!

LE: What about the other two DNA tests you mentioned?

SF: Both of these unique DNA tests are especially good for people taking medications. It shows how an individual may or may not react to a drug and helps determine the most beneficial dose.

The Mental Health DNA Insight® Profile provides information about how your body is likely to respond to 50+ psychiatric

medications, such as SSRIs, mood stabilizers, antidepressants, benzodiazepines, and more. **The Pain Medication DNA Insight® Profile** reveals how your body is likely to respond to pain relief medications such as opioids, NSAIDs, and methotrexate. Both of these tests are very helpful for people who feel they react differently to medications.

In an ideal world, everyone would take these tests before taking these drugs to help minimize side effects and to more quickly determine the most beneficial dose.



Most doctors still operate under the trial-and-error approach: They prescribe a dose, have you report how you feel, and then make adjustments.

That approach is outdated and very inefficient—especially since we have the technology to test and make more accurate dosing suggestions right out of the gate. This is especially important for pain and psychiatric medications.

LE: Are there other new innovative tests?

SF: We are pleased to be able to offer a **SIBO Home Breath Kit** now, too. This is a hot topic in alternative medicine circles, in scientific research, and even with some forward-thinking gastroenterologists.

SIBO stands for *small intestinal bacterial overgrowth*. This condition occurs when certain bacterial

populations proliferate too much in the small intestine. Healthy strains of bacteria are beneficial, but when unhealthy strains grow and expand too much, it leads to problems like gas, bloating, abdominal pain/distention, cramping, brain fog, and more. Research shows that up to **70%** or more of those diagnosed with IBS have SIBO.

LE: How is this test done?

SF: It is a breath test. The gasses produced by the overgrowth of bacteria go into your bloodstream and are exhaled through your lungs. For this test, you drink a lactulose or glucose solution and then collect your breath into a special tube at specific intervals. It takes about three hours to complete, and you have to consume a special diet 24 hours before the test. It can be tedious, but people with these GI issues are more than willing because they want to get answers as to what might be going on in their body.

LE: What about fecal tests?

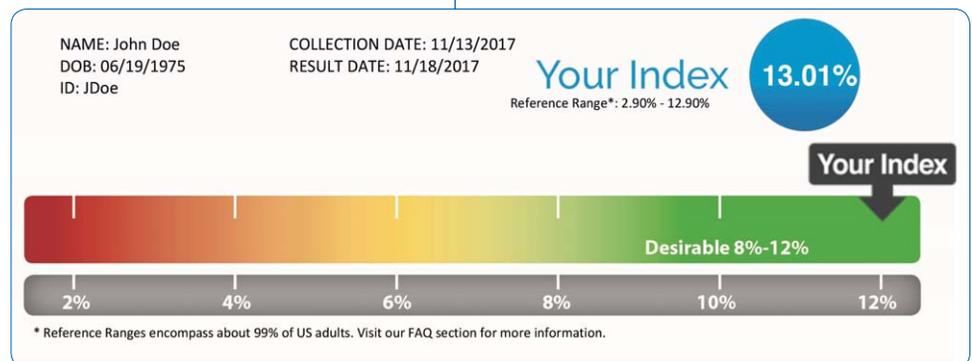
SF: We are introducing the **Toxic Metals Panel (Fecal)**, which helps identify the presence of heavy metals in the body. Heavy metals like lead, arsenic, and mercury are very toxic and are hard to avoid as our soil and waterways become increasingly contaminated.

It's important to note that testing for heavy metals and how they contribute to illness is very complicated, and is best done by working with a doctor who is an expert in the area. There is no perfect way to test for heavy metal toxicity. Every test has its pros and cons. For example, the blood test for metals is very good for *recent* exposure, but is not great for *chronic* exposure.

What makes the toxic metals panel beneficial is that it reveals how many metals are moving through you and out of you. For many toxic elements, fecal excretion is the primary natural route of elimination from the body. The results of fecal elemental analysis can help you identify and eliminate dietary exposure to toxic metals, while also assessing the body's natural excretion of metals.

LE: Is the **Omega-3 Index test** beneficial for those taking or not taking omega-3 supplements?

SF: It is good for both. Those not taking omega-3/fish oil or eating healthy fish should check their baseline omega-3 index to see if it is in the desirable or concerning range. Those taking omega-3/fish oil supplements should take the test to see if they need to adjust their dosage up or down. You want to target a range of **8%-12%** for your omega-3 index score.





LE: You offer two Omega-3 Index tests, the **complete** and the **plus**. Which one is best for most people?

SF: Most people only need the **Omega-3 Index Plus** version. The **Plus version** provides the critical Omega-6 to omega-3 ratio, the arachidonic acid (AA) to EPA ratio, and the Trans Fat Index Report. You can use the results to make adjustments in supplementation and diet.

The **Complete version** offers a very detailed fatty-acid breakdown. While most people don't need this, it is helpful for those who want to see an extensive list of the fatty acids in their blood. In addition to what's tested in the Plus version, the Complete version includes over 20 individual fatty acids.

LE: What is the most unusual test **Life Extension** offers?

SF: That would be the **HLA-DR Mold Genetic Testing**. Suzanne Somers interviewed Dr. Ritchie Shoemaker about mold, and he mentioned that this is an especially important test for individuals that are sensitive to mold and other chemicals.

HLA stands for human leukocyte antigen, which is a system that genetically encodes for special proteins that reside on the surface of your white blood cells. These special cell surface proteins,

known as major histocompatibility complexes, are responsible for the regulation of your immune system. They help your immune system know the difference between you and foreign invaders. However, some people's HLA complex encodes for specific cell-surface proteins that makes them much more sensitive/reactive to mold and chemicals.

Dr. Shoemaker's data indicates that about **25%** of the population is much more sensitive to mold than the other **75%**. That means if four people work in a mildly moldy building, three will have no significant problems, but one person will feel utterly miserable. They are all exposed to the mold, so why does only one person feel so bad?

Dr. Shoemaker ties that back to specific HLA differences between people. The same is true for chemicals and even other reactions. This fascinating test is growing in popularity to help people sensitive to mold and other chemicals understand why they are impacted more than others.

LE: What about the incredibly popular **Male** and **Female Panels**. Their value is unprecedented in testing. Will their price be going up this year?

SF: I could not agree more about their value. I work hard to make sure our customers get the best price possible. Last year a cus-

tomers put our prices to the test. He went to both major labs and got them to price out the panels. He wrote us a special thank you letter for our price when he found out that one lab was going to charge him \$606 and the other \$1,873 for the same tests as in our male and female panels that we offer for **\$199** during our Annual Blood Test Sale (now called Annual Lab Test Sale).

LE: So the price will be the same affordable **\$199** during the **Annual Lab Test Sale**?

SF: Yes, and for no additional charge we are adding another innovative test that's not usually done by conventional doctors—which means you'll be getting even more value out of the male and female panels. The test is called **ApoB**, and it is often promoted by leaders in cardiovascular research.



ApoB provides the total non-HDL cholesterol particle number, meaning all the particles that are not HDL (such as VLDL, IDL, and LDL particles). Surprisingly, a standard cholesterol test reveals nothing about actual particle numbers. It tells you the amount of HDL and LDL cholesterol in your blood, but it does NOT tell you if that cholesterol amount is carried by a large number of small particles or a small number of large particles.

This distinction is important, because the research is clear that the higher the ApoB number (particle count), the higher your cardiovascular risk. For example, a high ApoB in young adults predicts coronary artery calcification in midlife. This makes ApoB an important test for further assessing cardiovascular risk. If it's high, the **NMR LipoProfile** should be considered as a next step.

LE: Are there any important updates to popular tests?

SF: Yes, the popular **Neurotransmitter Panel** now tests three additional neurotransmitters for no additional charge. It now includes glycine, histamine, and

PEA (phenylethylamine), making it even more comprehensive and an even better value.

Also, the **Complete Hormone Profile (dried urine)** now includes important thyroid hormones at no extra charge. This urinary hormone profile is one of my favorite tests and is especially helpful for those with difficult hormone issues.

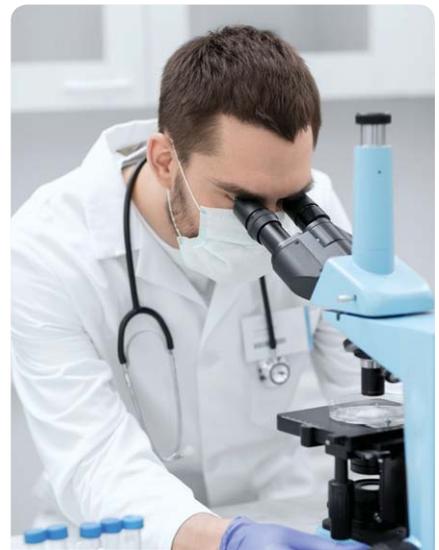
LE: Finally, were there any surprises with the new tests offered last year?

SF: I was pleased that customers took advantage of the new tests and used the information to customize a health plan for themselves. But the one test I thought would have been more popular was the **DNA Genetic Cancer Risk Profile**. I suspected everyone would want to know their cancer risk, but it turns out most people were fearful of knowing.

That is unfortunate since knowing your risk gives you powerful actionable information. I want to stress that just because you might have higher risk does not mean you will get cancer! But knowing allows you to institute a plan of action to help mitigate that risk.

People who found out that they had a higher risk quickly turned it into a positive and developed a customized plan to help reduce that risk that turned them into even healthier people. This amazing Cancer Risk Profile provides life-empowering information, and I want to see more people take advantage of its important information. ●

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



Analyte	Result	Unit per Creatinine	L	WR	H	Reference Interval
Serotonin	48.7	µg/g	▲			52 - 155
Gamma-aminobutyrate (GABA)	1.5	µmol/g	▲			1.6 - 8
Dopamine	75.2	µg/g	▲			95 - 275
Norepinephrine	13.4	µg/g	▲			15 - 78
Epinephrine	16	µg/g			▲	1 - 11.1
Glutamate	64	µmol/g			▲	10 - 52
Glycine	3600	µmol/g			▲	350 - 3500
Histamine	4.3	µg/g	▲			12 - 66
Phenethylamine (PEA)	12	µmol/g	▲			20 - 176
Norepinephrine / Epinephrine ratio	0.85		▲			< 11

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WHAT'S NEW FOR 2018

	RETAIL PRICE	SUPER SALE PRICE
<input type="radio"/> NEUROTRANSMITTER PANEL** (LC100058) Serotonin, Dopamine, Epinephrine, Norepinephrine, GABA, Glutamate, Glycine, Histamine and PEA. Alterations in these nine neurotransmitters play a significant role in contributing to symptoms such as cognitive disorders, depression, anxiety, diminished drive, fatigue and sleep difficulties, craving, addictions, pain and more. Not available in NY.	\$265.33	\$149.25
<input type="radio"/> TOXIC METALS PANEL (FECAL)** (LC100076) The results of fecal elemental analysis can help you identify and eliminate dietary exposure to toxic metals, while also assessing the body's natural excretion of metals. The panel tests Antimony, Arsenic, Beryllium, Bismuth, Cadmium, Copper, Lead, Mercury, Nickel, Platinum, Thallium, Tungsten, and Uranium.	\$226.66	\$127.50
<input type="radio"/> OMEGA-3 INDEX COMPLETE** (LC100066) Beneficial for everyone! People <u>not</u> taking omega-3/fish oil should check their baseline omega-3 index to see if it is in the desirable or concerning range. Those taking omega-3/fish oil supplements should take the test to see if they need to adjust their dosage. You want to target a range of 8%-12% for your omega-3 index score.	\$132	\$74.25
<input type="radio"/> SIBO HOME BREATH KIT (LACTULOSE)** (LC100063) SIBO stands for <i>small intestinal bacterial overgrowth</i> . This condition occurs when certain bacterial populations proliferate too much in the small intestine. Healthy strains of bacteria are beneficial, but when unhealthy strains grow and expand too much, it leads to problems like gas, bloating, abdominal pain/distention, cramping, brain fog, and more. Research shows that up to 70% or more of those diagnosed with IBS have SIBO.	\$332	\$186.75

GENETIC TESTING

<input type="radio"/> PATHWAY FIT® DNA WEIGHT MANAGEMENT** (LC100067) Your DNA holds the blueprint to how your body responds to both food and exercise.	\$398.66	\$224.25
<input type="radio"/> PAIN MEDICATION DNA INSIGHT® PROFILE ** (LC100069) This profile helps you understand your body's likely response to pain relief for 13 commonly prescribed pain medications.	\$398.66	\$224.25
<input type="radio"/> MENTAL HEALTH DNA INSIGHT® PROFILE** (LC100068) The Mental Health Profile helps you understand your body's likely response to 50+ psychiatric medications.	\$398.66	\$224.25
<input type="radio"/> DNA GENETIC CANCER RISK PROFILE** (LC100057) With only a saliva sample, you can identify your risk for 25 hereditary cancers by analyzing 98 genes from your DNA including the well-known BRCA1, BRCA2, TP53, and APC. Not available in NY.	\$398.66	\$224.25
<input type="radio"/> APOE GENETIC TEST FOR ALZHEIMER'S AND CARDIAC RISK** (LC100059) Apolipoprotein E (ApoE) is an important regulator of cholesterol and triglyceride levels in your blood and supports lipid transport and injury repair in your brain. Genetically, E4 is the strongest risk factor for developing Late Onset Alzheimer's disease. According to the National Institute of Health, inheriting a single copy of ApoE4 increases the risk of Alzheimer's disease by about three-fold. Inheriting two copies increases the risk by about 12-fold. In fact, almost 40% of AD patients have inherited an E4 allele.	\$198.66	\$111.75

ANNUAL LAB TEST PANELS

	RETAIL PRICE	SUPER SALE PRICE		RETAIL PRICE	SUPER SALE PRICE
<input type="radio"/> FOOD SAFE ALLERGY TEST – BASIC** (LCM73001) This test measures delayed (IgG) food allergies for 95 common foods.	\$264	\$148.50	<input type="radio"/> FEMALE ELITE PANEL (LC100017)* CBC/Chemistry Profile • Free and total Testosterone • Total Estrogens Estradiol • Estrone • DHEA-S • Progesterone • Pregnenolone • DHT • FSH LH • TSH • Free T3 • Free T4 • Reverse T3 • IGF-1 • SHBG • Vitamin D 25-OH hs-CRP • Ferritin • Homocysteine • Insulin • Hemoglobin A1c	\$766.66	\$431.25
<input type="radio"/> FOOD SAFE ALLERGY TEST – EXTENDED** (LCM73002) This test measures delayed (IgG) food allergies to an additional 95 foods.	\$264	\$148.50	<input type="radio"/> FEMALE COMPREHENSIVE HORMONE PANEL (LC100011)* CBC/Chemistry Profile • DHEA-S, Estradiol • Total Estrogens • TSH Free T3 • Progesterone • Pregnenolone • Total and Free Testosterone • SHBG	\$398.66	\$224.25
<input type="radio"/> FOOD SAFE ALLERGY TEST – COMBO** (LCM73003) This test measures delayed (IgG) food allergies to all 190 foods found in our Basic and Extended panels.	\$500	\$281.25	<input type="radio"/> FEMALE BASIC HORMONE PANEL (LC100013) DHEA-S • Estradiol • Total and Free Testosterone • Progesterone	\$100	\$56.25
WHOLE BODY HEALTH			<input type="radio"/> WEIGHT LOSS PANEL-COMPREHENSIVE (LC100028) CBC/Chemistry Profile • DHEA-S • Free and Total Testosterone Estradiol • Progesterone • Cortisol, TSH • Free T3 • Free T4 Reverse T3 • Insulin • Hemoglobin A1c • Vitamin D 25-hydroxy C-reactive protein (high sensitivity) • Ferritin	\$366.66	\$206.25
<input type="radio"/> MALE LIFE EXTENSION PANEL ENHANCED (LC322582) CBC/Chemistry Profile • DHEA-S • PSA (prostate-specific antigen) Homocysteine • C-Reactive Protein (high-sensitivity) • ApoB • Free Testosterone • Total Testosterone • Estradiol • TSH for thyroid function • Vitamin D (25-hydroxyvitamin D) • Hemoglobin A1c	\$400	\$199	<input type="radio"/> HEALTHY AGING PANEL-COMPREHENSIVE (LC100026)* CBC/Chemistry Profile • C-reactive protein (high sensitivity) Vitamin B12 • Folate • Homocysteine • Vitamin D 25-hydroxy • Hemoglobin A1c TSH • Free T3 • Free T4 • Ferritin • Urinalysis • Fibrinogen • Insulin	\$332	\$186.75
<input type="radio"/> MALE ELITE PANEL (LC100016)* CBC/Chemistry Profile • Free and Total Testosterone Total Estrogens • Estradiol • DHEA-S • Progesterone • Pregnenolone DHT • FSH • LH • TSH • Free T3 • Free T4 • Reverse T3 • Free and Total PSA IGF-1 • SHBG • Vitamin D 25-OH • hs-CRP, ferritin • Homocysteine Insulin • Hemoglobin A1c	\$766.66	\$431.25	WHAT'S INCLUDED IN THE CBC/CHEMISTRY PROFILE Many of these panels include a CBC/CHEMISTRY PROFILE that evaluates:		
<input type="radio"/> MALE COMPREHENSIVE HORMONE PANEL (LC100010)* CBC/Chemistry Profile • DHEA-S, Estradiol • DHT • PSA Pregnenolone • Total and Free Testosterone • SHBG • TSH • Free T3	\$398.66	\$224.25	CARDIOVASCULAR RISK Total Cholesterol • HDL Cholesterol • LDL Cholesterol • Triglycerides Cholesterol/HDL Ratio • Estimated CHD Risk • Glucose		
<input type="radio"/> MALE BASIC HORMONE PANEL (LC100012) DHEA-S • Estradiol • Total and Free Testosterone • PSA	\$100	\$56.25	LIVER FUNCTION AST (SGOT) • ALT (SGPT) • LDH • Total Bilirubin • Alkaline phosphatase		
<input type="radio"/> INSULIN FASTING (LC004333) Helpful to assess insulin resistance.	\$39.87	\$24.42	KIDNEY FUNCTION BUN • Creatinine • BUN/Creatinine Ratio • Uric Acid		
<input type="radio"/> NMR LIPOPROFILE® (LC123810) The NMR Lipoprofile® directly measures LDL particle size and number as well as HDL particle number, total cholesterol, and triglycerides. It also provides a calculation of one's risk of insulin resistance by assessing abnormalities in lipoprotein markers.	\$132	\$74.25	BLOOD PROTEINS Total Protein • Albumin • Globulin • Albumin/Globulin Ratio		
<input type="radio"/> ADVANCED OXIDIZED LDL PANEL*(LC100035) This panel looks at vascular inflammatory biomarkers, beginning with lifestyle choices to the development of metabolic and cardiovascular disease as well as the formation of vulnerable plaque. The panel contains the following tests: F2-Isoprostanes, Myeloperoxidase and Oxidized LDL.	\$380	\$213.75	BLOOD COUNTS Red Blood Cell Count • White Blood Cell Count • Eosinophils Neutrophils (Absolute) • Lymphs (Absolute) • Eos (Absolute) • Baso (Absolute) RDW • Monocytes (Absolute) • Monocytes • Lymphocytes • Platelet Count Hemoglobin • Hematocrit • MCV • MCH • MCHC • Neutrophils		
<input type="radio"/> FEMALE LIFE EXTENSION PANEL ENHANCED (LC322535) CBC/Chemistry Profile • DHEA-S • Estradiol • Homocysteine • ApoB C-Reactive Protein (high-sensitivity) • Progesterone • Free Testosterone Total Testosterone • TSH for thyroid function • Vitamin D (25-hydroxyvitamin D) Hemoglobin A1c	\$400	\$199	BLOOD MINERALS Calcium • Potassium • Sodium • Chloride • Iron		
This is NOT a complete listing of LE blood test services. Call 1-800-208-3444 for additional information.			The retail price for the CBC/Chemistry Profile alone is \$46 , but drops to \$26 during the Blood Test Super Sale. (LC381822)		
Blood tests available in the continental United States only. Restrictions apply in NY, NJ, RI, and MA. Not available in Maryland. Kits not available in Pennsylvania.			These CBC/Chemistry tests are <u>included</u> in the popular Male and Female Panels , so you don't have to order them separately.		

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

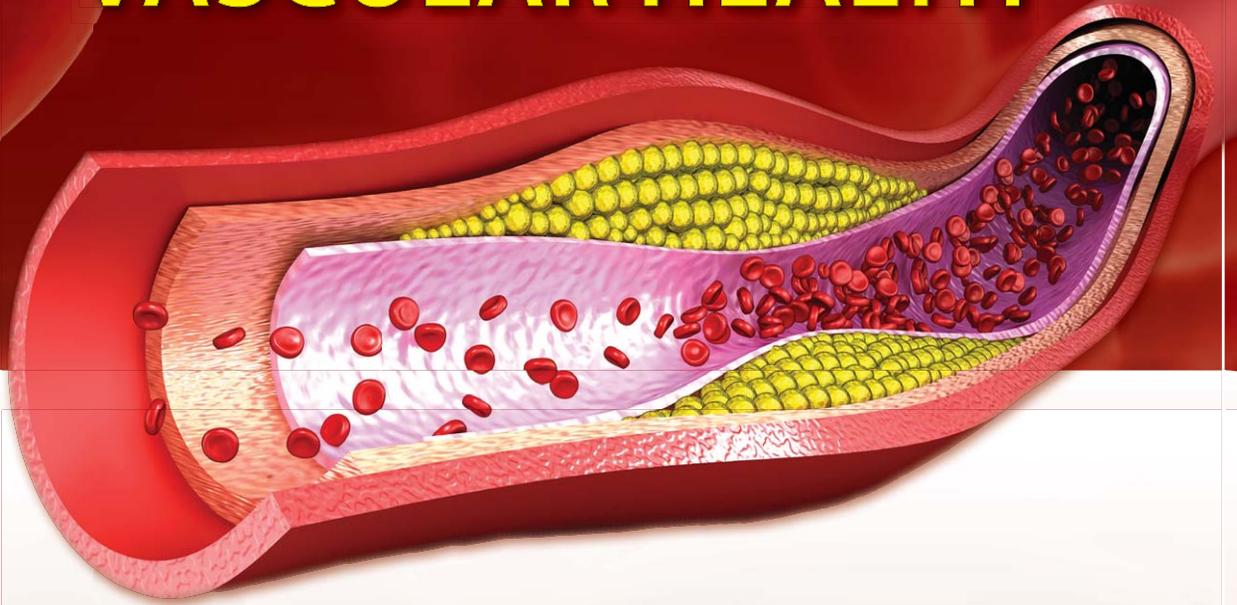
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2. *JOP.* 2005 May 10;6(3):206-15.
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On Vegetables

BY GARRY MESSICK

Top chef Jeremy Fox isn't a vegetarian. He eats steaks and other meats on a regular basis.

Still, he has an affinity for vegetables, and feels they should be lavished with at least as much care and attention as chefs tend to devote to meat dishes. This culinary philosophy is what led Fox to write his new cookbook, *On Vegetables*.

Fox believes that "not all plants are created equal," and insists fresh vegetables are the only way to go.

"I believe strongly in eating what grows around you," says Fox, who is currently the executive chef at acclaimed Santa Monica restaurant and wine bar Rustic Canyon. Actually, that's partly why he moved to California in the first place.

"I wanted to go where more things grow. I've had the absolute pleasure to work with, and get to know, some unbelievably kind and talented farmers, whose ingredients are the real stars of my cooking." In fact, Fox is so grateful to local farmers that he profiles a number of them in his book, alongside the recipes.

Although many of the dishes in *On Vegetables* call for very specific ingredients, Fox isn't really a stickler for details. He tells readers not to worry if they "can't find the exact things that I find in my surroundings." He encourages people who try his recipes to feel free to adapt and use what is available to them from local sources.

Three sample recipes from *On Vegetables* follow, each prefaced by brief comments from the author. All are as healthy as they are delicious.



Photograph © Rich Poon • Excerpted from *On Vegetables* (Phaidon 2018) by Jeremy Fox

Peas and Pecorino

Serves 4 to 6

The first restaurant I worked at after culinary school was Mumbo Jumbo in Atlanta, Georgia, and that's where I ate really good blanched peas for the first time. They made a dish of peas with pecorino that made me realize I actually liked peas. So obviously, the Mumbo Jumbo concoction was a huge inspiration for this version.

Directions

Shuck the peas; you should get about 2 cups (460 g) of shucked peas.

Bring a pot of water to boil over medium heat. Season it with enough salt that it tastes like the sea. Prepare an ice bath in a large bowl. Add the peas to the boiling water and cook, at a simmer, until they are tender but not mushy (this can vary based on the size of the peas), 2 to 4 minutes.

1 ½ pounds (680 g) peas in their pods
Kosher salt
A handful of pea tendrils, to garnish
3 tablespoons extra-virgin olive oil
1 ½ tablespoons red wine vinegar
1 tablespoon minced shallot
1 tablespoon chiffonade of mint
Freshly ground black pepper
4 ounces (115 g) Pecorino Romano cheese

Drain the peas and immediately transfer to the ice bath until completely cool. Drain and spread the peas on paper towels and allow to dry completely.

In a bowl, combine the peas with the pea tendrils, olive oil, vinegar, shallot, and mint. Season to taste with salt and pepper.

To serve, divide the dressed peas across plates. Shave pecorino on top and finish with more pepper.

Spring Vegetable and Sunflower Panzanella

Serves 4

Panzanella is usually more of a summer bread salad in central Italy, but this version was actually inspired by a rugbrod (rye bread) toast that I had on the menu at Esters, the wine bar I helped open with Kathryn Coker in Santa Monica in Los Angeles.

Kosher salt

- ½ pound (225 g) shucked peas
(from about 1 pound of whole pea pods)
- 1 pound (455 g) sunflower loaf
(or any good, dense rye bread), lightly
toasted and cut into ½-inch (1.25 cm) cubes
- 4 Persian cucumbers, thinly sliced
- 16 stalks pencil-thin asparagus,
cut into 1-inch (2.5 cm) lengths
- 1 tablespoon chopped fresh dill
- 2 tablespoons extra-virgin olive oil
- 1 tablespoon red wine vinegar
- 1 tablespoon sunflower seeds
- 1 tablespoon minced shallot
- Freshly ground black pepper
- ¼ cup (60 ml) labneh (Middle Eastern yogurt)
or Greek yogurt
- 2 ounces (60 g) sunflower sprouts

Directions

Bring a pot of salted water to a boil over high heat. Prepare an ice bath in a bowl. Add the peas to the boiling water and blanch until just tender, about 2 minutes. Transfer the peas to the ice bath until cool. Drain on paper towels until dry.

In a bowl, combine the bread with the peas, cucumbers, asparagus, and dill. Dress with the olive oil, vinegar, sunflower seeds, and shallot. Season to taste with salt and pepper.

To serve, divide the salad across 4 bowls. Top each with a dollop of labneh and a sprinkling of sunflower sprouts. Dust the labneh with a pinch of black pepper.

Shaved Squash, Basil and Pine Nut

Serves 4

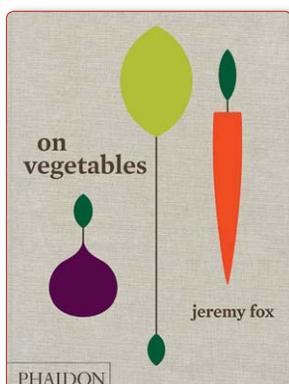
This is a clean, simple preparation that highlights beautiful summer squash and requires that you seek out and use the best-quality produce, as there's nothing to hide behind or manipulate through cooking. I like to use an assortment of various summer squash: green zucchini (courgettes), gold bar zucchini, Costata Romanesco, and /or pattypan. Just avoid especially seedy ones, like yellow crookneck.

- 2 pounds (910 g) assorted long
summer squash
- Kosher salt
- ¼ cup (60 ml) extra-virgin olive oil
- 3 lemons
- 24 medium-large basil leaves, cut
into a chiffonade
- ¼ cup (60 ml) pesto
- 2 tablespoons pine nuts, toasted until
golden brown and roughly chopped
- A small wedge of Parmigiano-Reggiano
cheese, to garnish
- 20 whole small basil leaves, to garnish
- 20 baby (thumb-sized) pattypan squash,
heels and stem ends trimmed

Directions

Using a mandoline or a vegetable peeler, shave the long squash lengthwise into thin ribbons. Place the ribbons in a bowl, season with salt, and set aside for 5 to 10 minutes. Discard any water that leaches out. Add the olive oil and grate the lemon zest directly into the oil. Juice the lemons and add to the bowl along with the basil chiffonade. Toss to combine.

To serve, spoon pesto onto each of 4 plates. Gently arrange the squash ribbons on top. Sprinkle with the pine nuts and thinly shave Parmigiano into airy strips, using them to lightly dust the whole of the dish. Garnish with small basil leaves and baby squash.



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 D-Ribose Tablets
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 Mitochondrial Basics with PQQ
 Mitochondrial Energy Optimizer with PQQ
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 Optimized NAD+ Cell Regenerator™ with Resveratrol
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 RiboGen™ French Oak Wood Extract
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Food

California Estate Extra Virgin Olive Oil
 Kenyan Green Tea Crystal
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 Rainforest Blend Decaf Ground Coffee
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 Rainforest Blend Ground Natural Mocha Flavor
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 Rainforest Blend Whole Bean Coffee
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 Glycemic Guard™
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 Super Ubiquinol CoQ10 with PQQ
 Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™
 Super-Absorbable CoQ10 Ubiquinone with d-Limonene
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 TMG Liquid Capsules

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DHEA (Dehydroepiandrosterone)
 Pregnenolone
 Triple Action Cruciferous Vegetable Extract with Resveratrol
 Triple Action Cruciferous Vegetable Extract

Immune Support

AHCC®
 Enhanced Zinc Lozenges
 Immune Modulator with Tinofend®
 Immune Protect with PARACTIN®
 Immune Senescence Protection Formula™
 Kinoko® Gold AHCC
 Kinoko® Platinum AHCC
 Kyolic® Garlic Formula 102
 Kyolic® Reserve
 Lactoferrin (apolactoferrin) Caps
 NK Cell Activator™
 Optimized Garlic
 Optimized Quercetin
 Peony Immune
 ProBoost Thymic Protein A
 Reishi Extract Mushroom Complex
 Standardized *Cistanche*
 Ten Mushroom Formula®
 Zinc Lozenges

Inflammation Management

5-LOX Inhibitor with AprèsFlex®
 Advanced Bio-Curcumin® with Ginger & Turmerones
 Black Cumin Seed Oil
 Black Cumin Seed Oil with Bio-Curcumin®
 Boswellia
 Comfort Max™
 Cytokine Suppress™ with EGCG
 Serrafazyme
 Specially-Coated Bromelain
 Super Bio-Curcumin®
 Zyflamend® Whole Body

Joint Support

Arthro-Immune Joint Support
 ArthroMax® Advanced with UC-II® & AprèsFlex®
 ArthroMax® with Theaflavins & AprèsFlex®
 ArthroMax® Elite
 Bio-Collagen with Patented UC-II®
 Fast-Acting Joint Formula
 Glucosamine/Chondroitin Capsules
 Krill Healthy Joint Formula
 MSM (Methylsulfonylmethane)

Kidney & Bladder Support

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

Liver Health & Detoxification

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

Longevity & Wellness

Alpha-Lipoic Acid
 AppleWise Polyphenol Extract
 Berry Complete
 Blueberry Extract
 Blueberry Extract with Pomegranate
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 Optimized Fucoïdan with Maritech® 926
 Optimized Resveratrol
 pTeroPure®
 Pycnogenol® French Maritime
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 Resveratrol with Pterostilbene
 RNA (Ribonucleic Acid)
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Men's Health

Mega Lycopene Extract
 PalmettoGuard® Saw Palmetto with
 Beta-Sitosterol
 PalmettoGuard® Saw Palmetto/Nettle Root
 Formula with Beta-Sitosterol
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 Prelox® Enhanced Sex for Men
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 Triple Strength ProstaPollen™
 Ultra Prostate Formula

Minerals

Boron
 Extend-Release Magnesium
 Ionic Selenium
 Iron Protein Plus
 Magnesium (Citrate)
 Magnesium Caps
 Only Trace Minerals
 Optimized Chromium with Crominex® 3+
 Sea-Iodine™
 Se-Methyl L-Selenocysteine
 Vanadyl Sulfate
 Zinc Caps

Miscellaneous

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 Solarshield® Sunglasses

Mood & Stress Management

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 5 HTP
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 Comprehensive Nutrient Packs ADVANCED
 Life Extension Mix™ Capsules without Copper
 Life Extension Mix™ Capsules
 Life Extension Mix™ Powder without Copper
 Life Extension Mix™ Powder
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 Life Extension Mix™ Tablets
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 Biosil
 Dr. Proctor's Advanced Hair Formula
 Dr. Proctor's Shampoo
 European Leg Solution Featuring Certified
 Diosmin 95
 Hair, Skin & Nail Rejuvenation Formula
 w/VERISOL®
 Hair Suppress Formula
 Life Extension Toothpaste
 Venotone
 Xyliwhite Mouthwash

Pet Care

Cat Mix
 Dog Mix

Probiotics

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

Skin Care

Advanced Anti-Glycation Peptide Serum
 Advanced Growth Factor Serum
 Advanced Lightening Cream
 Advanced Peptide Hand Therapy
 Advanced Triple Peptide Serum
 Advanced Under Eye Serum with Stem Cells
 Amber Self MicroDermAbrasion
 Anti-Aging Face Oil
 Anti-Aging Mask
 Anti-Aging Rejuvenating Face Cream
 Anti-Aging Rejuvenating Scalp Serum
 Anti-Glycation Serum with
 Blueberry & Pomegranate Extracts
 Antioxidant Facial Mist Hydrator
 Anti-Redness & Adult Blemish Lotion
 Collagen Boosting Peptide Serum
 DNA Repair Cream
 Environmental Support Serum
 Essential Plant Lipids Reparative Serum
 Eye Lift Cream
 Face Rejuvenating Anti-Oxidant Cream
 Healing Formula
 Healing Vitamin K Cream
 Hyaluronic Facial Moisturizer
 Hyaluronic Oil-Free Facial Moisturizer
 Hydrating Anti-Oxidant Facial Mist
 Hydroderm
 Lifting & Tightening Complex
 Melatonin Advanced Peptide Cream
 Melatonin Cream
 Mild Facial Cleanser
 Multi Stem Cell Skin Tightening Complex
 Neck Rejuvenating Anti-Oxidant Cream
 Rejuvenex® Body Lotion
 Rejuvenex® Factor Firming Serum
 Resveratrol Anti-Oxidant Serum
 Shade Factor™
 Shade Factor™ Sunscreen Lotion
 Shade Factor™ Sunscreen Spray
 Skin Care Collection Anti-Aging Serum
 Skin Care Collection Body Lotion
 Skin Care Collection Day Cream
 Skin Care Collection Night Cream
 Skin Firming Complex
 Skin Lightening Serum
 Skin Restoring Phytoceramides with Lipowheat®
 Skin Stem Cell Serum
 Skin Tone Equalizer
 Stem Cell Cream with Alpine Rose
 Tightening & Firming Neck Cream
 Triple-Action Vitamin C Cream
 Ultimate MicroDermabrasion
 Ultra Eyelash Booster
 Ultra Lip Plumper
 Ultra Rejuvenex®
 Ultra RejuveNight®
 Ultra Wrinkle Relaxer
 Under Eye Refining Serum
 Under Eye Rescue Cream
 Vitamin C Serum
 Vitamin D Lotion
 Vitamin E-ssential Cream
 Youth Serum

Sleep

Bioactive Milk Peptides
 Enhanced Sleep with Melatonin
 Enhanced Sleep without Melatonin
 Fast-Acting Liquid Melatonin
 Glycine
 L-Tryptophan
 Melatonin
 Optimized Tryptophan Plus
 Quiet Sleep Melatonin

Sports Performance

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

Vitamins

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

Weight Management

7-Keto® DHEA Metabolite
 Advanced Anti-Adipocyte Formula
 Advanced Appetite Suppress
 AMPK Metabolic Activator
 CalReduce Selective Fat Binder
 DHEA Complete
 Garcinia HCA
 HCAActive™ Garcinia Cambogia Extract
 Integra-Lean®
 Mediterranean Trim with Sinetrol™-XPur
 Optimized Irvingia with Phase 3™ Calorie
 Control Complex
 Optimized Saffron with Satiereal®
 Super CLA Blend with Sesame Lignans
 Waist-Line Control™

Women's Health

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

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		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
A							
01524	ACETYL-L-CARNITINE • 500 mg, 100 veg. caps	34.00	25.50	22.50			
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01618	ARTHROMAX® ADVANCED W/UC-II® & APRÈSFLEX® 60 caps	36.00	27.00	24.00			
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00919	ARTICHOKE LEAF EXTRACT • 500 mg, 180 veg. caps	30.00	22.50	21.00			
01533	ASCORBYL PALMITATE • 500 mg, 100 veg. caps	22.50	16.88	15.00			
00888	ASHWAGANDHA EXTRACT (Optimized) • 60 veg. caps	10.00	7.50	6.75			
01805	ASIAN ENERGY BOOST • 90 veg. caps	24.00	18.00	16.50			
01066	ASPIRIN • 81 mg, 300 enteric coated tablets	6.00	4.50	4.00			
01923	ASTAXANTHIN WITH PHOSPHOLIPIDS • 4 mg, 30 softgels	16.00	12.00	10.50			
B							
01945	B-COMPLEX (Bio-Active Complete) • 60 veg. caps	12.00	9.00	8.00			
00920	BENFOTIAMINE W/ THIAMINE • 100 mg, 120 veg. caps	19.95	14.96	13.95			
00925	BENFOTIAMINE (Mega) • 250 mg, 120 veg. caps	30.00	22.50	20.25			
01206	BERRY COMPLETE • 30 veg. caps	21.00	15.75	14.00			
01496	BERRY COMPLETE (Enhanced) • 60 veg. caps	29.00	21.75	19.50			
00664	BETA-CAROTENE • 25,000 IU, 100 softgels	11.50	8.63				
01622	BIFIDO GI BALANCE • 60 veg. caps	20.00	15.00	13.50			
01873	BILBERRY EXTRACT • 100 mg, 90 veg. caps	36.00	27.00	24.00			
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01631	BIO-COLLAGEN W/PATENTED UC-II® • 40 mg, 60 small caps	36.00	27.00	24.00			
**01006	BIOSIL™ • 5 mg, 30 veg. caps	19.99	15.99				
**01007	BIOSIL™ • 1 fl oz	31.99	25.59				
00102	BIOTIN • 600 mcg, 100 caps	7.50	5.63	4.88			
SUBTOTAL OF COLUMN 1							

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01710	BLACK CUMIN SEED OIL W/BIO-CURCUMIN® • 60 softgels	32.00	24.00	22.50			
01008	BLAST™ • 600 grams of powder	26.97	20.23				
02025	BLOOD PRESSURE (Dual Action) • 60 veg. tabs	44.00	33.00	28.00			
70000	BLOOD PRESSURE MONITOR (ACCUFIT™) • med/lg cuff	79.99	49.99				
70004	BLOOD PRESSURE MONITOR • Digital wrist cuff	69.95	52.46				
02024	BLOOD PRESSURE (Triple Action AM/PM) • 60 veg. tabs	44.00	33.00	28.00			
01214	BLUEBERRY EXTRACT • 60 veg. caps	22.50	16.88	15.00			
01438	BLUEBERRY EXTRACT W/ POMEGRANATE • 60 veg. caps	30.00	22.50	20.25			
01506	BONE FORMULA (DR. STRUM'S INTENSIVE) • 300 caps	56.00	42.00	37.50			
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02123	BONE RESTORE • Chocolate, Sugar-Free • 60 chewable tabs	22.00	16.50	14.25			
01727	BONE RESTORE W/VITAMIN K2 • 120 caps	24.00	18.00	16.50			
01725	BONE STRENGTH FORMULA W/KOACT® • 120 caps	45.00	33.75	30.00			
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01661	BORON • 3 mg, 100 veg. caps	5.95	4.46	3.94			
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00984	BP MANAGEMENT (Optimal) • 60 tablets	44.00	33.00	30.00			
01802	BRAIN SHIELD® GASTRODIN • 300 mg, 60 veg. caps	33.00	24.75	22.50			
01253	BRANCHED CHAIN AMINO ACIDS • 90 caps	19.50	14.63	12.75			
01942	BREAST HEALTH FORMULA • 60 caps	34.00	25.50	22.50			
00893	BRITE EYES III • 2 vials, 5 ml each	34.00	25.50	24.00			
01203	BROMELAIN (Specially-coated) 500 mg, 60 enteric coated tablets	21.00	15.75	14.25			
C							
01963	CALCIUM CITRATE W/VITAMIN D • 200 veg. caps	18.00	13.50	12.50			
01651	CALCIUM D-GLUCARATE • 200 mg, 60 veg. caps	18.00	13.50	11.25			
01823	CALREDUCE SELECTIVE FAT BINDER 120 mint chewable tablets	45.00	33.75	28.50			
01700	CARDIO PEAK™ w/STANDARDIZED HAWTHORN & ARJUNA 120 veg. caps	36.00	27.00	24.00			
02018	CARNITINE (Optimized) • 60 veg. caps	30.00	22.50	20.00			
01532	L-CARNITINE • 500 mg, 30 veg. caps	15.00	11.25	9.90			
01829	CARNOSINE • 500 mg, 60 veg. caps	36.00	27.00	24.00			
02020	CARNOSINE (Super) • 500 mg, 60 veg. caps	40.00	30.00	27.00			
01932	CAT MIX • 100 grams powder	14.00	10.50	8.25			
02199	CHILDREN'S FORMULA LIFE EXTENSION MIX™ 120 chewable tablets	25.00	18.75	17.00			
00550	CHLORELLA • 500 mg, 200 tablets	23.98	17.99				
01571	CHLOROPHYLLIN • 100 mg, 100 veg. caps	24.00	18.00	15.00			
01359	CHO-LESS™ • 90 capsules	35.00	26.25				
01910	CHOL-SUPPORT™ • 60 liquid veg. caps	48.00	36.00	32.00			
01504	CHROMIUM W/CROMINEX® 3+ (Optimized) 500 mcg, 60 veg. caps	9.00	6.75	6.00			
01503	CINSULIN® W/INSEAZ® AND CROMINEX® 3+ • 90 veg. caps	38.00	28.50	25.50			
01906	CISTANCHE (Standardized) • 30 veg. caps	20.00	15.00	12.00			
SUBTOTAL OF COLUMN 2							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
00818	CLA BLEND W/SESAME LIGNANS (Super) • 120 softgels	36.00	27.00	24.75	19.75		
02103	COCOAMIND™ • 14 packets	24.00	18.00	16.00			
01896	COGNITEX® W/BRAIN SHIELD® • 90 softgels	60.00	45.00	39.00	36.00		
01897	COGNITEX® W/PREGNENOLONE & BRAIN SHIELD® 90 softgels	62.00	46.50	39.75	37.50		
01421	COGNITEX® BASICS • 60 softgels	38.00	28.50	26.25	24.00		
01659	COGNIZIN® CDP-CHOLINE CAPS • 250 mg, 60 veg. caps	36.00	27.00	25.50			
02202	COMFORTMAX™ • 30 day supply	44.00	33.00	29.00			
01945	COMPLETE B-COMPLEX (BioActive) • 60 veg. caps	12.00	9.00	8.00			
02298	COMPREHENSIVE NUTRIENT PACKS ADVANCED • 30 packs	90.00	67.50	61.50			
01949	COQ10 w/d-LIMONENE (Super-Absorbable) • 50 mg, 60 softgels	25.00	18.75	16.50	15.00		
01948	COQ10 w/d-LIMONENE (Super-Absorbable) 100 mg, 100 softgels	46.00	34.50	28.00	26.25		
01951	COQ10 w/d-LIMONENE (Super-Absorbable) 100 mg, 60 softgels	30.00	22.50	20.00			
01929	COQ10 (Super Ubiquinol) • 100 mg, 60 softgels	56.00	42.00	36.00	33.00		
01733	COQ10 w/PQQ (Super Ubiquinol) • 100 mg, 30 softgels	50.00	37.50	30.00	27.00		
01437	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 100 mg, 30 softgels	33.00	24.75	22.00			
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 100 mg, 60 softgels	62.00	46.50	39.00	36.00		
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 50 mg, 100 softgels	58.00	43.50	34.50	31.50		
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 50 mg, 30 softgels	20.00	15.00	12.00			
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 200 mg, 30 softgels	62.00	46.50	39.00	36.00		
02012	CORTISOL BALANCE (Advanced) • 30 veg. caps	45.00	33.75	30.00			
00862	CRAN-MAX® • 500 mg, 60 veg. caps	17.50	13.13	11.25			
01424	CRAN-MAX® WITH ELLIROSE™ (Optimized) • 60 veg. caps	18.00	13.50	12.00			
01529	CREATINE CAPSULES • 120 veg. caps	10.95	8.21	6.94			
01746	CREATINE WHEY GLUTAMINE POWDER • 454 grams (vanilla)	30.00	22.50	19.50			
00467	CURCUMIN® (Super Bio) • 400 mg, 30 veg. caps	20.00	15.00	14.00			
00407	CURCUMIN® (Super Bio) • 400 mg, 60 veg. caps	38.00	28.50	26.25			
01924	CURCUMIN® W/GINGER & TURMERONES (Advanced Bio) 30 softgels	30.00	22.50	20.25			
01804	CYTOKINE SUPPRESS™ W/EGCG • 30 veg. caps	30.00	22.50	20.25			
COSMESIS							
80157	ADVANCED ANTI-GLYCATION PEPTIDE SERUM • 1 fl. oz	53.00	39.75	34.50			
80165	ADVANCED GROWTH FACTOR SERUM • 1 fl. oz	65.00	48.75	42.75			
80154	ADVANCED LIGHTENING CREAM • 1 oz	65.00	48.75	42.75			
80155	ADVANCED PEPTIDE HAND THERAPY • 4 oz	46.00	34.50	29.25			
80152	ADVANCED TRIPLE PEPTIDE SERUM • 1 fl. oz	65.00	48.75	42.75			
80140	ADVANCED UNDER EYE SERUM W/STEM CELLS • .33 fl. oz	49.00	36.75	31.50			
80139	AMBER SELF MICRODERMABRASION • 2 oz	49.00	36.75	31.50			
80158	ANTI-AGING FACE OIL • 1 fl. oz	59.00	44.25	39.00			
80118	ANTI-AGING MASK • 2 oz	72.00	54.00	47.52			
80151	ANTI-AGING REJUVENATING FACE CREAM • 2 oz	65.00	48.75	42.75			
80153	ANTI-AGING REJUVENATING SCALP SERUM • 2 fl. oz	46.00	34.50	29.25			

SUBTOTAL OF COLUMN 3

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
80134	ANTI-GLYCATION SERUM W/BLUEBERRY & POMEGRANATE EXTRACTS • 1 fl. oz	33.00	24.75	23.51			
80133	ANTIOXIDANT FACIAL MIST HYDRATOR • 2 fl. oz	32.00	24.00	22.80			
80105	ANTI-REDNESS & ADULT BLEMISH LOTION • 1 oz	74.50	55.88	49.17			
80156	COLLAGEN BOOSTING PEPTIDE SERUM • 1 fl. oz	59.00	44.25	39.00			
80141	DNA REPAIR CREAM • 1 oz	49.00	36.75	31.50			
80167	ENVIRONMENTAL SUPPORT SERUM • 1 fl. oz	59.00	44.25	39.00			
80108	ESSENTIAL PLANT LIPIDS REPARATIVE SERUM • 1 fl. oz	74.95	56.21	49.46			
80163	EYE LIFT CREAM • 0.5 fl. oz	59.00	44.25	39.00			
80123	FACE REJUVENATING ANTIOXIDANT CREAM • 2 oz	69.50	52.13	45.87			
80137	HEALING FORMULA ALL-IN-ONE CREAM • 1 oz	53.00	39.75	34.07			
80102	HEALING VITAMIN K CREAM • 1 oz	79.50	59.63	52.47			
80109	HYALURONIC FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28			
80110	HYALURONIC OIL-FREE FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28			
80138	HYDRATING ANTIOXIDANT FACE MIST • 4 fl. oz	39.95	29.96	28.50			
80103	LIFTING & TIGHTENING COMPLEX • 1 oz	74.50	55.88	49.17			
80168	MELATONIN ADVANCED PEPTIDE CREAM • 1 oz	38.00	28.50	26.00			
80114	MILD FACIAL CLEANSER • 8 fl. oz	59.00	44.25	38.94			
80159	MULTI STEM CELL SKIN TIGHTENING COMPLEX • 1 fl. oz	59.00	44.25	39.00			
80122	NECK REJUVENATING ANTIOXIDANT CREAM • 2 oz	64.00	48.00	42.24			
80150	RENEWING EYE CREAM • 1/2 oz	65.00	48.75	42.75			
80142	RESVERATROL ANTI-OXIDANT SERUM • 1 fl. oz	46.00	34.50	29.25			
80166	SKIN FIRMING COMPLEX • 1 fl. oz (2 units \$34.50)	53.00	39.75				
80112	SKIN LIGHTENING SERUM • 1/2 fl. oz	85.00	63.75	56.10			
80130	SKIN STEM CELL SERUM • 1 fl. oz	74.00	55.50	51.75			
80164	SKIN TONE EQUALIZER • 0.4 fl oz	59.00	44.25	39.00			
80143	STEM CELL CREAM W/ALPINE ROSE • 1 oz	66.00	49.50	43.50			
80148	TIGHTENING & FIRMING NECK CREAM • 2 oz	39.00	29.25	26.25			
80161	TRIPLE ACTION VITAMIN C CREAM • 1 oz jar	59.00	44.25	39.00			
80162	ULTIMATE MICRODERMABRASION • 8 fl. oz	39.00	29.25	26.25			
80160	ULTRA EYELASH BOOSTER • 0.25 oz (2 units each \$39)	59.00	44.25				
80116	ULTRA LIP PLUMPER • 1/3 oz	64.00	48.00	42.24			
80101	ULTRA WRINKLE RELAXER • 1 oz	89.95	67.46	59.82			
80113	UNDER EYE REFINING SERUM • 1/2 fl. oz	74.50	55.88	49.17			
80104	UNDER EYE RESCUE CREAM • 1/2 oz	74.50	55.88	49.17			
80129	VITAMIN C SERUM • 1 fl. oz	85.00	63.75	56.10			
80136	VITAMIN D LOTION • 4 oz	36.00	27.00	25.25			
80145	VITAMIN E-ESSENTIAL CREAM • 1 oz	28.00	21.00	19.50			
80149	YOUTH SERUM • 1 oz	65.00	48.75	42.75			
D							
00658	7-KETO® DHEA METABOLITE • 25 mg, 100 caps	28.00	21.00	18.00			
01479	7-KETO® DHEA METABOLITE • 100 mg, 60 veg. caps	40.00	30.00	27.00			
01640	DHA (Vegetarian) • 30 veg. softgels	20.00	15.00	13.50			
00607	DHEA • 25 mg, 100 tablets (Dissolve in mouth)	14.00	10.50	8.81			
01478	DHEA COMPLETE • 60 veg. caps	48.00	36.00	32.40			
00335	DHEA • 25 mg, 100 caps	16.00	12.00	11.00			

SUBTOTAL OF COLUMN 4

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
00454	DHEA • 15 mg, 100 caps	14.00	10.50	9.00			
00882	DHEA • 50 mg, 60 caps	19.00	14.25	12.75			
01689	DHEA • 100 mg, 60 veg. caps	24.00	18.00	16.50			
02021	DIGESTIVE ENZYMES (Enhanced Super) • 60 veg. caps	22.00	16.50	15.00			
02022	DIGESTIVE ENZYMES w/PROBIOTICS (Enhanced Super)•60 veg. caps	28.00	21.00	18.00			
01671	D, L-PHENYLALANINE • 500 mg, 100 veg. caps	18.75	14.06	12.00			
01540	DMAE BITARTRATE • 150 mg, 200 veg. caps	18.00	13.50	11.25			
02270	DNA PROTECTION FORMULA • 30 veg. caps	20.00	15.00	13.50			
01931	DOG MIX • 100 grams powder	18.00	13.50	11.25			
02006	DOPA-MIND™ • 60 veg. tabs	44.00	33.00	28.00			
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA • 2 oz	39.95	29.96	24.00			
00320	DR. PROCTOR'S HAIR SHAMPOO • 8 oz	24.95	18.71	16.50			
E							
01997	ENDOTHELIAL DEFENSE™ w/POMEGRANATE COMPLETE AND CORDIART™ • 60 softgels	68.00	51.00	46.50			
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® • 60 veg. caps	54.00	40.50	36.00			
02200	EPA/DHA (Clearly) • 120 softgels	30.00	22.50	20.00			
02033	ESOPHACOO™ • 60 chewable tablets	12.00	9.00	8.00			
01737	ESOPHAGEAL GUARDIAN (Berry flavor) • 60 chewable tablets	36.00	27.00	24.00			
01894	ESTROGEN FOR WOMEN • 30 veg. tabs	30.00	22.50	20.00			
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 600 mg, 30 veg. tabs	20.00	15.00	13.50			
01706	EXTRAORDINARY ENZYMES • 60 caps	26.00	19.50	18.00			
02008	(CALIFORNIA ESTATE) EXTRA VIRGIN OLIVE OIL • 500 ml (16.9 fl. oz)	33.00	24.75	22.50			
01514	EYE PRESSURE SUPPORT W/MIRTOGENOL® • 30 veg. caps	38.00	28.50	25.50			
F							
00965	FAST-ACTING JOINT FORMULA • 30 caps	39.00	29.25	27.00			
01717	FAST-C® W/DIHYDROQUERCETIN • 120 veg. tabs	26.00	19.50	18.00			
01064	FEMMENESSENCE MACAPAUSE® • 120 veg. caps	34.99	26.24				
02125	FLORASSIST® GI w/PHAGE TECHNOLOGY•30 liquid veg. caps	33.00	24.75	22.50			
01821	FLORASSIST® HEART HEALTH • 60 veg. caps	32.00	24.00	21.00			
02124	FLORASSIST® IMMUNE HEALTH • 30 veg. caps	26.00	19.50	18.00			
02120	FLORASSIST® ORAL HYGIENE • 30 lozenges	20.00	15.00	13.00			
01825	FLORASSIST® BALANCE • 30 liquid veg. caps	32.00	24.00	21.00			
02000	FLORASSIST® MOOD • 60 caps	33.00	24.75	22.50			
02208	FLORASSIST® NASAL • 60 veg. caps	36.00	27.00	24.00			
02203	FLORASSIST® PREBIOTIC • Natural Strawberry, 60 chewable tabs	20.00	15.00	13.00			
01920	FLORASSIST® THROAT HEALTH • 30 lozenges	20.00	15.00	13.50			
01913	FOLATE HIGH POTENCY (Optimized) • 5,000 mcg, 30 veg. tablets	18.00	13.50	12.00			
01939	FOLATE (Optimized) • 1,000 mcg, 100 veg. tablets	15.00	11.25	10.00			
01842	FOLATE + VITAMIN B12 (BioActive) • 90 veg. caps	12.00	9.00	8.00			
01544	FORSKOLIN • 10 mg, 60 veg. caps	16.00	12.00	10.50			
01513	FUCOIDAN W/MARITECH® 926 (Optimized) • 60 veg. caps	36.00	27.00	24.75			
G							
02070	GAMMA E MIXED TOCOPHEROL/TOCOTRIENOLS • 60 softgels	40.00	30.00	27.00			
02075	GAMMA E MIXED TOCOPHEROL w/ENHANCED SESAME LIGNANS • 60 softgels	32.00	24.00	21.75			
01394	GARLIC (Optimized) • 200 veg. caps	24.95	18.71	15.75			
SUBTOTAL OF COLUMN 5							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
02100	GASTRO-EASE™ • 60 veg. caps	44.00	33.00	30.00			
02119	GEROPROTECT™ AGELESS CELL™ • 30 softgels	40.00	30.00	27.00			
02133	GEROPROTECT™ LONGEVITY A.I.™ • 30 softgels	56.00	42.00	38.00			
01122	GINGER FORCE® • 60 liquid caps	34.95	26.21				
01658	GINKGO BILOBA CERTIFIED EXTRACT™ 120 mg, 365 veg. caps	50.00	37.50	33.00			
00756	GLA WITH SESAME LIGNANS (Mega) • 60 softgels	19.50	14.63	13.50			
00345	(L-) GLUTAMINE CAPSULES • 500 mg, 100 veg. caps	14.95	11.21	10.13			
00141	(L-) GLUTAMINE POWDER • 100 grams	22.00	16.50	15.00			
00522	GLUCOSAMINE/CHONDROITIN CAPSULES • 100 caps	38.00	28.50	24.00			
01541	GLUTATHIONE, CYSTEINE & C • 100 veg. caps	22.00	16.50	15.00			
02122	GLYCEMIC GUARD™ • 30 veg. caps	42.00	31.50	28.00			
01669	GLYCINE • 1,000 mg, 100 veg. caps	12.00	9.00	8.10			
01411	GRAPE SEED EXTRACT W/RESVERATROL & PTEROSTILBENE 100 mg, 60 veg. caps	36.00	27.00	25.50			
01620	GREEN COFFEE EXTRACT COFFEEGENIC® 400 mg, 90 veg. caps	32.00	24.00	21.00			
00953	GREEN TEA EXTRACT (Mega)•lightly caffeinated, 100 veg. caps	30.00	22.50	18.00			
00954	GREEN TEA EXTRACT (Mega)•decaffeinated, 100 veg. caps	30.00	22.50	18.00			
H							
01074	5 HTP • 100 mg, 60 caps	27.95	20.96				
02002	HAIR, SKIN & NAIL REJUVENATION FORM W/VERISOL® 90 tabs	32.00	24.00	22.00			
01738	HCA (Garcinia) • 90 veg. caps	17.00	12.75	11.25			
29754	HCACTIVE™ GARCINIA CAMBOGIA EXTRACT • 90 caps	30.00	22.50				
01393	HEPATOPRO • 900 mg, 60 softgels	50.00	37.50	34.50			
02121	HOMOCYSTEINE RESIST • 60 veg. caps	26.00	19.50	17.50			
01527	HUPERZINE A • 200 mcg, 60 veg. caps	40.00	30.00	27.00			
00661	HYDRODERM® • 1 oz	79.95	59.96	49.00			
I							
01704	IMMUNE MODULATOR W/TINOFEND® • 60 veg. caps	17.00	12.75	11.25			
00955	IMMUNE PROTECT W/PARACTIN® • 30 veg. caps	29.50	22.13	19.91			
02005	IMMUNE SENESCENCE PROTECTION FORMULA™•60 veg. tabs	40.00	30.00	27.00			
01674	INOSITOL CAPSULES • 1,000 mg, 360 veg. caps	62.00	46.50	43.50			
01292	INTEGRA-LEAN® AFRICAN MANGO IRVINGIA 150 mg, 60 veg. caps	28.00	21.00	18.00			
30731	IONIC SELENIUM • 300 mg, 2 fl. oz	13.69	10.27				
01677	IRON PROTEIN PLUS • 300 mg, 100 caps	28.00	21.00	19.50			
01492	IRVINGIA W/PHASE 3™ CALORIE CONTROL COMPLEX (Optimized African Mango)• 120 veg. caps	56.00	42.00	36.00			
J, K, L							
52142	JARRO-DOPHILUS® PROBIOTIC FOR WOMEN 30 enteric-coated veg. caps	27.95	20.96				
00056	JARRO-DOPHILUS EPS® • 60 veg. caps	23.95	17.96				
02034	K W/ADVANCED K2 COMPLEX (Super) • 90 softgels	30.00	22.50	20.25			
01600	KRILL HEALTHY JOINT FORMULA • 30 softgels	32.00	24.00	21.75			
01050	KRILL OIL (Jarrow)• 60 softgels	33.95	25.46				
00316	KYOLIC® GARLIC FORMULA 102 • 200 veg. caps	27.45	20.59				
SUBTOTAL OF COLUMN 6							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
00789	KYOLIC® RESERVE • 600 mg, 120 caps	28.95	21.71				
01681	LACTOFERRIN • 60 caps	44.00	33.00	30.00			
00020	LECITHIN • 16 oz granules	18.00	13.50	12.00			
02255	LIFE EXTENSION MIX™ • 240 tablets	74.00	55.50	48.00	42.00		
02257	LIFE EXTENSION MIX™ W/EXTRA NIACIN • 240 tablets	74.00	55.50	48.00	42.00		
02254	LIFE EXTENSION MIX™ • 360 caps	78.00	58.50	50.00	44.00		
02256	LIFE EXTENSION MIX™ POWDER • 12.70 oz	72.00	54.00	46.00	40.00		
02265	LIFE EXTENSION MIX™ • 240 tablets w/o copper	74.00	55.50	48.00	42.00		
02264	LIFE EXTENSION MIX™ • 360 caps w/o copper	78.00	58.50	50.00	44.00		
01608	LIVER EFFICIENCY FORMULA • 30 veg. caps	18.00	13.50	12.00			
01639	5-LOX INHIBITOR W/APRÈSFLEX® • 100 mg, 60 veg. caps	22.00	16.50	15.00			
01678	L-LYSINE • 620 mg, 100 veg. caps	9.00	6.75	6.00			
00455	LYCOPENE (Mega) • 15 mg, 90 softgels	35.00	26.25	22.50			
M							
01992	MACUGUARD® OCULAR SUPPORT w/SAFFRON • 60 softgels	25.00	18.75	17.50			
01993	MACUGUARD® OCULAR SUPPORT w/SAFFRON & ASTAXANTHIN • 60 softgels	44.00	33.00	30.00			
01459	MAGNESIUM CAPS • 500 mg, 100 veg. caps	12.00	9.00	7.50			
01682	MAGNESIUM (CITRATE) • 160 mg, 100 veg. caps	13.00	9.75	8.50			
02107	(EXTEND-RELEASE) MAGNESIUM • 60 veg. caps	13.00	9.75	8.75			
01908	MEDITERRANEAN TRIM WITH SINETROL™-XPUR 60 veg. caps	18.00	13.50	12.00			
02109	MEDITERRANEAN WHOLE FOOD BLEND • 90 veg. caps	44.00	33.00	30.00			
01668	MELATONIN • 300 mcg, 100 veg. caps	7.00	5.25	4.50			
01083	MELATONIN • 500 mcg, 200 veg. caps	18.00	13.50	12.00			
00329	MELATONIN • 1 mg, 60 caps	5.00	3.75	3.47			
00330	MELATONIN • 3 mg, 60 veg. caps	8.00	6.00	5.16			
00331	MELATONIN • 10 mg, 60 veg. caps	28.00	21.00	18.00			
00332	MELATONIN • 3 mg, 60 veg. lozenges	8.00	6.00	5.16			
01734	MELATONIN (Fast-Acting Liquid) • 2 fl. oz (Citrus-Vanilla)	12.00	9.00	8.25			
01787	MELATONIN TIMED RELEASE • 300 mcg, 100 veg. tabs	12.00	9.00	8.25			
01788	MELATONIN TIMED RELEASE • 750 mcg, 60 veg. tablets	8.00	6.00	5.25			
01786	MELATONIN TIMED RELEASE • 3 mg, 60 veg. tabs	12.00	9.00	8.25			
02101	MEMORY PROTECT • 36 day supply	24.00	18.00	16.00			
01536	METHYLCOBALAMIN • 1 mg, 60 veg. lozenges (vanilla)	9.95	7.46	6.00			
01537	METHYLCOBALAMIN • 5 mg, 60 veg. lozenges (vanilla)	32.00	24.00	18.75	17.25		
00709	MIGRA-EEZE™ (Butterbur) • 60 softgels	33.00	24.75	22.00			
01522	MILK THISTLE (European) • 60 veg. caps	34.00	25.50	22.50			
01922	MILK THISTLE (European) • 60 softgels	28.00	21.00	18.75			
01925	MILK THISTLE (European) • 120 softgels	44.00	33.00	30.00			
01940	MIRAFORTE w/STANDARDIZED LIGNANS (Super) • 120 veg caps	62.00	46.50	42.00			
01869	MITOCHONDRIAL BASICS w/PQQ • 30 caps	40.00	30.00	27.00			
01868	MITOCHONDRIAL ENERGY OPTIMIZER w/PQQ • 120 caps	68.00	51.00	45.00			
00065	MK-7 • 90 mcg, 60 softgels	28.00	21.00	18.75			
00451	MSM (Methylsulfonylethane) • 1,000 mg, 100 caps	14.00	10.50	8.96			

SUBTOTAL OF COLUMN 7

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
N							
01534	N-ACETYL-L-CYSTEINE • 600 mg, 60 veg. caps	14.00	10.50	9.25			
01904	NAD+ CELL REGENERATOR™ • 100 mg, 30 veg. caps	22.00	call for pricing				
02144	NAD+ CELL REGENERATOR™ NICOTINAMIDE RIBOSIDE 250 mg, 30 veg. caps	42.00	call for pricing				
02148	NAD+ CELL REGENERATOR™ W/RESVERATROL (Optimized) 30 veg. caps	48.00	call for pricing				
01603	NEURO-MAG® MAGNESIUM L-THREONATE • 90 veg. caps	40.00	30.00	27.00			
02032	NEURO-MAG® MAGNESIUM L-THREONATE 93.35 grams • Tropical Punch Flavor	38.00	28.50	26.00			
01990	NITROVASC w/CORDIART™ • 30 veg. caps	18.00	13.50	12.00			
01903	NK CELL ACTIVATOR™ • 30 veg. tablets	45.00	33.75	31.50			
00373	NO FLUSH NIACIN • 800 mg, 100 caps	19.00	14.25	12.75			
O							
01824	OLIVE LEAF VASCULAR SUPPORT w/CELERY SEED EXTRACT (Advanced) • 60 veg. caps	36.00	27.00	24.00			
01937	OMEGA-3 (EPA/DHA) • 120 softgels	20.00	15.00	13.50			
01988	OMEGA-3 PLUS EPA/DHA w/SESAME LIGNANS, OLIVE EXTRACT, KRILL & ASTAXANTHIN (SUPER) • 120 softgels	45.00	33.75	31.50	24.75		
01983	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 60 softgels	18.00	13.50	12.00	9.38		
01982	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 120 softgels	32.00	24.00	21.00	17.05		
01984	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 120 enteric coated softgels	34.00	25.50	23.25	18.00		
01985	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 60 enteric coated softgels	20.00	15.00	13.50	10.50		
01986	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 240 small softgels	32.00	24.00	21.00	17.25		
02092	ONCE-DAILY HEALTH BOOSTER • 30 softgels	30.00	22.50	20.00			
02091	ONCE-DAILY HEALTH BOOSTER • 60 softgels	54.00	40.50	38.00			
02213	ONE-PER-DAY • 60 tablets	23.00	17.25	16.00			
01328	ONLY TRACE MINERALS • 90 veg. caps	15.00	11.25	9.38			
P							
01789	PALMETTOGUARD® SAW PALMETTO W/BETA-SITOSTEROL 30 softgels	15.00	11.25	10.50	9.00		
01790	PALMETTOGUARD® SAW PALMETTO/ NETTLE ROOT W/BETA-SITOSTEROL • 60 softgels	28.00	21.00	19.50	18.00		
*00342	PECTA SOL-C® MODIFIED CITRUS PECTIN • 454 grams powder	113.95	96.86				
*01080	PECTA SOL-C® MODIFIED CITRUS PECTIN • 270 veg. caps	82.95	70.51				
01811	PEONY IMMUNE • 60 veg. caps	36.00	27.00	24.00			
*00673	PGX® PLUS MULBERRY (WellBet®) • 180 veg. caps	34.95	26.21				
01953	POMEGRANATE COMPLETE • 30 softgels	24.00	18.00	15.75			
00956	POMEGRANATE FRUIT EXTRACT • 30 veg. caps	19.50	14.63	13.16			
*01837	POMI-T® • 60 veg. caps	38.00	28.50	26.00			
00577	POTASSIUM IODIDE • 130 mg, 14 tabs	6.95	5.21	3.94			
01500	PQQ CAPS • 10 mg, 30 veg. caps	18.00	13.50	11.00	10.00		
01647	PQQ CAPS • 20 mg, 30 veg. caps	32.00	24.00	18.00	17.00		
00302	PREGNENOLONE • 50 mg, 100 caps	26.00	19.50	16.50			
00700	PREGNENOLONE • 100 mg, 100 caps	30.00	22.50	20.25			
*01373	PRELOX® ENHANCED SEX FOR MEN • 60 tablets	52.00	39.00	36.00			

SUBTOTAL OF COLUMN 8

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
00525	PROBOOST™ THYMIC PROTEIN A • 30 packets	66.60	49.95				
01441	PROGESTA-CARE® • 4 oz cream	36.39	27.29	25.72			
02029	PROSTATE FORMULA (Ultra) • 60 softgels	38.00	28.50	26.25	24.00		
01909	PROSTAPOLLEN™ (Triple strength) • 30 softgels	28.00	21.00	18.75			
01742	PROTEIN-ISOLATE (Whey) Vanilla • 403 grams	30.00	22.50	19.50			
01743	PROTEIN-ISOLATE (Whey) Chocolate • 437 grams	30.00	22.50	19.50			
01770	PROTEIN CONCENTRATE (New Zealand Whey) Vanilla 500 grams	30.00	22.50	19.95			
01771	PROTEIN CONCENTRATE (New Zealand Whey) Chocolate 640 grams	30.00	22.50	19.95			
02127	PROTEIN (PLANT) COMPLETE & AMINO ACID COMPLEX 15.87 oz	34.00	25.50	23.00			
01812	PROVINAL® PURIFIED OMEGA-7 • 30 softgels	27.00	20.25	18.00			
01676	PS CAPS (Phosphatidylserine) • 100 mg, 100 veg. caps	54.00	40.50	36.00			
01508	PTEROPURE® Pterostilbene • 50 mg, 60 veg. caps	32.00	24.00	22.50			
01209	PUMPKIN SEED EXTRACT (Water-soluble) • 60 veg. caps	20.00	15.00	13.50			
01637	PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT 100 mg, 60 veg. caps	64.00	48.00	45.00			
01217	PYRIDOXAL 5'-PHOSPHATE • 100 mg, 60 veg. caps	22.00	16.50	14.85			
Q, R							
01309	QUERCETIN (Optimized) • 250 mg, 60 veg. caps	22.00	16.50	15.00			
01030	RED YEAST RICE (Bluebonnet) • 600 mg, 60 veg. caps	18.08	13.56				
00605	REGIMINT • 60 enteric-coated caps	19.95	14.96	14.00			
01708	REISHI EXTRACT MUSHROOM COMPLEX • 60 veg. caps	30.00	22.50	20.25			
01448	REJUVENEX® BODY LOTION • 6 fl. oz	24.00	18.00	14.85	12.75		
01621	REJUVENEX® FACTOR FIRING SERUM • 1.7 oz	65.00	48.75	37.50			
01220	REJUVENEX® (ULTRA) • 2 oz	52.00	39.00	33.00	29.25		
00676	REJUVENIGHT® (ULTRA) • 2 oz	39.95	29.96	27.00			
01410	RESVERATROL W/PTEROSTILBENE • 100 mg, 60 veg. caps	36.00	27.00	24.00			
02030	RESVERATROL (Optimized) • 60 veg. caps	46.00	34.50	31.00			
00889	RHODIOLA EXTRACT • 250 mg, 60 veg. caps	14.00	10.50	9.00			
01900	RIBOGEN™ FRENCH OAK WOOD EXTRACT 200 mg, 30 veg. caps	36.00	27.00	24.75			
00972	(D) RIBOSE POWDER • 150 grams	27.50	20.63	18.56			
01473	(D) RIBOSE TABLETS • 100 veg. tabs	32.00	24.00	21.00			
02169	RAINFOREST BLEND GROUND COFFEE • 12 oz. bag	13.00	9.75				
02173	RAINFOREST BLEND GROUND COFFEE Natural Mocha • 12 oz. bag	15.00	11.25				
02172	RAINFOREST BLEND GROUND COFFEE Natural Vanilla • 12 oz. bag	15.00	11.25				
02171	RAINFOREST BLEND WHOLE BEAN COFFEE 12 oz. bag	13.00	9.75				
02170	RAINFOREST BLEND DECAFFEINATED ROAST GROUND COFFEE 12 oz. bag	14.00	10.50				
01208	R-LIPOIC ACID (Super) • 240 mg, 60 veg. caps	49.00	36.75	33.75			
00070	RNA CAPSULES • 500 mg, 100 caps	17.95	13.46	12.12			
S							
01432	SAFFRON W/SATIEREAL® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
01935	SAME (S-ADENOSYL-METHIONINE) 200 mg, 30 enteric coated tablets	25.00	18.75	16.50			
SUBTOTAL OF COLUMN 9							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01933	SAME (S-ADENOSYL-METHIONINE) 400 mg, 30 enteric coated tablets	36.00	27.00	24.00			
01934	SAME (S-ADENOSYL-METHIONINE) 400 mg, 60 enteric coated tablets	66.00	49.50	45.00			
01740	SEA-IODINE™ • 1,000 mcg, 60 veg. caps	8.00	6.00	5.40			
01879	SE-METHYL L-SELENOCYSTEINE • 200 mcg, 90 veg. caps	11.00	8.25	7.50			
00318	SERRAFLAZYME • 100 tablets	18.00	13.50	12.00			
01626	SEX FOR WOMEN 50+ (Enhanced) • 90 veg. caps	59.00	44.25	34.00			
01938	SHADE FACTOR™ • 120 veg. caps	44.00	33.00	30.00			
02110	SHADE FACTOR™ SUNSCREEN LOTION • 4 fl. oz	20.00	15.00	13.00			
02118	SHADE FACTOR™ SUNSCREEN SPRAY • 6 fl. oz	22.00	16.50	14.25			
01884	SILYMARIN • 100 mg, 90 veg. caps	14.00	10.50	9.50			
02129	SKIN CARE COLLECTION ANTI-AGING SERUM • 1.75 fl. oz	60.00	45.00	37.50			
02132	SKIN CARE COLLECTION BODY LOTION • 6 oz	28.00	21.00	18.00			
02130	SKIN CARE COLLECTION DAY CREAM • 1.65 oz	50.00	37.50	33.00			
02131	SKIN CARE COLLECTION NIGHT CREAM • 1.65 oz	39.00	29.25	27.00			
01596	SKIN RESTORING PHYTOCERAMIDES w/LIPOWHEAT® 30 liquid veg. caps	25.00	18.75	17.25			
01444	SLEEP (Quiet) • 60 veg. caps	13.00	9.75	7.50			
01445	SLEEP MELATONIN (Quiet) • 5 mg, 60 veg. caps	18.00	13.50	12.00			
01551	SLEEP w/ MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00			
01511	SLEEP W/O MELATONIN (Enhanced) • 30 caps	20.00	15.00	13.50			
00961	SODZYME® w/GLISODIN® & WOLFBERRY • 90 veg. caps	28.00	21.00	18.00			
00657	SOLARSHIELD® SUNGLASSES • Smoke color	12.99	9.74	8.63			
01097	SOY EXTRACT (ULTRA) • 150 veg. caps	76.00	57.00	50.00			
01649	SOY ISOFLAVONES (SUPER ABSORBABLE) • 60 veg. caps	28.00	21.00	18.75			
00432	STEVIA™ (Better) • 100 packets, 1 gram each	9.95	7.46				
00438	STEVIA™ ORGANIC LIQUID SWEETENER (Better) • 2 oz	11.00	8.25				
00987	STRESS RELIEF (Enhanced) • 30 veg. caps	28.00	21.00	18.00			
01476	STRONTIUM • 750 mg, 90 veg. caps	20.00	15.00	13.50			
01778	SUPER SELENIUM COMPLEX • 200 mcg, 100 veg. caps	14.00	10.50	9.00	8.25		
T							
02023	TART CHERRY W/CHERRYPURE® 60 veg. caps	20.00	15.00	14.00			
01827	TAURINE • 1,000 mg, 90 veg. caps	13.00	9.75	9.00			
02205	TEA CRYSTALS (Kenyan Green) • 14 stick packs	12.00	9.00	8.00			
02206	TEA CRYSTALS (Kenyan Purple) • 14 stick packs	18.00	13.50	12.00			
01918	TEAR SUPPORT w/MAQUIBRIGHT® • 60 mg, 30 veg. caps	18.00	13.50	12.00			
00133	L-TAURINE POWDER • 300 grams	20.00	15.00	12.66			
*13685	TEN MUSHROOM FORMULA® • 120 veg. caps	41.95	35.66				
01304	THEAFLAVIN STANDARDIZED EXTRACT • 30 veg. caps	18.00	13.50	12.00			
01683	(L) THEANINE • 100 mg, 60 veg. caps	24.00	18.00	15.38			
**01038	THERALAC® PROBIOTICS • 30 caps	47.95	35.96				
00668	THYROID FORMULA (Metabolic Advantage™) • 100 caps	21.95	16.46				
00349	TMG POWDER • 50 grams	14.00	10.50	8.25			
01859	TMG • 500 mg, 60 liquid veg. caps	13.00	9.75	9.00			
01400	TOCOTRIENOLS (Super-absorbable) • 60 softgels	30.00	22.50	21.00			
01278	TOOTHPASTE • 4 oz (Mint) tube	9.50	7.13	6.50			
SUBTOTAL OF COLUMN 10							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01917	TRANQUIL TRACT™ • 60 veg. caps	52.00	39.00	34.50			
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT 60 veg. caps	24.00	18.00	16.50			
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL • 60 veg. caps	32.00	24.00	22.20			
02003	TRIPLE ACTION THYROID • 60 veg. caps	36.00	27.00	24.00			
01803	TRI SUGAR SHIELD® • 60 veg. caps	36.00	27.00	24.00			
01386	TRUFIBER™ • 180 grams	32.95	24.71				
01389	TRUFLORA® PROBIOTICS • 32 veg. caps	42.95	32.21				
01722	L-TRYPTOPHAN • 500 mg, 90 veg. caps	33.00	24.75	22.50			
01721	TRYPTOPHAN PLUS (Optimized) • 90 veg. caps	32.00	24.00	21.75			
02216	TWO-PER-DAY • 60 tablets	12.00	9.00	7.50			
02215	TWO-PER-DAY • 120 tablets	21.00	15.75	14.00			
02217	TWO-PER-DAY • 60 caps	12.00	9.00	8.00			
02214	TWO-PER-DAY • 120 caps	24.00	18.00	16.00			
00326	L-TYROSINE • 500 mg, 100 tablets	13.50	10.13				
U, V							
01921	URIC ACID CONTROL • 60 veg. caps	24.00	18.00	16.50			
00213	VANADYL SULFATE • 7.5 mg, 100 veg. tablets	15.00	11.25	9.38			
02102	VENOFLOW™ • 30 veg. caps	52.00	39.00	36.00			
00408	VENOTONE • 60 caps	18.95	14.21	12.00			
01327	VINPOCETINE • 10 mg, 100 veg. tablets	18.00	13.50	10.50			
00372	VITAMIN B3 NIACIN • 500 mg, 100 caps	7.65	5.74	4.99			
02028	VITAMIN B5 • 500 mg, 100 veg. caps (Pantothenic Acid)	14.00	10.50	9.50			
01535	VITAMIN B6 • 250 mg, 100 veg. caps	12.50	9.38	8.25			
00361	VITAMIN B12 • 500 mcg, 100 lozenges	8.75	6.56	5.44			
01634	VITAMIN C w/DIHYDROQUERCETIN 1,000 mg, 60 veg. tablets	10.00	7.50	6.75			
00927	VITAMIN C w/DIHYDROQUERCETIN 1,000 mg, 250 veg. tablets	30.00	22.50	20.00			
00084	VITAMIN C POWDER (BUFFERED) • 454 grams	28.00	21.00	19.00			
01736	VITAMIN C-MAGNESIUM CRYSTALS (EFFERVESCENT) 180 grams	20.00	15.00	13.50			
01732	VITAMIN D3 • 2,000 IU, 1 fl. oz, Mint flavor	28.00	21.00	18.75			
01753	VITAMIN D3 • 1,000 IU, 90 softgels	7.00	5.25	4.50			
01751	VITAMIN D3 • 1,000 IU, 250 softgels	12.50	9.38	8.44			
01713	VITAMIN D3 • 5,000 IU, 60 softgels	10.00	7.50	6.50			
01718	VITAMIN D3 • 7,000 IU, 60 softgels	14.00	10.50	9.45			
01758	VITAMIN D3 W/SEA-IODINE™ • 5,000 IU, 60 caps	14.00	10.50	9.38			
00864	VITAMIN D3 LIQUID • 2,000 IU, 1 fl. oz	28.00	21.00	18.75			
02040	VITAMINS D AND K W/SEA-IODINE™ • 60 caps	24.00	18.00	16.50			
01863	VITAMIN E (Super) • 400 IU, 90 softgels	28.00	21.00	19.50	18.00		
01936	VITAMIN K2 (Low dose) • 45 mcg, 90 softgels	18.00	13.50	12.00			
W							
01902	WAIST-LINE CONTROL™ • 120 veg. caps	42.00	31.50	28.50			
X, Y							
01919	X-R SHIELD • 90 veg. caps	15.00	11.25	9.75			
00409	XYLIWHITE™ MOUTHWASH • 16 oz	10.00	7.50				
SUBTOTAL OF COLUMN 11							

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
Z							
01813	ZINC HIGH POTENCY • 50 mg, 90 veg. caps	9.00	6.75	4.50			
01561	ZINC LOZENGES • 60 veg. lozenges	9.00	6.75	6.00			
01961	ZINC LOZENGES (Enhanced) • 30 veg. lozenges	12.00	9.00	6.00			
01051	ZYFLAMEND® WHOLE BODY • 120 liquid veg. caps	72.95	54.71				
BOOKS							
33998	THE RIGHT TO TRY by Darcy Olsen • 2016	26.99	20.24				
33875	DOCTORED: THE DISILLUSIONMENT OF AN AMERICAN PHYSICIAN • by Sandeep Jauhar • 2015	26.00	19.50				
33874	MISSING MICROBES • by Martin J. Blaser, MD • 2014	28.00	21.00				
DPT05	DISEASE PREVENTION AND TREATMENT, FIFTH EDITION (Hardcover) • 2014	69.95	39.95	36.00			
33865	THE RESTORATION OF THE HUMAN BODY [IN 7 PARTS] by Sergey A. Dzugan, MD, PhD • 2014	29.95	22.46				
33862	I'M TOO YOUNG FOR THIS • by Suzanne Somers • 2013	26.00	19.50				
33835	PHARMOCRACY • by William Faloon • 2011	24.00	9.60	8.00			
33838	YOUR GUIDE TO HEALTHY SKIN THE NATURAL WAY by Gary Goldfaden, MD • 2012	26.00	15.00				
33815	KNOCKOUT • by Suzanne Somers • 2009	25.99	17.00				
34132	TWO'S COMPANY: FIFTY YEAR ROMANCE by Suzanne Somers • 2017	26.00	19.50				
SUBTOTAL OF COLUMN 12							

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SUBTOTAL COLUMN 2

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SUBTOTAL COLUMN 5

SUBTOTAL COLUMN 6

SUBTOTAL COLUMN 7

SUBTOTAL COLUMN 8

SUBTOTAL COLUMN 9

SUBTOTAL COLUMN 10

SUBTOTAL COLUMN 11

SUBTOTAL COLUMN 12

ORDER TOTALS

SUBTOTAL OF COLUMNS 1 - 12

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- *B. lactis* Bl-04
- *L. paracasei* Lpc-37
- *L. rhamnosus* Lr-32
- *B. bifidum/lactis* Bb-02
- *B. longum* BB536®

TetraPhage Blend • 15 mg **

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

For full product description and to order **FLORASSIST® GI with Phage Technology**, call **1-800-544-4440** or visit **www.LifeExtension.com**

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



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.



WHAT'S INSIDE

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7 **CARDIOVASCULAR MORTALITY PLUMMETS 50%!**

The **Journal of the American Medical Association** reports that **cardiovascular** deaths **declined** by **50%** since **1980**. Prevention strategies include **blood tests** to identify correctable risk factors.



36 **PLANT COMPOUNDS PROTECT JOINT CARTILAGE**

Three **botanical extracts** can help *repair* joint damage and *reduce* cartilage loss in **osteoarthritis** cases.



55 **CANCER PREVENTION EFFECTS OF LYCOPENE**

Recent research demonstrates that **lycopene**, introduced by **Life Extension®** in **1985**, can *inhibit* malignant transformation and help *prevent* metastasis.



24 **REDUCE ALLERGY MISERIES**

A targeted **probiotic** and **yeast compound** lowers the allergic response by *rebalancing* immune function to *reduce* common **allergy** miseries.



46 **ASTAXANTHIN SLOWS SKIN AGING**

In human studies, **astaxanthin** *improves* wrinkles, elasticity, and moisture while *enhancing* collagen production in the **skin**.



62 **NAD+ RESTORATION MAY REDUCE ALZHEIMER'S RISK**

Boosting **NAD+** *improved* cognitive functions and *restored* brain plasticity in a mouse model of Alzheimer's.