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SEPTEMBER/OCTOBER 2022

FEATURE ARTICLES

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Plus page 46 – Feel Better Faster

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Gerontology. 1996;42(3):170-80.

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Ralph W. Moss, PhD, is the author of books such as Antioxidants Against Cancer, Cancer Therapy, Questioning Chemotherapy, and The Cancer Industry, as well as the award-winning PBS documentary The Cancer War. Dr. Moss has independently evaluated the claims of various cancer treatments and currently directs The Moss Reports, an updated library of detailed reports on more than 200 varieties of cancer diagnoses.

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Xiaoxi Wei, PhD, is a chemist, expert in supramolecular assembly and development of synthetic transmembrane nanopores with distinguished selectivity via biomimetic nanoscience. She has expertise in ion channel function and characterization. She founded X-Therma Inc., a company developing a radical new highway towards non-toxic, hyper-effective antifreeze agents to fight unwanted ice formation in regenerative medicine and reduce mechanical icing.

In the News

Greater Vitamin C Intake Linked to Lower Cancer Risk

A comprehensive review that included 57 meta-analyses evaluating the association between **vitamin C** consumption and cancer found that *higher* intake of the vitamin was linked to a *lower* risk of many cancers, according to an article published in *Frontiers in Nutrition*.*

When digestive system cancers were evaluated, the *highest* intake of **vitamin C**, compared to the lowest, was associated with a **42%** decrease in the risk of esophageal cancer, a **34%** lower risk of stomach cancer and a **30%** lower risk of pancreatic cancer.

Additionally, among individuals whose vitamin C intake was highest, lung cancer risk was **17%** lower than in the group with the lowest intake.

Editor's Note: "Vitamin C consumption was associated with lower incidence of…total cancer occurrence," the authors stated.

* *Front Nutr.* 2022 Jan 20;8:812394.

Vitamin D Supplementation Reduces Palliative Cancer Patients' Need for Opioids

A *reduced* need for pain relief as well as *less* cancer-related fatigue were found in palliative cancer patients receiving supplemental **vitamin D**, compared to a placebo group, the journal *Cancers* reported.*

At the start of the double-blind, randomized placebo-controlled study, 244 cancer patients, all *deficient* in vitamin D, were given either high-dose vitamin D (**4,000 IU/day**) or a placebo for 12 weeks. Their opioid doses were assessed throughout the 12 weeks as a measurement of pain.

Those taking vitamin D had significantly lower increases in opioid doses during the study. This indicates a **reduced need for pain relief**. They also reported less cancer-related fatigue compared to the placebo group.

Editor's Note: "Correction of vitamin D deficiency may have positive effects on pain and fatigue in palliative cancer patients," the researchers concluded.

* *Cancers*. 2021; 13 (15): 3707.

Higher CoQ10 Levels Benefit Older Folks

A study found greater physical capacity and a reduction in blood factors related to cardiovascular disease among participants with *higher* plasma levels of CoQ10, a factor in the production of energy within the mitochondria of the cells, according to an article in *Antioxidants (Basel)*.*

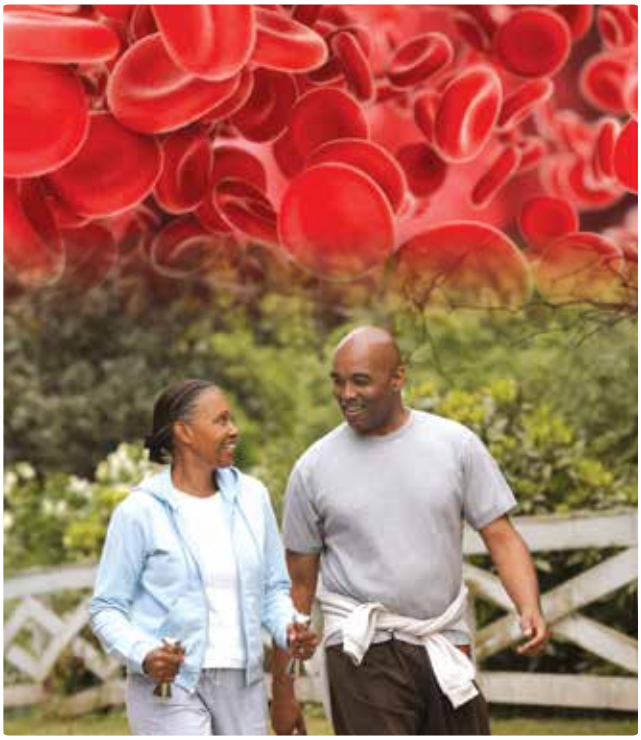
Participants included men and women aged 65 and older, with a majority being women.

Higher CoQ10 levels were significantly associated with lower cardiovascular disease risk. Having greater levels of CoQ10 also correlated with better physical activity.

Authors suggest the combination of CoQ10 with physical activity as an important therapy for the prevention of **sarcopenia** and the maintenance of physical capacity.

Editor's Note: "It is probable that supplementation with CoQ10 could improve physical capacity in addition to the known effects in the cardiovascular system. These relationships suggest that CoQ10 could be considered an important component for maintaining independence and health in aged individuals," the authors stated.

* *Antioxidants (Basel).* 2022 Jan 29;11(2):279.



Light to Moderate Coffee Drinking Can be Good for You

The *European Journal of Preventive Cardiology* published the largest observational study to date showing that drinking coffee was associated with a reduced risk of all-cause mortality, cardiovascular mortality, and stroke.*

For 11 years, researchers tracked data from 468,629 individuals who did not have heart disease at the start of the study.

Compared to non-coffee drinkers, light-to-moderate drinkers (**0.5-3 cups** per day) were found to have **12%** lower risk of all-cause mortality, **17%** lower risk of dying from cardiovascular disease, and **21%** reduction in the incidence of stroke.

Editor's Note: The researchers concluded that, "This favorable impact might be partly explained by lower Arterial Stiffness Index and subclinical alterations in cardiac structure and function."

* *Eur J Prev Cardiol.* 2022 May 6;29(6): 982-991.

Rates of PSA Testing Increase After Guidelines are Updated

In 2012, the US Preventive Services Task Force (USPSTF) issued guidelines advising *against* **PSA** screening in **all** men, endorsing, instead, *individual decision-making* in men aged 55-69. That led to a **decrease** in PSA screening.

In 2017, the USPSTF reversed those **guidelines**.

A **2022** review published in *JAMA Oncology* found that updated guidelines for PSA screening, have led to *significant increases* in men diagnosed with this cancer in all age groups having PSA blood tests.*

This translates into more men being diagnosed at an *earlier* stage when intent-to-cure treatments are more effective.

The USPSTF revised its guidelines because of intense efforts by groups like **Life Extension®** that relentlessly advocated for **PSA screening** in men over age 40.

Editor's Note: The Food and Drug Administration first approved PSA testing as a screening aid for the diagnosis of prostate cancer in 1994.

* *JAMA Oncol*. 2022 Jan 1;8(1):41-47.

Tocotrienol Form of Vitamin E Helps Prevent Obesity, Animal Study Finds

The journal *Molecules* reported that members of the vitamin E family known as tocotrienols may play a role in the prevention of weight gain, as shown in a mouse study.*

For 13 weeks, researchers fed mice either a high-fat diet or a control diet that was significantly lower in fat and calories, with or without **tocotrienols**.

Body weight was measured at the beginning and end of the study.

At the end of the study, animals given a high-fat diet predictably weighed more than those that received a control diet.

Mice that received **tocotrienols** gained less **weight** on the high-fat diet and had less white fat accumulation around the kidneys.

Editor's Note: "Additionally, tocotrienols also inhibited hepatic [liver] damage from obesity," the authors concluded.

* *Molecules*. 2022 Mar 28;27(7):2188.

Ergothioneine Levels Linked to Decrease in Dementia, Cognitive Impairment

Higher plasma levels of ergothioneine, an amino acid that occurs in certain **mushrooms** and other sources, may be associated with less dementia and cognitive impairment, according to an article in *Free Radical Biology & Medicine*.*

Researchers compared ergothioneine levels in plasma samples collected from 496 men and women recruited from memory clinics and the community.

Researchers observed that people with **dementia** had the lowest *plasma ergothioneine* concentrations.

A similar observation was seen in participants with cognitive impairment without dementia who had *intermediate* plasma ergothioneine levels compared to controls.

Low ergothioneine levels were significantly associated with risk of **Alzheimer's disease** with or without cerebrovascular disease determined by MRI *Decreased* ergothioneine levels were also associated with risk of vascular **dementia**.

Editor's Note: Higher plasma ergothioneine levels were correlated with greater global
cortical thickness of the brain, and volume of the brain's hippocampus (involved in memory and learning), indicating less atrophy.

One can boost ergothioneine blood levels by incorporating lots of mushrooms in the diet or taking a **5 mg** ergothioneine supplement daily.

* *Free Radic Biol Med.* 2021 Dec;177: 201-211.

Specialized Pro-Resolving Mediators Show Promise Against MS

Specialized pro-resolving mediators (SPMs) may play a role in the treatment of multiple sclerosis (MS), an autoimmune disease in which chronic inflammation occurs, the *Journal of Neuroinflammation* reported.*

SPMs, produced in the body from fatty acids (including omega-3s), help maintain a healthy post-inflammatory response. Because these fatty acids are not completely converted to SPMs, supplemental SPMs and their precursors may be beneficial.

In a mouse model of MS, SPMs were found to be below the limit of detection, while pro-inflammatory molecules derived from fatty acids were increased. The administration of SPMs to mice suppressed pro-inflammatory molecules, beneficially modified aspects of immune function, enhanced neurologic outcomes, and protected their nerves.

Editor's Note: "When resolution fails, inflammation becomes uncontrolled, leading to chronic inflammation and tissue damage, as occurs in multiple sclerosis (MS)," the authors stated.

* *J Neuroinflammation.* 2022 Feb 2;19(1):27.

Keep Your Heart Healthy & Your Brain Sharp

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*Also available in an unflavored powder that mixes easily into your favorite healthy beverage.

Fisetin

The Longevity Flavonoid

Fisetin, a flavonoid found in strawberries and apples, is currently being studied for its effectiveness as a **senolytic** in humans.[1]

In preclinical studies, fisetin:

- Mimics effects of **calorie reduction**[2]
- Targets longevity pathways[2-6]
- Extends lifespan of mice by about **10%**[7]
- Removes **senescent** cells through **senolytic** action[7]
- Inhibits excess **mTOR** activation[8]

Fisetin is poorly *absorbed* due to its breakdown in the small intestines.

Bio-Fisetin solves this problem by enclosing **fisetin** with a compound from the fenugreek herb.

A **human** trial showed **bioavailability** of this **fisetin** compound increased up to ***25 times*** compared to fisetin by itself.[9]

Just one capsule daily of **Bio-Fisetin** helps manage **senescent cells** and may support overall longevity.

Item #02414

30 vegetarian capsules

GLUTEN FREE

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This product is available at fine health food stores everywhere.

BANISH CONSTIPATION

and ITS HEALTH RISKS

BY MICHAEL DOWNEY

No one likes to talk about it, but about **15%** of Americans experience **constipation** on an ongoing basis. It can be unpleasant and uncomfortable.

Constipation increases with age, affecting approximately **34%** of women and **26%** of men 65 years and older.[1]

The risks go well beyond discomfort.

A 2019 study found that constipation is associated with a higher risk of **stroke**, **coronary heart disease**, and **all-cause mortality**.[2]

Changes to the gut microbiota associated with constipation might be related to **atherosclerosis**, a rise in **blood pressure**, and **cardiovascular events**.[3]

There's a unique way to counter those changes: a targeted **probiotic** strain that reduces constipation.[4]

For those who need immediate relief combinations of **magnesium + vitamin C** or **potassium + magnesium + vitamin C** are effective while providing the body with healthy nutrients.

Health Issues Linked to Constipation

Constipation can make life miserable. It's associated with a higher risk of heart disease, stroke, and overall mortality, as well as to a disrupted microbiota that may have negative effects throughout the body.[2,6]

Constipation is also linked to a higher risk of **cancer**. This may be due to increased inflammation or prolonged contact between **stool carcinogens** and the tissue lining the colon.[5]

A Probiotic Solution

Scientists focused on the beneficial bacteria known as **probiotics** as a possible solution.

After investigating more than **2,000** probiotic strains, scientists identified several strains derived from **yogurt** produced in New Zealand that had **probiotic** value *and* the ability to survive conditions similar to those in the human digestive tract.[7]

Of these, one **specific strain** *decreased* **colonic transit time**, the time it takes for food to move through the colon. This probiotic is ***Bifidobacterium lactis*** **HN019**.[4]

By moving stool along **faster**, scientists believed that this probiotic could help relieve existing constipation *and* many symptoms often associated with it, such as abdominal pain and gas.[4]

Clinical Study of Constipation

In a clinical trial of patients with **moderate constipation**, daily use of a unique **probiotic** for *two weeks* led to a:[4]

- **42%** decrease in constipation,
- **52%** decrease in abdominal pain, and
- **48%** decrease in nausea.

In addition to restoring regularity, this probiotic could help **prevent** some of the long-term health effects associated with constipation.

Impressive Clinical-Trial Results

To validate their hypothesis, scientists set out to test ***B. lactis* HN019** in a clinical trial.[4]

A total of 88 men and women ages 25 to 65 were divided randomly into three groups:[4]

- One group took **1.8 billion** colony-forming units (CFU) of ***B. lactis* HN019** once daily,
- Another took **17.2 billion** CFU of ***B. lactis* HN019** once daily, and
- A third group took a daily placebo.

After **14 days**, compared to the placebo group:[4]

- Those who took the lower ***B. lactis*** dose had colonic transit times that were **18.5 hours** faster, an improvement of **31%**.
- Those who took the higher daily dose of **17.2 billion** CFU of ***B. lactis*** had colonic transit times that were **28.1 hours** faster, an improvement of **57%**.

WHAT YOU NEED TO KNOW

Safe, Quick Constipation Relief

- Scientists have identified a probiotic strain, ***Bifidobacterium lactis* HN019**, that relieves ongoing constipation—without side effects.
- In a clinical trial, oral use of *B. lactis* HN019 decreased **colonic transit time** by up to **57%**, eased nausea and abdominal pain, and effectively restored normal bowel regularity in just ***two weeks***.
- In addition to reducing quality of life, **chronic constipation** may be associated with serious health issues, including higher rates of heart disease, cancer, and all-cause mortality.

For Immediate Relief

Life Extension long ago published a solution for **constipation** caused by insufficient **peristalsis**.

The term peristalsis refers to a series of organized muscle contractions that moves food through the digestive tract.[15]

Insufficient or ***ineffective peristalsis*** means there is not enough colon contractile activity, or the activity does not occur in the necessary rhythmic pattern needed to completely evacuate one's bowels.

The encouraging news is that if one **drinks** the proper **nutrient mix** on an **empty** stomach (usually first thing in the morning), a ***surge of peristalsis*** will occur within an hour that cleans out most or all fecal matter.

The most popular nutritional powders used for this purpose contain vitamin C with magnesium and/or potassium.

It is important to **drink at least one to two glasses of water** (**8 to 16 ounces**) after taking these powdered nutrient mixes as they will draw water from surrounding tissues into the colon to facilitate passage of feces.

By increasing the volume of **water** in the intestine in combination with **nutrients** that stimulate peristalsis, stools are softened, intestinal muscle contraction is stimulated, and bowel evacuation is prompted.

The most popular formula our customers use is a low-cost effervescent buffered blend comprised of **vitamin C + magnesium + potassium**.

Those with **chronic kidney disease** should not take the high doses of magnesium and potassium used to stimulate peristalsis. This is especially relevant to those with advanced kidney disease (stages 3 and 4).

Maintaining sufficient intake of **magnesium** and **potassium**, however, is critical for all individuals.

Subjects taking the *higher* dose improved their slower-than-normal colonic transit times into the **normal range**—within just **two weeks**.

Digestive discomfort questionnaires completed by the participants showed that in the *higher-dose* probiotic group the symptom frequency was, on average:[4]

- For constipation, decreased **42%**,
- For abdominal pain, decreased **52%**, and
- For nausea, decreased **48%**.

Taking this probiotic did not result in any adverse effects.[4]

How the Probiotic Works

Studies have provided insight into *how* ***B. lactis*** **HN019** may be able to reduce colonic transit time.[4,8,9]

Certain types of bacteria in the digestive tract act on food in the digestive tract, producing **short-chain fatty acids**, which are a source of **energy** for cells lining the colon. These fatty acids are essential to optimal gastrointestinal health.

Preclinical models have demonstrated that short-chain fatty acids interact with a protein within certain cells that exist alongside intestinal **epithelial** (surface) cells. This sets in motion a cascade of events that speeds up **colonic transit times**.[4,9-11]

A clinical study also revealed that use of *B. lactis* HN019 *increased* levels of two other beneficial bacteria, **bifidobacteria** and **lactobacilli**, and *decreased* levels of harmful **enterobacteria**.[12]

The net result of this gut microbiota rebalancing may be stimulation of **peristalsis** (the muscle contractions that move food through the digestive tract) and a shortening of colonic transit time.[4]

More Effective than Constipation Drug

Scientists at **Life Extension** compared this probiotic's clinical results to those of a prescription constipation medication called **prucalopride**.

They reviewed multiple clinical studies of prucalopride.[13]

Reviewers found that **prucalopride** improved colonic transit times by **20%**,[13] far *less* than the **57%** improvement seen in the high-dose ***B. lactis* HN019** trial.[4]

Prucalopride has been associated with multiple **side effects**, including headaches, abdominal pain, nausea, and diarrhea,[14] compared to no adverse side effects with the probiotic.[4]

This probiotic strain shows greater effectiveness at relieving and preventing constipation than a major prescription drug. This can help prevent serious, **long-term health effects**.

Summary

Constipation afflicts about a third of people over **60**. Beyond the discomfort and unpleasantness, there is even some thought that constipation may have an association with heart disease, cancer, and other serious health risks.

Clinical research showed that taking the probiotic strain ***Bifidobacterium lactis* HN019** decreased **colonic transit time** by up to **57%**, safely restoring regular bowel movements *within two weeks*. •

Prescriptions for Constipation

In difficult cases of patients with **chronic idiopathic constipation**, an ongoing condition that does not seem to have a cause, doctors may prescribe either Trulance® or Linzess®. These drugs are **prosecretory agents** which release water into the intestines and reduce bowel transit time. Without insurance, these drugs can cost over **$500** for a thirty-day supply.

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Brian
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A Brain-Specific MAGNESIUM Relieves Stress

BY STUART SANCHEZ

In a **2022** report, the **American Psychological Association** noted that **73%** of U.S. adults say they feel "*overwhelmed by the number of crises facing the world right now.*"[1]

Chronic stress has been linked to:[2,3]

- Anxiety and depression
- Cardiovascular disease
- Obesity
- Menstrual problems
- Sexual dysfunction
- Gastrointestinal problems
- Hair and skin conditions

People suffering from **stress-related** symptoms, depression, or anxiety often have low blood levels of **magnesium**.[4]

In a follow-up analysis of a clinical study, it was found that approximately **44%** of participants screened for stress were **magnesium** deficient.[5]

Preclinical studies found that a specific form of magnesium called **magnesium acetyl taurate** *increased* brain tissue levels of magnesium more effectively than other forms of magnesium tested.[6,7]

Magnesium acetyl taurate was recently tested in women with **premenstrual syndrome** over a duration of three menstrual cycles, who had inadequate magnesium intake from food.[8]

Researchers found improved scores for **symptoms of stress** including nervous tension, anxiety, irritability, headache, fatigue, and depression in women supplementing with **magnesium acetyl taurate** twice daily.

The Magnesium-Stress Connection

Decades ago, researchers first noticed a link between **magnesium** and **stress**.[9,10]

Many of the frequently-reported symptoms of **stress**—fatigue, irritability, anxiety, headache, and upset stomach—are the *same symptoms* commonly found in patients with **magnesium deficiency**.[4]

As scientists explored the connection, they discovered that it goes both ways:[4,11]

- The body's responses to stress lead to a *loss* of magnesium in the urine, over time creating a magnesium deficiency.
- *Low* magnesium levels make people *more* susceptible to stress, increasing release of stress hormones like **adrenaline** and **cortisol**, which can be harmful if their levels remain elevated.

This can create a **vicious circle**. As low magnesium levels make the effects of stress more severe, that further reduces magnesium levels, making people even more susceptible to stress, and so on.[4]

On the other hand, maintaining **adequate magnesium** levels helps protect against stress and other conditions.

Magnesium is an important cofactor for the synthesis of **serotonin**, a neurotransmitter closely linked to positive mood and feelings of **calm**. Most antidepressant and anti-anxiety medications act at least partially by modulating serotonin neurotransmission.[4,11]

Magnesium can also inhibit release of the stress hormone cortisol from the adrenal gland.[12]

Unique Brain-Targeted Magnesium

Scientists identified a specific form of magnesium that, taken orally, can rapidly increase **brain levels** of magnesium.

Magnesium acetyl taurate is magnesium combined with a form of the amino acid **taurine**. The combination makes it easier for the magnesium to cross the blood/brain barrier.

Studies have found that this form of magnesium was more easily ***absorbed*** into the **brain** than the other forms of magnesium tested.

In one study, rats were given either **magnesium acetyl taurate** or two other common forms of magnesium, magnesium sulfate and magnesium oxide.[6] Brain tissue and blood magnesium levels were significantly higher after eight hours in the group receiving **magnesium acetyl taurate.**

Another preclinical study pitted **magnesium acetyl taurate** against four other common forms of magnesium: magnesium sulfate, oxide, citrate, and malate.[7]

Again, brain levels of magnesium were significantly *higher* in the group receiving **magnesium acetyl taurate** than with control or *any* of the other forms of magnesium tested.

This study also found that **magnesium acetyl taurate** was associated with decreased **anxiety** indicators in rodents.

This form of magnesium has also shown promise in an early study in **humans**.[8]

Easing Stress

Researchers enrolled adult women with symptoms of **premenstrual syndrome** who had inadequate magnesium intake in their diet.[8] Premenstrual syndrome can cause symptoms similar to those of **stress**.

After receiving **385 mg** of **magnesium acetyl taurate** twice daily over a series of three consecutive menstrual cycles, scores for numerous symptoms were significantly reduced, including those for nervous tension, anxiety, irritability, headache, fatigue, and depression.

Intake of this form of magnesium may promote calm and help people cope with symptoms of stress and anxiety, whatever the cause.

WHAT YOU NEED TO KNOW

Relief for Stress and Anxiety

- Chronic stress is associated with **cardiovascular disease**, obesity, anxiety, depression, and more.
- The close link between stress and **magnesium** in the body has gained interest by researchers. Having low magnesium levels increases susceptibility to stress and its negative health consequences.
- One specific form of magnesium, **magnesium acetyl taurate**, was found to be superior to other forms tested in raising brain levels of magnesium.
- In a human study, taking **385 mg** of **magnesium acetyl taurate** twice daily reduced premenstrual syndrome symptoms that are similar to those of stress, including anxiety, irritability, headache, fatigue, and depression.

The Importance of Magnesium

Magnesium is an important essential mineral in the body.[4,5]

It is involved in most major metabolic and biochemical processes and serves as a **cofactor** ("helper molecule") for more than **300** different enzymatic reactions.[4,5]

Low magnesium has been tied to numerous health problems, including cardiovascular disease, diabetes, osteoporosis, depression, and anxiety.[11,13]

Suboptimal levels of magnesium are more common than most people realize.

It has been estimated that **64%** of all men and **67%** of women in the U.S. have inadequate dietary intake of magnesium. More than **80%** of people over the age of 71 have an inadequate dietary intake of magnesium.[14]

Making matters worse, excessive sodium intake, high alcohol and caffeine intake, and some medications (including **proton pump inhibitors** for acid reflux) can further contribute to lower magnesium levels.[4]

Summary

Chronic **stress** can be extremely harmful, increasing the risk cardiovascular disease, obesity, and other conditions.

The close link between stress and levels of **magnesium** in the body has sparked the interest of researchers.

A specific form of magnesium called **magnesium acetyl taurate** improves the bioavailability of magnesium and was found to be more effective at raising brain levels of this essential mineral than the other forms of magnesium tested. •

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Cancer-Fighting Properties of CRUCIFEROUS VEGETABLES

BY STEPHEN RAMON

The anti-cancer effects of **cruciferous vegetables** like **broccoli** have long been researched.

Studies show that *higher* intake of these **vegetables** is associated with a reduced risk of many cancers.[1,2]

Two established cancer-fighting plant compounds found only in **cruciferous vegetables** are:

SULFORAPHANE
and
DIM (3,3'-DIINDOLYLMETHANE)

Research suggests these plant compounds target **six** different **pathways** to impede the development of cancer and slow progression of existing cancer.

DIM is readily **bioavailable** to the body, but it is challenging to obtain **sulforaphane** from mature broccoli.

This article updates readers on the cancer-fighting properties of **sulforaphane** and how to deliver it to the small intestine for *systemic* **absorption**.

Benefits of Cruciferous Vegetables

The **cruciferous vegetables** include:

- **Broccoli**
- **Cabbage**
- **Cauliflower**
- **Kale**
- **Brussels sprouts**
- **Collard greens**
- **Bok choy**
- **Arugula**
- **Watercress**
- **Radishes**.

Vegetables in this family contain a wide range of nutrients, including flavonoids, carotenoids, and minerals.[3,4]

Dietary intake of **cruciferous vegetables** like broccoli and cauliflower has been demonstrated to reduce **cancer risk**.[5-7]

High intake of **cruciferous vegetables** is also associated with better **survival rates** in patients already diagnosed with cancer.[8,9]

Two unique compounds present in the cruciferous family, **sulforaphane** and **DIM (3,3'-diindolylmethane)**, modulate pathways involved in cancer development and progression.[10-13]

They work in multiple ways to block the development of cancer *and* to make it difficult for cancer cells to grow and survive.

Promising Sulforaphane Studies

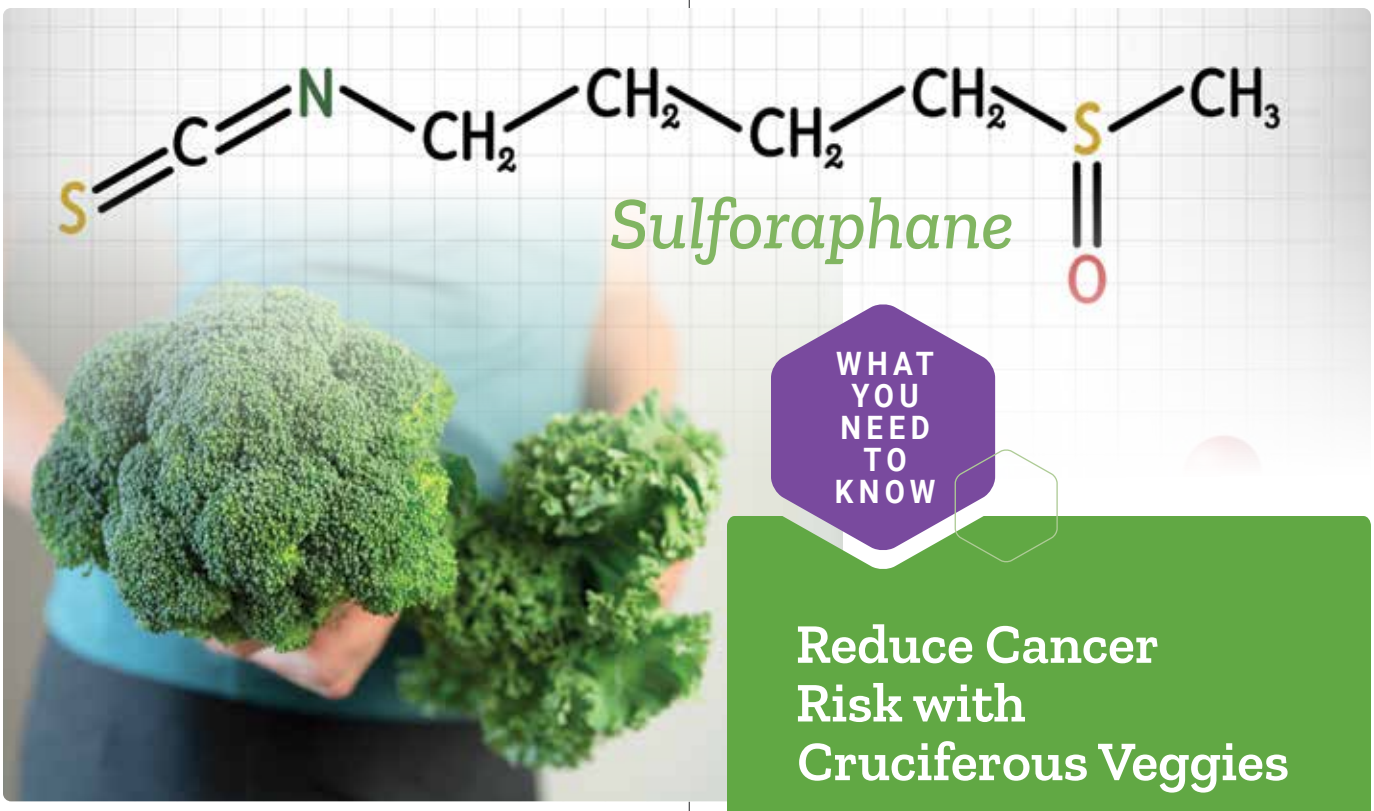
A study published in **2021** evaluated the effect of **sulforaphane** on human **glioblastoma** cells.[14] Glioblastoma is an aggressive cancer of the brain or spinal cord that is often incurable.

Sulforaphane ***stopped the growth of cancer cells*** in their tracks. It also caused the cancer cells to begin to ***die off***.

Similar results have been seen in other human cancer cell lines, including **prostate** and **breast** cancers.[15-21]

Sulforaphane has shown promise in animal studies as well.[22] In one, rats were given a potent carcinogen. In the group of animals that did *not* receive sulforaphane, **68%** developed tumors.

In rats given **sulforaphane**, just **39%** developed tumors. And in treated rats that *did* develop tumors, the tumors were smaller *and* slower growing.



One recent study indicates that **sulforaphane** may be effective when used alongside certain conventional anti-cancer drugs.

Scientists tested **stomach cancer** cells, some of which were sensitive to the anti-cancer drug **lapatinib** and some which were resistant to the drug.[23]

Combining **lapatinib** and **sulforaphane** stopped the growth and spread of *both* types of cancer and killed off the cells—even cells previously **resistant** to the drug.

Improving the Delivery of Sulforaphane

Sulforaphane is an unstable compound that rapidly degrades into non-active substances if it isn't quickly ***absorbed*** or if the vegetable is cooked. Interestingly, it isn't even present in cruciferous vegetables themselves.

Instead, a precursor called **glucoraphanin** is stored inside the cells of these plants. In a separate compartment in these cells there is an *enzyme* called **myrosinase**.

When these two are combined, the **myrosinase** converts the **glucoraphanin** into **sulforaphane**.

This is what happens when the vegetable is eaten **raw**. During digestion, sulforaphane is formed. Then, before it degrades, it can be absorbed within the small intestine.[2,5,24]

WHAT YOU NEED TO KNOW

Reduce Cancer Risk with Cruciferous Veggies

- **Cruciferous vegetables** include broccoli, cabbage, kale, cauliflower, Brussels sprouts, and more. Studies show that diets high in these vegetables protect against many forms of **cancer**.
- Two nutrients derived *only* from cruciferous vegetables have been shown to possess potent cancer-fighting abilities: **sulforaphane** and **DIM (3,3'-diindolylmethane)**.
- These compounds limit the ability of cancer cells to grow, divide, and spread, and they cause cancer cells to die off.
- **Sulforaphane** is unstable. Scientists have solved this problem by packaging a sulforaphane precursor with an enzyme that only converts it into sulforaphane *in the body*. That way it can be rapidly absorbed in the digestive tract.

But maximizing these anti-cancer benefits would require the consumption of massive amounts of raw cruciferous vegetables or cruciferous sprouts.

The challenge for scientists was to find a way to deliver **glucoraphanin** and **myrosinase** separately to the small intestine.

One group of scientists came up with an ingenious solution that copies nature.

They isolated **glucoraphanin** and **myrosinase** from broccoli, then developed a unique delivery system that keeps them separate, *just the way plants do*.

A dual-layered tablet was given an enteric coating to prevent its ingredients from being released until it reaches the small intestine.

With this delivery system, the compound **glucoraphanin,** and the enzyme **myrosinase** meet and mix in the small intestine. There, they come together to create **sulforaphane**, just as nature planned.

The results have been striking. Research at the Johns Hopkins University School of Medicine demonstrated that **sulforaphane** levels from this **glucoraphanin-myrosinase** mix are **three** to **four times** more bioavailable (absorbable) than those created by glucoraphanin supplementation alone.[25]

Six Anti-Cancer Mechanisms

DIM and **sulforaphane** act in **SIX** different ways to help prevent the development of cancer and to slow the spread of existing cancer.

IMPEDING CANCER CELL GROWTH

Both compounds can arrest the **cancer cell cycle**, interfering with the ability of tumor cells to grow.[14-17,19,21]

They also block the formation of new blood vessels in tumors, starving them of nutrients and oxygen.[16,26-28]

Type 2 transglutaminase is a cancer cell survival protein in several forms of cancer. A study published in **2022** showed that **sulforaphane** attaches itself to this protein, *blocking* its activity.[29] This further shuts down cancer cells' ability to survive.

KILLING OFF CANCER

When normal cells become damaged, they're supposed to die off through a process known as **apoptosis** (programmed cell death).

Many cancer cells evolve to *shut off* apoptosis. **DIM** and **sulforaphane** have been found to turn apoptosis *back on*, initiating **cancer cell death**.[16,18,20]

REDUCING HARMFUL EPIGENETIC CHANGES

Cancer can also be caused by **epigenetic** changes, which happen when genes are turned "on" or "off," making them active or inactive.

Both sulforaphane and DIM ***reduce epigenetic changes*** that contribute to tumor development.[11,30-32]

STIMULATING CELLULAR PROTECTION

Nrf2 is a protein that regulates **cellular protection**. *Activating* Nrf2 turns on different genes that protect cells against stress and injury.[33]

For example, Nrf2 activates enzymes that help eliminate **mutagens** and other toxins.[34,35]

Many of sulforaphane's benefits stem from its activation of the Nrf2 pathway.[33]

REDUCING CHRONIC INFLAMMATION

DIM and sulforaphane both inhibit the action of **nuclear factor-kappa B (NF-kB)**, a regulatory protein that contributes to chronic inflammation.[36-38]

This **anti-inflammatory** effect helps prevent cancer and other chronic health conditions.

FIGHTING HORMONE-DRIVEN CANCER STIMULATION

Some **prostate** and **breast cancers** are stimulated by forms of **estrogen**. DIM shifts estrogen balance *away* from an estrogen form that promotes tumor cell growth and *toward* a form that inhibits it.[39,40]

In women with a history of **breast cancer**, daily DIM intake increased the proportion of "good" estrogen and reduced the forms linked to faster cancer progression.[39,40]

In men, higher estrogen levels are associated with prostate enlargement and cancers. In a cell study, DIM prevented estrogen-induced stimulation of prostate cancer cells.[41]

Summary

Many studies show that *higher* intake of **cruciferous vegetables** protects against **cancer**.

These vegetables are a source of two compounds that have demonstrated strong anti-cancer activity: **DIM (3,3'-diindolylmethane)** and **sulforaphane**.

Both compounds can stop cancer cell development and growth in their tracks.

Sulforaphane intake has previously been problematic because it is so unstable. A novel two-layer formula enables the nutrient to be bioavailable for ***absorption*** into the bloodstream. •

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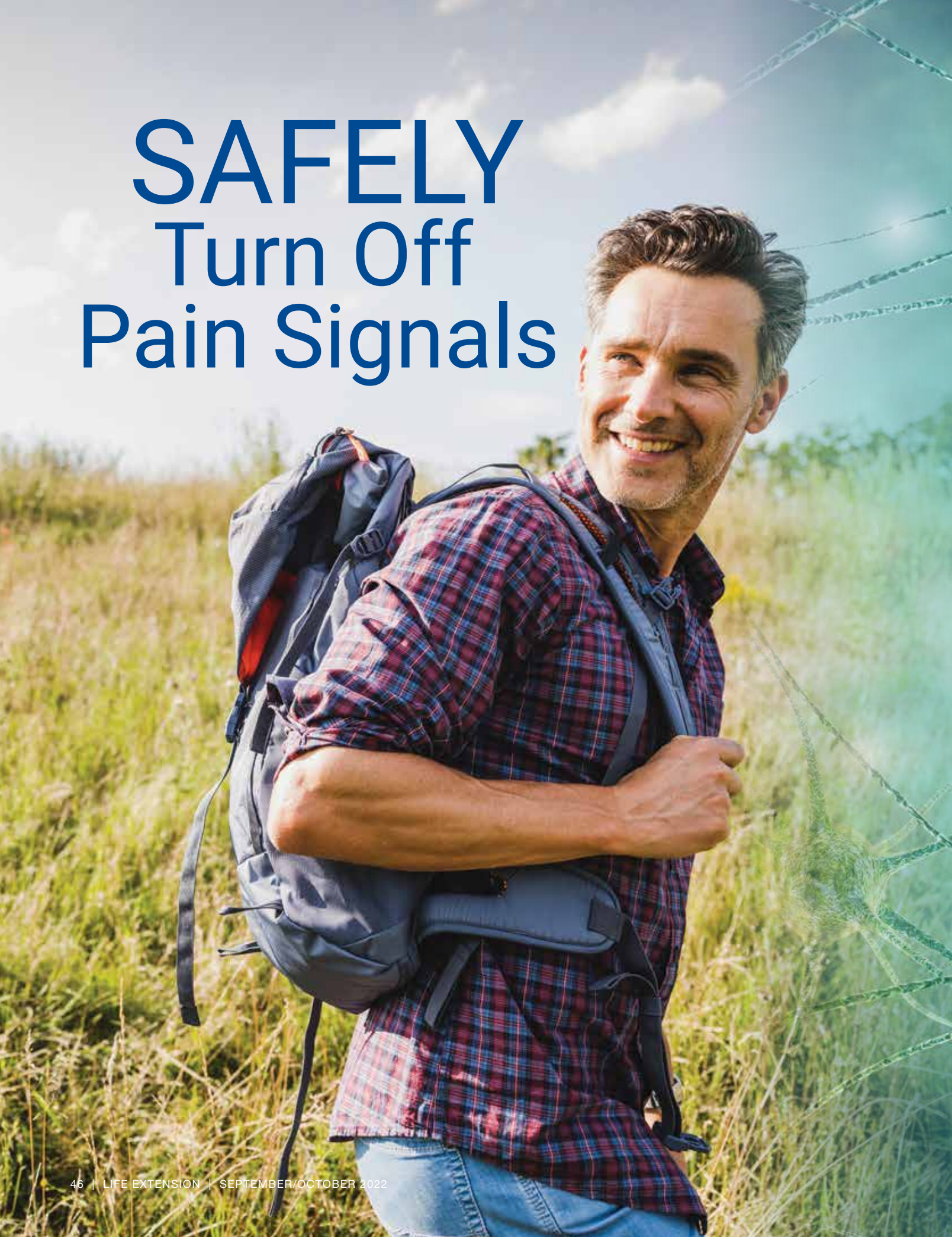

BY NATHAN RAWLING

A **March 2022** study published in the *Pain Journal* revealed a striking statistic:

More than **one in five** U.S. adults reported suffering from **chronic pain**.[1]

Pain medications can help temporarily. But long-term use poses health risks.

A safer alternative is needed. That is where **PEA** comes in.

Palmitoylethanolamide, or **PEA** for short, is a fatty acid made in the body.

Scientists have found that it works in unique ways to ***reduce inflammation*** and ***relieve pain***—without worrisome side effects.[2]

In human trials, **PEA** has been shown to reduce pain associated with common conditions, including:[2-9]

- Arthritis,
- Sciatica,
- Migraine headache,
- Carpal tunnel syndrome, and
- Other types of nerve and joint pain.

In a study of people suffering from jaw joint pain, just ***two weeks*** of PEA use resulted in greater pain reduction and improvement in jaw mobility than high-dose **ibuprofen**.[10]

The Problems with Pain Medications

Two common classes of medication used to treat pain are **non-steroidal anti-inflammatory drugs (NSAIDs)** and **opioids**.

NSAIDs include over-the-counter drugs like **ibuprofen** (**Advil®**, **Motrin®**), **naproxen** (**Aleve®**), and high-dose **aspirin**.

These drugs can be effective at managing some forms of inflammation-related pain, but they come with side-effect risks.

Even *short-term* use of some NSAIDs has been found to be associated with increased risk of **heart attack** and **stroke**.[11-13]

Opioid medications are even *more* problematic because they are side-effect prone and often addictive.[14-16]

The leading cause of acute **liver failure** in the United States is **acetaminophen** toxicity.[17] Regular use of **acetaminophen** is associated with increased risk of **kidney damage**, **kidney cancer**, and **dementia**.[18-20]

Scientists began looking for a safer way of controlling pain. They found it in **palmitoylethanolamide (PEA)**, a compound produced in the body.

PEA and Inflammation

PEA is a fatty acid found in the body that lowers **inflammation**.

Animal studies show that PEA modulates inflammatory and oxidative pathways and significantly relieves chronic inflammatory and neuropathic pain.[21,22]

Several clinical trials have established the validity of PEA as a powerful pain reliever.[8,23]

Unlike commonly used pain-relieving drugs, PEA has no documented cardiovascular or renal risk.[8] Clinical studies on PEA highlight its safety and efficacy even when used in combination with common pain relievers.[4,6]

Reducing Chronic Pain

Several human studies have evaluated the ability of PEA to control **chronic pain**.

One of the most remarkable findings coming out of these studies is that PEA is effective at reducing pain for a *wide range* of underlying conditions, including:

- Headache,
- Nerve pain,
- Joint pain,
- Back pain, and
- Other types of pain.

In patients with knee **osteoarthritis**, both **300 mg** and **600 mg** of PEA taken daily led to significant reductions in **pain scores** compared to a **placebo**.[3] PEA also significantly reduced scores on various scales evaluating joint stiffness, improved knee function, and reduced anxiety.

Sciatica is extremely common. Irritation of the fibers of the **sciatic nerve** running down the back of the leg can cause severe pain in the lower back, leg, and foot.

In a study, 636 patients with sciatica were randomized to receive either **300 mg** or **600 mg** daily of PEA or a placebo.[4] Both groups receiving PEA had improvements in pain and quality-of-life scores compared to placebo. Those taking the *highest* dose improved the *most*.

One study directly pitted **PEA** against **ibuprofen**, one of the most-used NSAIDs.[10]

People suffering from **temporomandibular joint pain** (affecting the joints of the jaw) received either PEA (**300 mg** in the morning and **600 mg** at night for one week, followed by **300 mg** twice a day for the second week) or high-dose ibuprofen.

WHAT YOU NEED TO KNOW

Fighting Pain with PEA

- **Chronic pain** is estimated to affect more than one in five adults in the U.S.
- Common pain medications such as **opioids** and **nonsteroidal anti-inflammatory drugs (NSAIDs)** are associated with serious health risks.
- Researchers have identified the fatty acid **palmitoylethanolamide**, or **PEA** for short, that works to reduce pain and harmful inflammation.
- Clinical studies of a wide range of pain types have shown that PEA intake relieves pain *without* harmful side effects.
- In one head-to-head study, two weeks of PEA intake led to ***greater pain reduction*** than the popular NSAID **ibuprofen**.

After two weeks, PEA resulted in ***greater pain reduction*** and improvement in jaw mobility than **ibuprofen**.

It doesn't stop there. Studies evaluating migraine headaches, carpal tunnel syndrome, arthritis, and a wide range of other types of pain have found that PEA significantly reduces pain intensity.[2,3,5-9]

In one study, patients with chronic pain who could not achieve adequate control using standard pain medications were given **600 mg** of **PEA** twice a day.[2] This treatment reduced pain scores in all patients who completed the study, regardless of their underlying condition.

All these studies found PEA to be well-tolerated with practically **no side effects**.

Summary

Chronic pain is extremely common, but medications to treat it are too often ineffective and carry troublesome side effects.

Three classes of common pain drugs, **NSAIDs**, **acetaminophen**, and **opioids** can have significant and potentially life-threatening side effects.

Scientists have identified a natural fatty acid called **PEA** that acts by several mechanisms to reduce **pain** and **inflammation**.

Several human clinical trials have shown that PEA can help treat a wide range of pain types, without dangerous side effects. •

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Alan
VERIFIED CUSTOMER REVIEW

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60 vegetarian lozenges

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PEA is a fatty acid found in the body that works at the site of discomfort.

Clinical studies show **PEA** can combat stubborn, minor discomfort within **14-30 days** of supplementation.[1-3]

Each chewable tablet delivers **600 mg** of **PEA** (**palmitoyle-thanolamide**).

"Very effective for minor aches."

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VERIFIED CUSTOMER REVIEW

RELIEF

FOR OCCASIONAL MINOR PAIN AND DISCOMFORT

Take one to two chewables daily as needed.

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60 vegetarian chewable tablets

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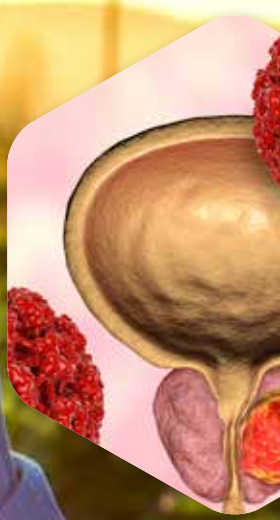
Foods and Nutrients That Help *Prevent* **PROSTATE CANCER**



BY MICHAEL DOWNEY

An estimated 268,000 American men will be **diagnosed** with **prostate cancer** during **2022**.[1]

Most men with **cancer cells** in their **prostate gland** are unaware of it.

Ingesting foods with anti-cancer activities, while avoiding foods that promote cancer propagation may:

- Lower risk of developing prostate cancer,
- Reduce need for aggressive therapies in those with low-grade disease, and
- Improve clinical outcomes in those treated for prostate cancer.

A **2022** meta-analysis found that **meat**, especially processed meat, may be associated with ***increased*** prostate cancer risk.[2]

Another recent study found that a *high* consumption of **vegetables, fruits,** and **whole grains** is strongly linked to ***protective effects*** against prostate cancer.[3]

Previous research has shown that specific foods can ***reduce*** prostate cancer risk and improve outcomes in those following an active surveillance (watchful waiting) program or undergoing curative treatment.

Diet, Nutrients, and Prostate Cancer

About **one in eight** men will be diagnosed with **prostate cancer** during his lifetime.[1]

However, regular consumption of certain **foods** is associated with **lower** rates of prostate cancer. By boosting intake of the following foods, men may significantly lower their risk.

Walnuts

Feeding **walnuts** to mice inhibits the **development** of tumors and decreases tumor **growth** and **size**. It also lowers levels of **IGF-1** (insulin-like growth factor 1), a protein associated with prostate cancer.[4]

Other animal and cell culture research shows that walnuts:[5,6]

- *Inhibit* the growth of prostate cancer **cells**,
- *Lower* **PSA** (prostate-specific antigen) levels, which may indicate prostate cancer when elevated, and
- *Reduce* the size of prostate **tumors**.

In **older men**, walnut intake improved biomarkers related to prostate and vascular health.[4]

Cruciferous Vegetables

An observational study found that men with a *high* consumption of **broccoli** and other **cruciferous vegetables** like cabbage, spinach, cauliflower, and kale have a **40%** lower risk of **invasive** prostate cancer.[7,8]

A meta-analysis concluded that cruciferous vegetable intake is associated with an ***overall reduced risk of prostate cancer***.[9]

These effects may be a result of cruciferous vegetables' abundance of beneficial compounds, including:[10-14]

- Glucosinolates,
- Indole-3-carbinol (I3C),
- 3,3'-diindolylmethane (DIM), and
- Phenethyl isothiocyanate (PEITC).

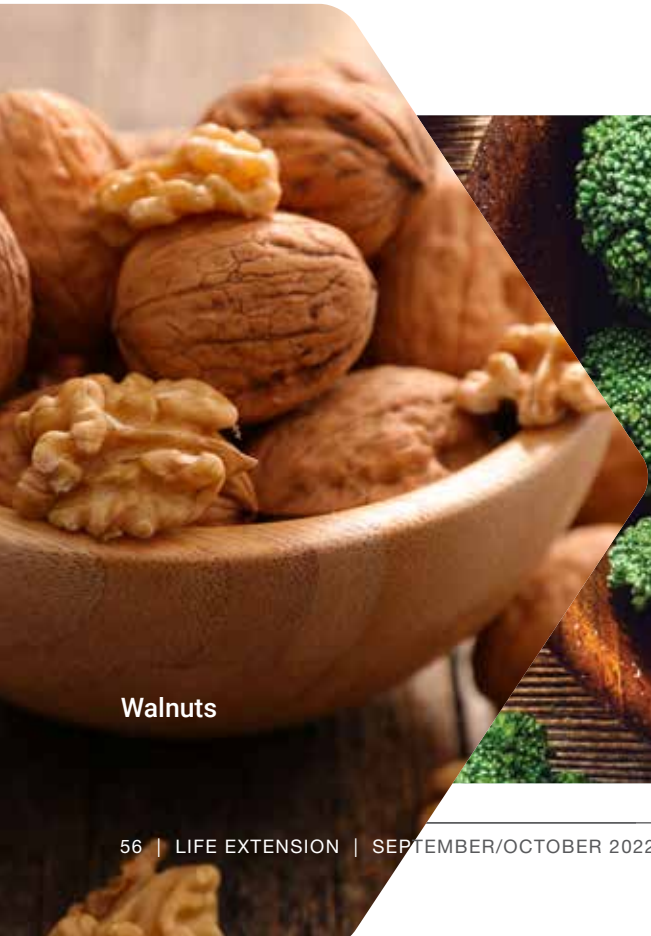
Flaxseed

In **human** studies, flaxseed intake has been shown to:[15]

- *Decrease* proliferation of **prostate cancer cells**, and
- *Reduce* proliferation of **tumors** in as few as 30 days.

Flaxseeds contain **lignans**, which are converted in the body into compounds called **enterolactones**.[16]

Men with *higher* levels of **enterolactones** have been shown to be *less likely* to have prostate cancer than men with low levels.[17]


Walnuts


Broccoli


Flaxseed

Coffee

A meta-analysis found that consuming **four** or more cups of coffee daily was linked to a reduced risk of **fatal** and **high-grade** prostate cancer, as well as a lower risk of **overall** prostate cancer.[18]

Additionally, a large epidemiological study found that, compared to drinking no coffee, drinking **six** cups of coffee (including decaffeinated) daily reduced the risk of prostate cancer by **18%** and lowered the risk of **lethal** prostate cancer by **60%**.[19]

Tomatoes

Lycopene is the carotenoid pigment that gives **tomatoes** their red color.

A systematic review of cell and animal studies found that lycopene decreases **androgen** metabolism and signaling, an important factor in prostate cancer growth and progression. [20]

Additional anti-cancer mechanisms of lycopene are believed to include inhibiting **inflammation** and reducing **oxidative stress** within prostate tissue.[21]

Lycopene is known to inhibit the growth of prostate cancer cells in vitro, and higher circulating levels have been associated with ***reduced prostate cancer risk***.[22,23] Above-average consumption of lycopene has been tied to a **59%** reduction in the risk of **death** from aggressive prostate cancers.[24]

A meta-analysis found a significant association between a *lower* risk of prostate cancer and consumption of **tomatoes**, **cooked tomatoes**, and **tomato sauce**. The *greater* the tomato consumption, the *greater* the risk reduction.[25]

To enhance the *absorption* of lycopene from tomatoes, eat them in processed form such as tomato sauce, or process them yourself by cooking and eating them with healthy fat, such as extra virgin olive oil.[26,27]


Coffee


Tomatoes

Prostate-Protecting Foods

- **One in eight** American men will be diagnosed with **prostate cancer** in his lifetime.
- Specific foods have been shown to exert **protective** effects against prostate cancer.
- These foods include walnuts, cruciferous vegetables, flaxseed, coffee, tomatoes, green tea, and pomegranate, supported by supplemental vitamin D and boron.

Pomegranate

In a phase II clinical trial of men with low-risk prostate cancer, prostate tissue samples from those who took **pomegranate fruit extract** daily for one year contained significantly *lower* levels of biochemical markers associated with **DNA damage** and **prostate cancer**.[28]

An earlier phase II trial was undertaken in men who had undergone surgery or radiation for prostate cancer and who subsequently showed rising PSA levels. Patients who consumed **eight ounces** of **pomegranate juice** daily had a delay in **PSA doubling time**, the time it takes for PSA levels to rise.[29]

Preclinical data show that **pomegranate** components **protect** against multiple aspects of prostate cancer including growth, progression, and spread, by inhibiting:[30-35]

- Tumor cell proliferation,
- Cell division,
- Invasiveness,
- Growth of new blood vessels, and
- Metastasis (spread).

A review found that three components of pomegranate exhibit these inhibitory effects on prostate cancer growth and spread: **luteolin**, **ellagic acid**, and **punicic acid**.[36]

Boron

A study found that men with the highest **boron** intake showed a **54%** lower risk of prostate cancer compared to those with the lowest intake. In addition, they reported that increased dietary boron intake was associated with a decreased risk of prostate cancer in a *dose-response* manner. [37]

In an animal model, scientists orally administered various concentrations of a boron-containing solution. This resulted in decreases in prostate tumor size by **25%** to **38%**. Remarkably, PSA levels dropped by an astounding **86%** to **89%** in the animals that received boron.[38]

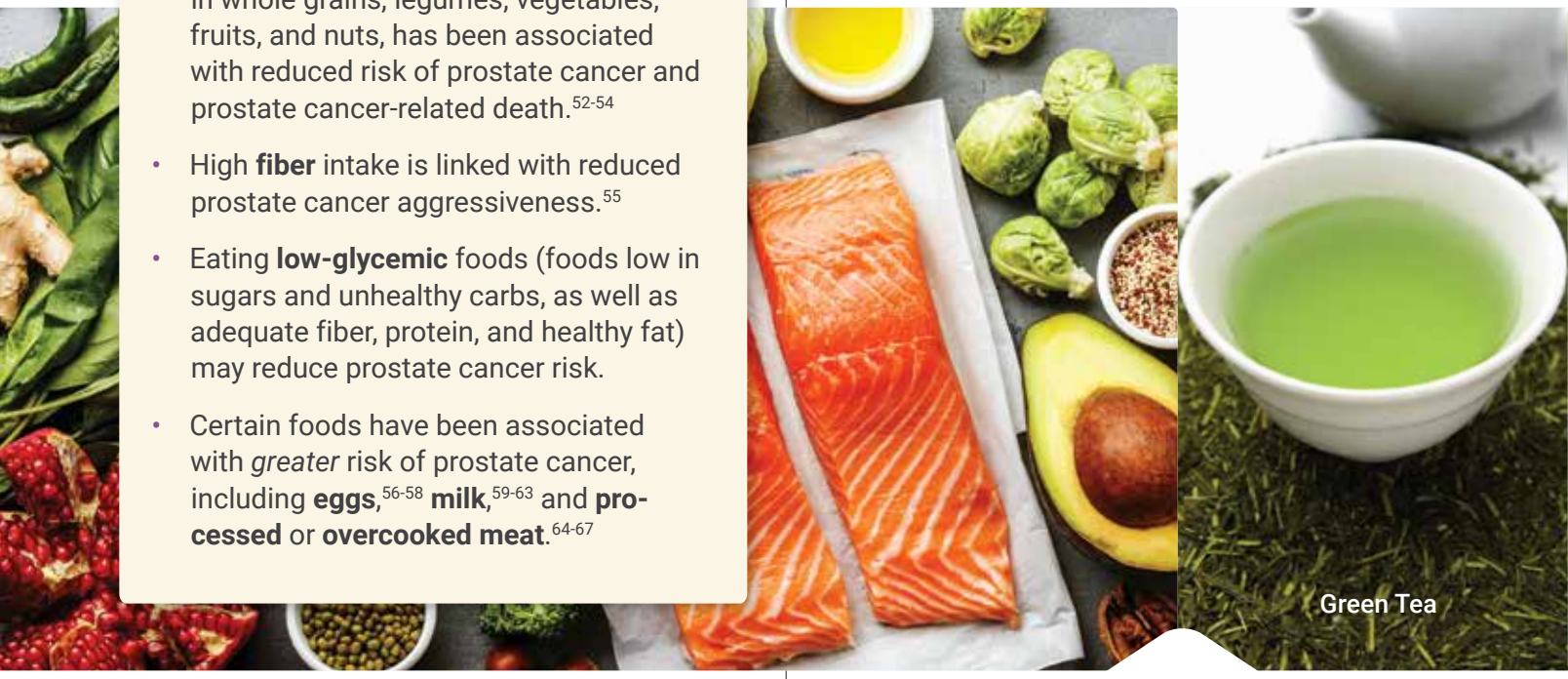
These findings suggest that supplemental boron may have both preventive *and* therapeutic effects—helping both to shrink prostate tumors and to decrease levels of PSA.

Green Tea

One clinical trial found that green tea catechins were **90%** effective in preventing prostate cancer in men with pre-malignant lesions. The researchers recruited 60 men, aged 45-75. Thirty participants received **200 mg** of green tea catechins **three times daily**, while the

More Dietary Tips

- The **Mediterranean diet,** which is rich in whole grains, legumes, vegetables, fruits, and nuts, has been associated with reduced risk of prostate cancer and prostate cancer-related death.[52-54]
- High **fiber** intake is linked with reduced prostate cancer aggressiveness.[55]
- Eating **low-glycemic** foods (foods low in sugars and unhealthy carbs, as well as adequate fiber, protein, and healthy fat) may reduce prostate cancer risk.
- Certain foods have been associated with *greater* risk of prostate cancer, including **eggs**,[56-58] **milk**,[59-63] and **processed** or **overcooked meat**.[64-67]



Green Tea

other 30 subjects received a placebo. Biopsies were conducted at six and 12 months.[39]

Remarkably, only **one** man in this pre-malignant **green tea** group was diagnosed with prostate cancer, compared to **nine** men in the control group who were diagnosed with the disease. No significant side effects or adverse reactions were reported. The lead researcher concluded that "***90%** of chemoprevention efficacy could be obtained by [green tea catechin] administration in men prone to developing prostate cancer*."[39]

Green tea polyphenols have also shown efficacy as an adjunctive therapy. Prostate cancer patients were given **1,300 mg** of green tea polyphenols, mostly EGCG, prior to the time of radical prostatectomy. They showed significant reductions in PSA and other tumor promoters such as ***vascular endothelial growth factor***.[40]

Vitamin D

Observational studies have shown cancer risk reductions of up to **50%** based on *higher* vitamin D status.[41,42] People with higher vitamin D levels have lower odds of ***lethal*** **prostate cancer**.[43]

It's difficult to get enough from food sources and there are risks with sun exposure. Scientists have determined that supplemental doses ranging from **5,000 IU** to **8,000 IU** daily can bring blood levels of vitamin D up to optimal ranges associated with reduced risk for chronic disease.

Regular blood testing is important to guide adjustments to these doses to achieve the maximum benefits.

Grapeseed

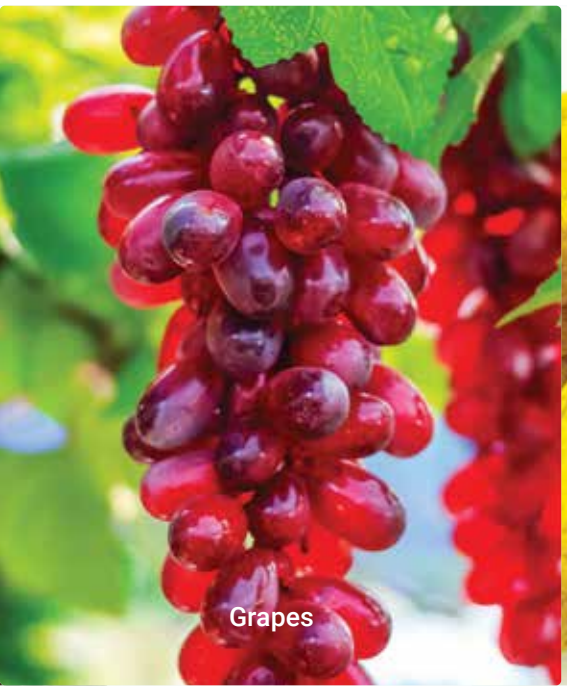
Grapeseed extract induced apoptosis (programmed cell death) in prostate cancer cells.[44] Grapeseed extract inhibited prostate cancer growth and progression in mice.[45]

A study found that men who supplemented with grapeseed extract reduced their risk of prostate cancer by **41%**. Moreover, high 10-year average use of grapeseed extract was associated with a **62%** reduction in prostate cancer risk.[46]

Curcumin

Curcumin induces apoptosis (programmed cell death), interferes with the spread of cancer cells, and regulates inflammatory responses.[47-50]

In one trial, 30 patients with castration-resistant prostate cancer and rising PSA received curcumin while undergoing treatment with docetaxel and prednisone. Improved PSA responses were noted in **59%** of participants.[51]


Grapes


Curcumin

Summary

Specific foods and drinks have been shown to be associated with a favorable influence on risk factors for, and mechanisms of **prostate cancer**.

Making walnuts, cruciferous vegetables, flaxseed, and other plant foods a consistent part of a healthy diet—further supported by supplemental vitamin D, boron and other nutrients—could potentially save lives and spare men the side effects of conventional treatments.

Consider cutting back or avoiding red meat, especially **processed meat** to further reduce risk of **prostate** and other **cancers**. •

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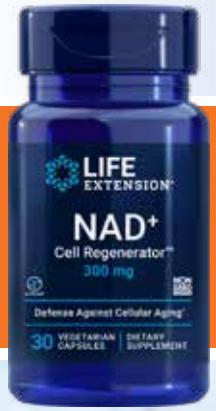

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How DOPAMINE

Protects the Aging Brain

BY MICHAEL DOWNEY

Dopamine is a **neurotransmitter** that promotes feelings of pleasure and reward, supports memory, attention, and more.[1]

As we age, increased activity of an *enzyme* called **monoamine oxidase B (**MAO-B) *degrades* dopamine, causing levels to fall.[2]

Lower dopamine levels can contribute to **reduced motivation** and **decreased enthusiasm** for things that would excite most people.

A solution is to ingest compounds that *inhibit* the **MAO-B** enzyme.

Scientists have found that components of **phellodendron** tree bark accomplish this in lab studies[3,4] and have **neuroprotective** effects in animals.[5-7]

Preclinical research also shows that a *specific form* of **vitamin B12** may protect neurons and help prevent a decline in dopamine levels.[8]

These compounds may help maintain motivation and feelings of pleasure, while reducing risk for neurodegenerative illnesses.

What is Dopamine?

Dopamine is often referred to as the "feel-good hormone" due to its role in regulating **mood**.[1]

The brain releases dopamine during pleasurable activities. ***Low*** dopamine levels are associated with **depression** and a lack of **motivation** and **pleasure**.[9]

But the brain uses dopamine for more than **mood elevation**.

This neurotransmitter also influences movement, learning, cognition, and memory.[10]

Dopamine enables youthful **cognitive** performance and body coordination.[11,12]

Dopamine *depletion* plays a role in certain **neurodegenerative** diseases, while *increasing* dopamine has been shown to **prolong lifespan in animals**.[1,13,14]

Dangers of Reduced Dopamine

In a region of the brain that plays a role in cognitive and motor function, levels of **dopamine** decline by about **13%** each decade after **age 45**.[15]

This decline coincides with an *increase* in the brain levels of **monoamine oxidase B (MAO-B)**, an enzyme that *degrades* neurotransmitters such as dopamine.[2]

Low dopamine levels are associated with depression, lack of motivation, and pleasure.[9] These mood and motivational changes also may be seen with normal aging in some people.

Rising **MAO-B** levels pose even more of a threat.

MAO-B activity is *higher* in **dementia** patients than in non-impaired individuals the same age,[16] suggesting a role in neurodegeneration.

One reason may be that increased MAO-B activity results in formation of potentially damaging by-products[2,17,18] that can contribute to neurodegenerative diseases such as **Parkinson's** and **Alzheimer's disease**.

Doctors frequently prescribe **MAO-B inhibitors** such as **deprenyl** (also called selegiline) to stop MAO-B degradation of dopamine in patients with Parkinson's disease.[19]

Inhibiting MAO-B activity helps *decrease* the breakdown of dopamine and the potential harm that can be done by too much enzyme activity. This helps protect our **aging brains**.

The Effects of Phellodendron

Scientists discovered that some **plants** have **MAO-B**-inhibiting properties.

After investigating hundreds of botanicals, they identified **phellodendron** tree bark as one of the most potent plant-derived MAO-B inhibitors.[3,4]

Phellodendron (no relation to the houseplant philodendron) is also known as **Amur cork tree**. It has been safely used in traditional Chinese medicine for centuries to treat various ailments.[5]

In lab research, extract of **phellodendron** bark selectively inhibited over **80%** of MAO-B activity, which is comparable to the drug **deprenyl**.[4]

This may enable dopamine levels to increase while blocking the neurotoxic effects of elevated MAO-B.

Phellodendron's neuroprotective properties go beyond MAO-B inhibition.[5,6,20]

In scientific studies, phellodendron protects against neuroinflammation, beta-amyloid production, and other changes associated with **Alzheimer's** disease, suggesting it may help to maintain **cognitive function** into older age.[20]

Phellodendron has also demonstrated anti-inflammatory, antibacterial, antiviral, and antitumor properties,[5] helping to protect both the brain and body.

Those who take MAO-B-inhibiting drugs such as **deprenyl** do not need to take **phellodendron**. Phellodendron is not a substitute for physician-prescribed medications.

A B12 Form Helps Sustain Dopamine Levels

There are two *bioactive* forms of **vitamin B12**.[21] One of them, **adenosylcobalamin**, has been shown in lab research to prevent a decline in **dopamine** levels and protect neurons.[8]

In research partially funded by the Michael J. Fox Foundation, scientists prepared brain slices of mice that carried a mutation linked to **Parkinson's disease** and treated some with **adenosylcobalamin**.[8] Every two minutes, they stimulated the dopamine-producing neurons.

After 20 minutes, the untreated control slices were releasing approximately **20%** less ***dopamine***. In the mice, dopamine production dropped by up to **45%**.

In the **adenosylcobalamin**-treated slices, dopamine production was ***equal*** to that of animals without the mutation linked to Parkinson's disease.[8]

Stated differently, instead of dopamine production declining by **45%** after 20 minutes like in the untreated brain slices, in the treated slices, it only dropped by **20%** in response to the artificial stimulation.

This suggests that **adenosylcobalamin** may help prevent dopamine loss and related neurotoxicity.

Taken together, phellodendron extract and **adenosylcobalamin** may prevent an age-related decline in critical dopamine levels.

Summary

Levels of the neurotransmitter **dopamine** decline in the aging brain, in part due to increased activity of the enzyme **MAO-B**.

The result can be decreased motivation, diminished pleasure, and an increased risk for neurodegenerative diseases.

Scientists have found that **phellodendron** bark extract inhibits MAO-B, helping to maintain dopamine levels and prevent neurotoxicity.

A form of vitamin B12 called **adenosylcobalamin** may also prevent a decline in dopamine levels and help inhibit neurodegeneration.

These compounds may prevent declines in pleasure and motivation and protect the aging brain. ●

Phellodendron amurense

WHAT YOU NEED TO KNOW

Prevent Dopamine Decline

- Increases in the enzyme **monoamine oxidase B** (**MAO-B**) contribute to lower levels of the neurotransmitter **dopamine** after middle age. This can lead to reduced motivation and pleasure.
- Heightened MAO-B activity is also linked to altered brain function and certain **neurodegenerative** diseases.
- After screening hundreds of plants, scientists identified **phellodendron** bark extract as one of the most powerful inhibitors of MAO-B.
- A form of vitamin B12 called **adenosylcobalamin** has also been shown to help prevent a decline in dopamine levels and to inhibit neurodegeneration in preclinical studies.
- These compounds may help maintain positive mood and motivation while inhibiting neurodegeneration.

Inhibiting MAO-B May Boost Lifespan

The drug **deprenyl** is prescribed to *inhibit* MAO-B activity, most often in Parkinson's disease patients.[19] Inhibiting MAO-B leaves *more* dopamine in the brain's neural circuits.

In dogs, deprenyl treatment helped ***improve cognitive function***.[22]

Additionally, animal studies have also found that MAO-B inhibition **extends lifespan**.[23-29]

For example, rats given deprenyl had an average lifespan up to ***40% longer*** than untreated rats.[27,28]

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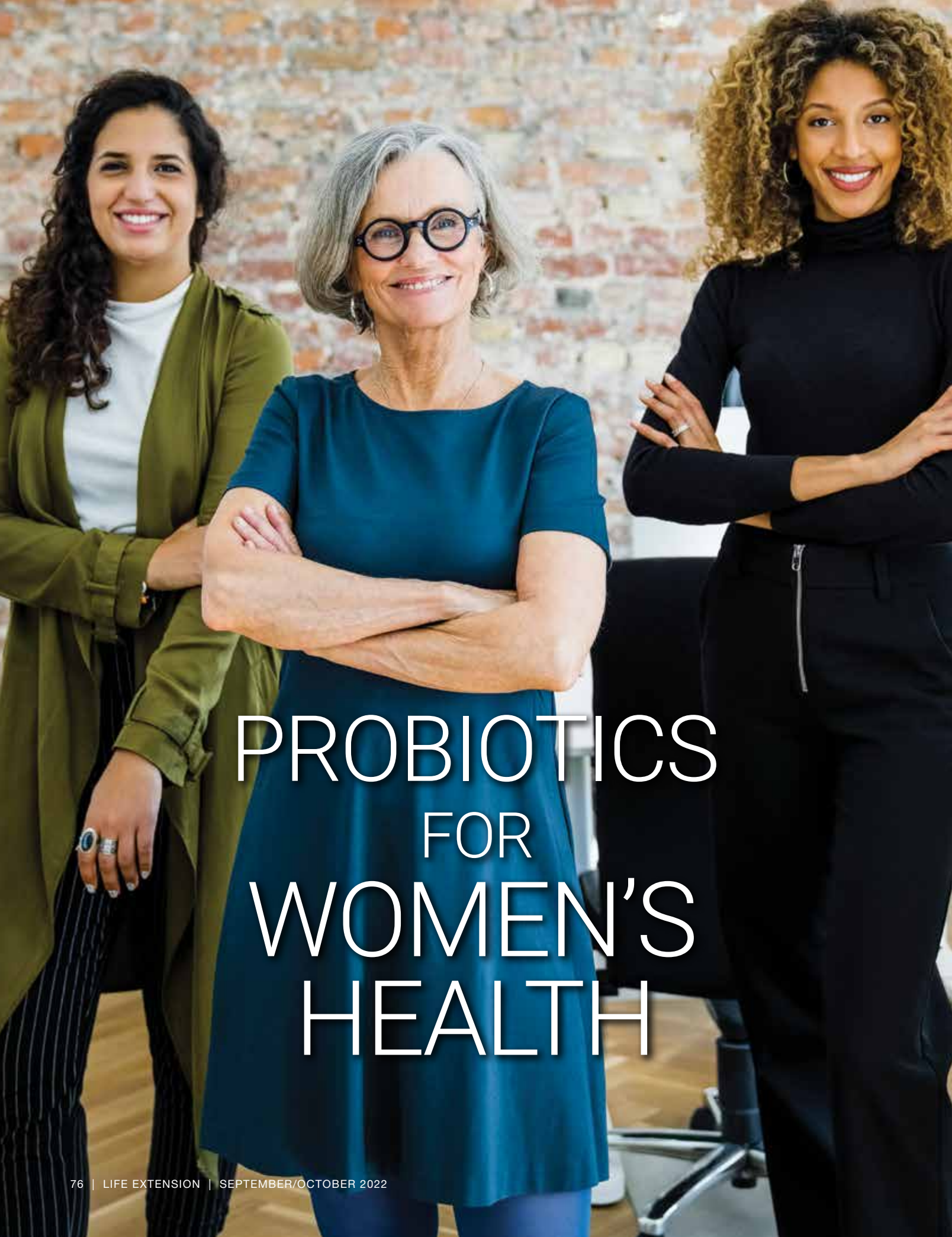
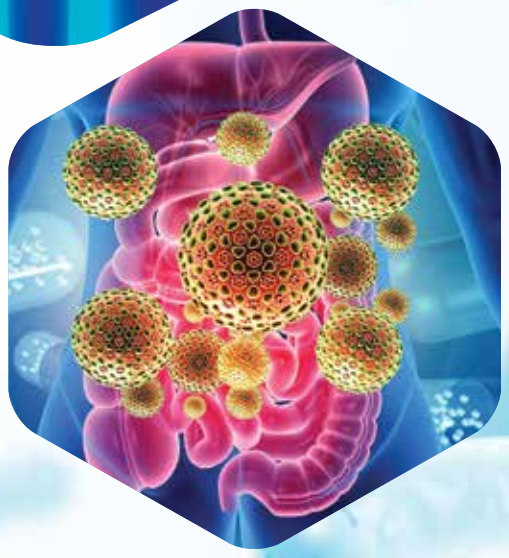


PROBIOTICS FOR WOMEN'S HEALTH



BY JUDY RUSSELL

Most people take **probiotics** to improve **immune** and **digestive** function.

But the intestines are not the only place where healthy bacterial **flora** are important.

Another site unique to **women** is the vagina. Healthy **vaginal flora** can support gynecological health.[1,2]

An *unhealthy* mix can increase risk for bacterial, yeast, and sexually transmitted infections, along with fertility problems.[1]

Researchers have identified a specific type of ***Lactobacillus*** bacteria that has been shown to improve the **vaginal microbiome** while reducing colonization by potentially harmful microorganisms.[3-5]

The Importance of Vaginal Health

The predominant bacteria species present in a healthy **vaginal microbiome** are those in the ***Lactobacillus*** genus.[2]

When numbers of *Lactobacillus* drop, it makes room for potentially harmful microorganisms to gain a foothold. **Unhealthy** yeast like ***Candida albicans*** and bacteria such as ***Gardnerella vaginalis*** can grow in numbers.[2]

This shift toward harmful microorganisms in the vagina is referred to as **vaginal dysbiosis**. If it gets severe enough, it can lead to common infections like **bacterial vaginosis** or a **yeast infection**.[2]

It is estimated that as many as **29%** of U.S. women aged 14 to 49 have a vaginal microbiome consistent with **bacterial vaginosis**,[1] which can cause burning during urination, strong "fishy" vaginal odor, vaginal itching, and abnormal vaginal discharge.[6]

Recurrent vaginal **yeast infections** (vulvovaginal candidiasis) are also increasingly common, affecting approximately **138 million** women annually worldwide.[7]

They are associated with increased risk of infections, inflammation, and negative reproductive outcomes.[1,7]

Maintain a Healthy Vaginal Microbiome

Scientists have isolated a specific strain of the probiotic bacteria ***Lactobacillus plantarum*** that is prevalent in a healthy vaginal microbiome.

This strain has been shown to interfere with the growth of pathogens like *Candida* yeast by outcompeting them for the ability to attach and thrive.[8]

A study was conducted using **vaginal epithelial cells** that already contained undesirable microorganisms such as *C. albicans, G. vaginalis, Staphylococcus aureus*, and *Escherichia coli*.

L. plantarum was shown to successfully adhere to and help protect these infected cells.[9]

L. plantarum has also been evaluated in several human trials, with impressive results:[3,5,10]

- Oral intake resulted in ***L. plantarum*** colonization of the vagina and an improvement in the vaginal microbiome.
- Lactobacillary grade scores, used to clinically evaluate vaginal microbiome healthy lactobacillus levels, improved significantly.
- In women with vaginal dysbiosis and a history of **recurrent yeast infections**, there was a significant *reduction* in redness and swelling.

Gastrointestinal and Immune Function

Probiotics have also been found to help address **gastrointestinal issues** and general **immune** function.

Gastrointestinal symptoms such as abdominal cramps, diarrhea, constipation, nausea, and vomiting are frequently reported around the time of menstruation.[11] Irritable bowel syndrome (IBS) is also characterized by symptoms of diarrhea, constipation, and abdominal pain, and is more common in women than men.[12]

Another specific ***Lactobacillus*** strain, ***L. helveticus***, may help address these issues. It supports immune health and a healthy inflammatory response. In preclinical studies, this probiotic:

- Inhibits the growth of common **pathogens** such as *Listeria, Candida,* and *E. coli*,[13-15]
- Reduces production of pro-inflammatory mediators, including those associated with chronic inflammation and risk for autoimmune disease and cancer in the gut,[16-19]

WHAT YOU NEED TO KNOW

- Increases production of **interferon** and cells that produce **IgA antibodies**, which both help the immune system fight infections,[17] and
- Reduces intestinal **inflammation** in animals while reducing markers of systemic inflammation and oxidative stress.[18]

In a study of adults,[20] a majority of subjects believed that this probiotic had a beneficial effect on their health, with a significant improvement in average scores of **gastrointestinal symptoms** including diarrhea, constipation, crampy abdominal pains, and flatulence.

In other studies, ***L. helveticus*** demonstrated an ability to improve **immune function**, both in normal subjects and in elite, fatigued athletes whose immune function can dwindle with intense training.[21-23]

These studies found that this strain boosts components of immune function that are associated with protection from **infectious diseases**, including increasing secretion of interferon and maintenance of salivary IgA antibody levels.

A Probiotic Blend Designed for Women

- Like the gut, the health of the vagina is dependent on the balance of various types of microorganisms living there. Healthy bacteria protect **vaginal health**, while pathogens increase risk for vaginal infections and other disorders.
- Oral intake of the probiotic ***L. plantarum*** has been shown to reach the vaginal environment where it helps outcompete and impair the growth of pathogenic microorganisms, improving vaginal health.
- Another probiotic, ***L. helveticus***, improves gut health, reducing common gastrointestinal symptoms, and boosts immune function and resistance to infection.
- Scientists have formulated a **probiotic blend** of these strains of ***Lactobacillus*** bacteria, which can help women improve their overall health including vaginal, gastrointestinal, and immune health.

In one study, use of the probiotic ***L. helveticus*** led to a significant reduction in the *duration* and *severity* of **upper respiratory tract infections**.[22]

Taking ***L. helveticus*** along with ***L. plantarum*** can support overall optimum women's health.

Summary

A healthy **vaginal flora** can support vaginal health. An *unhealthy* mix can increase risk for bacterial infections, yeast infections, sexually transmitted infections, and even fertility problems.

The probiotic ***Lactobacillus plantarum*** helps ensure a healthy composition of **vaginal** microbiome able to outcompete potential harmful microorganisms that can cause bacterial or yeast infections.

Another probiotic, ***Lactobacillus helveticus***, has been shown to improve common **gastrointestinal** symptoms like cramps, diarrhea, and constipation along with markers of **immune function**.

The combination of these probiotics provides a wide range of benefits for optimal women's health. •

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J Med Food. 2013 Jun;16(6):529-37.

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One promotes microbial flora for **vaginal** health.

The other supports **digestive** and **immune functions**.

Several clinical trials have shown that:

- ***L. plantarum ROSELL®A*** oral intake helps restore and maintain a microbiome to support proper **vaginal** health.[1,2]
- ***L. helveticus LAFTI® L10*** promotes **digestive** health[3] and encourages a healthy **immune** response.[4]

Just one capsule daily provides the broad and *targeted* **probiotic** support a woman needs.

Item #02505

30 vegetarian capsules

Contains soybeans.

This product is available at fine health food stores everywhere.

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L. plantarum ROSELL®A is L. plantarum P17630 (Proge P17630®), licensed from PROGE FARM®, Italy.

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Robin Downes: "Yoga Saved My Father's Life"

BY LAURIE MATHENA

Robin Downes is an Emmy award-winning journalist who worked on high-profile television shows such as the ABC News show *2020* and *The Cosby Show*, and as the production coordinator for Spike Lee films.

But after experiencing a personal tragedy, Downes left behind her prestigious career in the entertainment industry to pursue something she believed had much more meaning: yoga.

Over the next 25 years, Downes sold millions of yoga instructional videos and became the "yoga instructor to the stars," teaching private yoga sessions to celebrities and sports stars like Brandy, Vanessa Williams, and NBA star John Sally.

Now, her most important client yet is someone she affectionately calls "Sergeant Major"—her father.

How Yoga "Resurrected" Her Father

Downes admittedly had a fairytale career in the entertainment industry. So, at age 41, when she was faced with marriage problems and her mother's breast cancer diagnosis, she needed tools to help her cope with stress.

That's when she turned to yoga.

"In 1995, I walked into my first yoga class, and I knew that this was what I needed," said Downes. "When stress and reality hit, it was yoga that saved me."

Now, at age 61, she is using those same tools to help save her elderly father.

Downes' father was malnourished, depressed, and drinking too much—plus dealing with health problems like congestive heart failure, high blood pressure, and dementia.

He needed an intervention.

"I was able to draw on the wonderful experience I had gathered from treating my VIP yoga clients," said Downes. "I thought maybe I could use yoga to help him out in his final days of life, but that was four years ago. Instead, yoga was able to resurrect my dad."

Downes started with simple, seated poses designed to help her father breathe better.

"As we get older, we start to walk hunched over. My father had begun to walk with a cane. All of this diminishes your capacity to breathe," said Downes.

It also impacts balance and flexibility.

To help combat this, Downes likes to do a pose called Tadasana Mountain Pose with her father. It encourages participants to ground their feet, lift their chest, push their shoulders back, and sit tall—and then take deep, cleansing breaths.

Poses like these—all of which can be done seated in a chair—can help older individuals gain flexibility, strength, and balance, while also providing what Downes calls a "sense of ease."

Studies have shown the beneficial impact this can have on dementia patients.

In one study, regular yoga sessions were found to improve respiratory function, improve balance control in Alzheimer's patients, and help calm agitated patients.

And in an exciting study of people with mild cognitive impairment, 12 weeks of yoga led to short- and long-term improvements in executive functioning and produced beneficial effects on depressed mood and resilience.

Yoga can also reduce stress for both the patient and the caregiver, which is why Downes participates in a program called Caregivers Embracing Elder Care.

Through this program, Downes guides caregivers through meditation and yoga moves, and a geriatric care manager provides practical tips for caregivers of elderly patients.

"Yoga provides a greater sense of ease, greater mobility, and ultimately greater longevity," said Downes.

Yoga Flava®

Downes knew her father might not be receptive to traditional yoga. Fortunately, her yoga style is anything but traditional.

Her yoga company, called Yoga Flava®, is unique because it combines ancient yoga practice with urban culture and modern music.

"It uses ancient moves to contemporary grooves," said Downes.

In fact, when Downes pioneered Yoga Flava® in 1995, she produced an instructional video and became the first African American female to have an internationally distributed yoga video.

Working with her father showed her that this unique take on yoga transcended generations as well as cultures.

"Yoga Flava® has achieved such remarkable success because it uses music that's familiar," said Downes. "For me, that means Erykah Badu or Mary J. Blige. For my father, that means doing yoga to salsa music or Nat King Cole."

Choosing Your Best Life

Downes knows that in order to care for her father, she needs to care for herself as well. That's why, in addition to her yoga practice, she has started boxing.

"It's another way of relieving stress, and it's a great cross-training program for me at this point," said Downes. "I know I need to be doing everything I can to help with caregiving. In addition to managing my stress level, I need to maintain my strength."

She also eats lots of fresh fruit and vegetables and takes numerous supplements, including vitamins A, C, and D, biotin, iodine, zinc, selenium, collagen, turmeric, and fish oil.

She believes it's all part of a holistic lifestyle that contributes to longevity, both for her and for her father.

"Every day we can pick and choose how we want to live our best life," said Downes. "For me, it's about perspective. I get to enjoy my father, and I get to create a lifestyle that can bring both of us joy." •

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What Is Milk Thistle?

BY LAURIE MATHENA

Deaths from **liver cirrhosis** jumped **65%** in the U.S. between **1999** and **2016**.[3,4]

Key factors contributing to **liver disease** are obesity, diet, and alcohol consumption.[1,2]

Milk thistle extract has demonstrated protective effects against an array of liver disorders.[5-8]

Nonalcoholic Fatty Liver Disease

In the past, **viral hepatitis** and excess **alcohol** ingestion were considered the greatest threats to the liver.[2]

Today, the surge in diabetes and obesity has resulted in an epidemic of ***nonalcoholic* fatty liver disease (NAFLD)**,[9] which is characterized by the accumulation of **fatty compounds** in the liver in the absence of chronic alcohol use.

It can progress over time to cause liver ***fibrosis*** (tissue scarring) that can lead to liver cancer, cirrhosis, and/or liver failure.[10-13]

Extracts of the herb **milk thistle**, containing the compound **silymarin**, have long been used to protect liver function in patients with liver disease.

Several clinical trials found that milk thistle, alone or in combination with vitamin E, and phosphatidylcholine reduces liver fat, fibrosis, and enzyme levels in patients with NAFLD.[14-17]

A meta-analysis of eight randomized, controlled trials found that **milk thistle** may help improve **NAFLD**.[17]

Milk thistle has been shown to improve **blood markers** of **liver damage** and may also help reduce fasting **glucose** and **LDL cholesterol** elevations that often accompany NAFLD.[17,18]

Measuring liver *enzyme* blood levels is an important tool for identifying liver injury and helping track response to treatment.

Liver function tests are included in many **Life Extension®** blood panels.

Liver Toxins

The liver is susceptible to toxins known as **hepatotoxins**, which include the commonly used pain medication acetaminophen, alcohol, and others.

In rats, milk thistle extract helped prevent liver damage when given before or during the exposure to a liver toxin.[19]

In one study, a group of patients with alcohol-induced liver disease who were treated with milk thistle extract showed improvements in liver enzymes *and* liver pathology.[8]

Cirrhosis

Cirrhosis is the end stage of chronic liver injury in both alcoholic and nonalcoholic liver disease. It is generally considered *irreversible*, but scientists have observed promising improvements with milk thistle extract in clinical trials.

In one study, giving **420 mg** of milk thistle extract to patients with cirrhosis was associated with an overall higher **four-year survival** rate.[5]

For optimal absorption, a **standardized extract** of **milk thistle** is used by readers of this publication that has been made more bioavailable via a **phospholipid delivery system**.[20]

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Probiotics Target Liver Health

One in four adults in the U.S. has **nonalcoholic fatty liver disease (NAFLD)**.[21-24]

Despite over four decades of research, there are still *no medications* approved by the U.S. Food and Drug Administration (FDA) to treat fatty liver disease.

However, research has found a link between the gut **microbiota** and liver health. This led researchers to create a blend of probiotics and a prebiotic to target liver health.

In two clinical trials of people with **NAFLD**, a carefully designed blend of seven **probiotics** and a **prebiotic** decreased a marker of **liver damage** and reduced levels of **fibrosis** (scarring) from **moderate** or almost **severe** to *normal*.[25,26]

These findings suggest that the **probiotic-prebiotic** blend stopped the progression of liver disease and ***reversed liver damage*** that was already present.

Other Nutrients That Promote Liver Health

Some nutrients have also shown promise as a way to help control liver disease.

In human trials, **vitamin E tocotrienols** improved markers of liver health seen on an ultrasound, while reducing liver enzymes, C-reactive protein, and signs of oxidative stress.[27-29]

Phosphatidylcholine is an essential phospholipid which is a vital part of cellular membranes. Phospholipids have been used safely for years to protect liver function in patients with various liver diseases.[30] In a number of human trials, phosphatidylcholine intake alone or with other nutrients improved NAFLD, reducing liver enzyme levels and improving ultrasound findings.[30-32] A more **bioavailable** form of phosphatidylcholine known as **polyenylphosphatidylcholine** or **PCC** is the preferred choice for liver support as it specifically targets hepatocytes.

N-acetyl-L-cysteine (NAC), a versatile sulfur-rich compound prevents liver damage following acetaminophen poisoning.[33] NAC rapidly restores depleted **glutathione** levels, sparing liver cells from the effects of oxidative damage.[34-36]

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