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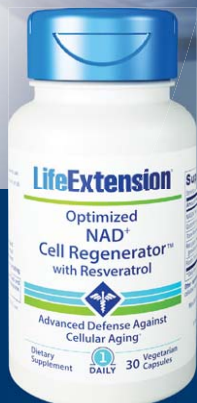
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The prostate glands of aging men often harbor **malignant cells**, but the right **diet** can prevent them from progressing to clinically-relevant **prostate cancer**.



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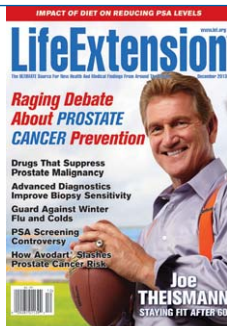
**Pine bark extract** provides a concentrated mixture of **pro-cyanidins** that have been shown to *reduce* risk of a host of vascular and inflammatory related conditions. New applications are being reported in the medical literature each year.



#### PREVENT HOLIDAY WEIGHT GAIN

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#### Reference

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

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BY WILLIAM FALOON

# Another Year of Vindication

In the **May 2013** issue of this magazine, I reiterated **Life Extension's** long-standing position that **PSA** screening and a certain **drug** class reduces **prostate cancer** incidence and death.<sup>1</sup>

Up against me was the **medical establishment** that claimed the **drug** increased aggressive prostate cancer risk.<sup>2</sup> They also claimed there was no value to screening for **PSA** (prostate specific antigen).<sup>3</sup>

A renowned expert (Patrick C. Walsh, MD) said drugs like **finasteride** (Proscar®) increased aggressive prostate cancer.<sup>2</sup>

**Dr. Walsh** is a pioneer in identifying genetic characteristics of prostate cancer and "nerve-sparing" surgery. So when someone of the caliber of **Patrick Walsh** writes me a letter, I pay attention. That's why in **2013**, I let readers know there are differing viewpoints.

The **FDA** went so far as to mandate a "**black box warning**" on **finasteride** and similar drugs, stating they may increase aggressive prostate cancer incidence.<sup>4</sup>

## My Response to the Critics

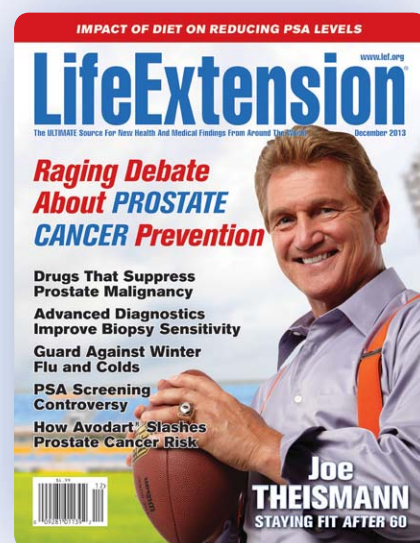
I responded to these allegations in the December 2013 edition of this magazine.<sup>5</sup> In my **rebuttal** to **Dr. Walsh** and the **FDA**, I documented how drugs that lower **PSA** (like finasteride and dutasteride) not only help alleviate urinary symptoms related to benign prostate enlargement, but also reduce a man's risk of developing **prostate cancer**. The evidence dating back to the **1994–2013** period was robust in my opinion.

In **May 2018**, at the annual meeting of the **American Urological Association**, the results of a long-term follow-up trial vindicated **Life Extension's** position.<sup>6</sup>

Findings from the landmark **Prostate Cancer Prevention Trial** showed that **finasteride** slashed **prostate cancer risk** by around **25%** with no increase in deaths from prostate cancer in men using this drug.<sup>7</sup> A follow-up study showed similar results<sup>8</sup> and led the principal investigator to state:

*"These results are transformational... We have found an inexpensive, effective drug [finasteride] that can prevent [prostate cancer]."*<sup>6</sup>

While the news media treated this as a major advance, the reality is that over **100,000** American men may have needlessly died of **prostate cancer** because of the failure of the **medical establishment** and **FDA** to accurately interpret published scientific findings dating back to **2003** and earlier.<sup>7</sup>



December 2013 *Life Extension*  
Life Extension's rebuttal to FDA and Patrick Walsh, M.D.

## As We See It

This year, about **165,000** American men will be diagnosed with **prostate cancer**, and around **29,000** will die from this malignancy.<sup>9</sup>

The number of men diagnosed is artificially low because of an erroneous position taken in **2012** by the **United States Preventive Services Task Force** that argued *against* routine **PSA screening**.<sup>3,10</sup>

By recommending against low-cost PSA blood tests, hundreds of thousands of men will develop advanced prostate cancer that is difficult to cure.

In **2017–2018**, the United States Preventive Services Task Force backtracked on its **2012** recommendation against **PSA screening**. Their new suggestion is that men **aged 55–69** should make an individual decision about routine screening in consultation with their physician.<sup>11</sup>

While this represents a partial vindication of our position, we disagree that **early diagnosis** of



prostate cancer should be limited to men aged 55–69 years.

Prostate cancer risk begins around **age 40**, and this is when men should have their first **PSA blood test**.<sup>12</sup>

We don't write off men over **age 69**, and we urge these men to have annual **PSA blood tests** to ascertain prostate cancer risk and take steps to reverse the course of early stage disease using nutritional and drug interventions.

### Prostate Cancer Prevention Diet

As we have written for decades, the most effective way of reducing one's risk of prostate cancer is by healthy **diet**.<sup>13–16</sup>

Simply stated, avoid meat, dairy, refined sugar, eggs, most starches, and foods cooked at high temperatures. Following a **Mediterranean-type** diet may reduce prostate cancer risk up to **48%**.<sup>17–19</sup>

Published scientific findings continue to validate our position on the striking role of diet and prostate cancer.<sup>20–27</sup>

The article on page 40 of this month's issue provides an **update** to our **2013** report about foods that increase prostate cancer risks and those that reduce it.

### Prostate Cancer Preventing Drugs

**5-alpha reductase** is the enzyme that causes testosterone to convert to **dihydrotestosterone** that stimulates both benign and malignant prostate cell proliferation.<sup>28–30</sup>

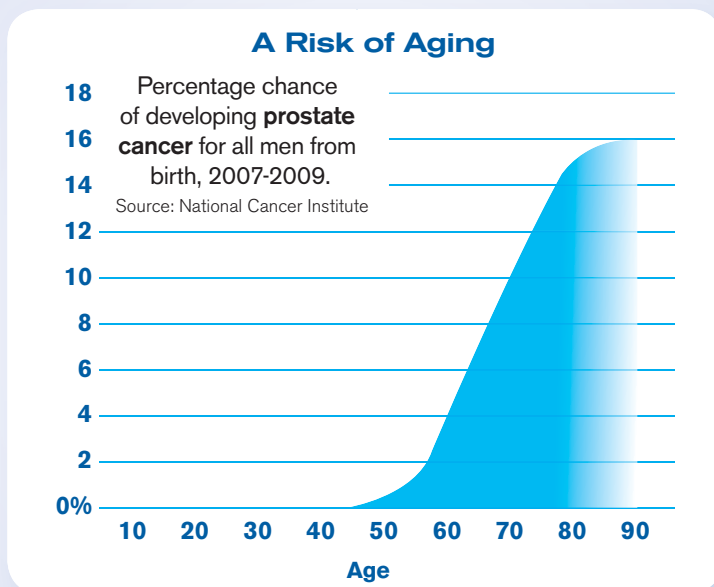
Generic drugs like **finasteride** or **dutasteride** inhibit **5-alpha reductase** and thereby reduce **dihydrotestosterone** levels.<sup>7,30,31</sup>

A rapid effect of these drugs is the impact on the size (volume) of the prostate gland. Both medications are capable of shrinking an enlarged (benign) prostate gland by as much as **25%**.<sup>32</sup>

In **May 2018** the results from a large clinical trial were announced. The findings showed that **finasteride** markedly reduced prostate cancer risk.<sup>33</sup>

We urge all men to follow healthier dietary patterns and consider **5-alpha reductase inhibitors** to further reduce their prostate cancer risk, as I've done for the past 18 years or so.

## Skyrocketing Incidence of Prostate Cancer with Age



Source: "Prostate Cancer Prevention Controversy"  
*Life Extension Magazine*, December 2013

## Bill Faloon's PSA Blood Test Results Years 2003 to 2018

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#### LAB RESULTS

Last Name	Lab ID	Specimen Number	Time Collected	Date Entered	Time Reported
FALOOON	N/A	M1141260K	09:15 AM	04/16/2003	12:16 PM
First Name	Middle Initial	Phone	Control Number	Account Number	Account Phone Number
WILLIAM		954-766-8433	N/A	09134070	954-766-8433
Date of Birth	Age	Sex	Fasting	Physician Name	Physician ID
XX/XX/1954	48	M	YES	PARDELL, H.	

Tests	Results	Units	Reference Interval	Lab
PROSTATE SPECIFIC ANTIGEN				
Total PSA	→ <b>Frighteningly high at age 48!</b>	→ 1.4	< OR = 4.0 NG/ML	

### My Personal Triumph Using PSA Testing

I was traveling to meet a new oncology group in **April 2003** when I called **Life Extension's Blood Lab** to see if my most recent test results were ready. I asked Life Extension to fax these results to my hotel. What came out of that fax machine was beyond shocking. My **PSA** had shot up to **1.4 ng/mL**—it had always been below **1.0 ng/mL**. (See a copy of lab reports on this page.)

My reaction was a controlled panic. As far as I was concerned, there were early stage tumor cells lurking in my prostate gland that had to be eradicated. I'd seen too many cases where PSA jumps to **1.4 ng/mL** and quickly moves up to the danger ranges (above **2.4 ng/mL**).

All plans were cancelled that night as I searched computer databases to identify **every** single nutrient and lifestyle change that had ever been shown to reduce **PSA** levels. I noted each nutrient, extrapolated a human-equivalent dose, and then took a quadruple-amount of almost every anti-cancer ingredient.

I made sure to take the prescription drug **metformin**<sup>50,51</sup> on a consistent basis, slashed my consumption of red meat, and vowed to stay on this ultra-high dose regimen until there was a reversal of my **PSA**. As supporters have seen from the blood tests I have previously posted, my PSA has stayed around **0.5 ng/mL**—a more than **60% reduction** compared to fifteen years ago (when I was 16 years younger).

I am convinced that had I not had regular **PSA blood tests** and used the findings to alter my dietary and nutrient-drug intake that I would be dealing with serious prostate issues now that I have turned age **64**.

As you can see from my most recent **blood test** below, my PSA dropped to **0.5 ng/mL** in **2018** from **1.4 ng/mL** in **2003**. If I had not checked my PSA regularly, I might very well have **prostate cancer** now. It runs in my family.

Just some of the **quadruple-dose nutrients** I took included:

- Milk thistle extract<sup>34-36</sup> • Green tea extract (decaffeinated)<sup>37,38</sup> • Curcumin<sup>39,40</sup> • Vitamin D<sup>41-43</sup>
- Cruciferous vegetable extracts (like I3C)<sup>44,45</sup> • Gamma tocopherol<sup>46,47</sup> • Genistein (soy) extract<sup>48,49</sup>

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#### LAB RESULTS

Last Name	Lab ID	Specimen Number	Time Collected	Date Entered	Time Reported
FALOOON	N/A	10829149080	09:15 AM	09/19/2018	9/19/2018 9:15 AM
First Name	Middle Initial	Phone	Control Number	Account Number	Account Phone Number
WILLIAM			N/A	09134070	954-766-8433
Date of Birth	Age	Sex	Fasting	Physician Name	Physician ID
XX/XX/1954	64	M		HEISTER, R	16199239

Tests	Results	Units	Reference Interval	Lab
PROSTATE SPECIFIC ANTIGEN				
Total PSA	→ <b>This is about as low as it gets for men over age 60.</b>	→ 0.5	< OR = 4.0 NG/ML	

## How PSA Fuels Prostate Cancer

**PSA** is more than a blood marker of prostate disease.

In prostate cancer, excessive levels of PSA (an enzyme) degrade structural barriers, allowing the expansion and escape of prostate cancer cells or colonies.<sup>52</sup> **Dihydrotestosterone** stimulates prostate cell propagation.<sup>28</sup>

Drugs that lower **dihydrotestosterone** and **PSA** (like finasteride) thus reduce the odds that a man will contract prostate cancer by around **25%**.<sup>8</sup>

Combining a healthy diet, certain supplements, and a **5-alpha reductase inhibitor** is the most intelligent approach a man over age 40 can take to protect against the miseries of prostate cancer treatments and potential death from the disease.

## The Latest Human Study

A study titled the **Prostate Cancer Prevention Trial** looked at **18,000** trial participants over a median follow-up of 16–18 years.

The findings revealed men taking **finasteride** had a **21% to 29%** reduced rate of developing prostate cancer.<sup>8</sup>

**Finasteride** is a drug that blocks the **5-alpha reductase** enzyme.<sup>53</sup> **Dutasteride** blocks two different forms of 5-alpha reductase and is more potent (and more expensive).<sup>54,55</sup>

Data for the follow-up analysis of the **Prostate Cancer Prevention Trial** took five years to gather. It corroborates previously published findings showing that **finasteride** reduces prostate cancer risk.<sup>6</sup>

During this time, we at **Life Extension** fought against mainstream medicine ignorance that

claimed **PSA screening** to be useless and drugs like **finasteride** to be dangerous. The new (2018) publications show the **opposite** to be true.

The implications were not overlooked by experts at **American Urological Association 2018** annual conference in San Francisco.<sup>56</sup>

According Joseph Smith, MD, editor of the *Journal of Urology*, this Prostate Cancer Prevention Trial is “**one of the most powerful and important cancer prevention trials ever conducted...**”<sup>56</sup>

The doctors who conducted this long-term trial lamented how the **FDA's** misguided “**black box warning**” had the lethal impact of causing most men to fear using **5-alpha reductase inhibitors**.<sup>33,57</sup> This in turn caused many to needlessly develop prostate cancer.

According to Ian J. Thompson, MD, the principle investigator of this landmark **Prostate Cancer Prevention Trial**:

*“This discovery could benefit tens of thousands of men each year in the United States by identifying a drug that can safely and effectively prevent prostate cancer.”<sup>33</sup>*

It was back in **2003** that a study published in the *New England Journal of Medicine* showed a **25% reduction** in prostate cancer incidence using the **5-alpha reductase inhibitor** over a **7-year** period.<sup>7</sup> The new data from the **Prostate Cancer Prevention Trial** (2018) shows this risk reduction extends to at least **16 years**.<sup>18</sup>

Evidence from this **Prostate Cancer Prevention Trial** found that men using the drug had improved detection of prostate cancer, improved detection of high-grade cancers, and no increased risk of high-grade prostate cancer death.<sup>6</sup>



This same information is what we published in the **December 2013** issue of this magazine. By **shrinking** the size of the prostate gland, which occurs with **5-alpha reductase inhibitors**, it is easier to **detect** high-grade prostate cancers at an earlier, curative stage.

### Nutrients That Reduce 5-Alpha Reductase

While we advocate that men over age 40 consider drugs like finasteride, **sexual side effects** sometimes manifest. A side benefit to drugs that inhibit **5-alpha reductase** is increased **hair growth** in those with male pattern baldness.

A number of our readers, however, don't like taking **prescription drugs** despite favorable evidence spanning back to year **1993**.

This prompted us to investigate **plant-based** nutrients that provide prostate benefits in a milder way than prescription drugs.

An article on page 40 of this issue describes **nutrients** that have demonstrated promising prostate cancer risk reductions in published scientific studies. Most readers of **Life Extension Magazine®** already take many of these nutrients.

### Too Many Needless Cancers

Data published by the *New England Journal of Medicine* in 2003 confirmed the prostate cancer-risk reduction effects of **5-alpha reductase inhibiting** compounds.

Mainstream medicine **misinterpreted** these findings showing reductions in prostate cancer occurrence in men taking finasteride.



### How to Reduce the Price Of 5-Alpha Reductase Inhibitor Drugs

The ingredient cost of generic **finasteride** and **dutasteride** is virtually nothing.

Inefficient **regulations** pertaining to FDA approval of **generic drugs** cause them to cost more than they should.

At American pharmacies, **finasteride** costs between **\$9** and **\$86** for 30 5 mg tablets. **Dutasteride** costs between **\$15** and **\$168** for 30 0.5 mg capsules.<sup>58</sup>

Those with urinary symptoms of benign prostate enlargement may have most of this cost covered by their insurance as long as they have a doctor's prescription.

One might achieve desired benefits, while reducing the cost (and sexual side effects), by taking just 3–4 tablets a week of either drug.

Alternative-day dosing is not unique to **5-alpha reductase** inhibitors. One study showed every-other-day dosing of a **statin drug** produced equivalent results in lowering cholesterol while providing some cost savings.<sup>59</sup>

One way of assessing the optimal dose of a **5-alpha reductase** inhibitor drug is to have a baseline **PSA blood test**, try taking either finasteride or dutasteride three times a week, and then have a follow-up **PSA blood test** in 45 days.

Look for at least a **25% reduction** in your **PSA level** to determine if 3–4 tablets/capsules a week of a 5-alpha reductase inhibitor drug is working for you.

Life Extension offers **PSA blood tests** for only **\$31**.

Until **December 15, 2018**, we are including a comprehensive **CBC/Chemistry Panel** with a **PSA** blood test for only **\$39** (a **\$66 value** at our normal low prices).

Please refer to the next page to see all the tests in our comprehensive **CBC/Chemistry Profile**.

To order this **PSA** with **CBC/Chemistry Panel** (Item Code LC100081) for only **\$39**, call **1-800-208-3444** (24 hours).

The tragic result may be over **500,000** needless prostate cancer cases in American men that necessitate surgery, radiation, chemo, and androgen-deprivation therapies.

About **100,000** American men may have perished from **prostate cancer** because of the FDA's erroneous **black box warning** that caused physicians and patients to fear drugs like finasteride and dutasteride.

Readers of **Life Extension Magazine** learned the scientific facts decades ago.

Hard data we provided enabled men to make **informed choices** as to whether to consider natural approaches and/or drugs that are now proven to reduce risk of **prostate cancer**.

Conventional medicine is waking up to the value of **PSA blood testing** to identify early changes that are often **reversible** with existing approaches that include diet, nutrients, and certain medications.

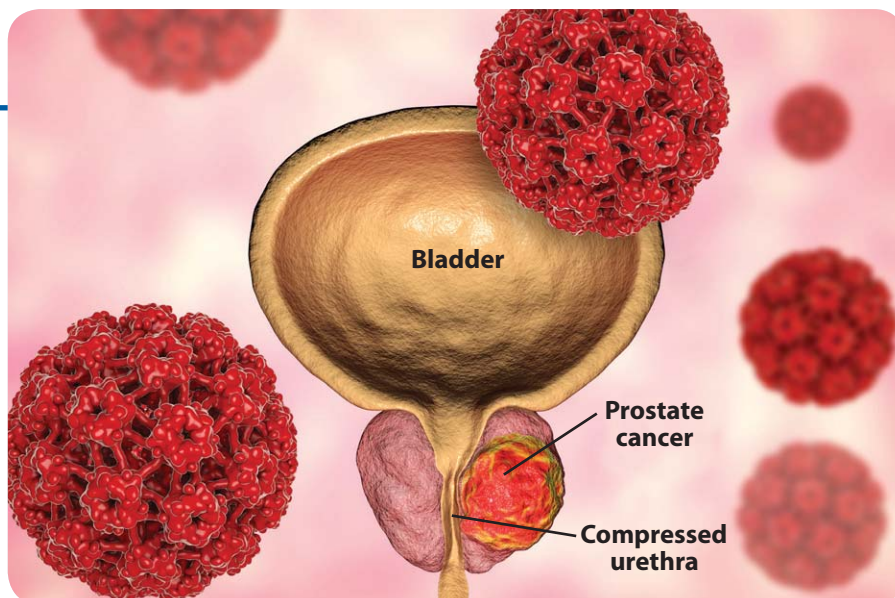
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(References continued on page 14.)

# Early PSA Blood Testing Saves Lives

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VLDL cholesterol (calc.)  
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Glucose

### Liver Function:

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AST (aspartate aminotransferase)  
ALT (alanine transaminase)  
Total protein • Albumin • Globulin  
Albumin/globulin ratio • Bilirubin

### Electrolytes and Minerals:

Sodium • Potassium • Chloride  
Calcium • Phosphorus • Iron

### PSA

(prostate specific antigen)

### Kidney Function:

Uric acid  
BUN (blood urea nitrogen)  
Creatinine • BUN/creatinine ratio  
eGFR (estimated glomerular filtration rate)

### Complete Blood Count:

Red blood cell count  
Hemoglobin  
Hematocrit  
MCV (mean corpuscular volume)  
MCH (mean corpuscular hemoglobin)  
MCHC (mean corpuscular hemoglobin concentration)  
RDW (red blood cell distribution)  
White blood cell count  
Immune Cell Differentiation Count  
Platelet count

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## Omega-3 Fatty Acid Dose May Have a Significant Impact on Potential Benefits of Supplementation in Diabetics

The largest recent summary of clinical trials of omega-3 fatty acid supplementation in patients with diabetes found that it has multiple beneficial effects that reduce risk for cardiovascular disease, including improvement of blood lipid profiles, reduction of inflammatory markers, and better control of blood sugar.

Other meta-analyses on the subject have failed to demonstrate a benefit, leading to disagreement over whether omega-3 supplementation truly has a protective effect.

However, an expert commentary published in *Cardiovascular Diabetology* suggests that those studies that have failed to find a benefit may have suffered from **inadequate** dosing of the omega-3 fatty acids, diluting the benefits seen in other studies with higher doses.\*

The authors suggest that trials utilizing daily doses below **1,000 mg** were inadequate to show a benefit. They propose that consistent benefits in reducing risk factors for heart and blood vessel disease will be found only with dosing of **2,000 mg** or higher.

**Editor's Note:** While awaiting the results of ongoing trials utilizing higher doses of omega-3s, there is reason to believe that dose has an important impact on the potential benefits of supplementation. Intake of over **2,000 mg** daily of **EPA/DHA** appears most likely to have a significant protective effect against cardiovascular disease.

\* *Cardiovasc Diabetol*. 2018 Aug 28;17(1):119.



## Widespread Testosterone Deficiency and Disease Risk

A recent study documents a high prevalence of **testosterone** deficiency in a sample of U.S. men, which was associated with a greater risk of multiple diseases.\*

The study included 2,161 men enrolled in the 2011-2012 National Health and Nutrition Examination Survey.

"Previous studies used clinical cohorts that were not reflective of the current male population in the United States," said lead author Mark Peterson, PhD, MS.

There was a significantly greater risk of having two or more chronic conditions (type II diabetes, arthritis, cardiovascular disease, stroke, pulmonary disease, high triglycerides, high cholesterol, hypertension or clinical depression) among **testosterone-deficient** men in the same age groups who were not deficient.

**Editor's Note:** "We also found a large dose-response relationship between the age-specific low total testosterone and moderate total testosterone levels and multimorbidity, even after adjusting for obesity and muscle strength capacity," Dr. Peterson added. "Which means that men should be concerned about declining total testosterone, even if it has not reached a level to warrant a clinical diagnosis."

\**Sci Rep.* 2018 Apr 12;8(1):5897.

## Vitamin D Aids Malnourished Children

Recent trial findings suggest that treating malnourished children with high-dose **vitamin D** supplements could improve weight gain and language and motor skill development, all of which are adversely affected by poor nutrition.\*

The trial included 185 severely malnourished Pakistani children between the ages of six and 58 months who were treated with a high-energy diet for eight weeks. At two and four weeks the children received **200,000 IU** of vitamin D3 or a placebo.

At the end of the trial, children who had received vitamin D gained an average of **0.57 pounds** more than those in the placebo group. The vitamin D-treated group also had fewer members with delayed motor, language, and global development.

"High-dose vitamin D significantly boosted weight gain in malnourished children," concluded lead author Javeria Saleem.

**Editor's Note:** "This is the first clinical trial in humans to show that vitamin D can affect brain development, lending weight to the idea that vitamin D has important effects on the central nervous system," announced senior author Adrian Martineau of Queen Mary University of London. "Further trials in other settings are now needed to see whether our findings can be reproduced elsewhere."

\* *Am J Clin Nutr.* 2018 May;107(5):725-733.

## Green Tea Could Benefit Arteries

A report in the *Journal of Biological Chemistry* suggests that the green tea compound epigallocatechin-3-gallate (EGCG) could help dissolve atherosclerotic plaque associated with heart attack and stroke.\*

The compound is currently under investigation for its ability to reduce amyloid plaque in the brain, which is associated with Alzheimer's disease.

Researchers at Lancaster University and the University of Leeds found that EGCG binds to the amyloid fibers of apolipoprotein A-1 (apoA-1), which can form amyloid deposits in arterial plaques like those that occur in the brains of Alzheimer's patients. These deposits enlarge plaque and make it less stable, which increases the risk of cardiovascular events.

The binding of EGCG to apoA-1 amyloid fibers results in the conversion of the fibers to smaller soluble molecules that are less damaging.

**Editor's Note:** "The findings of this round of studies are very encouraging," commented report coauthor Professor Sheena Radford, who is the Director of the Astbury Centre for Structural Molecular Biology at the University of Leeds.

\* *J Biol Chem.* 2018 Aug 17;293(33):12877-12893.

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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.



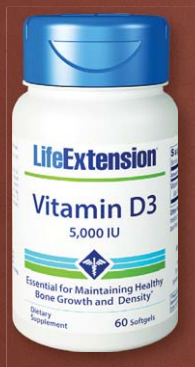
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BY KIRK STOKEL





# Avoiding Holiday Weight Gain *with* Nutrient-Supported Intermittent Calorie Restriction

For some people, the holiday season is notorious for overeating *and* consuming the wrong kinds of foods. This is when people put on a few extra pounds they never seem to shed.<sup>1-4</sup>

These extra few pounds build up year after year. After a few holidays, suddenly your clothes don't fit, and the pounds don't come off.

This weight gain is not just unattractive—it's harmful. Over time, excess weight becomes its own organ, spewing out inflammatory compounds that inflict systemic damage. The list is long of the diseases that can result from just a few extra pounds.

While dieting is difficult and good intentions often fail, recent research has found that less restrictive dietary programs, such as **intermittent calorie restriction**, may be as effective as calorie counting, providing the same degree of weight loss along with other health benefits, but in a program that is easier to stick to.

Scientists at **Life Extension®** have developed and studied an intermittent calorie restriction **nutrition program** that aims to help avoid holiday weight gain. The program utilizes **intermittent** calorie restriction, with the added benefit of supportive nutrients to help make adherence easier and maximize beneficial outcomes.

The goal of this study was to **prevent weight gain** during the holiday season where unhealthy overeating is the norm.

The results of this study showed that participants on the **intermittent** calorie restriction program did *not* gain weight and experienced a modest amount of weight loss. In addition, this nutrition program demonstrated other benefits, including improved lipids.<sup>5</sup>

## The Advantages of Intermittent Caloric Restriction

Traditional weight loss diets limit the number of calories an individual can eat each day. When adhered to, these diets can result in weight loss and improved health. However, this requires counting calories for everything one ingests, every day.

These restrictive diets often fail because compliance is poor.<sup>6,7</sup> Typical low-calorie “diets” drastically change the types and amounts of food an individual is accustomed to eating. As a result, overweight people often give up their good intentions and return to their previous dietary habits.

Studies published in **2018** uncover an approach that *only* restricts dietary intake **part of the time**. Findings from these studies show they can be *as effective* as continuous caloric restriction for weight loss, while being easier to adhere to.<sup>8,9</sup> Rather than restricting food intake all day and every day, these **intermittent** calorie restriction programs only restrict food intake on *some days*, allowing individuals to eat as they usually do on the other days of the week.

There are several versions of intermittent calorie restriction diets. Variants of what’s known as the “**5:2 diet**” have become increasingly popular with people seeking safe and easy weight loss along with some of the benefits of calorie restriction. A growing body of medical literature supports the efficacy of these diets.<sup>9-11</sup>

These **5:2 programs** restrict caloric intake on just **two** days of the week, allowing one to eat normally (both in types of food and in quantity) on the other five days. Most people find this simplified calorie restriction easy to follow.



## Weight Loss & Other Health Benefits of Intermittent Caloric Restriction

Clinical studies have proven that various forms of **intermittent caloric restriction** not only result in weight loss, but also yield other positive health effects.<sup>12-15</sup>

The amount of weight loss observed in **5:2 programs** is comparable to that seen in those who follow a traditional full-time caloric restriction diet.<sup>9-11</sup>

For example, a group of randomized **obese subjects** were put on a **5:2 intermittent diet** or a **continuous caloric restriction** for six months.<sup>11</sup> Both groups lost significant weight compared to their baseline, with a similar degree of weight loss in each group. Those on the **intermittent** calorie restriction diet lost an average of **14 pounds**.

## Intermittent Calorie Restriction Nutrition Program

Having observed this trend in the medical literature, scientists at **Life Extension** set out to improve upon existing calorie restriction programs, particularly to help people avoid the insidious holiday season weight gain that plagues so many people.

The **intermittent** calorie restriction **program** utilizes the calorie restriction approach of two consecutive days of limited calories (**730 calories/day**) and five days of normal eating. In addition, it aims to improve upon that basic concept in two ways:

1. Provide a **healthy balance** of protein, fats, and carbs in tasty protein shakes to make the work of calorie counting on the two calorie-restricted days per week easier, improving adherence.
2. Provide a specific blend of nutrients that help maintain adequate nutrition, reduce cravings, and increase metabolism.

In a pilot study conducted at the **Life Extension Clinical Research Center**, the goal was to see if this 5:2 program could **limit weight gain** during the holiday season. This particular study was *not* designed as a **weight loss** study. Overweight adults were randomized to a nutrition program with nutrient shakes and supplements for two consecutive days, followed by five days of regular eating. The control group ate in their usual way, with the addition of a daily multivitamin for a period of 52 days over the winter holidays.<sup>5</sup>



## What You Need to Know

### Prevent Holiday Weight Gain

- Studies show that the winter holiday is a significant contributor to cumulative weight gain.
- Cumulative weight gain and obesity are associated with increased risk for many diseases and overall mortality.
- While calorie-counting diets are often difficult to follow and fail frequently, intermittent caloric restriction programs can lead to an equivalent degree of weight loss and other health benefits but with a better success rate.
- Scientists at Life Extension have developed a nutrition program that utilizes the increasingly popular 5:2 intermittent caloric restriction approach, only limiting food intake on two days out of each week.
- By providing dietary support through nutritionally balanced shakes, as well as supplements aimed to reduce food cravings and jump-start the metabolism, this program aims to improve upon the benefits associated with an intermittent calorie restriction approach to weight management.

On average, individuals in the control group who ate their regular way did not lose meaningful weight, while those in the nutrition program lost a modest amount (average **2.9 pounds**) of weight. If extended for six months, as was done in the 2018 published study,<sup>9</sup> greater weight loss would possibly occur. However, the focus of this study was to *limit* holiday weight *gain* which was successfully achieved.

In addition, subjects on the **nutrition program** saw increases in beneficial **HDL** cholesterol levels and reduced levels of triglycerides. These changes indicate a reduction in cardiovascular and metabolic risk. (It is challenging to boost beneficial **HDL** as people age.)

People in the control group who continued on their normal diet and did not have the advantage of the nutrition program saw their risk factors change for the worse. Their total cholesterol, LDL cholesterol, and fasting insulin all increased significantly.<sup>5</sup>

### Supporting Caloric Restriction: Nutrients to Help Maximize Benefits

The **nutrition program** was designed to build upon the benefits that have already been demonstrated with other **intermittent** calorie restriction diets. In particular, an assortment of nutrients and supplements have been carefully selected to support the weight-management program.

Any nutritional program that limits calories should be carefully designed to ensure an adequate intake of key essential nutrients, including minerals, vitamins, and metabolic supporting blocks. A **daily multivitamin** can help provide many basic minerals and essential vitamins.

**Omega-3 fatty acids** are also an important component of a healthy diet and support healthy cardiovascular and nervous system function.<sup>16-21</sup> Cardioprotective effects of omega-3 fatty acids include reduction of triglycerides and prevention of cardiovascular disease. In addition, some studies have suggested that these fats may have direct anti-obesity effects.<sup>21-24</sup>

**Coenzyme Q10** is an important cofactor for a healthy metabolism. It helps to optimize cellular utilization of nutrients and energy supply.<sup>25,26</sup>

Another approach to help stimulate the metabolism and optimize our nutritional program is to activate **AMPK**, an important regulator of cellular metabolism. ***Gynostemma pentaphyllum*** is an herb that has been found to have many beneficial properties, including **AMPK stimulation** and anti-obesity effects.<sup>27-30</sup>

Extracts of **clove bud** and **maqui berry** have further metabolic supportive functions. They have both been found to help support healthy glucose metabolism and maintain normal levels of blood sugar following meals.<sup>31-35</sup>

Another important factor to consider for any nutritional program that limits calories, even intermittently, is the risk for food cravings and snacking that can sabotage the diet.

Even though calorie intake is only limited on two days out of the week in the **nutrition program**, any period of calorie restriction can potentially cause unhealthy food cravings. Cravings are a notorious problem for people following diets that restrict food and calories, and irresistible urges to snack have sabotaged many weight loss plans. Supplements that have been found to provide appetite suppressant effects can be useful in this context.

Extracts of the herb **saffron** and some types of **beans** have been found to be helpful in controlling cravings as they can contribute to **satiety**, or the feeling of fullness after a meal, thus reducing cravings and the chance of snacking.<sup>36-38</sup>

### The Many Health Benefits of Calorie Restriction and Intermittent Fasting

In addition to aiding in weight loss, which reduces risk for chronic disease, evidence supports several other health benefits influencing many different body systems and the risk for age-related and chronic disease. Some of the notable effects that have been reported include:

- Improvement in memory in elderly subjects<sup>45</sup>
- Reduced risk for cancer and improved efficacy of cancer treatment<sup>46</sup>
- Improvement in blood lipid profiles, including decreased triglycerides and LDL cholesterol levels and increased HDL cholesterol<sup>9,11,14,47</sup>
- Improved blood sugar control with improved levels of insulin and glucose, including among those with type II diabetes<sup>15,48</sup>
- In addition to weight loss and improved blood lipid and glucose control, caloric restriction appears to offer several other benefits to overall heart and metabolic health, reducing the risk of atherosclerosis and heart disease<sup>12,47,49</sup>
- Improvement in normal gut flora, an important marker of health<sup>39</sup>

Calorie restricted diets have been shown to have healthy effects on the beneficial microorganisms that reside in the digestive tract.<sup>39</sup> Intake of a **prebiotic** supplement can help support gastrointestinal health and promote the growth of healthy bacteria in the gut.<sup>40,41</sup>

Finally, **curcumin**, a compound found in turmeric root, is a potent anti-inflammatory that helps boost the body's defenses. Curcumin has been found to have many health benefits, including support for weight loss.<sup>42-44</sup>

### Summary

For many people, the winter holiday season is a time to enjoy good food with good company. Unfortunately, it is also often associated with significant weight gain, which can contribute to the development of obesity and risk for many chronic diseases.

Restriction of calorie intake is associated with many health benefits beyond weight loss alone. However, continuous calorie restricted diet programs are often burdensome and difficult to stick with, resulting in failure and rebound weight gain.

**Intermittent** calorie restriction, where dietary intake is *only* restricted on some days of the week, has been shown to provide the same level of benefit, leading to weight loss as well as reduction of other risk factors associated with chronic disease.

A newly designed **nutrition program** aims to optimize this **intermittent** calorie restriction approach, providing additional dietary and nutrient support to improve adherence and prevent weight gain during the winter holiday season. ●





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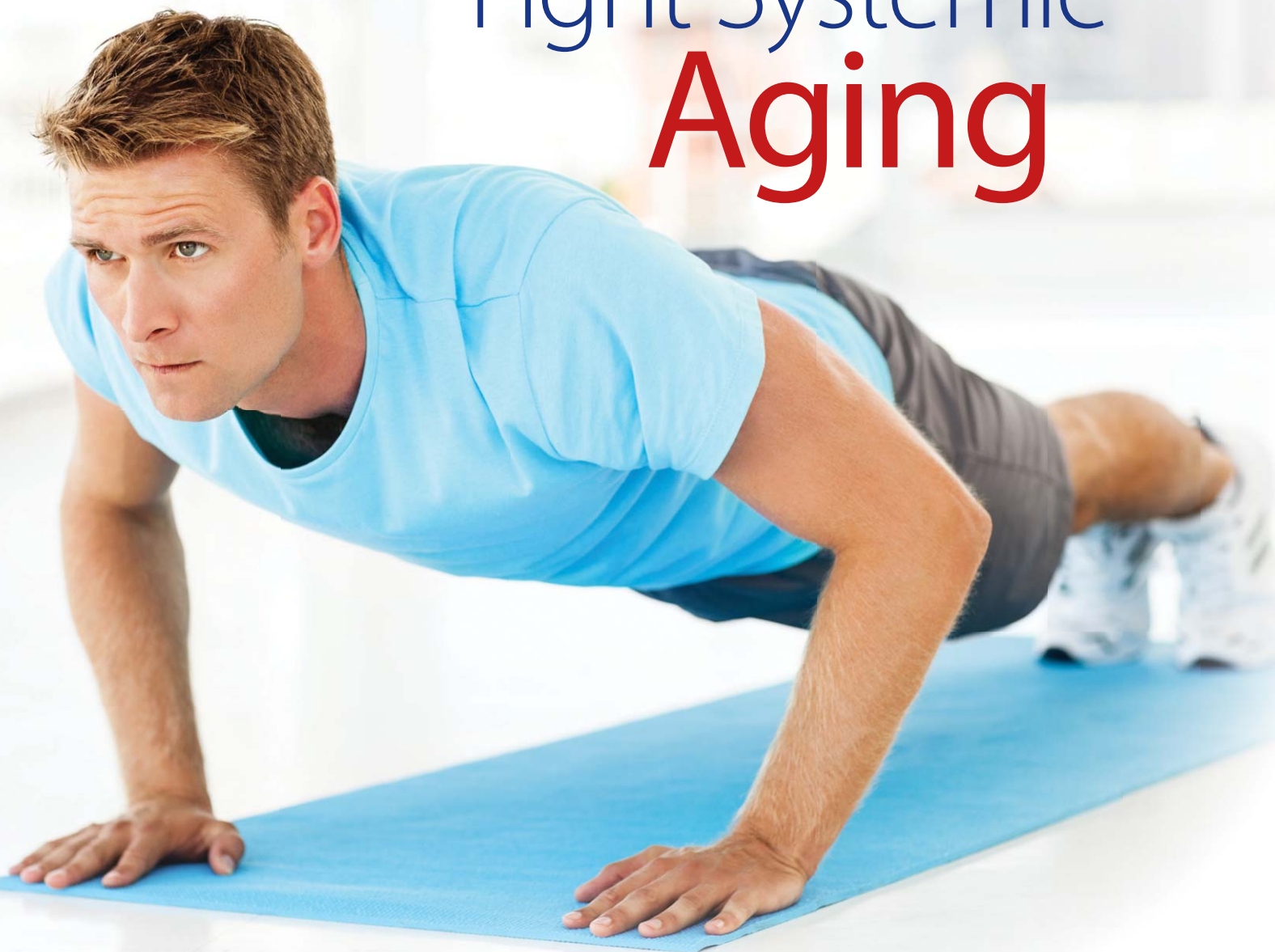
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**1**  
DAILY

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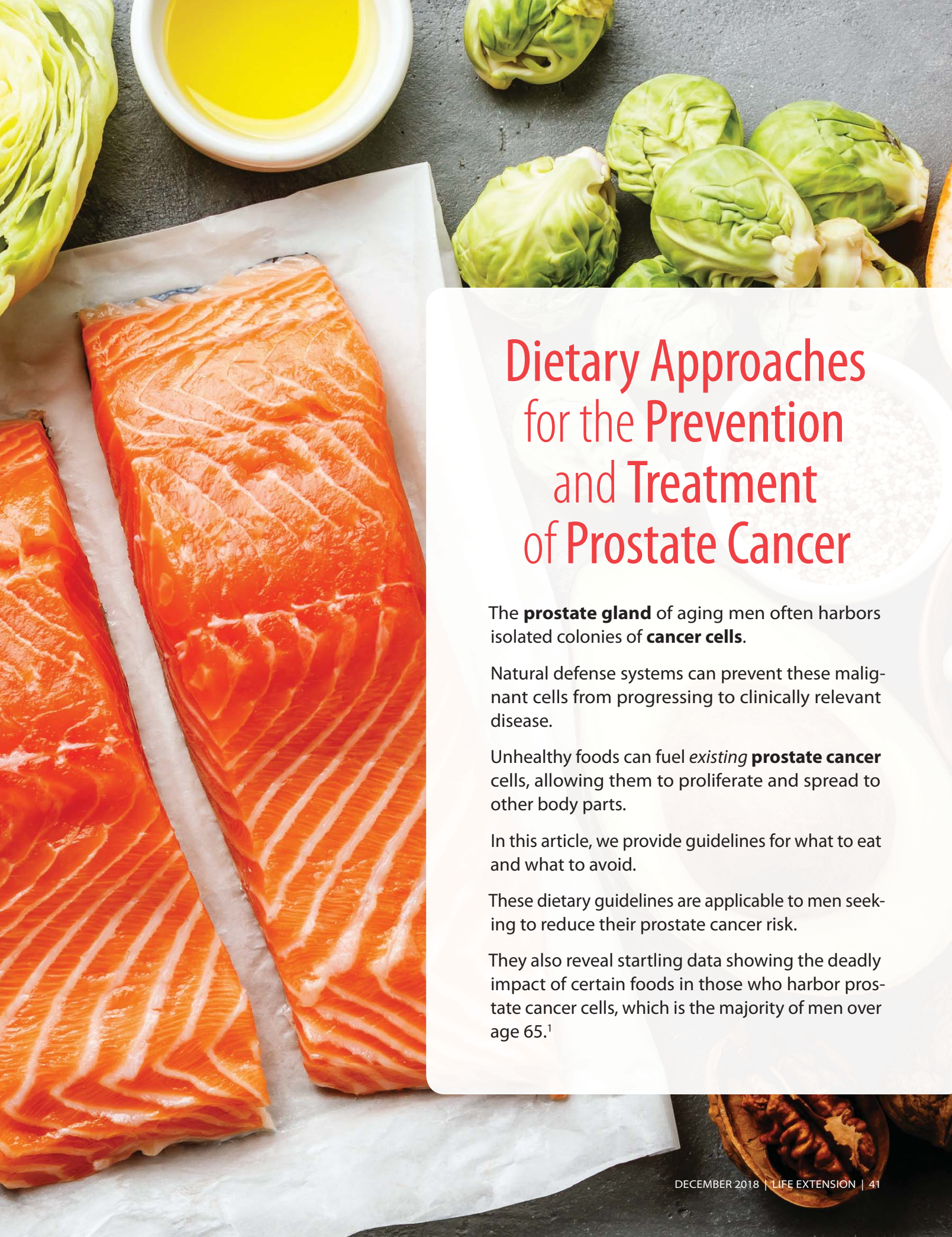
Item #02146 • Chocolate Brownie (12 bars)  
Item #02147 • Cookie Dough (12 bars)  
Retail Price is \$32 • **Your Price is \$24**

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4 bottles are only **\$34** each

BY MICHAEL DOWNEY



A collage of healthy foods including salmon, Brussels sprouts, a bowl of oil, and walnuts.

## Dietary Approaches for the Prevention and Treatment of Prostate Cancer

The **prostate gland** of aging men often harbors isolated colonies of **cancer cells**.

Natural defense systems can prevent these malignant cells from progressing to clinically relevant disease.

Unhealthy foods can fuel *existing* **prostate cancer** cells, allowing them to proliferate and spread to other body parts.

In this article, we provide guidelines for what to eat and what to avoid.

These dietary guidelines are applicable to men seeking to reduce their prostate cancer risk.

They also reveal startling data showing the deadly impact of certain foods in those who harbor prostate cancer cells, which is the majority of men over age 65.<sup>1</sup>

## Foods That Help Prevent Prostate Cancer

Prostate cancer affects one in six men.<sup>2</sup> Men who regularly consume certain foods have sharply lower rates of **prostate cancer**. By boosting intake of these beneficial foods, men can reduce their prostate cancer risk.

### Walnuts

Walnuts are low in carbohydrates and rich in beneficial fatty acids, polyphenols, and gamma tocopherol. This may explain why research has shown that walnuts have the potential to *inhibit* prostate cancer cells, *lower* PSA (prostate-specific antigen) levels, and *reduce* the size of prostate tumors.<sup>3-5</sup>

In a study published in the *Journal of Medicinal Food*, whole walnuts or walnut oil slowed the growth of prostate cancer in mice. The same study found that walnuts lowered levels of **IGF-1** (insulin-like growth factor 1), a hormone that has been associated with prostate cancer.<sup>5</sup>

In human research, walnuts were shown to improve biomarkers related to prostate and vascular health in older men.<sup>6</sup>

### Flaxseeds

The lignans in flaxseeds are believed to protect against cancer, including hormone-dependent malignancies.<sup>7-9</sup>

These lignans are converted in the intestine into beneficial *enterolactones*, which then enter the bloodstream. Men with higher enterolactone levels are less likely to have prostate cancer than those with the lowest levels.<sup>10</sup>

Studies have confirmed that flaxseed supplementation lowers PSA levels and reduces the proliferation of prostate cancer cells.<sup>7,11</sup> And in a clinical study of men with prostate cancer, supplementation with flaxseed reduced tumor proliferation in as little as 30 days.<sup>11</sup>

### Cruciferous Vegetables

When researchers conducted a review of the effects of cruciferous vegetables on prostate cancer, they concluded that “*Cruciferous vegetable intake is related to the decreased risk of prostate cancer.*”<sup>12</sup> (Examples of cruciferous vegetables include broccoli, cabbage, cauliflower, and kale.)

A later study found that—among the various vegetables—broccoli and other cruciferous species are most closely associated with reduced cancer risk, including prostate cancer. This is thought to be due to their abundance of compounds known as *glucosinolates* and their breakdown products, such as *isothiocyanates*.<sup>13</sup>

Cruciferous vegetables also contain several potent compounds that have individually shown promise in inhibiting prostate cancer cells.<sup>14-18</sup> These include *indole-3-carbinol*, *3,3'-diindolylmethane*, and *phenethyl isothiocyanate*, better known as I3C, DIM, and PEITC, respectively.



## What You Need to Know

### The Anti-Prostate-Cancer Diet

- The body contains protective barriers that help prevent prostate cancer cells from developing into a full-blown tumor.
- Eating the wrong foods provides fuel for existing prostate cancer cells to evade the body's natural anti-cancer barriers, allowing these cells to grow and spread.
- By avoiding cancer-promoting foods—and consuming foods specifically shown to help prevent cancer—aging men can help prevent prostate cancer.

#### Cold-Water Fish

Higher blood levels of **omega-3 fatty acids** have been demonstrated to correspond to a lower risk of developing prostate cancer.<sup>19</sup>

These omega-3 fatty acids include DHA (*docosahexaenoic acid*) and EPA (*eicosapentaenoic acid*) and are found in cold-water fish such as tuna, sardines, herring, mackerel, halibut, and salmon.<sup>20</sup>

EPA suppresses the formation of an omega-6 fatty acid called *arachidonic acid* by inhibiting the enzyme **delta-5-desaturase**.<sup>21</sup> It also inhibits a substance (called *uPA*) believed to play a role in the spread of prostate cancer.<sup>22</sup>

#### Cooked Tomatoes and Tomato Sauces

A 2018 meta-analysis concluded that consuming tomatoes, cooked tomatoes, and tomato sauces was associated with reduced prostate cancer risk. The greater the tomato consumption, the greater the risk reduction.<sup>23</sup>

Tomatoes are rich in *lycopene*, the carotenoid pigment that gives them their bright red color, which is known to inhibit the growth of prostate cancer cells.<sup>24</sup>

Higher blood lycopene levels have been consistently tied to reduced prostate cancer risk.<sup>25</sup> And above-average lycopene consumption has been associated with a **59%** reduction in the risk of *dying* from aggressive prostate cancers.<sup>26</sup>

Lycopene has several anti-cancer mechanisms, including inhibiting inflammation and reducing oxidative stress in prostate tissue.<sup>27</sup>

Lycopene is better absorbed from tomatoes when cooked and when consumed with fat, such as extra virgin olive oil.<sup>28</sup>

#### Pomegranate Juice

Consuming pomegranate juice has protective actions against prostate cancer, including inhibiting tumor cell proliferation, cell cycle, invasiveness, and angiogenesis.<sup>29,30</sup>

In one study, pomegranate juice (8 oz. daily) treatment in men with rising PSA after surgery or radiotherapy resulted in a delay in PSA doubling time (the time it takes PSA levels to rise).<sup>30</sup>

A review study found that three components of pomegranate juice, *luteolin*, *ellagic acid*, and *punicic acid*, exhibit inhibitory effects on prostate cancer growth, angiogenesis, and metastasis.<sup>31</sup>

#### Coffee

A meta-analysis involving 455,123 subjects found that drinking **four** or more cups of coffee daily was associated with a reduced risk of overall prostate cancer and specifically fatal and high-grade prostate cancer.<sup>32</sup>

Another study found that men who drink over **six** cups of coffee daily, including decaffeinated coffee, have an **18%** lower risk of prostate cancer and a **60%** lower risk of lethal prostate cancer, compared to non-drinkers.<sup>33</sup>

#### Beneficial Dietary Factors

The following broad food choices have been shown to inhibit prostate cancer:

- The Mediterranean diet,<sup>34-36</sup>
- High fiber intake,<sup>37</sup> and
- Eating foods with a low glycemic index.<sup>38</sup>





### Foods That *Promote* Prostate Cancer

According to a 2018 study, following a typical Western diet boosts the risk of prostate cancer by **22%**.<sup>39</sup> Men with rising or elevated PSA levels should be especially diligent in avoiding these foods.

#### Eggs

Studies show that consuming eggs is associated with increased prostate cancer risk.<sup>40,41</sup>

One study found that men who consumed **2.5** or more eggs per week had a startling **81%** increased risk of lethal prostate cancer compared to those who consumed less than half an egg per week.<sup>40</sup>

Researchers who studied men treated with radical prostatectomy for prostate cancer reported that those in the top **10%** of egg consumption had almost **double** the chances of developing high-grade prostate disease, compared to men in the bottom quartile.<sup>42</sup>

#### Milk

Consuming low-fat milk and cheese increases the risk of prostate cancer by **6%** and **9%**, respectively. Similar risks accrue from high intakes of total milk and dietary calcium (but not from calcium supplements).<sup>43</sup>

One study found that consuming **skim** or **low-fat milk** was associated with increased risk of low-grade prostate cancer, while **whole milk** was associated with greater risk of *fatal* prostate cancer. And in men *already*

diagnosed with prostate cancer, consuming whole milk was associated with a **117%** increased risk of progression to fatal disease.<sup>44</sup>

This last finding illustrates the critical role of limiting milk consumption *after* prostate cancer has been diagnosed, as the next three studies<sup>45-47</sup> further drive home.

In men already diagnosed with prostate cancer, researchers reported that patients who drank the *most* whole milk had a **74%** increased odds of *highly aggressive* prostate cancer, compared to non-drinkers.<sup>45</sup>

And in a study of men with non-metastatic prostate cancer, those who consumed over four servings of high-fat milk weekly showed a **73%** greater recurrence risk (defined as prostate cancer death, bone metastases, biochemical recurrence, or secondary treatment).<sup>46</sup>

This increased risk was associated with just four servings of high-fat milk *per week*. Compare that to a study on prostate cancer patients who drank three or more servings of high-fat milk *per day*. These patients had a jarring **510%** greater risk of dying from their prostate cancer compared to men consuming less than one daily serving.<sup>47</sup>

### Processed and Overcooked Meat

All meat cooked at high temperatures, including fish, generates dangerous carcinogens.<sup>48</sup> Men with a high intake of red meat cooked at high temperatures, pan fried, or well done had a higher risk of **advanced** prostate cancer.<sup>49</sup>

For example, one study showed that consuming ground beef is associated with a **130%** higher incidence of aggressive prostate cancer. The more well-done the meat, the greater the risk.<sup>50</sup>

A separate study showed that higher consumption of hamburgers, processed meats, grilled red meat, and well-done red meat increased risk of advanced prostate cancer (but not localized disease).<sup>51</sup>

This study corroborated others associating processed meat and red meat—especially when cooked at *high temperatures*, with increased incidence of **advanced prostate cancer**.<sup>49</sup>

### High-Risk Dietary Factors

Studies indicate that diets high in **omega-6 fats** and **saturated fats** are associated with significantly greater prostate cancer risk.<sup>52-54</sup>

### Summary

Eating the wrong foods markedly increases an aging man's risk of developing prostate cancer, seeing it spread, or dying from the disease. Conversely, many specific foods have been shown to reduce the risk of developing prostate cancer.

Following the dietary guidelines outlined in this article could save countless men's lives every year. ●



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

*References can be found on page 48.*



Eggs



Milk



Processed meat

### FOODS THAT **PROMOTE** PROSTATE CANCER

# A to Z Supplement Guide for PROSTATE CANCER PREVENTION

Dietary changes can help aging men avoid the biological effects that allow prostate cancer to take hold. For those who want additional protection, the following is the full range of *supplements* that can prevent and attenuate prostate cancer.

## APIGENIN

In a mouse study, administering the powerful plant flavonoid *apigenin* inhibited the volume of prostate cancer cells by as much as **59%**.<sup>55</sup>

## BETA-SITOSTEROL

A study on prostate cancer cells showed that the phytosterol known as beta-sitosterol decreased cancer cell growth by **24%** and increased apoptosis **four-fold**.<sup>56</sup>

## BORON

Men with the highest boron intake have lower chances of prostate cancer, compared to men with the lowest intake.<sup>57</sup>

## BOSWELLIA

The purified extract of the flowering plant genus *Boswellia* can selectively inhibit inflammatory factors (the 5-LOX enzyme and TNF-alpha),<sup>58-62</sup> which makes it an important nutrient in preventing prostate cancer.

## COENZYME Q10

Coenzyme Q10 has been shown to inhibit prostate cancer cell growth by **70% in vitro**,<sup>63</sup> which suggests that it may boost survival in patients with prostate cancer.

## CRUCIFEROUS VEGETABLE EXTRACT

Phytochemicals derived from cruciferous vegetables have shown promise in inhibiting prostate cancer in experimental models.<sup>14,15</sup>

## CURCUMIN

Curcumin induces apoptosis, interferes with the spread of cancer cells, and regulates inflammatory responses through the master regulator **nuclear factor-kappa B (NF-kappa B)**, a protein complex that controls the transcription of DNA.<sup>64-67</sup>

## DELPHINIDINS

Delphinidin is an anthocyanidin (a plant pigment that gives fruits and vegetables their deep red, purple, and blue colors). Data show that delphinidins induce apoptosis in human prostate cancer cells, possibly by inhibiting the master regulator NF-kB (*nuclear factor kappa B*).<sup>68</sup>

## FISH OIL

The omega-3 fatty acids EPA and DHA found in fish oil supplements can help reduce the production of **arachidonic acid-derived** tumor-promoting byproducts in the body,<sup>69,70</sup> which in turn may help prevent prostate cancer.

## GAMMA-LINOLENIC ACID (GLA)

GLA inhibits the production of a substance (*uPA*) believed to play a role in the invasiveness and spread of prostate cancer cells.<sup>22</sup>

## GAMMA-TOCOPHEROL (VITAMIN E)

Men with the highest gamma-tocopherol levels were found to have a **five-fold** reduction in the risk of developing prostate cancer.<sup>71</sup>

## GINGER EXTRACT

Ginger phytochemicals inhibit the proliferation of human prostate cancer cells.<sup>72</sup>

## GRAPESEED

A study found that men who supplemented with any amount of grapeseed extract reduced their prostate cancer risk by **41%** compared to men who didn't take the supplements. And men who consumed high amounts of grapeseed over 10 years experienced a **62%** reduction in prostate cancer risk.<sup>73</sup>

## GREEN TEA EXTRACT

Laboratory research with cultures has long suggested that green tea catechins, including **epigallocatechin-3 gallate (EGCG)**, may inhibit the growth of cancer cells. A double-blind placebo-controlled trial tested whether men with pre-malignant prostate lesions who consumed a green tea catechin supplement would progress to full-blown cancer. After one year, only **3%** of men in the green tea group progressed to cancer, while **30%** did so in the placebo group—ten times as many!<sup>74</sup>

## INOSITOL HEXAPHOSPHATE (IP6)

Inositol hexaphosphate or IP6—a phytochemical found in cereals, soy, legumes, and other fiber-rich foods—profoundly reduced the size of prostate tumors in mice genetically modified to develop metastatic prostate cancer.<sup>75</sup>



## LYCOPENE

Clinical research shows that lycopene supplements may inhibit the growth of prostate cancer.<sup>76</sup>

## MELATONIN

Melatonin has been found to have anti-proliferative actions against prostate cancer cells.<sup>77,78</sup>

## MILK THISTLE

In animal research, the silibinin in milk thistle was found to exert cancer-fighting effects against an advanced form of human prostate tumor cells.<sup>79,80</sup>

## MODIFIED CITRUS PECTIN

When prostate cancer patients took a modified citrus pectin preparation for 12 months, **70%** experienced an increase in PSA doubling time—an indication of slower disease progression.<sup>81</sup>

## N-ACETYLCYSTEINE (NAC)

Lab research demonstrated that NAC—a metabolite of the amino acid cysteine—has a high potential to reduce the spread of human prostate cancer cells and to suppress the growth of primary and secondary tumors.<sup>82</sup>

## POMEGRANATE EXTRACT

In an *in vitro* study, scientists found that a standardized extract of pomegranate had dose-dependent apoptotic (inducing cell death) effects against prostate cancer cells.<sup>83</sup>

## QUERCETIN

Quercetin produces a **69%** reduction in the growth of highly aggressive prostate cancer cells, more than a **50%** upregulation of tumor-suppressor genes, and a **61%-100%** down-regulation of cancer-promoting oncogenes.<sup>84</sup>

## REISHI EXTRACT

In studies on prostate cancer cells, this mushroom extract was shown to greatly interfere with androgen receptor function and prostate cancer cell development.<sup>85</sup>

## RESVERATROL

In one study, four days of resveratrol treatment resulted in an **80%** reduction in PSA levels in prostate cancer cells.<sup>86</sup>

## SAW PALMETTO

Emerging evidence suggests that saw palmetto has biological activity in prostate cancer cells and may defend against prostate cancer.<sup>87</sup>

## SELENIUM

Supplementation with selenium reduces the risk of prostate cancer by up to **63%**.<sup>88,89</sup>

## SOY ISOFLAVONES

The prostate cancer risk in men with the highest circulating levels of the soy isoflavones genistein and daidzein is reduced.<sup>90</sup>

## VITAMIN C

An *in vitro* study on human prostate cancer cells found that vitamin C inhibits cell division and growth (through the production of hydrogen peroxide, which damages the cancer cells). The study author concluded that ascorbic acid is likely a potent anti-cancer agent for prostate cancer cells.<sup>91</sup>

## VITAMIN D

Higher vitamin D levels are associated with a greater likelihood of survival after prostate cancer diagnosis.<sup>92</sup>

## VITAMIN K

In one study, men with the highest intake of vitamin K2 were **63%** less likely to develop advanced prostate cancer.<sup>93</sup>

## WATERCRESS EXTRACT

Watercress contains high amounts of a compound called *phenethyl isothiocyanate* that inhibits the proliferation of prostate cancer cells and their ability to form tumors.<sup>94</sup>

## ZEAXANTHIN

Men in the highest quartile of plasma zeaxanthin had a reduced chance of developing prostate cancer, compared to those in the lowest quartile.<sup>95</sup>

## ZINC

Supplementation with **15 mg** of zinc daily reduces the risk of advanced prostate cancer.<sup>96</sup>

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# Olive Oil Reduces Osteoporosis Fractures

BY JOHN REEVES

Osteoporosis does not affect just women.

As many as **45%** of men have detectable bone loss on scans and **20%** of American men over 50 will suffer an osteoporosis-related fracture.<sup>1-3</sup>

Fractures, especially **hip fractures**, are associated with increased all-cause **mortality** among older individuals.<sup>4</sup>

**Extra virgin olive oil** (and its key polyphenol, **oleuropein**) helps prevent two underlying causes of osteoporosis:

## **Inflammation** and **Oxidative Stress**

Olive oil also helps maintain the delicate balance between the breakdown and rebuilding of bone.<sup>5-8</sup>

A new study has shown that people who consume the most extra virgin olive oil have a **51% lower risk of fractures** than those who consume the least.<sup>9</sup>



### Cut Osteoporosis Fracture Risk in Half

It has long been known that people living in the Mediterranean basin countries have a lower risk of fractures associated with **osteoporosis**.<sup>9</sup>

What has not been known is what specific aspect of the Mediterranean lifestyle was responsible for that lower fracture risk.

One particular staple of the Mediterranean diet—**extra virgin olive oil**—has numerous properties that make it a potential candidate for bone health.

Aware of these properties, researchers in Spain conducted a study, as part of the important PREDIMED trial of the Mediterranean diet, to determine whether or not **extra virgin olive oil** contributes to the lower fracture risk experienced by people living in the Mediterranean basin.

The PREDIMED study randomly assigned study subjects to one of three diets:<sup>9</sup>

- A Mediterranean diet supplemented with **extra virgin olive oil** (about 1¾ oz./day),
- An identical Mediterranean diet supplemented with **nuts** (just over an ounce/day), and
- A standard low-fat diet (control).

For this study within a study, 870 participants between 55–80 years old from one of the PREDIMED centers were followed and observed for the incidence of osteoporotic fractures.

PREDIMED subjects completed food frequency questionnaires to record their actual dietary intakes, and they were specifically asked about their intake of total, common, and extra virgin olive oils.

There was one particular factor that made a significant difference in fracture risk: **extra virgin olive oil**.

The people whose total consumption of extra virgin olive oil was in the **upper one-third** had a

**51% lower risk of fractures**, compared with those who consumed the least.<sup>9</sup>

There are different types of olive oil. The highest quality is **extra virgin olive oil**, made from the first pressing of fresh olives. “Regular” or common olive oil, is refined oil or solvent-extracted oil made from the leftovers of olive pressing.

In this study, only **extra virgin olive oil** protected against osteoporotic fractures, and then only in those who consumed the most of it.

This says a great deal about extra virgin olive oil’s intrinsic ability to fight the major underlying contributors to osteoporosis.

One of the key factors is inflammation.

### Combatting the Underlying Causes of Osteoporosis

Excessive **inflammation** has destructive effects throughout the body. In bones specifically, it disrupts the balance between the cells that *break down* bone (**osteoclasts**) and those that *build up* new bone (**osteoblasts**).



In the presence of chronic inflammation, **osteoclasts** work overtime, while **osteoblasts** are effectively laid off. As a result, bone breaks down faster than new bone is formed—creating a dangerous imbalance that leads to osteoporosis.<sup>10,11</sup>

Recognizing that osteoporosis is in large part an **inflammation-driven** disease opens the door to exploring therapies that are capable of quelling chronic inflammation—rather than focusing only on mineral metabolism or other more bone-specific pathways, as is the case with many prescription osteoporosis drugs.<sup>11</sup>

That's where extra virgin olive comes in.

### Olive Oil's Key Ingredient

**Extra virgin olive oil** is an ideal candidate for reducing inflammation throughout the body because of its rich supply of bioactive plant compounds called **polyphenols**.

Polyphenols protect the plants that produce them, helping them adapt to the often-harsh conditions under which they grow.

Polyphenols also have protective benefits for human cells, tissues, and organs—including **bone**.

One particular polyphenol, **oleuropein**, appears responsible for many of extra virgin olive oil's bone-protective effects.<sup>7,12</sup>

Lab studies show that extra virgin olive oil and **oleuropein** have properties that contribute to its beneficial impact, including:

- 1) Inhibiting *enzymes* that make pro-inflammatory signaling molecules (cytokines).<sup>5</sup>
- 2) Reducing oxidative stress in tissues.<sup>5</sup>



- 3) Stimulating proliferation of bone-forming **osteoblasts**, helping to restore the balance of bone absorption and formation in favor of stronger bones.<sup>7,8</sup>

In other words, oleuropein may help **prevent** some of the root causes of osteoporosis, while helping to **restore** balance between the buildup and breakdown of bones.

### Extra Protection for Postmenopausal Women

While osteoporosis impacts women and men, women are especially vulnerable because of changes to their bodies during menopause.

During menopause, the drop in estrogen, progesterone and other hormones rapidly decreases bone mineral density (an early sign

of osteoporosis). An overlooked destructive mechanism that can occur during menopause is increased **inflammation**.<sup>13</sup>

**Oleuropein** can put a stop to that dangerous cascade.

This was seen in a study of female rats whose ovaries were surgically removed to simulate the abrupt drop in estrogen levels at menopause. As expected, inflammatory changes quickly occurred, which led to decreased bone mineral density.<sup>6</sup>

But when the rats were treated with **oleuropein**, markers of inflammation subsided and **bone loss** was significantly reduced.<sup>6</sup>

This study indicates that oleuropein from extra virgin olive oil could help prevent the types of changes that increase the risk of osteoporosis in menopausal women.

## Choosing the Best Olive Oil

The studies mentioned in this article specifically used **extra virgin olive oil**.

This is the oil that comes from the first, gentle, “cold” pressing of the fresh olive fruits. Other extraction methods using higher-pressure and higher-temperature pressings can destroy the delicate polyphenol compounds, depriving the oil of much of its pleasant taste as well as its health-giving benefits.

**Extra virgin olive oil** is the *only* type of olive oil that reliably contains the highest concentrations of **oleuropein** and other beneficial compounds.

## Summary

Osteoporosis increases the risk of suffering from a fracture, which can be especially dangerous for older individuals.

A recent study found that people who consume the most **extra virgin olive oil** have less than half the risk of experiencing an osteoporosis-related fracture compared to those who consumed the least.

Lab and animal studies show that extra virgin olive oil can combat the inflammation and oxidative stress that contribute to osteoporosis. It also boosts the activity of beneficial bone-forming **osteoblast** cells.

Maturing individuals should consume about **1 to 2.3 ounces** of **extra virgin olive oil** daily as part of their diet. Olive fruit **polyphenols** can also be found in certain dietary supplements. ●

**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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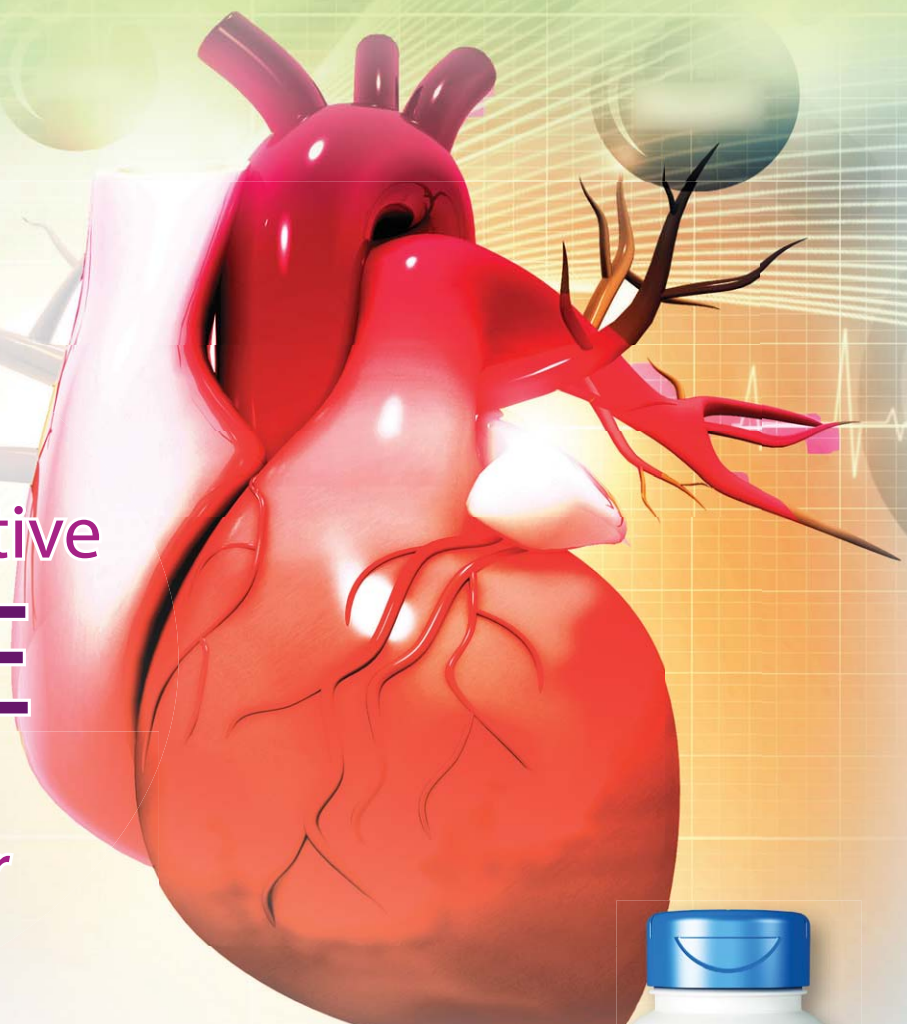
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BY MICHAEL DOWNEY



# Link Between GUM Disease *and* AGING

In spite of the best intentions to perform daily brushing and flossing, many people still end up with **periodontal disease**, often referred to as “gum disease.” The result can be deterioration of the gum and tooth loss.<sup>1</sup>

Periodontal disease doesn’t just stay in the mouth. It can spread pathogens throughout the body, resulting in more serious diseases.<sup>2-10</sup>

When the oral microbiome becomes unbalanced, it results in a weakened immune system of the oral cavity. This opens the door to gum disease caused by excessive growth of pathogenic oral bacteria. Gum disease further weakens our overall immune system.

Two unique oral **probiotics** have been identified that specifically target and improve gum health. In addition, they restore a healthy balance to the oral microbiome.

Clinical evidence demonstrated that these two probiotics can lead to a reduction in indicators of plaque buildup, gingivitis, bleeding gums, and pocket depth between gums and tooth roots.<sup>11,12</sup>

Improving gum health by taking these probiotics in lozenge form may lower the risk for a host of inflammatory diseases commonly associated with aging.



## Oral Bacteria Threaten Whole-Body Health

Nearly **half** of all Americans over age 30 have periodontal disease,<sup>13</sup> which is associated with disorders throughout the body,<sup>14</sup> including cardiovascular, lung, kidney, bone, and Alzheimer's diseases.<sup>5-10,15-23</sup>

Recent research has found that the mouth is “a potential reservoir for bacteria that can promote intestinal disease...”<sup>2,12</sup>

Periodontal disease afflicts over **70%** of those aged 65 or over.<sup>13</sup>

Unhealthy teeth and gums can lead to disorders in virtually every part of the body. An underlying link is periodontal disease's effect on the *oral microbiome*, the natural community of microbes living in the oral cavity.

When healthy, the oral microbiome supports and protects the delicate mucous membranes as well as the surface of the teeth themselves.

However, inadequate oral hygiene, as well as poor diet and lifestyle factors, drugs, and disease, can disrupt this delicate microbiome balance. The resulting microbial imbalance—often called *dysbiosis*—allows

excessive growth of pathogenic (disease-causing) organisms in the oral cavity.

This in turn wreaks havoc on the normal immune system and creates a vicious cycle that can have disastrous effects on many body systems,<sup>24</sup> causing diseases in parts of the body far removed from the mouth itself.<sup>25</sup>

To prevent these far-reaching effects, scientists conducted extensive research on **probiotics**, eventually identifying two strains of bacteria that can halt this process on two fronts:<sup>11,26,27</sup>

- ***Streptococcus salivarius* M18**, which kills harmful *oral* bacteria and goes on to help rebalance the oral microbiome, and
- ***Lactobacillus plantarum* L-137**, which boosts oral immune function and promotes healing.

The results are extremely promising. Let's review the studies validating the striking benefits of these strains.

## Periodontal Disease

While some bacteria protect our teeth and gums, other bacteria and microorganisms cause tooth decay and periodontal (gum) disease. They break down compounds from food called fermentable carbohydrates, producing byproducts such as lactic acid and other organic acids that promote enamel and dentin demineralization. This softening of the enamel then leads to the development of dental caries, or cavities.

Under certain conditions, harmful bacteria excrete a substance similar to glue that helps form a biofilm, commonly called plaque. This plaque is a living aggregation of various bacteria and fungi that attaches itself to the enamel surface of the tooth. Biofilm is at the root of dental disease.

Over time, plaque hardens and takes on various minerals, at which point it is called tartar. This is the hard coating that dental hygienists work to scrape off your teeth.

Gingivitis occurs when dental plaque stimulates an immune response in the soft tissues surrounding the teeth, causing the gums to become inflamed, irritated, swollen, red, and often easily bleeding. Acting on the immune system, it increases inflammatory factors and reduces anti-inflammatory factors. Left untreated, gingivitis can progress to periodontitis, a condition in which certain bacteria destroy the supportive structures of the teeth, which may ultimately lead to tooth loss.

Worse, new science is showing that periodontal disease has far-reaching consequences that extend into most body systems, largely the result of inflammatory changes and other signaling pathway disruptions throughout the body. Gum disease is now associated with **disorders of the brain, heart, lungs, kidney, liver, bone, and blood vessels**—any of which may promote aging and shorten lifespan.<sup>5,7,19-23</sup>

Brushing mechanically breaks up the biofilm to some extent, and along with rinsing and flossing, helps to remove fermentable carbohydrates. However, there is more that can be done to fight what is, essentially, a bacterial enemy.

The good news is that rebalancing the oral microbiome can reduce bacteria-laden plaque, resulting in significant reductions in whole-body inflammation. This means that improving our tooth and gum health is vital not just for those oral structures, but also for the preservation of our health in practically all body systems.

Together, the two beneficial probiotic strains described in this article have been demonstrated to rebalance the oral microbiome and enhance oral immunity. Scientists have shown that this in turn inhibits periodontal disease and protects **total-body health**.

## *S. Salivarius* M18

Scientists found that *Streptococcus salivarius* M18 helps create a healthier oral environment, providing a simple strategy that could help prevent disease throughout the body by several mechanisms. Studies showed that this novel bacterium:

- Specifically colonizes the human mouth, resulting in reproducing colonies of this beneficial organism even after supplementation ends,<sup>26,27</sup>
- Competes with harmful oral bacteria, thus supporting healthy teeth and gums,<sup>27</sup>
- Generates abundant numbers of bacteria-suppressing weapons called *bacteriocins*, which function like antibiotics at the local level,<sup>28-30</sup> to inhibit tooth and **gum disease**-producing organisms,<sup>26,29-31</sup>
- Produces enzymes (*dextranase* and *urease*) that help break down dental plaque, a main cause of tooth decay and gum disease,<sup>26</sup>
- Helps to generate a neutral oral *pH*, which helps balance the oral microbiome and cut disease risk,<sup>26</sup> and
- Reduces the presence of pro-inflammatory cytokines (*IL-6*), breaking the infection-inflammation-infection cycle that accelerates gum disease and threatens the whole body.<sup>26</sup>

To validate the effects of this strain on humans, scientists conducted several clinical studies. In one of these trials, they showed that **88%** of *S. salivarius* M18 recipients maintained plaque scores *lower* than their pretreatment values at the end of a three-month treatment period, compared with just **44%** of placebo recipients.<sup>26</sup>

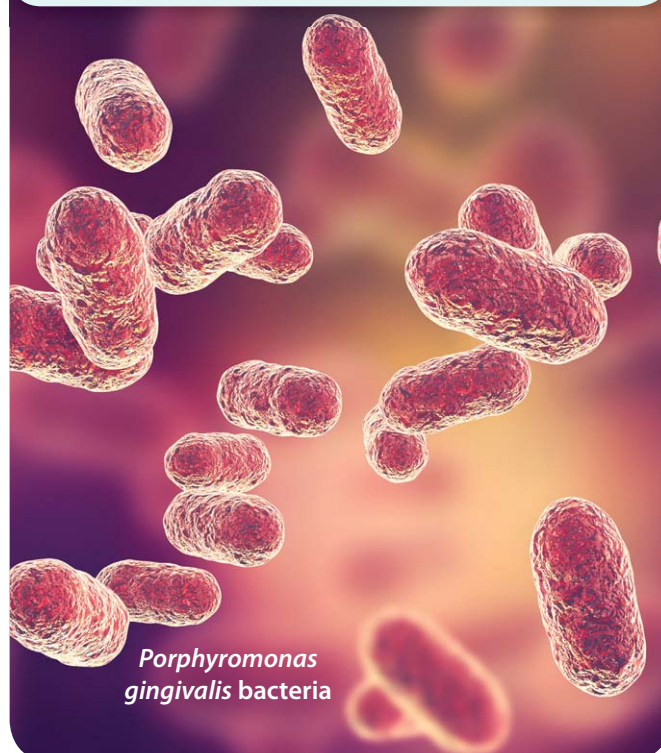
Then, investigators set up a randomized, controlled trial to determine the impact of *S. salivarius* M18 treatment on some of the most important clinical parameters of oral and gingival (gum) health.<sup>12</sup>

They recruited men and women, aged 20–60 years, with moderate or severe gingivitis (gingival index score of **2** or **3**) and moderate periodontitis (less than **6 mm** probing pocket depth). For 30 days, half received no treatment, and half took lozenges of **200 million** *S. salivarius* M18 daily, after brushing. The lozenge group was observed for an additional 30 days after treatment to measure any lasting effect. There were dramatic improvements in the *S. salivarius* M18 group.<sup>12</sup>

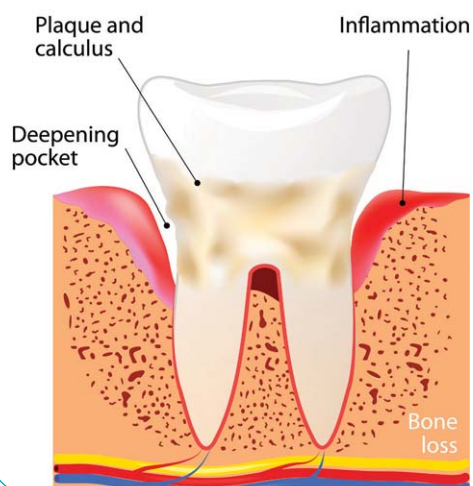
## What You Need to Know

### Oral Probiotic for Gum Disease

- Cardiovascular, brain, kidney, and bone diseases and cancer are just some of the disorders that can occur as a result of periodontal (gum) disease.
- An unbalanced oral microbiome is critically involved in the development of periodontal disease.
- The bacterial strain *S. salivarius* M18 has been documented to rebalance the bacterial populations of the mouth, inhibiting poor oral health.
- Scientists have also shown that a heat-treated form of the bacterial strain *L. plantarum* L-137 boosts oral immune function, reducing inflammation and promoting healing.
- These two probiotics, when taken as a daily lozenge, can work together to protect oral health and also promise whole-body benefits.



## Periodontitis



Compared to control, on day 30—the last day of active treatment—they found:<sup>12</sup>

- **44% lower** mean plaque index scores,
- **42% lower** mean gingival index scores,
- **53% lower** modified sulcus bleeding index scores, and
- **20% lower** probing pocket depth measurements.

And, on day 60—a full 30 days after active treatment had stopped—they observed:<sup>12</sup>

- **37% lower** mean plaque index scores,
- **35% lower** mean gingival index scores,
- **51% lower** modified sulcus bleeding index scores, and
- **22% lower** probing pocket depth measurements.

Even the lowest scores for each index in the *S. salivarius* M18 group indicated a return to near-normal values, while the scores remained markedly abnormal in control subjects.<sup>12</sup>

This study demonstrated the ability of the **probiotic lozenge** not only to significantly improve all four parameters of periodontal health, but also to sustain these benefits *long after the supplementation period ended*. A critical factor in this lasting effect is the capacity of *S. salivarius* M18 to colonize the oral cavity.

Whereas *S. salivarius* M18 improved gum-health by colonizing the mouth, that by itself is not enough to ensure optimal oral health. It is also essential to support the body's natural immune defenses against gum disease. That's where the second probiotic strain comes in.

## *Lactobacillus Plantarum* Strain L-137

Scientists were able to demonstrate that, when heat-treated, the bacterium known as ***Lactobacillus plantarum* strain L-137** can reverse *infection-caused* reductions in the oral immune system's fighting ability.<sup>11</sup>

When the oral microbiome gets out of whack, this weakens the immune system of the mouth and gums, leaving us vulnerable to infections by bacteria that cause gum disease which *further* weaken the immune system, such as the bacterium *Porphyromonas gingivalis*, abbreviated as *P. gingivalis*.

*P. gingivalis* disrupts important immune factors known as *interleukins*. It downregulates protective interleukins called *IL-12* and upregulates pro-inflammatory interleukins called *IL-6*. This creates a disease-promoting cycle that makes it nearly impossible for the body to heal itself.<sup>32-34</sup>

To make matters worse, natural *IL-12* production decreases with aging, leaving a deficit in immune responses in the mouth.<sup>35</sup> This allows organisms such as *P. gingivalis* to evade the immune system and become overgrown, ultimately causing gum disease.<sup>36</sup>

Searching for a way to block this spiral and boost local immune function, scientists finally demonstrated that, when killed by heat treatment, the bacterium *L. plantarum* strain L-137 increases production of the protective *IL-12*.<sup>11</sup>

Treating periodontitis patients with this immune-boosting bacterium aids in restoring the mouth's natural, oral immune response, helping to heal diseased, inflamed gums. This treatment also helps prevent an array of diseases throughout the body that are strongly associated with periodontal disease.

In a paper published in **2018**, scientists reported on a study undertaken in a rat model of metabolic syndrome. In this study, oral treatment with *L. plantarum* L-137 was shown to have anti-inflammatory effects on cardiac and adipose (fat) tissue. It reduced heart

dysfunction, the accumulation of subcutaneous fat mass, insulin resistance, and elevated circulating *IL-6* concentrations—indicating powerful inflammation-suppressing effects.<sup>37</sup>

To validate the effects of this probiotic strain on gum status in periodontal disease, scientists conducted a double-blind, placebo-controlled, randomized trial that included 39 volunteers with chronic periodontitis. Half received placebo while the other half took a capsule containing heat-treated *L. plantarum* L-137.<sup>11</sup>

Then, over the course of 12 weeks, researchers measured the *pocket probing depth*,<sup>11</sup> which is the distance from the gum line to the bottom of the tiny pocket between the gum and tooth root. In dentistry, an instrument called a periodontal probe is commonly used to measure the depth of this space. Normal, healthy gums have a pocket probing depth of **3 mm** or less. However, a depth of **4 mm** or more is clinically defined as periodontal disease.<sup>38</sup>

At the end of 12 weeks, researchers found that in teeth with an initial (baseline) pocket probing depth of **4 mm** or more, there was a **64%** greater improvement in pocket depth in those treated with *L. plantarum* L-137 compared to placebo recipients.<sup>11</sup>

These results demonstrate that periodontal disease can be improved with oral *L. plantarum* L-137.

Considering the capacity of *S. salivarius* M18 to restore balance to the oral cavity's microbiome, these two probiotic bacteria—working together—represent powerful protection for oral health. And of course, healthy teeth and gums may help prevent a host of chronic diseases *throughout* the body.<sup>5,10</sup>

*L. plantarum* L-137 and *S. salivarius* M18 are now available in a single lozenge. This two-in-one lozenge makes it easy to quickly deliver targeted probiotics directly to the oral cavity. When combined with a regular routine of brushing and flossing, optimal oral health is well within reach.

## Summary

Poor oral health, which is more common among older adults, is associated with a steep increase in the risk of an array of serious disorders throughout the body including cancer, as well as cardiovascular, brain, kidney, and bone diseases.

A major cofactor in the development of periodontal disease is an imbalance in the normal microbial community of the oral cavity.

Scientists have shown that the bacterial strain *S. salivarius* M18 rebalances the bacterial populations of the mouth, crowding out harmful microbes.

Additionally, studies show that a heat-treated form of the bacterial strain *L. plantarum* L-137 boosts oral immune function, reduces inflammation, and promotes healing.

These two probiotics are available together in a lozenge that, when taken daily, protects oral health and promises whole-body benefits, too. ●

**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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## FOR WINTER SEASON SUPPORT

Zinc stimulates the activity of about 300 enzymes<sup>1</sup> and fortifies the immune system.<sup>2</sup>

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 peppermint flavor.

### References

1. *J Nutr.* 2000 May;130(5S Suppl):1437S-46S.
2. *Am J Clin Nutr.* 2007 Mar;85(3):837-44.



### Zinc Lozenges

Item #01961 • 30 vegetarian lozenges

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

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# Discover a European Secret for Beautiful Legs

## Combat Unsightly Veins



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- Maintaining healthy venous tone and elasticity.
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#### References

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**Caution:** If you are taking anticoagulant or antiplatelet medications, or have a bleeding disorder, consult your health care provider before taking this product.

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Maintaining good oral hygiene is important for overall health.<sup>1</sup> Unfortunately, brushing and flossing may not be enough.

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This product also contains Immuno-LP20®.

Just one great-tasting mint cherry lozenge of **FLORASSIST® Oral Hygiene** a day maximizes oral hygiene by optimizing oral pH, easing inflammation, and supporting healthy bacterial colonization throughout the mouth.<sup>4,5</sup>



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Item #02120 • 30 lozenges

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### References

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Clinical evidence demonstrates that the nutrients in **DNA Protection Formula** help preserve healthy DNA by supporting the body's defenses against environmental toxins.

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# Sweet Potato

BY GARRY MESSICK

That mainstay of Thanksgiving dinners, the sweet potato, is a root vegetable that is only a distant relative of the regular potato. This flavorful tuber was brought to Spain from its native Peru around the year 1500, and from there Spanish and Portuguese explorers carried it to locations around the world, including the Philippines, China, and India. In the mid-1700s, the vegetable was dubbed the “sweet potato” in the American colonies in order to avoid confusion with the typical white “Irish” potato.

By itself, without the sugar and marshmallows that are often added to it in recipes, the sweet potato has a number of health benefits, such as...

## Inflammation and Obesity

In vitro research has found that extracts from sweet potatoes have oxidant-reducing effects and may potentially fight obesity and inflammation.<sup>1</sup>

## Toxin Inhibition

One study found that purple sweet potato inhibited the detrimental effects of toxic chemicals such as pyridine and dimethylhydrazine, which can promote colorectal tumors. Tumors induced in rats by exposure to these substances were reduced by **5%** with the introduction of purple sweet potato color (anthocyanins) from the vegetable.<sup>2</sup>

## Diabetes

The sweet potato has a long history of use for diabetes in traditional medicine. But is there any scientific evidence to back up these folk practices? Apparently so. For example, one study instructed 140 patients with type II diabetes to supplement with a sweet potato preparation on a daily basis. After a period of three to five months, the subjects' HbA1c levels were found to have moderately improved compared to placebo.<sup>3</sup>

There's also evidence that edible sweet potato leaves taken from a Japanese variety of the plant may help regulate blood glucose concentration due to their polyphenol content.<sup>4</sup> In a powdered form, this sweet potato leaf extract enhanced secretion of glucagon peptide-1 (GLP-1) in diabetic rats. GLP-1 prevents after-meal blood sugar spikes. After five weeks, blood sugar levels were lowered as well.

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BY LOGAN BRONWELL





# 50 YEARS *of* Consistent Findings

**French maritime pine bark extract** provides a concentrated mixture of **procyanidins**, or flavonoid compounds.

What distinguishes pine bark compounds is a remarkable number of human studies showing consistent findings.

Pine tree bark extract has demonstrated an array of health benefits over the past 50 years.<sup>1</sup>

New applications of pine bark extract are still being discovered and reported in the medical literature each year.

## Inflammation, Allergy, & Asthma

A key feature of pine bark extract is its ability to help control **inflammation** in the body.

Chronic inflammation plays an insidious role in most disease states.

Even low levels of persistent inflammation contribute to age-related diseases. Cancer, Alzheimer's, arthritis, autoimmune disease, and cardiovascular disease involve inflammation as one of their major causative factors.

Exposure to environmental toxins, diet, and the aging process contribute to chronic inflammation.<sup>2,3</sup> Natural compounds found in French maritime pine bark extract function as a weapon against chronic inflammation.

In human immune cells, French maritime pine bark extract has been shown to significantly alter the gene expression of important components of the inflammatory process.<sup>4</sup> It appears to reduce the expression of *nuclear factor-kappa B*, or NF-kappa B, which is involved in chronic inflammation and has been implicated in age-related disorders such as atherosclerosis.<sup>5,6</sup>



A pooled analysis published this year found that French maritime pine bark extract significantly lowered the levels of **C-reactive protein (CRP)** in humans.<sup>7</sup> C-reactive protein is a marker of inflammation. It is associated with both the presence of disease and increased risk for development of various conditions, including cancer.<sup>8-10</sup>

This ability of pine bark extract to subdue inflammation makes it a candidate for treating allergic disorders. Allergy is an inflammatory overreaction to otherwise harmless stimuli, such as pollen and cat dander.

French maritime pine bark extract improves symptoms of hay fever and other forms of allergic rhinitis (itchy, runny nose) compared to placebo.<sup>11</sup> The mechanism of this protection may in part be due to the fact that pine bark extract inhibits the response of **mast cells**.<sup>12</sup> Mast cells initiate many allergic responses through their release of **histamine** that cause inflammation and allergic symptoms.

Asthma, a narrowing of the airways caused by inflammation, is often allergic in nature. Pine bark extract has been found to improve the control of this respiratory disorder, including in children.<sup>13,14</sup> Compared to controls, patients using pine bark extract were able to reduce their use of steroids and rescue inhalers needed to prevent and treat asthma attacks. Pine bark's mechanism of this protection appears to be the prevention of inflammation in human study subjects.<sup>14</sup>

## The Metabolic Syndrome Pandemic

As of 2012, more than one-third of all adults in the U.S. had **metabolic syndrome**, putting them at risk for chronic disease and mortality.<sup>15</sup> The pervasiveness of these metabolic abnormalities is so troubling that clinicians and researchers alike consider it to be a pandemic.<sup>16,17</sup>

An individual must have three of the five following conditions to be diagnosed with **metabolic syndrome**.<sup>18</sup>

- Fasting glucose over **100 mg/dL**;
- Blood pressure **≥130/85 mm Hg**;
- Serum triglycerides **≥150 mg/dL**;
- HDL cholesterol ("good cholesterol") **<40 mg/dL** in men or **<50 mg/dL** in women (or drug treatment for any of the above)
- Waist circumference **≥40 inches** in men or **35 inches** in women (slightly lower measurements apply for Asian individuals)

The risk for cardiovascular disease, kidney disease, cancer, diabetes, and early death are significantly elevated in the presence of **metabolic syndrome**.<sup>19</sup>

Modern medicine's answer to this problem often lies in prescriptions for multiple drugs to control each of these factors independently: statins to improve cholesterol levels, anti-hypertensives to lower blood pressure, various blood sugar-lowering drugs, and so on. French maritime pine bark extract has demonstrated a remarkable ability to improve many, if not all, of these metabolic abnormalities.

A study evaluated its use in individuals with metabolic syndrome.<sup>20</sup> A group of 64 adults with metabolic syndrome were given **150 mg/day** of pine bark extract and then compared to a control group. Improvements were observed in all aspects of the syndrome as follows:

- Fasting blood glucose (sugar) levels dropped by over **14%** on average.
- Waist circumference was reduced by more than **7%** on average.
- Triglyceride levels were decreased.
- HDL cholesterol levels (the “good” cholesterol) were increased.
- Blood pressure was lower.
- Plasma free radicals (a marker of oxidative stress in the body) were reduced by nearly **35%**.

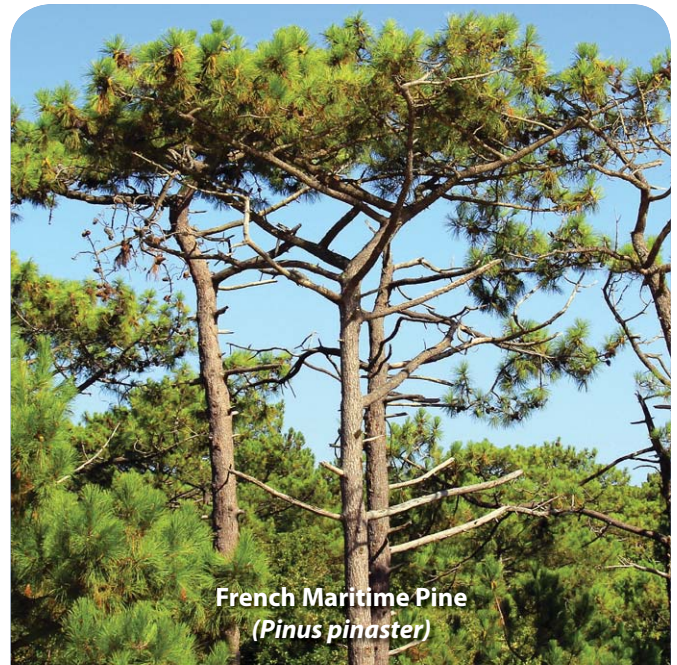
Subsequent investigations have also found that individuals' metabolic indices benefited from an extract of pine bark. Those treated benefited from an increase in HDL cholesterol, a decrease in LDL cholesterol, reduced glucose levels, and reduction in blood pressure.<sup>21,22</sup>

These studies build upon evidence from prior clinical trials that have likewise observed a positive impact on markers of metabolic health.<sup>20,23,24</sup> Furthermore, French maritime pine bark extract's impact on these factors has been shown to translate into a reduced risk for cardiovascular disease.

### Cardiovascular Disease

Cardiovascular disease is the number one cause of death worldwide, responsible for almost one third of all deaths.<sup>25</sup> It includes a number of disorders that affect blood vessels.

Vascular occlusion is most commonly associated with heart disease, but it is also a factor in damage to many other organs and tissues as well, including stroke in the brain, kidney failure, and more.

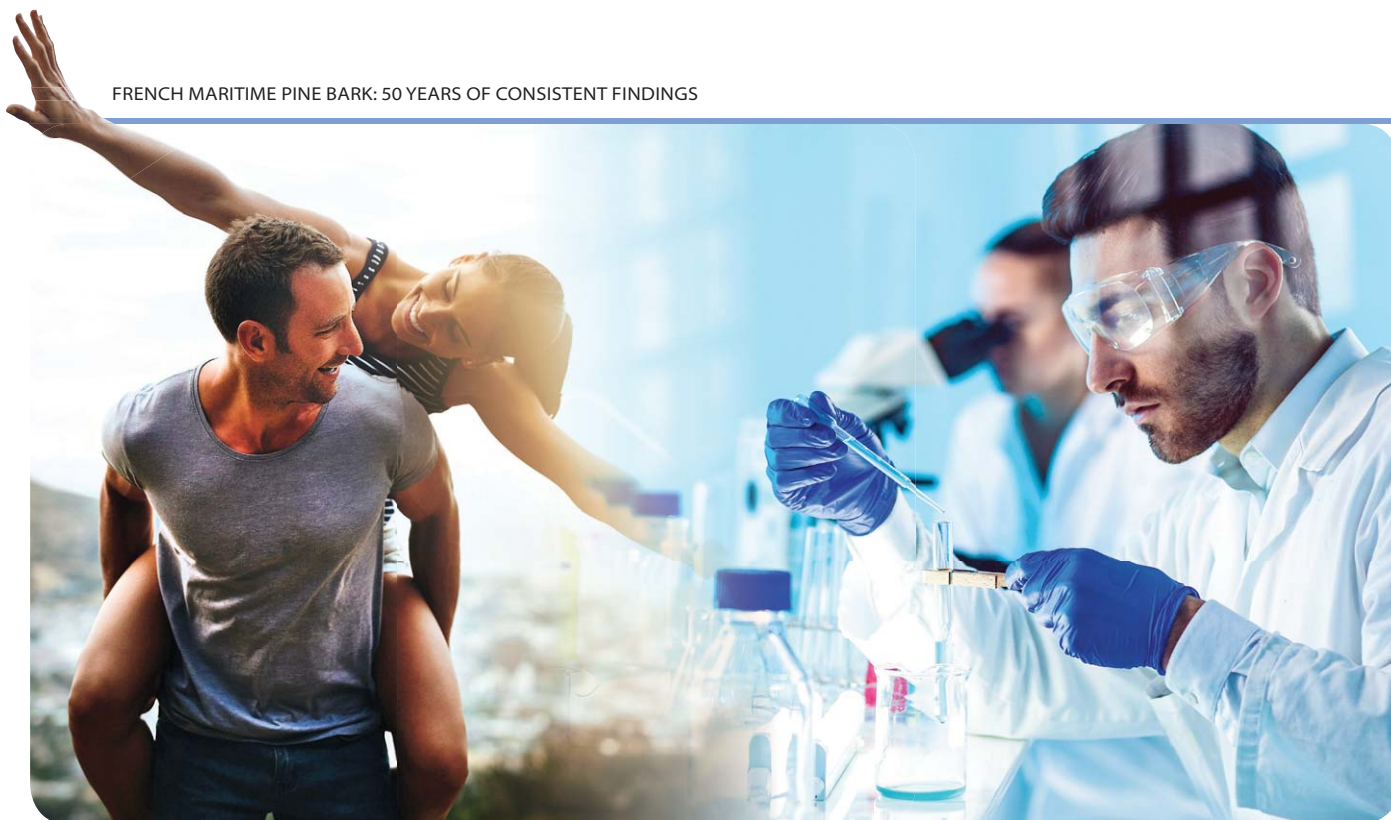


French Maritime Pine  
(*Pinus pinaster*)

### What You Need to Know

#### French Maritime Pine Bark

- French maritime pine bark extracts offer a blend of procyanidin flavonoids capable of modulating oxidative stress and inflammation.
- Reducing inflammation both improves symptoms of allergy and reduces risk for age-related disease.
- Both by quelling inflammation and numerous other biological mechanisms, pine bark extract has been shown to improve markers of poor health, including abnormalities of lipids, blood glucose, and other components of metabolic syndrome.
- The cardiovascular benefits of pine bark extract are numerous, with evidence both for reducing risk factors as well as improving heart function and limiting cardiac events.
- Numerous other health benefits of pine bark extract have been reported in the medical literature.



**French maritime pine bark extract** protects against cardiovascular disease by several complementary mechanisms:

- Reduces inflammation as evidenced by its ability to reduce C-reactive protein levels.<sup>21,22</sup>
- Improves the metabolic profile, helping to control metabolic syndrome and its individual elements, all of which are risk factors for cardiovascular disease.<sup>20</sup>
- Reduces atherosclerotic plaque formation by altering pathways related to inflammation in artery walls, including reducing NF-kappa B pathways.<sup>5,6</sup>
- Improves endothelial function, a measure of the health of blood vessels.<sup>26</sup>

These findings demonstrate the ability of French maritime pine bark extract to improve cardiovascular health and interfere with the progression of atherosclerotic plaques.

In a large group of patients with blood vessel plaques followed over four years, **100 mg/day** of pine bark extract slowed the growth of atherosclerotic plaques.<sup>27</sup> Furthermore, it cut the number of cardiovascular events that required hospital admission by about half!

In addition to aiding blood vessel disease, French maritime pine bark extract appears to improve heart function. In healthy elderly subjects, **150 mg** daily led

to a significant improvement in left ventricular ejection fraction, a marker of the strength of the heart in pumping blood.<sup>28</sup>

### An Array of Health Benefits

In addition to the benefits already discussed, the applications of pine bark extract have a noteworthy breadth. From brain health to the common cold, there appears very little this natural product cannot do. While a complete list is not possible here, below is a summary of some of the other notable uses that have impressive support in the medical literature.

**Eye Health:** In humans, it shows promise in slowing the progression of eye disease and visual loss related to diabetes, one of the most common causes of poor vision and blindness in adults.<sup>29,30</sup>

**Common Cold:** Compared to controls, sufferers of the common cold had milder symptoms and a shorter course of the illness when taking **100 mg** pine bark extract daily.<sup>31</sup>

**Athletic Performance:** Trained athletes randomized to pine bark extract versus placebo benefited from improved endurance, better performance, and less muscle cramping and post-exercise pain.<sup>32-34</sup>

**Jet Lag:** Travelers experienced reduced symptoms of jet lag following pre-treatment with French maritime pine bark extract.<sup>35</sup>

**Irritable Bowel Syndrome:** Symptoms of irritable bowel syndrome, including abdominal pain and bloating, were reduced with **150 mg** of pine bark extract daily.<sup>36</sup>

**Ménière's Disease and Tinnitus:** Individuals suffering from Ménière's disease experience debilitating bouts of vertigo, nausea, and tinnitus.<sup>37</sup> Compared to controls, those treated with pine bark extract had fewer lost work days, improved blood flow in the ear, and improvement in symptoms, including reduced tinnitus.<sup>38</sup> It also benefited individuals with tinnitus alone, reducing symptoms and improving blood flow.<sup>39</sup>

**Skin Health:** Oral administration of pine bark extract can improve skin health. In one study, postmenopausal women experienced improved skin hydration and elasticity. Altered gene expression of enzymes responsible for maintenance of skin tissues was observed with treatment.<sup>40</sup> In another experiment, patients with psoriasis benefited from improved control of symptoms with pine bark extract.<sup>41</sup>

The applications of French maritime pine bark extract continue to impress based on new studies being published almost every month.

### Summary

After 50 years of use and study, the breadth and quality of data supporting the health benefits of French maritime pine bark extract continues to grow. This blend of **procyanidin flavonoids**, capable of modulating oxidative stress and inflammation, offers improvement and prevention for myriad conditions and age-related changes.

Pine bark extract can deal a potent blow to conditions such as allergy and asthma. Furthermore, the

reduction of inflammation may delay progression of age-related chronic disease and dysfunction.

Some of the most common causes of disease and risk for mortality, including metabolic syndrome and the various cardiovascular disorders, appear to be reduced with regular intake of pine bark extract at doses ranging from **100-200 mg** per day. ●

**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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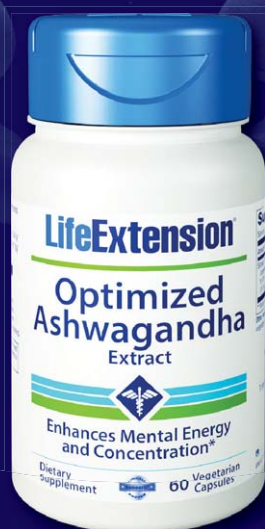
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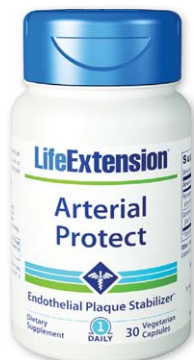


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# Cholesterol Crystals:

## The Neglected Heart Attack Risk Factor



MICHAEL OZNER, M.D.

BY JON VANZILE

In recent years, our understanding of how cholesterol and the lipoproteins that carry it affect heart health has exploded.

New research reveals another way cholesterol can raise your risk of heart attack: by forming needle-like **“cholesterol crystals”** that are buried deep inside **arterial plaque**, with potentially devastating consequences.

In this exclusive interview, Michael Ozner, MD, one of the leading preventive cardiologists in America, explains how cholesterol crystals are formed, why we should worry about them, and how exciting new research into how EPA from omega 3 fatty acids and medications can help reduce the risk of suffering a major cardiac event caused by cholesterol crystals.

**LE:** Let's start at the beginning. What are cholesterol crystals?

**MO:** In my books, I've written a lot about the dangers of having excess **atherogenic lipoproteins** in the bloodstream. These atherogenic lipoproteins, **which carry and transport cholesterol and triglycerides**, have been shown to dramatically increase the risk of a heart attack or vascular disease because they can penetrate the arterial wall and begin the formation of **arterial plaques**. This is the first step in the atherosclerotic disease process.

These atherogenic lipoproteins are known as **apo B lipoproteins (apolipoprotein B)**, and **when the apo B blood levels are elevated there is an increased risk of heart attack**. When apo B particles get into the arterial wall, they can get trapped, oxidized, and engulfed by a type of immune system cell called a macrophage.

As macrophages gather at the site of an arterial wall injury, this begins the process of arterial plaque formation. As macrophages engulf cholesterol, they become **foam cells** and over time these foam cells and macrophages undergo cell death, or **apoptosis**. When they die, they release their inner contents, which include cholesterol. As more cells die, the atherosclerotic plaque becomes super-saturated with cholesterol, and that cholesterol eventually forms a crystalline structure called a cholesterol crystal. These crystalline structures have sharp points like a needle that are capable of piercing the atherosclerotic cap, which can lead to a plaque rupture, and a devastating cardiac event such as heart attack and sudden cardiac death.

**LE:** It sounds like this explains the mechanism of plaque rupture, or what's happening right before the plaque ruptures. Are these cholesterol crystals implicated in all plaque ruptures, or is this just one risk factor?

**MO:** The concept of cholesterol crystals has been known for years, but now there is excellent new research helping us understand how they contribute to atherosclerotic disease. There are other mechanisms that can cause plaques to rupture, but this is an important part of it. A recent study by cardiologist George Abela of Michigan State University of 286 heart attack subjects in an emergency room found that **89%** of the patients had cholesterol crystals, with **84%** showing crystals large enough to be measured and analyzed.<sup>1</sup>

The mere presence of cholesterol crystals is a sign that a heart attack may be imminent since these crystals can pierce the fibrous cap of the atherosclerotic plaque, leading to plaque rupture. This means we may now have a way of identifying risk that a plaque may be about to rupture. But it's important to understand this is just **one way** cholesterol crystals pose danger. In fact, there are two mechanisms by which they may pose a danger to your health.

**LE:** What's the second one?

**MO:** The first I discussed was mechanical. The second has to do with the inflammatory milieu within cells. Cholesterol crystals **increase inflammation** within the plaque. They do this by activating the "inflammasome" within the macrophages, which in turn activates the inflammatory path-

way and causes the release of **IL-1 beta**. This is an inflammatory cytokine that has been shown to increase vascular inflammation and the risk of plaque rupture.

So we have these two mechanisms, mechanical (crystals piercing plaques) and inflammatory, and both increase the risk of plaque rupture.

**LE:** Considering how dangerous they can be, is there a way to identify or measure cholesterol crystals?

**MO:** Unfortunately, it's challenging right now to measure cholesterol crystals with a blood test. The study I mentioned earlier by Dr. Abela obtained material from within the coronary artery during the patient's hospital stay. It was an invasive procedure that allowed them to examine the plaque and identify cholesterol crystals. **Emerging non-invasive imaging modalities** will potentially be able to accurately identify cholesterol crystals in human coronary arteries. A **surrogate measure** for cholesterol crystals might be testing for apolipoprotein B in the blood and fortunately the cost of this test has plummeted in recent years.

So, at this point in time, we can't measure cholesterol crystals easily, but at least surrogate blood markers (like LDL and apolipoprotein B) can provide important information for those of us who are looking for ways to reduce the risk of heart attack and heart disease. We are learning more ways, both old and new, to decrease cholesterol within the plaques. When we reduce cholesterol within the plaque, we can decrease cholesterol crystal formation. If you think of a stable arterial plaque,

it has very little inflammation and cholesterol inside it. These plaques are much less likely to rupture than the unstable plaques with an active inflammatory milieu and increased cholesterol concentration.

**LE:** In other words, to reduce cholesterol crystals, it is necessary to reduce dangerous cholesterol as much as possible. Is there a better way to do that?

**MO:** Anything that lowers cholesterol will reduce cholesterol crystals. When it comes to reducing cholesterol, we always start with lifestyle. Start by reducing saturated and trans fats in your diet. Get regular exercise. Medically, statin therapy will reduce cholesterol as well. And there are some new and emerging ways we can reduce cholesterol crystals, one of which is by taking **omega-3 fatty acids**, specifically the omega-3 fatty acid EPA.<sup>2</sup> Highly purified EPA has been shown to block cholesterol crystal formation within the cell membrane so it's plausible we could use highly purified EPA to decrease the number of cholesterol crystals within plaque.

Further, we know that highly purified EPA, used on top of a statin, leads to increased plaque stability and plaque regression compared to the statin by itself. EPA (eicosapentaenoic acid) also lowers triglycerides and has a free radical scavenging and anti-inflammatory effect. There is continuing research on EPA, including the **Reduce It Trial**. This trial is looking at the role EPA plays in reducing elevated triglycerides in high-risk cardiac patients with well controlled cholesterol.

Topline results of the Reduce-It Trial were reported September

2018 and showed a highly significant **25%** reduction in major adverse cardiovascular events (e.g. non-fatal heart attack and stroke and cardiovascular death) in those randomized to statin plus EPA versus statin without EPA.

Therefore triglycerides are a potentially atherogenic blood lipid that can lead to vascular plaque development and increase the risk of heart attack. Lowering triglycerides with a heart-healthy diet (e.g. Mediterranean diet), regular exercise and triglyceride lowering medications if indicated can lower cardiovascular disease risk.

Outside of EPA, there are other new and novel approaches being studied. A few studies have looked at **cyclodextrin**, a sugar-like substance as a potential therapy. One study showed that cyclodextrin was able to dissolve cholesterol crystals and decrease inflammation within the plaque.<sup>3</sup> It's promising at this stage, but a large-scale clinical trial has not been done so we await final results.

Finally, the CANTOS trial is a groundbreaking trial that's looking at **canakinumab**, an injectable drug that blocks the action of IL-1 beta. This trial showed a significant reduction in cardiovascular events among patients who had inflammation, as measured by high sensitivity C-reactive protein levels, and were given canakinumab.<sup>4</sup> This is an expensive drug, but it showed that if we can inhibit IL-1 beta, we can reduce the risk of cardiovascular events.

In conclusion, reducing cholesterol crystals formation by following a healthy diet and lifestyle and utilizing medications, when needed to lower cholesterol and triglycerides and reduce inflammation, can translate into a reduction in heart attack risk. ●

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

Michael Ozner, MD, FACC, FAHA, is one of America's leading advocates for heart disease prevention. Dr. Ozner is a board-certified cardiologist, a fellow of both the American College of Cardiology and the American Heart Association, medical director of Wellness and Prevention at Baptist Health South Florida, a well-known regional and national speaker in the field of preventive cardiology, and a member of **Life Extension's** Scientific Advisory Board.

He is symposium director for Cardiovascular Disease Prevention, an annual international meeting dedicated to the treatment and prevention of heart attack and stroke. He was the recipient of the 2008 American Heart Association Humanitarian Award and was elected to Top Cardiologists in America by the Consumer Council of America. Dr. Ozner is also the author of *The Great American Heart Hoax*, *Heart Attack Proof*, and *The Complete Mediterranean Diet*.

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#### References

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**Homocysteine**

**C-Reactive Protein** (high sensitivity)

### LIPID PROFILE

**Total Cholesterol**

**LDL** (low-density lipoprotein)

**HDL** (high-density lipoprotein)

**Triglycerides**

### METABOLIC PROFILE

**Glucose**

**Hemoglobin A1c**

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

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

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

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

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

**Platelet count**

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### HORMONES

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**DHEA-S**

**Estradiol** (an estrogen)

**TSH** (thyroid function)

**Vitamin D (25-hydroxyvitamin D)**

## ■ FEMALE PANEL

### CARDIAC MARKERS

**Apolipoprotein B (ApoB)**

**Homocysteine**

**C-Reactive Protein** (high sensitivity)

### LIPID PROFILE

**Total Cholesterol**

**LDL** (low-density lipoprotein)

**HDL** (high-density lipoprotein)

**Triglycerides**

### METABOLIC PROFILE

**Glucose**

**Hemoglobin A1c**

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

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

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

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

### COMPLETE BLOOD COUNT (CBC)

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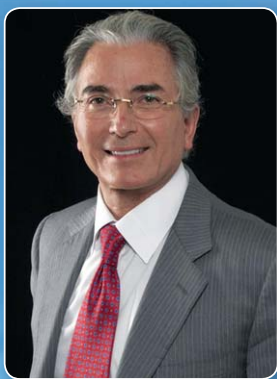
# Dr. Man and the Art of Plastic Surgery

BY GARY GREENBERG

The skin is our largest organ. It's also the only one we wear. That means it's exposed to the same elements that can etch rocks and scorch the earth. Fortunately, the skin has remarkable regenerative qualities that allow it to survive pretty much anything Mother Nature can throw at it, except time.

Dermatologists and other experts widely agree that people can help preserve their skins' youthful pliability by treating it right. And it's not only the moisturizers and rejuvenating creams you put on your body but also the nutrients you put into it. For a large part, healthy skin comes from antioxidants, vitamins and minerals, and avoidance of UV exposure, cigarette smoke, and excessive alcohol ingestion. Other beneficial supplements include hyaluronic acid, collagen, and even probiotics.

"What's good for your body is good for your skin," declares Dr. Daniel Man, a leading plastic surgeon based in Boca Raton, Florida. "A healthy diet, exercise, sleep, sun protection, and making sure you have all of the right nutrients are important for keeping the skin healthy."



DR. DANIEL MAN



"But even when we do all of this, or maybe we get a late start in taking good care of ourselves, we start showing the classic signs of aging—wrinkles, sagging skin, hair loss—and these things can make you want to see me."

Plastic surgery is sometimes seen as vanity run amok, self-absorbed people desperately trying to cling onto their youth by shelling out big bucks for quick fixes. But it can also be an anti-aging treatment that Man says runs more than skin deep.

"When you feel better about the way you look, you feel better about yourself," explains the Israeli-born surgeon. "It is good for self-esteem, makes you more confident, possibly with better success socially and in business. Plastic surgery not only changes appearance, it changes lives."

Dr. Man talks about a teenage boy and his mom who recently came to see him because the youth suffered from gynecomastia, commonly called "man boobs."

"Think how he must feel, not being able to take off his shirt without being embarrassed or

teased, not swimming in a pool with friends, not playing sports, not going to the beach," says Man. "Is plastic surgery a luxury for him?"

There has been an uptick in the condition, as Dr. Man says his male breast reduction clientele has jumped **40%** in the past couple of years. Coincidentally, a new technology called J-Plasma makes the procedure relatively quick and painless. By combining the heat of radiofrequency (RF) and the coolness of helium gas, surgeons can tighten the skin during the fat removal process.

"It's an amazing technology," praises Man, who earned his medical degree in Israel and served his plastic surgery residency at the University of Louisville in Kentucky. "Under local anesthesia, you remove the fat through liposuction, then use radiofrequency heat to tighten up the skin and helium gas, which quickly cools down the radiofrequency."

The end result is less collateral damage to tissue and a faster healing process.

"They can come here in the morning for the procedure, go home in the afternoon, and be at work the next day," boasts Man. "I also use J-Plasma for the loose neck, love handles, belly fat, upper arm looseness, and other things. Patients spend a few days using a constriction wrap, but there is very little downtime."

Dr. Man is thrilled to have so many new weapons at his disposal in his war against aging. One is a hair replacement procedure called SmartGraft. Done in one day, it uses a circular saw to harvest "micro hair grafts" from the back of the head to be implanted in areas where hair has thinned. There is no scarring, and the implants eventually grow into thick, natural-looking locks.

For the ladies, breast enhancements have come a long way.

"A lot of women are concerned about their aging breasts, so we do a combination of augmentation and uplift," says Man. "The newer implants are pear shaped rather than round and put under the muscle to make the breasts look more natural. The implants are silicone but highly cohesive so there is no worry about leakage."

Fallen buttocks are another common problem, but this condition can often be treated with a patient's own fat. Man removes belly blubber and injects it into the rear end to make it fuller and more rounded.

"We move the fat from where we don't want it to where we'd rather have it," he says.

Some of the procedures Man performs have nothing to do with aesthetics. For women who have had multiple children or difficult deliveries, he uses RF to tighten the walls of the vagina. The painless procedure can help with incontinence as well as improve sexual satisfaction.

Of course, much of Dr. Man's work is focused higher up, on the face. It includes the nonsurgical procedures, Skin Rejuvenation Peel and TriLift, which he claims can instantly make a person look 20 years younger. He's also developed a facelift procedure in which the scars from the surgery are "hidden."

Meanwhile, fillers are still popular for erasing crow's feet and laugh lines, and they're also better than ever.

"When we started with fillers many years ago, some would only last a few weeks or months," recalls Man. "Now, they can last for years."

He is also contributing to the advancements in the field with his

inventiveness. He invented a special operating table he calls the ART Bed (articulating, reclining, tilting). It raises the patient on a 30-degree angle so the surgeon can see the effects of gravity while operating.

"Gravity is always working against us," says Man. "With the ART Bed, we can mimic the changes of gravity without having to stand the patient up. There is less need for re-correction later on, and less swelling and bruising."

Dr. Man also keeps the operating room at a sweltering 90-plus degrees, which he says reduces risk of infection and clotting problems, and leads to faster healing. He dons a cooling suit to deal with the extreme heat.

"Another thing we do for the patients' safety is to avoid using opiates for pain," says Man. "Instead we use local anesthesia. We inject it under the skin and the patients have relief for three days. That's another new technology that helps them heal faster because they are not constricted by a lot of pain, and there is no fear of becoming addicted to opiates."

Dr. Man's is a fully accredited overnight facility with nursing care "so the patients don't have to rush off in an Uber to an environment that is not conducive to healing," he says. "Here, they can get all the care they need."

One drawback to plastic surgery is that the procedures aren't typically covered by health insurance, and they can cost thousands of out-of-pocket dollars.

"No insurance covers vacations, and people still spend a lot of money on them," says Man. "People have to think, 'What is good for me? Is feeling good by looking good worth the cost?' For my patients, the answer is yes."

Dr. Man is very popular in Boca Raton, treating some 30,000

patients since setting up operations there in 1980. Along with his medical skills, he's a philanthropist and author of three books about plastic surgery. If he looks familiar, it may be because he's appeared on several TV shows, including Good Morning America and Fox News, and has been featured in national and regional magazines.

Dr. Man is also an accomplished artist, whose paintings and sculptures grace the walls, and pretty much every nook and cranny, of his office. He started teaching himself how to paint about 15 years ago, figuring that developing artistic talent would enhance his surgical skills.

"In art, you look at how best to please the eye, which is what you want when you operate on the patients," says Man. "As a surgeon, you apply the tenets of art to achieve that. And you use the good hand-eye coordination that you learn from painting and sculpting."

It works both ways, as practicing surgery also improves his art.

"As a surgeon, knowing the anatomy and the way you study a face gives you a better eye as an artist," he explains. "One feeds off the other."

It shows in his paintings, including several that depict shapely female forms before time and gravity have wrought their havoc.

"When we are young, everything works well and looks good," he notes. "As people age, they say, 'I want to feel and look like I did when I was young.' I can help them with their belly fat and sagging breasts and such, but I also need their help. I need them to live a proper lifestyle and be truthful to themselves. We can't be at 62 the same we were at 26."

Just remember that if you ever go to see Dr. Man, or any other plastic surgeon, chances are it won't be your last visit.

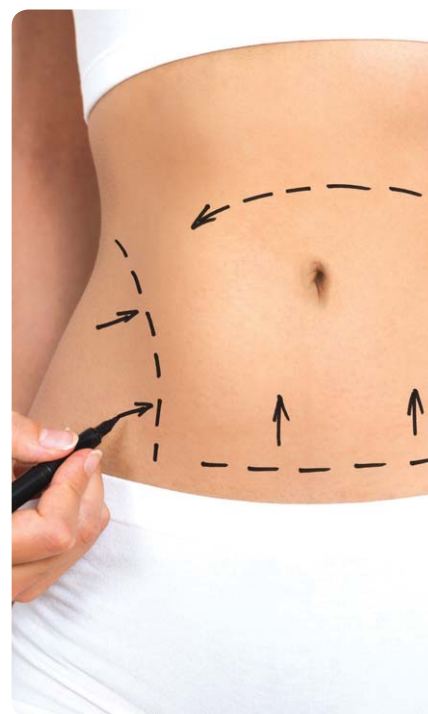
"I can turn back the clock, but I can't stop it from ticking," says Man, smiling. "Down the road, you will need more help. Life is ever changing." ●

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Daniel Man, M.D., is a board-certified plastic surgeon with a high-end private practice in Boca Raton, Florida. He is well known as one of the premier plastic surgeons in South Florida for his breakthrough procedures and treatment methods, as well as having patients from across the country who travel miles to undergo his treatments. To contact Dr. Man for a consultation, please visit [www.drman.com](http://www.drman.com)

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Melanie Mühl & Diana von Kopp

## *How We Eat with Our Eyes and Think with Our Stomach*

BY GARRY MESSICK

Amazingly, studies show that the average person makes over 200 choices involving food and diet every day. But how many of these are rational, considered choices and how many are simply impulses driven by our mindless, subconscious urges? Furthermore, to what extent are external, commercial forces manipulating us into buying and consuming foods we don't really want and would do well to avoid?

These and other questions are addressed in *How We Eat With Our Eyes and Think With Our Stomach*, a German bestseller that has now been published in English. **Life Extension®** sat down with authors Melanie Mühl and Diana von Kopp for a discussion touching on questions of food preference, the perils of shopping at the supermarket, and why most people perceive healthy food as tasting bad while junk food is considered delicious.

Melanie Mühl is a journalist whose blog *Food Affair* reaches hundreds of thousands of readers a month. Diana von Kopp is a psychologist who has long been fascinated with the impact food has on our brains and behavior.

**LE:** What is the basis for food preferences?

**MM & DK:** These foundations are already laid in the womb. Did you know that the sweeter the amniotic fluid, the more often the unborn baby swallows? Bitter compounds, however, are not so popular.

Once we're born, the conditioning continues. Some of us turn into picky eaters, while others happily eat everything that's put in front of us. Sooner or later we find ourselves on our first diet and realize: Darn, it's not working! But why not? Because, in short, we are not rational eaters.

Pointing out the irrational way we often make choices, the behavioral psychologist Dan Ariely describes us humans as "pawns in a game whose forces we largely fail to comprehend." And when we do, we systematically underestimate them. This is also true with food.

**LE:** What should people be aware of when shopping in the supermarket?

**MM & DK:** Every time we step through its doors we enter into a battle with our enemy, the supermarket corporation, whose motives are totally opposed to our own. While we hope to do our shopping quickly and efficiently, buying just the milk, bread, yogurt, pesto, apples, and leeks on our list, the supermarket owners would prefer we spend hours strolling slowly through the aisles and reaching for new products left and right, products that we neither need nor want. Which is why supermarkets use subtle psychological tricks to entice us. We think we can see through their schemes...but we're wrong.

**LE:** For example?

**MM & DK:** In some supermarkets, vegetables are sprinkled with water to give them a shiny, fresher appearance, but in reality, this only makes them rot more quickly. What is true for vegetables applies to fruit as well. Bananas, for instance, have gone through a color-optimization process when planted.

The reason why the chilled aisles are located at the back of the store is that dairy products are among the most frequently bought items. So the consumer is made to walk past numerous other products—temptations. Expensive, branded products are placed at eye level. Cheaper ones are on the top and bottom shelves.

**LE:** How should we avoid buying the unhealthy, processed foods that the supermarket heavily promotes?

**MM & DK:** Know exactly what it is that you need to pick up and stick to the shopping list. In the fight against the manipulation machine that is the supermarket, a helpful defense is tunnel vision and grim determination—if that doesn't seem to work, try putting

on headphones and listening to music to keep you focused while you shop.

**LE:** Let's discuss eating habits. How should you know when you've had enough to eat? Is it simply a matter of stopping when you feel full?

**MM & DK:** People who rely on the fullness signals sent from their stomach wall to their brains run the risk of eating more food than is good for them. Fortunately, our bodies have additional sources of information, such as the nutrient density of a food. An important hormone in this process is ghrelin. Released in the stomach lining, it sends signals to the brain, where it influences complex processes such as appetite, sleep, addiction, and satiety. When you are hungry, your ghrelin levels increase. When you take in food, the production of ghrelin decreases.

Carbohydrates lower your ghrelin levels particularly quickly, but the levels rise again soon after. Fats, on the other hand, lower ghrelin levels more slowly and keep them low for a longer period of time, which explains why a handful of nuts keeps hunger at bay for longer than a donut.





The problem is that it can take up to 20 minutes for hormone-driven fullness to reach the brain and give the order to stop eating—and 20 minutes is plenty of time to eat one, two, or even three too many high-energy snacks such as a Mars bar.

Generally, we eat as much as we're used to eating. Or until we've cleaned our plate. A clean plate is one of the strongest cues of all: We trust that we will automatically feel full with the last mouthful and happily ignore the fact that we might feel satisfied *before then*.

At home we happily shuffle between the kitchen and the couch to replenish our plates with small portions. This means that we lose track of the amount of food we're consuming. When we divert our attention from what and how much we're eating to other things, such as watching television, we fall into the same trap. Participants in an experiment who played solitaire on a computer while eating felt

less full afterward than the control group who concentrated on their meal, and the solitaire players felt hungry again sooner.

In any case, in order to regain control of your calorie intake, it's advisable to eat mindfully. Not on the go, but at the table. In her book *First Bite: How We Learn to Eat*, Bee Wilson pleads for more mindfulness: "If we are going to change our diets, we first have to relearn the art of eating." It is impossible, she explains, to develop a healthy relationship with food as long as we ignore the signals of our own bodies and instead listen to external cues such as portion size to tell us when we're full.

**LE:** Why do people tend to assume that healthier foods generally taste bad while unhealthy foods taste good?

**MM & DK:** Researchers at the University of Texas found that the less healthy an item is portrayed to

be, the better it is inferred to taste. Likewise, when we ask, "Why does junk food taste better than healthy food?" we've presupposed that junk food does in fact taste better.

The idea that unhealthy foods taste better than healthy ones is not only widespread, it's also a tenet we've been taught since the cradle, along the lines of: "Eat all of your broccoli and you can have cheesecake for dessert." How are children supposed to learn to love vegetables when we put it in their minds that eating carrots and sprouts is an irksome necessity to be endured in order to get to the good bit?

Countless studies have proved that the mere *mention* that a food we're about to be served is "healthy" lowers our taste expectations. In that University of Texas study, volunteers were asked to rate the tastiness of a mango lassi (a blended drink popular in Indian restaurants). If they were told before they tried it that it was a healthy drink, then they were significantly more likely to give it a low rating. When its high calorie content was highlighted, however, the volunteers praised the drink for its taste.

The fact that we are genetically programmed to love sugar and fat doesn't help matters—and the food industry benefits from it. They tamper with our food and cash in on our innate weakness.

**LE:** Is there any way to disrupt our taste expectations?

**MM & DK:** The answer is yes, and an effective way is through education. Researchers at the University of Kiel in Germany were able to show that the effect of the unhealthy = tasty intuition decreases the more health-conscious people are.



Nevertheless, if you believe that rationality wins over taste and think that you can promote a product simply by highlighting its health benefits, you're mistaken. According to the researchers, "The impact of automatically activated taste associations can't even be shifted by an augmented health awareness." The assumption to be altered, i.e., that a certain food is healthy, can't necessarily be expanded to mean that it's tasty, too.

Yet, despite this new insight, there is no need to feel disillusioned. In France, surprisingly, the opposite of the unhealthy = tasty intuition applies: The French expect healthy foods to be the tastier option. Researchers at the University of Grenoble in France attribute this primarily to the fact that the French are highly conscious of quality. Instead of artificial flavorings, chefs in France tend to use more herbs and spices, fresh garlic, and shallots. They create salads from ingeniously combined ingredients, for example,

lemon zest and cilantro with tomatoes chopped into tiny chunks, a technique that allows the flavors to unfold the instant they hit the tongue.

**LE:** Finally, what are some things we should consider when making food choices?

**MM & DK:** The first step to intuiting what's good for you is being conscious of how specific foods affect your body. Taking inspiration from French cuisine and always cooking with fresh, bright ingredients should do the trick as well.

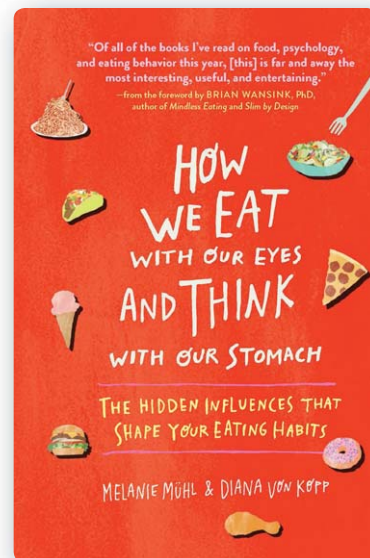
Think about your expectations of a food's nutrient content. Is that judgment based on what it looks like and how it's presented? Its name? Packaging? Do you consider how many calories it has? Would you be surprised to learn that a chicken Caesar salad typically has over one thousand calories?

Think about the factors that help you determine which foods are “good” for you and which are “bad.” ●

**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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 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

## Nerve & Comfort Support

ComfortMAX™

## 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  
 Hair, Skin & Nail Rejuvenation Formula  
 W/VERISOL®  
 Life Extension Toothpaste  
 Venotone  
 Xyliwhite Mouthwash

## Pet Care

Cat Mix  
 Dog Mix

## Probiotics

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

## Skin Care

Adult Blemish Lotion  
 Advanced Peptide Anti-Oxidant Serum  
 Advanced Growth Factor Serum  
 Advanced Hyaluronic Acid Serum  
 Advanced Lightening Cream  
 Advanced Peptide Hand Therapy  
 Advanced Triple Peptide Serum  
 Advanced Under Eye Serum with Stem Cells  
 All-Purpose Soothing Relief Cream  
 Amber Self MicroDermAbrasion  
 Anti-Aging Face Oil  
 Anti-Aging Mask  
 Anti-Aging Rejuvenating Face Cream  
 Anti-Aging Rejuvenating Scalp Serum  
 Anti-Oxidant Serum with  
 Blueberry & Pomegranate Extracts  
 Anti-Oxidant Facial Mist Hydrator  
 Collagen Boosting Peptide Serum  
 Cucumber Hydra Peptide Eye Cream  
 DNA Support Cream  
 Environmental Support Serum  
 Essential Plant Lipids Serum  
 Eye Lift Cream  
 Face Rejuvenating Anti-Oxidant Cream  
 Hyaluronic Facial Moisturizer  
 Hyaluronic Oil-Free Facial Moisturizer  
 Hydrating Anti-Oxidant Facial Mist  
 Hydroderm  
 Lifting & Tightening Complex  
 Melatonin Advanced Peptide Cream  
 Melatonin Cream  
 Mild Facial Cleanser  
 Multi Stem Cell Skin Tightening Complex  
 Neck Rejuvenating Anti-Oxidant Cream  
 Rejuvenex® Body Lotion  
 Rejuvenex® Factor Firming Serum  
 Renewing Eye Cream  
 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 Ceramides  
 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 Lip Rejuvenator  
 Vitamin C Serum  
 Vitamin D Lotion  
 Vitamin K Cream  
 Youth Serum

## Sleep

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

## Vitamins

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

## Weight Management & Body Composition

2:5 Foundational Support  
 2:5 LE Plan Chocolate  
 2:5 LE Plan Combo  
 2:5 LE Plan Vanilla  
 7-Keto® DHEA Metabolite  
 Advanced Anti-Adipocyte Formula  
 Advanced Appetite Suppress  
 AMPK Metabolic Activator  
 CalReduce Selective Fat Binder  
 DHEA Complete  
 Garcinia HCA  
 HCAActive Garcinia Cambogia Extract  
 Integra-Lean®  
 Mediterranean Trim with Sinetrol™ -XPur  
 Optimized Irvingia with Phase 3™ Calorie  
 Control Complex  
 Optimized Saffron with Satiereal®  
 Super CLA Blend with Sesame Lignans  
 Waist-Line Control™

## Women's Health

Enhanced Sex for Women 50+  
 Breast Health Formula  
 Femmenessence MacaPause®  
 Estrogen for Women  
 Menopause 731™  
 Progesta-Care®  
 Super-Absorbable Soy Isoflavones

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
25SUPPORT	2:5 FOUNDATIONAL SUPPORT	324.00	195.99				
***25CHOC	2:5 LE PLAN CHOCOLATE	504.00	299.99				
***25COMBO	2:5 LE PLAN COMBO	504.00	299.99				
***25VAN	2:5 LE PLAN VANILLA	504.00	299.99				
<b>A</b>							
01524	ACETYL-L-CARNITINE • 500 mg, 100 veg. caps	34.00	25.50	22.50			
01974	ACETYL-L-CARNITINE ARGINATE • 90 veg. caps	38.00	28.50	26.00			
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			
01807	ADVANCED APPETITE SUPPRESS • 60 veg. caps	38.00	28.50	25.50			
02012	ADVANCED CORTISOL BALANCE • 30 veg. caps	45.00	33.75	30.00			
01828	ADVANCED LIPID CONTROL • 60 veg. caps	30.00	22.50	20.25			
00681	AHCC® • 500 mg, 30 caps	61.98	46.49				
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			
02240	ANTI-ALCOHOL HEPATOPROTECTION COMPLEX • 60 veg. caps	22.00	16.50	15.00			
01625	APPLEWISE • 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			
02238	ARTHROMAX® ADVANCED NT2 COLLAGEN™ & APRÈSFLEX® 60 veg. caps	34.00	25.50	22.00			
02138	ARTHROMAX® ELITE • 30 veg. tablets	30.00	22.50	20.00			
01404	ARTHRO-IMMUNE JOINT SUPPORT • 60 veg. caps	32.00	24.00	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>B</b>							
01945	B-COMPLEX (BioActive Complete) • 60 veg. caps	12.00	9.00	8.00			
00920	BENFOTIAMINE W/ THIAMINE • 100 mg, 120 veg. caps	19.95	14.96	13.95			
00925	BENFOTIAMINE (Mega) • 250 mg, 120 veg. caps	30.00	22.50	20.25			
01206	BERRY COMPLETE • 30 veg. caps	21.00	15.75	14.00			
01496	BERRY COMPLETE (Enhanced) • 60 veg. caps	29.00	21.75	19.50			
00664	BETA-CAROTENE • 25,000 IU, 100 softgels	11.75	8.81				
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			
<b>SUBTOTAL OF COLUMN 1</b>							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
*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			
01008	BLAST™ • 600 grams of powder	26.97	20.23				
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			
00984	BP MANAGEMENT (Optimal) • 60 tablets	44.00	33.00	30.00			
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			
<b>C</b>							
01963	CALCIUM CITRATE W/VITAMIN D • 200 veg. caps	18.00	13.50	12.50			
01651	CALCIUM D-GLUCARATE • 200 mg, 60 veg. caps	18.00	13.50	11.25			
*01823	CALREDUCE SELECTIVE FAT BINDER 120 mint chewable tablets	45.00	33.75	28.50			
01700	CARDIO PEAK™ W/STANDARDIZED HAWTHORN & ARJUNA 120 veg. caps	36.00	27.00	24.00			
02018	CARNITINE (Optimized) • 60 veg. caps	30.00	22.50	20.00			
01532	L-CARNITINE • 500 mg, 30 veg. caps	15.00	11.25	9.90			
01829	CARNOSINE • 500 mg, 60 veg. caps	36.00	27.00	24.00			
02020	CARNOSINE (Super) • 500 mg, 60 veg. caps	40.00	30.00	27.00			
01932	CAT MIX • 100 grams powder	14.00	10.50	8.25			
02199	CHILDREN'S FORMULA LIFE EXTENSION MIX™ 120 chewable tablets	25.00	18.75	17.00			
00550	CHLORELLA • 500 mg, 200 tablets	23.98	17.99				
01571	CHLOROPHYLLIN • 100 mg, 100 veg. caps	24.00	18.00	15.00			
01359	*CHO-LESS™ • 90 capsules	37.50	37.50				
01910	CHOL-SUPPORT™ • 60 liquid veg. caps	48.00	36.00	32.00			
01504	CHROMIUM W/CROMINEX® 3+ (Optimized) 500 mcg, 60 veg. caps	9.00	6.75	6.00			
01503	CINSULIN® W/INSEAZ® AND CROMINEX® 3+ • 90 veg. caps	38.00	28.50	25.50			
02300	CIRCADIAN SLEEP • 30 liquid veg. caps	28.00	21.00	19.00			
01906	CISTANCHE (Standardized) • 30 veg. caps	20.00	15.00	12.00			
<b>SUBTOTAL OF COLUMN 2</b>							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
00818	CLA BLEND W/SESAME LIGNANS (Super) • 120 softgels	36.00	27.00	24.75	19.75		
01620	COFFEEGENIC® GREEN COFFEE EXTRACT • 400 mg, 90 veg. caps	32.00	24.00	21.00			
02321	COGNITEX® BASICS • 30 softgels	32.00	24.00	22.00			
02396	COGNITEX® ELITE • 60 tablets	56.00	42.00	38.00			
02397	COGNITEX® ELITE PREGNENOLONE • 60 tablets	58.00	43.50	40.00			
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			
02398	COMPREHENSIVE NUTRIENT PACKS ADVANCED • 30 packs	90.00	67.50	61.50			
01949	COQ10 W/d-LIMONENE (Super-Absorbable) • 50 mg, 60 softgels	25.00	18.75	16.50	15.00		
01951	COQ10 W/d-LIMONENE (Super-Absorbable) 100 mg, 60 softgels	30.00	22.50	20.00			
01929	COQ10 (Super Ubiquinol) • 100 mg, 60 softgels	56.00	42.00	36.00	33.00		
01733	COQ10 W/PQQ (Super Ubiquinol) • 100 mg, 30 softgels	50.00	37.50	30.00	27.00		
01437	COQ10 W/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 100 mg, 30 softgels	33.00	24.75	22.00			
01426	COQ10 W/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 100 mg, 60 softgels	62.00	46.50	39.00	36.00		
01425	COQ10 W/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 50 mg, 100 softgels	58.00	43.50	34.50	31.50		
01427	COQ10 W/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 50 mg, 30 softgels	20.00	15.00	12.00			
01431	COQ10 W/ENH MITOCHONDRIAL SUPPORT™ (Super Ubiquinol) • 200 mg, 30 softgels	62.00	46.50	39.00	36.00		
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			
00467	CURCUMIN® (Super Bio) • 400 mg, 30 veg. caps	20.00	15.00	14.00			
00407	CURCUMIN® (Super Bio) • 400 mg, 60 veg. caps	38.00	28.50	26.25			
01924	CURCUMIN® W/GINGER & TURMERONES (Advanced Bio) 30 softgels	30.00	22.50	20.25			
01804	CYTOKINE SUPPRESS™ W/EGCG • 30 veg. caps	30.00	22.50	20.25			
COSMESIS							
80105	ADULT BLEMISH LOTION • 1 fl. oz	74.50	55.88	49.17			
80157	ADVANCED PEPTIDE ANTI-OXIDANT SERUM • 1 fl. oz	53.00	39.75	34.50			
80165	ADVANCED GROWTH FACTOR SERUM • 1 fl. oz	65.00	48.75	42.75			
80170	ADVANCED HYALURONIC ACID SERUM • 1 fl. oz	45.00	33.75	29.25			
80154	ADVANCED LIGHTENING CREAM • 1 oz	65.00	48.75	42.75			
80155	ADVANCED PEPTIDE HAND THERAPY • 4 oz	46.00	34.50	29.25			
80152	ADVANCED TRIPLE PEPTIDE SERUM • 1 fl. oz	65.00	48.75	42.75			
80140	ADVANCED UNDER EYE SERUM W/STEM CELLS • .33 fl. oz	49.00	36.75	31.50			
80137	ALL-PURPOSE SOOTHING RELIEF • 1 oz	53.00	39.75	34.07			
80139	AMBER SELF MICRODERMABRASION • 2 oz	49.00	36.75	31.50			
80158	ANTI-AGING FACE OIL • 1 fl. oz	59.00	44.25	39.00			
80118	ANTI-AGING MASK • 2 oz	72.00	54.00	47.52			
80151	ANTI-AGING REJUVENATING FACE CREAM • 2 oz	65.00	48.75	42.75			
80153	ANTI-AGING REJUVENATING SCALP SERUM • 2 fl. oz	46.00	34.50	29.25			
80134	ANTI-OXIDANT SERUM W/BLEBERRY & POMEGRANATE EXTRACTS • 1 fl. oz	33.00	24.75	23.51			
SUBTOTAL OF COLUMN 3							

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
80133	ANTI-OXIDANT FACIAL MIST HYDRATOR • 2 fl. oz	32.00	24.00	22.80			
80156	COLLAGEN BOOSTING PEPTIDE SERUM • 1 fl. oz	59.00	44.25	39.00			
80169	CUCUMBER HYDRA PEPTIDE EYE CREAM • .5 oz	38.00	28.50	26.00			
80141	DNA SUPPORT CREAM • 1 oz	49.00	36.75	31.50			
80167	ENVIRONMENTAL SUPPORT SERUM • 1 fl. oz	59.00	44.25	39.00			
80108	ESSENTIAL PLANT LIPIDS SERUM • 1 fl. oz	74.95	56.21	49.46			
80163	EYE LIFT CREAM • 0.5 fl. oz	59.00	44.25	39.00			
80123	FACE REJUVENATING ANTI-OXIDANT CREAM • 2 oz	69.50	52.13	45.87			
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 ANTI-OXIDANT FACE MIST • 4 fl. oz	39.95	29.96	28.50			
80103	LIFTING & TIGHTENING COMPLEX • 1 oz	74.50	55.88	49.17			
80168	MELATONIN ADVANCED PEPTIDE CREAM • 1 oz	38.00	28.50	26.00			
80114	MILD FACIAL CLEANSER • 8 fl. oz	59.00	44.25	38.94			
80159	MULTI STEM CELL SKIN TIGHTENING COMPLEX • 1 fl. oz	59.00	44.25	39.00			
80122	NECK REJUVENATING ANTI-OXIDANT CREAM • 2 oz	64.00	48.00	42.24			
80150	RENEWING EYE CREAM • 1/2 oz	65.00	48.75	42.75			
80142	RESVERATROL ANTI-OXIDANT SERUM • 1 fl. oz	46.00	34.50	29.25			
80166	SKIN FIRMING COMPLEX • 1 fl. oz (2 units \$34.50)	53.00	39.75				
80112	SKIN LIGHTENING SERUM • 1/2 fl. oz	85.00	63.75	56.10			
80130	SKIN STEM CELL SERUM • 1 fl. oz	74.00	55.50	51.75			
80164	SKIN TONE EQUALIZER • 0.4 fl oz	59.00	44.25	39.00			
80143	STEM CELL CREAM W/ALPINE ROSE • 1 oz	66.00	49.50	43.50			
80148	TIGHTENING & FIRMING NECK CREAM • 2 oz	39.00	29.25	26.25			
80161	TRIPLE ACTION VITAMIN C CREAM • 1 oz jar	59.00	44.25	39.00			
80162	ULTIMATE MICRODERMABRASION • 8 fl. oz	39.00	29.25	26.25			
80160	ULTRA EYELASH BOOSTER • 0.25 oz (2 units each \$39)	59.00	44.25				
80116	ULTRA LIP PLUMPER • 1/3 oz	64.00	48.00	42.24			
80101	ULTRA WRINKLE RELAXER • 1 fl. oz	89.95	67.46	59.82			
80113	UNDER EYE REFINING SERUM • 1/2 fl. oz	74.50	55.88	49.17			
80104	UNDER EYE RESCUE CREAM • 1/2 oz	74.50	55.88	49.17			
80171	VITAMIN C LIP REJUVENATOR • 0.5 fl. oz	24.00	18.00	15.60			
80129	VITAMIN C SERUM • 1 fl. oz	85.00	63.75	56.10			
80136	VITAMIN D LOTION • 4 oz	36.00	27.00	25.25			
80102	VITAMIN K CREAM • 1 oz	79.50	59.63	52.47			
80149	YOUTH SERUM • 1 fl. 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			
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			
01478	DHEA COMPLETE • 60 veg. caps	48.00	36.00	32.40			
SUBTOTAL OF COLUMN 4							

ITEM No.	PRODUCT	YOUR PRICE					QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each			
30747	<b>DIGEST RC®</b> • 30 caps	19.95	14.96					
02021	<b>DIGESTIVE ENZYMES</b> (Enhanced Super) • 60 veg. caps	22.00	16.50	15.00				
02022	<b>DIGESTIVE ENZYMES W/PROBIOTICS</b> (Enhanced Super)•60 veg. caps	28.00	21.00	18.00				
01671	<b>D, L-PHENYLALANINE</b> • 500 mg, 100 veg. caps	18.75	14.06	12.00				
01540	<b>DMAE BITARTRATE</b> • 150 mg, 200 veg. caps	18.00	13.50	11.25				
02270	<b>DNA PROTECTION FORMULA</b> • 30 veg. caps	20.00	15.00	13.50				
01931	<b>DOG MIX</b> • 100 grams powder	18.00	13.50	11.25				
02006	<b>DOPA-MIND™</b> • 60 veg. tabs	44.00	33.00	28.00				
00321	<b>DR. PROCTOR'S ADVANCED HAIR FORMULA</b> • 2 oz	39.95	29.96	24.00				
00320	<b>DR. PROCTOR'S HAIR SHAMPOO</b> • 8 oz	24.95	18.71	16.50				
<b>E</b>								
02097	<b>ENDOTHELIAL DEFENSE™ POMEGRANATE COMPLETE</b> • 60 softgels	68.00	51.00	46.50				
00997	<b>ENDOTHELIAL DEFENSE™ W/GLISODIN®</b> • 60 veg. caps	54.00	40.50	36.00				
02200	<b>EPA/DHA</b> (Clearly) • 120 softgels	30.00	22.50	20.00				
01937	<b>EPA/DHA</b> (Mega) • 120 softgels	20.00	15.00	13.50				
02033	<b>ESOPHACOO™</b> • 60 chewable tablets	12.00	9.00	8.00				
01737	<b>ESOPHAGEAL GUARDIAN</b> (Berry flavor) • 60 chewable tablets	36.00	27.00	24.00				
01894	<b>ESTROGEN FOR WOMEN</b> • 30 veg. tabs	30.00	22.50	20.00				
01042	<b>EUROPEAN LEG SOLUTION DIOSMIN 95</b> 600 mg, 30 veg. tabs	20.00	15.00	13.50				
01706	<b>EXTRAORDINARY ENZYMES</b> • 60 caps	26.00	19.50	18.00				
02008	(CALIFORNIA ESTATE) <b>EXTRA VIRGIN OLIVE OIL</b> •500 ml (16.9 fl. oz)	33.00	24.75	22.50				
01514	<b>EYE PRESSURE SUPPORT W/MIRTOGENOL®</b> • 30 veg. caps	38.00	28.50	25.50				
<b>F</b>								
00965	<b>FAST-ACTING JOINT FORMULA</b> • 30 caps	39.00	29.25	27.00				
01717	<b>FAST-C® W/DIHYDROQUERCETIN</b> • 120 veg. tabs	26.00	19.50	18.00				
01064	<b>FEMMENESSENCE MACAPAUSE®</b> • 120 veg. caps	34.99	26.24					
01825	<b>FLORASSIST® BALANCE</b> • 30 liquid veg. caps	32.00	24.00	21.00				
02125	<b>FLORASSIST® GI W/PHASE TECHNOLOGY</b> •30 liquid veg. caps	33.00	24.75	22.50				
01821	<b>FLORASSIST® HEART HEALTH</b> • 60 veg. caps	32.00	24.00	21.00				
02124	<b>FLORASSIST® IMMUNE HEALTH</b> • 30 veg. caps	26.00	19.50	18.00				
02000	<b>FLORASSIST® MOOD</b> • 60 caps	33.00	24.75	22.50				
02208	<b>FLORASSIST® NASAL</b> • 30 veg. caps	36.00	27.00	24.00				
02120	<b>FLORASSIST® ORAL HYGIENE</b> • 30 lozenges	20.00	15.00	13.00				
02203	<b>FLORASSIST® PREBIOTIC</b> • Strawberry flavor, 60 chewable tabs	20.00	15.00	13.00				
01920	<b>FLORASSIST® THROAT HEALTH</b> • 30 lozenges	20.00	15.00	13.50				
02212	<b>FOCUS TEA™</b> • Spearmint flavor, 14 stick packs	20.00	15.00	13.50				
01913	<b>FOLATE HIGH POTENCY</b> (Optimized) • 5,000 mcg, 30 veg. tablets	18.00	13.50	12.00				
01939	<b>FOLATE</b> (Optimized) • 1,000 mcg, 100 veg. tablets	15.00	11.25	10.00				
01842	<b>FOLATE + VITAMIN B12</b> (BioActive) • 90 veg. caps	12.00	9.00	8.00				
01544	<b>FORSKOLIN</b> • 10 mg, 60 veg. caps	16.00	12.00	10.50				
01513	<b>FUCOIDAN W/MARITECH® 926</b> (Optimized) • 60 veg. caps	36.00	27.00	24.75				
<b>G</b>								
02070	<b>GAMMA E MIXED TOCOPHEROL/TOCOTRIENOLS</b> • 60 softgels	40.00	30.00	27.00				
02075	<b>GAMMA E MIXED TOCOPHEROL W/ENHANCED SESAME LIGNANS</b> • 60 softgels	32.00	24.00	21.75				
01394	<b>GARLIC</b> (Optimized) • 200 veg. caps	24.95	18.71	15.75				
<b>SUBTOTAL OF COLUMN 5</b>								

ITEM No.	PRODUCT	YOUR PRICE					QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each			
02100	<b>GASTRO-EASE™</b> • 60 veg. caps	44.00	33.00	30.00				
02119	<b>GEROPROTECT® AGELESS CELL™</b> • 30 softgels	40.00	30.00	27.00				
02133	<b>GEROPROTECT® LONGEVITY A.I.™</b> • 30 softgels	56.00	42.00	38.00				
01122	<b>GINGER FORCE®</b> • 60 liquid caps	34.95	26.21					
01658	<b>GINKGO BILOBA CERTIFIED EXTRACT™</b> 120 mg, 365 veg. caps	50.00	37.50	33.00				
02218	<b>GLA WITH SESAME LIGNANS</b> (Mega) • 30 softgels	22.00	16.50	15.00				
00345	<b>(L-) GLUTAMINE CAPSULES</b> • 500 mg, 100 veg. caps	14.95	11.21	10.13				
00141	<b>(L-) GLUTAMINE POWDER</b> • 100 grams	22.00	16.50	15.00				
00522	<b>GLUCOSAMINE/CHONDROITIN CAPSULES</b> • 100 caps	38.00	28.50	24.00				
01541	<b>GLUTATHIONE, CYSTEINE &amp; C</b> • 100 veg. caps	22.00	16.50	15.00				
02122	<b>GLYCEMIC GUARD™</b> • 30 veg. caps	42.00	31.50	28.00				
01669	<b>GLYCINE</b> • 1,000 mg, 100 veg. caps	12.00	9.00	8.10				
02211	<b>GRAPE SEED EXTRACT</b> 100 mg, 60 veg. caps	35.00	26.25	23.00				
00953	<b>GREEN TEA EXTRACT</b> (Mega)•lightly caffeinated,100 veg. caps	30.00	22.50	18.00				
00954	<b>GREEN TEA EXTRACT</b> (Mega)•decaffeinated, 100 veg. caps	30.00	22.50	18.00				
<b>H</b>								
01074	<b>5 HTP</b> • 100 mg, 60 caps	27.95	20.96					
02222	<b>HAIR, SKIN &amp; NAILS REJUVENATION FORM W/VERISOL®</b> 120 tabs	32.00	24.00	22.00				
01738	<b>HCA</b> (Garcinia) • 90 veg. caps	17.00	12.75	11.25				
29754	<b>HCACTIVE™ GARCINIA CAMBOGIA EXTRACT</b> • 90 caps	30.00	22.50					
01393	<b>HEPATOPRO</b> • 900 mg, 60 softgels	50.00	37.50	34.50				
02121	<b>HOMOCYSTEINE RESIST</b> • 60 veg. caps	26.00	19.50	17.50				
01527	<b>HUPERZINE A</b> • 200 mcg, 60 veg. caps	40.00	30.00	27.00				
00661	<b>HYDRODERM®</b> • 1 oz	79.95	59.96	49.00				
<b>I</b>								
01704	<b>IMMUNE MODULATOR W/TINOFEND®</b> • 60 veg. caps	17.00	12.75	11.25				
00955	<b>IMMUNE PROTECT W/PARACTIN®</b> • 30 veg. caps	29.50	22.13	19.91				
02005	<b>IMMUNE SENESENCE PROTECTION FORMULA™</b> •60 veg. tabs	40.00	30.00	27.00				
01674	<b>INOSITOL CAPSULES</b> • 1,000 mg, 360 veg. caps	62.00	46.50	43.50				
01292	<b>INTEGRA-LEAN® AFRICAN MANGO IRVINGIA</b> 150 mg, 60 veg. caps	28.00	21.00	18.00				
30731	<b>IONIC SELENIUM</b> • 300 mg, 2 fl. oz	13.69	10.27					
01677	<b>IRON PROTEIN PLUS</b> • 300 mg, 100 caps	28.00	21.00	19.50				
01492	<b>IRVINGIA W/PHASE 3™ CALORIE CONTROL COMPLEX</b> (Optimized African Mango) • 120 veg. caps	56.00	42.00	36.00				
<b>J, K, L</b>								
52142	<b>JARRO-DOPHILUS® PROBIOTIC FOR WOMEN</b> 30 enteric-coated veg. caps	27.95	20.96					
00056	<b>JARRO-DOPHILUS EPS®</b> • 60 veg. caps	23.95	17.96					
02034	<b>K W/ADVANCED K2 COMPLEX</b> (Super) • 90 softgels	30.00	22.50	20.25				
01600	<b>KRILL HEALTHY JOINT FORMULA</b> • 30 softgels	32.00	24.00	21.75				
01050	<b>KRILL OIL</b> (Jarrow)• 60 softgels	33.95	25.46					
00316	<b>KYOLIC® GARLIC FORMULA 102</b> • 200 veg. caps	28.55	21.41					
00789	<b>KYOLIC® RESERVE</b> • 600 mg, 120 caps	30.15	22.61					
01681	<b>LACTOFERRIN</b> • 60 caps	44.00	33.00	30.00				
<b>SUBTOTAL OF COLUMN 6</b>								

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
00020	LECITHIN • 16 oz granules	18.00	13.50	12.00			
02355	LIFE EXTENSION MIX™ • 240 tablets	74.00	55.50	48.00	42.00		
02357	LIFE EXTENSION MIX™ W/EXTRA NIACIN • 240 tablets	74.00	55.50	48.00	42.00		
02354	LIFE EXTENSION MIX™ • 360 caps	78.00	58.50	50.00	44.00		
02356	LIFE EXTENSION MIX™ POWDER • 12.70 oz	80.00	60.00	54.00	50.00		
02365	LIFE EXTENSION MIX™ W/O COPPER • 240 tablets	74.00	55.50	48.00	42.00		
02364	LIFE EXTENSION MIX™ W/O COPPER • 360 caps	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			
<b>M</b>							
01992	MACUGUARD® OCULAR SUPPORT W/SAFFRON • 60 softgels	25.00	18.75	17.50			
01993	MACUGUARD® OCULAR SUPPORT W/SAFFRON & ASTAXANTHIN • 60 softgels	44.00	33.00	30.00			
01459	MAGNESIUM CAPS • 500 mg, 100 veg. caps	12.00	9.00	7.50			
01682	MAGNESIUM (CITRATE) • 160 mg, 100 veg. caps	13.00	9.75	8.50			
02107	(EXTEND-RELEASE) MAGNESIUM • 60 veg. caps	13.00	9.75	8.75			
02209	MALE VASCULAR SEXUAL SUPPORT • 30 veg. caps	24.00	18.00	16.00			
01908	MEDITERRANEAN TRIM WITH SINETROL™-XPUR 60 veg. caps	18.00	13.50	12.00			
02109	MEDITERRANEAN WHOLE FOOD BLEND • 90 veg. caps	44.00	33.00	30.00			
01668	MELATONIN • 300 mcg, 100 veg. caps	7.00	5.25	4.50			
01083	MELATONIN • 500 mcg, 200 veg. caps	18.00	13.50	12.00			
00329	MELATONIN • 1 mg, 60 caps	5.00	3.75	3.47			
00330	MELATONIN • 3 mg, 60 veg. caps	8.00	6.00	5.16			
00331	MELATONIN • 10 mg, 60 veg. caps	28.00	21.00	18.00			
00332	MELATONIN • 3 mg, 60 veg. lozenges	8.00	6.00	5.16			
02234	MELATONIN (Fast-Acting Liquid) • 2 fl. oz (Citrus-Vanilla)	12.00	9.00	8.25			
02201	MELATONIN IR/XR • 60 caps	12.00	9.00	7.50			
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			
02204	MENOPAUSE 731™ • 30 tablets	36.00	27.00	24.00			
01536	METHYLCOBALAMIN • 1 mg, 60 veg. lozenges (vanilla)	9.95	7.46	6.00			
01537	METHYLCOBALAMIN • 5 mg, 60 veg. lozenges (vanilla)	32.00	24.00	18.75	17.25		
00709	MIGRA-EEZE™ (Butterbur) • 60 softgels	33.00	24.75	22.00			
01522	MILK THISTLE (European) • 60 veg. caps	34.00	25.50	22.50			
01922	MILK THISTLE (European) • 60 softgels	28.00	21.00	18.75			
01925	MILK THISTLE (European) • 120 softgels	44.00	33.00	30.00			
01940	MIRAFORTE W/STANDARDIZED LIGNANS (Super) • 120 veg caps	62.00	46.50	42.00			
01869	MITOCHONDRIAL BASICS W/PQQ • 30 caps	40.00	30.00	27.00			
01868	MITOCHONDRIAL ENERGY OPTIMIZER W/PQQ • 120 caps	68.00	51.00	45.00			
00065	MK-7 • 90 mcg, 60 softgels	28.00	21.00	18.75			
00451	MSM (Methylsulfonylmethane) • 1,000 mg, 100 caps	14.00	10.50	8.96			
02221	MUSCLE STRENGTH & RESTORE FORMULA • 94.2 grams powder	36.00	27.00	24.00			
<b>SUBTOTAL OF COLUMN 7</b>							

RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE				QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each			
N								
01534	N-ACETYL-L-CYSTEINE • 600 mg, 60 veg. caps	14.00	10.50	9.25				
02144	NAD+ CELL REGENERATOR™ NICOTINAMIDE RIBOSIDE 250 mg, 30 veg. caps	48.00	call for	pricing				
02148	NAD+ CELL REGENERATOR™ W/RESVERATROL (Optimized) 30 veg. caps	54.00	call for	pricing				
01603	NEURO-MAG® MAGNESIUM L-THREONATE • 90 veg. caps	40.00	30.00	27.00				
02032	NEURO-MAG® MAGNESIUM L-THREONATE 93.35 grams • Tropical Punch Flavor	38.00	28.50	26.00				
02090	NITROVASC™ • 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				
02231	NT2 COLLAGEN™ • 40 mg, 60 small caps	34.00	25.50	22.00				
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			
02092	ONCE-DAILY HEALTH BOOSTER • 30 softgels	30.00	22.50	20.00				
02091	ONCE-DAILY HEALTH BOOSTER • 60 softgels	54.00	40.50	38.00				
02313	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	38.00	28.50	26.00				
00577	POTASSIUM IODIDE • 130 mg, 14 tabs	6.95	5.21	3.94				
01500	PQQ CAPS • 10 mg, 30 veg. caps	18.00	13.50	11.00	10.00			
01647	PQQ CAPS • 20 mg, 30 veg. caps	32.00	24.00	18.00	17.00			
00302	PREGNENOLONE • 50 mg, 100 caps	26.00	19.50	16.50				
00700	PREGNENOLONE • 100 mg, 100 caps	30.00	22.50	20.25				
*01373	PRELOX® ENHANCED SEX FOR MEN • 60 tablets	52.00	39.00	36.00				
00525	PROBOOST™ THYMIC PROTEIN A • 30 packets	66.60	49.95					
SUBTOTAL OF COLUMN 8								

DECEMBER 2018

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01441	PROGESTA-CARE® • 4 oz cream	36.39	27.29	25.72			
02029	PROSTATE FORMULA (Ultra) • 60 softgels	38.00	28.50	26.25	24.00		
01909	PROSTAPOLLEN™ (Triple strength) • 30 softgels	28.00	21.00	18.75			
02261	PROTEIN CONCENTRATE (Whey) Chocolate • 640 gram	30.00	22.50	19.95			
02260	PROTEIN CONCENTRATE (Whey) Vanilla • 500 grams	30.00	22.50	19.95			
02246	PROTEIN ISOLATE (Advanced Whey) Vanilla • 454 grams	30.00	22.50	19.50			
02243	PROTEIN ISOLATE (Whey) Chocolate • 437 grams	30.00	22.50	19.50			
02242	PROTEIN ISOLATE (Whey) Vanilla • 403 grams	30.00	22.50	19.50			
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			
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							
02302	QUERCETIN (Bio) • 30 veg. caps	12.00	9.00	8.00			
01309	QUERCETIN (Optimized) • 250 mg, 60 veg. caps	22.00	16.50	15.00			
02169	RAINFOREST BLEND GROUND COFFEE • 12 oz. bag	13.00	9.75				
02173	RAINFOREST BLEND GROUND COFFEE Natural Mocha • 12 oz. bag	15.00	11.25				
02172	RAINFOREST BLEND GROUND COFFEE Natural Vanilla • 12 oz. bag	15.00	11.25				
02171	RAINFOREST BLEND WHOLE BEAN COFFEE 12 oz. bag	13.00	9.75				
02170	RAINFOREST BLEND DECAF GROUND COFFEE 12 oz. bag	14.00	10.50				
01030	RED YEAST RICE (Bluebonnet) • 600 mg, 60 veg. caps	18.08	13.56				
00605	REGIMINT • 60 enteric-coated caps	19.95	14.96	14.00			
01708	REISHI EXTRACT MUSHROOM COMPLEX • 60 veg. caps	30.00	22.50	20.25			
01448	REJUVENEX® BODY LOTION • 6 fl. oz	24.00	18.00	14.85	12.75		
01621	REJUVENEX® FACTOR 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			
02210	RESVERATROL • 100 mg, 60 veg. caps	32.00	24.00	21.00			
02230	RESVERATROL (Optimized) • 60 veg. caps	45.00	33.75	30.00			
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			
01208	R-LIPOIC ACID (Super) • 240 mg, 60 veg. caps	49.00	36.75	33.75			
00070	RNA CAPSULES • 500 mg, 100 caps	17.95	13.46	12.12			
S							
01432	SAFFRON W/SATIEREAL® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
02175	SAMe (S-Adenosyl-Methionine) 200 mg, 30 enteric coated tablets	25.00	18.75	16.50			
02176	SAMe (S-Adenosyl-Methionine) 400 mg, 30 enteric coated tablets	36.00	27.00	24.00			
SUBTOTAL OF COLUMN 9							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
02174	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			
02301	SENOLYTIC ACTIVATOR • 24 veg. caps	24.00	18.00	16.00			
00318	SERRAFLAZYME • 100 tablets	18.00	13.50	12.00			
01626	SEX FOR WOMEN 50+ (Enhanced) • 90 veg. caps	59.00	44.25	34.00			
01938	SHADE FACTOR™ • 120 veg. caps	44.00	33.00	30.00			
02110	SHADE FACTOR™ SUNSCREEN LOTION • 4 fl. oz	20.00	15.00	13.00			
02118	SHADE FACTOR™ SUNSCREEN SPRAY • 6 fl. oz	22.00	16.50	14.25			
01884	SILYMARIN • 100 mg, 90 veg. caps	14.00	10.50	9.50			
02129	SKIN CARE COLLECTION ANTI-AGING SERUM • 1.75 fl. oz	60.00	45.00	37.50			
02132	SKIN CARE COLLECTION BODY LOTION • 6 oz	28.00	21.00	18.00			
02130	SKIN CARE COLLECTION DAY CREAM • 1.65 oz	50.00	37.50	33.00			
02131	SKIN CARE COLLECTION NIGHT CREAM • 1.65 oz	39.00	29.25	27.00			
02096	SKIN RESTORING CERAMIDES 30 liquid veg. caps	25.00	18.75	17.25			
01444	SLEEP (Quiet) • 60 veg. caps	13.00	9.75	7.50			
01445	SLEEP MELATONIN (Quiet) • 5 mg, 60 veg. caps	18.00	13.50	12.00			
01551	SLEEP W/ MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00			
01511	SLEEP W/O MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00			
00961	SODZYME® W/GLISODIN® & WOLFBERRY • 90 veg. caps	28.00	21.00	18.00			
00657	SOLARSHIELD® SUNGLASSES • Smoke color	12.99	9.74	8.63			
01097	SOY EXTRACT (Ultra) • 150 veg. caps	76.00	57.00	50.00			
01649	SOY ISOFLAVONES (Super Absorbable) • 60 veg. caps	28.00	21.00	18.75			
00432	STEVIA™ (Better) • 100 packets, 1 gram each	9.95	7.46				
00438	STEVIA™ ORGANIC LIQUID SWEETENER (Better) • 2 oz	11.00	8.25				
00987	STRESS RELIEF (Enhanced) • 30 veg. caps	28.00	21.00	18.00			
01476	STRONTIUM • 750 mg, 90 veg. caps	20.00	15.00	13.50			
01778	SUPER SELENIUM COMPLEX • 200 mcg, 100 veg. caps	14.00	10.50	9.00	8.25		
T							
02023	TART CHERRY W/CHERRYPURE® 60 veg. caps	20.00	15.00	14.00			
01827	TAURINE • 1,000 mg, 90 veg. caps	13.00	9.75	9.00			
02205	TEA CRYSTALS (Kenyan Green) • 14 stick packs	12.00	9.00	8.00			
02206	TEA CRYSTALS (Kenyan Purple) • 14 stick packs	18.00	13.50	12.00			
01918	TEAR SUPPORT W/MAQUIBRIGHT® • 60 mg, 30 veg. caps	18.00	13.50	12.00			
00133	L-TAURINE POWDER • 300 grams	20.00	15.00	12.66			
*13685	TEN MUSHROOM FORMULA® • 120 veg. caps	41.95	35.66				
01304	THEAFLAVIN STANDARDIZED EXTRACT • 30 veg. caps	18.00	13.50	12.00			
01683	(L) THEANINE • 100 mg, 60 veg. caps	24.00	18.00	15.38			
**01038	THERALAC® PROBIOTICS • 30 caps	47.95	35.96				
00668	THYROID FORMULA (Metabolic Advantage™) • 100 caps	21.95	16.46				
00349	TMG POWDER • 50 grams	14.00	10.50	8.25			
01859	TMG • 500 mg, 60 liquid veg. caps	13.00	9.75	9.00			
01400	TOCOTRIENOLS (Super Absorbable) • 60 softgels	30.00	22.50	21.00			
01278	TOOTHPASTE • 4 oz tube (Mint)	9.50	7.13	6.50			
SUBTOTAL OF COLUMN 10							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01917	TRANQUIL TRACT™ • 60 veg. caps	52.00	39.00	34.50			
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT 60 veg. caps	24.00	18.00	16.50			
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT W/RESVERATROL • 60 veg. caps	32.00	24.00	22.20			
02003	TRIPLE ACTION THYROID • 60 veg. caps	36.00	27.00	24.00			
01803	TRI SUGAR SHIELD® • 60 veg. caps	36.00	27.00	24.00			
01386	TRUFIBER™ • 180 grams	32.95	24.71				
01389	TRUFLORA® PROBIOTICS • 32 veg. caps	42.95	32.21				
01722	L-TRYPTOPHAN • 500 mg, 90 veg. caps	33.00	24.75	22.50			
01721	TRYPTOPHAN PLUS (Optimized) • 90 veg. caps	32.00	24.00	21.75			
02317	TWO-PER-DAY CAPSULES • 60 caps	13.00	9.75	8.50			
02314	TWO-PER-DAY CAPSULES • 120 caps	24.00	18.00	16.00			
02316	TWO-PER-DAY TABLETS • 60 tablets	12.00	9.00	7.50			
02315	TWO-PER-DAY TABLETS • 120 tablets	23.00	17.25	15.50			
00326	L-TYROSINE • 500 mg, 100 tablets	13.50	10.13				
U, V							
01921	URIC ACID CONTROL • 60 veg. caps	24.00	18.00	16.50			
00213	VANADYL SULFATE • 7.5 mg, 100 veg. tablets	15.00	11.25	9.38			
02102	VENOFLOW™ • 30 veg. caps	52.00	39.00	36.00			
00408	VENOTONE • 60 caps	18.95	14.21	12.00			
01327	VINPOCETINE • 10 mg, 100 veg. tablets	18.00	13.50	10.50			
00372	VITAMIN B3 NIACIN • 500 mg, 100 caps	7.65	5.74	4.99			
02028	VITAMIN B5 • 500 mg, 100 veg. caps (Pantothenic Acid)	14.00	10.50	9.50			
01535	VITAMIN B6 • 250 mg, 100 veg. caps	12.50	9.38	8.25			
00361	VITAMIN B12 • 500 mcg, 100 lozenges	8.75	6.56	5.44			
01634	VITAMIN C W/DIHYDROQUERCETIN 1,000 mg, 60 veg. tablets	10.00	7.50	6.75			
00927	VITAMIN C W/DIHYDROQUERCETIN 1,000 mg, 250 veg. tablets	30.00	22.50	20.00			
00084	VITAMIN C POWDER (Buffered) • 454 grams	28.00	21.00	19.00			
01736	VITAMIN C-MAGNESIUM CRYSTALS (Effervescent) • 180 grams	20.00	15.00	13.50			
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			
02244	VITAMIN D3 LIQUID • 2,000 IU, 1 fl. oz, unflavored	28.00	21.00	18.75			
02232	VITAMIN D3 LIQUID • 2,000 IU, 1 fl. oz, mint flavor	28.00	21.00	18.75			
02040	VITAMINS D AND K W/SEA-IODINE™ • 60 caps	24.00	18.00	16.50			
01863	VITAMIN E (Super) • 400 IU, 90 softgels	28.00	21.00	19.50	18.00		
01936	VITAMIN K2 (Low dose) • 45 mcg, 90 softgels	18.00	13.50	12.00			
W							
01902	WAIST-LINE CONTROL™ • 120 veg. caps	42.00	31.50	28.50			
***02146	WELLNESS™ BAR • Chocolate Brownie • Box of 12 Bars	32.00	24.00				
***02147	WELLNESS™ BAR • Cookie Dough • Box of 12 Bars	32.00	24.00				
02220	WELLNESS™ SHAKE • Chocolate • 656 grams	50.00	37.50	34.00			
02219	WELLNESS™ SHAKE • Vanilla • 648 grams	50.00	37.50	34.00			
SUBTOTAL OF COLUMN 11							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
X, Y							
01919	X-R SHIELD • 90 veg. caps	15.00	11.25	9.75			
00409	XYLIWHITE™ MOUTHWASH • 16 fl. oz	10.00	7.50				
Z							
01813	ZINC HIGH POTENCY • 50 mg, 90 veg. caps	9.00	6.75	6.00			
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			
*01254	ZYFLAMEND™ WHOLE BODY • 120 liquid veg. caps	72.95	54.71				
BOOKS							
33842	HEART ATTACK PROOF by Michael Ozner, MD • 2018	19.95	11.99				
33998	THE RIGHT TO TRY by Darcy Olsen • 2016	26.99	20.24				
33875	DOCTORED: THE DISILLUSIONMENT OF AN AMERICAN PHYSICIAN • by Sandeep Jauhar • 2015	26.00	19.50				
33874	MISSING MICROBES • by Martin J. Blaser, MD • 2014	28.00	21.00				
DPT05	DISEASE PREVENTION AND TREATMENT, FIFTH EDITION (Hardcover) • 2014	69.95	39.95	36.00			
33862	I'M TOO YOUNG FOR THIS • by Suzanne Somers • 2013	26.00	19.50				
33835	PHARMOCRACY • by William Faloon • 2011	24.00	9.60	8.00			
33838	YOUR GUIDE TO HEALTHY SKIN THE NATURAL WAY by Gary Goldfaden, MD • 2012	26.00	15.00				
33815	KNOCKOUT • by Suzanne Somers • 2009	25.99	17.00				
34132	TWO'S COMPANY: FIFTY YEAR ROMANCE by Suzanne Somers • 2017	26.00	19.50				
33867	THE COMPLETE MEDITERRANEAN DIET by Michael Ozner, MD • 2014	19.95	9.99				
SUBTOTAL OF COLUMN 12							

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## LifeExtension® Magazine



### 7 ANOTHER YEAR OF VINDICATION

A landmark 2018 **Prostate Cancer Prevention Trial** showed that the drug **finasteride** slashed **prostate cancer risk** by around **25%**.



### 40 DIETARY APPROACHES SLASH PROSTATE CANCER RISK

The prostate gland of most aging men harbor malignant cells, but the right diet can prevent progression to clinically relevant **prostate cancer**.



### 64 LINK BETWEEN GUM DISEASE AND AGING

Two **oral probiotics** *boost* gum health by rebalancing the oral microbiome to reduce plaque and bleeding gums.



### 28 PREVENT HOLIDAY WEIGHT GAIN

A clinically tested intermittent nutrition program *prevents* **holiday weight gain** while *reducing* vascular risk markers.



### 55 OLIVE OIL PROTECTS AGAINST OSTEOPOROSIS

A human study shows that people consuming **extra virgin olive oil** have a **51%** lower risk of bone fractures.



### 76 50 YEARS OF CONSISTENT SCIENTIFIC FINDINGS

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