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with husband Alan Hamel*



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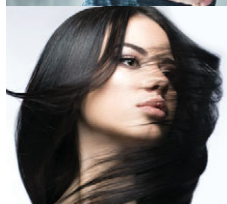
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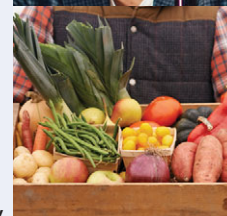
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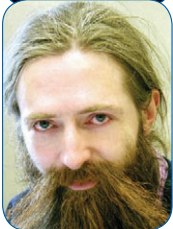
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Reference

1. *Br J Pharmacol.* 2004 Mar;141(5):825-30.



BY WILLIAM FALOON

How Bone Loss Accelerates Aging

When people think about **osteoporosis**, they assume it refers *only* to decreased **bone density** and increased **fracture** risk.

The reality is far worse.

As skeletal mass is lost, bone-derived **growth factors** are released that may contribute to **atherosclerosis**,^{1,2} **inflammation**,^{3,4} **calcification**,^{5,6} and **cancer**.⁷⁻⁹

Osteoporosis is mostly associated with **women**, but it also occurs in **men**. In both men and women, it lays the groundwork for chronic age-related illnesses. These pathologies almost always develop before **bone loss** is detected.

Maintaining skeletal integrity is a lifelong process that involves the dissolving of old bone and precise restoration by laying down minerals such as **calcium**.

In the absence of bone-building **nutrients** and **hormones**, growth factors that should remain in **bone** are instead released into the **blood** where they create systemic havoc.

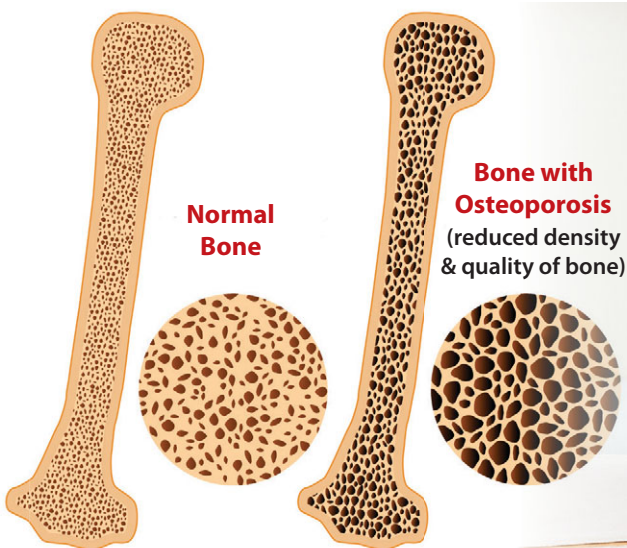
Osteoporosis in **men** is underestimated. In the setting of newly diagnosed **prostate cancer**, evidence of significant **bone loss** has been observed virtually **100%** of the time.¹⁰⁻¹⁵ Prostate cancer-cell propagation increases in response to **growth factors** released as bone remodels.^{7,16}

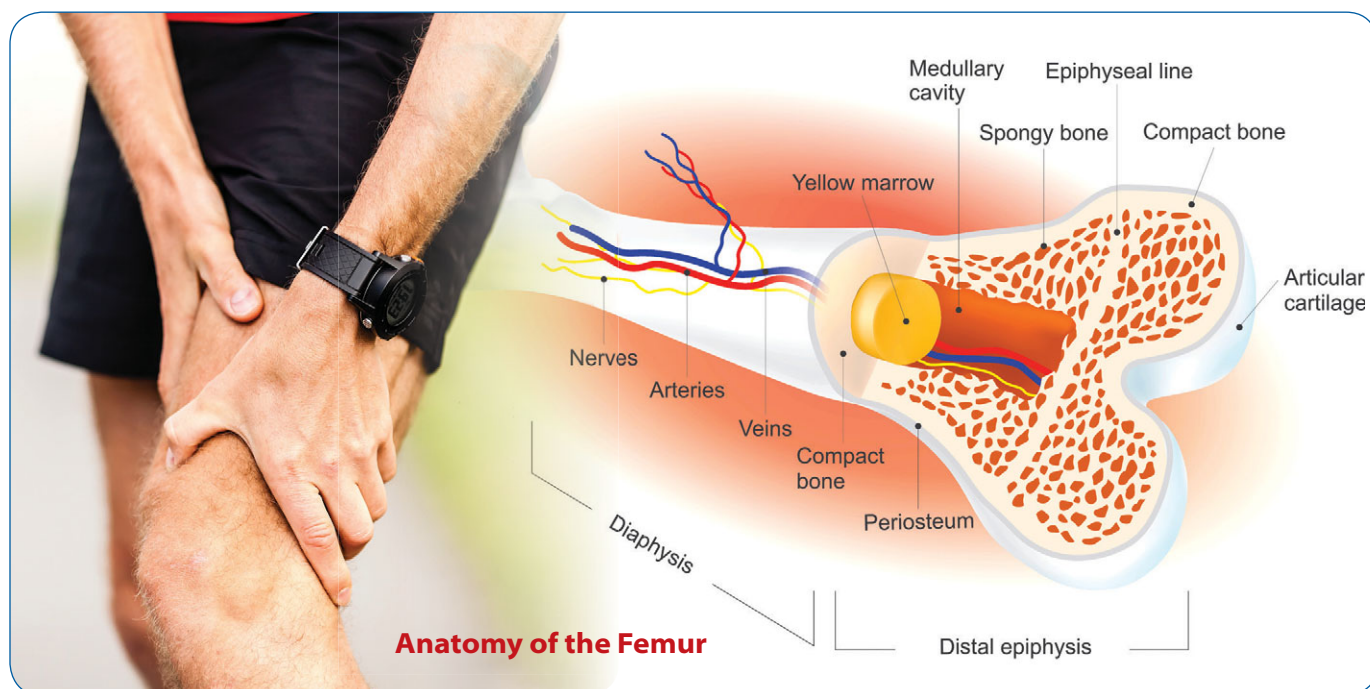
When osteoporotic **fractures** occur in older men, death rates are higher than women with fractures.^{17,18}

Awareness of **osteoporosis risk** motivates health-conscious women (and some men) to proactively protect against bone loss.

For those who want to reduce their intake of encapsulated **minerals**, a chewable tablet now provides **optimal** potencies with a natural chocolate-flavor taste.

This issue of **Life Extension Magazine®** describes hidden causes of **bone loss** that can be rectified with lifestyle changes, hormone/mineral balance, and avoidance of bone-depleting drugs.





People may lose **bone mass** at any age, and it is a common part of normal degenerative processes.

Documented methods exist to slow and reverse bone loss.

As bone density declines, inflammatory cytokines are released into the blood such as **interleukin-6**, **tumor necrosis factor-alpha**, and **interleukin 1**.¹⁹⁻²¹

These **pro-inflammatory** factors may accelerate **vascular** disease and **dementia** while shortening overall longevity.²²⁻²⁶ It is important to note that inflammation, aging and cancer are inter-related.

Bone contains **growth factors** that are needed to maintain skeletal density. When bone breaks down, these **growth factors** are released into the blood where they can fuel **cancer** cell propagation.^{10,11}

Testosterone plays an important role in maintaining bone density in men.^{27,28} Women rely more on **estrogen** and **progesterone**.^{29,30}

Both sexes can benefit from **DHEA**, a hormone that converts to **estrogen** and **testosterone** in a highly individualistic manner.³¹

What's important to understand is that **bone** is not static. Our skeleton comprises energized tissues that are rich in **bone-derived growth factors**.

Keeping these **growth factors** in **bone** and out of **soft tissues** is essential for healthy longevity.

Overlooked Role of Magnesium

When **Life Extension**® was founded 37 years ago, most dietary supplements designed to prevent **osteoporosis** contained only **calcium** and a little **vitamin D**.

We argued that **magnesium** was also important to maintain aging bones.

A large volume of evidence now substantiates the role **magnesium** plays in bone health.³²⁻³⁶

A study published in **2017** produced compelling findings show-

ing that low serum **magnesium** concentration is **independently** associated with an increased risk of **fractures** in middle-aged Caucasian men.³⁷

For this study, researchers evaluated 2,200 men over a median follow-up of **25.6** years. They found that **men** in the lowest quartile of serum **magnesium** had a **two-fold increased** risk of **bone fractures**, compared to those in the highest quartile. This study found that **63.4%** of those fractures involved the femur—the major weight-bearing bone of the lower extremity.

Of 22 men in this study with above-normal **magnesium** levels at baseline, none experienced a **fracture**.

What's revealing here is that only **1%** of men had above-normal **magnesium** serum levels. This may indicate how widespread **magnesium deficiency** is in the general population.

The researchers who conducted this study commented that it would be difficult for aging people to obtain optimal blood

magnesium levels via **diet**. They suggested using **supplements** to ensure *higher* magnesium blood levels.

When looking at the data showing magnesium's multiple benefits, it makes sense to ensure one is obtaining optimal amounts of this **mineral** that is deficient in most American diets.

Osteoporosis Runs Rampant

Bone fractures are a leading cause of disability and ill health among the aging population.³⁷ Fracture incidence worsens as more people are prescribed bone-robbing **drugs** in the face of epidemic **nutrient** deficiencies.

In American white women over age 50, roughly **four in ten** will experience a hip, spine or wrist **fracture** sometime during the remainder of their lives. Lifetime risk of fractures will increase for all ethnic groups as people live longer.³⁸

By **2020**, one of every two Americans over age 50 is expected to have, or be at risk of developing, **osteoporosis** of the hip. Even more will be at risk of developing osteoporosis at any skeletal site.³⁸

The high prevalence of osteoporosis in **women** has caused many **men** to be complacent about their bone health.

We at **Life Extension** have observed clinical data indicating that **bone loss** is associated with **coronary artery blockage**, **carotid artery/aortic valve stenosis** and/or **prostate cancer**.³⁹⁻⁴⁷

In other words, as **bone mass** breaks down and releases its contents into the blood, there is systemic **ossification** (bone formation) of **soft tissues** and wide-

spread **inflammation**, along with **bone-derived growth factors** acting as biological fuel for **cancer cell** proliferation.

So in a nutshell, maintaining and restoring youthful **bone density** reduces not only **fractures** but also risk of the most common degenerative disorders.

You Don't Have to be a Victim!

Data on **osteoporosis** incidence is frightening. One should find comfort that they have the ability to **improve** bone health at any age.

Bone loss is exacerbated in those who ingest excess phosphates (such as those found in soda beverages), consume too

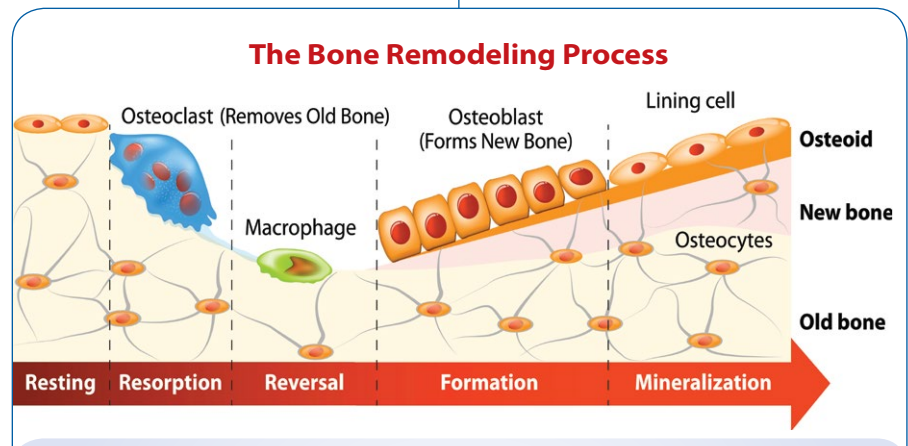
much alcohol, and/or smoke cigarettes.⁴⁸⁻⁵⁴

Thyroid or **parathyroid** disorders can cause **bone density loss**,⁵⁵⁻⁵⁷ as can **sex hormone** deficits (estrogen, testosterone, progesterone, DHEA).^{29,58-61}

Loss of bone mass is attributed to **mineral deficiencies** such as boron, magnesium and calcium.^{37,62-64}

Vitamin K2 is essential to keep **calcium** in **bone** and out of **soft tissues** like **arteries** and **heart valves**.⁶⁵⁻⁶⁹

Those taking any **drug** that causes bone mass loss should be particularly vigilant. We describe common **bone-depleting drugs** in the osteoporosis article appearing on page 34 of this month's issue.



Bone Is Living Tissue

Lay people often mistakenly think of bone as calcified rock that slowly erodes with aging.

In reality, your bones "remodel" through a lifelong process where old bone tissue is removed from the skeleton and new bone tissue formed.^{70,71}

An imbalance in the regulation of bone "remodeling" results in disorders such as osteoporosis.⁷¹

Bone tissue is removed by osteoclasts, and new bone tissue is formed by osteoblasts. Both processes utilize the signaling cytokines **transforming growth factor-beta** (TGF- β) and **insulin-like growth factor** (IGF).^{72,73}

When bone breaks down, it releases **TGF-B** and **IGF** into the **blood** where these **growth factors** can fuel **cancer** cell proliferation.^{74,75}

New Way to Take Bone-Building Minerals

There are a number of well-designed formulas that provide calcium, magnesium and other nutrients for bone health. To obtain optimal potencies, consumers usually have to swallow about four capsules a day.

Minerals don't taste bad the way B-vitamins and some amino acids do.

That prompted us to combine optimal potencies of **calcium, magnesium, boron** and other nutrients to create a pleasant-tasting **chewable chocolate tablet**.

I was surprised when I tried this **mineral tablet** because it

tasted as good as sugar-free chocolate I've used in the past.

Just two of these nice-tasting tablets provide the same potencies of nutrients as are found in four capsules of popular bone-building formulas.

No one should risk complications of **osteoporosis** when there are **low-cost** options available, with robust published scientific data to support efficacy.

For longer life,



William Faloon, Co-Founder
Life Extension Buyers Club



New Tasty Chocolate
Chewable Mineral Tablets

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Tap the Power of **N-Acetyl-L-Cysteine** To Boost Glutathione Levels

N-acetyl-L-cysteine supports healthy levels of **glutathione**, a molecule utilized by all cells for protection against free radical damage and attacks from foreign compounds.

N-Acetyl-L-Cysteine

Item #01534 • 60 vegetarian capsules

	Retail Price	Your Price
1 bottle	\$14	\$10.50
4 bottles		\$9.25 each



Non-GMO

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

For full product description and to order N-Acetyl-L-Cysteine, call 1-800-544-4440 or visit www.LifeExtension.com

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

GIVE YOUR BONES A BOOST

Bone Restore combines skeletal-strengthening nutrients in a four capsule per day formula.



	Retail Price	Your Price
1 bottle	\$22	\$16.50
4 bottles		\$14.25 each
Item #01726 • 120 capsules		

For full product description and to order **Bone Restore**, call **1-800-544-4440** or visit **www.LifeExtension.com**

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

Bone-Building NUTRIENTS In a *Tasty* CHEWABLE TABLET



Just two of the new **Bone Restore Chewable Tablets** provide:

Calcium	700 mg
Magnesium	300 mg
Silicon	5 mg
Boron	3 mg
Zinc	2 mg
Manganese	1 mg
Vitamin D3	1000 IU

Note: Recent recommendations for supplemental **calcium** dosing are around **700 mg** based on typical amounts of **dietary** calcium consumed.

To obtain enough **calcium** and other bone-building nutrients requires swallowing four **capsules** a day.

You can now ingest these potencies with two **Chewable Chocolate Tablets** of the new **Bone Restore**.

You'll be pleasantly surprised how good these **Chocolate Chewables** taste.

ITEM # 02123 • 60 chewable tablets • **Non-GMO** • Retail price \$22 • **Your price \$16.50** • 4 bottles \$14.25 each

For full product description and to order **Bone Restore**,
call **1-800-544-4440** or visit **www.LifeExtension.com**

Chew tablets before swallowing. Keep out of reach of children. Do not exceed recommended dose.

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.



7-Times Better Absorption **Super Bio-Curcumin®**



Super Bio-Curcumin®

Item #00407 • 60 vegetarian capsules

	Retail Price	Your Price
1 bottle	\$38	\$28.50
4 bottles		\$26.25 each

Non-GMO



Super Bio-Curcumin® features a patented extract from turmeric root that absorbs up to **7 times** better than standard curcumin. This product is ideal for those seeking to support normal cell-cycle growth and healthy inflammatory response.

Advanced Bio-Curcumin® contains the same optimal potency of **curcumin** with the added benefits of **ginger** and additional **turmeric** extracts.

Suggested dose for either **Super Bio-Curcumin®** formula is one capsule daily.

Advanced Bio-Curcumin® with Ginger & Turmerones

Item #01924 • 30 softgels

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1 bottle	\$30	\$22.50
4 bottles		\$20.25 each

Non-GMO



For full product description and to order
Super Bio-Curcumin® or **Advanced Bio-Curcumin® with Ginger & Turmerones**,
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Coffee Drinkers May Live Longer

The largest study of its kind to date has revealed an association between drinking approximately three cups of **coffee** per day and a lower risk of mortality from any cause during an average follow-up period of 16.4 years.*

The study included 521,330 men and women who were enrolled in the *European Prospective Investigation into Cancer and Nutrition* study. Over an average 16.4-year follow-up, there were 41,693 deaths. Among men whose intake of coffee was among the top **25%**, the risk of all-cause mortality over follow-up was **12%** lower than those who did not drink coffee, and for women, the risk was **9%** lower.

Mortality from digestive diseases was **59%** lower for men in the top **25%** and **40%** lower for women.

Women who consumed the highest amount of coffee also benefitted from a **22%** lower risk of circulatory disease mortality and a **30%** lower risk of cerebrovascular disease mortality compared to nondrinkers.

Editor's Note: In a subset of subjects, an association was observed between higher coffee intake and lower liver enzyme levels, and for women, an association was also observed with lower C-reactive protein, lipoprotein(a) and glycated hemoglobin levels. "We found that drinking more coffee was associated with a more favorable liver function profile and immune response," observed lead author Dr. Marc Gunter of the International Agency for Research on Cancer. "This, along with the consistency of the results with other studies in the U.S. and Japan gives us greater confidence that coffee may have beneficial health effects."

* *Ann Intern Med.* 2017 Aug 15;167(4):236-247.



Curcumin Shows Promise Against Zika

An article in *Antiviral Research* reports that **curcumin**, a compound occurring in the spice turmeric, acts against Zika and chikungunya, two mosquito-borne viruses.*

Cells were pretreated with curcumin or its analogs prior to infection with chikungunya or Zika. Researchers Bryan C. Mounce and colleagues observed a decrease in the viruses in association with pretreatment with curcumin in comparison with untreated controls. Curcumin was more effective when administered prior to or at the time of infection than after infection.

The compound, when directly administered to the viruses, reduced their infectiousness.

The team determined that curcumin interfered with the binding of enveloped viruses to cell surfaces. The data suggest that curcumin does not destroy viral particles, but alters their membranes, and that curcumin could affect host lipid membranes involved in viral infection.

Editor's Note: "Altogether curcumin holds significant promise in the treatment of enveloped virus infection, including outbreak viruses such as Zika virus and chikungunya virus," the authors conclude.

* *Antiviral Res.* 2017 Mar 24;142:148-157.

Blueberry Brain Benefit

A randomized, double-blind trial has revealed increased neural response in men and women who supplemented with freeze-dried **blueberry powder** for 16 weeks.*

Participants between the ages of 68 and 92 with mild cognitive impairment who did not have dementia or other neurologic conditions received either a placebo powder or a powder that provided the equivalent of a half cup of whole blueberries, taken twice daily for 16 weeks. Functional magnetic resonance imaging (fMRI) administered during a task involving working memory was conducted before and after the treatment period to evaluate changes in the brain.

Compared to functional magnetic resonance imaging results at the beginning of the study, participants whose diets were supplemented with **blueberry** powder had significant **increases** in activity in three regions of the brain after treatment, while the placebo group experienced a small region of decreased activation.

Editor's Note: Those who received blueberry also experienced improvement in one aspect of memory accuracy. The authors remark that the findings support the hypothesis that flavonoid compounds such as those found in blueberries contribute to improved vascular function.

* *Nutr Neurosci.* 2017 Feb 21:1-9

Green Tea Associated With Lower Mortality Risk

An analysis of two ongoing prospective studies conducted in China found an association between regular consumption of **green tea** and a lower risk of cardiovascular and all-cause mortality during a median follow-up period of 8.3 years for men and 14.2 years for women.*

The analysis included 51,920 men enrolled in the Shanghai Men's Health Study, established in 2002 to 2006, and 64,034 participants in the Shanghai Women's Health Study, established from 1997 to 2000.

During the follow-up periods, 2,741 deaths were documented among the men and 3,776 fatalities occurred among the women. Compared to non-green tea drinkers, there was a **5%** lower adjusted risk of mortality from any cause in association with drinking green tea regularly, and an **11%** lower risk among green tea drinkers who never smoked.

Editor's Note: When deaths from cardiovascular disease were examined, the reduction in risk over follow-up was **14%** lower for regular consumers of green tea.

**J Epidemiol.* 2017 Jan;27(1):36-41.

High Cholesterol Triggers Osteoarthritis

Besides its harmful cardiovascular effects, **high cholesterol** may also prompt mitochondrial oxidative stress, according to recent research.* This can kill cartilage cells, leading to **osteoarthritis**.

The study provided innovative proof-of-concept of the possible use of oxidant reducers to target mitochondria as a means of treating osteoarthritis.

"Our team has already begun working alongside dietitians to try to educate the public about healthy eating and how to keep cholesterol levels at a manageable level that won't damage joints," said researcher Indira Prasad, PhD.

For the study, researchers used two animal models: one consisted of mice with altered genes that led to them having hypercholesterolemia (high cholesterol), the other was made up of unaltered rats. Both animal models were fed either a control normal diet or a high cholesterol diet. Surgery was then performed on the rodents to create a condition analogous to human knee injuries that lead to osteoarthritis.

Both animal models on the high cholesterol diet had worse osteoarthritis than the animals fed a normal diet. But the ones given mitochondrion-targeted antioxidants and the cholesterol-lowering drug atorvastatin had the least severe osteoarthritis of all.

Editor's Note: "Just when we thought all the angles on osteoarthritis had been uncovered, a new lead like this comes along," remarked Thoru Pederson, PhD, editor-in-chief of the FASEB Journal. "The focus of hypercholesterolemia, whether familial or sporadic, has, of course, always been on arterial disease. But here we have a fascinating new discovery."

*FASEB J. 2017 Jan;31(1):356-367.

Just-Published Protocol in the *Disease Prevention and Treatment Book*

The scientists and writers at **Life Extension®** continuously update the online *Disease Prevention and Treatment* protocol chapters based on the latest research. Recent updates are briefly summarized here with complete versions of these chapters and references available online at:

<http://www.lifeextension.com/Protocols>

Peptic Ulcers

Helicobacter pylori (a bacterium) and excessive use of **non-steroidal anti-inflammatory drugs (NSAIDs)** are the most common causes of peptic ulcers. Fortunately, medical ulcer treatments are much more effective than they used to be thanks to new discoveries. Also, integrative interventions including ***deglycyrrhizinated licorice (DGL)***, ***zinc-carboxine***, and **vitamin C** have powerful anti-*H. pylori* and ulcer-healing effects. **Probiotics**, particularly a strain called ***Lactobacillus reuteri DSM17648***, appear to help control *H. pylori* and reduce inflammation. Treatment with probiotics can also enhance the ability of antibiotics to eliminate *H. pylori* infection and reduce drug side effects. Finally, lifestyle measures including smoking cessation, stress reduction, and avoidance of NSAIDs and excess alcohol help promote ulcer healing and prevent recurrence.

MEGA GREEN TEA EXTRACT

Powerful DNA Protection



FOR LESS
THAN
25¢
A DAY!

Mega Green Tea Extract provides powerful antioxidant effects throughout the body.

Each **725 mg** capsule of **Mega Green Tea Extract** is standardized to **98% polyphenols** that provide **326 mg** of **EGCG** to:

- Protect against DNA damage and oxidative stress¹
- Support healthy blood sugar levels²
- Enhance heart health³
- Boost brain function⁴
- Support strong bones⁵
- Maintain healthy cholesterol levels already within normal range⁶

Each cost-effective bottle lasts over three months!

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Note: **EGCG** is the acronym for **epigallocatechin gallate**, which is the polyphenol in green tea that has demonstrated the most robust health benefits.

Mega Green Tea Extract Decaffeinated

Item #00954 • 100 vegetarian capsules

	Retail Price	Your Price
1 bottle	\$30	\$22.50
4 bottles		\$18 each

Non-GMO



Mega Green Tea Extract Lightly Caffeinated

Item #00953 • 100 vegetarian capsules

	Retail Price	Your Price
1 bottle	\$30	\$22.50
4 bottles		\$18 each

Non-GMO



For full product description and to order **Mega Green Tea Extract**, call **1-800-544-4440** or visit **www.LifeExtension.com**

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Sweet DREAMS

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

For optimal results, melatonin should be taken within 30-60 minutes before going to sleep.



Melatonin 3 mg

Item #00330 • 60 vegetarian capsules

	Retail Price	Your Price
1 bottle	\$8	\$6
4 bottles		\$5.16 each

For full product description
and to order **Melatonin**,
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Non-GMO

Caution: Consult your health care provider before taking this product if you are being treated for a medical condition (especially autoimmune or depressive disorders). Use caution if combining with alcohol. This product is not intended for children, pregnant or lactating women, or women trying to become pregnant. Do not attempt to drive or operate heavy machinery after taking this product.

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Zinc stimulates the activity of about 300 enzymes¹ and fortifies the immune system.²

Taking the best zinc lozenge is important for maintaining the body's natural defense system during the cold season—and throughout the year.

Enhanced Zinc Lozenges is a special "ionic formula" that delivers on the original promise of seasonal immune support and comes in natural peppermint flavor.

References

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Zinc Lozenges

Item #01961 • 30 vegetarian lozenges

	Retail Price	Your Price
1 bottle	\$12	\$9
4 bottles		\$6 each

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A close-up photograph of a woman wearing safety glasses and a lab coat, holding a test tube with a green plant sample. The image is used as a background for the article title.

RHODIOLA

Quickly Combats Fatigue





One of the most common complaints of older adults to their physician is a lack of energy, or a feeling of being “tired all the time.” These are just a few of the symptoms of **fatigue**.

As many as **one-third** of adults suffer from fatigue symptoms that substantially interfere with their daily lives.¹ In fact, it is so common in elderly people that many physicians either ignore it, or chalk it up to “normal aging.”²

There have been growing concerns that if left untreated, fatigue can progress to a debilitating condition known as **chronic fatigue syndrome**.^{1,2} That means that a large group of otherwise healthy older adults are suffering from a progressive condition without adequate therapy.

But what if there was a way to start feeling like yourself again *in as little as one week*?

A new study shows that supplementation with an extract of the plant **Rhodiola rosea** produces statistically significant improvements in symptoms associated with fatigue—and it starts working in *less than a week*.¹

Rhodiola represents a safe and effective way to combat the real-world fatigue that so many adults face as they grow older.

Rhodiola Combats Prolonged and Chronic Fatigue

An article published online in **February 2017** in the journal *Complementary Medicine Research* reports on an important study of subjects with **prolonged fatigue** (fatigue lasting between one and six months), and those with **chronic fatigue syndrome** (fatigue lasting longer than six months).¹

This is important because of growing concerns that **fatigue worsens** without effective treatment.^{1,2}

Successfully treating patients with fatigue lasting less than 6 months would be a **major breakthrough**. It could prevent prolonged fatigue from progressing to debilitating chronic fatigue syndrome.¹

The investigators studied extracts of *Rhodiola rosea*, which has **adaptogenic** properties. Adaptogens are natural compounds that help your body *adapt* to stress—a major contributor to fatigue.

Rhodiola has long been popular in Eastern European and Asian traditional medical systems for its nervous system stimulation, antidepressive, fatigue-eliminating, and performance-enhancing properties.³ Research shows that adaptogens improve mental performance and enhance endurance in people with fatigue.^{1,4}

Let's look at the details of this **2017** study.¹



Reduce Fatigue Symptoms in Just One Week

The **2017** study included 100 subjects with either prolonged or chronic fatigue.¹ All subjects took **400 mg (200 mg twice per day)** of *Rhodiola rosea* extract every day for eight weeks. They were then administered standard tests and received scores relating to fatigue and functional impairment.

By the end of the study, there was a *significant decrease* in all measures of fatigue and impairment used.¹

The subjects didn't have to wait long to see results. The fastest decline across all outcome measures occurred in the *very first week* of the study, and these measures continued to fall significantly between week four and the end of the study.¹

Rapid improvement in levels of stress, sleep quality, anxiety/panic/phobia, depression, and executive function (the ability to sort priorities and execute intentions) were also seen. In addition, scores on the **Clinical Global Impression** scale showed that **83%** of subjects reported themselves to be "very much" or "much" improved by the end of the study.¹

The safety profile of this extract was also favorable.¹

This was a large clinical trial with **uniformly positive results**, and included a substantial number of subjects with prolonged as well as chronic fatigue, making it **groundbreaking** in its own way.

This study did not include a placebo arm. Other studies were **placebo-controlled** and have shown encouraging results with *Rhodiola* extracts in the setting of fatigue and its major input, *stress*.

Stress-Reducing Adaptogen Combats Fatigue

Stress exacerbates fatigue, reduces sleep quality, induces depression, and generally robs us of energy.⁵⁻⁷ In fact, a study immediately after Hurricane Andrew in 1992 showed that physical symptoms of chronic fatigue were sharply increased by the brutal storm and its aftermath.⁸

Research shows the body's major stress-response system (called the *hypothalamic-pituitary-adrenal axis*, or HPA), is strongly implicated in chronic fatigue syndrome, which helps to explain why stress seems to worsen the condition.⁹

As one of the best known and most thoroughly documented **adaptogens**, *Rhodiola* has a lot to offer people who are suffering from fatigue that is either brought on by stress or exacerbated by it. Clinical trials have produced some exciting results for ***Rhodiola*** extracts in this context.

RHODIOLA ROSEA

What You Need to Know

Fight Fatigue with Rhodiola

- Fatigue affects up to one-third of the US adult population, impacting quality of life, work productivity, and relaxation.
- Modern medical care has little to offer people with fatigue, and in fact may belittle their problems.
- *Rhodiola rosea* (golden root) has been revered as an **adaptogen** in traditional medical systems for centuries, targeting people with low energy, anxiety, depression, and stress.
- Studies now show that *Rhodiola* extracts act directly and indirectly on the body's stress-response systems at a biochemical level, enhancing our ability to overcome stress and improve energy levels.
- A new open-label clinical trial just out in 2017 has shown across-the-board improvements in symptoms in *Rhodiola*-supplemented subjects with prolonged or chronic fatigue, validating and extending findings from earlier randomized, placebo-controlled studies.
- It is now clear that *Rhodiola's* **adaptogenic** properties make it an ideal candidate for battling fatigue as well as the stresses that generate and sustain it.
- Anyone suffering unrelenting fatigue for one month or more should explore the fatigue-resisting, stress-relieving powers of *Rhodiola*.



One such study evaluated a population of people with life-stress symptoms.¹⁰ In this study, 101 subjects received **400 mg (200 mg twice per day)** of *Rhodiola* per day for four weeks.

As with the **2017** study of *Rhodiola* in fatigued patients, all of the stress scores evaluated improved during the study, showing reductions in stress symptoms, disability, and functional impairment.¹⁰ And patients started seeing improvements *in just three days!*

Remarkably, these improvements continued to grow for the entire four weeks of the study.

The True Test of Stress Reduction

There's hardly a more stressed, fatigued group than physicians doing night duty, when the biological clock is disrupted, meals are irregular, sleep is scarce, and stress is high.

In a study of the effects of *Rhodiola* on fatigue in 56 healthy young physicians, subjects received either a standardized *Rhodiola* extract or placebo, and then underwent five different tests of stress and fatigue at the beginning and end of a two-week period of night duty.¹¹

The group receiving the *Rhodiola* extract experienced a significant improvement in all of these tests. This is a clear indication of *Rhodiola's* stress- and fatigue-fighting adaptogenic properties.

Several other randomized, placebo-controlled studies have confirmed or extended these findings in people undergoing stress and experiencing fatigue—including college students during exam periods, military cadets in basic training, and otherwise healthy adults with stress-related fatigue.¹²⁻¹⁴

Rhodiola's Adaptogenic Properties Fight Fatigue-Inducing Stress

Rhodiola rosea has a lengthy history in traditional medical systems in Eastern Europe and Asia, where it is considered an **adaptogen**.^{3,18}

The term “adaptogen” has only recently gained credibility in our Western-dominated, cause-and-effect-oriented scientific communities, but the concept is now well-supported by key biochemical discoveries.⁴

A review in *Current Clinical Pharmacology*, a journal that publishes peer-reviewed articles on the latest advances in clinical pharmacology, defined adaptogens as, “A pharmacological group of herbal preparations that increase tolerance to mental exhaustion and enhance attention and mental endurance in situations of decreased performance.”⁴

In other words, adaptogens help your body *adapt* to stress. Adaptogens essentially help regulate the HPA axis or the body's major stress response system.

Since stress is a major contributor to fatigue, helping your body better manage stress represents an important way to help combat fatigue.

Rhodiola rosea extracts have been found to improve key **stress-related** features of prolonged and chronic fatigue, including attention, cognitive function, and mental performance.⁴

Research now shows that adaptogens like *Rhodiola* protect against stress by modulating interactions between the hypothalamus, the pituitary, and the adrenal glands, where the stress hormone cortisol is produced.⁴

Biochemically, *Rhodiola* extracts up-regulate the “stress-sensor” protein called **Hsp70**, which is a core regulator of cell survival or death. When Hsp70 is activated, it inhibits the production of stress-induced nitric oxide, and modulates levels of circulating cortisol.

These changes in turn result in increased production of ATP, the energy-rich molecule that all cells use for power, which increases endurance and performance (mental as well as physical).⁴

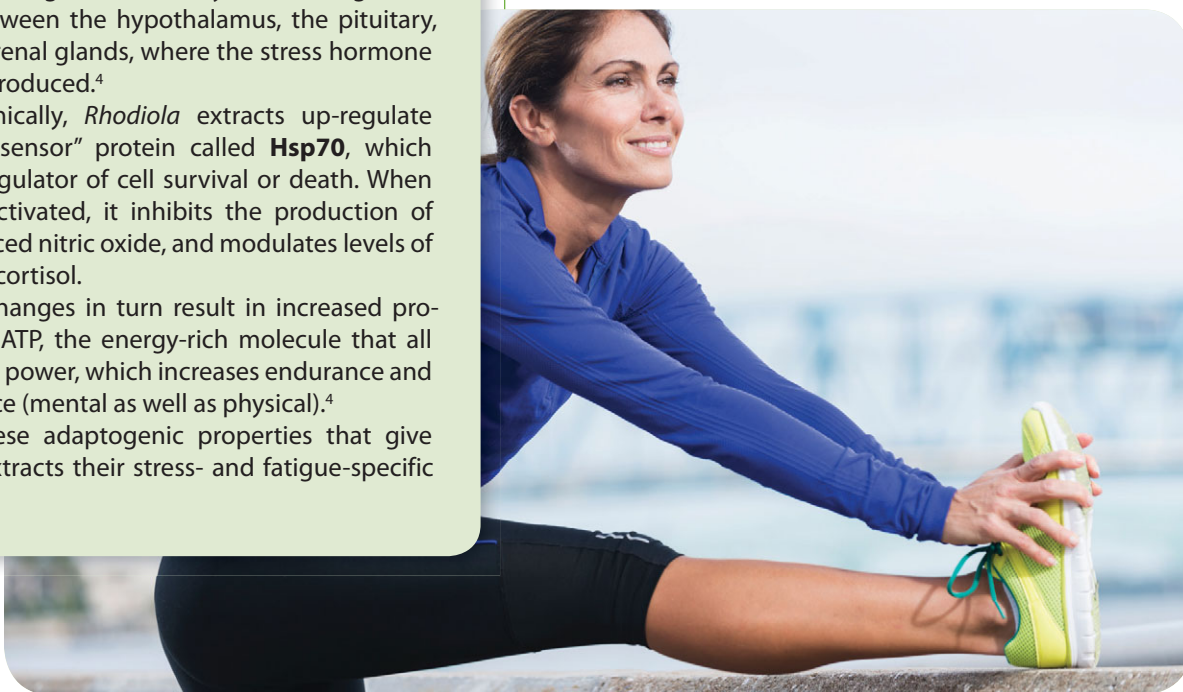
It is these adaptogenic properties that give *Rhodiola* extracts their stress- and fatigue-specific effects.

These studies all used slightly different outcome measures, but reached startlingly similar results, showing that *Rhodiola rosea* extract significantly improved:

- Physical fitness, mental fatigue, and performance on neurological and motor tests
- Self-assessed general well-being
- Scores on a specially-designed **anti-fatigue index**
- Scores on a standardized “burnout” scale
- Mental health measures
- Cognitive tests of attention
- Cortisol responses to stress

Studies in laboratory animals corroborate these effects. For example, *Rhodiola* extract significantly induced antidepressant-like, antianxiety-like, and energy-stimulating effects in mice.¹⁵ In rats subjected to a forced-swim test, animals supplemented with *Rhodiola* extract for four weeks demonstrated significantly increased swimming performance and longer swimming times, a demonstration of increased energy and endurance.^{16,17}

The evidence shows that the way *Rhodiola* achieved these effects was by inhibiting oxidative stress in blood, liver, and skeletal muscles, while *increasing* stress-responsiveness (this was measured by higher levels of the stress-resisting protein Hsp70).^{16,17}





Summary

Prolonged fatigue—the kind that interferes with daily work, home life, and pleasure—affects up to one-third of US adults. If not dealt with, it can progress to full-blown chronic fatigue syndrome.

There is no safe, acceptable pharmacological cure for prolonged fatigue, leaving sufferers to live with poor quality of life and often leading to significant anxiety and depression.

In traditional medical systems of Eastern Europe and Asia, such symptoms have long been treated with extracts of *Rhodiola rosea*, which is known as an **adaptogen**.

Modern science has shown that *Rhodiola* extracts enhance the body's systems for dealing with chronic stress, which is a major contributor to all forms of fatigue.

Clinical studies show that *Rhodiola's* adaptogenic properties significantly improve symptoms associated with fatigue. This includes improving scores on multiple scales of fatigue, cognitive performance, attention, and more, while reducing measurable stress levels.

In addition to the research described in this article, studies published by other clinicians have used a range of doses to evaluate the effects of *Rhodiola* on stress and cognitive fatigue.^{11-13,19}

Those suffering from fatigue severe enough to interfere with quality of life, cognition, or attention may consider supplementing with **250 mg** of standardized ***Rhodiola* extract** before breakfast and a second **250 mg** capsule before lunchtime, both doses on an empty stomach. ●

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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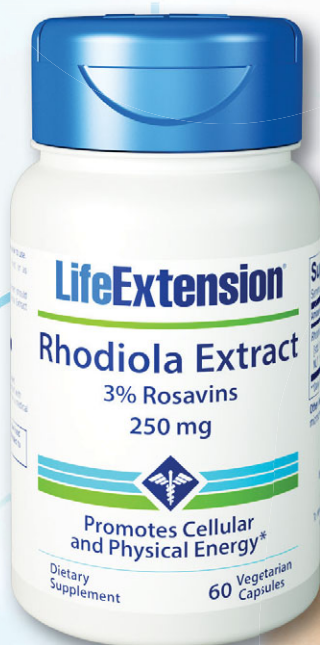
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The Overlooked Importance of **BONE HEALTH**

A photograph of a male doctor with a stethoscope around his neck, looking at a male patient with a beard and glasses. They are in a clinical setting, with the doctor on the left and the patient on the right.

People often think of **bone loss** as something that happens mostly to elderly women.

The reality is that more than **half** of adults over age 50 in the United States—including *men*—have **bone loss** or **osteoporosis**.^{1,2}

Up to **one-quarter** of men over 50 will suffer an osteoporosis-related fracture. Men who suffer from a major fracture are more likely than women to **die** from the same injury.³

Poor bone health predisposes us to fractures. A bone fracture not only creates painful loss of mobility, but is also life-threatening.

In older adults with **hip fractures** who are bedridden, risk of pneumonia and formation of deadly clots skyrockets.⁴⁻⁶

Osteoporosis is associated with an increased risk of other age-related conditions, including cancer,⁷ atherosclerosis,⁸ dementia,^{9,10} and depression.¹¹

This makes it essential for men *and* women to take **active steps** to prevent bone loss.

In addition to **calcium** and **vitamin D**, researchers have identified other key nutrients that promote bone formation, including **magnesium, silicon, and boron**.¹²⁻¹⁴

We need to be sure we're getting these nutrients to optimize bone density—and overall health—as we age.

Calcium Stops Bone Loss

Most people associate calcium with bone health, and for good reason. Adequate calcium intake is needed for the proper mineralization, strength, and structure of bones.¹⁵ Despite this common knowledge, most Americans fail to get enough calcium in their diets.¹⁶

Studies show that supplementation with calcium (in the form of **calcium citrate** or **calcium carbonate**) makes a substantial difference in the rate at which bone breakdown and loss of minerals occurs.¹⁶⁻¹⁸

In multiple studies of early- and mid-postmenopausal women, supplementing with **800 mg-1,000 mg** of calcium citrate daily was shown to effectively **stop bone loss** in the lower vertebrae and forearm, two common fracture sites in older adults. It also significantly improved bone density at other sites, including the hip and total body, compared to placebo recipients.^{19,20}

Research has also shown that several markers of bone resorption, or breakdown, decreased in the patients supplementing with **calcium citrate**.^{21,22}

A **2014** comparison study found that **calcium citrate** and **calcium carbonate** are effective in raising serum calcium levels and reducing markers of bone loss.²³

Ample calcium intake is a prerequisite for good bone health, but bones are made of more than calcium. They rely on a variety of nutritional and lifestyle factors to support their health.

One key nutrient that works in conjunction with calcium is vitamin D.

Vitamin D's Bone Health Benefits

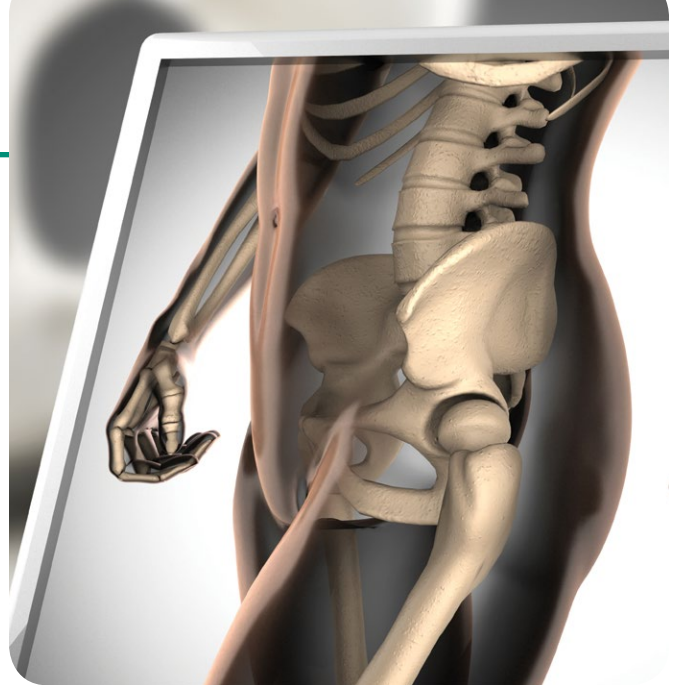
Most people don't get anywhere near the recommended intake of vitamin D.²⁴

This is a major concern because vitamin D insufficiency (below **20 ng/mL**) can *accelerate* osteoporosis, especially in aging men and women.²⁵

Current recommendations are that people with vitamin D levels below **20 ng/mL** should supplement with **800-1,000 IU/day**, along with adequate calcium intake.²⁵

Life Extension® believes people should strive for precise individualized dosing (**5,000-8,000 IU/day**) to achieve a blood level between **50 and 80 ng/mL**.

Vitamin D works hand-in-hand with calcium to reduce the risk of osteoporosis. It promotes intestinal absorption of calcium and helps direct how calcium is incorporated into bone.^{26,27} It also facilitates the transfer of calcium from the blood and other extracellular fluids to the surface of bones, where it makes them stronger and less likely to break.²⁸ Vitamin D helps the body absorb zinc and manganese as well, which are trace elements essential for bone metabolism.²⁹



A **2017** study demonstrated that three years of calcium and vitamin D supplementation powerfully influenced both the mineral and the organic protein matrix of bone.³⁰

In a **2016** meta-analysis of eight studies involving nearly 31,000 subjects, supplementation with calcium plus vitamin D was found to reduce the risk of fractures. Together, these two nutrients produced a **15%** reduction in the risk of *any* fracture, and a significant **30%** reduction in the risk of hip fractures,³¹ which are so often the beginning of the end for frail, elderly people.

Calcium and vitamin D are *especially* important for people taking prescription drugs for osteoporosis.

One study found that up to **30%** of those taking bone-protective **bisphosphonate** drugs did not respond well to treatment, which could be a result of low vitamin D levels. Non-responders tended to have low vitamin D and higher loss of a marker of bone loss.³²

This study showed that people with vitamin D levels lower than **30 ng/mL** were more than **four times** as likely to fail to respond to drug treatment for osteoporosis.³²

Despite the consistency of these findings, many physicians who prescribe bisphosphonate drugs fail to supplement their patients with these critical nutrients.^{33,34}

Magnesium Slows Bone Turnover

Magnesium is another essential component of the bone mineral matrix. About half of all magnesium in the body is stored in bone.³⁵

It's not surprising that animal studies show a positive correlation between magnesium intake and bone mineral density. Magnesium *deficiency* has been shown to reduce the number of **osteoblasts** (cells that build new bone) and increase the number of **osteoclasts** (cells that break down bone).³⁵

The good news is that in animal models of postmenopause, *restoring* magnesium levels improved bone formation, reduced breakdown, and ultimately improved bone strength.³⁵ Other studies have shown similar results in male animals as well.^{36,37}

Human studies support these findings, demonstrating significant reductions in bone turnover rates—particularly in markers of bone resorption—in both men and women who took magnesium daily.^{38,39}

Zinc Promotes New Bone Formation

Zinc is another key nutrient that is essential for bone health. Research shows that higher levels of zinc correlate with better bone mineral density, while lower blood levels have been associated with osteoporosis.⁴⁰

That may be because zinc stimulates the activity of bone-forming **osteoblasts**, while suppressing bone-resorbing **osteoclasts**.^{41,42} Zinc also suppresses the bone-destroying effects of inflammatory compounds by modulating activity of the “master regulator of inflammation” nuclear factor-kappaB (NF-kB).^{41,42}

In an animal study of postmenopause, zinc supplementation led to potent increases in bone mineralization as well as improvements in overall bone structure.⁴³ In humans, oral supplementation of zinc prevented significant decreases in whole-body bone density and bone mineralization in women with low zinc consumption.⁴⁴

Manganese Inhibits Postmenopausal Bone Loss

Manganese is a trace element with numerous properties that promote healthy bones.

In a rat model of postmenopause, manganese supplementation significantly improved both bone mineral content and bone mineral density in the femur, the large bone in the thigh.⁴⁵

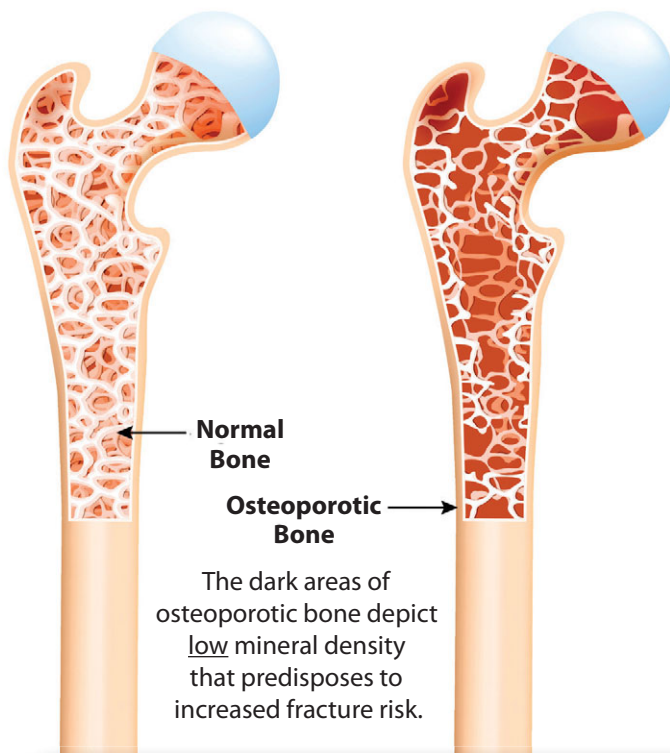
And in a study of postmenopausal women, combination of manganese, zinc and copper with calcium stopped bone loss in its tracks.⁴⁶

What You Need to Know

Key Nutrients for Bone Health

- Osteoporosis is a growing problem in the aging population for both men and women.
- In addition to causing bone loss and increasing the risk for fractures, osteoporosis can lead to many other conditions.
- Osteoporosis is at least partially preventable by careful and appropriate use of nutritional supplements.
- While calcium and vitamin D remain the mainstays of bone nutrition, they cannot fully optimize bone health by themselves.
- Additional minerals are required for overall bone strength and mineralization, including magnesium, zinc, manganese, silicon, and boron.
- For the best bone-maintenance, osteoporosis-prevention program, it's important to include the full profile of bone nutrients.





Biological Silicon Promotes New Bone Formation

Silicon is the second most abundant element in the Earth's crust.⁴⁷ Most people think of this element in terms of its role in computers and engineering applications, but it plays a significant role in a number of life-science areas, including bone mineralization.

Animal studies of postmenopause show that silicon supplementation stops bone loss both in the vertebral column and in the femur (upper leg), while promoting bone growth and mineral density in the femur and tibia (lower leg).^{48,49} Closer examination in one animal model of postmenopause showed that silicon improved bone quality by reducing bone resorption—*especially in those with low calcium intake*.⁵⁰

Human and animal studies indicate that silicon improves bone quality and strength and increases bone mineral density.¹² Our bodies don't absorb silicon very well in its elemental form. Fortunately, animal and human studies show that *bioavailable* silicon effectively promotes bone formation.^{49,51-53}

Understanding Osteoporosis and Loss of Bone Mineral Density

We typically think of bones as solid, static structures. In reality, they are living tissues that are constantly changing and responding to environmental stresses and other factors. With movement, exercise, weight gain, and other changes, bones grow stronger in some sections, while thinning in others.

Think of this process like a bank account. Cells called **osteoblasts** make deposits (leading to new bone formation and increased mineral density), while **osteoclasts** make withdrawals (leading to bone resorption and loss of mineral density).^{62,63}

In healthy adult bones, this process is kept in balance. But as we age, the withdrawals start to outweigh the deposits, which reduces bone-mineral density and increases osteoporosis and fracture risks.⁶⁴

Sex hormones like testosterone and estrogen are critical for maintaining this balance because they inhibit **osteoclast** activity (bone breakdown), and promote **osteoblast** activity (new bone formation).^{62,65}

The problem is that sex hormones decrease starting in midlife, and this decline accelerates at menopause and andropause—which means they're not able to preserve and maintain bone strength and quality as well as they should.⁶⁴ The result is an overdraft in the bone mineralization "bank account," ultimately leading to thinner bones and a higher risk of fractures.

These hormonal changes are a critical and too often overlooked factor in the rising osteoporosis risk we face as we age.⁶⁴

But beware, many common drugs can also contribute to osteoporosis risk. Take a look:

- **Cancer-fighting drugs** that inhibit sex hormones, such as anti-androgen therapy (which reduces levels of testosterone) and aromatase inhibitors (which reduce estrogen activity), cause or contribute to bone loss, osteoporosis, and fracture risk.^{66,67}
- **Corticosteroids** (prednisone, hydrocortisone, dexamethasone, and many others) have a clear and important association with bone loss and increased fracture risk.^{68,69}
- **Warfarin** (Coumadin®) inhibits calcium from being incorporated into bone protein. At the same time, it also **increases** the risk of mineral deposits precisely where we don't want them: in arterial walls.⁷⁰⁻⁷²
- **Proton-pump inhibitors** (e.g., Nexium®, Prilosec®, Prevacid®) can slow calcium absorption from the stomach, depriving the bone matrix of the minerals it needs to support a positive bone mineral balance.⁷³

People taking any of these drugs may want to monitor their bone mineral status, as may people concerned about the impact of aging on their bones.

The most common bone mineral density test is **DEXA**. A problem with DEXA is that it can pick up **calcification** of blood vessels and arthritic regions and report this as bone density that does not exist. **Life Extension®** has long advocated for **QCT** (*quantitative computerized tomography*) bone mineral density testing. The challenge with QCT is it is not widely available like DEXA is.

Deadly Link between Osteoporosis and Heart Disease

A destructive effect of osteoporosis is the loss of the **calcium** from bone tissues, which leaves bones susceptible to fractures.

But where does the calcium go?

Discoveries over two decades show it often winds up in a bad place: the linings of blood vessels.

Lower bone densities (a measure of calcium content in the bones) are strongly associated with higher levels of dangerous **arterial calcification**, which occurs when calcium is deposited in the walls of blood vessels that supply blood to the body and the brain.⁷⁴⁻⁷⁹

This can be clearly seen on standard X-rays of the lower spine, where dense calcium mineral deposits in the aorta lie immediately next to shadowy, calcium-depleted vertebrae.⁷⁷

In some instances, the calcification may form around valves.⁸⁰ This can lead to narrowing of important heart valves, such as the aortic valve, leading to decreased blood flow, unhealthy thickening of the walls of the heart, and in later stages symptoms including fatigue and shortness of breath with mild exertion, and chest pain (angina).⁸¹

These are not theoretical risks. Studies show that the severity of osteoporosis is closely correlated with the severity of atherosclerosis.

- For example, one study showed that patients with osteoporosis had a disturbing **5.6-fold** greater odds of having coronary artery disease than those without osteoporosis.⁷⁸
- Men with low bone-mineral density in the spine have up to **36%** greater risk of cardiovascular disease than those with normal density.⁷⁶
- Among women, the risk of heart disease rises by as much as **28%** with each incremental loss of bone-mineral density.⁷⁶

The relationship between bone-mineral density and coronary heart disease works in the other direction as well. In one study, women with coronary heart-disease risks of **20%** or more were at a **73%** greater risk for thinning bones than were women whose heart-disease risk was less than **10%**.⁷⁵

Keeping **calcium** in the **bone** (which is what **vitamin K2** helps facilitate) can provide the added benefit of reducing vascular calcium deposits, thereby simultaneously fighting two destructive pathologies of aging.

Boron Supports Bone Health

Boron is a component of the Earth's crust that plays an underappreciated part in human health.⁵⁴

Boron works with magnesium, calcium, and vitamin D to support bone metabolism and bone health.⁵⁵⁻⁵⁷

Clinical studies show that when people don't get enough boron, they experience signs of bone loss resembling those seen in older men and in postmenopausal women with osteoporosis.⁵⁵

Supplementation with boron has been shown to improve bone health specifically in diabetic mice, an important finding since diabetes is associated with lower bone density, bone quality, and fracture risk.⁵⁸⁻⁶⁰

A human study of a multi-nutrient supplement containing boron, calcium, vitamin D3, magnesium, zinc, copper, and manganese improved hip-bone mineral density in postmenopausal women, while also relieving back and joint pain.⁶¹

Supplementation with at least **3 mg/day** of boron is recommended for anyone at risk of osteoporosis, or for those who don't consume a lot of fruits and vegetables.⁵⁴

Summary

Osteoporosis is a threat to all aging adults—including up to one-quarter of men.

Osteoporosis threatens not only bone strength, but also health throughout the body.

Ample calcium and vitamin D intake are essential for supporting good bone health as we age, but we also need sufficient amounts of other nutrients in order to optimize both skeletal and whole-body wellbeing.

Studies show that magnesium, zinc, manganese, silicon, and boron contribute to increased new bone formation and reduced bone resorption (or both), while also promoting calcium and vitamin D effectiveness.

The best bone-maintenance, osteoporosis-prevention program includes the full profile of bone nutrients. ●

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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Lifestyle Tips for Better Bone Health

While a certain amount of bone loss may occur with aging, developing osteoporosis is not inevitable. Regardless of genetic risks, most of us can maintain strong, fracture-resistant bones by exercising regularly, receiving preventive health check-ups, and nourishing our bone-building cells with bioavailable calcium and other supportive nutrients.

- Both men and women should follow a program of regular weight-bearing exercise to strengthen their bones. Join a gym or consult with a physical trainer.
- Avoid smoking and excess alcohol.
- Request a bone density test from your physician. QCT is superior to DEXA when measuring bone mineral density, but DEXA is often the only test available in many regions.
- Eat foods that are rich in calcium, other minerals, vitamins, and that are relatively low in phosphorus. Pay special attention to dark leafy vegetables, legumes, whole grains and, in moderation, milk products.
- Regardless of your gender, consider natural hormone replacement from midlife onward with appropriate hormones, under medical guidance.

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Suzanne Somers

Author of
Two's Company

Actress and best-selling author **Suzanne Somers** has written an inspirational new book.

A highly personal memoir, *Two's Company* reveals Suzanne's personal career and health struggles as she found success as an actress, conquered cancer on her terms and took on the drug industry with regard to the dangers of conventional hormone replacement therapy for women.

The author of more than 25 books, Suzanne has focused on enlightening the public about life-enhancing alternatives to conventional medical practice.

Two's Company provides intriguing insight into Suzanne's personal life, including her early relationship challenges and the uniquely successful marriage she has with Alan Hamel.

In this new interview with **Life Extension®**, Suzanne Somers discusses how she turned her serious health problems into a roadmap for millions of women to improve their health to get the most out of life.

LE: You revolutionized menopause for millions of women by educating them about bioidentical hormones so that they could avoid hormone drugs that were shown to increase disease risks.

SS: My books made a significant dent in the synthetic hormone business, a fact I'm sure the drug companies were not enjoying. Since the introduction of bioidentical hormones, the synthetic hormone business has dropped by a whopping **72%**. If I were them, I'd probably want to shut me up.

LE: That is a huge accomplishment and a major change in how women age. How did you discover bioidentical hormones?

SS: I couldn't sleep. From my research for the books I was writing, I knew sleep was vitally important for optimal health. What was wrong? When you don't sleep for nights on end, you're just not in the best mood. My leg itched fiercely and I was gaining weight again. My sex drive, which is normally off the charts, was nonexistent.

LE: So this was the first sign that something was wrong. What did you decide to do?

SS: I went from doctor to doctor and was offered sleeping pills, antidepressants, cholesterol-lowering pills, and diuretics. All the doctors had to offer was drugs and more drugs. One doc said to me, "The drug companies know best, dear!" I finally said to one doctor, "Are you joking? Is this the best you can offer women?" I left his office determined to figure out how to turn the problem of menopause into an asset.

LE: That's a huge realization. What happened next?

SS: I suddenly became aware of how many pills my friends were taking: pills to go to sleep, pills to wake up, pills to lose weight, pills to take away menopausal symptoms, pills to get erections. No one was doing or feeling well, but doctors were providing the "solutions" to mask their patients' problems and symptoms with pills, pills and more pills until they became walking, talking, confused messes. Not for me—I didn't want to be all drugged up.

LE: It's very dispiriting when you know the doctors don't have the answers that you need. It shouldn't be this way. There are good doctors out there but you really have to search them out.

SS: Finally, I heard about the endocrinologist Dr. Diana Schwarzbein in Santa Barbara. I sent in my blood work, then drove like a maniac on my appointment day. As she looked at my lab results, she said, "You poor thing—you must feel awful." She explained that I had virtually no progesterone left (the feel good hormone) and almost no estrogen. I was like a car running without gas and oil. We humans rely on precise regulation of our biochemistry and a woman's hormonal makeup is particularly complex.

LE: You were very fortunate to find exactly the right doctor who could help you. So many people go from doctor to doctor and still don't get better.

SS: I didn't know it then, but this day would be a life-changer for me, the beginning of a huge new reinvention. The day I began to learn about bioidentical hormone replacement was the day I got on track to get my life back. Using natural bioidentical hormone replace-

ment week by week, I eventually got "me" back. I didn't itch, I didn't sweat, and my weight was normalized. I felt good all the time, I was upbeat, and I had great clarity. By changing my diet and my thoughts, fixing my sleep, and replacing missing hormones, I dodged a bullet.

LE: That is a remarkable turnaround. It's unfortunate that all the other doctors you saw weren't able to solve this problem for you.

SS: I had never realized the profound effect of hormones on human health and well-being. And I never realized so little was known about menopause. Researching natural hormone replacement, I learned the critical importance of hormonal balance. In my cancer scenario, I was what is called estrogen dominant. This means that while my estrogen production was low, I stopped producing sufficient progesterone. When your progesterone production slows or stops and you become estrogen dominant, with no progesterone to control abnormal cell proliferation, you are set up for certain cancers.

LE: *Life Extension* has been reporting on this for years. It's time the medical community caught up. Glad you are spreading the word and living by example.

SS: So many women enter menopause and spend the rest of their lives white-knuckling, dealing with debilitating symptoms. As I learned everything I could about replacement, I quickly realized that the pharmaceutical hormone business is designed to keep women essentially bandaged. Synthetic hormones don't fix the problem, because they don't balance the missing hormones and aren't human hormones. They're not a solution, just a way to calm women

down. And women get fat on this protocol. Women not knowing or understanding how it works figure it's just a midlife trade-off. These synthetic hormones are responsible for putting a woman's body into a state of imbalance rather than balance. Imbalance is where cancer has its opportunities. With this information, why would these dangerous hormones still be prescribed? This knowledge made bioidentical hormone replacement even more exciting to me. If menopausal women could safely rebalance our hormones, then we could essentially trick the brain into believing we are still reproductive.

LE: You were on the cutting edge when you discovered bioidentical hormone replacement. The amazing thing is that you were able to share your knowledge with millions of women through your books.

SS: What I loved the most was the win/win aspect. I had taken my problem and turned it into a great asset for myself and for others. My interviews with cutting-edge, knowledgeable doctors allowed women to age in a new way, without drugs, while keeping their memories intact, their sex lives active, and their beauty restored.

The book outraged many doctors. I believe because it exposed their ignorance of how this natural passage, menopause, really works, and of the realities of real hormone replacement. The solution is not in a synthetic pill that matches nothing a woman makes in her own body—that only confuses the body and it's not good for the human body to be confused. The drug companies took shots at me and ridiculed me. The book was a phenomenal success. I was becoming the messenger for a new kind

of health, one that changed the way women age. I went on every talk show, and the response from the public was overwhelmingly positive. The book sold over one million copies! Without looking for it, I found a new life mission, taking care of women in a way no one had.

LE: A million copies means you were changing a lot of minds!

SS: A movement was starting to take place and it was growing fast. Women were demanding better treatment and relief from their doctors. They were calling their doctors in droves saying they had read Suzanne Somers's book and "wanted what she had." It has been my experience that doctors are "down on what they are not up on," and BHRT (bioidentical hormone replacement therapy) was not and still is not taught at medical school. So frankly I felt and feel that in many cases I knew more than a lot of the doctors about this subject. I was a walking, talking example of BHRT's health-giving, life-enhancing power. Other doctors came to my lectures, and they saw and heard that my research was science-based and backed up by credible doctors. They were aware that the information in my books was given to me by knowing doctors and scientists who gave generously of their time.

LE: Can you specifically talk about what changes you created for women?

SS: Up until then, women went through their passages with a pill for every ailment, and here I was saying there is another way. My life without drugs was inspiring to many women. The concept of putting back what you lost in

the aging process with natural remedies appealed to so many. Hormone replacement has to be individualized. There is no one pill that fits all. What I need is different from what the next woman needs. Without hormonal balance, lives were being ruined, and women were losing themselves. I called hormone balance the "Juice of youth," the answer to good health.

LE: Let's step back a bit. Before your discovery of bioidentical hormones, you were diagnosed with cancer. For many people, a cancer diagnosis may seem like a death sentence. What was your reaction when you were diagnosed with cancer? In what ways did your life change?

SS: I decided cancer was a gift from which I would learn. From that moment I would eat as though my life depended upon it, which it does. I would change my life in every way. I had been working too hard into the early mornings. I was staying up regularly until three and four a.m. I'd get into bed afterward and then have trouble sleeping.

Sleep is a game changer. If you don't sleep seven to eight hours a night, the repair work the body depends upon for life and health can't happen. I was going to eat, sleep, and think like an athlete. A great athlete thinks to win. I would win. I would be able to use this experience to help others.

LE: Through your books and lectures, you have influenced millions of women to not accept aging as a part of their lives. You are a pioneer and an explorer and bring back lifesaving information from your journeys. Tell us about one of your breakthrough experiences of surviving cancer.

Author Interview

SS: I would become the first American woman to legally regrow my breast using my own stem cells and my fat. I had heard about Dr. Kotaro Yoshimura of the University of Tokyo—he had successfully regrown the breasts of over four hundred Japanese women using their own stem cells. In 2011 I took a chance and called him. Lucky for me he had heard of me and my books. He graciously agreed to come to America and teach the procedure to my friend Dr. Joel Aronowitz, who was involved with stem cells and research. The goal was to obtain permission from the FDA to qualify for a clinical trial to regrow my breast. It took three years for the permission to be granted, and as soon as we received it, we went to work to make it happen.

LE: You certainly don't give up easily and are brave to try these medical procedures on yourself.

SS: It was about more than my becoming whole again; it was about a breakthrough for all women. At present, women in my position are offered implants or a TRAM flap (which often has very disappointing results and is generally unattractive, with much scarring and a long painful recovery). To do the surgery, they removed fat from my stomach, spun out the stem cells, discarded the weak ones, and injected the strong cells back into my removed fat. That fat was then injected in my once-cancerous breast until it was the same size as the other one.

LE: What were your thoughts after the operation?

SS: I had adjusted to losing half of my breast, figuring that being alive was the better option. But

to become whole again would be a great experience. The surgery was a fantastic success. I awoke and looked down and saw myself perfect back together. Once again, I had two beautiful breasts, and they were all me. Nothing plastic or foreign. It was a huge step forward for women. Since then over a thousand women have been able to take advantage of this incredible procedure.

LE: Your readers are fortunate that you were curious enough to seek out this type of procedure and to take the risk of having it done.

SS: Once again, a problem became an opportunity.

LE: Now that you have optimized your health, written more than two dozen books and changed women's health forever, what's next for you?

SS: For the last year, I've been back performing nightly off and on in Vegas as well as on occasional random stages around the country. I'm grateful every minute for having achieved superb health. It allows me the energy, strength, strong bones and fast-working brain needed to be out there night after night at 70. I thought age 70 was supposed to be old, but for me it's not. The body is a magnificent machine. What craziness to abuse something so valuable. That has become my life's work: getting people to value their bodies. I want to change the thinking. Age is a number only; living at any age is about vitality and energy. And that's how I live my life. I'm as young as my energy.

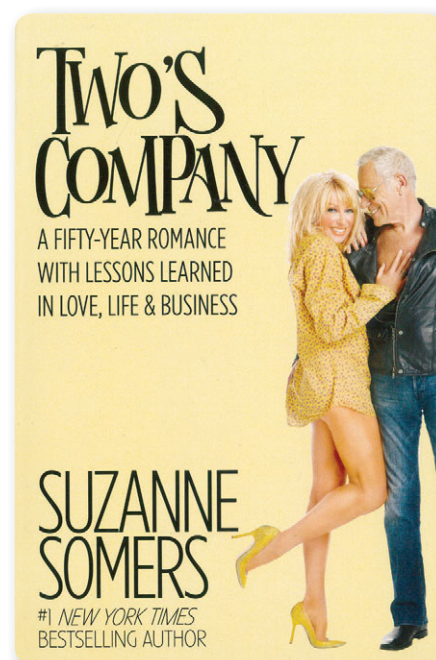
LE: What words of wisdom would you like to impart to our readers?

SS: Health is all we have, yet our choices belie that fact. We seem to take a great working body for granted, and that is a dangerous mindset. It takes a long time to wise up. You can't give up. Ever! Happiness takes work. A great relationship takes work. Every choice matters; every thought creates. We are all in control of our joy. Inevitably, it's the dark times and negatives that are our best teachers. Life is the process of learning from all of it. The lucky ones do. ●

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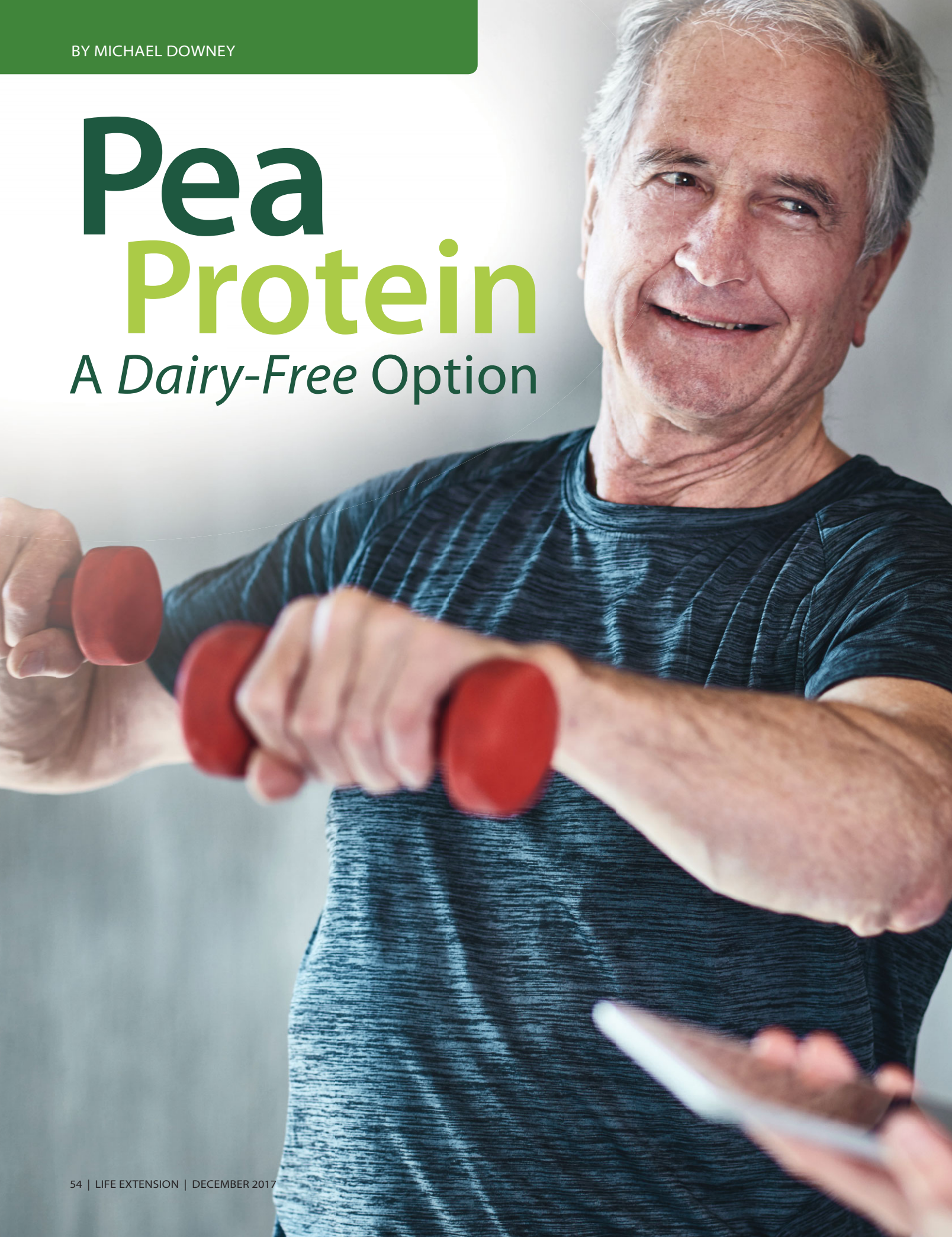
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BY MICHAEL DOWNEY

Pea Protein

A Dairy-Free Option





With age, people often unwittingly fail to ingest sufficient **protein** in their diets.

Protein is a major building block in our body. It is especially important to help preserve **muscle** mass.

If you are not already ingesting excess calories, an easy way to ensure against protein insufficiency is a concentrated powder made from high-quality organic **peas**.

Studies show that older adults may need anywhere from **11% to 250% more protein** than adults in general.¹⁻⁹

Old or young, protein is essential as a supply of amino acids. These proteins are transformed into *functional* proteins that take care of almost every physiologic need from cell structure to waste clearance.¹⁰

Sufficient amounts of protein are needed to inhibit sarcopenia—the age-related muscle loss that boosts the risk of frailty, falls, and disability.¹¹⁻¹⁴

But whey, egg, and soy protein supplements may be off-limits for those who are allergic to dairy, egg, or soy or are lactose intolerant, vegetarian or vegan.

Researchers have been eager to find a plant-based protein supplement that is nutritious, hypoallergenic, and high in essential amino acids. A new **pea protein** powder provides low-fat protein with high digestibility—free of dairy, egg, soy, lactose, gluten, and sugar.

This plant-based protein contains muscle-promoting **branched-chain amino acids** and **glutamine** that can help avert age-related muscle loss and promote recovery from exercise.

Retaining Muscle Mass While Aging

Aging is associated with a marked reduction in *cellular protein synthesis*.¹⁵

Muscle strength and function diminishes after **40**. That loss—called **sarcopenia**—accelerates after the age of about **75**, even among those who have been physically active throughout their lives.^{11,14,16}

Since muscles generate much of the mechanical stress required to keep bones healthy, the reduced muscle activity from sarcopenia may increase susceptibility to osteoporosis. A **2016** study suggested there is significant “cross-talking” between muscle and bone cells,¹⁷ potentially setting up a cycle of declining health.

Muscle loss also hikes the risks that follow surgery or traumatic events, because muscles act as a “metabolic reservoir” of amino acids that maintain the protein synthesis required for survival and recovery.^{18,19}

Fortunately, the use of **protein supplements**, especially when combined with exercise, has been demonstrated to have an anabolic, or tissue-building, effect on muscle mass among aging adults.²⁰⁻²²



Daily supplementation with **15 grams** of essential amino acids—the building blocks of protein—was found to *increase* muscle synthesis and lean body mass in older women within three months, “possibly offsetting the debilitating effects of sarcopenia.”²³

Additionally, research has linked a diet low in calories, but rich in high-quality **vegetable** protein, to reduced cardiovascular-risk profiles in adults of all ages, including LDL-cholesterol and blood pressure.²⁴

And clinical research reveals that older individuals require a higher daily intake of protein than normally recommended for younger persons.¹⁻⁹

Aging adults—along with vegans, vegetarians, the lactose-intolerant, those with allergies to dairy, soy, or egg, and people concerned about the GMOs commonly found in soy—now have a high-quality alternative in high-quality protein derived from the pea plant.

Pea-Protein

Pea protein has been shown to exert numerous healthful effects when taken by aging humans.

In **2016**, scientists showed that *meals* high in pea (and bean) protein favorably affected appetite regulation more so than meals high in animal protein, with similar energy and protein content. The legume protein-rich meals resulted in reduced appetite scores, hunger, and prospective consumption, and a greater sensation of postprandial (after-meal) fullness.²⁵

Supplemental pea protein is now available in a proprietary formula that contains no common allergens such as dairy or egg, while delivering:

- **Beta-glucan fiber**, which supports healthy cholesterol and postprandial blood sugar,²⁶⁻³⁰
- **Agave inulin** and **FOS** (fructooligosaccharides), prebiotics that support digestive and immune health,³¹⁻³³
- **Branched-chain amino acids** (BCAAs), which promote muscle synthesis,^{34,35} and
- **Glutamine**, which is a key amino acid in a number of metabolic functions.³⁶⁻³⁸

While pea protein has BCAA values comparable to those in the “gold standard” protein supplements whey, egg, and casein, it provides significantly higher amounts of arginine, which is essential for *nitric oxide* synthesis.³⁹



What You Need to Know

Pea Protein

- As we age, our protein requirements increase. Without adequate dietary or supplementary protein, older individuals are at increased risk for sarcopenia—the age-related loss of muscle tissue that increases the risk of disability.
- Experts recommend that older persons may need 11%-250% more protein than an average adult.
- A new pea protein supplement provides a low-fat protein option with high digestibility—free of dairy, egg, soy, lactose, gluten, and sugar.
- It provides branched-chain amino acids and beneficial glutamine and arginine.

Glutamine: Critical Muscle and Whole-Body Support

Glutamine—the most abundant amino acid in the body, is highly concentrated in the skeletal muscles.^{40,41}

Research indicates that output levels of human growth hormone increase **four-fold** after supplementing with glutamine.⁴² Glutamine can also help replenish muscle stores of glycogen after exercise,⁴³ providing a ready fuel source for muscles.

In addition to its effects on exercise, glutamine contributes to a number of key functions, including support for the immune system and prevention of infections and improved gut barrier function.³⁷

During stressful states of illness or injury, glutamine becomes “conditionally essential,” meaning that the body cannot supply an adequate amount and it must be taken in from food or supplements.^{37,44} A wealth of evidence indicates that this amino acid can play a key role in treating serious and critical illnesses,⁴⁵⁻⁴⁸ injuries,⁴⁹ infections,^{48,50} and postoperative wound-healing.^{37,51,52}

Branched-Chain Amino Acids Inhibit Muscle Loss

Abundant in pea protein are the three essential branched-chain amino acids—**leucine**, **isoleucine**, and **valine**—which play an important role in muscle protein synthesis and muscle recovery, damage, and fatigue during and after exercise.⁵³⁻⁵⁸ BCAAs have also been shown to reduce muscle damage, inflammation, and perceived exertion and fatigue during exercise.⁵⁹

BCAAs are transported and metabolized differently than other amino acids. Instead of being broken down in the liver, they enter the bloodstream and are absorbed directly into the skeletal muscle. There, they pass into the mitochondria, which are the cells’ powerhouses.⁶⁰

Human research examining this novel handling of BCAAs in the bloodstream and in skeletal muscle has suggested that BCAAs play a critical role in muscle recovery from fatigue or from intensive physical activity such as resistance training.⁵³⁻⁵⁸ They may also act as performance enhancers.⁶¹

Amino acid mixtures that have been enriched with BCAAs have shown promise for improving the muscle-wasting of sarcopenia in elderly humans, who were demonstrated to gain muscle mass during treatment.⁶² This implies that BCAAs may be effective in other conditions characterized by debilitation and muscle loss.

Complementary Beneficial Nutrients

Agave-derived **inulin** and **fructooligosaccharides** (FOS)—both of which are powerful prebiotics—as well as gluten-free **oat bran**, which contains beneficial beta-glucans, offer added health benefits to pea protein alone.

The long-chain *prebiotic* inulin, extracted from agave plant fiber, arrives at the colon intact and remains longer, and supports the growth of the beneficial intestinal bacteria, including *Lactobacilli* and *Bifidobacteria*.^{32,33} Together, inulin and FOS favorably transform the composition of the gut microbiota to maintain digestive health and immunity.³¹⁻³³



Animal studies have shown that inulin-based prebiotics may improve ulcerative colitis,⁶³ prevent the initiation of colon cancer,^{64,65} lower cholesterol and triglycerides,⁶⁶ and support calcium absorption for better bone health.⁶⁷

Oat bran is a source of the soluble fiber beta-glucans, which has been shown to promote a healthy postprandial glycemic response³⁰ and significantly reduce plasma cholesterol levels.²⁶

Pea protein delivers essential nutrients to help protect against muscle-wasting, it also protects against a *wide* array of diseases.

Pea Protein Validated in Human Studies

Published research shows that—well beyond protecting against sarcopenia—pea protein promotes beneficial effects including:

- **Weight Loss:** Pea protein was demonstrated in a clinical study to induce a feeling of fullness or satiety,²⁵ and in an animal study to significantly lower the hunger hormone ghrelin.⁶⁸ Both of these effects would reduce food intake. As a result, pea protein may help with weight-loss. Many people neglect protein when dieting. This is regrettable because of pea protein's satiety and hormonal effects that can help the body burn fat faster.
- **Healthier Heart:** Pea protein decreases blood pressure.⁶⁹ In addition, a group of researchers found that, compared to a low-carbohydrate diet based on animal sources, a vegetable-based low-carbohydrate diet is associated with lower all-cause and cardiovascular disease rates.⁷⁰
- **Lower Blood Sugar:** Blood glucose levels may be reduced after consumption of a combination of pea protein and fiber, which suggests the potential for enhanced glycemic control. A **2014** study found that adding pea protein and fiber to a meal results in a blood sugar level that is lower at 30 minutes, compared to a control meal. The study author concluded that, *"This trial supports the use of pea components as value-added ingredients in foods designed to improve glycemic control."*⁷¹

Sugar-free pea protein is the ideal alternative for those who are unable to take dairy-based, egg, or soy-protein supplements but wish to prevent sarcopenia and other age-related conditions.



Summary

Studies show that older individuals may need more protein than adults in general, especially if they want to prevent **sarcopenia**, the age-related loss of muscle tissue that increases the risk of frailty and disability.

The good news for vegans and those with food intolerances is that a new plant protein, featuring **organic pea protein** provides a nutrient-dense, low-fat protein that is high in essential amino acids, with excellent digestibility—free of dairy, egg, soy, lactose, gluten, and sugar.

Those already over-consuming protein calories should not take **pea** or other bulk **protein supplements** as they may accelerate certain aging processes. ●

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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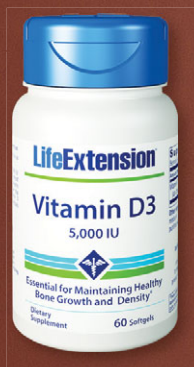
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BY MICHAEL DOWNEY



Rebuild Youthful *Skin, Hair, and Nails* from Within

Although aging impacts the whole body, the most visible effects occur in our **skin, hair, and nails**.

As we mature, our outer tissues lose their framework of structural proteins, namely keratin, collagen, and elastin.

Loss of **structural proteins** in the body is further compounded by *external* factors such as pollution and sun exposure.

To counter this **visible** deterioration, scientists have investigated nutrients that can be taken **orally** to rebuild the underlying architecture of the skin, hair, and nails.

Their work has resulted in *targeted* nutritional interventions—highly bioavailable forms of **collagen peptides** and **solubilized keratin**, combined with **biotin** and **silicon**.

These nutrients have been shown to support more youthful, vibrant skin, lustrous hair, and stronger nails from the *inside out*.¹⁻¹⁵

Rebuilding Youthful Skin, Hair, and Nails

With age, our bodies produce less of the **structural proteins** that are essential to the integrity of the tissues that make up hair, skin, and nails. These proteins include:

- **Keratin**, a structural component of hair, nails, and the outer layer of skin,
- **Collagen fibers**, the principle source of the skin's strength, and
- **Elastin**, an elastic protein in connective tissue that allows many tissues in the body to resume their shape after stretching or contracting.

By the age of 21 we start losing about **1%** of the **collagen** in our skin every year.⁹

The visible effects of a decrease in these proteins include thin, wrinkled, sagging, and dry skin; thinning, weak, dull hair; and dull, brittle nails.

But the age-related decline in these critical proteins goes far beyond the external, cosmetic effects. They reflect more serious problems on the *inside*, including adverse changes in blood vessel walls, bone, connective tissues, and other vital organs where these structural proteins predominate.

In addition, skin exposed over time to the sun's radiation undergoes a breakdown and alteration of collagen fibers and accumulates disorganized elastin proteins throughout the **dermis**, the deeper layers of the skin.¹⁰

The good news is that a number of highly **bioactive compounds** have been found to **reverse** these age-revealing structural changes.

Rebuilding Your Skin's Structure

Many keratin supplements on the market aren't very effective because of how they're processed. But in a critical advance, scientists developed a patented process that converts keratin into a form our bodies can use.

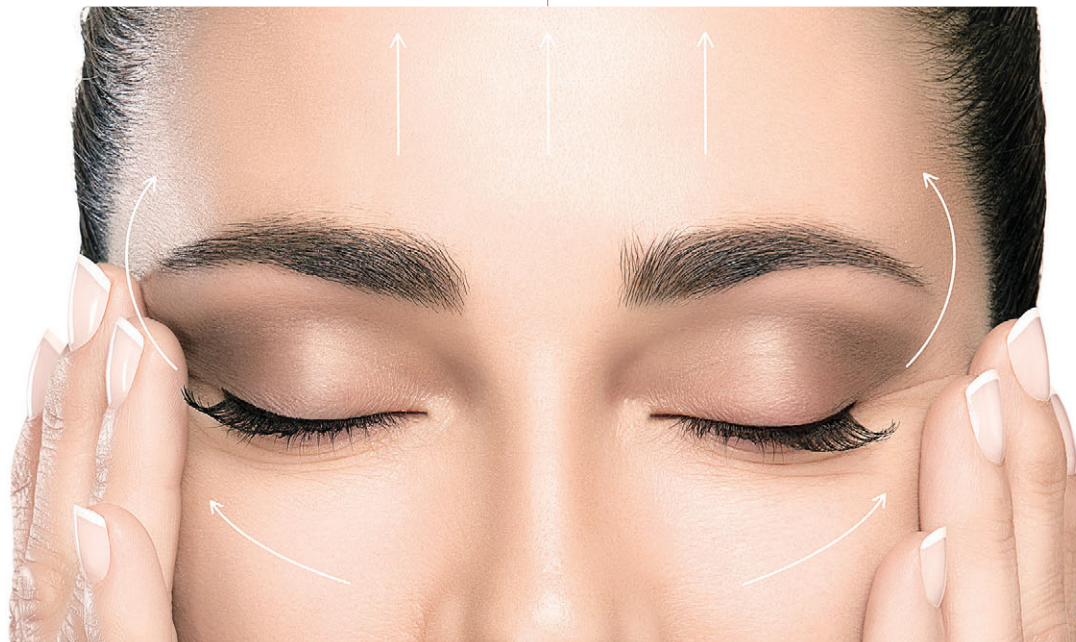
As a result, this **solubilized keratin** provides highly bioavailable, protein-forming building blocks needed to replace the body's natural **keratin** lost in the aging process. This allows the delivery of high-quality keratin proteins *directly* to the cells that make up the skin, hair, and nails. And their high bioavailability means they can *quickly* replenish depleted keratin levels.¹⁶⁻¹⁸

In vitro studies show that **soluble keratin** stimulates skin cells to proliferate at a rate up to **160%** greater than they otherwise would, permitting cells to increase their own production of diminished structural proteins.¹⁷

Because of its improved delivery, this patented **solubilized keratin** has been documented to:¹⁷

- Reduce hair loss from washing, improve hair strength, and increase hair brightness and luster
- Provide nails with improved strength, elasticity, and moisture retention
- Reduce fine lines and wrinkles
- Promote skin firmness and elasticity
- Decrease inflammatory redness of skin
- Add brightness and radiance to the skin, and
- Reduce water loss from the skin.

Impressive clinical studies validate the benefits of this novel "solubilized" keratin.





Targeted Support for Youthful Hair, Skin, and Nails

- The most obvious signs of aging can be seen in our skin, hair, and nails.
- This is affected both by *intrinsic* biological aging and *extrinsic* environmental factors such as ultraviolet radiation.
- The underlying architecture of these body areas is rapidly diminished by the resulting loss of structural proteins, notably keratin, collagen, and elastin.
- Fortunately, novel and bioavailable forms of collagen peptides and solubilized keratin have been developed to reverse this process in skin, hair, and nails.
- Biotin and silicon have been documented to enhance these rejuvenation effects.

Improvements in Hair and Nails

When it comes to improving the strength and appearance of hair and nails, several studies show that **solubilized keratin** is especially effective.

In one study, women with damaged, fragile, and stressed hair took two capsules of a special formulation daily, providing a total of **500 mg** of **solubilized keratin**, along with biotin, zinc, copper, and vitamins B3, B5, and B6.

After 90 days, electron microscope photos showed that uneven hair surfaces had become smooth, interlocking, and watertight—which translates into smoother, shinier hair. Also, the number of hairs lost during washing was reduced by **30%**, and hair strength was increased by **12%**. The researchers concluded that the keratin supplement promoted hair growth, strength, and appearance.¹¹

Another trial found that taking two capsules of the same formulation daily decreased hair loss and improved the strength and appearance of nails in adult women. By day 90, the women experienced:¹²

- **47.1%** subjective improvement in hair appearance,
- **5.9%** improvement in hair strength,
- **9.2%** increase in hair follicles in the growth phase, and a
- **47%** reduction in the number of hairs that could be removed in a hair-pull test.

Also, their nails demonstrated:¹²

- **87.5%** improvement in the tendency to break (compared with **28.5%** in the placebo group),
- **50%** increased hardness,
- **54.2%** greater resistance to breaking,
- **33.2%** improved overall integrity,
- **37.5%** increased smoothness, and
- **20.8%** improved natural appearance.

An additional placebo-controlled study showed that keratin can also reduce the appearance of fine lines and **wrinkles**. Scientists again gave two capsules of the same keratin formulation daily to women between 40 and 71 who had obvious skin aging. By day 90, they documented:¹³

- **30.4%** improvement in skin moisture, almost a **12%** reduction in wrinkle depth,
- **58.3%** of subjects showed visible improvement in wrinkle depth,
- **16.8%** improved skin elasticity,
- **17.9%** improved skin smoothness, and almost a **9%** decreased skin roughness.

Stronger Skin from Within

Collagen is an important component of youthful skin. It makes up **70%** of the weight of the dermis, the inner layer of the skin.¹⁹ It also supports levels of *elastin*, the protein that allows skin to stretch and return to its original shape—which makes collagen a critical element in maintaining supple, flexible skin.

Bioactive Collagen Peptides Improve Nail Brittleness and Growth Rate

A recent compelling study reported by the *Journal of Cosmetic Dermatology* demonstrated that oral supplementation with bioactive **collagen** peptides accelerated nail growth, improved nail brittleness, and powerfully decreased the frequency of nail breakage.²³

Brittle nail syndrome affects about **20%** of the population, with women being affected twice as often as men. This challenging disorder is characterized by fragility of the nail plate, roughness, raggedness, and peeling. Patients often complain that their nails are too soft, weak, slow-growing, and easily broken. Usually underlying these symptoms is an impaired water-binding ability, which might reflect an abnormality in keratin or lipid content.

In this trial, 25 healthy women ages 18 to 50 were given **2.5 grams** of bioactive collagen peptides once daily for 24 weeks and then were removed from treatment for another four weeks. Nail characteristics and growth rate were assessed during treatment and after the off-therapy period.

Bioactive collagen peptides were found to have resulted in an increase of **12%** in nail growth rate and a decrease of **42%** in the frequency of broken nails.²³

Additionally, treatment with bioactive collagen peptides clearly attenuated the symptoms of brittle nails. Clinical improvement in nail brittleness was observed in **64%** of participants after the 24-week treatment period. This beneficial effect was even more pronounced after the four-week washout period, when **88%** of study participants showed clinical improvement in nail brittleness. The study author concluded that this positive effect likely resulted from the direct effect of the peptides on the nail matrix.²³

The vast majority of participants, **80%**, agreed that the use of the bioactive collagen peptides had improved their nails' appearance, and they expressed their complete satisfaction with the treatment results.²³

As we get older, the number of collagen fibers in the dermis steadily decreases, and elastin fibers begin to fray and lose elasticity. This deterioration leads to **wrinkled** and **sagging** skin.²⁰

Scientific innovators have developed a patented composition of different **bioactive collagen peptides**, which are derived from type I collagen that has been partially broken down using water. This unique process makes these peptides highly *bioavailable*, which provides the building blocks for collagen synthesis and stimulates the production of new collagen and elastin in the extracellular matrix of the skin.¹⁵

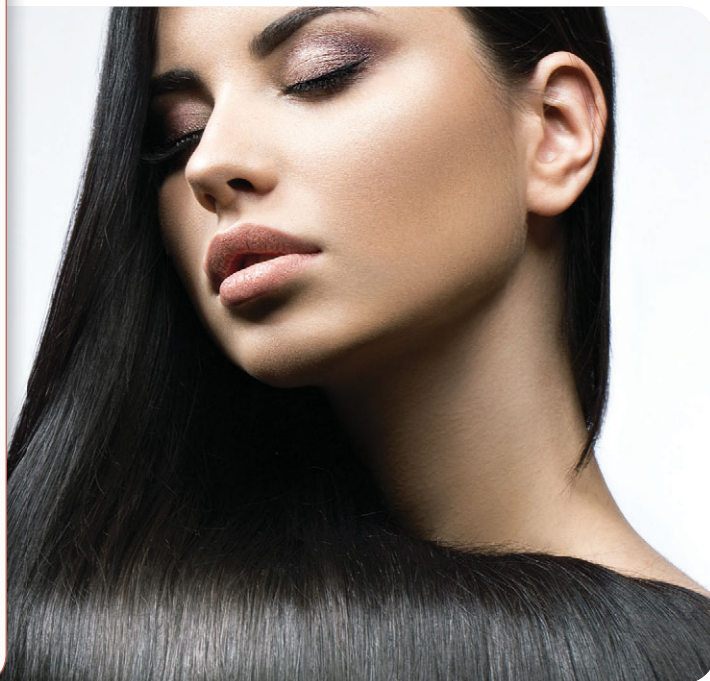
Another way these collagen peptides protect the skin is by reducing the activity of *metalloproteinase 2*, a “protein-melting” enzyme that breaks down collagen and hastens skin aging.²¹

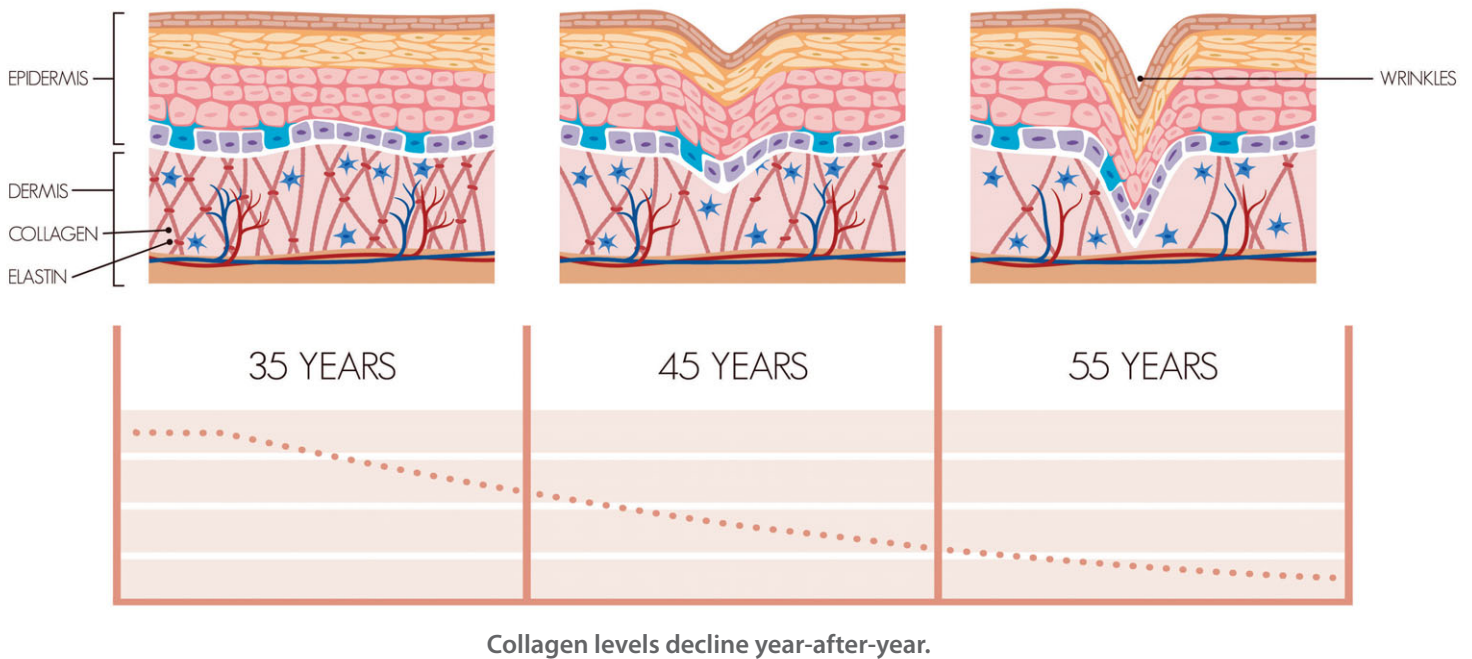
The effect in skin tissue is a remarkable reduction of skin wrinkles and improved dermal matrix synthesis.

Reduce Wrinkles in Eight Weeks

Scientists put **bioactive collagen peptides** to the same rigorous clinical testing as solubilized keratin, and the results were equally impressive.

In one study, supplementing with either **2.5 or 5 grams** of this oral supplement for eight weeks led to a **7%** improvement in skin elasticity. This higher elasticity persisted even four weeks *after* they stopped taking the supplement, showing the lasting benefits of replacing the body's lost collagen.¹⁴





Another placebo-controlled trial demonstrated that women ages 45 to 65 who took **2.5 grams** of bioactive collagen peptides daily for just eight weeks achieved healthier, more supple skin. This was indicated by:¹⁵

- **20.1%** reduction in wrinkle depth,
- **65%** increase in the accumulation of essential type-I pro-collagen, and **18%** increase in elastin fibers.

As an added benefit, restoring dermal architecture can also decrease the appearance of *cellulite* by lessening the amount of fat showing through the skin. A **2015** study found that taking **2.5 grams** of bioactive collagen peptides daily for six months reduced cellulite scores in women by **9%** and decreased thigh skin waviness by **11.1%**.⁸

In **2017**, scientists reported that drinking a liquid blend of **collagen** peptides and antioxidants daily for 90 days improved skin elasticity by **7.5%** and significantly enhanced skin texture.¹⁰

Clinical trials now **validate** that these oral ingredients quickly change the effects of aging that occurs in skin, hair, and nails.

Although the development of uniquely bioavailable forms of solubilized keratin and bioactive collagen peptides have **revolutionized** the rejuvenation of skin, hair, and nails, two important nutrients have the capacity to act as catalysts in this structural rebuilding: **biotin** and **silicon**.

Building Stronger Nails

Biotin is a water-soluble B vitamin. Animal²² and human¹⁻³ studies indicate that biotin supplementation improves the hardness and integrity of the nail structure.

One study showed that taking **2.5 mg** of biotin every day for an average of 5.5 months transformed aged and damaged fingernails into firmer, harder nails in an amazing **91%** of treated subjects.²

In another study, when women with brittle, splitting, or soft fingernails took biotin, they experienced a **25%** increase in nail thickness and reduced nail splitting. Electron microscopy scanning revealed that the irregular arrangement of cells on the nail surface of brittle nails had become more regular.¹

Finally, a third study found that when people with brittle and splitting nails took **2.5 mg** of biotin per day for at least one month, **63%** of the subjects experienced a **clinical improvement** in nail integrity, brittleness, and splitting.³

Additional Support

Silicon is an essential trace element involved in the metabolism of connective tissue in skin and hair.⁴⁻⁶ It activates “hydroxylation” enzymes that cross-link collagen, which improves strength and elasticity.⁷ Silicon is also associated with the synthesis of molecules known as *glycosaminoglycans*, which help create the substance that fills the space between collagen and

elastin.⁹ Because of these important roles, silicon is an important component of healthy hair, nails, and skin.

It has been suggested that hair strands that have higher **silicon** content have a lower rate of falling out and greater brightness.

Silicon is also a predominant mineral in the composition of healthy nails. As a **2016** study indicated, “*The presence of soft and brittle nails can indicate systemic deficiency of silicon.*”⁹

Better collagen ultimately translates into better hair, skin, and nails.⁹

Summary

The aging process is outwardly obvious in skin, hair, and nails.

To counter this visible deterioration, scientists have developed targeted **oral** interventions—highly bioavailable forms of **collagen peptides**, **solubilized keratin**, **biotin**, and **silicon**—that together rebuild the architecture behind youthful skin, lustrous hair, and stronger nails from *within*. ●

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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1. *Skin Pharmacol Physiol.* 2014;27(3):113-9.
2. *Vet Rec.* 1984 Dec 22-29;114(25-26):642-5.
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New Research on Astaxanthin and Cancer

Researchers are excited about a series of studies showing that **astaxanthin**, a natural compound with oxidant-quenching and anti-inflammatory properties, may also play a role in **cancer treatment**.

Although these studies were conducted *in vitro* (in a test tube or other culture media) and lab animals, the initial findings are so promising that there is hope that human applications will soon be confirmed.

Let's look at what this research is discovering.

What is Astaxanthin?

Astaxanthin is a **xanthophyll carotenoid**.¹ It is the vibrant red pigment that gives color to things like salmon, krill, arctic shrimp, and flamingo feathers.^{2,3}

Numerous studies in animals have demonstrated the benefits of astaxanthin in eye health, skin health, heart health, liver health, and immune response, and several studies have assessed its safety, bioavailability, and effectiveness on **oxidative stress** in humans.^{1,4}

Research findings from around the world are uncovering the ability of **astaxanthin** to combat cancer.

These studies show that astaxanthin has at least **six different mechanisms of action** that help combat cancer on multiple fronts.⁵

Six Ways Astaxanthin Defeats Cancer

1. Decreases Cancer Cell Proliferation.

Tumors develop when cancer cells rapidly proliferate, invade, migrate and adhere to healthy tissues and organs.^{5,6} Astaxanthin is capable of decreasing proliferation of malignant cells.

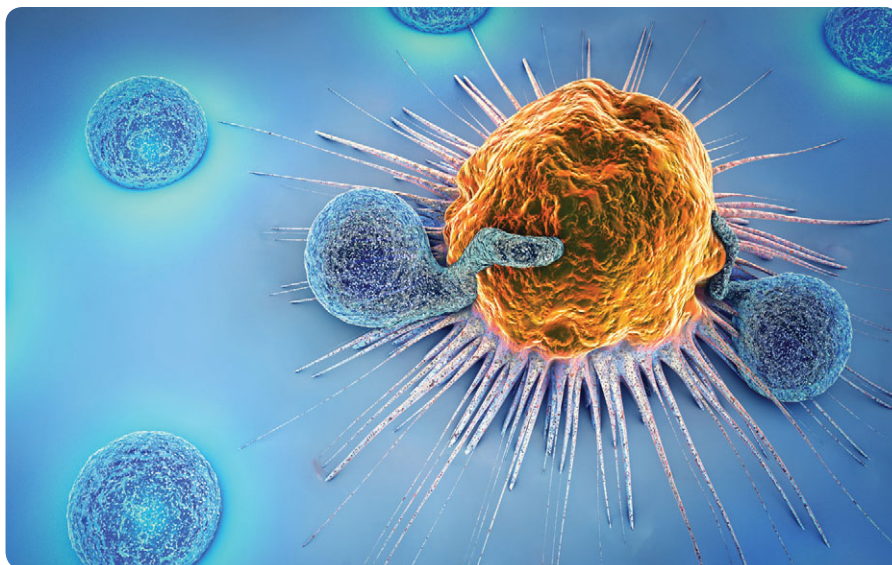
In one study, investigators noted a strong association between the presence of astaxanthin and the *decreased proliferation* of rat liver- and breast-cancer cells, and of mouse lung-cancer cells.

It's interesting to note that a control group of *normal* human liver cells was barely affected by the presence of astaxanthin.⁷ This indicates the ability of astaxanthin to **selectively target** cancer cells.

In another study, when astaxanthin was compared to the three other carotenoids (beta-carotene, capsanthin, and bixin), astaxanthin was found to be the **most active** in preventing the reproduction of human **leukemic** cells.⁸

2. Promotes Cell Death.

Programmed cell death, also known as **apoptosis**, is a healthy process in which the body removes damaged or dysfunctional cells.^{9,10} A hallmark of cancer is its ability to evade apoptosis, which allows cancer cells to survive and reproduce.¹¹ One potent way to combat



cancer is to turn this programmed cell death **back on** in cancer cells, and astaxanthin appears to do just that.

Astaxanthin has been shown to promote apoptosis in several *in vitro* studies involving cell lines of both **oral** and **liver cancer**.^{7,12,13}

3. Reduces Oxidative Stress.

Oxidative stress promotes by the growth and spread of certain types of cancers.^{14,15}

Italian investigators found that astaxanthin **stops** the production of reactive oxygen species in a human **lymphoma cell** line.¹⁶ Similarly, Chinese investigators noted that astaxanthin stifled the growth of human **leukemia** cells.⁸

4. Reduces Inflammation.

It is well known that inflammation plays a prominent role in cancer proliferation and survival.¹⁷⁻¹⁹ Astaxanthin has been found to inhibit the occurrence of inflammatory mucosal ulcers and pock-ets. This led to the prevention of **adenocarcinoma** in the colons of mice.²⁰

In other studies, astaxanthin suppressed the production of inflammation-inducing *cytokines*, including *tumor necrosis factor alpha* in human **lymphoma** cell lines.^{16,21}

5. Prevents the Spread of Cancer.

The spread of cancer to other sites such as organs and bone (metastasis) occurs when cancer cells break away from the original tumor.

Enzymes known as **matrix metalloproteinases** (MMPs) facilitate a step in this complex process, allowing tumor cells to migrate to another organ where new growth takes place.^{5,22,23} In other words, MMPs may promote tumor growth and progression.

Scientists believe that astaxanthin works to prevent the spread of cancer by **inhibiting** MMPs and modulating pathways related to tumor blood supply, cell proliferation, and cancer formation, progression and invasion.^{24,25}

These protective effects have been demonstrated in **oral-cancer** cell lines from hamsters and in **colon-** and **liver-cancer** cell lines from rats.²⁴⁻²⁶

6. Improves Communication Among Cells.

Individual cells within an organ communicate with each other using **gap-junction channels**, structures which allow the coordination of metabolism and other critical functions. When there are defects in communication, it opens the door for disorders such as inflammation, cellular damage—and ultimately, cancer.²⁷⁻²⁹

Astaxanthin appears to support and **enhance** this form of cell-to-cell communication, which means it may be beneficial against a variety of different types of cancer.

For example, one investigator found that astaxanthin enhanced gap-junction communication, while noting that previous studies found that this enhanced communication has been shown to inhibit cancer formation and growth.³⁰

Recent Studies on the Use of Astaxanthin in Cancer

Oral Cancer

Investigators in India recently examined the role of astaxanthin in stopping the growth and spread of **oral cancer** in hamsters.

To test this, researchers gave the animals a chemical designed to induce oral cancer, and then gave them either astaxanthin or no treatment. The investigators noted that the **signaling** pathways involved in the proliferation and spread of oral cancer were **significantly inhibited** in the cancer group that received astaxanthin. This included reducing the ability of tumor cells to create new blood vessels to fuel its growth (known as angiogenesis). These mechanisms demonstrate a potential value of astaxanthin to help treat oral cancer.²⁴

Liver Cancer

As of 2012, liver cancer is the fifth most common cancer and the third most fatal cancer worldwide.^{31,32} Despite modern treatments, liver cancer has a high recurrence rate,^{33,34} which makes finding a new, effective treatment even more critical. Astaxanthin could be a step in that direction.

Investigators in China recently studied the use of astaxanthin in vitro in two cell lines of human hepatocellular carcinoma. They used several different concentrations of astaxanthin along with a control drug, dimethyl sulfoxide (DMSO). What they found was that astaxanthin induced a high level of **cell death** in both cell lines at *three of these concentrations*, leading investigators to conclude that astaxanthin is potentially useful in combatting this difficult-to-treat tumor.³⁵

Colorectal Cancer

As of 2012, **colorectal cancer** is the third most common cancer in men and the second most common cancer in women worldwide.³⁶ Three important studies have shown astaxanthin's ability to combat colorectal cancer.

In the first study, investigators found that when they gave astaxanthin to rats with colorectal cancer, it significantly *decreased* the expressions of proteins consistent with inflammation and colorectal cancer, and significantly increased apoptosis (programmed cell death).²⁵

In the second study, mice fed dietary astaxanthin experienced a *decrease* in the growth of cancer cells, and an *increase* in cell death.²⁰ And in a third study, astaxanthin inhibited cell growth of two colorectal cancer cell lines over a 72-hour period and caused cell-cycle arrest and cell death.³⁷





Overall, these studies make it clear that astaxanthin has significant anti-inflammatory and anti-cancer effects in colorectal cancer.

Lung Cancer

Two promising lung cancer studies have recently shown that astaxanthin can help boost the effectiveness of standard cancer treatments.

In the first study, investigators treated human lung-cancer cell lines with either the chemotherapy drug *pemetrexed*, an *astaxanthin* solution, or both for 24 hours. The researchers found that combining the two agents (*pemetrexed*, and *astaxanthin*) improved cancer cell-killing and inhibited cancer cell growth.³⁸

In a similar study, when investigators treated two human lung-cancer cell lines with astaxanthin solutions, they noted that astaxanthin reduced the viability of the cancer cells and decreased the pro-

duction of proteins associated with chemotherapy resistance. Then, when astaxanthin was combined with equal amounts of the anticancer drug *mitomycin C*, the viability of the cancer cells decreased more than would be expected if either agent had been used separately.

The researchers concluded that not only may astaxanthin be useful on its own, but the combination of mitomycin C chemotherapy with astaxanthin could represent an effective method for improving the cancer cell-killing ability of this conventional treatment.³⁹

Prostate Cancer

Astaxanthin also shows promise in combatting one of the most common cancers in men: **prostate cancer**. In a recent study, investigators inoculated mice with human androgen-independent prostate cancer cells and then gave them either a high dose or a low dose of astaxanthin, or a placebo.

After just 31 days, **tumor volume** in the high-dose astaxanthin group was over **40%** smaller than in the control group, and tumor weight was reduced by nearly **40%**.

High-dose astaxanthin-treated mice also experienced a decrease in a tumor marker and in a marker of cell proliferation, as well as increases in the expression of tumor-suppressor genes.⁴⁰

The investigators concluded that the use of astaxanthin may prove beneficial in the treatment of prostate cancer.⁴⁰

Summary

Astaxanthin is being studied *in vitro* and in animals against a variety of animal- and human-cancer cell lines.

At least six possible mechanisms of action have been put forward to explain astaxanthin's anticancer effects.

In addition to its standalone anticancer properties, two studies demonstrated astaxanthin's role in increasing the effectiveness of cytotoxic chemotherapy.

These initial findings offer hope that astaxanthin could play a significant role in combatting some of the most common forms of cancer, including solid tumors and hematologic malignancies like leukemia. ●

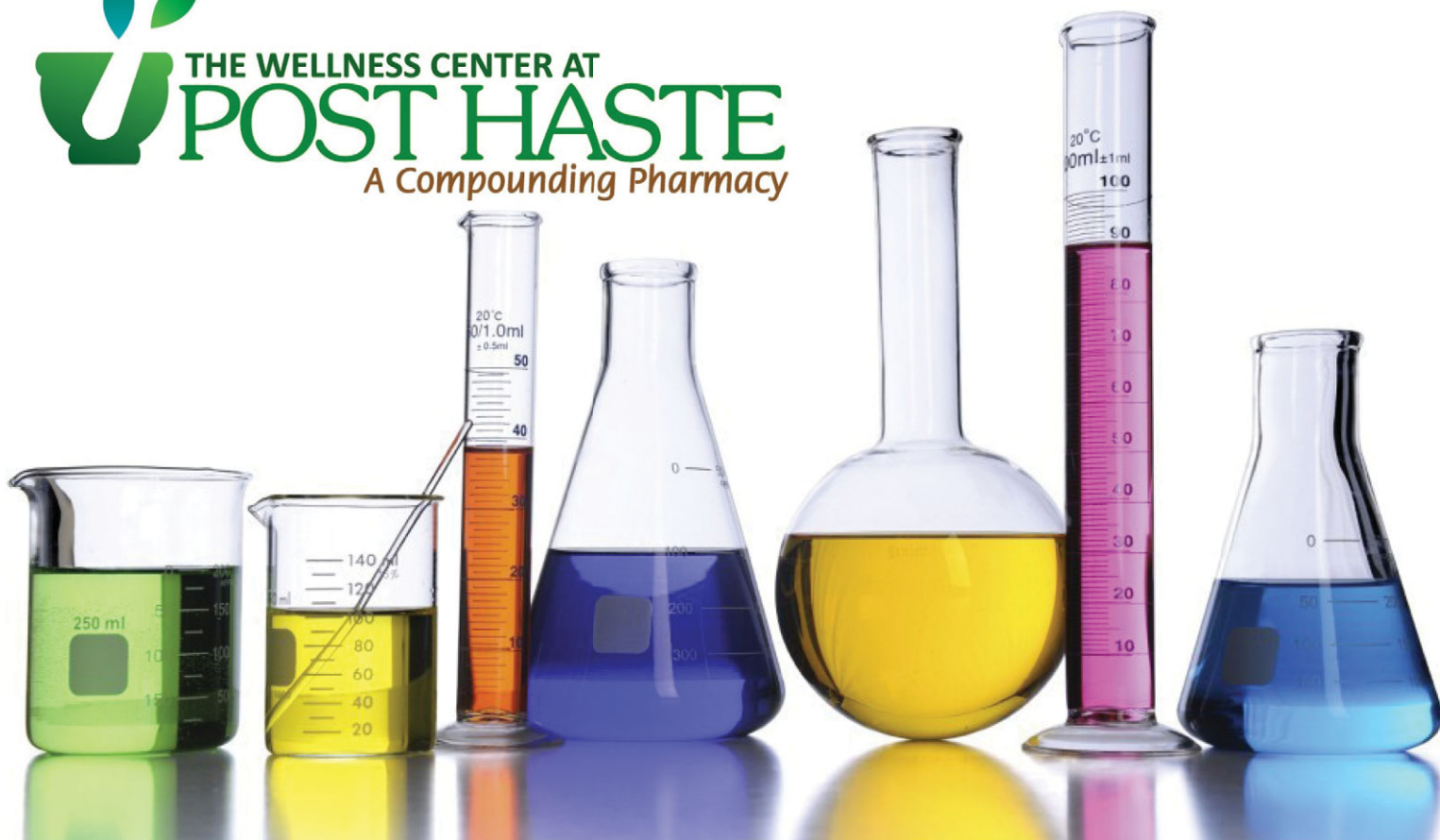
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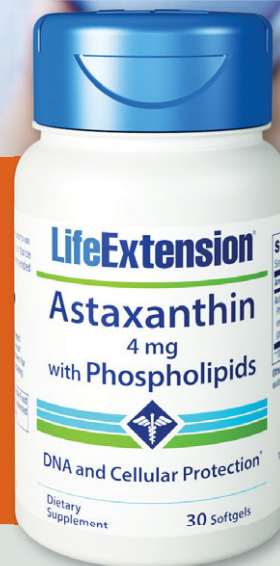
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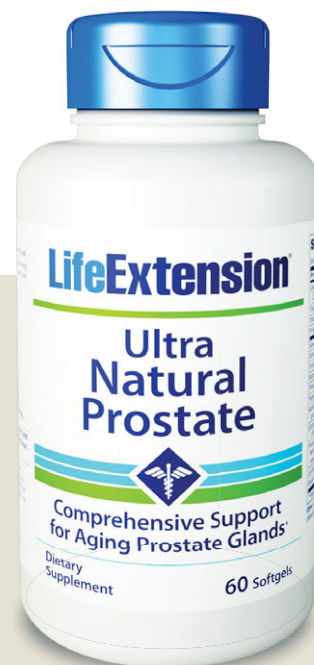
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A photograph of a family and an older woman. In the center, a young woman with long brown hair and a young man with dark hair are smiling and looking at each other. To the left, an older woman with short grey hair is looking down at a bowl of green salad. To the right, a young child with dark hair is smiling. The background is a bright, indoor setting.

BY GARRY MESSICK

The Happiness Diet

Journalist Rachel Kelly had suffered from anxiety and depression for years. She found medication helpful, but realized it caused side effects, such as weight gain. Eventually, Kelly's doctor introduced her to the connection between mood and food, and some of the scientific evidence supporting that concept.

Kelly soon discovered that changing her diet made a significant difference in how she felt, and even friends and family remarked that she looked happier. Intrigued, the journalist wanted to explore the mood/food connection in greater depth, so she met with nutritionist Alice Mackintosh. The two formed a partnership that led to their book, *The Happiness Diet*.

Kelly says her book "is not intended as a substitute for medication or other strategies," but she feels antidepressants and other mood-altering drugs are best for short-term use. *The Happiness Diet* is intended as a guide to meals that not only counter depression, but also foods that can have many other mood-related benefits. Accordingly, the book is divided into groups of recipes, each targeting specific topics, such as mental clarity, energy, and promotion of quality sleep.

On the next three pages are three sample recipes from *The Happiness Diet*. These meals can help make your kitchen, as Kelly puts it, "a place of creativity and adventure."



*FOR A BREAKFAST THAT PROMOTES RESTFULNESS
AT THE END OF THE DAY:*

Overnight Bircher Muesli

Serves 2

Stir together the oats, yogurt, chia seeds, almonds, cinnamon, and dairy milk or almond milk. Leave the mixture in the fridge in a covered jar or tub for 4 hours, or overnight. It should form a thick, creamy consistency. Add more milk if you prefer it a little thinner.

When you are ready to eat, add the fresh berries and pumpkin seeds. You can also sprinkle over some goji berries if you want extra color and sweetness.

3 tablespoons rolled oats
4 tablespoons natural yogurt
1 tablespoon chia seeds
Handful of almonds, chopped
Pinch of ground cinnamon
¼ cup low-fat milk, more if needed
(or dairy-free alternative such as unsweetened almond or oat milk)
Handful of fresh berries of your choice
1 tablespoon pumpkin seeds (optional)
1 tablespoon goji berries (optional)

TO PROMOTE CALMNESS:

Jeweled Guacamole and Roasted Peppers on Rye Bread

Serves 1, with leftover

Preheat the oven to 350°F.

Place the peppers on a baking sheet and drizzle with the olive oil and a little chopped parsley. Bake for 20 minutes, turning them halfway through. We like them slightly charred on the outside.

Scoop out the avocado flesh and mash it together with the garlic and a dash of olive oil. We prefer it a little lumpy, but if you want a smooth consistency, mash away to your heart's content.

Add a squeeze of lemon (not too much) and mix in the pomegranate seeds.

Once the peppers are cooked, you are ready to serve. Drizzle olive or hempseed oil over the hot toast, and then spread on the guacamole. Place the roasted peppers on top and add a sprinkle of parsley. The guacamole can be stored in the fridge but may go a little brown as the avocado oxidizes, so it is better eaten the same day.

2 red, yellow, or orange bell peppers, seeded and sliced

2 tablespoons olive oil

Small handful of flat-leaf parsley, chopped

1 large ripe avocado

½ garlic clove, crushed

Squeeze of lemon juice

Handful of pomegranate seeds

2 slices of toasted rye bread, with added seeds if possible



FOR FIGHTING THE BLUES:

Mushroom and Mustard Soup

Serves 4

Pour $\frac{3}{4}$ cup boiling water over the porcini mushrooms in a bowl, cover, and let them soak for 20 minutes.

Heat the olive oil in a large saucepan and add the red onion. Cook it on medium heat for 3-4 minutes, then stir in the garlic and parsnips.

When the onions have softened, add the fresh mushrooms and cook for another minute, then pour in the white wine.

Drain the liquid from the porcini mushrooms into another bowl, then add them to the pan. Sieve the liquid a few times to remove any grit before pouring it into the pan along with the stock.

Turn down the heat, cover the pan with a lid, and let it simmer for 20-30 minutes, or until all the ingredients are soft.

Remove the pan from the heat and add the parsley and mustard, then blend the soup to your preferred consistency using an immersion blender. Don't blend it for too long, or you will lose the texture of the mushrooms.

Stir in the mascarpone (I sometimes add a little extra mustard, too) before serving, or dollop it on top with a sprinkle of parsley once you have ladled the soup into bowls.

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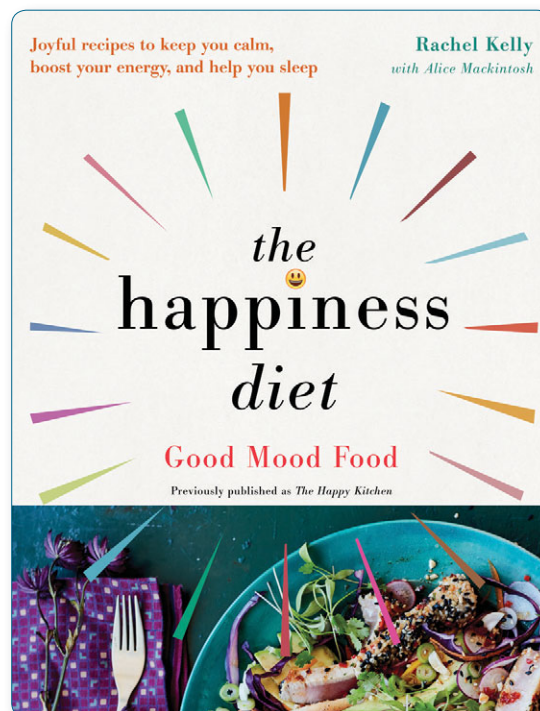
10 dried porcini mushrooms
1 $\frac{1}{4}$ pounds mixed mushrooms
(oyster, shiitake, button),
roughly chopped
2 tablespoons olive oil
1 red onion, sliced
2 garlic cloves, chopped
3 parsnips, washed and chopped
 $\frac{1}{4}$ cup white wine
3 cups vegetable or chicken stock
3 ounces fresh parsley
1 tablespoon prepared mustard
1 $\frac{1}{2}$ tablespoons mascarpone cheese

From THE HAPPINESS DIET by RACHEL KELLY.

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BY JON VANZILE

Daniel Cohn

Living the Good Life



DAN COHN

Dan Cohn knows a thing or two about staying healthy on the road.

As the CEO of the Daniel Cohn Wine Company, a start-up brand that introduced its first wine in January 2016, Cohn maintains a punishing travel schedule. In 2016, he spent 308 days on the road promoting his first blockbuster vintage, Bellacosa Cabernet.

"The wine business is a very exciting industry, but it's a 24-hour-a-day commitment," Cohn says. "In order to stay on top of the quality and every single detail, the day cannot end at 5 p.m. or 6 p.m. Weekends off are rare."

His challenge is compounded by where Cohn ends up spending a lot of time. Selling wine involves visiting fine restaurants, where butter and saturated fats rule the menu and alcohol is a central part of the experience.

To stay fit, Cohn has developed a routine and philosophy that makes it possible to hopscotch across the map—and of course he relies on **Life Extension**® supplements to make sure he's receiving the nutrients he needs.



Supplements for the Road

Dan Cohn spends a lot of time on the road, so it's not always easy to eat a healthy diet. His supplement routine is designed to provide all the baseline nutrients he needs, as well as bolster his immune system. His supplement program was designed for him by **Life Extension** to match his personal goals. It includes:

- Florassist GI
- Coenzyme Q10
- Super Curcumin
- Two-Per-Day Capsules
- Ultra Natural Prostate
- Super Omega-3
- Vitamin D

The Road Warrior's Routine

Cohn's typical day begins in a hotel room and ends in an airport. On any given day, he might find himself traveling to a new city or two and meeting with potential distributors or clients, all while doing press and staying in touch with the company itself back in Sonoma County.

"The whole idea is to share the experience of the wine," Cohn said. "Because a lot of people can't go to Sonoma or Napa, these beautiful wine regions, I bring it to them."

Along the way, he's learned a few crucial tips to keep up his energy.

"One of the keys is that if you ever have to eat in an airport, don't do it," he said. "The food in airports is terrible for you, so you're better just to avoid it totally."

When he does eat out, he tries to avoid butter in favor of simply grilled proteins that aren't swimming in saturated fat.

"Eighty percent of staying healthy on the road is about what you put in your face and keeping up your exercise routine," he says. "Keeping up a healthy lifestyle on the road can be hard."

Cohn aims for 20 minutes of exercise every day, even if that means exercising on the floor of his hotel room. It adds up to 200 push-ups and 200 sit-ups every day.

"I also rely on **Life Extension**," he says. "I'm fortunate to have **Life Extension** supplements that support me while I spread the joy of wine one bottle at a time."

A Bottle of Joy

So far, there's been a lot of joy to spread. When it comes to the wine business, Cohn draws on a generation of experience. His father, Bruce Cohn, was a legend in the music world who helped establish supergroups like Night Ranger

and Bruce Hornsby. He also managed the rock band The Doobie Brothers for thirty years, traveling relentlessly to support the band.

In the early 1970s, Bruce Cohn purchased a tract of land in Sonoma County, California, to put down some roots. The California wine business was in its infancy at the time, so it was mostly by sheer luck that Bruce realized he had lucked into some of the best cabernet grape acreage in the country. The property was already planted with Spanish olive trees that dated to the late 19th century. Looking for a break from the hectic pace of the music business, Bruce Cohn started making wine.

"I was raised in a vineyard," Dan said. "Back then, it was very much about community and small but beautiful vineyards. The fields were covered with independent wine growers and artisanal winemakers who labored to create great wines. It was about what went into

the wine. The connection was the most important of making and sharing wine."

Dan spent his childhood and teenage years working in the family business, crushing grapes, cleaning tanks, and working in the cellar. When the family sold the business in 2015, Cohn knew he didn't want to continue, so he started his own wine company.

The company's first release, Bellacosa, was launched in January 2016 and quickly earned rave reviews. The vintage was named as one of *Wine Business's* 2016 Top Hot Wine Brands and was awarded more than 90 points by several leading wine critics. In an extensive profile in *Forbes* magazine, Cohn was identified as one of America's hottest and most exciting winemakers.

The first vintage sold out of 25,000 cases in 10 months. Recently, Cohn announced plans to intro-

duce the single-vineyard Oakville Reserve Cabernet Sauvignon as a thank-you to everyone who helped Bellacosa become one of the most exciting wines of 2016. Oakville is a handcrafted, limited 500-case release. Cohn quickly received pre-orders for the first 200 cases.

"I've been in the wine business my whole life and never seen a launch like Bellacosa," Cohn said. "We sold out our first vintage completely."

One of the remarkable aspects of the Bellacosa story is how the company is in many ways a throwback to the vineyards of Cohn's youth and the small, artisanal wineries he grew up around. In the decades since then, as the region's reputation for great wines grew, bigger and bigger companies moved in, until "those small guys have been bought up."

But not Bellacosa. Artisanal wine is still in Cohn's blood.

"I'm still living in the early days of Sonoma and Napa Valley wine making," he said. "The connection, the moments. I'm involved every step of the way from concept, creation and curating to the connection and sharing of Bellacosa. I see the industry moving back into more of a connected, intimate setting, with smaller productions and more consumer connection."

In the future, Cohn plans to continue building his brand—which means he'll likely be on the road for a long time, signing bottles and spreading the word.

"Because of **Life Extension**, I can keep up with my rigorous travel schedule," he said. ●

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BY GARRY MESSICK

The Whole Foods Diet

For John Mackey, the cofounder of the Whole Foods Market chain, which was recently sold to Amazon, healthy eating represents something more than just a business model focused on a specific consumer group. Mackey has translated that passion into a new book, *The Whole Foods Diet: The Lifesaving Plan for Health and Longevity*.

In his book, written in collaboration with physicians Dr. Alona Pulde and Dr. Matthew Lederman, Mackey simplifies the technical aspects of nutritional science in favor of giving readers practical, highly readable information regarding

the benefits of a whole food, plant-based diet and helping them to make informed food choices. He also tackles subjects such as customizing diets for particular tastes and the ethical and environmental consequences of moving away from processed foods toward organic whole foods.

For this illuminating discussion with **Life Extension**[®], Mackey explores diet in relation to disease and obesity, provides an explanation of what constitutes whole foods, and covers some of his recommendations for foods that should be included in a healthful diet.

LE: What's your view of the current problem of obesity?

JM: There is an unavoidable connection between excess weight and a host of chronic conditions that all of us would rather avoid. Gaining weight is often the first warning sign that chronic disease is building up under the surface of your body. "Weight sits like a spider at the center of an intricate, tangled web of health and disease," writes Harvard Medical School's Dr. Walter Willett. Strands in that web include heart disease, strokes, several types of cancer, diabetes, arthritis, and many more unpleasant and sometimes life-threatening conditions. Maintaining a healthy body weight is therefore in our best interests if we want to remain vital, active, and glowing with the beauty that good health conveys, for decades to come.

This is not to say that a healthy weight is a guarantee of health. If you're someone who maintains a lean body without much effort, you may think you're better off, but it's not necessarily true. You could still have heart disease, diabetes, or cancer developing in your body, even though you don't have a visible warning sign telling you how sick you are. I'm sure you've heard stories of the seemingly "thin and healthy" people who are suddenly struck down by diseases they didn't appear to be at risk for.

LE: What sorts of dietary tendencies are most associated with diseases?

JM: High consumption of red meat and processed meats has been connected with greater risk of death from all causes, including chronic diseases such as cardiovascular disease and type II diabetes. Eating large amounts of animal protein has been correlated with higher incidences of cancer and mortal-

ity. Over a thousand studies on bowel cancer risk have confirmed that red meat increases risk while high-fiber plant foods decrease it. Processed meats are particularly scary, with significant studies linking them to stomach cancer, breast cancer, and colon cancer, and the World Health Organization classifying them as a carcinogen. As a result, the World Cancer Research Fund International and the American Institute for Cancer Research came out with firm recommendations for people to "eat mostly foods of plant origin," including whole grains, fruits vegetables, and beans.

These studies are not merely outliers. In fact, they are just a few among a multitude of compelling data points that make the case for a whole foods, plant-based diet. The research supporting the wisdom of this way of eating, even briefly summarized, is enough to fill several books. Rigorous laboratory experiments, carefully controlled clinical trials, and long-term observational studies following millions of people over several decades confirm the profound value of eating more real, plant-based foods and minimizing highly processed foods and animal products.

LE: How do you define "whole foods?"

JM: These are "real foods." These foods are essentially intact, close to the form in which they grew. None of their essential nutritious parts have been removed, and no unhealthy substances have been added to them. This includes all types of whole fruits and vegetables, whole grains, beans and other legumes, and nuts and seeds, as well as unprocessed animal foods. You'll often find unprocessed foods in the perimeter aisles of the grocery store, as well as at the farmer's market. They usually don't need much if any packaging, nor do they feature long ingredient lists. They won't contain preservatives, and many of them will need to be kept in the refrigerator and consumed soon after purchase, unless they've been dried, like beans and whole grains, or purchased frozen.

LE: The main food group you encourage people to eat are plant foods. How prominent should they be in the average person's diet?

JM: Some people, for ethical reasons, may choose not to eat any animal products, or only to eat dairy products and eggs. Putting



aside the ethical issues for now, from a health perspective, our recommendation is that plants should make up at least **90%** of your overall calorie intake.

LE: What's your advice for those who want to include animal products in their diet?

JM: If you choose to eat animal foods, keep in mind the way in which the animals are raised. Modern industrial factory farming has made animal foods widely available and affordable, but it comes at significant cost—both to the well-being of the animals and to your health. From a health perspective, common practices that are cause for concern include treating livestock with antibiotics and growth hormones, and feeding them corn and other products that are far removed from their natural diet.

We recommend that you follow these guidelines if you choose to eat animal foods: Choose grass-fed, organic, antibiotic-free meat and dairy products, and pasture-raised chickens and eggs.

Choose wild-caught fish and seafood where possible, and avoid those more likely to contain toxins such as mercury. Species to avoid tend to be those that are longer-lived and higher up on the food chain, including tuna, swordfish, and king mackerel.

Avoid processed meats. The World Health Organization recently categorized processed meats as a Group 1 carcinogen, alongside cigarettes and asbestos. If you decide to eat meat, choose unprocessed forms and stay away from hot dogs, salami, bologna, bacon, ham, and the like.

LE: In your book you list what you call the “Essential Eight” food groups: whole grains and starchy vegetables, beans and other

legumes, berries, other fruits, cruciferous vegetables, leafy greens, nonstarchy vegetables, and nuts and seeds. Comment, if you would, on a few of these—cruciferous vegetables, for instance.

JM: The cruciferous family of vegetables, also known as brassica vegetables, includes broccoli, radishes, cabbage, collard greens, Brussels sprouts, cauliflower, artichokes, arugula, and kale. Not only are these diverse foods all related, they also share some extraordinary health benefits, particularly when it comes to preventing cancer. In fact, Dr. Joel Fuhrman points out that cruciferous vegetables are the most micronutrient dense of all vegetables, and calls them “the most powerful anticancer foods in existence.”

This latter distinction may be due to a potent cancer fighter that is unique and particularly important to this group of foods, a family of substances known as glucosinolates. Glucosinolates are responsible for the pungent aroma and bitter flavor of many cruciferous vegetables. When these glucosinolates are broken down, either during food preparation or through chewing and digestion, they form compounds called isothiocyanates and indoles that have been shown in numerous studies to inhibit the development of cancer.

LE: Any serving suggestions, particularly for those who don't have a taste for these veggieies?

JM: It turns out moms all over America are right when they tell kids, “Eat your broccoli!” The good news is, there are creative ways to eat broccoli and other cruciferous vegetables that your mom may not have known about. Raw or lightly steamed broccoli or cauliflower florets add a satisfying crunch to

a salad or dipped in hummus. Kale can be blended raw into smoothies, “massaged” into a salad, or lightly steamed with some garlic and lemon juice. Zesty radishes, thinly sliced, add bite to salads, while the peppery flavor of arugula makes a nice change from lettuce.

You can also try tossing in a few handfuls of raw arugula into your warm pasta with veggies, letting it wilt just a little. Bok choy is a lovely addition to stir-fries, with its combination of crunchy stalks and tender leaves. Add it right at the end, as it needs only a couple of minutes to cook.

LE: How about leafy greens?

JM: Some fall into the cruciferous category, like kale, collards, arugula, and bok choy. Other particularly potent greens include watercress, Swiss chard, spinach, romaine, and other salad greens.

Researchers at Harvard University found greens to be the food most highly associated with protection from major chronic disease and cardiovascular disease. They have also been associated with reduced risk of diabetes. Greens are packed with fiber, protein, and antioxidants, as well as disease-fighting phytochemicals.

You can eat your greens raw as a salad, add handfuls to a smoothie, steam them lightly and serve them with lemon juice, toss them into a soup or stew at the end so they lightly wilt, blend them into flavorful pesto-style sauces, add steamed greens to mashed potatoes, or water-sauté them with garlic. Spinach makes a great addition to homemade hummus or other bean spreads. Greens are so extraordinarily healthy that we try to add them whenever possible to the dishes we cook. Try to eat greens every day!

LE: Nuts and seeds?

JM: Nuts and seeds are packed with health-promoting nutrients and consistently associated with good health outcomes. They are a rich source of all kinds of nutrients—understandable, given that they contain the energy to create an entire plant or tree.

Indeed, the consumption of nuts and seeds has been associated with reduced risk of heart disease and diabetes, as well as an increased lifespan. While some people raise concerns about the relatively high calorie density of nuts, they are also extremely filling and are generally not associated with an increase in weight or BMI. Having said that, if you are trying to lose weight, you might want to limit your nut and seed intake to less than a handful a day.

LE: Could you elaborate on the differences between whole carbohydrates and processed carbohydrates?

JM: One of the things many people love about a whole foods, plant-based diet is that it includes the comforting starchy “carb” foods... sweet and earthy yams, hearty winter squashes, tender juicy corn, and even the much-loved potato, as well as all the varieties of tasty, satisfying whole grains, can find a regular place on the whole foodie plate. In this category we also include the grainlike seeds, such as quinoa, millet, amaranth, buckwheat, and teff, which are nutritionally similar to grains.

The important and often-missed distinction between whole carbohydrates, like whole grains and starchy vegetables, and highly processed, refined carbohydrates (is that) while the latter are to be avoided, the former play a key role in an optimum diet.

Carbohydrates are the best energy source human beings have

available, and over the course of evolution, our bodies have adapted to be able to metabolize them efficiently. Whole grains provide fiber, protein, essential fatty acids, and numerous phytochemicals, as well as carbohydrates, in the perfect package to give us the energy we need. They have been linked to lower risk of heart disease, diabetes, obesity, certain cancers, and mortality from all causes. Eating whole grains also improves bowel health, helping to maintain regular bowel movements and promote growth of healthy gut bacteria.

Contrary to popular opinion, carbs in the form of whole grains can actually help you lose weight. Whole grains and starchy vegetables leave you feeling full and satisfied, and therefore combat snacking and overeating, actually preventing you from becoming or remaining overweight.

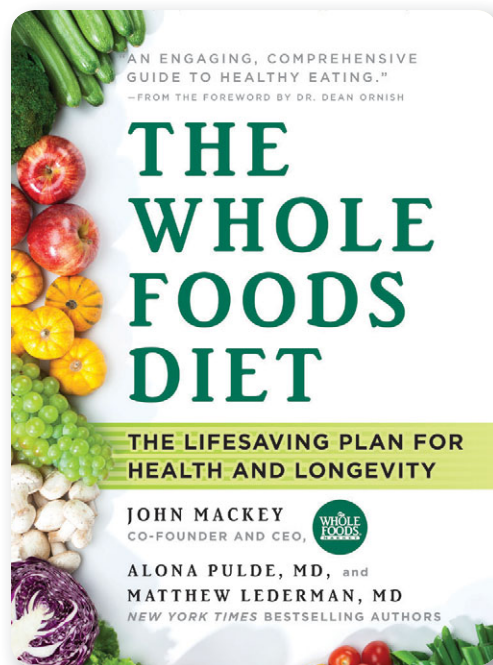
LE: Finally, what’s your advice to someone attempting to drop unhealthy, processed and sugary foods in favor of a healthy diet?

JM: Eat enough! One of the most common reasons people struggle in the transition to a whole foods, plant-based diet is that they don’t eat enough. That’s right. You’re much more likely to fail from eating too little than from eating too much. Many people start out by focusing on what they shouldn’t eat and don’t give enough attention to all the good things they should be eating. Because whole plant foods are less calorie dense than highly processed foods and animal foods, you may need to eat larger portions or more frequently than you are accustomed to. Try to include as many of the Essential Eight in your everyday diet as possible, and particularly focus on the starchy vegetables, whole grains, and legumes.

Listen to your body, especially in the early days of your transition. If you’re feeling hungry again only a couple of hours after eating, you probably didn’t have a big enough meal or include enough satiating whole grains or starchy vegetables. If you feel satisfied and content, stop eating, but if not, eat more. There is no right or wrong time to eat, only right and wrong foods. You can now trust your hunger signals without fear of overconsuming calories. You’re no longer in a battle with your body or your cravings—so long as the only food on your plate is real food (particularly of the whole food, plant-based variety).

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

***The Whole Foods Diet* is available from bookstores and online retailers.**



BY GARRY MESSICK

Kale

If a vegetable can be said to be trendy, kale fits that description.

In recent years, this green, leafy, cruciferous vegetable, a member of the cabbage family, has become very popular, and with good reason. Experts say that kale is one of the most nutrient-dense foods on earth. But that's just the beginning of the story...

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Studies show that supplementing with **lutein** and **zeaxanthin** significantly lowers your risk of age-related loss of eyesight due to cataracts and macular degeneration,⁵ and kale contains both of these carotenoids in small amounts.

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\$75
- **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
\$275
- **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
\$249
- **DIABETES MANAGEMENT PROFILE – COMPREHENSIVE (LC100040)**
Hemoglobin A1C • Glucose • Insulin • Lipid Panel • Glycomark
\$129



With **Your Healthy Rewards**, you earn **LE Dollars** back on every purchase you make — including blood tests!
See www.LifeExtension.com/Rewards for details.

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

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

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.

Amino Acids

Arginine/L-Ornithine Capsules
Arginine Ornithine Powder
Branched Chain Amino Acids
D,L-Phenylalanine Capsules
L-Arginine Caps
L-Carnitine
L-Glutamine
L-Glutamine Powder
L-Lysine
L-Taurine Powder
L-Tyrosine Powder
Super Carnosine
Taurine

Blood Pressure & Vascular Support

Advanced Olive Leaf Vascular Support with Celery Seed Extract
Arterial Protect
Blood Pressure Monitor Arm Cuff
Dual Action Blood Pressure
Endothelial Defense™ with Pomegranate Complete and CORDIART™
Endothelial Defense™ with GliSODin®
Natural BP Management
NitroVasc with CORDIART™
Pomegranate Complete
Pomegranate Fruit Extract
Triple Action Blood Pressure AM/PM VenoFlow™

Bone Health

Bone Restore
Bone Restore-Sugar Free
Bone Restore with Vitamin K2
Bone Strength Formula with KoAct®
Bone-Up™
Calcium Citrate with Vitamin D
Dr. Strum's Intensive Bone Formula
Strontium Caps

Brain Health

Acetyl-L-Carnitine
Acetyl-L-Carnitine Arginate
Blast™
Brain Shield® Gastrodin
CocoaMind™
Cognitex® Basics
Cognitex® with Brain Shield®
Cognitex® with Pregnenolone & Brain Shield®
Cognizin® CDP-Choline Caps
DMAE Bitartrate (dimethylaminoethanol)
Dopa-Mind™
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin Granules
Memory Protect
Migra-Eeze™
Neuro-Mag® Magnesium L-Threonate
Optimized Ashwagandha Extract
PS (Phosphatidylserine) Caps
Vinpocetine

Cholesterol Management

Advanced Lipid Control
Cho-Less™
CHOL-Support™
Red Yeast Rice
Theaflavins Standardized Extract
Vitamin B3 Niacin Capsules

Digestion Support

Artichoke Leaf Extract
Digest RC®
Effervescent Vitamin C - Magnesium Crystals
Enhanced Super Digestive Enzymes
Enhanced Super Digestive Enzymes w/Probiotics
EsophaCool™
Esophageal Guardian
Extraordinary Enzymes

Gastro-Ease™
Ginger Force®
Pancreatin
Regimint
Tranquil Tract™
TruFiber™
WellBetX PGX plus Mulberry

Energy Management

Adrenal Energy Formula
Asian Energy Boost
D-Ribose Powder
D-Ribose Tablets
Forskolin
Mitochondrial Basics with BioPQQ®
Mitochondrial Energy Optimizer with BioPQQ®
NAD+ Cell Regenerator™
Optimized NAD+ Cell Regenerator™ with Resveratrol
PQQ Caps
Rhodiola Extract
RiboGen™ French Oak Wood Extract
Triple Action Thyroid

Eye Health

Astaxanthin with Phospholipids
Brite Eyes III
Certified European Bilberry Extract
Eye Pressure Support with Mirtogenol®
MacuGuard® Ocular Support
MacuGuard® Ocular Support with Astaxanthin
Tear Support with MaquiBright®

Fish Oil & Omegas

OMEGA FOUNDATIONS® Clearly EPA/DHA
OMEGA FOUNDATIONS® Mega EPA/DHA
OMEGA FOUNDATIONS® Mega GLA with Sesame Lignans
OMEGA FOUNDATIONS® Super Omega-3 EPA/DHA with Sesame Lignans & Olive Extract
OMEGA FOUNDATIONS® Super Omega-3 Plus EPA/DHA with Sesame Lignans, Olive Extract, Krill & Astaxanthin
OMEGA FOUNDATIONS® Provinal® Purified Omega-7
OMEGA FOUNDATIONS® Vegetarian DHA
Organic Golden Flax Seed

Food

California Estate Extra Virgin Olive Oil
Rich Rewards® Breakfast Blend
Rich Rewards® Breakfast Blend Natural Mocha Flavor
Rich Rewards® Breakfast Blend Natural Vanilla Flavor
Rich Rewards® Breakfast Blend Whole Bean Coffee
Rich Rewards® Decaf Roast
Stevia Sweetener

Glucose Management

CinSulin® with InSea2® and Crominex® 3+
Glycemic Guard™
Mega Benfotiamine
Tri Sugar Shield®

Heart Health

Aspirin (Enteric Coated)
BioActive Folate & Vitamin B12 Caps
Cardio Peak™ with Standardized Hawthorn and Arjuna
Homocysteine Resist
Optimized Carnitine with GlycoCam®
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with BioPQQ®
Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™
Super-Absorbable CoQ10 Ubiquinone with d-Limonene
TMG Powder
TMG Liquid Capsules

Hormone Balance

DHEA (Dehydroepiandrosterone)
Inner Power
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® Herbal Joint Formula
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
DNA Protection Formula
Enhanced Berry Complete with Acai
Essential Daily Nutrients

GEROPROTECT™ Ageless Cell™
 GEROPROTECT™ Longevity A.I.™
 Grapeseed Extract with
 Resveratrol & Pterostilbene
 Mediterranean Whole Food Blend
 Mega Green Tea Extract (decaffeinated)
 Mega Green Tea Extract (lightly caffeinated)
 Optimized Fucoidan with Maritech® 926
 Optimized Resveratrol
 pTeroPure®
 Pycnogenol® French Maritime
 Pine Bark Extract
 Resveratrol with Pterostilbene
 RNA (Ribonucleic Acid)
 Super R-Lipoic Acid
 X-R Shield

Men's Health

Mega Lycopene Extract
 PalmettoGuard® Saw Palmetto with
 Beta-Sitosterol
 PalmettoGuard® Saw Palmetto/Nettle Root
 Formula with Beta-Sitosterol
 Pomi-T®
 Prelox® Natural Sex for Men®
 Super MiraForte with Standardized Lignans
 Triple Strength ProstaPollen™
 Ultra Natural Prostate

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

Potassium Iodide
 Solarshield® Sunglasses

Mood & Stress Management

5 HTP
 L-Theanine
 Natural Cortisol Balance
 Natural Stress Relief
 SAME (S-Adenosyl-Methionine)

Multivitamins

Children's Formula Life Extension Mix™
 Comprehensive Nutrient Packs ADVANCED
 Life Extension Mix™ Capsules without Copper
 Life Extension Mix™ Capsules
 Life Extension Mix™ Powder without Copper
 Life Extension Mix™ Powder
 Life Extension Mix™ Tablets with Extra Niacin
 Life Extension Mix™ Tablets without Copper
 Life Extension Mix™ Tablets
 Once-Daily Health Booster
 One-Per-Day Tablets
 Two-Per-Day Capsules
 Two-Per-Day Tablets

Personal Care

Anti-Aging Rejuvenating Scalp Serum
 Biosil
 Dr. Proctor's Advanced Hair Formula
 Dr. Proctor's Shampoo
 European Leg Solution Featuring Certified
 Diosmin 95
 Face Master Platinum Facial Toning System
 Hair, Skin & Nail Rejuvenation Formula
 w/VERISOL®
 Hair Suppress Formula
 Life Extension Toothpaste
 Sinus Cleanser
 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® 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-Glycation Serum with
 Blueberry & Pomegranate Extracts
 Antioxidant Facial Mist
 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 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 Natural Sleep® with Melatonin
 Enhanced Natural Sleep® without Melatonin
 Fast-Acting Liquid Melatonin
 Glycine
 L-Tryptophan
 Melatonin
 Optimized Tryptophan Plus

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
 Natural Vitamin E
 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
 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 Natural 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 Citrimax®
 Super CLA Blend with Sesame Lignans
 Waist-Line Control™

Women's Health

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

		YOUR PRICE					
ITEM No.	PRODUCT	Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	QTY	Total
A							
01524	ACETYL-L-CARNITINE • 500 mg, 100 veg. caps	34.00	25.50	22.50			
01874	ACETYL-L-CARNITINE ARGINATE • 90 veg. caps	52.00	39.00	35.00			
01628	ADRENAL ENERGY FORMULA • 60 veg. caps	24.00	18.00	16.50			
01630	ADRENAL ENERGY FORMULA • 120 veg. caps	46.00	34.50	31.50			
01828	ADVANCED LIPID CONTROL • 60 veg. caps	30.00	22.50	20.25			
00681	AHCC® • 500 mg, 30 caps	59.98	44.99				
24404	AHCC® (KINOKO® PLATINUM) • 750 mg, 60 veg. caps	84.95	63.71				
29727	AHCC® (KINOKO® GOLD) • 500 mg, 60 veg. caps	74.95	52.47				
00457	ALPHA-LIPOIC ACID W/BIOTIN • 250 mg, 60 caps	37.00	27.75	24.00			
02207	AMPK METABOLIC ACTIVATOR • 30 veg. tabs	38.00	28.50	24.00			
01509	ANTI-ADIPOCYTE FORMULA W/MERATRIM® & INTEGRA LEAN® (Advanced) • 60 veg. caps	39.00	29.25	27.00			
02140	ANTI-ALCOHOL w/HEPATOPRO COMPLEX • 60 caps	22.00	16.50	15.00			
01625	APPLEWISE POLYPHENOL EXTRACT 600 mg, 30 veg. caps	21.00	15.75	14.25			
01039	ARGININE/ORNITHINE • 500/250, 100 caps	17.99	13.49				
00038	ARGININE/ORNITHINE POWDER • 150 grams	22.95	17.21	14.25			
01624	(L)-ARGININE CAPS • 700 mg, 200 veg. caps	26.50	19.88	17.44			
02004	ARTERIAL PROTECT • 30 veg. caps	44.00	33.00	29.00			
01617	ARTHROMAX® W/THEAFLAVINS & APRÈSFLEX® 120 veg. caps	44.00	33.00	30.00			
01618	ARTHROMAX® ADVANCED W/UC-II® & APRÈSFLEX® 60 caps	36.00	27.00	24.00			
02108	ARTHROMAX® HERBAL JOINT FORMULA • 60 veg. caps	40.00	30.00	27.00			
01404	ARTHR-IMMUNE JOINT SUPPORT • 60 veg. caps	32.00	24.00	21.00			
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							
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 W/ACAI (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			
01512	BIOACTIVE MILK PEPTIDES • 30 caps	18.00	13.50	12.00			
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			
01709	BLACK CUMIN SEED OIL • 60 softgels	16.00	12.00	10.50			
01710	BLACK CUMIN SEED OIL W/BIO-CURCUMIN® • 60 softgels	32.00	24.00	22.50			
SUBTOTAL OF COLUMN 1							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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			
01726	BONE RESTORE • 120 caps	22.00	16.50	14.25			
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			
00313	BONE-UP® • 240 caps	28.95	21.71	20.41			
01661	BORON • 3 mg, 100 veg. caps	5.95	4.46	3.94			
00202	BOSWELLA • 100 caps	38.00	28.50	22.50			
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							
01653	CALCIUM CITRATE W/VITAMIN D • 300 caps	24.00	18.00	15.94			
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			
00916	CARNITINE W/GLYCOCARN® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
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/INSEA2® AND CROMINEX® 3+ • 90 veg. caps	38.00	28.50	25.50			
01906	CISTANCHE (Standardized) • 30 veg. caps	20.00	15.00	12.00			
01818	CITRIMAX® (Super) • 180 veg. caps	40.00	30.00	28.50			
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		
SUBTOTAL OF COLUMN 2							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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			
33840	CRWAY TO GREAT GLUCOSE CD •	225.00	225.00				
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/BIOPQQ® (Super Ubiquinol) • 100 mg, 30 softgels	50.00	37.50	30.00	27.00		
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		
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			
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 oz	53.00	39.75	34.50			
80165	ADVANCED GROWTH FACTOR SERUM • 30 ml	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 oz	65.00	48.75	42.75			
80140	ADVANCED UNDER EYE SERUM W/STEM CELLS • .33 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 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 oz	46.00	34.50	29.25			
80134	ANTI-GLYCATION SERUM W/BLEBERRY & POMEGRANATE EXTRACTS • 1 oz	33.00	24.75	23.51			
80133	ANTIOXIDANT FACIAL MIST • 2 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 oz	59.00	44.25	39.00			
80141	DNA REPAIR CREAM • 1 oz	49.00	36.75	31.50			
SUBTOTAL OF COLUMN 3							

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
80167	ENVIRONMENTAL SUPPORT SERUM • 1 fl. oz	59.00	44.25	39.00			
80108	ESSENTIAL PLANT LIPIDS REPARATIVE SERUM • 1 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 oz	39.95	29.96	28.50			
80103	LIFTING & TIGHTENING COMPLEX • 1 oz	74.50	55.88	49.17			
80135	MELATONIN CREAM • 1 oz	33.00	24.75	20.33			
80114	MILD FACIAL CLEANSER • 8 fl. oz	59.00	44.25	38.94			
80159	MULTI STEM CELL SKIN TIGHTENING COMPLEX • 1 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 oz	46.00	34.50	29.25			
80166	SKIN FIRMING COMPLEX • 1 fl. oz	53.00	39.75				
80112	SKIN LIGHTENING SERUM • 1/2 oz	85.00	63.75	56.10			
80130	SKIN STEM CELL SERUM • 1 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 \$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 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 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			
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			
01358	DIGEST RC® • 30 tablets	19.95	14.96	12.75			
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			
SUBTOTAL OF COLUMN 4							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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			
01570	DNA PROTECTION FORMULA • 60 veg. caps	34.00	25.50	24.00			
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			
01937	EPA/DHA (Mega) • 120 softgels	20.00	15.00	13.50			
02009	ESOPHACOL™ • 120 chewable tablets	20.00	15.00	13.50			
01737	ESOPHAGEAL GUARDIAN (Berry flavor) • 60 chewable tablets	36.00	27.00	24.00			
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							
01054	FACE MASTER® PLATINUM • Facial Toning System	199.00	199.00				
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			
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			
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				
SUBTOTAL OF COLUMN 5							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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	20.00	15.00	13.50			
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 SENESENCE PROTECTION FORMULA™ • 60 veg. tabs	40.00	30.00	27.00			
01049	INNERPOWER™ • 530 grams powder	44.97	33.73				
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 • 2 oz, 300 mcg	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				
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			
SUBTOTAL OF COLUMN 6							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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	12.00	9.00	7.50			
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	5.75	4.31	3.75			
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/BIOPQQ® • 30 caps	40.00	30.00	27.00			
01868	MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ®•120 caps	68.00	51.00	45.00			
00065	MK-7 • 90 mcg, 60 softgels	28.00	21.00	18.75			
00451	MSM (Methylsulfonylmethane) • 1,000 mg, 100 caps	14.00	10.50	8.96			
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	16.50	15.00			
02144	NAD+ CELL REGENERATOR™ NICOTINAMIDE RIBOSIDE 250 mg, 30 veg. caps	42.00	31.50	28.00			
SUBTOTAL OF COLUMN 7							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
02145	NAD+ CELL REGENERATOR™ W/RESVERATROL (Optimized) 30 veg. caps	50.00	37.50	34.00			
01807	NATURAL APPETITE SUPPRESS (Advanced) • 60 veg. caps	38.00	28.50	25.50			
00984	NATURAL BP MANAGEMENT • 60 tablets	44.00	33.00	30.00			
02012	NATURAL CORTISOL BALANCE • 30 veg. caps	45.00	33.75	30.00			
01892	NATURAL ESTROGEN • 60 veg. tabs	38.00	28.50	25.50			
01626	NATURAL SEX FOR WOMEN® 50+ (Advanced)•90 veg. caps	59.00	44.25	34.00			
01444	NATURAL SLEEP® • 60 veg. caps	13.00	9.75	7.50			
01551	NATURAL SLEEP® w/ MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00			
01511	NATURAL SLEEP® W/O MELATONIN (Enhanced) • 30 caps	20.00	15.00	13.50			
01445	NATURAL SLEEP® MELATONIN • 5 mg, 60 veg. caps	18.00	13.50	12.00			
00987	NATURAL STRESS RELIEF • 30 veg. caps	28.00	21.00	18.00			
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			
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		
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 (WellBetX®) • 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	35.00	26.25	24.00			
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		
SUBTOTAL OF COLUMN 8							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
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® NATURAL SEX FOR MEN® • 60 tablets	52.00	39.00	36.00			
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 Natural) • 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 oz	24.00	18.00	14.85	12.75		
01621	REJUVENEX® FACTOR FIRMING 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			
01609	RICH REWARDS® BREAKFAST GROUND COFFEE • 12 oz. bag	13.00	9.75				
01730	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE Natural Mocha • 12 oz. bag	15.00	11.25	10.50			
01729	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE Natural Vanilla • 12 oz. bag	15.00	11.25	10.50			
01612	RICH REWARDS® BREAKFAST BLEND WHOLE BEAN COFFEE 12 oz. bag	13.00	9.75				
01610	RICH REWARDS® 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			
SUBTOTAL OF COLUMN 9							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE				QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each			
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				
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				
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				
01249	SINUS CLEANSER • 4 oz. bottle	25.00	18.75					
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 fl. oz	50.00	37.50	33.00				
02131	SKIN CARE COLLECTION NIGHT CREAM • 1.65 fl. oz	39.00	29.25	27.00				
01596	SKIN RESTORING PHYTOCERAMIDES w/LIPOWHEAT® 30 liquid veg. caps	25.00	18.75	17.25				
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					
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				
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				
01917	TRANQUIL TRACT™ • 60 veg. caps	52.00	39.00	34.50				
SUBTOTAL OF COLUMN 10								

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
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			
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)	11.00	8.25	7.50			
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	27.00	20.25	18.00			
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 (Natural) • 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							

		YOUR PRICE				
ITEM No.	PRODUCT	Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each	QTY Total
Z						
01813	ZINC HIGH POTENCY • 50 mg, 90 veg. caps	7.95	5.96	5.25		
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			
33885	THE BLUE ZONES SOLUTION by Dan Buettner • 2015	26.00	19.50			
33877	THE TRUTH ABOUT MEN AND SEX by Abraham Morgentaler, MD, FACS • 2015	16.99	12.74			
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			
33873	EATING ON THE WILD SIDE • by Jo Robinson • 2014	16.00	12.00			
DPT05	DISEASE PREVENTION AND TREATMENT, EXPANDED FIFTH EDITION (Hardcover) • 2014	69.95	39.95	36.00		
33865	THE RESTORATION OF THE HUMAN BODY [IN 7 PARTS] by Sergey A. Dzigan, 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			
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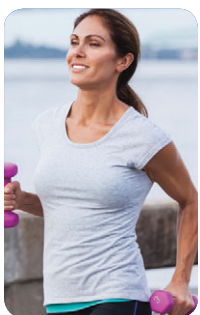
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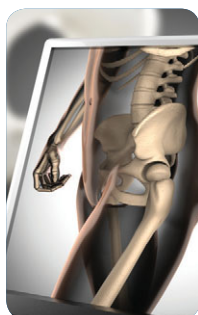
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